Riley-Purgatory-Bluff Creek Watershed District

Board of Managers Regular Meeting

Wednesday, **Aug 4, 2021 5:00pmWork Session Scheduled 7:00PM Regular Meeting**

Virtual Meeting via ZOOM

https://us02web.zoom.us/j/86253022544

Agenda

1. **5:00pm Work Session on Preliminary 2022 Budget** **Information**

2. **7:00pm Call to Order Meeting of the Board of Managers** **Action**

3. **Approval of the agenda** **Action**

4. **Matters of public interest** **Information**

   Welcome to the Board Meeting. Anyone may address the Board on any matter of interest in the watershed. Speakers will be acknowledged by the President; please come to the podium, state your name and address for the record. Please limit your comments to no more than three minutes. Additional comments may be submitted in writing. Generally, the Board of Managers will not take official action on items discussed at this time but may refer the matter to staff for a future report or direct that the matter be scheduled on a future agenda.

5. **Reading and approval of minutes** **Action**
   a. Board of Managers Regular Meeting, July 7, 2021

6. **Citizen Advisory Committee** **Action**
   a. Report
   b. Confirm August 16 Board CAC representative

7. **Consent Agenda**

   (The consent agenda is considered as one item of business. It consists of routine administrative items or items where discussion isn't essential to understanding. Any manager may remove an item from the consent agenda for action.)
   a. Accept July Staff Report
   b. Accept July Engineer's Report
   c. Accept July Construction Inspection Report
   d. Approve 2021-030 Johnson Ridge as presented in the proposed board action section of the permit review report
   e. Approve Permit 2021-055 Prop Inc Parking Lot Reconstruction as presented in the proposed board action section of the permit review report
   f. Approve Task Order 028C for Rice Marsh Lake Water Quality Project Construction Administration services

g. Ratification of SRF Contract for St Hubert
h. Authorize Administrator to register and pay for managers, CAC members, and staff for the MN Water Resources Conference, Oct. 19-20, 2021.

8. Action Items **Action**

a. Pulled consent items
b. Accept June Treasurer's Report
c. Approve paying of the bills
d. Permit 2021-012 Noble Hill
    1. Accept Slope Stability Analysis for Noble Hill.
    2. Consider approval of permit 2021-012 Noble Hill as presented in the proposed board action section of the permit review report.
e. Middle Riley Creek Stabilization Project
    1. Consider award of Middle Riley Creek Stabilization Project as presented in the recommended board action section of the Engineer's memorandum.
    2. Consider approval of cooperative agreement with Bearpath Golf and Country Club and authorize President Ward to sign.
    3. Consider approval of license with Bearpath Homeowners' Association and authorize President to sign.
    4. Approve Task Order 029B for Middle Riley Creek Stabilization Project Construction Administration services
    5. Permit 2021-017 Middle Riley Creek Stabilization Project
        i. Consider approval of request for variance from Rule D, Subsection 3.2.b minimum and average buffer widths for permit application 2021-017 Middle Riley Creek Stabilization Project
        ii. Consider approval of request for variance from Rule D, Subsection 3.4 buffer monumentation requirements for permit application 2021-017 Middle Riley Creek Stabilization Project.
        iii. Consider approval of permit 2021-017 Middle Riley Creek Stabilization Project as presented in the proposed board action section of the permit review report.
f. Consider award of Pioneer Wetland Restoration Project as presented in the recommended board action section of the Engineer's memorandum.
g. Consider award of Rice Marsh Lake Water Quality Project as presented in the recommended board action section of the Engineer's memorandum.
h. Consider approval of award for Information Technology Consulting services and authorize Smith Partners to draft contract and Interim Administrator Jeffery to sign the contract.
i. Consider approval of award for Banking services.
j. Consider approval of award for Accounting services and authorize Smith Partners to draft contract and Interim Administrator Jeffery to sign the contract.
k. Consider approval of award for Audit services and authorize Smith Partners to draft contract and Interim Administrator Jeffery to sign the contract.
l. Consider approval of award for Legal services and authorize Smith Partners to draft contract and Interim Administrator Jeffery to sign the contract.

9. Discussion Items **Information**

a. Attorney Report
b. Administrator Report
c. Manager Report

10. Upcoming Board Topics

a. Preliminary 2022 Budget Discussion

11. Upcoming Events **Information**

MEETING MINUTES

Riley-Purgatory-Bluff Creek Watershed District

July 7, 2021, RPBCWD Board of Managers Workshop and Monthly Meeting

PRESENT:

Managers:	Jill Crafton, Treasurer
	Larry Koch
	Dorothy Pedersen, Vice President
	Dick Ward, President
	David Ziegler, Secretary
Staff:	Amy Bakkum, Administrative Assistant
	Zach Dickhausen, Water Resources Technician II
	Liz Forbes, Grant Coordinator*
	Elizabeth Henley, Attorney, Smith Partners
	Terry Jeffery, Interim District Administrator and Watershed Planning Manager
	Eleanor Mahon, Education and Outreach Coordinator*
	Josh Maxwell, Water Resources Coordinator
	Louis Smith, Attorney, Smith Partners
	Scott Sobiech, Engineer, Barr Engineering Company

Other attendees:	Kevin Cashman, Bearpath	Rebecca Prochaska*
	Chesney Enquist*	Jim Senske, Bearpath*
	Robert Erickson*	Rod Rue*
	Wendy Lotter*	Marilyn Torkelson
	Greg Hawks*	

**Indicates attendance only at the Regular meeting*

Note: this workshop and meeting were held remotely via meeting platform Zoom in abidance with the District's procedures in response to state COVID-19 actions, mandates, and guidance.

1. Workshop: District Preliminary 2022 Budget

President Ward said this will be a high-level discussion of the District's preliminary 2022 budget to guide staff for further refinement. Interim Administrator Jeffery presented an agenda for the workshop, including discussing the 2021 levy, projects and programs coming off the books, 2022 projects from the implementation table, and opportunity projects and other initiatives.

Interim Administrator Jeffery opened the discussion noting the District set the 2021 levy at $3,750,000. He asked if the Board wants to maintain the same levy amount for 2022, decrease the

levy, or increase it. Manager Koch commented he would like to proceed by examining what the District wants to do, what it costs, and then consider the amount the District wants to levy. There was discussion about the status of property tax collection and tax rates, and President Ward said he will contact Carver and Hennepin counties to get an update.

Manager Ziegler said he thinks that because of COVID and resulting decisions to push some projects back, the District is behind where it wants to be in terms of accomplishing the goals set in the 10-Year Plan. Treasurer Crafton reported on levy funds the District has received to-date in 2021. Interim Administrator Jeffery said he is hearing the Board's direction to review the District's 10-Year Plan to determine the projected cost of the what the District plans to accomplish, and from there discuss the 2022 levy.

Interim Administrator Jeffery informed the Board of District projects that no longer need 2022 levy funds, including: West Branch of Bluff Creek, Stormwater Pond Research, Upper Rile Creek Restoration, Lower Riley Creek Restoration, Lake Susan Spent Lime, Riley and RML Alum Treatment – being pushed back, Scenic Heights Forest, Silver Lake, and Pioneer Wetland Restoration.

Manager Koch commented about the need to update the implementation table in the District's 10-Year Plan. Interim Administrator Jeffery said it could be done and would likely be a minor plan amendment.

Administrator Jeffery shared a PowerPoint slide displaying the District's implementation table, Table 9-1 in the 10-Year Plan. He highlighted the projects that would require 2022 levy funds. There was discussion about how the project costs were derived and what they include. Administrator Jeffery said staff will develop a proposed 2022 budget to distribute to managers prior to the Board's August monthly meeting.

Administrator Jeffery brought up opportunity projects and the operations and maintenance budget.

The Board and staff agreed its August workshop would be another budget workshop.

There was discussion about the University of Minnesota study. Interim Administrator Jeffery recommended he coordinate having Ray Newman of the UMN make a presentation at the Board's August meeting, giving the Board an opportunity to ask questions.

Manager Koch requested the Board have a future discussion about its rules regarding the District's regulation of its rules. He noted projects that his neighbors on either side of him are doing, regardless of the District's rules.

The workshop concluded at 5:40 p.m.

2. Call to Order of the Regular Meeting of the RPBCWD Board of Managers

President Ward called to order the Wednesday, July 7, 2021, Board of Managers Regular Meeting at 7:00 p.m. The meeting was held remotely via meeting platform Zoom.

3. Approval of Agenda

Manager Ziegler moved to approve the agenda. Manager Pedersen seconded the motion. Manager Koch requested removing Consent Agenda items 7b, d, ,e, f, g, h, and i, and he requested adding two discussion items: permitting and rules and Carver County ditch work.

Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

4. Matters of General Public Interest

President Ward explained the procedures for speaking during the matters of general public interest and stated comments can also be submitted in writing to District Interim Administrator Jeffery.

Ms. Chesney Enquist of 549 41st Avenue South in Minneapolis, Dakota Territory. She thanked the Board for its action last month to extend its permit review period for the proposed development adjacent to the Frederick Miller Spring and Riley Creek. She reminded the Board of comments the public provided last month to the Board regarding concerns about slope stability and about legal jurisdiction. Ms. Enquist reported she understands a slope stability analysis is underway, conducted by an engineer hired by the developer. She asserted her belief that it is necessary to conduct an independent slope stability analysis, and Spring Valley Friends and Friends of Fredrick Miller Spring have reached the first threshold of fundraising to fund the District Court appeal process for Environmental Assessment Worksheet. She said her group is now prepared to initiate fundraising to support the watershed in this vital secondary approach to analyze the slope and other necessary measures for determining impacts to water quality. Ms. Chesney read aloud from the Eden Prairie City Council minutes. She wondered about the legal ramifications of the City Council's vote and holding the watershed accountable for questions

around the impacts of water quality for this project. Ms. Chesney reached her three-minute time limit.

5. Reading and Approval of Meeting Minutes

a. June 2, 2021, RPBCWD Board of Managers Regular Meeting

Manager Ziegler said on line 257 the word "reaches" should replace "values," and on line 357 to replace the word "in" with "and." Manager Pedersen noted on line 144 the word "that's" needs a small t and the period removed. She said on 187 the word contaminate should be comtaminated, and on line 230 the word "an" should be "and". Manager Crafton noted on line 32 the words "he said" should be deleted.

Manager Ziegler moved to approve the minutes of the June 2, 2021, Board of Managers Regular Meeting and meeting continuance. Manager Pedersen seconded the motion.

Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

b. June 11, 2021, RPBCWD Board of Managers Special Meeting

President Ward read aloud the summary of the Board's Special Meeting held June 11th and again on June 16th concerning a closed session performance evaluation of the Interim District Administrator. President Ward said the Board specifically reviewed communication between the Interim District Administrator and the Carver County Administrator, and the Board found the communication to be unprofessional, innapproproiate, and harmful to the reputation of the District. President Ward said the Board acknowledged Mr. Jeffery's apology to the Carver County Administrator, directed that a warning be placed in his personnel file, and trusts that no similar conduct will occur in the future.

Manager Ziegler moved to approve the minutes of the June 11th Board of Managers Special Meeting and meeting continuance as presented. Manager Pedersen seconded the motion. Manager Koch made the friendly amendment to move that the Board accept the summary of the June 11th Board of Managers Special Meeting and meeting continuance as presented. Managers Ziegler and Pedersen accepted the friendly amendment.

Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

6. CAC

Ms. Marilyn Torkelson reported the CAC approved a motion to conduct a field trip on July 23 starting at the Eden Prairie Fire Station 2 in place of the CAC's July 19th meeting. President Ward commented he will attend the CAC's August regular meeting. Ms. Torkelson reported on the CAC's key items of discussion and the presentation given by Professor Emeritus Alexander on springs and seeps.

7. Consent Agenda

Manager Ziegler moved to approve the Consent Agenda as amended in item 2. Manager Pedersen seconded the motion.. The Consent Agenda included the following items: 7a - Accept June Staff Report and 7c – Accept June Construction Report.

Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

8. Action Items

a. Items Pulled from Consent Agenda

i. Accept June Engineer's Report

Manager Koch asked questions to staff about the costs of developing the wetland rapid floristic quality assessment and why the District would purse developing it if other watersheds already have developed a similar assessment program. Manager Jeffery explained the reason why the District is using the floristic quality indices and described the additional assessments that the District will be using for its wetland assessment program. Manager Koch moved to accept the June Engineer's report. Manager Crafton seconded the motion.

Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

ii. Accept 2020 Audit Report and Authorize the Interim Administrator to Distribute the Report

Manager Koch reported on changes made to the audit report and commented on changes not yet made. He suggested holding a workshop with the auditor to discuss District policies. Manager Koch moved to accept the 2020 auditor report with two conditions: the auditor fix the typo and add the statement that there are no personal property taxes collected in Minnesota. Manager Crafton seconded the motion. Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye

Pedersen	Aye
Ward	Aye
Ziegler	Aye

iii. Approve Permit #2020-060 Christian Brothers Automotive as Presented in the Proposed Board Action Section of the Permit Review Report

Engineer Sobiech described the proposed project. Manager Koch asked about what will be included in the permit regarding warranties, testing, monitoring, repair, and maintenance of equipment being proposed. Engineer Sobiech reminded Manager Koch that the applicant would be required to record on the property a maintenance declaration, which outlines the maintenance responsibilities for which the property owner is responsible into perpetuity. He talked about assessing the validity of the modeling regarding how the system as a whole will behave. There was discussion about proprietary devices and about the District's authority and actions it could take if equipment fails to meet the requirements specified by the District.

Manager Koch moved to approve Permit 2020-060 Christian Brothers Automotive. Manager Ziegler seconded the motion. Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

iv. Approve Permit 2021-015 Groveland School Road Reconstruction as Presented in the Proposed Board Action Section of the Permit Review Report

Engineer Sobiech described the proposed project by the City of Minnetonka. Manager Koch clarified that the City of Minnetonka will be maintaining the project. Engineer Sobiech confirmed the City of Minnetonka will be responsible for maintaining the project.

Manager Koch moved to approve Permit 2021-015 Groveland School Road Reconstruction. Manager Ziegler seconded the motion. Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

v. Approve Permit 2021-038 Burger King EP as Presented in the Proposed Board Action Section of the Permit Review Report

Engineer Sobiech summarized the proposed project located in Eden Prairie and went into detail about the low floor criteria. Manager Koch asked questions about the flow of water on and through the property. Engineer Sobiech responded. Manager Koch moved to approve Permit 2021-038 Burger King Eden Prairie as presented. Manager Ziegler seconded the motion. Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

vi. Approve 2021-042 Pioneer Wetland Restoration as Presented in the Proposed Board Action Section of the Permit Review Report.

Engineer Sobiech described this proposed District-initiated project. He said he recommends a condition of the permit is that the maintenance agreement must be put on file at the District so there is a maintenance agreement for the long-

term maintenance of the wetland. Manager Koch asked for more details about the project task to remove sediment and asked if there are alternatives to removing the sediment, which is expensive work. Engineer Sobiech and Interim Administrator Jeffery provided information about the sediment removal. Manager Koch raised his concerns about the cost of removing the sediment.

Manager Ziegler moved to approve Permit 2021-042 Pioneer Wetland Restoration as presented. Manager Crafton seconded the motion. Upon a roll call vote, the motion carried 4-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Abstain
Pedersen	Aye
Ward	Aye
Ziegler	Aye

vii. **Approve Grant Agreement in the Amount of $10,000 with the Preserve Association for the Conversion of Turf Grass to Prairie.**

Interim Administrator Jeffery summarized the project. Manager Koch asked how this project relates to the District's water, and Interim Administrator Jeffery explained the water quality benefit comes from the conversion of concrete into prairie. Manager Koch commented this project should include standards or requirements that would facilitate soil health improvement. There was discussion about the District's grant program policy regarding using up to 10% of the grant for professional maintenance. Manager Koch raised the topic of the invoice date for contractors and making sure the District pays invoices within 60 days of receipt. Manager Koch moved to approve the grant agreement with 60 days to pay, reporting each year for three years, inspection rights for 10 years, and the District works with the applicant to incorporate soil standards as possible. Manager Ziegler seconded the motion. Manager Ziegler moved to amend the motion to remove the stipulations. Manager Pedersen seconded the motion to amend.

Upon a roll call vote, the motion to amend carried 4-1 as follows:

Manager	*Action*
Crafton	Aye

Koch	No
Pedersen	Aye
Ward	Aye
Ziegler	Aye

Upon a roll call vote, the amended motion carried 4-1 as follows:

Manager	*Action*
Crafton	Aye
Koch	No
Pedersen	Aye
Ward	Aye
Ziegler	Aye

viii. Approve Agreement with HDR for Website Redevelopment and Monthly Maintenance in the Amount of $9,995 and Authorize Interim Administrator Jeffery to Sign

Interim Administrator Jeffery summarized the agreement. He said staff recommends using the District's agreement, and he asked the Board to approve the agreement and authorize him to sign Manager Koch moved to authorize Legal Counsel and Interim Administrator Jeffery to negotiate an agreement, using the District's standard templates, in the amount of $9,995 for the redevelopment of the District website and provision of monthly website maintenance. Manager Crafton seconded the motion. Manager Pedersen noted that the motion should authorize Interim Administrator Jeffery to sign the agreement. Managers Koch and Crafton accepted the friendly amendment. Manager Koch asked Interim Administrator Jeffery and Attorney Smith to review his comments about the agreement that he provided to them and to address the comments as they draft the agreement, such as his question about website hosting and the cost.

Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

b. Accept May Treasurer's Report

Manager Crafton stated the report has been reviewed in accordance with the District's internal control procedures. She moved to accept the May Treasurer's Report. Manager Pedersen seconded the motion. Manager Koch said there is an amount invoiced for professional services and there is no money budgeted for it and the District didn't budget for the website work. He objected to tracking credit card expenditures with the credit card as the vendor because it could cause 1099 issues.

Upon a roll call vote, the motion carried 4-1 as follows:

Manager	*Action*
Crafton	Aye
Koch	No
Pedersen	Aye
Ward	Aye
Ziegler	Aye

c. Approve Paying of Bills

Manager Crafton moved to pay the bills. Manager Pedersen seconded the motion. Upon a roll call vote, the motion carried 4-1 as follows:

Manager	*Action*
Crafton	Aye

Koch	No
Pedersen	Aye
Ward	Aye
Ziegler	Aye

d. Consider Authorizing Three Years of Continued Funding of University of Minnesota's Research on the Impacts of Water Quality and Invasive Macrophyte Management on Native Macrophyte Communities

Interim Administrator Jeffery said based on discussions he has had with managers and because he is setting up a presentation by Dr. Newman on this research for next month's Board meeting, he recommends tabling this item until next month.

Manager Koch moved to table this item until the Board's August meeting. Manager Pedersen seconded the motion. Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

e. Consider Approval of Request for Variance from Rule D, Subsection 3.2.b minimum and Average Buffer Widths for Permit Application 2021-017 Middle Riley Creek Stabilization Project

Engineer Sobiech shared a PowerPoint presentation, providing background to the project, the project components, and discussing the permit review. He went through the resource and site summary, noting the proposed total impervious surface will be a slight reduction from the current total impervious surface area.

Engineer Sobiech walked through the rule compliance summary, detailing the Engineer's recommended conditions to the permit approval, and reporting the proposed project doesn't comply with the District's Rule D – Wetland and Creek Buffers. He explained the applicant requested two variances for Rule D, one for the minimum buffer width and one for the type of sign proposed on the property.

Engineer Sobiech presented the two variance requests. He explained the first variance is for the District's Rule D, subsection 3.2b – minimum buffer width. Engineer Sobiech said the applicant is requesting a variance to allow a reduction in the minimum buffer width along approximately 27% of the area. He pointed out the applicant proposes to add bioswale to 70% of the buffer width shortfall areas. Engineer Sobiech stated the second variance is for Rule D, subsection 3.4 to allow for flush to the ground markers instead of buffer signs roughly four feet off the ground. He shared a slide displaying the proposed buffer areas.

Engineer Sobiech reminded the Board that the District's Rule K outlines the District's variance criteria. He went through his analysis of the variance requests. Engineer Sobiech noted that for variance request 1, the shortfall of the buffer width is significant, ranging between 63% and 80% in five areas. He reported the variance likely will not have material adverse effects to resources or be a detriment to neighboring properties. Engineer Sobiech discussed the practical difficulty. He pointed out the applicant proposes to install a bioswale and provide more buffer than required, as in 100,000 square feet of additional buffer, including buffer along Riley Creek and other wetlands. Engineer Sobiech stated the practical difficulty occurred through the applicant restoring and enhancing portions of Riley Creek. He reported the District Engineer finds adequate technical basis for the managers to rely on to grant the requested variance because of the added resource protection of the additional buffer area and the installation of bioswale in 72% of the area that will have shortfalls from the minimum buffer width.

Manager Ziegler moved to approve the variance request from Rule D for Permit Application 2021-017. Manager Crafton seconded the motion.

Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	No

f. Consider Approval of Request for Variance from Rule D, Subsection 3.4 Buffer Monumentation Requirements

Engineer Sobiech explained the District's Rule D, Subsection 3.4 would require 79 buffer signs on the course. He said the variance request proposes to replace 62 of the free-standing signs along the course with flush to the ground monument located by GPS

markers. He said the proposal represents a significant shortfall from the requirement. Engineer Sobiech noted the difficulties that grounds crew might have with the flush to the ground markers and the reduction in public education value that would result from the reduction in free standing monuments. He said the applicant proposes to include buffer education materials and maps in the Bearpath clubhouse and on its website. He explained the practical difficulty was created by the applicant because of the project to retore and enhance portions of Riley Creek. Engineer Sobiech described the applicant's concerns with the District's required number and location of the free-standing buffer signs and compatibility with Jack Nicklaus Signature golf course aesthetics requirements.

Engineer Sobiech reported the District Engineer makes no determination as to whether there is adequate technical basis for the managers to rely on to grant the requested variance from the free-standing sign requirement.

Manager Koch moved to table this item and direct staff to work with Bearpath to develop a written commitment to be included in the Cooperative Agreement to address the buffer education materials and District name indicated on scorecards and on the map display in the clubhouse and consider above ground granite markers. Manager Pedersen seconded the motion. Manager Crafton and President Ward stated their concerns about delaying action for a month. Manager Koch moved to amend his motion to include authorizing going out for bids and directing the District's legal counsel and Interim Administrator to work on the terms and language of the variance and permit and work on the Cooperative Agreement. Manager Pedersen agreed to the friendly amendment.

Mr. Senske of Bearpath provided comments about the proposed project on Bearpath private property, project timing, and buffer signage or markers, noting he is open to the parties working out an agreement about the signage or markers.

President Ward suggested the Board table items 8g, 8h, and 8i. Manager Ziegler commented he will vote no because he believes the Board could approve the variance request with the conditions presented in the motion on the table, instead of tabling action on the variance request.

Upon a roll call vote, the motion carried 4-1 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	No

Attorney Smith stated the Board's action effectively adopted item 8j – Resolution 2021-005 Authorizing Solicitation of Bids for Middle Riley Creek Stabilization Project.

Manager Koch moved to table items 8g, 8h, and 8i and direct staff to work to prepare the Cooperative Agreement and license and bring to the Board next month. Manager Pedersen seconded the motion.

Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

g. Consider Approval of Permit 2021-017 Middle Riley Creek Stabilization Project as Presented in the Proposed Board Action Section of the Permit Review Report.

Item tabled until the Board's August meeting.

h. Consider Approval of Cooperative Agreement with Bearpath Golf and Country Club and Authorize President Ward to Sign.

Item tabled until the Board's August meeting.

i. Consider Approval of License with Bearpath Homeowners' Association and Authorize President Ward to Sign.

Item tabled until the Board's August meeting.

j. Consider Approval of Resolution 2021-005 Authorizing Solicitation of Bids for Middle Riley Creek Stabilization Project

Action taken under item 8f.

k. Consider Approval of Cooperative Agreement with City of Chanhassen for the Rice Marsh Lake Water Quality Treatment Project and Authorize President Ward to Sign.

Engineer Sobiech reported that the District's Legal Counsel drafted the Cooperative Agreement, and it has been reviewed by the City's legal counsel and approved by the Chanhassen City Council last Monday. Manager Koch commented he has a problem with the Cooperative Agreement due to some internal inconsistencies in it, and he said he has provided a list of issues to be addressed. Manager Koch moved to approve the Cooperative Agreement subject to review by the District's Legal Counsel and Interim Administrator Jeffery to address any inconsistencies. Manager Ziegler seconded the motion. Manager Pedersen made the friendly amendment to authorize President Ward to sign the Cooperative Agreement. Manager Koch and Manager Ziegler accepted the friendly amendment. Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

Attorney Smith stated that after his upcoming discussion of the Cooperative Agreement with Manager Koch, Manager Koch might see there are not inconsistencies in the Agreement, and the two of them will seek to work this through.

l. Consider Approval of Resolution 2021-006 Authorizing Solicitation of Bids for Rice Marsh Lake Water Quality Treatment Project.

Manager Zeigler moved to approve Resolution 2021-006 Authorizing Solicitation of Bids for Rice Marsh Lake Water Quality Treatment Project. Manager Pedersen seconded the motion. Manager Koch made a friendly amendment to have the bid package include that the District has the ability to pay invoices for up to 60 days after submission. Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye

Ward	Aye
Ziegler	Aye

9. Discussion Items

a. In-Person Meetings and Meeting Facilities

Manager Koch commented on the Delta variant of COVID-19 and because certain people may have medical issues as a result, he would be fine if the Board takes the position to hold off on in-person meetings for another 30 or 60 days. President Ward agreed with Manager Koch's position. President Ward asked if Hennepin County has returned to in-person meetings. Attorney Smith said it has not, and he can report at the Board's August meeting on any updates about Hennepin County's plans to return to in-person meetings.

b. Attorney Report

Attorney Smith had no items to report.

c. Administrator Report

i. Online Payment

Interim Administrator Jeffery provided a status update on the initiative to enable taking online payments for permit applications.

ii. UMN Healthy Waters Initiative Update

Interim Administrator Jeffery said the District received an update letter from the UMN on its Healthy Waters Initiative, which is its shoreline and wake boat study. He summarized the letter, noting Phase I is complete, and he will contact St. Anthony Falls to find out when the District will receive a report about Phase I.

iii. 2021-012 Noble Hill Slope Stability Study Update

Interim Administrator Jeffery reported he and Engineer Sobiech met with the City of Eden Prairie, Pulte Homes, and Braun Intertec. He said Engineer Sobiech , Geotechnical engineers at Barr Engineering, himself, and the City are satisfied with the proposed scope of work. Interim Administrator Jeffery summarized the scope of work, which will be reviewed by Barr, and after which it will be brought to the Board.

iv. Website Update

Interim Administrator Jeffery provided an update on District staff member Forbes and HDR's work on the website update.

v. Meeting with Chanhassen

Interim Administrator Jeffery reported on District staff's meeting with the City of Chanhassen to discuss several items.

d. Managers' Report

i. Partnership with Member Communities on Green Step Communities (Manager Crafton)

Manager Crafton said there are five local cities that are Green Step Communities, including the City of Chanhassen as the most recent one. She added that there is a Hennepin County Climate Plan as well. Manager Crafton commented there is a lot of overlap, and she sees a benefit in the District hosting a meeting of the Green Step Communities to see if there is common ground with things the District already has in place to help the Green Step Communities meet their goals. She said she hopes the District can do more with Green Step Communities in the future. Administrator Jeffery suggested the District host a Green Step Communities summit.

ii. Audit and Accounting Workshop and Meeting

Manager Koch requested staff add a workshop or meetings on the District calendar to discuss how the Board wants to move forward in the future regarding the audit and accounting.

iii. District Rules

Manager Koch said he thinks the District should get into its rules and permitting and particularly shoreline and add it to the list of possible changes to District rules.

iv. Carver County Ditch Work

Manager Koch had comments about the ditch work being done along Powers Boulevard by Carver County.

10. Upcoming Board Topics

President Ward noted upcoming Board topics including the District's preliminary 2022 Budget.

11. Upcoming Events

President Ward noted upcoming events, including the 5 p.m. Board Workshop on August 4th on the 2022 budget ant 7 p.m. regular Board meeting.

12. Adjournment

Manager Pedersen moved to adjourn the meeting. Manager Ziegler seconded the motion. Upon a roll call vote, the motion carried 5-0 as follows:

Manager	*Action*
Crafton	Aye
Koch	Aye
Pedersen	Aye
Ward	Aye
Ziegler	Aye

The meeting adjourned at 9:42 p.m.

Respectfully submitted,

David Ziegler, Secretary

RPBCWD July Staff Report

Administration		Staff update	Partners
Accounting, Audit, and Budget	Coordinate with Accountants for the development of financial reports. Coordinate with the Auditor. Continue to work with the Treasurer to maximize on fund investments.	Staff Bakkum and Interim Administrator Jeffery compiled the monthly treasurer's report. Interim Administrator Jeffery, District Engineer Sobiech, and Office Administrator Bakum reviewed the existing budget and the 10-year plan to begin budgeting. Auditor's Report has been submitted to the state uploaded to the District website.	
Administration		Interim Administrator Jeffery, Staff Forbes, and Staff Mahon will meet with the staff from the City of Chanhassen to walk the Lake Ann Preserve. Interim Administrator Jeffery will be meeting with Chanhassen Parks Superintendent to discuss conversion of lawn to prairie at city facilities.	
Annual Report & Communication	Compile, finalize and submit an annual report to agencies.	Staff Mahon has begun working on the 2021 Annual Communication which is the calendar we alternate with Nine Mile in putting together.	
DEI	Diversity, Equity, and Inclusion	No change.	
Human Resources	General Human Resources	No change	
Internal Policies	Work with Governance Manual and Personnel Committees to review bylaws and manuals as necessary.	Interim Administrator Jeffery will schedule a meeting with personnel committee to discuss employee performance and the employee handbook. Interim Administrator Jeffery is preparing a Covid preparedness plan based upon CDC and MDH guidance.	

Advisory	Engage with the Technical Advisory Committee on water conservation, chloride management and emerging topics. Engage with the Citizen Advisory Committee on water conservation, annual budget and emerging topics.	No July CAC meeting was held. The next meeting will be on August 16.	
Local SWMP		No change.	
MAWD		No change	
District-Wide			
Regulatory Program	Review regulatory program to maximize efficiency. Engage Technical Advisory Committee and Citizen Advisory Committee on possible rule changes. Implement a regulatory program.	The new public interface is up and running for the permit database and application. You can view that here: MS4 Permit Software (ms4front.net) Eight applications for a permit have been received since the July meeting. Three permits have been administratively approved since the June meeting. One for sidewalk construction in Eden Prairie, one for mill and overlay in Shorewood, and one for the installation of below ground pool in Bloomington. Eight permits will be expiring in 30 days. Notification will be sent to those permit holders. Construction has begun on Avienda. A corrective action was taken against Carver County. They will be applying for an after-the-fact permit. Notification was sent to two property owners on Lotus Lake letting them know they can apply for shoreline stabilization under the revised maintenance rule.	

Aquatic Invasive Species	Review AIS monitoring program. Develop and implement Rapid Response Plan as appropriate Coordinate with LGUs and keep stakeholders aware of AISmanagement activities. Manage and maintain the aeration system on Rice Marsh Lake. Riley Chain of Lakes Carp Management. Purgatory Chain of Lakes Carp Management. Review AIS inspection program. Keep abreast in technology and research in AIS. Zebra mussel adult and veliger monitoring.	Staff began conducting regular carp monitoring for 2021. The first electrofishing transects occurred on UPCRA, Staring, Ann, and Lotus. The Purgatory Creek Rec Area (PCRA)/Staring fish barrier remained closed over the winter and staff removed 511 carp below the barrier across four sampling events. Low water and lack of water ended spring removals early this year due to lack of fish movement. Water samples were collected in June on all lakes to be scanned for zebra mussel veligers. Samples were submitted and should be available in August. Carver County will be collecting eDNA samples on Lotus Lake, Lake Ann, and Lake Susan. Staff conducted comprehensive adult zebra mussel scans on Lotus and Ann this month. Staff searched sites on each lake to scan for adults. None were found.	City of Chanhassen City of Eden Prairie University of Minnesota MN DNR Carver County
Cost-Share	Schedule and coordinate site visits. Review applications and recommend implementation. Evaluate program.	More than 40 site visits with potential WSG applicants have been conducted in 2021. A total of seven WSG agreements have been executed so far in 2021. Several other grant agreements are pending signatures or approaching the signature stage. Three WSG applications are pending review. Staff Forbes created an online project completion report and an online annual project report as a convenient way for grantees to submit project information. A total of 10 grant agreements have been executed so far in 2021. An additional 3 grant agreements are near completion. Seven initial and four close-out site visits occurred in July.	Carver County Soil and Water Conservation District

Data Collection	Continue Data Collection at permanent sites. Watershed Outlet Monitoring Program. Identify monitoring sites to assess future project sites.	WOMP stations: samples were collected 3 times this month for the Metropolitan Council. Staff conducted two regular stream sampling events and two regular lake sampling events this month. A total of 4 stormwater ponds are being monitored biweekly to add to the District's and partners stormwater pond work to understand and improve function of the ponds. Staff have placed and been visiting three auto sampling stations this year: Site B5 - Bluff Creek/Hwy 5. Site LL_7 - West Lotus Lake North Tributary. Site STL_17 – Purgatory Creek/Staring Lake Parkway. These stations were placed to collect more storm event nutrient and flow data to assess/confirm upstream loading for the proposed upcoming project sites. The Purgatory Creek Recreational Area appears to have had a partial fish kill this month. This minor kill was due to stress associated with low water levels, rapidly rising temperatures, and columnaris bacteria. Field data was collected for the MNDNR Score Your Shoreline Assessment and the Erosion Intensity Worksheet for Lake Lucy, Lake Ann, Lake Susan, and Lotus Lake. Staff will complete the scoring via desktop review and GIS. Staff have been visiting lake level sensors monthly to download data and ensure they are working correctly. The Lake McCoy radar unit was reinstalled this month as water levels receded to the point that the unit was not in the water. Staff also were able to assess the accuracy/precision of the historical benchmarks used to set lake level sensors every year with the District's Trimble survey	Metropolitan Council City of Eden Prairie University of MN City of Chanhassen MNDNR City of Minnetonka

		equipment. Staff will complete a workup and work with the DNR to correct some of the discrepancies. Staff may also have some benchmarks surveyed if large discrepancies exist. The Creek Restoration Action Strategy and Bank Pin database has been updated.	
District Hydrology and Hydraulics Model	Coordinate maintenance of Hydrology and Hydraulics Model. Coordinate model update with LGUs if additional information is collected. Partner and implement with the City of Bloomington on Flood Evaluation and Water Quality Feasibility.	District Staff, Barr Engineering, and Eden Prairie will be updating the District's stormwater model for both Purgatory Creek and Riley Creek. District staff have installed and checked monthly, monitoring equipment in the Upper Purgatory Creek Recreational Area, Bren Pond, Eden Lake, and three additional ponds. Three stream units were also installed on Purgatory Creek. This data will be used for model validation.	City of Bloomington City of Minnetonka City of Eden Prairie City of Deephaven City of Shorewood.
Education and Outreach	Implement Education & Outreach Plan, review at year end. Manage partnership activities with other organizations. Coordinate Public Engagement with District projects.	Staff Bakkum continues to receive inquiries via the District website "Contact Us" form. Staff Mahon and Staff Forbes met with Stan Tekiela to discuss future steps of our partnership with the Staring Lake Outdoor Center. Staff Mahon is in contact with Rob Schlegal to develop curriculum to go along with the St Hubert Project. Staff Mahon is updating the website page for teachers to open requests for classroom visits. Staff Mahon is putting together learning topics to add to the website. Staff Mahon has begun planning out the 2021 Cycle the Creek event along Purgatory Creek. Staff Mahon, Staff Forbes, and Interim Administrator Jeffery are developing postcards to mail out to lake shore property owners. Staff Forbes is coordinating with HDR and holding internal meetings to move website	Adopt a drain: City of Eden Prairie, City of Minnetonka, City of Bloomington, City of Eden Prairie Hamline University, Nine Mile Creek Watershed District, MPCA, Fortin Consulting City of Chanhassen

		redevelopment forward. Staff Forbes has developed a website map as well as content prioritization to create a more user friendly and intuitive website. Interim Administrator Jeffery, Staff Forbes, and Staff Mahon met with City of Chanhassen staff to discuss opportunities for collaboration at the city's new preserve property on the west side of Lake Ann. Staff Forbes is updating waterbody fact sheets with 2020 data.	
Groundwater Conservation	Work with other LGUs to monitor, assess, and identify gaps. Engage with the Technical Advisory Committee to identify potential projects. Develop a water conservation program (look at Woodbury model).	The CAC has passed a motion requesting that the Board of Managers direct staff to begin inventorying springs and seeps in the District and populate the DNR Spring and Seep Inventory Database. With the hire of Staff Mahon and Staff Forbes it is anticipated that the District will begin work on this initiative again.	Metropolitan Council City of Eden Prairie City of Shorewood City of Bloomington City of Minnetonka City of Chanhassen
Lake Vegetation Management	Work with the University of Minnesota or Aquatic Plant Biologist, Cities of Chanhassen and Eden Prairie, lake associations, and residents as well as the Minnesota Department of Natural Resources on potential treatment. Implement herbicide treatment as needed. Secure DNR permits and contracts with herbicide applicators. Schedule regularly scheduled point intercept surveys. Work with Three Rivers Park District for Hyland Lake.	The City of Eden Prairie will be conducting vegetation harvesting this year on Red Rock and Mitchell. Harvesting will occur for mainly navigational channels and should not impact the plant community at this point in the year. Spring herbicide (Diquat) applications were completed. Below is a list of what was treated: • CLP - Red Rock - 13.04 acres • CLP - Mitchell - 12.8 acres • CLP/EWM - Lotus – 22.8 acres • CLP - Riley - 22.3 acres • CLP - Susan - 8.64 acres Point Intercept Vegetation Surveys are currently being conducted on: • Red Rock • Staring	City of Eden Prairie City of Chanhassen University of Minnesota MNDNR

		• Riley • Idlewild • McCoy	
Opportunity Projects	Assess potential projects as they are presented to the District.	Interim Administrator Jeffery, Staff Forbes, and Staff Mahon met with the Chanhassen City Administrator and Chanhassen Parks and Recreation Director to identify future efforts to align goals and collaborate on projects. St Hubert project will begin construction by mid-July.	Chanhassen St Hubert School
Total Maximum Daily Load	Continue working with MinnesotaPollution Control Agency on theWatershed Restoration and Protection Strategies (WRAPS). Engage the Technical Advisory Committee.	No new updates	MPCA
Repair and Maintenance Grant	Develop and formalize grant program.	Interim Administrator Jeffery and Engineer Sobiech have begun preliminary conversations regarding how this might be applied to the District's existing facilities.	
University of Minnesota	Review and monitor progress on University of Minnesota grant. Support Dr John Gulliver and Dr Ray Newman research and coordinatewith local partners. Keep the manager abreast to progress inthe research. Identify next management steps.	Along with completing an additional year of monitoring on the iron filing ponds, the U of MN has a new project funded by the Local Road Research Board to study wetlands (historic/converted to pond) and they will be conducting in situ monitoring and laboratory studies with sediment cores on a pond in Shorewood and Chanhassen.	Stormwater ponds partners: Bloomington, Chanhassen, Eden Prairie, Minnetonka, Shorewood, U of MN,

Watershed Plan	Review and identify needs for amendments.	No changes	
Wetland Conservation Act (WCA)	Administer WCA within the Cities of Shorewood and Deephaven. Represent the District on Technical Evaluation Panel throughout theDistrict.	No WCA applications have been received in Deephaven. No WCA applications have been received in Shorewood.	City of Shorewood City of Deephaven City of Chanhassen City of Eden Prairie MCWD BWSR DNR ACOE
Wetland Management	Assess known existing wetlands, identify previously unknown wetlands, identify wetlands for potential restoration/ rehabilitation and wetlands requiring additional protection.	Staff Jeffery, Staff Dickhausen and staff Nicklay continue updating the MNRAM Access database. Staff Dickhausen and Interim Administrator Jeffery are continuing to develop biological assessment metrics of wetlands with Barr Engineering staff to supplement District MNRAM assessments. Staff Dickhausen with minor help from Interim Administrator Jeffery submitted WCA and ACOE permit applications along with delineation reports for District projects and secured permissions.	City of ChanhassenCity of Eden Prairie Hennepin County Carver County MNDNR BWSR USFWS
Hennepin County Chloride Initiative	Phase 1: Develop a plan to target commercial and association-based sources or chloride pollution - businesses, malls, HOAs, property management companies and the private applicators that they hire. We will hire a consultant to facilitate focus groups with private applicators, as well as those that execute contracts with private applicators. These focus groups will help identify needs and barriers for our target audience. The	The HCCI education subgroup will continue discussion of the property manager communication plan at the Aug 31 meeting.	

	consultant will compile information into a plan for implementation.		
Lower Minnesota Chloride Cost-Share Program	The Lower Minnesota River Watersheds are coming together to offer cost-share grants.	Chloride Reduction cost-share grant remains open and is posted on District website and advertised through Fortin Consulting and the MPCA.	LMRWD, RBWMO, NMCWD
Bluff Creek One Water			
Bluff Creek Tributary Restoration	Implement and finalize restoration. Monitor Project.	Staff Maxwell assessed and photographed the site and observed good vegetation growth.	City of Chanhassen
Wetland Restoration at Pioneer and 101	Remove 3 properties from flood zone, restore a minimum 7 acres and as many as 16 acres of wetlands, connect public with resources, reduction of volume, rate, pollution loads to Bluff Creek.	The City of Chanhassen approved the District's delineation and WCA Joint Application for no-loss activities at the Pioneer Trail wetland restoration site. Interim Administrator Jeffery is working with Carver County Recorder and Counselor Welch to address 0.08' discrepancy in property description for the most westerly property.	City of Chanhassen MN DNR Carver County
Riley Creek One Water			
Lake Riley Alum	Continuing to monitor the Lake.	Coring will occur in the fall of 2021 to assess the effectiveness of the alum application. Summer monitoring will continue.	

Lake Susan Improvement Phase 2	Complete final site stabilization and spring start up. Finalize and implement E and O for the project. Monitor project.	There have been issues with the priming of the iron sand filter system which has led to gaps where the system is not online. District Administrator Jeffery and Engineer Sobiech are working with the Contractor (Peterson) to address this issue moving forward. An Enviro DIY station has been placed in the unit to better assess when the unit is running.	City of Chanhassen Clean Water Legacy Amendment
Lake Susan Spent Lime	2021 startup and monitoring.	The unit was turned on in May and an Enviro DIY unit was placed to monitor water levels. Samples are being collected at least once a week. The unit appears to be working well with removals over 50%.	City of Chanhassen
Lower Riley Creek Stabilization	Coordinate agreement and acquire easements if needed for the restoration of Lower Riley Creek reach D3 and E. Implement Project. Continue Public Engagement for project and develop signage of restoration.	Interim Administrator Jeffery, Water Resources Coordinator Maxwell, and staff from Eden Prairie will be walking the corridor in August prior to handing over maintenance responsibilities.	City of Eden Prairie Lower MN River Watershed District
Rice Marsh Lake Alum Treatment	Continuing to monitor the Lake.	No new updates.	City of Eden Prairie City of Chanhassen
Rice Marsh Lake Watershed Load Project 1	Conduct feasibility. Develop cooperative agreement with City of Chanhassen.	The Chanhassen City Council approved the Cooperative agreement with the District. Final plans are completed, and Interim Administrator Jeffery and Engineer Sobiech are requesting to go out for bids.	City of Chanhassen
Upper Riley Creek	Work with city to develop scope of work(in addition to stabilizing the creek can we mitigate climate change). Conduct feasibility. Develop cooperative agreement with the City of Chanhassen. Order project and begin design.	Interim Administrator Jeffery is working with Counselor Welch to develop the term sheet and subsequent cooperative agreement with Chanhassen.	City of Chanhassen

Middle Riley Creek	Work with Bearpath HOA/Golf Course to develop scope of work (in addition to stabilizing the creek can we mitigate climate change and provide for an improved recreational experience). Draft feasibility report. Develop cooperative agreement with Bearpath.	Engineer Sobiech, Counselor Smith, and Interim Administrator Jeffery have been working with legal counsel and maintenance staff for Bearpath Golf Course to finalize cooperative agreement and property license. Interim Administrator Jeffery is meeting with the owner of Bearpath Golf Course and Country Club to identify educational opportunities. The City of Eden Prairie noticed the application for the project's site wetland delineation.	Bearpath Neighborhood Association. City of Eden Prairie Dept. of Natural Resources
St Hubert Water Quality Project		The rain garden and tree trench have been installed on the site. Prairie restoration is beginning. Interim Administrator Jeffery and Staff Mahon are working with the school to develop curriculum. Engineer Sobiech and Interim Administrator Jeffery are working to develop soil sampling protocol based upon Cornell University guidance.	CCSWCD Metropolitan Council City of Chanhassen
Purgatory Creek One Water			
PCRA Berm		Wenck/Stantec is to prepare a quote for construction administration so Interim Administrator Jeffery and Eden Prairie staff can meet to discuss cost sharing.	City of Eden Prairie MN DNR
Duck Lake Water Quality Project	Work with the City to implementneighborhood BMP. Identify neighborhood BMP to helpimprove water resources to DuckLake. Implement neighborhood BMPs.	No Change	City of Eden Prairie

Lotus Lake – Internal Load Control	Continuing monitoring the lake. Plan second alum dose application.	In 2021, staff added an additional phosphorus monitoring location on Lotus Lake in the east bay. This will allow staff to better assess the alum treatment effectiveness across Lotus Lake and better apply alum in the second application.	
Scenic Heights	Continue implementing restorationeffort. Work with the City of Minnetonka and Minnetonka School District on Public Engagement for project as well as signage.	No change	Minnetonka Public School District City of Minnetonka Hennepin County
Silver Lake Restoration	Order project. Design Project. Work with the City of Chanhassen forDesign, cooperative agreement and Implementation.	Molnau Trucking LLC will begin work in August.	City of Chanhassen
Professional Development	• Interim Administrator Jeffery has begun annual reviews with the staff and will be looking to identify educational and other professional development opportunities.		

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BARR

Memorandum

To: Riley-Purgatory-Bluff Creek Watershed District Board of Managers and District Administrator
From: Barr Engineering Co.
Subject: Engineer's Report Summarizing July 2021 Activities for August 4, 2021, Board Meeting
Date: July 29, 2021

The purpose of this memorandum is to provide the Riley-Purgatory-Bluff Creek Watershed District (RPBCWD) Board of Managers and the District Administrator with a summary of the activities performed by Barr Engineering Co., serving in the role of District Engineer, during July 2021.

General Services

a. Participated in a July 13th meeting with Interim Administrator Jeffery and staff Bakkum to discuss 2022 activities and continue developing the 2022 budget and levy estimates, including back-up breakout summaries.

b. Populated 2022 budget spreadsheet with back-up breakout summaries for most line items in the 2022 draft budget, including descriptions, costs, and timelines.

c. Continued working with Counsel Smith and Interim Administrator Jeffery to revise the draft cooperative agreement with Bearpath Golf and Country Club and HOA access license for the Middle Riley Creek project, including suggested text additions/revisions and virtual meetings on July 9th & 20th.

d. Participated in a July 16th pre-bid meeting at Bearpath Golf and Country Club to discuss the project with potential bidders.

e. Met virtually with Bearpath Golf and Country Club on July 19th to discuss potential education materials and buffer signage for the Middle Riley Creek project.

f. Participated in a July 26th pre-bid meeting at Pioneer Wetland site to discuss the project with potential bidders.

g. Participated in a July 28th meeting with President Ward, interim Administrator Jeffery, and Counsel Smith to discuss upcoming August 4th Agenda.

h. Participated July 7th workshop on the draft 2022 budget.

i. Participated in the July 7th regular Board of Managers meeting.

j. Prepared Engineer's Report for engineering services performed during July 2021.

k. Miscellaneous discussions and coordination with Interim Administrator Jeffery about the 2022 budget process, upcoming budget workshop, regulatory program, and upcoming Board meeting agenda.

Permitting Program

a. *Permit 2020-029: CorTrust Bank* – This project proposes reconstruction of the CorTrust bank building parking lot constructed in the 1990s located in Minnetonka, MN. The project will restore the parking lot to the intended grade and improve storm sewer drainage to an existing storm water pond on the east side of the site. The proposed project triggers RPBCWD's floodplain Management and Drainage Alterations, erosion prevention and sediment control, wetland and creek buffers, and storm water management rules. Participated in a July 14th virtual meeting with the applicant to discuss potential avenues forward given the Board's denial of floodplain variance, approval of buffer variance, and conditional approval of the permit in July 2020. Discussed the potential for the applicant to discuss the project with the Board at a work session.

b. *Permit 2020-060: Christian Brothers Automotive*– This project proposed construction of an auto care center and associated parking areas on Crossroads Boulevard in Chanhassen, MN. A subsurface stormwater management facility, iron enhanced sand filter, hydrodynamic separator, Bayfilter filtration device, and rainwater harvest and reuse are proposed to provide volume control, water quality, and rate control. The project triggers the erosion prevention and sediment control rule and the stormwater management rule. Informed the applicant of the Board's conditional approval and worked with the applicant on the draft maintenance declaration.

c. *Permit 2021-011: Flying Cloud Commons*– RPBCWD permit 2021-066 (Castle Ridge Redevelopment) authorized the demolition of an existing apartment building and assisted living facility to construct a new senior living facility (Phase 1) and five-story apartment (Phase 2) on the 19.5-acre site located near the intersection of Flying Cloud Drive and Prairie Center Drive. Flying Cloud Commons is Phase 3 of the 19.5-acre Castle Ridge Redevelopment project, thus the proposed work under permit application 2021-011 will be analyzed as part of a common scheme of development with for purposes of determining stormwater-management requirements. A combination of proposed infiltration basin and two underground infiltration systems to provide storm water quantity, volume, and quality control. The proposed project triggers RPBCWD's erosion prevention and sediment control, wetland and creek buffers, and stormwater management rules. Reviewed the revised submittal materials and provided comments on July 15th. Participated in a conference call on July 22nd to discuss the implications of the common scheme of develop and slow infiltration challenges discovered during Phase 1 construction activities.

d. *Permit 2021-012: Noble Hill*– The applicant is planning a low-density residential development consisting of 50 single-family homes on a 32-acre site in Eden Prairie, Minnesota. The site contains large varying slopes including steep slopes within a high-risk erosion area as delineated by the District and most of the site discharges to a wetland which abuts Riley Creek on the western border of the site. The proposed development of 50 single-family homes will include construction of associated streets, underground utilities, and stormwater features. Three infiltration basins and one sediment basin are proposed to provide stormwater quantity, volume, and quality control. The proposed project triggers RPBCWD's erosion prevention and sediment control, wetland and creek buffers, and stormwater management rules. Responded to questions from developer's consultants (Braun Intertec and Alliant) about stability scope of work and interior flows/erosion mitigation measures.

Received developer's stability analysis on July 22nd, reviewed materials, meet with developer's consultants on July 28th & 29th, developed a memorandum to the Board summarizing Barr's review and revised the permit report for the Board's further consideration.

e. *Permit 2021-015: Groveland Street Reconstruction*– The City of Minnetonka is proposing a linear reconstruction project within the Groveland Neighborhood of Minnetonka, MN. The portions of Groveland School Road and Lowell Street within RPBCWD will construct 34,700 square feet (SF) of reconstructed impervious area and 1,400 SF of new impervious area. The proposed project triggers RPBCWD's erosion prevention and sediment control, and stormwater management rules. Notified applicant of RPBCWD's conditional approval.

f. *Permit 2021-017: Middle Riley Creek Stabilization*– The project will involve the stabilization of two segments or Riley Creek upstream of Lake Riley; a southern reach between the Hole #16 fairway and green, approximately 580 feet in length feet and a northern reach west of the Hole #13 tee box, a length of approximately 390 feet. To accommodate the creek stabilization, Bearpath Country Club will elevate hole #13 tee boxes, moving them to the east, and remove a portion of the existing impervious trail and improve hole #12 green area. The project includes realigning the existing creek channel, grading to reconnect the creek with its floodplain, installation of rock riffles, cross vanes, and J-hook vanes within the channel at key locations to provide grade control and reduce the potential of further erosion. The proposed project triggers RPBCWD's floodplain management, erosion prevention and sediment control, wetland and creek buffers, shoreline and streambank stabilization, waterbody crossings, and variance rules. Reviewed application materials, drafted permit report and variance summaries and addressed legal counsel review comments on the draft permit report. Revised permit report to include additional educational information to offset buffer sign variance for consideration at the August 4th Board of Managers meeting.

g. *Permit 2021-030 Johnson Ridge (Bennett Development)*- The project proposes to develop a 2.1-acre site into 6 single family home lots in Eden Prairie, MN. The proposed project triggers RPBCWD's erosion prevention and sediment control, and stormwater management rules. The applicant is proposing three infiltration basins to provide water quality treatment, rate control, and volume abstraction. Worked with Interim Administrator Jeffry to extend the permit review timeline 60 days. Reviewed submittal materials and provided review comments to the applicant on June 29th. Reviewed Revised submittal received on July 6th and provided comments on July 12th. Participated in a July 28th call with the developer's engineer to discuss the application of the low floor criteria to existing structures adjacent to the proposed stormwater facilities. Developed permit report for consideration at the August 4th Board of Managers meeting.

h. *Permit 2021-038 Burger King*- The project proposes to reconstruct a Burger King at the intersection of Eden Prairie Road and Highway 5. The proposed project triggers RPBCWD's erosion prevention and sediment control and stormwater management rules. Provided applicant MNRAM information developed by RPBCWD for the downstream wetlands.

i. *Permit 2021-046: Crossroads at Chanhassen:* The project proposes construction of a retail building and associated onsite parking areas at 8971 Crossroads Boulevard in Chanhassen. The proposed project triggers RPBCWD's erosion prevention and sediment control and stormwater management rules. The permit fee was received by RPBCWD on June 24th and review comments were sent to the applicant on July 8th. The original submittal was

considered incomplete because the following were not included in the submittals: stormwater models in native electronic format, erosion control details, snowmelt modeling stormwater BMP details, and the engineer's opinion of probable cost.

j. *Permit 2021-048: Vogel Shoreline:* The project proposes stabilization of 103 feet of shoreline and the installation of a sand blanket along Lake Riley at 9641 Meadowlark Lane in Chanhassen. The proposed project triggers RPBCWD's floodplain management, erosion prevention and sediment control, wetland and creek buffers, and shoreline streambank stabilization rules. The permit fee for this application was received on June 30th and review comments were sent to the applicant on July 5th. The submittal is considered incomplete because the following were not included in the submittals: erosion intensity worksheet, cut/fill estimates below the 100-year floodplain, wetland delineation data, and sand blanket details. Discussed the review comments with the applicant designer on July 22nd.

k. *Permit 2021-049: Foxford Shoreline:* The project proposes maintenance of stabilization measures along of 300 feet of shoreline and the installation of a sand blanket along Lake Riley at 9500 Foxford Road in Chanhassen. The proposed project triggers RPBCWD's floodplain management, erosion prevention and sediment control, and shoreline streambank stabilization rules. Review comments were sent to the applicant on July 5th. The submittal is considered incomplete because the following were not included in the submittals: information to determine cut/fill estimates below the 100-year floodplain and sand blanket details. Discussed the review comments with the applicant designer on July 22nd.

l. *Permit 2021-051: Eagle Bluff:* The project proposes a lot split and construction of a single-family home resulting in 0.47 acres of land-disturbing activity and an increase in imperviousness of the site of 54%. The project proposes construction of an infiltration basin to provide stormwater quantity, volume, and rate quality control. The proposed project triggers RPBCWD's erosion prevention and sediment control, wetland and creek buffer, and stormwater management rules. The application was considered incomplete because the permit fee had not been received by the District, no soil borings were included in the submittal, and evaluation of the wetland protection criteria in the stormwater rule was incomplete. The permit fee was received on July 21st. The original submittal was considered incomplete. Discussed review comments and potential design revisions needed to fully address review comments.

m. *Permit 2021-054: Morimoto City Homes:* The project proposes to develop a 2.8-acre site into 4 new townhome buildings and associated parking along Hennepin Town Road just south of Anderson Lakes Parkway in Eden Prairie, MN. This is a duplicate submittal with application 2021-028. Because the fee was provided in association with permit 2021-054, this permit number will be used for the Morimoto City Home application. The proposed project triggers RPBCWD's erosion prevention and sediment control, wetland buffers, and stormwater management rules. Participated in a June 1st virtual meeting with the applicant engineer to answer questions about review comments. Discussed the application of the wetland protection criteria to this project with Interim Administrator Jeffery and Counsel Welch. Reviewed revised submittal and provided comments on July 7th. Participated in virtual meetings on July 12th and July 22nd with the applicant's engineer to discuss review comments with a focus on the wetland protection criteria in the stormwater rule.

n. *Permit 2021-055: Prop Inc:* The project proposes to reconstruct the entire parking lot resulting in 0.7 acres of fully redeveloped impervious area. The project proposes construction of an infiltration basin to provide stormwater quantity, volume, and rate quality control. The proposed project triggers RPBCWD's erosion prevention and sediment control and stormwater management rules. Reviewed submittal materials and provided review comments to the applicant on June 29th. The original submittal was considered incomplete. Discussed review comments and potential design revisions needed to fully address review comments. Reviewed revised submittal received on July 21st and developed permit report for consideration at the August 4th Board of Managers meeting.

o. *Permit 2021-057 Rice Marsh Lake Water Quality Project*- The project proposes the construction of an underground stormwater treatment filtration system and a rainwater garden, as well as restoration with amended soils and native vegetation. The proposed project triggers RPBCWD's erosion prevention and sediment control rule. Because the land-disturbing activities do not involve the creation of new impervious surface or grading that materially alters stormwater flow at a site boundary (Subsection 2.2e) and the reconstruction of existing impervious trail is bordered downgradient by a pervious surface (Subsection 2.2d), the project is exempt from the requirements set forth by RPBCWD's Stormwater Management rule (Rule J, Subsection 2.1b) for all disturbed land-surface. Draft a review report for Interim Administrator Jeffery's consideration.

p. *Permit 2021-061: Goddard School Addition:* The project proposes to construct of new sidewalk, parking lot, play areas, retaining walls, and an underground stormwater management. The proposed project triggers RPBCWD's erosion prevention and sediment control and stormwater management rules. Reviewed July 19th submittal materials and provided review comments to the applicant. The original submittal was considered incomplete because stormwater models were not provided in native electronic format and geotechnical report does not contain infiltration testing information.

q. Miscellaneous preapplication calls from applicant with questions about rule applicability and criteria.

r. Miscellaneous conversations with Interim Administrator Jeffery about rules, permit database status, which permits will be reviewed by staff versus Barr, and rule application.

Wetland Management Program Assistance

a. Assisted incorporating Rapid Floristic Quality Assessment (FQA) methodology with full vegetation list in District's MNRAM assessments:

b. Participated in virtual meetings with staff Dickhausen discussing FQA spreadsheet and MNRAM and data management.

c. . Reviewed MNRAM database and District geodatabase to identify wetland polygon numbers used to link data.

Data Management/Sampling/Equipment Assistance

a. Prepared, loaded, and verified RMB laboratory (RMB) reports.

b. Prepared field data collected with the Survey123 mobile application for the Lakes monitoring program.

c. Worked with RMB labs to correct electronic data deliverables (EDD).

d. Submitted relevant 2020 creek and lake data to the MPCA in the agencies data specific format.

Task Order 6: WOMP Station Monitoring

Purgatory Creek Monitoring Station at Pioneer Trail

a. Download and review data.

b. File management – lab sheets.

Purgatory Creek Monitoring Station at Valley View Rd

a. Download and review data.

b. Storm event sampling.

c. File management – lab sheets.

d. Review and approve MCES lab invoice from qtr.1.

Task Order 24B: Silver Lake Water Quality Improvement Project

a. Conduct a preconstruction meeting on July 19th.

b. Coordination with contractor (Molnau) regarding submittals, including review of two submittal received to date.

c. Contractor anticipates starting construction August 9th or 16th.

Task Order 25: Duck Lake Watershed Rainwater Gardens

a. Inspected work completed by the contractor for year-one establishment activities and warrantied plant replacements. The raingarden inlets were clean, and plantings were growing well.

b. Communicated with the contractor regarding the contractual requirements for year-two establishment activities and property owner training.

Raingarden at 17309 Duck Lake Trail

Raingarden at 17040 South Shore Lane

Task Order 28B: Rice Marsh Lake (RM_12a) Water Quality Improvement Project

a. Finalized the project specifications in response to District legal counsel comments and submitted the Ad for Bid for publishing on July 8, 2021, and the bid package was uploaded to QuestCDN on July 9, 2021.

b. Conducted bid opening on July 29th and developed summary memo for the Board's consideration to award the project at the August 4th meeting.

c. Met virtually with Interim Administrator Jeffery and Counsel Welsh on July 28th to review and discuss potential enhancements to the cooperative agreement with the City of Chanhassen.

d.

e. Coordinating with the City of Chanhassen's street improvement project involving work along Dakota Lane. The city's work will occur before the construction of the District's project.

f. Received authorization from Interim Administrator Jeffery to further assist the city with the review of shop drawings of project elements the City is responsible for constructing

Task Order 29B: Middle Riley Creek (Reach R3) Stabilization Project Design

a. Finalized construction drawing in response to revised construction access.

b. Finalized the project specifications in response to District legal counsel comments and submitted the Ad for Bid for publishing on July 8, 2021 and the bid package was uploaded to QuestCDN on July 8, 2021.

c. A pre-bid meeting was held on site July 16th, 2021. Attendees included prospective bidders from 11 companies (Veit, RES Great Lakes, Sunram Construction, Inc., Urban Companies, MNL, Native Resource Preservation, Rachel Contracting, Kevitt Companies, Lametti & Sons, Prairie Restoration, Inc.), representatives from Bearpath.

d. Conducted bid opening on July 28th and developed summary memo for the Board's consideration to award the project at the August 4th meeting.

e. Received the State Historical Preservation Office (SHPO) review and analyzed the areas listed near the project sites. It appeared that there are no archeological sites in the vicinity of the proposed project areas.

f. Responded to permitting comments from the USACE, including providing the SHPO data review.

g. Golf Course construction is slated for September 2021, with the goal of finishing the north area stream work by September 24, 2021 the south area stream work by November 15, 2021, and the tee areas by October 1st, 2021, with final completion no later than May 15, 2022.

Task Order 30B: Pioneer Trail Wetland Restoration Project

a. Finalized the project specifications in response to District legal counsel comments and submitted the Ad for Bid for publishing on July 8, 2021 and the bid package was uploaded to QuestCDN on July 8, 2021.

b. A pre-bid meeting was held on site July 26th. Attendees included prospective bidders from 9 companies (RES Great Lakes, Davey Resource Group, Veit & Company, Nature Resource Preservation, Prairie Restoration, Minnesota Native Landscapes, Sunram Construction Inc, G F Jedlicki Inc, and Urban Companies).

c. Conducted bid opening on July 29th and developed summary memo for the Board's consideration to award the project at the August 4th meeting.

d. Barr has expended 92% the authorized engineering budget during the design, permitting and bidding phase of the project and will be requesting additional funding for the construction administration services. With the project requiring extensive vegetation management and monitoring, the construction documents require the contractor to provide three year of vegetation establishment, thus resulting in additional engineering/landscape architect support that was not included in the original authorization. In addition, Barr staff provided additional support to RPBCWD staff during the wetland permitting process, including but not limited to providing a template wetland delineation report and reviewing the staff developed wetland delineation report. the project was anticipated. The project timeline to start construction was also extended from 2020 to 2021.

Task Order 032A: Upper Riley Creek Ecological Enhancement Plan

a. This project is complete and finished $5,484 below the authorized budget.

Task Order 033: Wetland Assessment – Phase 1

a. Continued drafting methodologies to support the framework including Floristic Quality Assessment methodologies.

b. Performed GIS analysis to identify scoring for the primary, secondary, and ancillary wetland habitats for four wildlife guilds (forest, shrub, open water, and shallow marsh) in the surrounding Mitchell Lake area for wetland restoration prioritization

c. Reviewed of Wisconsin Wetlands By Design to potentially incorporate fish, reptile, and amphibian habitat into the model

d. Review P8 modeling conducted for the Mitchell Lake area and how to incorporate results into the framework. Continued drafting Phase 1 report to define ecosystem services and describe methodology for assessing each service.

Task Order 035: Eden Prairie Stormwater Model Update and Flood-Risk Area Prioritization

a. Submitted updated watershed divides to City of Eden Prairie for review. City staff will review the divides and verify that the level of detail is consistent with divides the City has developed for their water quality model and that there is adequate resolution in locations that will be used for model validation. The City's review of divides will continue through mid-August.

b. Staff continued adding resolution to the storm sewer system in the model. Additional details for the storm sewer system and overland flow paths are required to connect the updated subwatershed divides to the existing model. Staff are using the City of Eden Prairie's GIS

files to populate model input parameters such as pipe inverts, shape, and length. Staff will work on adding resolution and updating model parameters with available information through the end of August.

c. At the end of August, staff will prepare a data request for Eden Prairie. The data request will include locations of pipes, manholes, or pond outlet structures where information is missing or wasn't included in the City's GIS files. Locations will be reviewed with City staff to determine if as-built drawings are available or if survey data needs to be collected. If survey information is needed, it is anticipated that survey would be complete in September and October.

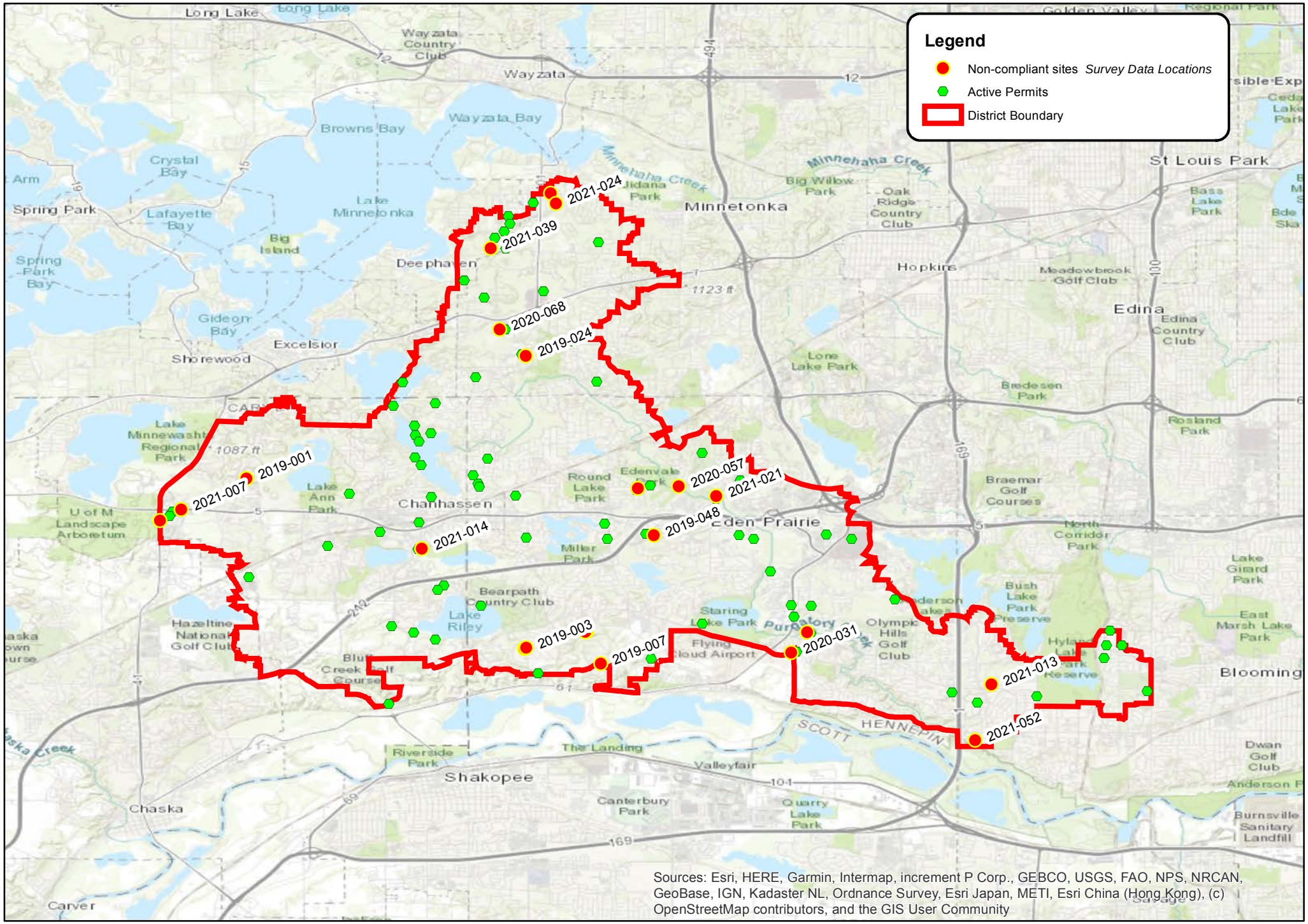
d. The schedule for this task order extends through 2022. In 2021 work will focus on updating the District's stormwater models for Riley Creek and Purgatory Creek to include additional detail within Eden Prairie. Currently staff are working on adding resolution to the storm sewer system. This task will continue through the summer. This fall work will shift to calculating hydrologic parameters, available floodplain storage volume, and debugging the updated models. In 2022, work will include model validation, simulation of design events, inundation mapping, identification and prioritization of flood prone areas, and documentation.

Task Order 036A: Bluff Creek Reach 5 Concept Design

a. Reviewed data provided by the District related to water quality. This data along with samples collected and tested for phosphorus levels will help define an estimate of phosphorus loading.

b. Defined a variety of concept ideas based on information collected during the site visit in June. These are being compiled into the feasibility assessment report.

c. Began developing feasibility assessment report.



RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Non-Compliant Permit Inspections in Last Month

N W E S

Permit #	Inspection Date	Precip	Perimeter Control	Permiter Control Notes	Inlet Protection	Inlet Protection Notes	Entrance	Stabilized Entrance Notes	Tracking	Tracking Notes
2021-035	7/2/2021	0	Compliant		Non_Compliant	Missing catch basin protection, spoke with city water engineer Patrick who will direct crew to install	N/A		Compliant	
2019-048	7/2/2021	0	Non_Compliant	Silt fence repairs needed, see photos	Compliant		Compliant		Non_Compliant	Tracking on parking lot and road
2019-043	7/2/2021	0	Non_Compliant	See photos, missing or damage in several locations	Compliant		Non_Compliant	Lot 6 no stabilized entrance	Non_Compliant	Sediment on Valley Rd at lot 6
2019-003	7/7/2021	0.71	Non_Compliant	Missing or damaged in places	Non_Compliant	1 removed and none replaced, 1 missing protection for curb cut	Non_Compliant	Equipment entering Dell Dr between lots 1 and 2 with no stabilized entrance	Non_Compliant	Heavy tracking. See photos.
2021-007	7/8/2021	0	Non_Compliant	Silt fence needs repairs at TH 41 and MN 5	Compliant		Compliant		Compliant	
2021-007	7/8/2021	0	Non_Compliant	Silt fence breached in area of Century Blvd	Compliant		Compliant		Compliant	
2019-001	7/8/2021	0	Non_Compliant	Silt fence needs repairs in two locations near wetlands, see photos	Compliant		Compliant		Compliant	
2020-008	7/8/2021	0	Non_Compliant	Catchbasin silt fence	Non_Compliant	Unprotected inlet	Non_Compliant	Allowing tracking	Non_Compliant	Tracking on street
2020-057	7/8/2021	0	Non_Compliant	Bio roll on west side filled with sediment	Compliant		Compliant		Non_Compliant	Sediment on paved trail
2020-068	7/9/2021	0	Non_Compliant	Breach near catch basin	Non_Compliant	Unprotected catch basins in parking lot	Non_Compliant	Not present	Non_Compliant	Sediment in upper parking lot staging area
2021-052	7/15/2021	0.33	Non_Compliant	Silt fence not dug in, concrete debris on fence	N/A		Non_Compliant	None present	Non_Compliant	Sediment accumulation on street
2021-013	7/15/2021	0	Non_Compliant	Dirt piled on biolog	Compliant		N/A		Non_Compliant	Tracking on street
2020-031	7/16/2021	0.33	Non_Compliant		Non_Compliant		Non_Compliant		Non_Compliant	
2019-007	7/16/2021	0.33	Non_Compliant	Perimeter controls missing or damaged multiple places, see photos	Compliant		Compliant		Compliant	
2019-043	7/20/2021	0	Non_Compliant	All curb controls need maintenance	Compliant		Non_Compliant	Not enough/wrong type of rock	Non_Compliant	Accumulation of sediment on Stirrup Ln
2019-003	7/20/2021	0	Non_Compliant	Bioroll at curb needs maintenance	Non_Compliant	1 silt bag out on curb	Non_Compliant	Entrance at 18134 Dell Dr needs maintenance, allows tracking	Non_Compliant	Sediment on street
2019-024	7/20/2021	0	Non_Compliant	Silt fence still down in several locations	Compliant		Non_Compliant	Mostly dirt	Non_Compliant	Sediment in basin
2021-039	7/21/2021	0	Non_Compliant	Down in two locations, see photos	Compliant		Compliant		Compliant	
2021-015	7/26/2021	0.14	Compliant		Non_Compliant	Bioroll moved from storm drain next to school parking lot	Compliant		Compliant	
2021-024	7/26/2021	0.14	Non_Compliant	Silt fence needs repair/emptying, see photo	Compliant		Compliant		Compliant	
2021-014	7/26/2021	0.14	Non_Compliant	Bioroll not installed in several areas	Compliant		Compliant		Compliant	
2021-021	7/29/2021	0.1	Non_Compliant	Unprotected stockpiles	Non_Compliant	Catchbasins not protected at Fairway Woods entrance	Compliant		Non_Compliant	Accumulation on street at Fairway Woods entrance

Permit #	Inspection Date	Precip	Stabilization	Stabilization Notes	Concrete Washout	Concrete Washout Notes	Dewatering	Dewatering Notes
2021-035	7/2/2021	0	Compliant		N/A		N/A	
2019-048	7/2/2021	0	Compliant		N/A		N/A	
2019-043	7/2/2021	0	Compliant		N/A		N/A	
2019-003	7/7/2021	0.71	Non_Compliant	Empty lots less than75% vegetated	Compliant		N/A	
2021-007	7/8/2021	0	Compliant		N/A		N/A	
2021-007	7/8/2021	0	Compliant		N/A		Compliant	
2019-001	7/8/2021	0	Compliant		Compliant		Compliant	
2020-008	7/8/2021	0	Non_Compliant	Erosion channel at catchbasin	N/A		N/A	
2020-057	7/8/2021	0	Non_Compliant	Erosion occuring on west slope of regional trail	N/A		N/A	
2020-068	7/9/2021	0	Non_Compliant	Unprotected stockpiles on pavement in staging area				
2021-052	7/15/2021	0.33	Compliant		Non_Compliant	Concrete washout on ground	N/A	
2021-013	7/15/2021	0	Compliant		N/A		N/A	
2020-031	7/16/2021	0.33	Non_Compliant					
2019-007	7/16/2021	0.33	Non_Compliant	Unstabilized soils in areas without active work, erosion channels present	N/A		N/A	
2019-043	7/20/2021	0	Non_Compliant	Bare soil on some inactive lots				
2019-003	7/20/2021	0	Compliant					
2019-024	7/20/2021	0	Non_Compliant					
2021-039	7/21/2021	0	Compliant		Non_Compliant	Concrete washout on ground		
2021-015	7/26/2021	0.14	Compliant		N/A		Non_Compliant	Muddy water being pumped into storm drain without filtration
2021-024	7/26/2021	0.14	Compliant					
2021-014	7/26/2021	0.14	Compliant					
2021-021	7/29/2021	0.1	Compliant		Non_Compliant	Washout waste in catch basin at entrance to fairway woods		

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2021-030

Considered at Board of Managers Meeting: August 4, 2021

Received complete: May 6, 2021

Applicant: Harold Worrell, Laketown Builders

Representative: Sathre-Bergquist, Inc, Bob Molstad

Project: Johnson Ridge - The project proposes the redevelopment of an existing single-family home parcel into 6 lot, residential subdivision. Stormwater management facilities include three infiltration basins to provide volume control, water quality, and rate control.

Location: 9995 Bennett Place, Eden Prairie, Minnesota 55347

Reviewer: Leslie DellAngelo, PE; and Scott Sobiech, PE; Barr Engineering Co.

Proposed Board Action

Manager _____ moved and Manager _____ seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the August 4, 2021 meeting of the managers:

Resolved that the application for Permit 2021-030 is approved, subject to the conditions and stipulations set forth in the Recommendations section of the attached report;

Resolved that on determination by the RPBCWD administrator that the conditions of approval of the permit have been affirmatively resolved, the RPBCWD president or administrator is authorized and directed to sign and deliver Permit 2021-030 to the applicant on behalf of RPBCWD.

Upon vote, the resolutions were adopted, _____ [VOTE TALLY].

Applicable Rule Conformance Summary

Rule	Issue		Conforms to RBPCWD Rules?	Comments
C	**Erosion Control Plan**		See comment.	See rule-specific permit condition C1.
J	**Stormwater Management**	Rate	Yes	
		Volume	See Comment	See stipulation 3
		Water Quality	Yes	
		Low Floor Elev.	See Comment	See rule-specific permit condition J1
		Maintenance	See Comment	See rule-specific permit condition J2
		Chloride Management	Yes	
		Wetland Protection	Yes	
L	**Permit Fee Deposit**		Yes	$3,000 deposit fee received May 6, 2021.
M	**Financial Assurance**		See Comment	The financial assurance is calculated at $45,623.

Background

The project proposes the redevelopment of an existing 2.1-acre single-family home parcel into a residential subdivision with six lots. Stormwater management facilities include three infiltration basins to provide volume control, water quality, and rate control. The project site information is summarized in Table 1.

Table 1. Project site information

Site Information	Project Area
Total Site Area (acres)	2.1
Existing Site Impervious Area (acres)	0.23
Disturbed Impervious Area (acres)	0.23 (100%)
Post Construction Site Impervious (acres)	0.88
Addition (increase) in Site Impervious Area (acres)	0.65 (>100%)
Total Disturbed Area (acres)	2.1

Exhibits:

1. Permit application received on April 21, 2021 with associated permit fee received on May 6, 2021 (RPBCWD extended the permit review period 60 days on June 24, 2021)
2. Project Narrative received April 21, 2021
3. Project Plan set dated April 19, 2021 (revised July 6, 2021)
4. Revised grading plan dated July 28, 2021
5. Stormwater Report memo dated April 19, 2021 (revised July 1, 2021)
6. Existing and Proposed HydroCAD Models received July 6, 2021
7. Review Comments dated June 29, 2021
8. Review Comment Applicant Responses dated July 2, 2021
9. Reponses to Review Comment Applicant Responses dated July 8, 2021
10. Geotechnical Evaluation Report dated June 18, 2021
11. Specifications dated March 22, 2021
12. Cost estimate received July 6, 2021
13. Certificate of Survey – 9928 and 9920 Lawson Lane received July 28, 2021
14. Appendix J1 analysis received July 28, 2021
15. Bennett Place Roadway boring dated May 6, 1987 and received July 29, 2021

Rule Specific Permit Conditions

Rule C: Erosion Prevention and Sediment Control

Because the project will involve 2.1 acres of land-disturbing activities, the project must conform to the erosion prevention and sediment control requirements established in Rule C.

The erosion control plan prepared by Sathre-Bergquist, Inc includes installation of perimeter control (silt fence or sediment control logs), a stabilized rock construction entrance, inlet protection, daily inspection, staging areas, placement of a minimum of 6 inches of topsoil (at 5% organic matter), decompaction of areas compacted during construction, and retention of native topsoil onsite to the greatest extent possible. To conform to RPBCWD Rule C requirements, the following revisions are needed:

C1. The Applicant must provide the name, address and phone number of the individual who will remain liable to the District for performance under this rule and maintenance of erosion and sediment-control measures from the time the permitted activities commence until vegetative cover is established.

Rule J: Stormwater Management

Because the project will involve 2.1 acres of land-disturbing activity, the project must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.1). The criteria listed in Subsection 3.1 will apply to the entire site because the project will disturb more than 50% of the existing impervious surface on the parcel (Rule J, Subsection 2.3).

The applicant is proposing construction of three infiltration basins to provide the rate control, volume abstraction and water quality management. Pretreatment for runoff entering the infiltration basins is being provided by vegetative buffers and a catchbasin/manhole with sump.

Rate Control

In order to meet the rate control criteria listed in Subsection 3.1.a, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. The applicant used a HydroCAD hydrologic model to simulate runoff rates for pre- and post-development conditions for the 2-, 10-, and 100-year frequency storm events using a nested rainfall distribution, and a 100-year frequency, 10-day snowmelt event. The existing and proposed 2-, 10-, and 100-year frequency discharges from the site are summarized in Table 2 below. The proposed project is in conformance with RPBCWD Rule J, Subsection 3.1.a.

Table 2. Existing and Proposed Peak Runoff Rates

Modeled Discharge Location	2-Year Discharge (cfs)		10-Year Discharge (cfs)		100-Year Discharge (cfs)		10-Day Snowmelt (cfs)	
	Ex	Prop	Ex	Prop	Ex	Prop	Ex	Prop
Northeast	1.8	0.9	2.5	2.1	3.7	3.7	0.8	0.7
Southeast	0.1	0.0	0.2	0.0	0.3	0.1	0.1	0.0
Southwest	0.8	0.6	1.1	1.1	2.0	2.0	0.2	0.2

Volume Abstraction

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from the regulated impervious surface of the site. An abstraction volume of 3,514 cubic feet is required from the 0.88 acres (38,333 square feet) of regulated impervious area. Pretreatment of runoff entering the infiltration basins is provided with vegetative buffers and a catch basin with sump to conform to Rule J, Subsection 3.1.b.1.

Four soil borings, six test pits and three double-ring infiltrometer test performed by Haugo GeoTechnical Services, LLC show that soils in the project area are primarily silty sand and poorly graded sand. Because groundwater was not observed at the soil borings or test pits performed at the proposed stormwater management facilities, groundwater is at least as deep as the bottom of the respective subsurface investigation. The subsurface investigation information summarized Table 3 shows that groundwater is at least 3 feet below the bottom of all but one of the proposed infiltration basins (Rule J, Subsection 3.1.b.2.a).

Table 3. Groundwater Separation Analysis

Proposed BMP	Nearest Subsurface Investigation	Boring is within footprint?	Groundwater Elevation (feet)	BMP Bottom Elevation (feet)	Separation (feet)
Infiltration Basin 1	SB-1003	Yes	No groundwater observed at boring bottom (el 826.1)	834.0	7.9
Infiltration Basin 2	SB-1000	Yes	No groundwater observed at boring bottom (el 837.6)	844.5	6.9
Infiltration Basin 3	TP-3	No	No groundwater observed at test pit bottom (el 864.6)	857	unknown

Double-ring infiltrometer testing conducted by Haugo GeoTechnical Services, LLC measured an infiltration rate of 4.27 inches per hour (in/hr) at the proposed bottom of Infiltration Basin 1 and 2.0 in/hr at the proposed bottom of Infiltration Basin 2. The engineer concurs with the applicant's design infiltration rates of 1.6 in/hr for Infiltration Basin 1 and 1.08 in/hr for Infiltration Basin 2 based on the in-situ infiltration testing and soils at each location. Based on the soils present at Infiltration Basin 3 the engineer concurs with the applicant's use of a design infiltration rate of 1.0 in/hr. The proposed stormwater facilities provide adequate surface areas (920 SF for Basin 1, 490 SF for Basin 2, 200 SF for Basin 3) to drawdown the abstraction volumes within the required 48-hour period, thus conforming with Rule J, Subsection 3.1.b.3.

Because of existing tree and brush cover at the location of proposed Infiltration Basin 3, subsurface investigation and infiltration testing was not performed at that BMP locations and it is unclear if the soils have adequate infiltration capacity. Per Rule J, Subsection 3.1.b.2.c measured infiltration capacity of the soils at the bottom of the infiltration systems must be provided. The applicant must submit documentation verifying the infiltration capacity of the soils and that the volume control capacity is calculated using the measured infiltration rate. In addition, subsurface soil investigation is needed to verify adequate separation to groundwater (Rule J subsection 3.1.b.2). If infiltration capacity is less than needed to conform with the

volume abstraction requirement in subsection 3.1b or there is inadequate separation to groundwater, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).

The table below summarizes the volume abstraction for the site, assuming infiltration capacity of infiltration basin 3. With the conditions noted above regarding verification of subsurface conditions, the engineer concurs with the submitted information and finds that the proposed project will conform with Rule J, Subsection 3.1.b.

Table 4. Volume Abstraction Summary

Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Depth (inches)	Provided Abstraction Volume (cubic feet)
1.1	3,514	1.35	4,339

Water Quality Management

Subsection 3.1.c of Rule J requires the Applicant to provide volume abstraction in accordance with 3.1b or least 60 percent annual removal efficiency for total phosphorus (TP), and at least 90 percent annual removal efficiency for total suspended solids (TSS) from site runoff, and no net increase in TSS or TP loading leaving the site from existing conditions. Because the infiltration basins proposed by the applicant provides more volume abstraction than is required by 3.1b and the engineer concurs with the modeling, the engineer finds that the proposed project is in conformance with Rule J, Subsection 3.1.c.

Low floor Elevation

All new buildings must be constructed such that the lowest floor is at least two feet above the 100-year high-water elevation or one foot above the emergency overflow of a stormwater-management facility according to Rule J, Subsection 3.6a. In addition, a stormwater-management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with this requirement according to Rule J, Subsection 3.6b. The low floor elevation of the proposed subdivision is summarized below and shows proposed project is in conformance with Rule J, Subsection 3.6a.

Table 5. Low Floor Summary

Lot Riparian to Stormwater Facility	Low Floor Elevation of Building (feet)	Adjacent Infiltration Basin	100-year Event Flood Elevation of Adjacent Stormwater Facility (feet)	Freeboard to 100-year Event (feet)	Provided Distance Between Building and Adjacent Stormwater Feature (feet)	Required Separation to Groundwater based on Appendix J, Plot 6 (feet)	Provided Separation to Groundwater (feet)
Lot 1	843.7	1	838.5	5.2	NA	NA	NA
11180 Jackson Dr	816[1]	1	838.5	-22.5	105	0.31	Unknown
Lot 6	856.6	2	848.8	7.8	NA	NA	NA
9928 Lawson La	851.7	2	848.8	2.9	NA	NA	NA
Lot 4	862.1	3	858.5	3.6	NA	NA	NA
11068 Jackson Dr	821[1]	3	858.5	-37.5	104	0.11	Unknown

[1]Estimated using topography and approximate basement depths from Google Street View.

Infiltration Basins 1 and 3 will be constructed adjacent to 11180 Jackson Drive and 11068 Jackson Drive, respectively. While the existing structures on these adjacent parcels are approximately 100 feet from the proposed infiltration basin, the structures are at significantly lower elevations than the proposed flood elevations in the basins. The applicant submitted an analysis using appendix J1 to determine the allowable separation to groundwater. Because appendix J1 requires information about the groundwater elevation adjacent to the existing structures as well as the low floor elevations the applicant provided a soil boring collected in 1987 along Bennett Place. No groundwater was observed in the15-foot deep boring suggesting groundwater is at elevation 821 or lower. Because this elevation is likely above the low floor at 11180 Jackson Drive based on the best available topography data, additional subsurface investigation is needed. Because the current seasonally high groundwater level and the low floor elevations at 11180 Jackson Drive and 11068 Jackson Drive are unknown, the following revisions are needed to conform to RPBCWD Rule J, subsection 3.6.b requirements,:

J1. The applicant must submit supporting documentation demonstrating there is adequate separation to groundwater to achieve the low floor criteria for the adjacent structures at 11180 Jackson Drive and 11068 Jackson Drive. This will require the determination of the low floor elevations and additional subsurface investigation along Jackson Drive to determine the groundwater elevation and complete the Appendix J1 analysis. If inadequate separation is provided to conform with the low floor requirement in subsection 3.6b, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).

Maintenance

Subsection 3.7 of Rule J requires the submission of maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed. While the applicant provided a draft post construction operation and maintenance plan for review, the following revisions are needed:

J2. Permit applicant must provide a maintenance and inspection declaration. A maintenance declaration template is available on the permits page of the RPBCWD website. (http://www.rpbcwd.org/permits/). A draft declaration must be provided for District review prior to recording.

Chloride Management

Subsection 3.8 of Rule J requires the submission of chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan. The RPBCWD chloride-management plan requirement applies to the streets and common areas of the project site, but not the individual single-family homes. Because the streets within the proposed residential development will be dedicated to the city as public right of way and therefore maintained by Eden Prairie and the city has provided its chloride management plan and its designated state-certified chloride applicator is Eden Prairie's Streets Division Manager Larry Doig, the proposed development conforms with Rule J, subsection 3.8.

Wetland Protection

Because runoff from this site is directly tributary to Purgatory Creek or an off-site, downstream stormwater pond, the proposed project does not trigger analysis under Rule J, subsection 3.10.

Rule L: Permit Fee

The RPBCWD permit fee schedule requires permit applicants to submit a permit-fee deposit of $3,000 to be held in escrow and applied to reimburse RPBCWD for the permit-application processing fee and permit review and inspection-related costs. A permit fee deposit of $3,000 was received on behalf of Laketown Builders on May 6, 2021.

Rule M: Financial Assurance

Rule C:

Perimeter Control: 1,250 L.F. x $2.50/L.F. = ...$3,125
Restoration: 2.0 acres x $2,500/acre = ...$5,000
Inlet Protection: 6 x $100/each =.....$600
Construction Entrance: 1 x $250/each =.....$250

Rule J:
Stormwater facilities: 125% of Engineer's Opinion of Cost (1.25*$26,000) = ...$32,500

Contingency (10%) $4,148
Total Financial Assurance.....$45,623

Applicable General Requirements:

1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.
2. Construction shall be consistent with the plans and specifications approved by the District as a part of the permitting process. The date of the approved plans and specifications is listed on the permit.
3. Construction must be consistent with the plans, specifications, and models that were submitted by the applicant that were the basis of permit approval. The date(s) of the approved plans, specifications, and modeling are listed on the permit. The grant of the permit does not in any way relieve the permittee, its engineer, or other professional consultants of responsibility for the permitted work.
4. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority.
5. The issuance of this permit does not convey any rights to either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
6. In all cases where the doing by the permittee of anything authorized by this permit involves the taking, using or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements or interests, the permittee, before proceeding therewith, must acquire all necessary property rights and interest.
7. RPBCWD's determination to issue this permit was made in reliance on the information provided by the applicant. Any substantive change in the work affecting the nature and extent of applicability of RPBCWD regulatory requirements or substantive changes in the methods or means of compliance with RPBCWD regulatory requirements must be the subject of an application for a permit modification to the RPBCWD.
8. If the conditions herein are met and the permit is issued by RPBCWD, the applicant, by accepting the permit, grants access to the site of the work at all reasonable times during and after construction to authorized representatives of the RPBCWD for inspection of the work.

Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project will conform to Rules C and J if the Rule Specific Permit Conditions listed above are met.

Recommendation:

Approval of the permit contingent upon:

1. Continued compliance with General Requirements.

2. Financial Assurance in the amount of $45,623.

3. Permit applicant must provide the name and contact information of the general contractor responsible for erosion and sediment control at the site. RPBCWD must be notified if the responsible party changes during the permit term.

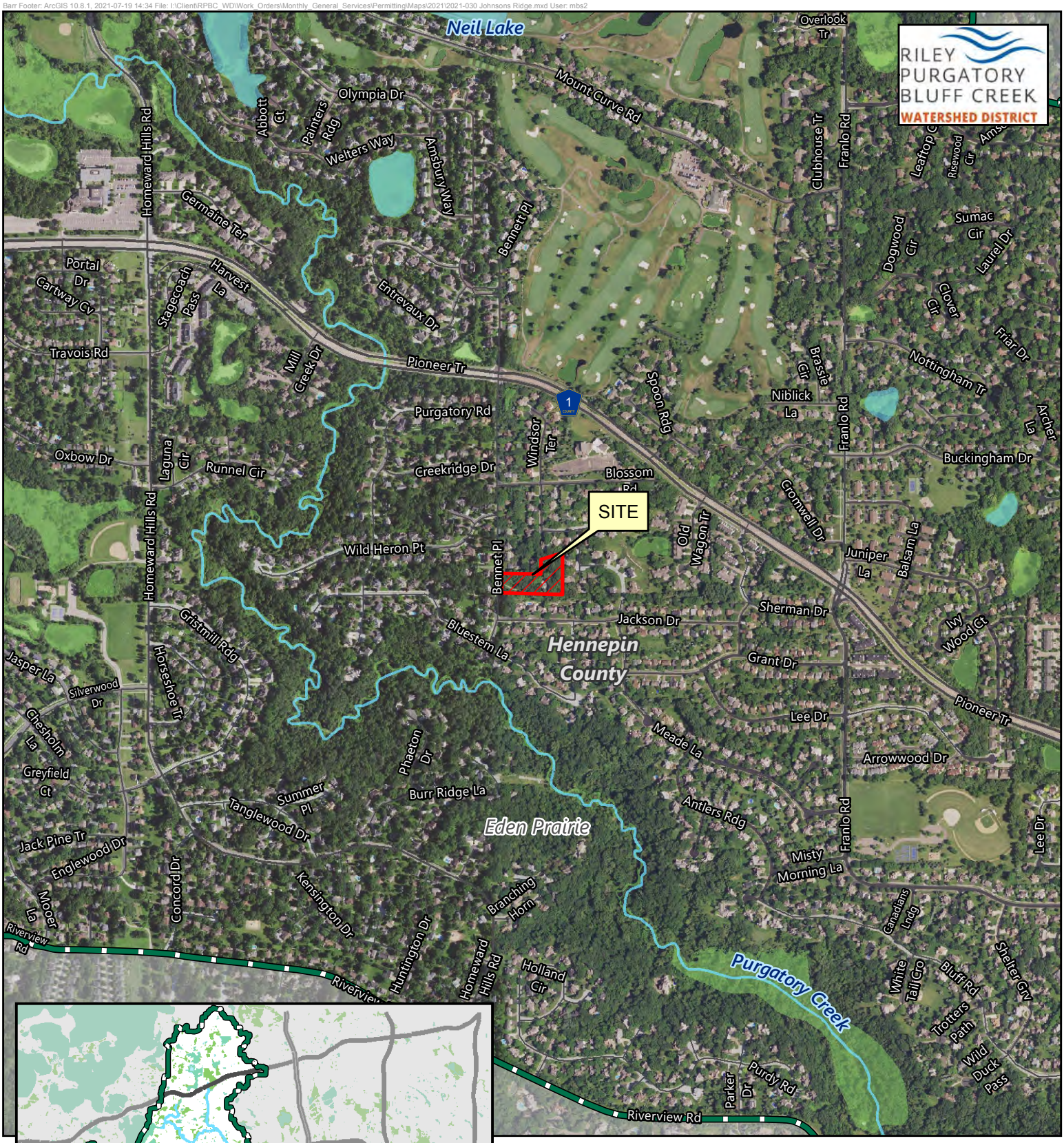
4. The applicant must submit supporting documentation demonstrating there is adequate separation to groundwater to achieve the low floor criteria for the adjacent structures at 11180 Jackson Drive and 11068 Jackson Drive using Appendix J1. This will require the determination of the low floor elevations and additional subsurface investigation along Jackson Drive to determine the groundwater elevation. If inadequate separation to groundwater is provided to conform with the low floor requirement in subsection 3.6b, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).

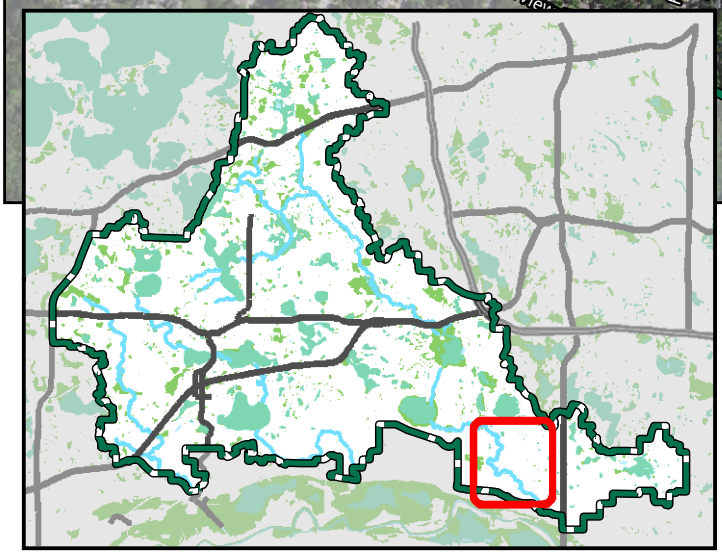
5. Receipt in recordation a maintenance declaration for the stormwater management facilities. A draft must be approved by the District prior to recordation.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

1. Per Rule J Subsection 5.6, upon completion of the site work, the permittee must submit as-built drawings demonstrating that at the time of final stabilization the stormwater management facilities conform to design specifications and functions as intended and approved by the District. As-built/record drawings must be signed by a professional engineer licensed in Minnesota and include, but not limited to:
    a) the surveyed bottom elevations, water levels, and general topography of all facilities;
    b) the size, type, and surveyed invert elevations of all stormwater facility inlets and outlets;
    c) the surveyed elevations of all emergency overflows including stormwater facility, street, and other;
    d) other important features to show that the project was constructed as approved by the Managers and protects the public health, welfare, and safety.
2. Providing the following additional close-out materials:
    a) Documentation that constructed infiltration facilities perform as designed. This may include infiltration testing, flood testing, or other with prior approval from RPBCWD
    b) Documentation that disturbed pervious areas remaining pervious have been decompacted per Rule C Subsection 3.2c criteria
3. Per Rule J, Subsection 3.1.b.ii measured infiltration capacity of the soils at the bottom of the infiltration basin 3 must be provided. The applicant must submit documentation verifying the infiltration capacity of the soils and that the volume control capacity is calculated using the measured infiltration rate. In addition, subsurface soil investigation is needed to verify adequate separation to groundwater (Rule J subsection 3.1.b.2). If infiltration capacity is less than needed to conform with the volume abstraction requirement in subsection 3.1b or there is inadequate separation to groundwater, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).

4. The work on the Johnson Ridge parcel under the terms of permit 2021-030, if issued, must have an impervious surface area and configuration materially consistent with the approved plans. Design that differs materially from the approved plans (e.g., in terms of total impervious area) will need to be the subject of a request for a permit modification or new permit, which will be subject to review for compliance with all applicable regulatory requirements.





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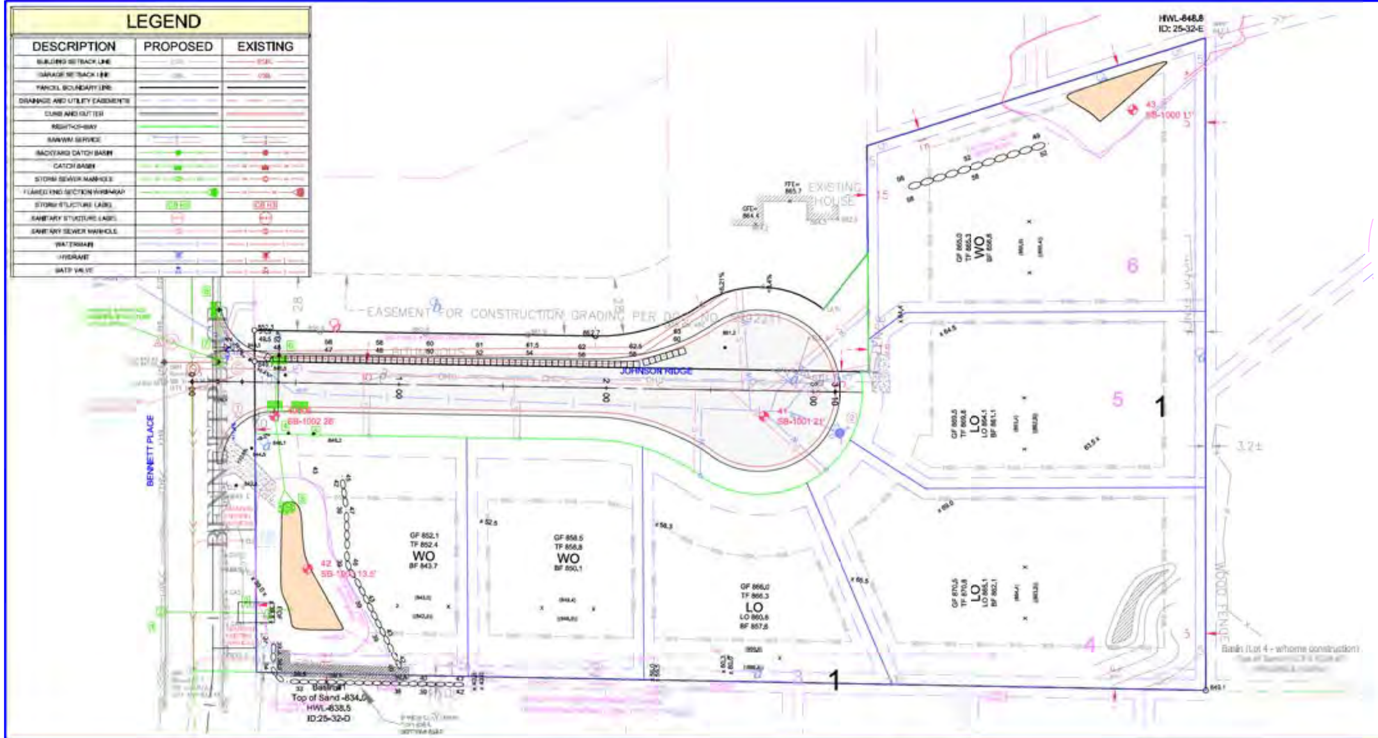
Feet

0 1,000

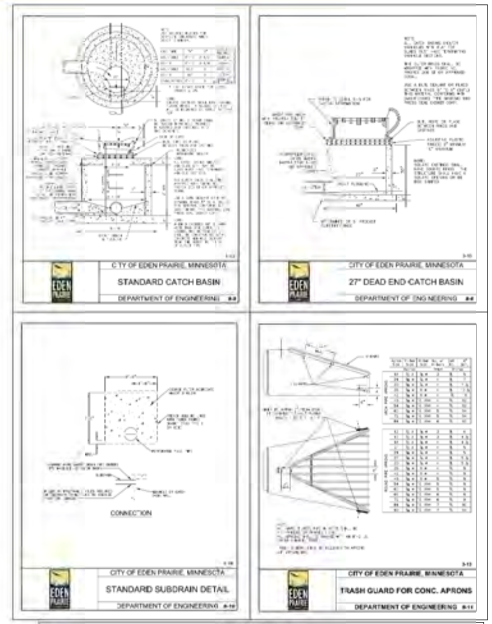
Permit Location Map

JOHNSONS RIDGE
9995 BENNETT PLACE
Permit 2021-011
Riley Purgatory Bluff Creek Watershed District

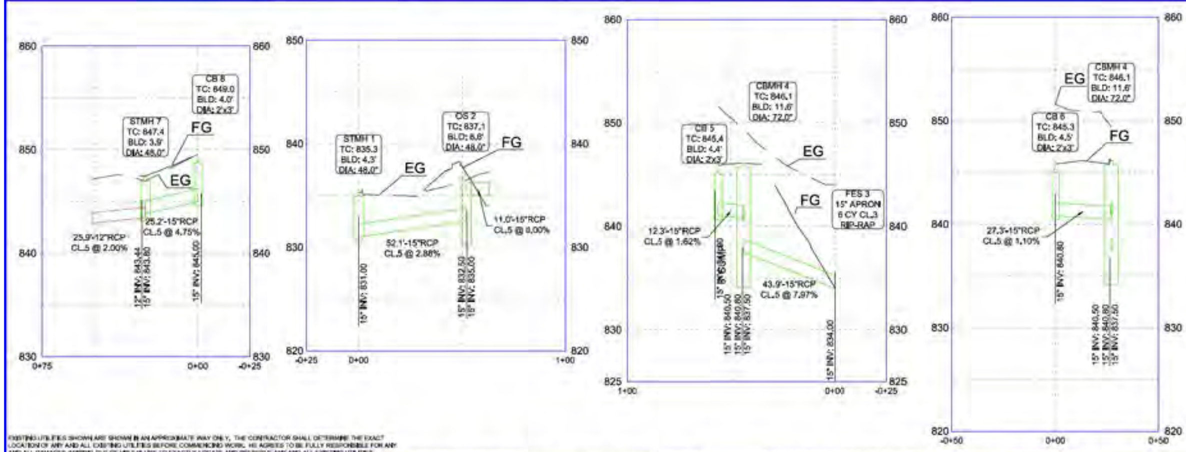


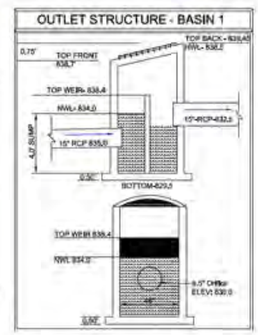
LEGEND

DESCRIPTION	PROPOSED	EXISTING
BUILDING SETBACK LINE		
GARAGE SETBACK LINE		
PARCEL BOUNDARY LINE		
DRAINAGE AND UTILITY EASEMENTS		
CURB AND GUTTER		
RIGHT-OF-WAY		
SAN/WM SERVICE		
BACKYARD CATCH BASIN		
CATCH BASIN		
STORM SEWER MANHOLE		
FLARED END SECTION W/RIPRAP		
STORM STUCTURE LABEL		
SANITARY STUCTURE LABEL		
SANITARY SEWER MANHOLE		
WATERMAIN		
HYDRANT		
GATE VALVE		



STRUCTURE TABLE							
STRUCTURE NAME	TYPE	DIAMETER	RIM	BUILD	INV	CASTING	NOTES
1	STMH	48.0"	835.3	4.3'	831.0	R-4342	
4	CBMH	72.0"	846.1	11.6'	834.5	R-3067V	3' SUMP
5	CB	2'x3'	845.4	4.4'	841.0	R-3067V	
6	CB	2'x3'	845.3	4.5'	840.8	R-3067V	
7	STMH	48.0"	847.4	3.9'	843.4	R-4342	
8	CB	2'x3'	849.0	4.0'	845.0	R-3067V	





FES TABLE				
Structure Name	TYPE	SIZE (IN.)	INV	C.Y. RIP RAP
3	FES	15	834.0	6

OUTLET STRUCTURE TABLE			
Structure Name	TYPE	INV	DETAIL
2	OS	835.0 832.50	SEE STRUCTURE DETAIL

INFILTRATION BASIN #1 & #2 DETAIL

EXISTING UTILITIES SHOWN ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES ARISING OUT OF HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES.

DRAWING NAME	NO.	BY	DATE	REVISIONS
BENNETT-UP				
DRAWN BY				
ERJ				
CHECKED BY				
RSM				
DATE				
04/01/21				

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

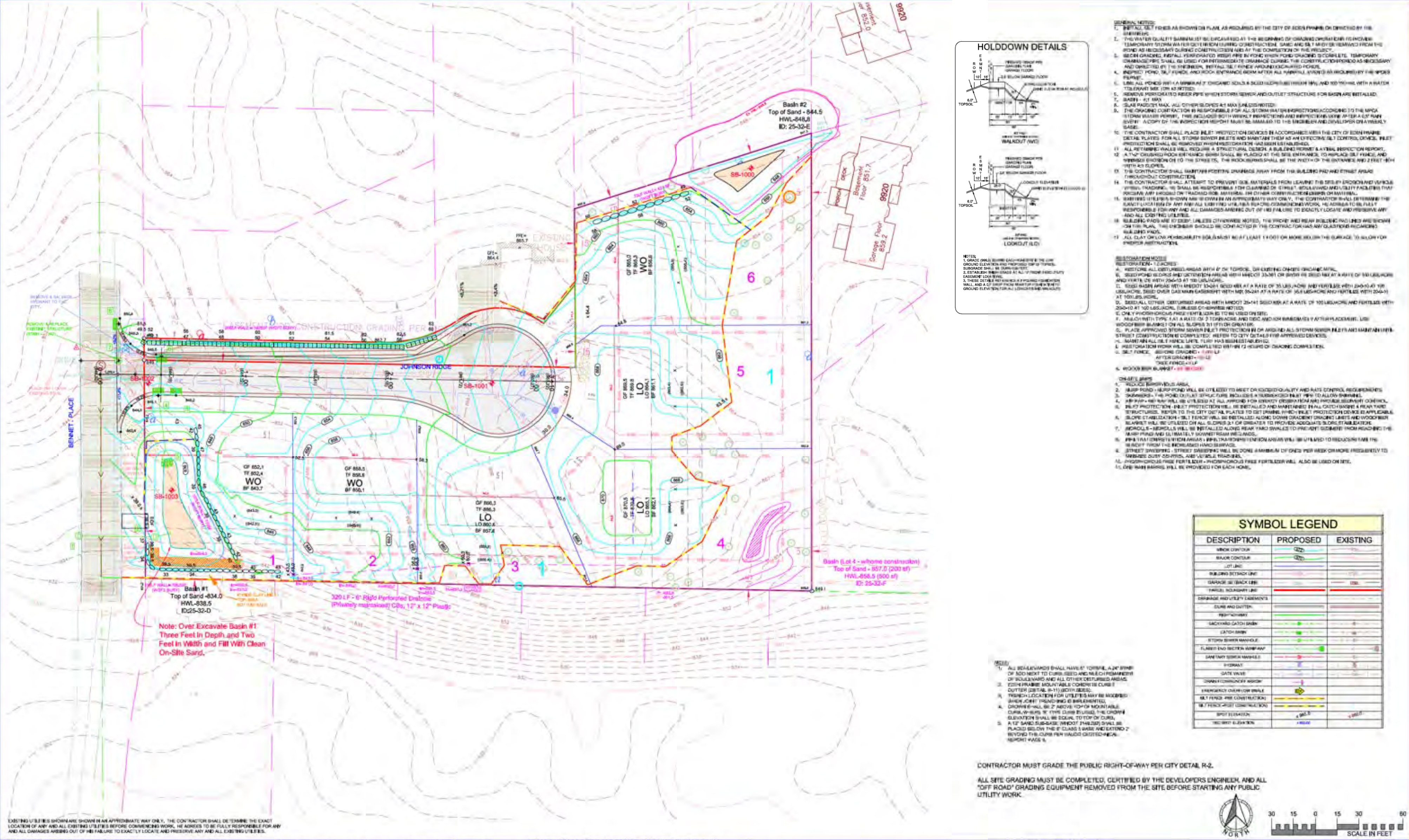
ROBERT S. MOLSTAD, P.E.
Date: 04/19/21 Lic. No. 26428

SATHRE-BERGQUIST, INC.
150 SOUTH BROADWAY WAYZATA, MN. 55391 (952) 476-6000

CITY PROJECT NO. –
EDEN PRAIRIE, MINNESOTA

STORM SEWER PLAN
JOHNSON RIDGE
LAKEVIEW BUILDERS

FILE NO. 49353-001
5



CONTRACTOR MUST GRADE THE PUBLIC RIGHT-OF-WAY PER CITY DETAIL R-2.

ALL SITE GRADING MUST BE COMPLETED, CERTIFIED BY THE DEVELOPERS ENGINEER, AND ALL "OFF ROAD" GRADING EQUIPMENT REMOVED FROM THE SITE BEFORE STARTING ANY PUBLIC UTILITY WORK.

EXISTING UTILITIES SHOWN ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES ARISING OUT OF HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES.

DRAWING NAME	NO.	BY	DATE	REVISIONS
BENNETT-GP	01	TCW	05/12/21	Incomplete/Review Letter 050721
DRAWN BY	02	TCW	06/21/21	Incomplete/Review Letter 060321
ERJ	03	RSM	07/01/21	Street and Grading Plan
CHECKED BY	04	TCW	07/02/21	Watershed Review Letter 063021
RSM	05	RSM	07/28/21	Grading Plan Notes
DATE				
04/01/21				

USE (INCLUDING COPYING, DISTRIBUTION, AND/OR CONVEYANCE OF INFORMATION) OF THIS PRODUCT IS STRICTLY PROHIBITED WITHOUT SATHRE-BERGQUIST, INC.'s EXPRESS WRITTEN AUTHORIZATION. USE WITHOUT SAID AUTHORIZATION CONSTITUTES AN ILLEGITIMATE USE AND SHALL THEREBY INDEMNIFY SATHRE-BERGQUIST, INC. OF ALL RESPONSIBILITY. SATHRE-BERGQUIST, INC. RESERVES THE RIGHT TO HOLD ANY ILLEGITIMATE USER OR PARTY LEGALLY RESPONSIBLE FOR DAMAGES OR LOSSES RESULTING FROM ILLEGITIMATE USE.

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

ROBERT S. MOLSTAD, P.E.
Date: 04/19/21 Lic. No. 26428

SATHRE-BERGQUIST, INC.
150 SOUTH BROADWAY WAYZATA, MN. 55391 (952) 476-6000

CITY PROJECT NO.

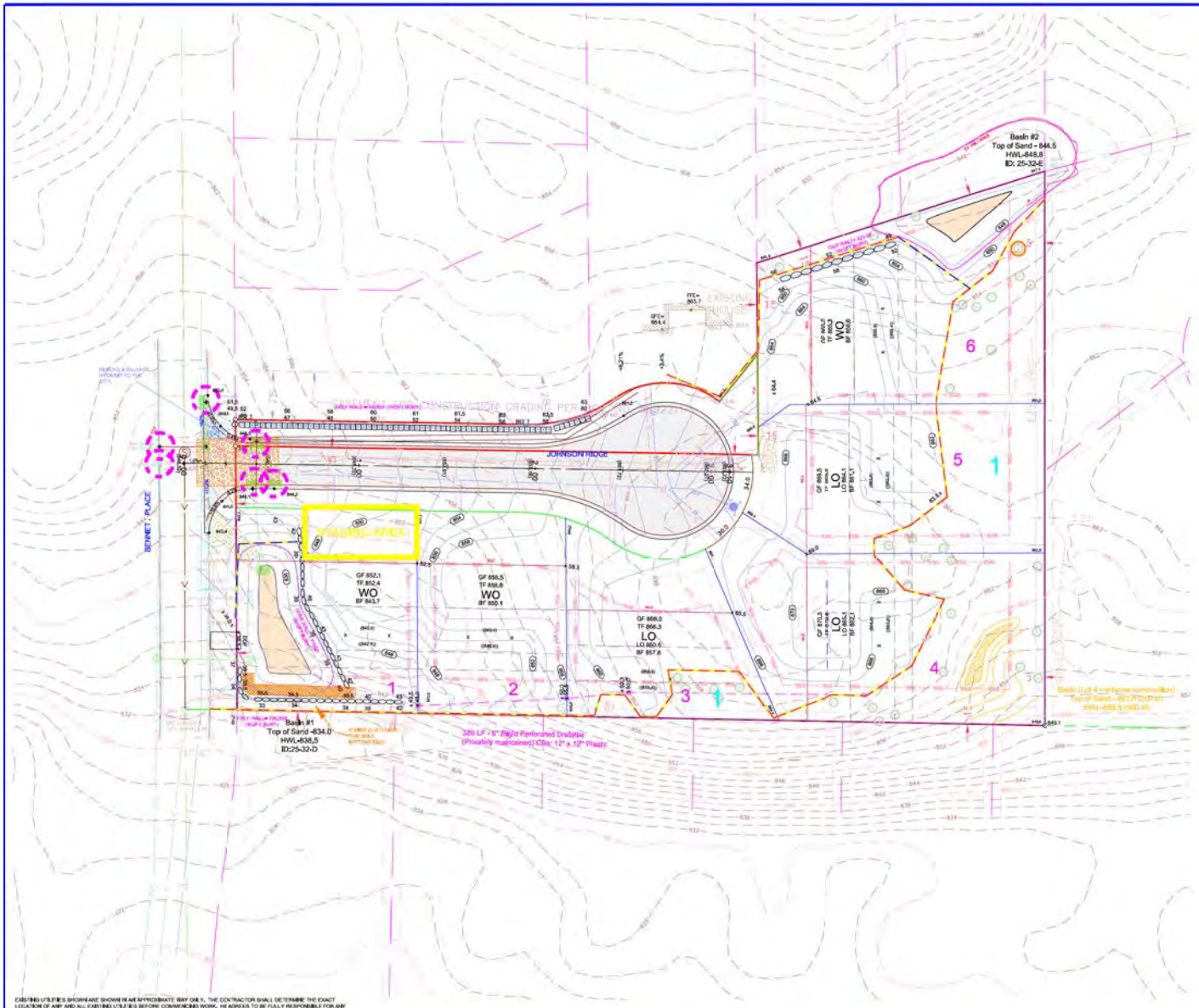
EDEN PRAIRIE, MINNESOTA

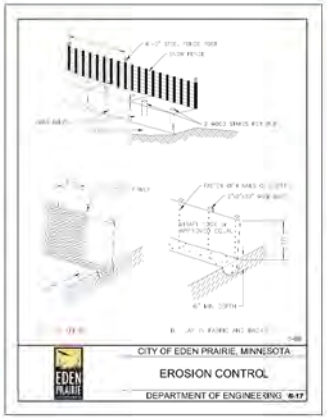
GRADING PLAN
JOHNSON RIDGE
LAKETOWN BUILDERS

FILE NO. 49353-001

6

9





- ROCK ENTRANCE BERM
- SILT FENCE
- POST GRADING SILT FENCE
- BIO-ROLL
- CONCRETE WASHOUT
- INLET PROTECTION
- WOODFIBER BLANKET

RILEY PURGATORY BLUFF CREEK WATER SHED DISTRICT EROSION CONTROL NOTES:

a. Natural topography and soil conditions mustbe protected, including retention onsite of native topsoil to the greatest extent possible.

b. Additional measures, such as hydraulic mulching and other practices as specified by the District must be used on slopes of 3:1 (H:V) or steeper to provide adequate stabilization.

c. Final site stabilization measures must specify that at least six inches of topsoil containing 5% organic matter be spread and incorporated into the underlying soil during final site treatment wherever topsoil has been removed.

d. Construction site waste such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste must be properly managed.

e. All temporary erosion and sediment controlBMPs must be maintained until completion of construction and vegetation is established sufficiently to ensure stability of the site, as determined by the District.

f. All temporary erosion and sediment controlBMPs must be removed upon final stabilization.

g. Construction should include minimization of the disturbance intensity and duration, including phasing of disturbance to minimize quantity of disturbed area at any one time.

h. Soil surfaces compacted during construction and remaining pervious upon completion of construction must be decompacted to a soil compaction testing pressure of less than 1,400 kilopascals or 200 pounds per square inch in the upper 12 inches of soil or to a bulk density of less than 1.4 grams per cubic centimeter or 87 pounds per cubic foot through soil amendment and/or ripping to a depth of 12 inches while taking care to avoid utilities, tree roots and other existing vegetation prior to final revegetation or other stabilization.

i. All disturbed areas must be stabilized within 7 calendar days after landdisturbing work has temporarily or permanently ceased on i property that drains to an impaired water, within 14 days elsewhere. Compaction prevention and mitigation to be performed

j. The permittee must, at a minimum, inspect, maintain and repair all disturbed surfaces and all erosion and sediment control facilities and soil stabilization measures every day work is performed on the site and at least weekly until land-disturbing activity has ceased. Thereafter, the permittee must perform these responsibilities at least weekly until vegetative cover is established. The permittee will maintain a log of activities under this section for inspection by the District on request.

Activities must be conducted so as to minimize the potential transfer of aquaticinvasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible.

Construction Implementation Schedule:

1. Erosion Control BMPS to be implemented before grading activities.
2. Grading - August to September
3. Utilities - September to October
4. Streets - October to November

CONTRACTOR MUST GRADE THE PUBLIC RIGHT-OF-WAY PER CITY DETAIL R-2.

ALL SITE GRADING MUST BE COMPLETED, CERTIFIED BY THE DEVELOPERS ENGINEER, AND ALL "OFF ROAD" GRADING EQUIPMENT REMOVED FROM THE SITE BEFORE STARTING ANY PUBLIC UTILITY WORK.

NORTH

30 15 0 15 30 60
SCALE IN FEET

EXISTING UTILITIES SHOWN ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ANY AND ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES ARISING OUT OF HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES.

DRAWING NAME	NO.	BY	DATE	REVISIONS
BENNETT-GP	01	TCW	05/12/21	INCOMPLETE/REVIEW LETTER 050721
DRAWN BY	02	TCW	06/21/21	INCOMPLETE/REVIEW LETTER 060321
ERJ	03	TCW	07/02/21	WATERSHED REVIEW LETTER 063021
CHECKED BY				
RSM				
DATE				
04/01/05				

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

ROBERT S. MOLSTAD, P.E.
Date: 04/01/21 Lic. No. 14708

SATHRE-BERGQUIST, INC.
150 SOUTH BROADWAY WAYZATA, MN. 55391 (952) 476-6605

CITY PROJECT NO.
—

EDEN PRAIRIE, MINNESOTA

EROSION CONTROL PLAN
JOHNSON RIDGE
LAKETOWN BUILDERS

FILE NO.
#2353-0B1

7
9

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2021-055

Considered at Board of Managers Meeting: August 4, 2021

Received complete: June 29, 2021

Applicant: Prop Inc., Janet Palmer
Consultant: HTPO, Aaron Carrel
Project: Prop Inc Parking Lot Reconstruction – The project proposes to reconstruct the parking lot at the Prop Inc facility in Eden Prairie, MN. Stormwater management facilities include infiltration basin to provide volume control, water quality, and rate control.
Location: 14700 Martin Drive, Eden Prairie, MN
Reviewer: Scott Sobiech P.E., Barr Engineering

Board Action

Manager _____ moved and Manager _____ seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the August 4, 2021 meeting of the managers:

Resolved that the application for Permit 2021-055 is approved, subject to the conditions and stipulations set forth in the Recommendations section of the attached report.

Resolved that on determination by the RPBCWD administrator that the conditions of approval have been affirmatively resolved, the RPBCWD president or administrator is authorized and directed to sign and deliver Permit 2021-055 to the applicant on behalf of RPBCWD.

Upon roll call vote, the resolutions were adopted, _____.

Applicable Rule Conformance Summary

Rule	Issue		Conforms to RBPCWD Rules?	Comments
C	**Erosion Control Plan**		See Comment.	See Rule Specific Permit Condition C1
D	**Wetland and Creek Buffers**		Yes.	
J	**Stormwater Management**	Rate	Yes	
		Volume	See Comment	See stipulation #4.
		Water Quality	Yes	
		Low Floor Elev.	Yes	
		Maintenance	See Comment	See Rule Specific Permit Condition J1
		Chloride Management	See Comment	See Stipulation #3
L	**Permit Fee Deposit**		Yes	$3,000 received July 14, 2021
M	**Financial Assurances**		See Comment	The financial assurance is calculated at $22,454

Background

The applicant proposes to reconstruct the entire parking lot resulting in 0.7 acres of fully redeveloped impervious area. The applicant proposes construction of an infiltration basin to provide stormwater quantity, volume, and rate quality control. Surface runoff from the reconstructed parking lot drains via overland flow to an off-site, downgradient wetland that is more than 80 feet from the parcel line, such that even the maximum buffer would not reach the applicant's parcel. As such Rule D does not impose any buffer requirements for this project. However, the treated runoff leaving the site from the stormwater management system is conveyed via storm sewer to the off-site wetland, thus requiring conformance with the wetland protection criteria in Rule J, subsection 3.10.

Project Site Information	
Total Site Area (acres)	1.58
Existing Impervious (acres)	0.7
Disturbed Impervious Area (acres)	0.5 (71.9%)
Proposed Impervious Area (acres)	0.70
Additional Impervious Area (acres)	-0.01 (-1.4 % decrease)
Regulated Impervious Area(acres)	0.70
Total Disturbed Area (acres)	0.72

The following materials were reviewed in support of the permit request:

1. Permit Application received June 29, 2021
2. Stormwater Management narrative received June 29, 2021 (revised June 21, 2021)
3. Project Plan Set (7 sheets) dated June 25, 2021 (revised June 21, 2021)
4. Geotechnical Evaluation Report by Braun Intertec dated December 28, 2020
5. Electronic HydroCAD models received on June 29, 2021 (revised June 21, 2021)
6. Electronic P8 models received on June 29, 2021 (revised June 21, 2021)
7. Double Ring Infiltrometer Testing Results dated May 20, 2021
8. Draft maintenance declaration received June 29, 2021.
9. Opinion of Probable Costs for stormwater received on July 22, 2021

Rule Specific Permit Conditions

Rule C: Erosion Prevention and Sediment Control

Because the project will involve 0.72 acres of land-disturbing activity, the project must conform to the requirements in the RPBCWD Erosion Prevention and Sediment Control rule (Rule C, Subsection 2.1). The erosion and sediment control plan prepared by HTPO includes installation of silt fence, inlet protection for storm sewer catch basins, a stabilized rock construction entrance, decompaction of areas

compacted during construction, six inches of topsoil, and retention of native topsoil onsite. To conform to RPBCWD Rule C requirements, the following revisions are needed:

C1. The Applicant must provide the name and contact information of the individual responsible for erosion prevention and sediment control at the site. RPBCWD must be notified if the responsible person changes during the permit term.

Rule J: Stormwater Management

Because the project will involve 0.72 acres of land-disturbing activity, the project must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.1). The criteria listed in Subsection 3.1 apply to entire site because the project will disturb 71.9 percent of the existing impervious surface on the parcel (Rule J, Subsection 2.3).

The applicant proposes construction of an infiltration basin to provide stormwater quantity, volume and rate quality control. Pretreatment of runoff will be provided by a grass filter strip between the parking lot and infiltration basin.

Rate Control

In order to meet the rate control criteria listed in Subsection 3.1.a, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. The Applicant used a HydroCAD hydrologic model to simulate runoff rates for pre- and post-development conditions for the 2-, 10-, and 100-year frequency storm events using a nested rainfall distribution, and a 100-year frequency, 10-day snowmelt event. The existing and proposed 2-, 10-, and 100-year frequency discharges from the site are summarized in the table below.

Modeled Discharge Location	2-Year Discharge (cfs)		10-Year Discharge (cfs)		100-Year Discharge (cfs)		10-Day Snowmelt (cfs)	
	Ex	Prop	Ex	Prop	Ex	Prop	Ex	Prop
North	3.4	1.4	6.0	4.7	11.3	9.8	0.3	0.3

The proposed stormwater management plan will provide rate control in compliance with the RPBCWD requirements for the 2-, 10-, and 100-year events. Thus, the proposed project meets the rate control requirements in Rule J, Subsection 3.1a.

Volume Abstraction

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from the new and disturbed impervious surface of the parcel. An abstraction volume of 2,789 cubic feet is required from the 0.70 acres of regulated impervious area for volume retention. The Applicant proposes an infiltration basin to provide volume abstraction. Pretreatment is provided a grass filter strip between the parking lot and infiltration basin (Rule J, Subsection 3.1.b.1).

Four soil borings were collected within the existing parking lot footprint and show surface soils at the site are silty sand and clayey sand soils. One double ring infiltrometer test was performed by Braun Intertec at the proposed location of the infiltration basin. The observed infiltration rate was measured as 0.18 inches per hour (in/hr). The engineer concurs with the applicants use of design infiltration rate of 0.18 in/hr beneath the infiltration basin based on rate measured at the site. With this infiltration rate, the infiltration BMP will drawdown within the required 48 hours.

The table below summarizes the volume abstraction for the site. The proposed project is in conformance with Rule J, Subsection 3.1.b.

Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Depth (inches)	Provided Abstraction Volume (cubic feet)
1.1	2,789	1.2	3,082

While four soil borings were completed to identify the soils under the existing parking lot, a soil boring was not performed at the site of the infiltration basin. Because no soil boring or test pit was performed at the infiltration basin site, additional soil investigation will be needed to verify adequate separation to groundwater (Rule J subsection 3.1.b.2).

Water Quality Management

Subsection 3.1.c of Rule J requires the Applicant provide volume abstraction in accordance with 3.1b or least 60 percent annual removal efficiency for total phosphorus (TP), and at least 90 percent annual removal efficiency for total suspended solids (TSS) from site runoff, and no net increase in TSS or TP loading leaving the site from existing conditions. Because the BMP proposed by the applicant provides abstraction meeting 3.1b and the engineer concurs with the modeling, the engineer finds that the proposed project is in conformance with Rule J, Subsection 3.1.c.

Low floor Elevation

All new buildings must be constructed such that the lowest floor is at least two feet above the 100-year high-water elevation or one foot above the emergency overflow of a stormwater-management facility according to Rule J, Subsection 3.6a. In addition, a stormwater-management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with this requirement according to Rule J, Subsection 3.6b.

The low floor elevation of the existing buildings as well as the 100-year flood elevation and emergency overflow of the proposed infiltration basin are summarized below. Because the low floor elevations of the existing structures are more than one foot above the proposed emergency overflow of the proposed infiltration basin, the proposed project is in conformance with Rule J, Subsection 3.6.

Structure Location	Low Floor Elevation of Existing Building (feet)	100-year Event Flood Elevation of Stormwater Facility (feet)	Emergency Overflow Elevation (EOF) (feet)	Freeboard to 100-year (feet)	Freeboard to Emergency Overflow (feet)
Prop Inc.	854.64	851.17	850.7	3.47	3.94
14740 Martin Dr	855.4	851.17	850.7	4.23	4.7
7701 Commerce Way	852.9	851.17	850.7	1.73	2.2

Maintenance

Subsection 3.7 of Rule J requires the submission of a maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed. The Applicant provided a draft maintenance and inspection declaration for review. To conform to the RPBCWD Rule J the following revisions are needed:

J1. Permit applicant must provide a revised maintenance and inspection declaration as required by Rule J, Subsection 3.7. The declaration must also include an Exhibit A, a scaled site plan, showing the infiltration basin and grass filter strip requiring maintenance. In addition, the exhibit must show a cross section of the proposed BMP with elevations listed. A revised draft declaration must be provided for District approval prior to recordation as a condition of issuance of the permit.

Chloride Management

Subsection 3.8 of Rule J requires the submission of chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan. To close out the permit and release the $5,000 in financial assurance held for the purpose of chloride management, the permit applicant must provide a chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan at the site.

Wetland Protection

Because runoff from this site is directly tributary to a downstream, off-site medium value wetland, the project must comply with the wetland protection criteria in Rule J, Subsection 3.10

In accordance with Rule J, subsection 3.10a, there is no proposed activity subject to Rule J that will alter the site in a manner that increases the bounce in water level, duration of inundation, or change the runout elevation in the subwatershed for the wetland receiving runoff from the land disturbing activities. Because the applicant's HydroCAD model results demonstrate, and the engineer concurs, that the proposed flow rate and volumes flowing towards the off-site wetland are less than the under existing conditions, the bounce and inundation will not increase, thus the project meets the Bounce and Inundation criterion.

Rule J, Subsection 3.10b requires that treatment of runoff to medium value wetlands archive 90 percent total suspended solids removal and 60 percent total phosphorus removal. The applicant submitted P8 models to estimate the TP and TSS removals. The results of this modeling are summarized in tables below showing the annual TSS and TP removal requirements are achieved and that there is no net increase in TSS and TP leaving the site. The engineer concurs with the modeling and finds that the proposed project is in conformance with Rule J, Subsection 3.10b.

Annual TSS and TP removal summary

Pollutant of Interest	Regulated Site Loading (lbs/yr)	Required Load Removal (lbs/yr)	Provided Load Reduction (lbs/yr)
Total Suspended Solids (TSS)	504	454 (90%)	485 (96.2%)
Total Phosphorus (TP)	1.6	0.96 (60%)	1.5 (92.8)%

Summary of net change in TSS and TP leaving the site

Pollutant of Interest	Existing Site Loading (lbs/yr)	Proposed Site Load after Treatment (lbs/yr)	Change (lbs/yr)
Total Suspended Solids (TSS)	108	19	-161
Total Phosphorus (TP)	1.1	0.1	-1.0

Rule L: Permit Fee Deposit:

The RPBCWD permit fee schedule adopted in February 2020 requires permit applicants to deposit $3,000 to be held in escrow and applied to cover the $10 permit-processing fee and reimburse RPBCWD for permit review and inspection-related costs and when a permit application is approved, the deposit must be replenished to the applicable deposit amount by the applicant before the permit will be issued to cover actual costs incurred to monitor compliance with permit conditions and the RPBCWD Rules. A permit fee deposit of $3,000 was received on July 14, 2020.

Rule M: Financial Assurance:

Rules C: Silt fence and silt dikes: 350 L.F. x $2.50/L.F. = ... $875

Inlet protection: 1 x $100 = ... $100

Rock Entrance: 1 x $250 = ... $250

Restoration: 0.7 acres x $2,500/acre = ... $1,750

Rules J: Stormwater Management Facility: $9,950 x 125% of engineer's opinion of cost= $12,438

Chloride Management Plan: $5,000

Contingency (10%) $2,041

Total Financial Assurance..... $22,454

Applicable General Requirements:

1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.
2. Construction shall be consistent with the plans and specifications approved by the District as a part of the permitting process. The date of the approved plans and specifications is listed on the permit.
3. Construction must be consistent with the plans, specifications, and models that were submitted by the applicant that were the basis of permit approval. The date(s) of the approved plans, specifications, and modeling are listed on the permit. The grant of the permit does not in any way relieve the permittee, its engineer, or other professional consultants of responsibility for the permitted work.
4. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority.
5. The issuance of this permit does not convey any rights to either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
6. In all cases where the doing by the permittee of anything authorized by this permit involves the taking, using or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements or interests, the permittee, before proceeding therewith, must acquire all necessary property rights and interest.
7. RPBCWD's determination to issue this permit was made in reliance on the information provided by the applicant. Any substantive change in the work affecting the nature and extent of applicability of RPBCWD regulatory requirements or substantive changes in the methods or means of compliance with RPBCWD regulatory requirements must be the subject of an application for a permit modification to the RPBCWD.
8. If the conditions herein are met and the permit is issued by RPBCWD, the applicant, by accepting the permit, grants access to the site of the work at all reasonable times during and after construction to authorized representatives of the RPBCWD for inspection of the work.

Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project will conform to Rules C and J if the Rule Specific Permit Conditions listed above are met.

Recommendation:

Approval, contingent upon:

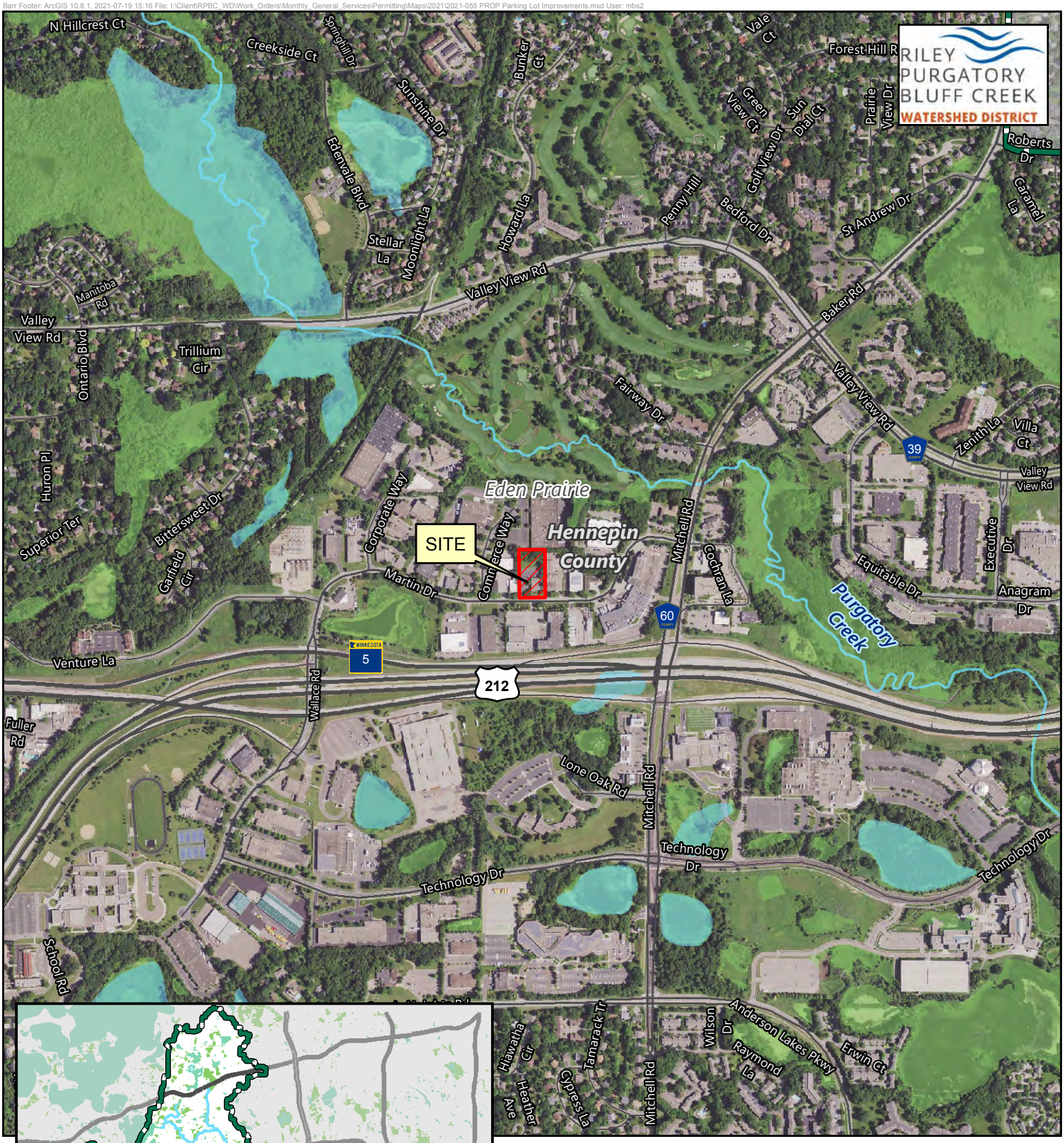
1. Continued compliance with General Requirements

2. Financial Assurance in the amount of $22,454.
3. Receipt in recordation a maintenance declaration for the stormwater management facility. Drafts of all documents to be recorded must be approved by the District prior to recordation.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

1. Per Rule J Subsection 4.5, upon completion of the site work, the permittee must submit as-built drawings demonstrating that at the time of final stabilization, the pretreatment grass filter strips and infiltration basin conform to design specifications and function as intended and approved by the District. As-built/record drawings must be signed by a professional engineer licensed in Minnesota and include, but not limited to:
    a. the surveyed bottom elevations, water levels, and general topography of all facilities;
    b. the size, type, and surveyed invert elevations of all stormwater facility inlets and outlets;
    c. the surveyed elevations of all emergency overflows including stormwater facility, street, and other;
    d. other important features to show that the project was constructed as approved by the Managers and protects the public health, welfare, and safety.
2. Providing the following additional close-out materials:
    a. Documentation that constructed infiltration facility perform as designed. This may include infiltration testing, flood testing, or other with prior approval from RPBCWD.
    b. Documentation that disturbed pervious areas remaining pervious have been decompacted per Rule C.2c criteria.
3. To close out the permit and release the $5,000 in financial assurance held for the purpose of the chloride management, the permit applicant must provide a signed chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan at the site.

4. Per Rule J, Subsection 3.1.b.2 soils information is needed to demonstrate minimum of three feet vertical separation between the bottom of the infiltration basin and seasonally high groundwater. In addition, soils data must show the soils present within 5 feet of the bottom of the infiltration basin. If groundwater condition is less than needed to conform with the separation requirements, reanalysis and design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification).



Permit Location Map

PROP PARKING LOT IMPROVEMENTS
Permit 2021-055
Riley Purgatory Bluff Creek
Watershed District

Feet
0 1,000

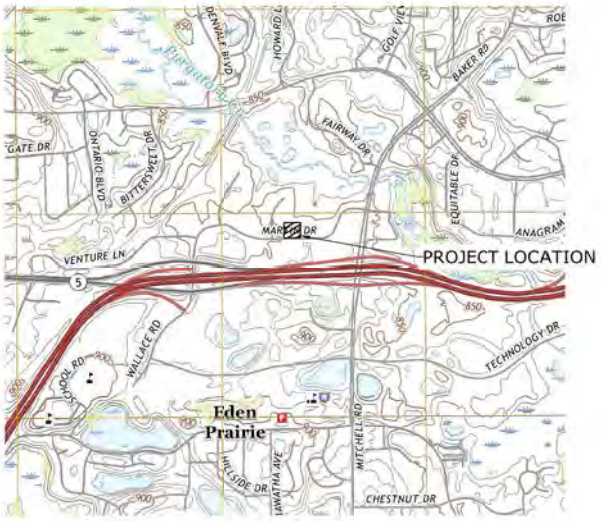
EXISTING LEGEND

- HYDRANT
- WATER VALVE
- WELL
- SANITARY MANHOLE
- FLARED END SECTION
- BEEHIVE CATCH BASIN
- STORM MANHOLE
- LIGHT
- POWER POLE
- GUY WIRE
- TRANSFORMER
- ELECTRIC METER
- FIBER OPTIC MANHOLE/VAULT
- GAS VALVE
- TELEPHONE BOX
- HANDHOLE
- TREE
- TNH TOP NUT HYDRANT
- OVERHEAD UTILITY
- ELECTRIC LINE
- GAS MAIN
- WATER MAIN
- SANITARY SEWER
- STORM SEWER
- FIBER OPTIC LINE
- TELEPHONE LINE
- CHAIN LINK FENCE
- PROPERTY BOUNDARY
- CONTOUR

CONSTRUCTION PLANS FOR:
P.R.O.P PARKING LOT IMPROVEMENTS

14700 MARTIN DRIVE,
EDEN PRAIRIE, MN

LOCATION MAP



NOT TO SCALE

HORIZONTAL:

1. HENNEPIN COUNTY COORDINATE SYSTEM, (NAVD83-86 ADJ).

VERTICAL:

1. ELEVATIONS ARE BASED ON MN/DOT GEODETIC STATION DISC 02071 Q BM1, WHICH HAS AN ELEVATION OF 847.22 FEET (NAVD88).

BENCHMARKS:

#1 ON MARTIN DRIVE SOUTH SIDE OF MARTIN DRIVE NEAR SOUTHEAST CORNER OF SITE, WHICH HAS AN ELEVATION OF 859.28

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7510 Market Place Drive • Eden Prairie, MN 55344
952-829-0700 • 952-829-7806 fax

PROJECT NO. 20-030.2

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.

Aaron Carrell
LIC. NO. 47494 DATE: 7-21-2021

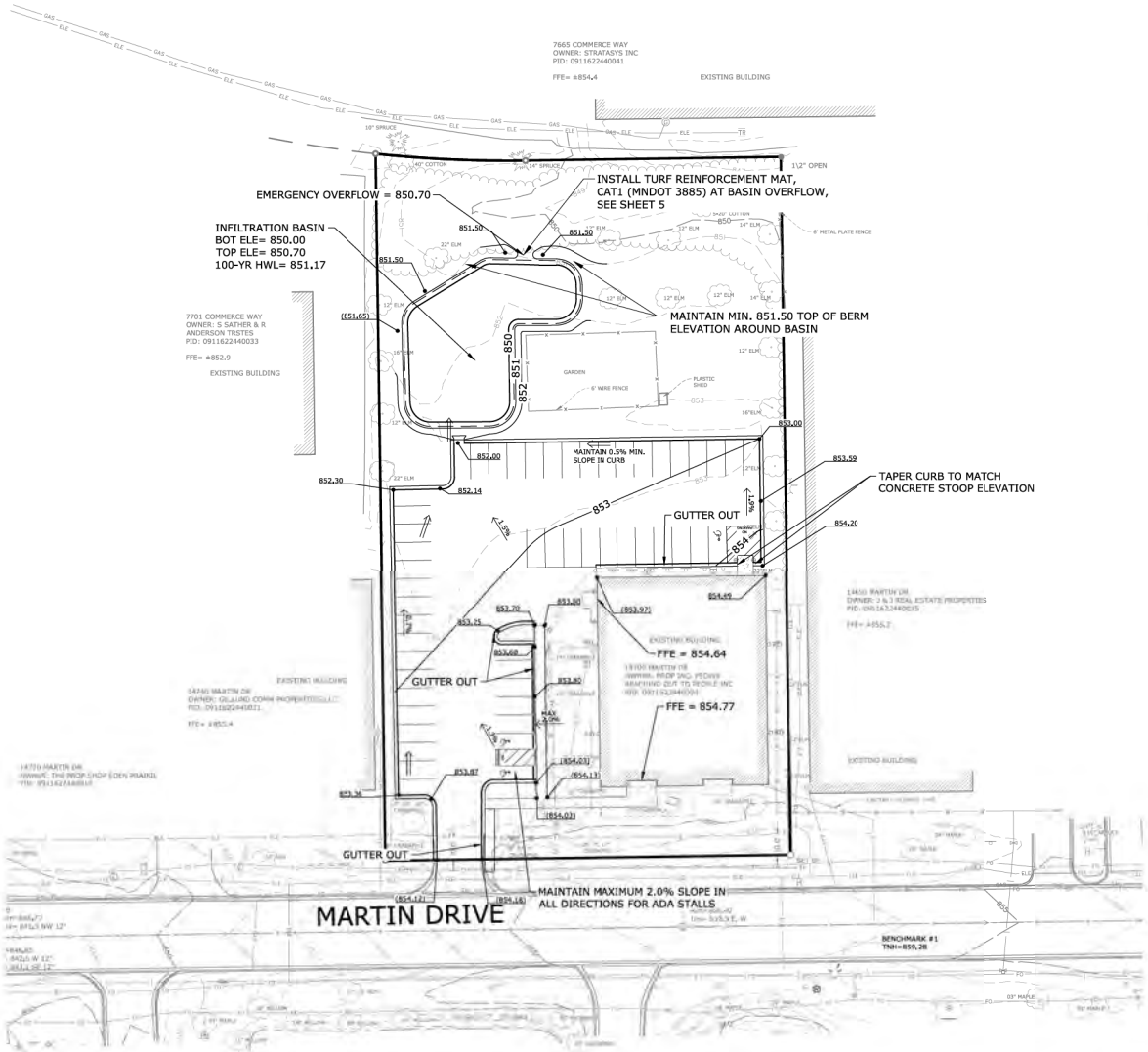
SHEET INDEX

GENERAL NOTES

1. UNLESS OTHERWISE NOTED, ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE 2018 MINNESOTA DEPARTMENT OF TRANSPORTATION (MnDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND CEAM STANDARD SPECIFICATIONS, 2013 EDITION.
2. CONTRACTOR SHALL DETERMINE LOCATION OF EXISTING PUBLIC AND PRIVATE UTILITIES PRIOR TO CONSTRUCTION AND SHALL BE RESPONSIBLE FOR PRESERVING THESE. ANY REPAIRS NECESSARY DUE TO CONTRACTORS OPERATIONS SHALL BE MADE AT CONTRACTORS EXPENSE. BEFORE DIGGING CALL: GOPHER STATE ONE CALL (651) 454-0002.
3. THE SUBSURFACE UTILITY INFORMATION IN THE PLAN IS UTILITY QUALITY LEVEL "D". THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."
4. CONTRACTOR SHALL FIELD VERIFY SITE CONDITIONS PRIOR TO CONSTRUCTION AND SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFETY MEASURES TO SAFEGUARD VEHICLES AND PEDESTRIAN TRAFFIC.
6. CONTRACTOR SHALL KEEP ALL ROADWAYS FREE OF SEDIMENTS. STREETS SHALL BE SWEPT AS NEEDED OR AS DIRECTED BY THE ENGINEER.
7. INSTALL EROSION AND SEDIMENT CONTROL MEASURES BEFORE ANY LAND DISTURBING ACTIVITIES TAKE PLACE AS SHOWN ON THE PLANS OR AS DIRECTED.
8. RESTORE ALL DISTURBED AREAS, INCLUDING PAVEMENT, TO EXISTING CONDITIONS OR BETTER.
9. ALL SIGNS, FENCING, ETC. DISTURBED BY THE WORK SHALL BE SALVAGED AND REINSTALLED BY THE CONTRACTOR TO EXISTING CONDITION OR BETTER.
10. NO WORK SHALL OCCUR WITHOUT FIRST OBTAINING THE NECESSARY PERMITS FROM THE CITY. ALL PERMITS SHALL BE OBTAINED BY THE CONTRACTOR.
11. CONTRACTOR SHALL COORDINATE PHASING OF CONSTRUCTION WITH OWNER.

NO.	DATE	ISSUES / REVISIONS
	7-21-2021	PERMIT SUBMITTAL

SHEET 1 OF 7



LEGEND

- 852 — CONTOUR
- DRAINAGE ARROW
- 852.30 — SPOT ELEVATION
- (852.50) — SPOT ELEVATION - MATCH EXISTING

NOTES:

1. ALL SPOT ELEVATIONS ARE TOP OF PAVEMENT/FLOW LINE ELEVATION UNLESS OTHERWISE SPECIFIED.
2. SEDIMENT CONTROL SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBANCE ACTIVITIES AND MAINTAINED THROUGHOUT CONSTRUCTION PER MNDOT 2575.
3. UNLESS OTHERWISE NOTED, ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE 2018 MINNESOTA DEPARTMENT OF TRANSPORTATION (MnDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND CEAM STANDARD SPECIFICATIONS, 2013 EDITION.
4. ADA CURB RAMP LANDINGS SHALL HAVE A MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS. CURB RAMPS SHALL NOT EXCEED 8.3%.

AREA OF DISTURBANCE = 31,069 SF (0.71 AC)

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1-800-252-1166

NO.	DATE	DRAWN	DESIGN	CHECKED	ISSUES / REVISIONS
	7-21-2021	ANO	ANO	AKC	PERMIT SUBMITTAL

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.

Aaron Carrell
LIC. NO. 47494 DATE: 7-21-2021

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7516 Market Plaza Drive – Eden Prairie, MN 55344
952-829-8700 • 952-829-7806 fax

PROJECT NO. 20-030

SCALE IN FEET
0 30 60 90

OWNER NAME P.R.O.P.
OWNER PROJ. #

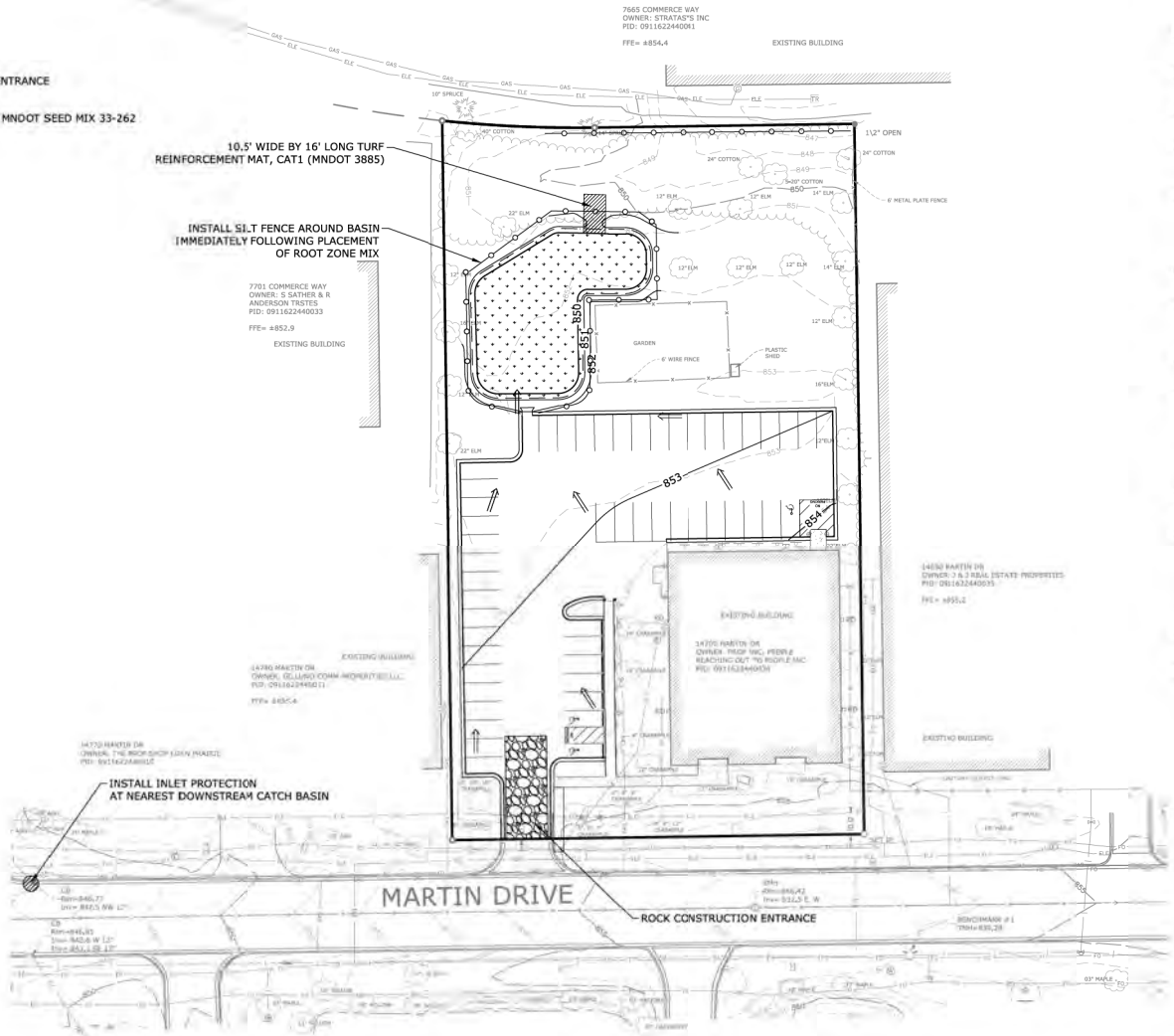
GRADING PLAN

P.R.O.P. PARKING LOT IMPROVEMENTS
14700 MARTIN DRIVE, EDEN PRAIRIE, MN

SHEET 4 OF 7

LEGEND

- INLET PROTECTION
- DRAINAGE ARROW
- SILT FENCE
- ROCK CONSTRUCTION ENTRANCE
- NATIVE WETLAND SEED MNDOT SEED MIX 33-262



NOTES:

1. EROSION CONTROL (INCLUDING ROCK CONSTRUCTION ENTRANCES) SHALL BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION AND MAINTAINED THROUGHOUT CONSTRUCTION.
2. NATURAL TOPOGRAPHY AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RETENTION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
3. ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY RILEY PURGATORY BLUFF CREEK WATERSHED MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADEQUATE STABILIZATION.
4. FINAL SITE STABILIZATION MEASURES MUST SPECIFY THAT AT LEAST SIX INCHES OF TOPSOIL OR ORGANIC MATTER BE SPREAD AND INCORPORATED INTO THE UNDERLYING SOIL DURING FINAL SITE TREATMENT WHEREVER TOPSOIL HAS BEEN REMOVED. ALL DISTURBED GREENSPACE SHALL BE RESTORED WITH 6" OF TOPSOIL (MNDOT SEED MIX 25-151) AND TYPE 3 MULCH UNLESS SHOWN OTHERWISE.
5. CONSTRUCTION SITE WASTE SUCH AS DISCARDED BUILDING MATERIALS CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE MUST BE PROPERLY MANAGED.
6. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S MUST BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION AND VEGETATION IS ESTABLISHED SUFFICIENTLY TO ENSURE STABILITY OF THE SITE, AS DETERMINED BY THE DISTRICT.
7. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S MUST BE REMOVED UPON FINAL STABILIZATION.
8. SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED TO ACHIEVE A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF THE SOIL PROFILE WHILE TAKING CARE TO PROTECT UTILITIES, TREE ROOTS, AND OTHER EXISTING VEGETATION. ALL NON-IMPERVIOUS SURFACES WITHIN THE CONSTRUCTION LIMITS SHALL BE DECOMPACTED PER THESE REQUIREMENTS AFTER PLACEMENT OF TOPSOIL.
9. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 14 CALENDAR DAYS AFTER THE LAND DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED.
10. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES EVERY DAY WORK IS PREFORMED ON THE SITE AND AT LEAST WEEKLY UNTIL LAND-DISTURBING ACTIVITY HAS CEASED. THEREAFTER, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.
11. CONTRACTOR SHALL KEEP ALL ROADWAYS FREE OF SEDIMENTS. STREETS SHALL BE SWEPT AS NEEDED OR AS DIRECTED BY THE ENGINEER.
12. CONTRACTOR SHALL STAKE OFF AND MARK PROPOSED INFILTRATION FACILITIES TO PREVENT SOIL COMPACTION BY HEAVY EQUIPMENT, STOCKPILING OF MATERIALS, AND TRAFFIC. IF INFILTRATION FACILITIES ARE IN PLACE DURING CONSTRUCTION ACTIVITIES, BEST PRACTICES MUST BE DEPLOYED TO PREVENT SEDIMENT AND OTHER MATERIAL FROM ENTERING THE PRACTICE(S). INFILTRATION FACILITIES MUST NOT BE EXCAVATED TO WITHIN 3 FEET FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND FULLY STABILIZED. ANY ACCUMULATED SEDIMENT IN AN INFILTRATION FACILITY MUST BE REMOVED IN MANNER THAT PREVENTS COMPACTION OF THE FACILITY BOTTOM. TO PROVIDE A WELL-AERATED, HIGHLY POROUS SURFACE, THE SOILS BELOW AN INFILTRATION PRACTICE MUST BE LOOSENED TO A MINIMUM DEPTH OF 18 INCHES PRIOR TO INSTALLATION OR PLANTING.

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	7-21-2021	ANO	ANO	AKC	PERMIT SUBMITTAL

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.

Aaron Cantell
LIC. NO. 47494 DATE: 7-21-2021

HT PO Engineering · Surveying · Landscape Architecture
HANSEN THORP PELLINEN OLSON, Inc.
7610 Market Place Drive · Eden Prairie, MN 55344
952-829-8700 · 952-829-7806 fax
PROJECT NO. 20-030

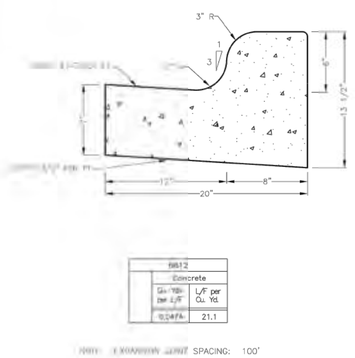
SCALE IN FEET
0 30 60 90

OWNER NAME P.R.O.P.
OWNER PROJ. #

EROSION AND SEDIMENT CONTROL PLAN

P.R.O.P. PARKING LOT IMPROVEMENTS
14700 MARTIN DRIVE, EDEN PRAIRIE, MN

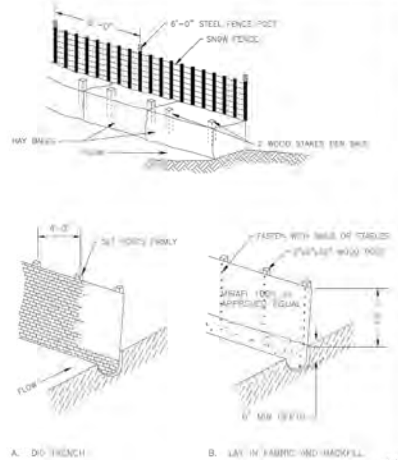
SHEET 5 OF 7



CITY OF EDEN PRAIRIE, MINNESOTA

B612 CURB AND GUTTER DETAILS

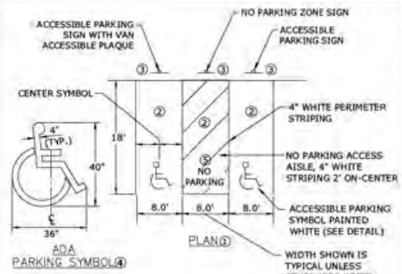
DEPARTMENT OF ENGINEERING R-9



CITY OF EDEN PRAIRIE, MINNESOTA

EROSION CONTROL

DEPARTMENT OF ENGINEERING R-17



KEY NOTES:

1. SEE SITE PLANS FOR ACCESSIBLE PARKING AREA LOCATIONS.
2. SLOPES SHALL NOT EXCEED 2.0% IN ANY DIRECTION IN ACCESSIBLE PARKING AREAS.
3. INSTALL SIGN 2.0' FROM BACK OF WALK UNLESS OTHERWISE SHOWN ON PLANS.
4. INTERNATIONAL SYMBOL OF ACCESSIBILITY
5. MIN. 12" LETTER HEIGHT

ACCESSIBLE PARKING DETAIL

RAIN GUARDIAN

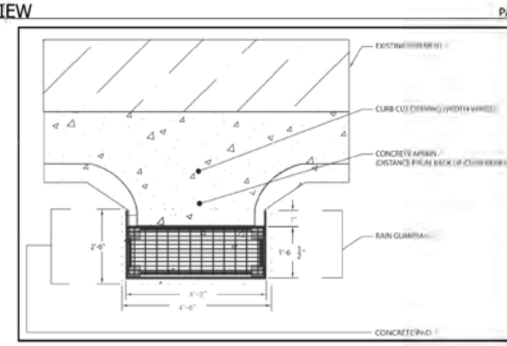
BUNKER TYPICAL DETAIL

1318 MCKAY DR. NE, SUITE 300
HAM LAKE, MN 55304
(763) 434-2030 (M-F 8:00-4:30)
WWW.ANOKASWCD.ORG

ANOKA CONSERVATION DISTRICT

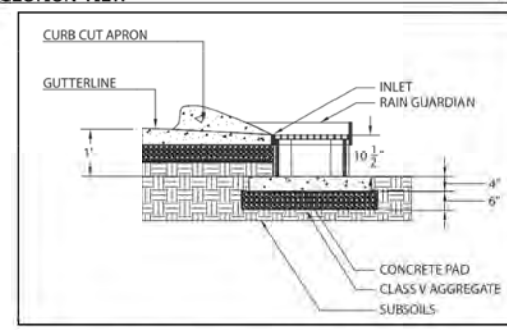
PLAN VIEW

PATENT PENDING

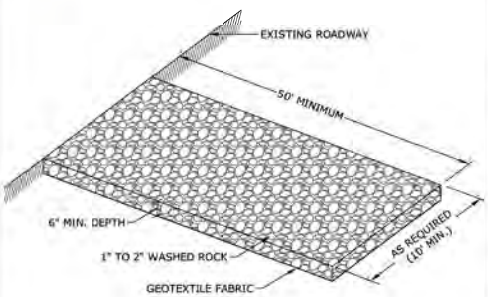


CROSS-SECTION VIEW

PATENT PENDING



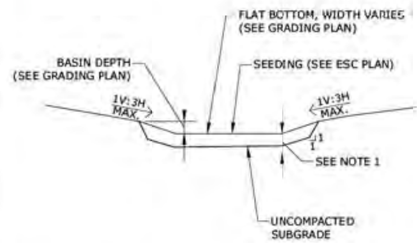
SLAB DIMENSIONS, DISTANCE FROM CURB, AND CHAMBER ELEVATION MAY VARY WITH SITE CONDITIONS. THE TOP OF THE METAL GRATE, HOWEVER, SHOULD BE 1.5" - 2" BELOW THE OVERFLOW ELEVATION AND THE CONCRETE SLAB SHOULD EXTEND WELL BEYOND THE FILTER WALL TO SERVE AS A SPLASH DISSIPATER.



NOTE:

1. GEOTEXTILE FABRIC, TYPE V (Mn/DOT 3733) SHALL BE USED UNDER THE ROCK TO PREVENT MIGRATION OF THE UNDERLYING SOIL INTO THE STONE.
2. CONTRACTOR SHALL DETERMINE THE LOCATIONS OF ALL ROCK CONSTRUCTION ENTRANCES, UNLESS SPECIFIED ON PLANS.

ROCK CONSTRUCTION ENTRANCE



NOTES:

1. PLACE 3" OF GRADE 2 COMPOST (MnDOT 3890) IN BASIN. ROTOTILL COMPOST INTO THE IN-SITU SOIL TO A MIN. DEPTH OF 12".
2. SCARIFY TOP 18" OF SUBGRADE SOIL PRIOR TO PLACEMENT OF COMPOST.
3. INSTALLATION OF COMPOST SHALL NOT OCCUR UNTIL TRIBUTARY AREAS TO THE BASIN HAVE BEEN STABILIZED.
4. CONTRACTOR SHALL TAKE SPECIAL CARE TO MINIMIZE COMPACTION IN INFILTRATION BASIN AREA.
5. INSTALL PERIMETER SEDIMENT CONTROL AROUND INFILTRATION BASIN IMMEDIATELY FOLLOWING EXCAVATION OF BASIN.

INFILTRATION BASIN SECTION

NO.	DATE	DRAWN	DESIGN	CHECKED	ISSUES / REVISIONS
	7-21-2021	AND	AND	AKC	PERMIT SUBMITTAL

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.

Aaron Carroll

LIC. NO. 47494 DATE: 7-21-2021

HTPO Engineering · Surveying Landscape Architecture

HANSEN THORP PELLINEN OLSON, Inc.

PROJECT NO. 20-030

OWNER NAME P.R.O.P.

OWNER PROJ. #

DETAILS

P.R.O.P. PARKING LOT IMPROVEMENTS

14700 MARTIN DRIVE, EDEN PRAIRIE, MN

SHEET 6 OF 7

TASK ORDER No. 28C: Construction Management for
Rice Marsh Lake - Subwatershed RM_12a Water Quality Treatment Project
Pursuant to Agreement for Engineering Services
Riley Purgatory Bluff Creek Watershed District and BARR Engineering Company.
July 28, 2021

This Task Order is issued pursuant to Section 1 of the above-cited engineering services agreement between the Riley Purgatory Bluff Creek Watershed District (District) and BARR Engineering Company (Engineer) and incorporated as a part thereof.

1. Description of Services:

   Barr will complete construction administration for a manufactured treatment device (MTD) (e.g., the Kraken Filter or similar) designed to treat an inflow of up to 6 cfs in the Rice Marsh Lake watershed (subwatershed RM_12a). The services outlined in this Task Order 28C include construction observation and administration, preparation of a maintenance plan, development of record drawings, and development of a final construction memorandum.

   The final design for the proposed water quality system was developed in 2021 as part of TO28B and includes modification of the existing storm sewer to divert low flows to the underground MTD. Treated water will re-enter the existing storm sewer discharging to the RM_12 pond. Disturbed soils will be rehabilitated within the construction extents and re-planted with pollinator vegetation. A curb cut will be constructed along Dakota Lane to direct runoff to a rain garden and into the amended soil areas. The project is designed to restore soil health and reduce the total suspended solids and phosphorous loading to Rice Marsh Lake.

   The following design constraints will be implements as part of the construction process:

   - Installation of permanent BMPs and modifications to the storm sewer system will remain on city of Chanhassen property or within the City right-of-way and/or storm sewer easement
   - Project construction will be in coordination with the City street project on Dakota Lane
   - Impacts to existing upland vegetation and tree removals will be minimized

2. Scope of Services:

   Engineer's services under this task order shall include the tasks associated with completing construction. Individual tasks are described below. It is anticipated that the construction phase will extend for a period of about four months during the fall of 2021, with active construction ongoing for approximately four weeks. Services provided as part of the construction administration and support include the following:

   Task 1. Construction Administration and Observation

   Barr will provide construction planning and coordination with District, selected contractor, and City of Chanhassen. Barr will act as general liaison between contractor and District during the construction process, providing construction observation to confirm that all work adheres to the approved plans. Barr will coordinate work with the city of Chanhassen's street project along Dakota Lane occurring during the summer/fall of 2021. Barr will schedule site visits by design team

members, review work progress, and document quality and compliance through ground photos and field notes during construction. Barr will review pay requests, requests for information (RFIs), and change orders (COs). A Barr engineering representative will be onsite to observe the construction during key times. This consists of on-site support and observation during the anticipated four weeks of active construction to observe and document contractor's work, attend site meetings, and coordinate engineering issues with the contractor, owner, and engineer. We have allocated 2 hours per visit for one Barr staff to visit the site an average of three times per week during the active construction period. The construction observation budget assumes a total of 70 hours of time to complete the various aspects of this task. In addition, we have allotted up to 40 hours for office support to process RFIs, COs, requests for payment.

Upon completion of the project construction, Barr will develop record drawings to document the construction. Record Drawings will include updating the Construction Drawing set with information from the post construction survey to be completed by the contractor including locations and elevations of structures.

Task 2. Maintenance Plan

Barr will develop a post-construction maintenance plan for the project. Barr will develop a maintenance plan in the form of a technical memorandum for the constructed BMP and amended soil areas. The maintenance plan will include product manuals from the MTD manufacturer.

Task 3. Final Construction Summary

The construction summary will compile such items as formal approved technical submittals, responses to requests for information from the contractor, maintenance information, construction photos, field notes, pay applications, change orders (if applicable), and record construction drawings. We have assumed that one draft will be provided to the District Administrator for review and comment. Comments on the draft memorandum will be incorporated into the final construction memorandum.

Task 4. Vegetation Establishment Monitoring

Barr will provide monitoring of vegetation establishment after substantial completion of the project. Barr will act as general liaison between contractor and District to confirm that all work adheres to the approved vegetation plans. Barr will schedule site visits by design team members, review establishment progress, and document quality and compliance through ground photos and field notes. The three-year vegetation establishment period will require on-going site visits and submittals reviews over the three-year duration. We have allocated 3 hours per visit for one Barr staff to visit the site twice per year during the three-year vegetation establishment period. Fifty (50) hours are allotted to complete the various aspects of this task.

Task 5. Project Management

Barr will provide updates to the project team to document construction progress and coordinate tasks. Barr will provide monthly progress reports and budget status updates as part of the monthly invoicing process. Barr will solicit District feedback on an ongoing basis to ensure clear and timely communication.

Assumptions

Barr has made several assumptions scope of work items in this agreement. Assumptions relating to individual work tasks are listed above in the task detailed descriptions. However, additional assumptions that do not correspond with a single work task are listed below:

- Post-construction survey will be completed by the selected contractor or RPBCWD staff.
- Meetings with the City and other stakeholders will last approximately 1 hour and will be held virtually or at the District's office.
- The project site is free from contamination.
- The proposed budget includes costs for mileage reimbursement for site visits and site observation.
- Construction contractor will be responsible for all construction staking and surveying.
- Contractor will be responsible for obtaining permits not identified in task order TO28B.
- There are no utility relocations necessary to construct the BMP and the existing sanitary sewer line does not inhibit the proposed configuration.
- No design modification will be needed after the project is released for bidding.

3. Deliverables:
   The following deliverables will be prepared:

   - Reviewed and redlined construction documents such as shop drawings, RFIs, etc. completed by the end of construction
   - Pay applications from contractor
   - Change orders (if necessary), up to two
   - Record Construction drawings based on Contractor provided information
   - Maintenance plan
   - Final construction summary
   - Documentation of vegetation establishment over the three-year period in the form of field notes and ground photos

4. Budget:
   Services under this Task Order will be compensated for in accordance with the engineering services agreement and will not exceed $37,500, without written authorization by the RPBCWD Administrator. Barr understands the importance of working as efficiently as possible while providing the services needed for design and construction. Therefore, we will look for cost saving during the entire construction process. The following table provides a breakdown of the anticipated cost for major tasks associated with scope of services describe above.

Subtask	Anticipated Budget
Construction Administration and Observation	$19,300
Maintenance Plan	$4,000
Final Construction Summary	$3,000
Vegetation Establishment Monitoring	$7,500
Project Management	$3,700
Task Order 28C Total Budget	**$37,500**

5. Tentative Schedule
   The following proposed schedule has been developed assuming authorization in August of 2021:

   - Contract award, review of submittals – September 2021
   - Construction substantial completion – June 2022
   - Record drawings – July 2022
   - Final construction summary – December 2022
   - Maintenance plan – December 2022
   - Construction final completion – October 2024

IN WITNESS WHEREOF, intending to be legally bound, the parties hereto execute and deliver this Agreement.

CONSULTANT	**RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT**
By_____	By_____
Its__Vice President_____	Its__President_____
Date:	Date:
	APPROVED AS TO FORM & EXECUTION

Memorandum

SRF No. 13385.00

To: Terry Jeffrey, Interim Administrator
Riley Purgatory Bluff Creek Watershed District

From: Leah Gifford, PE
SRF Consulting Group, Inc.

Date: April 28, 2021

Subject: St. Hubert School Water Quality and Landscaping Project:
Scope of Work for Water Reuse, Education and Outreach, and Out of Scope final Design Tasks

Purpose

The purpose of this memorandum is to define the Scope of Work for the budget adjustments for water reuse design, education and outreach and Out of Scope final design tasks for the St. Hubert School Water Quality and Landscaping Project. The contract was originally executed in April 2020 and these requests were individually approved by the Administrator during the course of the project. The ultimate project will consist of a new tree trench, rain garden, native plant restoration, two outdoor classrooms, playground surface design, parking lot reconfiguration, and drainage and gully repair and will be constructed in the summer of 2021.

Out of Scope Tasks

Below is a summary of the tasks that we consider out of scope from the initial contract agreement and the estimated cost to complete these tasks.

Water Reuse Task	Hours	Average Rate	Cost	Task Status
Feasibility, Preliminary Design and Final Design of Water Reuse system	83	$120/hr	$9,960	COMPLETE
Mileage and Expenses			$ 39	COMPLETE
Total	**83**		**$9,999**	

Education and Outreach Task	Hours	Average Rate	Cost	Task Status
Tree and planting coordination with RPBCWD, SWCD and School	18	$135/hr	$2,430	60% COMPLETE
Educational Graphics	54	$93/hr	$5,022	NOT STARTED
Mileage and Expenses			$ 48	NOT USED
Total	**72**		**$7,500**	

Assumptions:
-Tree and planting coordination is during design and construction window, thru October 2021.
-Educational Graphic budget was included in the initial scope. $5,020 was transferred from the original scope to cover the additional coordination that has been required by the school and WD project management.

Final Design Tasks	Hours	Average Rate	Cost	Task Status
Eight (8) Additional Meetings (Virtual Meetings, assumes 1.5 hours for meeting and prep, followup, 2 people)	24	$135/hr	$ 3,240	COMPLETE
Assistance with Cooperative Agreement, Figures, Memos to Board, work plan	20	$135/hr	$ 2,700	COMPLETE
Combining Projects into one plan, estimate, and specification manual (due to Construction Schedule change)	20	$110/hr	$ 2,200	COMPLETE
Cost Estimation for separated pay areas and by payer	16	$110/hr	$1,760	COMPLETE
Total	**80**		**$9,900**	

Conclusion

In summary, SRF has requested funds not to exceed $27,399, which includes both time and expenses, to account for additional scope items outlined above.

250 Marquette Avenue South
Suite 250
Minneapolis, MN 55401
612-344-1400

www.smithpartners.com

MEMORANDUM

To: **Riley-Purgatory-Bluff Creek Watershed District Board of Managers**

From: **Michael Welch**

RE: **SRF contract authorization – St. Hubert's project**

Date: **July 29, 2021**

At the May 10 continued meeting of the managers, the board authorized an amendment of the contract with SRF Consulting for design, engineering and contract management for the St. Hubert's project. The motion authorized additional work at a cost not to exceed $18,399. Inadvertently, the motion was based on a misunderstanding as to the total of requested additional work, which amounted to $27,399.

To remedy the miscommunication, staff and counsel are requesting that the board consider authorizing as additional $9,000 to cover the attached scopes of work. Because the contract for the full amount of the work has already been executed by all parties (and counsel for form and execution), the proposed action is a ratification of the already executed contract.

The total contract amount for SRF's work on the St. Hubert project would be, with this ratification, $118,299.

Recommendation
Ratify the execution of the agreement with SRF Consulting by the administrator, on advice of counsel, for not to exceed $27,399.

c/Terry Jeffery, interim administrator

April 28, 2021, Memo to Terry Jeffery, Interim Administrator
from Leah Gifford, SRF Consulting

Memorandum

SRF No. 13385.00

To: Terry Jeffrey, Interim Administrator
Riley Purgatory Bluff Creek Watershed District

From: Leah Gifford, PE
SRF Consulting Group, Inc.

Date: April 28, 2021

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Total	**80**		**$9,900**	

Conclusion

In summary, SRF has requested funds not to exceed $27,399, which includes both time and expenses, to account for additional scope items outlined above.

REDPATH AND COMPANY

July 28, 2021

Terry Jeffery
Interim District Administrator
Riley Purgatory Bluff Creek Watershed District
18681 Lake Drive E.
Chanhassen, Minnesota 55317

Dear Terry:

Enclosed please find the checks and Treasurer's Report for Riley Purgatory Bluff Creek Watershed District for the one month and six months ending June 30, 2021.

Please examine these statements and if you have any questions or need additional copies, please call me.

Sincerely,

REDPATH AND COMPANY, LTD.

Mark C. Gibbs, CPA
Enclosure

REDPATH AND COMPANY

To The Board of Managers
Riley Purgatory Bluff Creek Watershed District
Chanhassen, Minnesota

Accountant's Opinion

The Riley Purgatory Bluff Creek Watershed District is responsible for the accompanying June 30, 2021 Treasurer's Report in the prescribed form. We have performed a compilation engagement in accordance with the Statements on Standards for Accounting and Review promulgated by the Accounting and Review Services Committee of AICPA. We did not audit or review the Treasurer's Report nor were we required to perform any procedures to verify the accuracy or completeness of the information provided by the Riley Purgatory Bluff Creek Watershed District. Accordingly, we do not express an opinion, a conclusion, nor provide any form of assurance on the Treasurer's Report.

Reporting Process

The Treasurer's Report is presented in a prescribed form mandated by the Board of Managers and is not intended to be a presentation in accordance with accounting principles generally accepted in the United States of America. The reason the Board of Managers mandates a prescribed form instead of GAAP (Generally Accepted Accounting Principles) is this format gives the Board of Managers the financial information they need to make informed decisions as to the finances of the watershed.

GAAP basis reports would require certain reporting formats, adjustments to accrual basis and supplementary schedules to give the Board of Managers information they need, making GAAP reporting on a monthly basis extremely cost prohibitive. An independent auditing firm is retained each year to perform a full audit and issue an audited GAAP basis report. This annual report is submitted to the Minnesota State Auditor, as required by Statute, and to the Board of Water and Soil Resources.

The Treasurer's Report is presented on a modified accrual basis of accounting. Expenditures are accounted for when incurred. For example, payments listed on the Cash Disbursements report are included as expenses in the Treasurer's Report even though the actual payment is made subsequently. Revenues are accounted for on a cash basis and only reflected in the month received.

REDPATH AND COMPANY, LTD.

Redpath and Company, Ltd.

St. Paul, Minnesota
July 28, 2021

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

Treasurers Report

June 30, 2021

REPORT INDEX

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Cash Disbursements
June 30, 2021

Accounts Payable:

Check #	Payee	Amount
5635	Abdo, Eick & Meyers, LLC	$2,400.00
5636	Barr Engineering	89,057.99
5637	B9 Polar Waters, LLC	14,914.72
5638	MN Board of Water & Soil Resources	40.00
5639	CenturyLink	294.93
5640	City of Chanhassen	23.88
5641	Coverall of the Twin Cities, Inc.	316.76
5642	Fortin Consulting, Inc.	4,975.00
5643	Dean C. Hansen	1,400.00
5644	HealthPartners	11,581.37
5645	Amy Herbert	735.00
5646	Iron Mountain	188.05
5647	Larry Koch	808.06
5648	Metro Sales, Inc.	285.94
5649	Pax Christi Catholic Community	9,166.95
5650	Principal Life Insurance Company	465.06
5651	Purchase Power	34.65
5652	Redpath & Company	2,228.09
5653	RMB Environmental Laboratories, Inc.	2,562.00
5654	RMB Environmental Laboratories, Inc.	1,989.00
5655	RMB Environmental Laboratories, Inc.	1,102.00
5656	Smith Partners	20,496.51
5657	Southwest News Media	1,056.42
5658	SRF Consulting Group, Inc.	2,721.81
5659	Stantec Consulting Service	3,072.00
5660	Joseph Suek	290.00
5661	Xcel Energy	682.16
	Total Accounts Payable:	**$172,888.35**

Payroll Disbursements:

Payroll Processing Fee	268.05
Employee Salaries	41,873.17
Employer Payroll Taxes	3,292.96
Employer Benefits (H.S.A. Match)	600.00
Employee Benefit Deductions	(516.04)
Staff Expense Reimbursements	569.01
PERA Match	2,163.38
Total Payroll Disbursements:	**$48,250.53**
VISA - 6/17/21	1,618.45
Permit Fee Refund - Joseph Suek - Ck. #5660	(290.00)
TOTAL DISBURSEMENTS:	**$222,467.33**

Memos
The 2021 mileage rate is .56 per mile. The 2020 rate was .575
Old National VISA will be paid on-line.

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Fund Performance Analysis - Table 1
June 30, 2021

	2021 Budget	Fund Transfers	2021 Budget	Current Month	Year-to-Date	Year-to Date Percent of Budget
REVENUES						
Plan Implementation Levy	$3,575,000.00	-	$3,575,000.00	-	-	0.00%
Permit Fees	25,000.00	-	25,000.00	6,210.00	36,550.95	146.20%
Grant Income	272,580.00	-	272,580.00	-	31,933.00	11.72%
Investment Income	30,000.00	-	30,000.00	(21.55)	328.55	1.10%
Miscellaneous Income	-	-	-	3.85	6.84	---
Past Levies	3,204,427.00	-	3,204,427.00	-	-	0.00%
Partner Funds	451,000.00	-	451,000.00	-	2,000.00	0.44%
TOTAL REVENUE	**$7,558,007.00**	-	**$7,558,007.00**	**$6,192.30**	**$70,819.34**	**0.94%**
EXPENDITURES						
Administration						
Audit	$15,000.00	-	$15,000.00	$2,400.00	$14,400.00	96.00%
Accounting (and Audit)	$31,000.00		31,000.00	2,496.14	19,366.34	62.47%
Advisory Committees	7,000.00	-	7,000.00	-	-	0.00%
Insurance and bonds	18,000.00	-	18,000.00	-	414.00	2.30%
Engineering Services	112,000.00	-	112,000.00	10,615.06	66,783.56	59.63%
Legal Services	84,000.00	-	84,000.00	4,453.33	43,697.42	52.02%
Manager Per Diem/Expense	30,000.00	-	30,000.00	875.00	9,543.88	31.81%
Dues and Publications	16,000.00	-	16,000.00	-	9,006.00	56.29%
Office Cost	190,000.00	-	190,000.00	19,401.64	69,588.72	36.63%
Permit Review and Inspection	140,000.00	-	140,000.00	27,475.44	94,668.55	67.62%
Permit and Grant Database	-	-	-	-	10,750.00	---
Professional Services	10,000.00	-	10,000.00	-	12,335.50	123.36%
Recording Services	15,000.00	-	15,000.00	735.00	7,500.00	50.00%
Staff Cost	802,054.00	-	802,054.00	38,678.57	247,176.87	30.82%
Subtotal	**$1,470,054.00**	-	**$1,470,054.00**	**$107,130.18**	**$605,230.84**	**41.17%**
Programs and Projects						
District Wide						
10-year Management Plan	$10,000.00	-	$10,000.00	$1,075.57	$4,349.07	43.49%
AIS Inspection and early response	85,000.00	-	85,000.00	5.36	14,018.04	16.49%
Cost-Share/Stewardship Grant	346,735.00	-	346,735.00	14,924.45	52,604.94	15.17%
Data Collection and Monitoring	193,000.00	-	193,000.00	23,678.22	137,913.95	71.46%
Community Resiliency	111,058.00	-	111,058.00	-	7,596.50	6.84%
Education and Outreach	100,834.00	-	100,834.00	2,916.65	14,896.98	14.77%
Plant Restoration - U of M	61,613.00	-	61,613.00	-	9,474.60	15.38%
Repair and Maintenance Fund *	212,540.00	-	212,540.00	-	170.00	0.08%
Wetland Management*	111,248.00	-	111,248.00	24,464.42	94,714.83	85.14%
Groundwater Conservation*	229,444.00	-	229,444.00	-	450.00	0.20%
Lake Vegetation Implementation	83,083.00	-	83,083.00	3,072.00	12,828.38	15.44%
Opportunity Project*	317,480.00	-	317,480.00	-	-	0.00%
Stormwater Ponds - U of M	67,164.00	-	67,164.00	-	36,719.00	54.67%
Hennepin County Chloride Initiative	92,971.00	-	92,971.00	4,975.00	4,975.00	5.35%
Lower Minnesota Chloride Cost-Share	217,209.00	-	217,209.00	-	-	0.00%
Subtotal	**$2,239,379.00**	-	**$2,239,379.00**	**$75,111.67**	**$390,711.29**	**17.45%**
Bluff Creek						
Bluff Creek Tributary*	$7,251.00	-	$7,251.00	-	-	0.00%
Wetland Restoration at Pioneer	$665,285.00		665,285.00	3,395.10	63,662.55	9.57%
Bluff Creek B5 by Galpin	140,000.00	-	140,000.00	-	-	0.00%
Subtotal	**$812,536.00**	-	812,536.00	**$3,395.10**	**$63,662.55**	**7.84%**
Riley Creek						
Lake Riley - Alum Treatment*	$62,885.00	-	$62,885.00	-	-	0.00%
Rice Marsh Lake in-lake phosphorus load	45,636.00	-	45,636.00	1,458.08	4,158.78	9.11%
Rice Marsh Lake Water Quality Improvement Phase 1	634,147.00	-	634,147.00	22,696.50	56,271.80	8.87%
Riley Creek Restoration (Reach E and D3)	107,047.00	-	107,047.00	2,189.70	9,234.69	8.63%
Upper Riley Creek Stabilization	902,025.00	-	902,025.00	475.00	27,441.06	3.04%
Middle Riley Creek	192,363.00	-	192,363.00	5,233.50	72,456.50	37.67%
Lake Ann Wetland Restoration	50,000.00	-	50,000.00	-	-	0.00%
St. Hubert Water Quality Project	147,063.00	-	147,063.00	4,001.60	78,054.91	53.08%
Subtotal	**$2,141,166.00**	**$0.00**	2,141,166.00	**$36,054.38**	**$247,617.74**	**11.56%**
Purgatory Creek						
Purgatory Creek Rec Area- Berm/retention area - feasibility/design	$34,899.00	-	$34,899.00	-	$4,634.75	13.28%
Lotus Lake in-lake phosphorus load control	79,225.00	-	79,225.00	-	-	0.00%
Silver Lake Restoration - Feasibility Phase 1	207,208.00	-	207,208.00	776.00	38,830.00	18.74%
Scenic Heights	92,040.00	-	92,040.00	-	2,983.00	3.24%
Hyland Lake in-lake phosphorus load control	20,000.00	-	20,000.00	-	-	0.00%
Duck Lake watershed load	32,120.00	-	32,120.00	-	4,376.00	13.62%
Lotus Lake Kerber Pond	14,380.00		14,380.00		-	0.00%
Duck lake Partnership	235,000.00	-	235,000.00	-	-	0.00%
Subtotal	**$714,872.00**	**$0.00**	$714,872.00	**$776.00**	**$50,823.75**	7.11%
Reserve	**$180,000.00**	**$0.00**	180,000.00	-	-	0.00%
TOTAL EXPENDITURE	**$7,558,007.00**	**$0.00**	**$7,558,007.00**	**$222,467.33**	**$1,358,046.17**	**17.97%**
EXCESS REVENUES OVER (UNDER) EXPENDITURES	**$0.00**	**$0.00**	**$0.00**	**($216,275.03)**	**($1,287,226.83)**	

***Denotes Multi-Year Project - See Table 2 for details**

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
Muti-Year Project Performance Analysis - Table 2
June 30, 2021

	Total Lifetime Budget	FUNDING SOURCE District funds	Partner Fund	Grants	Current Year Budget	Costs Month End	Costs Year-to-Date	Total Costs to Date	District's Share Current Year	District's Share Future Years
Programs and Projects										
District Wide										
Community Resiliency	**$148,000.00**	$98,000.00	-	50,000.00	$111,058.00	-	$7,596.50	$69,537.57	$75,000.00	60,000.00
Repair and Maintenance Fund	**277,005.00**	277,005.00	-	-	212,540.00	-	170.00	89,635.08	-	20,000.00
Wetland Management	**200,000.00**	200,000.00	-	-	111,248.00	24,464.42	94,714.83	208,466.71	-	70,000.00
Groundwater Conservation	**180,000.00**	180,000.00	-	-	229,444.00	-	450.00	1,005.85	50,000.00	79,000.00
Opportunity Project*	**300,000.00**	300,000.00	-	-	317,480.00	-	-	26,165.29	50,000.00	70,000.00
Stormwater Ponds - U of M	**106,092.00**	64,092.00	42,000.00	-	67,164.00	-	36,719.00	95,646.97	20,000.00	-
Hennepin County Chloride Initiative	**120,800.00**	19,000.00	-	101,800.00	92,971.00	4,975.00	4,975.00	32,804.77	-	-
Lower Minnesota Chloride Cost-Share	**217,209.00**	20,000.00	-	197,209.00	217,209.00	-	-	-	-	-
Subtotal	**$1,549,106.00**	**$1,158,097.00**	**$42,000.00**	**$349,009.00**	**$1,359,114.00**	**$29,439.42**	**$144,625.33**	**$523,262.24**	**195,000.00**	**299,000.00**
Bluff Creek										
Bluff Creek Tributary*	**$436,750.00**	$386,750.00	$50,000.00	-	$7,251.00	-	-	$391,498.69		
Wetland Restoration at Pioneer	**857,820.00**	450,000.00	-	407,820.00	665,285.00	3,395.10	63,662.55	706,199.71	450,000.00	-
Bluff Creek B5 by Galpin	**614,000.00**	614,000.00			140,000.00	-	-	-	140,000.00	614,000.00
Subtotal	**$1,908,570.00**	**$1,450,750.00**	**$50,000.00**	**$407,820.00**	**$812,536.00**	**3,395.10**	**$63,662.55**	**$1,097,698.40**	**$590,000.00**	**614,000.00**
Riley Creek										
Lake Riley - Alum Treatment 1st dose *	**$560,000.00**	$560,000.00	-	-	$62,885.00	-	-	$512,114.57	-	-
Rice Marsh Lake in-lake phosphorus load	**150,000.00**	150,000.00	-	-	45,636.00	1,458.08	4,158.78	108,523.43	-	170,000.00
Rice Marsh WQ 1	**300,000.00**	300,000.00	-	-	634,147.00	22,696.50	56,271.80	72,124.30	350,000.00	-
Riley Creek Restoration (Reach E and D3) *	**2,168,148.00**	1,615,000.00	553,148.00	-	107,046.00	2,189.70	9,234.69	2,237,091.72	40,000.00	-
Upper Riley Creek Stabilization	**950,000.00**	950,000.00			902,025.00	475.00	27,441.06	75,415.58	100,000.00	-
Middle Riley Creek	**45,000.00**		45,000.00		192,363.00	5,233.50	72,456.50	72,456.50	-	-
St Hubert	**178,865.00**		65,000.00	113,865.00	147,063.00	4,001.60	78,054.91	78,054.91	100,000.00	-
Subtotal	**$4,352,013.00**	**$3,575,000.00**	**$663,148.00**	**$113,865.00**	**$2,091,165.00**	**$36,054.38**	**$247,617.74**	**$3,155,781.01**	**$590,000.00**	**170,000.00**
Purgatory Creek										
Purgatory Creek Rec Area- Berm/retention area - feasibility/design	**$50,000.00**	$50,000.00	-	-	$34,899.00	-	$4,634.75	$19,736.03	-	-
Lotus Lake in-lake phosphorus load control	**345,000.00**	345,000.00	-	-	79,225.00	-	-	265,773.75	-	345,000.00
Silver Lake Restoration Project WQ1	**268,013.00**	268,013.00	-	-	207,208.00	776.00	38,830.00	99,635.19	-	-
Scenic Heights	**260,000.00**	165,000.00	45,000.00	50,000.00	92,040.00	-	2,983.00	210,942.75	-	-
Hyland Lake Internal Load	**150,000.00**	130,000.00	20,000.00	-	20,000.00	-	-	128,612.41	20,000.00	150,000.00
Duck Lake watershed load	**220,000.00**	220,000.00	-	-	32,120.00	-	4,376.00	192,255.01	-	-
Subtotal	**$1,293,013.00**	**$1,178,013.00**	**$65,000.00**	**$50,000.00**	**$465,492.00**	**$776.00**	**$50,823.75**	**$916,955.14**	**$20,000.00**	**495,000.00**
Total Multi-Year Project Costs	**$9,102,702.00**	**$7,361,860.00**	**$820,148.00**	**$920,694.00**	**$4,728,307.00**	**$69,664.90**	**$506,729.37**	**$5,693,696.79**	**$1,395,000.00**	**$1,578,000.00**

Riley Purgatory Bluff Creek Watershed District
Balance Sheet
As of June 30, 2021

ASSETS

Current Assets

General Checking-Old National	$1,608,895.05	
Checking-Old National/BMW	23,256.03	
Investments-Standing Cash	3,287,085.21	
Investments-Wells Fargo	747,184.26	
Accrued Investment Interest	7.50	
Due From Other Governments	143,280.00	
Taxes Receivable-Delinquent	34,792.36	
Pre-Paid Expense	31,914.23	
Security Deposits	7,244.00	
Total Current Assets:		**$5,883,658.64**

LIABILITIES AND CAPITAL

Current Liabilities

Accounts Payable	$319,347.11	
Retainage Payable	27,616.74	
Withholding Taxes	564.11	
Permits & Sureties Payable	679,189.25	
Deferred Revenue	34,792.36	
Unearned Revenue	183,153.00	
Total Current Liabilities:		**$1,244,662.57**

Capital

Fund Balance-General	$5,926,222.90	
Net Income	(1,287,226.83)	
Total Capital		**$4,638,996.07**
Total Liabilities & Capital		**$5,883,658.64**

RILEY PURGTORY BLUFF CREEK WATERSHED DISTRICT
OLD NATIONAL BANK VISA ACTIVITY
June 30, 2021

DATE	PURCHASED FROM	AMOUNT	DESCRIPTION	ACCOUNT #	RECEIPT
05/07/21	Verizon Wireless	1,295.73	Telecommunications	10-00-4240	Y
05/12/21	Microsoft	295.70	Monthly Software Subscription	10-00-4203	Y
05/13/21	Kai Sushi Grill Chanhassen	27.02	Meeting Supplies	10-00-4205	N
06/16/21	SP*Stormtech Burnaby BC	315.00	Team Gear	10-00-4321	Y
06/16/21	Foreign Transaction Fee	6.30	Transaction Fee	10-00-4910	Y
06/21/21	Menards Eden Prairie	143.86	Warehouse Equipment	10-00-4635	Y
06/21/21	Verizon Wireless	455.05	Telecommunications	10-00-4240	Y
06/25/21	Randys Sanitation	103.18	Monthly Trash & Recycling	10-00-4220	Y
06/28/21	Kowalski's Market	25.21	Office Cost	10-00-4205	Y
06/28/21	General Delivery Service	26.50	Courier Service	10-00-4280	Y
07/03/21	Intuit	35.00	Monthly Accounting Software	10-00-4203	Y
07/08/21	Zapier Com/Charge Zapier	239.88	Annual Software Subscription	10-00-4203	Y
07/09/21	Forestry Suppliers, Inc.	203.30	Office Supplies	10-00-4200	Y
07/10/21	Microsoft	147.64	Monthly Software Subscription	10-00-4203	Y
07/10/21	Microsoft	93.96	Monthly Software Subscription	10-00-4203	Y
07/14/21	Kowalski's Market	35.96	Office Cost	10-00-4205	Y
07/16/21	Amzn Mktp	68.00	Office Equipment	10-00-4635	Y
		$3,517.29			
06/22/21	Northern Tool Equipment	83.26	Field Supplies	20-02-4201	Y
06/22/21	Holiday Stations	25.83	Vehicle Fuel	20-05-4322	Y
06/23/21	Speedway	14.69	Vehicle Fuel	20-05-4322	Y
06/23/21	USPS	180.00	Postage	20-08-4280	Y
06/23/21	Holiday Stations	67.93	Vehicle Fuel	20-05-4322	Y
06/23/21	Amzn Mktp.	14.41	Field Supplies	20-05-4201	Y
06/25/21	Sigma Aldrich US	204.46	Field Supplies	20-05-4201	Y
06/28/21	Hach Company	420.05	Field Supplies-Chemical	20-05-4201	Y
07/02/21	Hach Company	183.45	Field Supplies-Chemical	20-05-4201	Y
07/02/21	Speedway	63.88	Vehicle Fuel	20-05-4322	Y
07/07/21	Speedway	0.55	Vehicle Fuel	20-05-4322	Y
07/07/21	The Home Depot	42.66	Field Equipment	20-05-4635	Y
07/12/21	Facebook	3.00	Event Cost	20-08-4345	Y
07/09/21	Holiday Stations	96.84	Vehicle Fuel	20-05-4322	N
07/14/21	Onxmaps.com	29.99	DC Software	20-05-4203	Y
07/14/21	Amzn Mktp.	41.73	Office Supplies	20-13-4200	Y
07/15/21	Vanillagift.com	55.90	Event Cost	20-08-4345	Y
		$1,528.63	**District-Wide Total**		
		$5,045.92	**GRAND TOTAL**		

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2021-012

Considered at Board of Managers Meeting: August 4, 2021

Received complete: April 13, 2021

Applicant:	Dean Lotter, Pulte Homes
Consultant:	Mark Rausch, Alliant Engineering
Project:	Noble Hills: proposed redevelopment of an existing single-family home site for 50 single-family residential lots. The construction will also disturb the turn lanes and the city trail along Spring Road. Proposed stormwater features include three infiltration basins and one sediment basin.
Location:	9955 Spring Road, Eden Prairie, MN 55347
Reviewer:	Scott Sobiech, P.E., Barr Engineering

Proposed Board Action

Manager _____ moved and Manager _____ seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the August 4, 2021 meeting of the managers:

Resolved that the application for Permit 2021-012 is approved, subject to the conditions and stipulations set forth in the Recommendations section of the attached report;

Resolved that on determination by the RPBCWD administrator that the conditions of approval have been affirmatively resolved, the RPBCWD president or administrator is authorized and directed to sign and deliver Permit 2021-012 to the applicant on behalf of RPBCWD.

Upon vote, the resolutions were adopted, _____ [VOTE TALLY].

Applicable Rule Conformance Summary

Rule	Issue		Conforms to RBPCWD Rules?	Comments
C	**Erosion Control Plan**		See comment.	See rule-specific permit condition C1-C4.
D	**Wetland and Creek Buffers**		See comment.	See rule-specific permit condition D1-D2.
J	**Stormwater Management**	Rate	Yes.	
		Volume	See comment.	See stipulations 1.
		Water Quality	Yes.	
		Low Floor Elev.	Yes.	
		Maintenance	See comment.	See rule-specific permit condition J1.
		Chloride Management	Yes	
		Wetland Protection	Yes.	
L	**Permit Fee**		Yes.	$3,000 received March 22, 2021
M	**Financial Assurance**		See comment.	The financial assurance is calculated at $150,030

Background

At the June 2, 2021 meeting the Riley Purgatory Black Creek Watershed District (RPBCWD) considered permit number 2021-015 for the Noble Hills development in Eden Prairie. During the discussion of the permit, the managers expressed the following concerns and need for additional information to make informed decisions to protect the water resources on the site (Riley Creek and an exceptional value wetland):

- Stability of the steep slopes during construction and following fall project build out,
- The effects of land disturbing activities, stormwater management, and vegetation removal/restoration on erosion potential along the proposed slopes,
- The potential for groundwater seeps or springs along the steep slopes on the site,
- The potential for stormwater pollutants such as chloride to migrate toward the water resources.

As a result, the board extended the permit review timeline by 60 days consistent with Minnesota Statutes section 15.99 to allow time for additional information to be provided and considered by the board.

The applicant is planning a low-density residential redevelopment consisting of 50 single-family homes on a 32-acre site in Eden Prairie, Minnesota. The existing site is used as a single-family residence and

tree farm. The existing imperviousness on the site is comprised of a residential structure, driveway and outbuildings. The site features significant varying slopes, and steep slopes constituting a high-risk erosion area as delineated by the District, and most of the site discharges to a wetland which abuts Riley Creek on the western border of the site. The proposed redevelopment into 50 single-family homes will include construction of associated streets, underground utilities, and stormwater features. Three infiltration basins and one sediment basin are proposed to provide stormwater quantity, volume and quality control.

The water resources are within the project site or downgradient of the proposed activities are summarized in the following table. The table also provides a brief explanation of how each resource is implicated in the permit application review process.

Water resource impacted by project

Water Resource	Projected resource impacts
Wetland 1	A Wetland Conservation Act (WCA) protected wetland abuts Riley Creek, is downgradient from proposed land-disturbing activities.
Riley Creek	Creek is downgradient from land-disturbing activities. l
High Risk Erosion Area Watercourses	One watercourse on the property within a high risk erosion area.

The project site information is summarized below:

Project Site Information	Area (acres)
Total Site Area	31.98
Existing Site Impervious	0.44
Disturbed Site Impervious Area	0.44 (100%)
Proposed Site Impervious Area	6.49 (>100% increase)
Change in Site Impervious Area	6.05 (>100% increase)
Total Disturbed Area	21.56

The following materials were reviewed in support of the permit request:

1. Application received March 15, 2021 (Incomplete notice was sent on March 29, 2021; materials submitted to complete application on April 13, 2021)
2. Construction Plan Sheets (37 sheets) dated February 19 ,2021 (revised April 13, 2021, April 23, 2021, and May 20, 2021), updated Wetland Management Plan sheet (sheet 27) dated May 4, 2021

3. Noble Hill Final Plat and Land Alteration Planset, prepared by Alliant Engineering, dated July 21, 2021
4. Stormwater Management Study dated March 15, 2021 (Revise April 13, 2021, April 23, 2021, and May 20, 2021)
5. Geotechnical Evaluation Report by Braun Intertec dated March 5, 2020
6. Wetland Delineation Report received March 15, 2021
7. Double Ring Infiltrometer test dated April 6, 2021
8. Electronic HydroCAD models received on March 15, 2021 (revise April 13, 2021 and April 23, 2021)
9. Electronic MIDS models received on March 15, 2021 (revised April 13, 2021 and April 23, 2021)
10. Engineers' opinion of probable cost received April 13, 2021
11. Response to RPBCWD review comments received April 13, 2021
12. Response to RPBCWD review comments received April 23, 2021
13. Noble Hill Development / Standal Property Field Review Observations of Riley Purgatory Bluff Creek Watershed Possible Mapped Stream Locations memo dated May 3, 2021.
14. Noble Hill Final Plat and Land Alteration plan set (40 sheets) dated May 20, 2021
15. Geotechnical Evaluation, Noble Hill Development Stability and Seepage Analyses prepared by Braun Intertec, dated July 22, 2021
16. Noble Hill Additional Hydrologic/Hydraulic Analysis prepared by Alliant Engineering, Inc., dated July 22, 2021.
17. HydroCAD models on the interior drainage system received July 22, 2021

Rule A: Procedural Requirements

Because the proposed project includes undertaking an activity for which a RPBCWD permit is required, the applicant must obtain the required permit prior to commencing the activity that is regulated by the District and must conform to the RPBCWD's Procedural Requirements (Rule A).

Rule A, Subsection 2.3 requires that an application be authorized by all property owners must be submitted to the District to obtain a permit. Because the construction of the proposed turn lanes on City of Eden Prairie right of way is part of the project, the applicant provided documentation demonstrating that the necessary land-use rights have been obtained for the proposed activities.

Rule C: Erosion and Sediment Control

Because the project will involve 21.56 acres of land-disturbing activity, the project must conform to the requirements in the RPBCWD Erosion and Sediment Control rule (Rule C, Subsection 2.1). The erosion control plan prepared by Alliant Engineering, Inc. includes installation of silt fence and bio-rolls, inlet protection to protect storm sewer catch basins, a rock construction entrance, decompaction of areas compacted during construction, rip-rap at outfalls into infiltration basins, stabilization of steep slopes, and retention of native topsoil onsite. The Erosion and Sediment Control plan sheet indicates that Chad

Onsgard, Pulte Homes (952-229-0723) is responsible for erosion prevention and sediment control for the site.

Alliant Engineering provided HydroCAD model of the interior surface flow conditions of the site in response to concerns raise by the Board at the June 2, 2021 RPBCWD Board meeting. Their analysis considered full project build-out, an interim condition with sparse vegetation, and conditions with reduce catch basin/out capacity in efforts to enhance the proposed designs resiliency to erosion. The analysis simulated the following events: 1-year (2.50"), 2-year (2.87"), 10-year (4.27"), 100-year (7.41"), 500-year (10.40"), projected 10-year mid-21st century (6.6") and the projected 100-year mid-21st century (10.2") rainfall events. As a result of their analysis the applicant is proposing to incorporate the following erosion control measure during construction:

- Adding biorolls along the emergency overflow (EOF) path to further attenuate the potential for erosion.
- Post grading silt fence on the slope above and below the proposed retaining wall,
- Silt fence J-hooks to prevent gully erosion along silt fence perimeter,
- On grade piping of skimmers to the lower sediment basin to allow for no overland flow on steep slopes of skimming discharge,
- Adding flocculant to interim sedimentation basins in the event the sediment is not settling out sufficiently.

Barr's review of Braun Intertec's Stability and Seepage Analysis and Alliant Engineering's Additional Hydrologic/Hydraulic Analysis is presented in the attached Technical Memorandum - Review of Noble Hills Stability and Interior Hydrology Analyses. While Barr concurs with the general findings of analyses prepared by the applicant's consultants, Barr's comments about the analysis methods and design must be addressed to increase the level of confidence in the modeling results presented in their technical memos and the overall resiliency of the proposed development. Because slope stability and minimizing erosion potential from surface runoff are integral to protecting the on-site exceptional value wetland and Riley Creek, the following revisions are needed to address the comments and conform to RPBCWD Rule C:

C1. The applicant's proposed measures described above must be incorporated onto the construction drawings.
C2. The Stability and Seepage Analysis and Alliant Engineering's Additional Hydrologic/Hydraulic Analysis must be updated to address RPBCWD's comments in the Technical Memorandum - Review of Noble Hills Stability and Interior Hydrology Analyses and submission for RPBCWD's review and approval.
C3. Incorporation of seepage relief or other mitigation measures to minimize soil loss at the toe of slopes if analysis shows excessive seepage, exit gradients, or subsequent risk of erosion, including but not limited to where potential seeps develop downslope of infiltration basin 1 or at flared end section outlets.

C4. Modify the construction drawing to increase the proposed projects robustness against potential erosion during large storm events (greater than the Atlas 14, 100-year, 24-hour event) which could lead to slope stability concerns including:
    a. Revised grading around low points at Osprey and Madelynn to direct all emergency overflows into turf reinforcement mat (TRM) lined channel from both low points
    b. Increasing inlet capacity at Osprey and Madelynn low points (e.g. high capacity inlets, more inlets)
    c. Armoring the entire surface overflow route with TRM or other suitable products between infiltration basins 2 and 3 or demonstrate the 500-year event will not spill over the emergency overflow.
    d. Stabilizing the transition from channelized flow to native vegetated slope at end of proposed TRM channels, especially if velocities exceed 3 fps, or disperse flow to eliminate concentrated flow routes.
    e. Incorporate measures to ensure pipe joints are be protected against separation and potential erosion.

Rule D: Wetland and Creek Buffers

Because Riley Creek and a wetland are downgradient from the proposed land disturbing activities, the project must conform to the requirements in the RPBCWD Wetland and Creek Buffers rule (Rule D, Subsection 3). Because the creek and wetland will not be disturbed by the proposed activities, buffers are needed only along the areas downgradient from the land-disturbing activity. The site also features significant varying slopes, and steep slopes constituting a high-risk erosion area (HREA) as delineated by the District.

The MnRAM analysis submitted with the wetland delineation report indicates the wetland is an exceptional value wetland (Appendix D1). Rule D, Subsection 3.1.b.i requires a wetland buffer with an average of 80 feet from the delineated edge of the wetland, minimum 40 feet. The buffer widths are summarized in the Table 4 below. The property boundary and land-disturbing activities are also located upgradient from Riley Creek, which is along the western portion of the property, requiring a 50-foot average, 30-foot minimum buffer, extending 50 feet from each of the upstream and downstream extent of disturbance (Rule D, subsections 3.1.c and 3.2.b.v). Because the required buffer for the creek overlaps and buffer for the exceptional value wetland, the applicant is providing buffer to whichever requirement extends farther upgradient.

In some areas the base buffer required intersects a steep slope as defined in Rule D, subsection 3.2c. In these areas, the buffer must extend to the top of the slope. Because the property encompasses steep slopes within a high risk erosion area, the project must provide for buffers averaging 50 feet wide with minimum width of 30 feet from the thalweg of any watercourse within the high risk erosion area (Rule D, Subsection 2.1b and 3.2bvi). The RPBCWD HREA maps, based on a desk top analysis, identified nine potential watercourse within the HREA on the site. The applicant conducted a site review on May 1, 2021 to identify the presence or absence of existing watercourse within the HREAs and summarized the finding in a May 3, 2021 memorandum (attached for reference). The RPBCWD engineer

also visited the site on May 3rd to review the HREA for existing watercourses and erosion. The engineer concurs with the applicant's assertion that there are no visible signs of existing watercourses in eight of the nine potential areas identified on RPBCWD's HREA maps. Because existing watercourse were not observed in the field, buffering requirements do not apply to those eight areas. The RPBCWD engineer also concurs with the applicant's observation of the presence of an existing drainage way located in the southwest corner of the site (identified as location 9 in the applicant's memo). The applicant's proposed buffer for the watercourse within the HREA conforms to the Rule D, Subsection 3.2.b.vi requirements.

Plan sheets submitted by the applicant show buffer that conforms to Rule D, subsection 3.2b. As shown in the table below, the required buffer width to conform to Rule D, subsection 3.2c, is greater than the required buffer width to conform to Rule D, subsection 3.2.b.i, 3.2.b.v and 3.2.b.vi; the width requirements are met.

Wetland Buffer Analysis Summary

Resource ID	RPBCWD Wetland Value	Required Minimum Width[1] (ft)	Required Average Width[1] (ft)	Provided Minimum Width (ft)	Provided Average Width (ft)
Wetland 1[2]	Exceptional	40	80	40	80.7
Riley Creek	NA	30	50	75	244
HREA 9[2]	NA	30	50	50	75

[1] Average and minimum required buffer width under Rule D, Subsection 3.1.b
[2] The buffers for these resources intersect a steep slope and extend to the top of the slope, see attached Wetland Management Plan (sheet 27) for buffer illustration.

Plan documents show that disturbed areas within the buffer area will be maintained with native vegetation and maintained in a natural state (subsection 3.3). As shown on the Wetland Management Plan (Sheet 27), the buffer markers will be placed per District criteria (subsection 3.4). The following revisions are needed to conform to the RPBCWD Rule D:

D1. A note must be included on the plan sheet indicating the project will be constructed so as to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible conforming to Rule D, Subsection 3.6.
D2. Buffer areas and maintenance requirements must be documented in a declaration recorded after review and approval by RPBCWD in accordance with Rule D, Subsection 3.5. The maintenance declaration must also include an exhibit clearly showing the buffer area and monument locations.

Rule J: Stormwater Management

Because the project will disturb 21.56 acres of land-surface area, the project must meet the criteria of RPBCWD's Stormwater Management rule (Rule J, Subsection 2.1). The criteria listed in Subsection 3.1

will apply to the entire project site because the project will increase the imperviousness of the entire site by more than 100 percent (Rule J, Subsection 2.3).

The developer is proposing construction of three infiltration basins and one sediment basin to provide rate control, volume abstraction and water quality management on the site.

Rate Control

In order to meet the rate control criteria listed in Subsection 3.1.a, the 2-, 10-, and 100-year post development peak runoff rates must be equal to or less than the existing discharge rates at all locations where stormwater leaves the site. The applicant used a HydroCAD hydrologic model to simulate runoff rates for pre- and post-development conditions for the 2-, 10-, and 100-year frequency storm events using a nested rainfall distribution, and a 100-year frequency, 10-day snowmelt event. The existing and proposed 2-, 10-, and 100-year frequency discharges from the disturbed site area are summarized in the table below. The proposed project is in conformance with RPBCWD Rule J, Subsection 3.1.a.

Modeled Discharge Location	2-Year Discharge (cfs)		10-Year Discharge (cfs)		100-Year Discharge (cfs)		10-Day Snowmelt (cfs)	
	Ex	Prop	Ex	Prop	Ex	Prop	Ex	Prop
Riley Creek	1.3	0.5	2.0	1.0	10.7	4.3	4.1	0.8
SW	0	0	0	0	0.2	0.2	0.4	0.3
Spring Rd Pond	1.5	1.1	2.3	1.7	5.5	4.8	1.6	1.1

Volume Abstraction

Subsection 3.1.b of Rule J requires the abstraction onsite of 1.1 inches of runoff from all new or disturbed impervious surface of the parcel. An abstraction volume of 25,899 cubic feet is required from the 6.49 acres (282,530 square feet) of new and reconstructed impervious area on the site for abstraction.

Soil borings performed by Braun Intertec on September 9, 2019 show that soils in the project area are primarily silty sand with subsurface soils of mainly poorly graded sand. Braun Intertec conducted a double-ring infiltration test at IB-2 resulting in a measured infiltration rate of 19.2 inches per hour (in/hr). The applicant is proposing 6 inches of compost into the design of infiltration basin IB-2 to reduce the infiltration rate below the maximum allowable rate listed in Rule J, Subsection 3.1.b.4 (8.3 in/hr). The engineer concurs with the applicant's design infiltration rate at IB-2 of 4.0 in/hr, which is significantly lower than the measure rate because of the compost amendments. Because of dense tree cover at IB-1 and the proximity to the existing house at IB-3, infiltration testing was not feasible at IB-1 or IB-3. Based on the soils present at IB-1 and IB-3 the engineer concurs with the applicant's use of a design infiltration rate of 4.0 in/hr and 0.8 in/hr respectively. The engineer concurs that the basins will

drawdown within 48 hours (Rule J, subsection 3.1b.3). The table below summarizes the volume abstraction for the site based on the design infiltration rate.

Volume abstraction summary

Required Abstraction Depth (inches)	Required Abstraction Volume (cubic feet)	Provided Abstraction Depth (inches)	Provided Abstraction Volume (cubic feet)
1.1	25,899	1.5	36,388

Sump manholes with baffles and the sedimentation basin will serve as pretreament for runoff into the infiltration basins (Rule J, Subsection 3.1.b.1). Groundwater was encountered in soil boring ST-4 at the proposed infiltration basin (IB-3) at a depth of 19 feet (elevation 745). Groundwater is not encountered at ST-12 and ST-3, which are located at infiltration basins IB-1 and IB-2. The end of boring elevation for ST-12 and ST-3 are 783 and 778, respectively. The following table demonstrates that the proposed design provided adequate separation between the bottom of the infiltration basins IB-1, IB-2, and IB-3 and the groundwater (Rule J, Subsection 3.1.b.2.a). Because soil boring ST-1 stopped at elevation 793, which is only 2 feet below the bottom of infiltration basin IB-1, additional soil investigation will be needed to verify compliance with Rule J subsection 3.1.b.2.

Infiltration Basin	Bottom Elevation (feet)	Groundwater Elevation (feet)	Separation (feet)
IB-1	795	783[1]	12
IB-2	806	778[1]	28
IB-3	757	745	12

[1] No groundwater observed at the bottom of the soil boring

Because of existing site constraints at infiltration basins IB-1 and IB-3, infiltration testing was not taken at those BMP locations and it is unclear if the soils have adequate infiltration capacity. Per Rule J, Subsection 3.1.b.2.c measured infiltration capacity of the soils at the bottom of the infiltration systems must be provided. The applicant must submit documentation verifying the infiltration capacity of the soils and that the volume control capacity is calculated using the measured infiltration rate. If infiltration capacity is less than needed to conform with the volume abstraction requirement in subsection 3.1b, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).

In addition, the infiltration testing completed at infiltration basin IB-2 resulted in an infiltration rate of 19.2 in/hr which significantly higher than the allowable rate listed in Rule J, Subsection 3.1.b.4 (8.3 in/hr).The plans include a note requiring infiltration testing to ensure the infiltration rates do not exceed the allowable rate. Because the proposed existing soils have a higher than allowable infiltration capacity, performance monitoring for the site will be required to ensure that the project is able to meet the

RPBCWD abstraction criteria. In accordance with Rule J, Subsection 2.6 performance monitoring, and as a stipulation of issuing a permit for this project, the Applicant must monitor the proposed infiltration basins to determine the ability of the system to achieve the design requirements as presented in the design for two years after final site stabilization.

Water Quality Management

Subsection 3.1.c of Rule J requires the Applicant provide volume abstraction in accordance with 3.1b or least 60 percent annual removal efficiency for total phosphorus (TP), and at least 90 percent annual removal efficiency for total suspended solids (TSS) from site runoff, and no net increase in TSS or TP loading leaving the site from existing conditions. Because the BMPs proposed by the applicant provide volume abstraction that meets the standard in 3.1b, the engineer finds that the proposed project is in conformance with Rule J, Subsection 3.1.c.

Low floor Elevation

All new buildings must be constructed such that the lowest floor is at least two feet above the 100-year high water elevation or one foot above the emergency overflow of a stormwater-management facility according to Rule J, Subsection 3.6a . In addition, a stormwater-management facility must be constructed at an elevation that ensures that no adjacent habitable building will be brought into noncompliance with this requirement, according to Rule J, Subsection 3.6b. The low floor elevation of the homes and the adjacent stormwater management feature is summarized below and shows proposed project is in conformance with Rule J, Subsection 3.6.

Lot Riparian to Stormwater Facility	Low Floor Elevation of Building (feet)	Adjacent Stormwater Facility	100-year Event Flood Elevation of Adjacent Stormwater Facility (feet)	Freeboard to 100-year Event (feet)
Blk 3, Lot 26	816	Sedimentation Pond	799.44	16.56
Blk 1, Lot 1	800.9	IB-1	799.41	1.49[1]
Blk 3, Lot 6	853.6	IB-2	809.49	44.11
Blk 3, Lot 7	858.8	IB-2	809.49	49.31
Blk 3, Lot 8	863.5	IB-2	809.49	54.01
Blk 3, Lot 9	860	IB-2	809.49	50.51
Blk 3, Lot 10	854.4	IB-2	809.49	44.91
Blk 3, Lot 11	848.4	IB-2	809.49	38.91
Blk 3, Lot 12	842.4	IB-2	809.49	32.91
Blk 3, Lot 13	826.0	IB-2	809.49	16.51
Blk 3, Lot 14	820	IB-2	809.49	10.51
Blk 3, Lot 15	815.2	IB-2	809.49	5.71
Blk 3, Lot 16	810.2	IB-3	762.7	47.5
Blk 3, Lot 17	806.9	IB-3	762.7	44.2
Blk 3, Lot 18	803.9	IB-3	762.7	41.2
Blk 3, Lot 19	804.4	IB-3	762.7	41.7
15559 Lilac Dr	819[2]	IB-1	799.41	19.59
15561 Lilac Dr	819[2]	IB-1	799.41	19.59
15563 Lilac Dr	820[2]	IB-1	799.41	20.59

Lot Riparian to Stormwater Facility	Low Floor Elevation of Building (feet)	Adjacent Stormwater Facility	100-year Event Flood Elevation of Adjacent Stormwater Facility (feet)	Freeboard to 100-year Event (feet)
15565 Lilac Dr	820[2]	IB-1	799.41	20.59

[1] Because the low floor elevation of Block 1, Lot 1 (800.9 ft) is greater than 1-foot above the emergency overflow of the adjacent stormwater management facility, the proposed low floor conforms to Rule J, subsection 3.6a.
[2] The low floor of the existing structures adjacent to IB-1 were estimated by subtracting 10 feet from the lowest adjacent grade taken from available topographic information.

Maintenance

Subsection 3.7 of Rule J requires the submission of a maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed.

J1. Permit applicant must provide a maintenance and inspection declaration. A maintenance declaration template is available on the permits page of the RPBCWD website. (http://www.rpbcwd.org/permits/). A draft declaration must be provided for District review prior to recording.

Chloride Management

Subsection 3.8 of Rule J requires the submission of chloride management plan that designates the individual authorized to implement the chloride management plan and the MPCA-certified salt applicator engaged in implementing the plan. The RPBCWD chloride-management plan requirement applies to the streets and common areas of the project site, but not the individual single-family homes. Because the streets within the proposed residential development will be dedicated to the city as public right of way and therefore maintained by Eden Prairie and the city has provided its chloride management plan and its designated state-certified chloride applicator is Eden Prairie's Streets Division Manager Larry Doig, the proposed development conforms with Rule J, subsection 3.8.

Wetland Protection

Because the proposed activities discharge to a protected wetland (Wetland 1) on the site and alter the discharge the wetland receives from the site, the proposed activities must conform to RPBCWD wetland protection criteria (Rule J, subsection 3.10). Wetland 1 falls in the exceptional value category. The following table summarizes the allowable change in bounce and inundation duration from Table J1.

Summary of allowable impacts on onsite wetland from Rule J, Table J1

Wetland Value/ Waterbody	Permitted Bounce for, 10-Year Event	Inundation Period for 1- and 2-Year Event	Inundation Period for 10-Year Event	Runout Control Elevation
High	Existing	Existing	Existing	No change

Because wetland 1 is on slopes and is not an enclosed natural depression, bounce and inundation periods cannot be estimated. As a surrogate to support compliance with the bounce and inundation criterion the applicant has demonstrated, and the engineer concurs, that the proposed flow rate and

volumes flowing towards wetland 1 are slightly less than the existing flows. The reduction in the 10-year runoff volume reaching the wetland is roughly 784 cubic feet. Distributing this volume over the wetland area results an immaterial change in depth. Therefore, the project is in conformance with Rule J, subsection 3.10a.

Rule J, subsection 3.10b requires discharge from regulated disturbed areas be treated to meet at least 75 percent annual removal efficiency for phosphorus and 90 percent annual removal efficiency for total suspended solids prior to discharge to an exceptional value wetland. As summarized in the water quality analysis in table below, the portion of the site runoff tributary to Wetland 1 will be treated by two infiltration basins to provide 98% TSS and 98% TP removal prior to discharging to the wetland in accordance with Rule J, subsection 3.10b.

Annual TSS and TP removal prior to discharging to Wetland 1

Pollutant of Interest	Regulated Site Loading (lbs/yr)	Required Load Removal (lbs/yr)	Provided Load Reduction (lbs/yr)
Total Suspended Solids (TSS)	2,142	1,923 (90%)	2,106 (98%)
Total Phosphorus (TP)	11.8	8.8 (75%)	11.6 (98%)

Rule L: Permit Fee Deposit:

The RPBCWD permit fee schedule adopted in February 2020 requires permit applicants to deposit $3,000 to be held in escrow and applied to cover the $10 permit-processing fee and reimburse RPBCWD for permit review and inspection-related costs and when a permit application is approved, the deposit must be replenished to the applicable deposit amount by the applicant before the permit will be issued to cover actual costs incurred to monitor compliance with permit conditions and the RPBCWD Rules. A permit fee deposit of $3,000 was received on March 22, 2021.

Rule M: Financial Assurance:

Rules C: Silt fence and bio-logs:8,720 L.F. x $2.50/L.F. = ...$21,800

Inlet protection: 34 x $100 =.....$3,400

Rock Entrance: 1.0 x $900 =.....$900

Restoration: 21.56 acres x $2,500/acre =.....$53,900

Rules J: Stormwater Management Facilities: $45,112 x 125% of engineer's opinion of cost= $56,390

Contingency (10%) $13,640

Total Financial Assurance.....$150,030

Applicable General Requirements:

1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.

2. Construction must be consistent with the plans, specifications, and models that were submitted by the applicant that were the basis of permit approval. The date(s) of the approved plans, specifications, and modeling are listed above and on the permit. The granting of the permit does not in any way relieve the permittee, its engineer, or other professional consultants of responsibility for the permitted work.
3. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority.
4. The issuance of this permit does not convey any rights to either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
5. In all cases where the doing by the permittee of anything authorized by this permit involves the taking, using or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements or interests, the permittee, before proceeding therewith, must acquire all necessary property rights and interest.
6. RPBCWD's determination to issue this permit was made in reliance on the information provided by the applicant. Any substantive change in the work affecting the nature and extent of applicability of RPBCWD regulatory requirements or substantive changes in the methods or means of compliance with RPBCWD regulatory requirements must be the subject of an application for a permit modification to the RPBCWD.
7. If the conditions herein are met and the permit is issued by RPBCWD, the applicant, by accepting the permit, grants access to the site of the work at all reasonable times during and after construction to authorized representatives of the RPBCWD for inspection of the work.

Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project will conform to Rules C, D and J if the Rule Specific Permit Conditions listed above are met.

Recommendation:

Approval of the permit issuance contingent upon:

1. Continued compliance with General Requirements.
2. Financial Assurance in the amount of $150,030.
3. The applicant providing documentation demonstrating that the necessary land-use rights have been obtained for the proposed activities within right of way.
4. Revision of Braun Intertec's Stability and Seepage Analysis and Alliant Engineering's Additional Hydrologic/Hydraulic Analysis to address RPCWD's comments and submission for RPBCWD's review and concurrence.

5. Incorporation of seepage relief or other mitigation measures to minimize soil loss at the toe of slopes if analysis shows excessive seepage, exit gradients, or subsequent risk of erosion, including but not limited to where potential seeps develop downslope of infiltration basin 1 or at flared end section outlets.
6. Submission to RPBCWD of updated drawings that:
    a. Incorporate the applicant's proposed additional erosion control measures described in the Rule C analysis.
    b. Revise grading around low points at Osprey and Madelynn to direct all emergency overflows into turf reinforcement mat (TRM) lined channel from both low points
    c. Increase inlet capacity at Osprey and Madelynn low points (e.g. high capacity inlets, more inlets)
    d. Armor the entire surface overflow route with TRM or other suitable products between infiltration basins2 and 3 or demonstrate the 500-year event will not spill over the emergency overflow.
    e. Stabilize the transition from channelized flow to native vegetated slope at end of proposed TRM channels, especially if velocities exceed 3 fps, or disperse flow to eliminate concentrated flow routes.
    f. Incorporate measures to ensure pipe joints are protected against separation subsequent potential erosion.
7. Receipt in recordation a maintenance declaration for the stormwater management facilities and buffers. Drafts of any and all documents to be recorded must be approved by the District prior to recordation.

By accepting the permit, when issued, the applicant agrees to the following stipulations:

1. Per Rule J, Subsection 3.1.b.ii measured infiltration capacity of the soils at the bottom of the infiltration systems IB-1 and IB-3 must be provided. The applicant must submit documentation verifying the infiltration capacity of the soils and that the volume control capacity is calculated using the measured infiltration rate. If infiltration capacity is less than needed to conform with the volume abstraction requirement in subsection 3.1b, design modifications to achieve compliance with RPBCWD requirements will need to be submitted (in the form of an application for a permit modification or new permit).
2. Per Rule J Subsection 4.5, upon completion of the site work, the permittee must submit as-built drawings demonstrating that at the time of final stabilization, all stormwater management facilities conform to design specifications and function as intended and approved by the District. As-built/record drawings must be signed by a professional engineer licensed in Minnesota and include, but not limited to:
    a) the surveyed bottom elevations, water levels, and general topography of all facilities;
    b) the size, type, and surveyed invert elevations of all stormwater facility inlets and outlets;
    c) the surveyed elevations of all emergency overflows including stormwater facility, street, and other;
    d) other important features to show that the project was constructed as approved by the Managers and protects the public health, welfare, and safety.
    e) photographic evidence of buffer marker locations indicated by permanent, free-standing markers in accordance with Rule D, Subsection 3.4 criteria.

3. Providing the following additional close-out materials:
    a) Documentation that constructed infiltration and filtration facilities perform as designed. This may include infiltration testing, flood testing, or other with prior approval from RPBCWD
    b) Documentation that disturbed pervious areas remaining pervious have been decompacted per Rule C.2c criteria
4. The work on the Noble Hills parcel under the terms of permit 2021-012, if issued, must have an impervious surface area and configuration materially consistent with the approved plans. Design that differs materially from the approved plans (e.g., in terms of total impervious area) will need to be the subject of a request for a permit modification or new permit, which will be subject to review for compliance with all applicable regulatory requirements.
5. Because the proposed existing soils have a higher than allowable infiltration capacity, performance monitoring for the site will be required to ensure that the project is able to meet the RPBCWD abstraction criteria has been proposed. In accordance with Rule J, Subsection 2.6 performance monitoring, and as a stipulation of issuing a permit for this project, the Applicant must monitor the proposed infiltration basins to determine the ability of the system to achieve the design requirements as presented in the design for two years after final site stabilization. If it is determined that the system is not performing as designed, property owner will need to submit a revised design and construction plan to demonstrate that the design criteria are achieved.

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BARR

Technical Memorandum

To: Board of Managers and Interim Administrator Jeffery
From: Barr Engineering Co. (Joel Swenson, PE; Jennifer Koehler, PE; and Evan Christianson, PG)
Subject: Technical Review of Noble Hills Stability and Interior Hydrology Analyses
Date: July 30, 2021
Project: 23270053.14 PRMT 0267

At the June 2, 2021 meeting the Riley Purgatory Bluff Creek Watershed District (RPBCWD) considered permit number 2021-012 for the Noble Hills development in Eden Prairie. During the discussion of the permit, the managers expressed the following concerns and need for additional information to make informed decisions to protect the water resources on the site (Riley Creek and an exceptional value wetland):

- Stability of the steep slopes,
- The effects of land disturbing activities, stormwater management, and vegetation removal/restoration on erosion potential along the proposed slopes,
- The potential for ground water seeps or springs along the steep slopes on the site,
- The potential for stormwater pollutants such as chloride to migrate toward the water resources.

As a result, the board extended the permit review timeline by 60 days consistent with Minnesota Statutes section 15.99 to allow time for additional information to be provided and considered by the board.

Following the June Board meeting and subsequent meetings with district staff, Barr Engineering Co. (Barr) developed a recommended scope of work to develop information to aid in addressing the managers' concerns. The draft scope was presented to the City of Eden Prairie and the applicant on June 23rd. The applicant subsequently worked with their consultants (Braun Intertec and Alliant Engineering) to develop a slope stability analysis and analyze the interior drainage and erosion potential within the proposed Noble Hills development. The purpose of this memo is to summarize Barr's review of the technical information submitted. The assessment consisted of reviewing the following materials:

1. Geotechnical Evaluation, Noble Hill Development Stability and Seepage Analyses prepared by Braun Intertec, dated July 22, 2021
2. Noble Hill Additional Hydrologic/Hydraulic Analysis prepared by Alliant Engineering, Inc., dated July 22, 2021.
3. Noble Hill Final Plat and Land Alteration Plan Set, prepared by Alliant Engineering, dated 7-21-21
4. Noble Hill, Eden Prairie, MN, Final Plat and Land Alteration Plan Set, prepared by Alliant Engineering, Inc., dated May 20, 2021.

5. Noble Hill Storm Water Management Study, Eden Prairie, MN, prepared by Alliant Engineering, Inc., dated May 20, 2021.
6. Noble Hill Development/Standal Property Memorandum of Field Review Observations of Riley Purgatory Bluff Creek Watershed Possible Mapped Stream Locations, prepared by Alliant Engineering, Inc., dated May 3, 2021.
7. Geotechnical Evaluation Report, Standal Property, Spring Road and June Grass Lane, Eden Prairie, MN, prepared by Braun Intertec, dated October 10, 2019 (B1909967).
8. Supplemental Soil Borings, the Overlook Residential Development, prepared by Braun Intertec, dated March 5, 2020 (B1909967.00).
9. Engineering Evaluation, Noble Hill Residential Development, prepared by Braun Intertec, dated May 26, 2021 (B1909967.01).

Summary of Findings

In general, Barr concurs with the approach and findings presented in Braun Intertec's Stability and Seepage Analysis and Alliant Engineering's Additional Hydrologic/Hydraulic Analysis. Below is a list of key findings from the submitted analyses:

1. While no seeps and springs were observed on the property during the applicant's consultant site review, the area has received below normal precipitation which can directly impact the presence/absence of seeps.
2. Soil borings show that soils in the project area are primarily silty sand with subsurface soils of mainly poorly graded sand.
3. Soil borings and piezometer readings generally place groundwater at or below elevation 745 feet.
4. The stability analysis revealed the proposed slopes result in factors of safety (FOS) against slope failure greater than 1.5. Note that a FOS of 1.0 is on the verge of failure and the higher the number, the more stable the slope is estimated to be. Typical design standards would look for FOS of 1.5 or greater in drained, sandy conditions (such as this site).
5. The stability of the proposed retaining walls was not reviewed. However, the City of Eden Prairie requires that all retaining walls over 4 feet high be designed and certified by a professional engineer as part of their approval process.
6. The interior drainage analysis revealed the potential for runoff to spill over the emergency overflows if catch basins plug or during extremely large storm events (e.g., 500-year event). This has the potential to produce erosive surface flow velocities to exceeding 14 feet per second (fps). To mitigate against the erosive flow velocities, the plans were revised to show Enkamat R45, a permanent turf reinforcing mat (TRM) on the emergency overflow swales between homes, within drainage and utility easements. The TRM is capable of withstanding velocities of 30 fps for 60 minutes when fully-vegetated. In an unvegetated condition the Enkamat R45 (TRM) is capable of withstanding velocities of 16 fps for 60 minutes, thus providing erosion protection prior to vegetation establishment. There is concern about the erosive conditions at the transition from the TRM lined channel to the downstream slope.

7. The proposed stormwater management system does provide for stormwater pollutant removals of phosphorus and total suspended solids meeting RPBCWD regulatory requirements.
8. Chloride use within the development site will be managed by the City of Eden Prairie and only applied in accordance with the approved chloride management plan.

While Barr concurs with the general findings of the analysis, Table 1 and Table 2 summarize several comments that should be addressed to increase the level of certainty in the modeling results presented in the technical memos and the overall resiliency of the proposed development. Barr discussed many of these items with the applicant's consultants during virtual meetings on July 28th and 29th. Based on Barr's professional judgement, it is not anticipated that the revisions required to address Barr's comments would change our assessment of the submittal. Barr understands that the applicant's consultants are working on updating their respective analysis and memos to address these comments.

Table 1 Comments relate to slope seepage and stability analysis

Comment	Likelihood of significantly impacting outcome
Rerun stability analyses with expanded entry limits to verify the minimum factor of safety values were identified. If certain slope stability runs were completed to highlight scenarios, then that should be noted. It is standard practice to analyze and present the lowest factor of safety for a slope configuration. Please provide results.	Low
Optimized slip surfaces were presented, and several failure surfaces were concave. Please provide justification for presenting optimized failure surfaces with concave failure geometry.	Low
Include a list of assumed boundary conditions for seepage models. What is/are the references for these boundary conditions?	Low
Seepage results do not depict head contours, so it is not possible to assess how seepage flows through soil. This is particularly relevant for transient analysis where two constant head water boundaries are incorporated. Please provide head contours.	Low
There is not enough data to support blanket assumption that groundwater levels are steady given that very little precipitation (drought conditions) has occurred over of the course of this study. Please comment.	Low
Reference to groundwater rising near the toe was made in the document. However, there's no mention in the document if any seeps were simulated. Plot and comment on exit gradients and flux due to seepage. Were any critical exit gradients identified from the analysis?	Moderate
What are the stability impacts if segments of the slope are removed due to erosion? How does the factor of safety (slope stability and exit gradients) change?	Moderate-Plans modified to reduce erosion potential
It is not clear which stability case results are from which seepage analysis. Please clarify.	Low
Was slope stability calculated for each time-step of the transient seepage analysis? If so, clarify and explain in the report. If not, provide more discussion of the transient seepage analysis.	Low

Neither of the upgradient borings or piezometers extended to groundwater (ST-12 and ST-14). So, groundwater elevations in the eastern areas of the site are unknown. Please comment on model boundary conditions.	Low

Table 2 Comments relate to hydrologic/hydraulic analysis

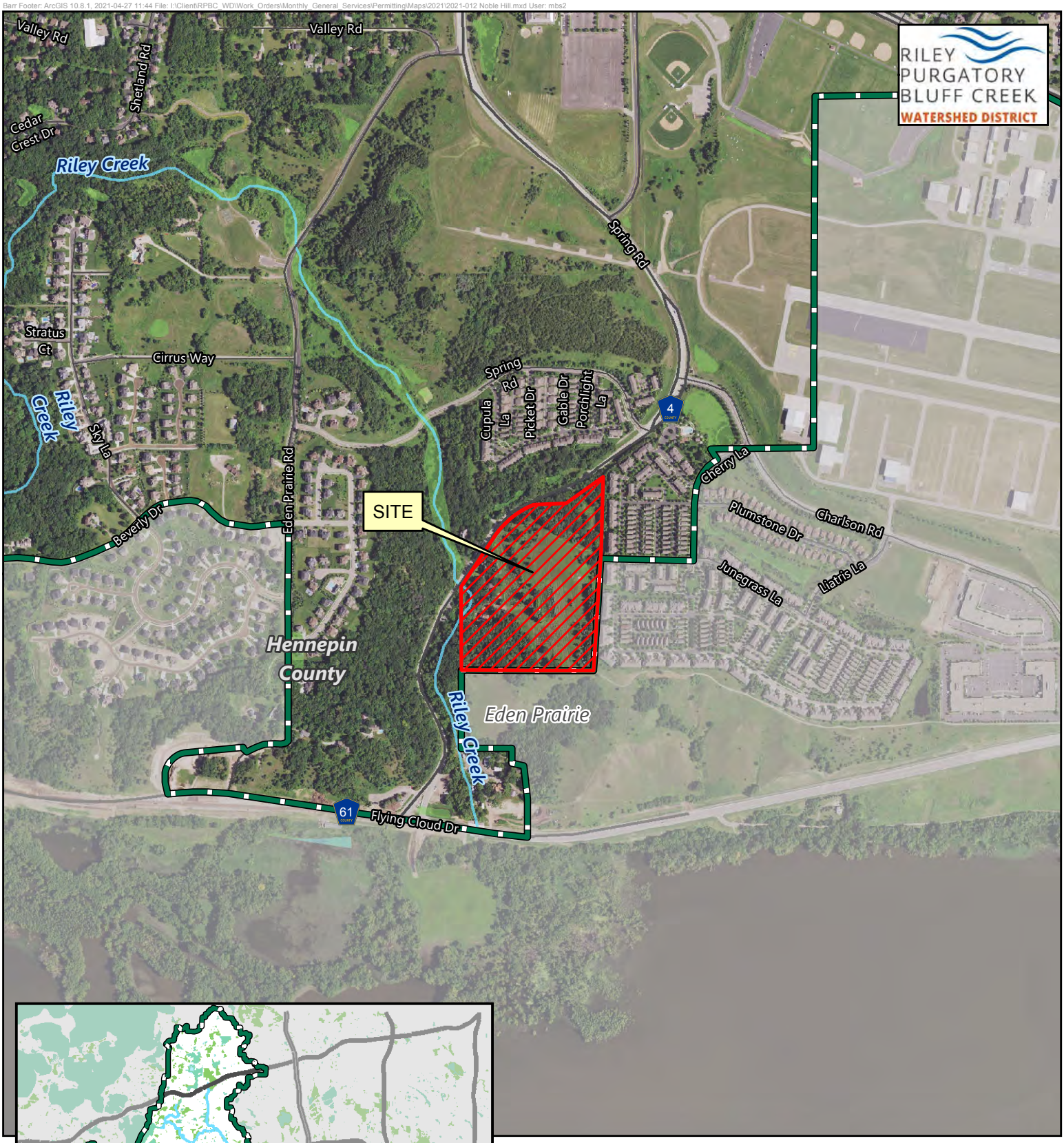
Comment	Likelihood of significantly impacting outcome
Typical retaining wall section with swale does not show TRM along swale and shows channel 0.95 deep. Other TRM swale detail shows swale to be 0.5 feet deep and 6 ft at top width. The plans should be revised to reflect a TRM swale with the modeled dimensions to fully accommodate the 500-year flow depths – if swale will vary in dimension, the plans should have several sections showing swale details.	Low
The HydroCAD model suggest that the catch basins modeled at the low points on Madelynn and Osprey are overestimating the flow area (3.74 SF) available for a R-3067-V grate (2.4 SF) – model should be updated to reflect R-3067-V flow area for each catch basin or design should be modified to provide higher capacity inlets or more inlets (and model updated appropriately.	Low
Emergency overflows (EOF) from street low points on Madelynn and Osprey is provided by an overland swale between homes, within easement, stabilized with permanent turf reinforcement mat (TRM - Enkamat R45). There is concern about erosion potential at the discharge point from TRM channel (due to high velocity and channelized flow onto slope. Outline the plan to stabilize the transition from TRM channel/channelized flow to native vegetation with high velocity (>3 fps) along the retaining wall swale.	Moderate
How is slope downstream of the EOF of each infiltration basin stabilized. There appears to be areas were the riprap transitions to native vegetation at a similar slope. Those transitions and downgradient slopes must be analyzed to ensure these is minimal erosion potential.	Moderate
Confirm construction phasing and that infiltration basins will be fully constructed as part of Phase 1.	Low
To increase system resiliency against catch basin plugging which could results in overflows occurring at additional locations, please verify the anticipated flow direction, rates, and velocities. Under the plugging scenario at both the low points on Madelynn and Osprey, during larger events, the estimate peak runoff elevation appears to reach an elevation where the flow will not only spill into the proposed TRM channel, but may also flow between adjacent homes. What flows/velocities are expected in these areas. May require revising grading to direct all emergency overflows into TRM lined channel, providing higher capacity inlets at the low points to reduce overflows, or require stabilization of additional slopes with TRM.	Low
Complete a model run looking at plugged outlet conditions for infiltration basins. Outline the plan to stabilize the transition from the proposed riprap EOF which currently ends midslope to native vegetation with high velocity (>3 fps).	Moderate

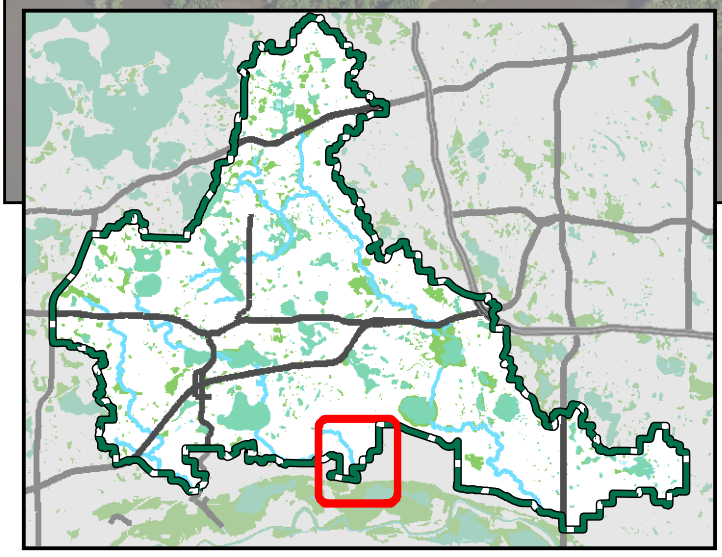
Comment	Likelihood of significantly impacting outcome
Revise design to tie pipe joints on all steeper sections of pipe within slopes downstream of the Madelynn and Osprey low points	Moderate

Conclusions

Based on the information reviewed and with the understanding that the above comments are being addressed, Barr's professional engineers and geologist reviewing the materials conclude:

- The slope stability factor of safety values are consistent with industry standards.
- Minor design revisions must be considered to minimize soil loss at the toe of slopes where modeling indicates potential seeps could develop downslope of infiltration basin 1 or at apron/outlets.
- Several minor design revisions must be considered to increase the proposed projects robustness against potential erosion during large storm events (greater than the Atlas 14, 100-year, 24-hour event). The additional measure will help the proposed project be more resilient to interior flows and reduce erosion potential. A couple examples include:
    - Revised grading around low points Osprey and Madelynn to direct all emergency overflows into TRM lined channel from both low points
    - Increasing inlet capacity at Osprey and Madelynn low points (e.g. high capacity inlets, more inlets, etc.)
    - Armoring the entire surface overflow route with TRM between infiltration basins 2 and 3. or demonstrate the 500-year event will not spill over the emergency overflow.
    - Stabilizing the transition from channelized flow to native vegetated slope at end of proposed TRM channels, especially if velocities exceed 3 fps, or disperse flow to eliminates concentrated flow routes.
    - Requiring the pipe joints be protected against separation and potential erosion.





N

Feet

0 1,000

Permit Location Map

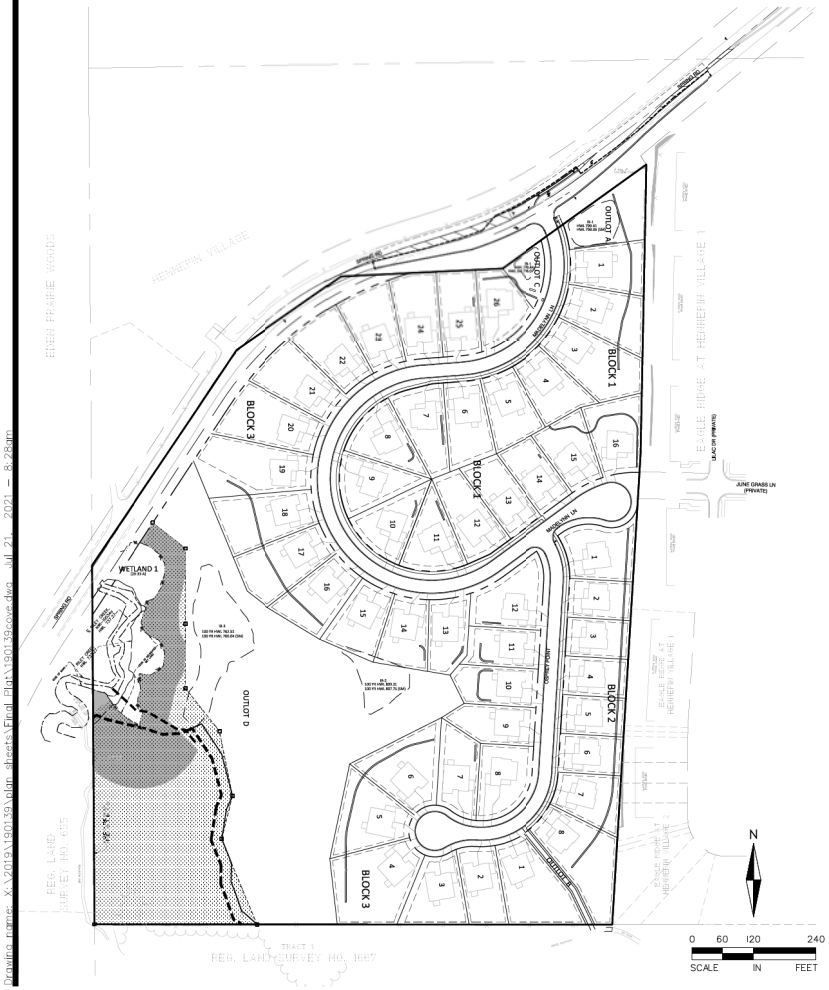
NOBLE HILL

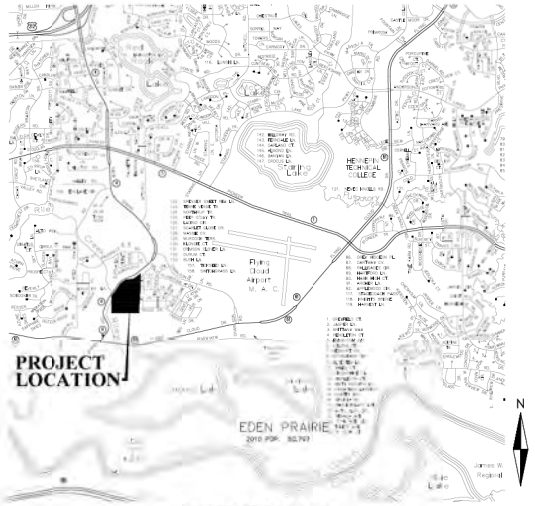
Permit 2021-012

Riley Purgatory Bluff Creek Watershed District

NOBLE HILL

EDEN PRAIRIE, MINNESOTA





VICINITY MAP
NOT TO SCALE

SHEET INDEX	NO.
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PULTE HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
COVER SHEET

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

MARK RAUSCH, PE
Date: License No.

QUALITY ASSURANCE/CONTROL

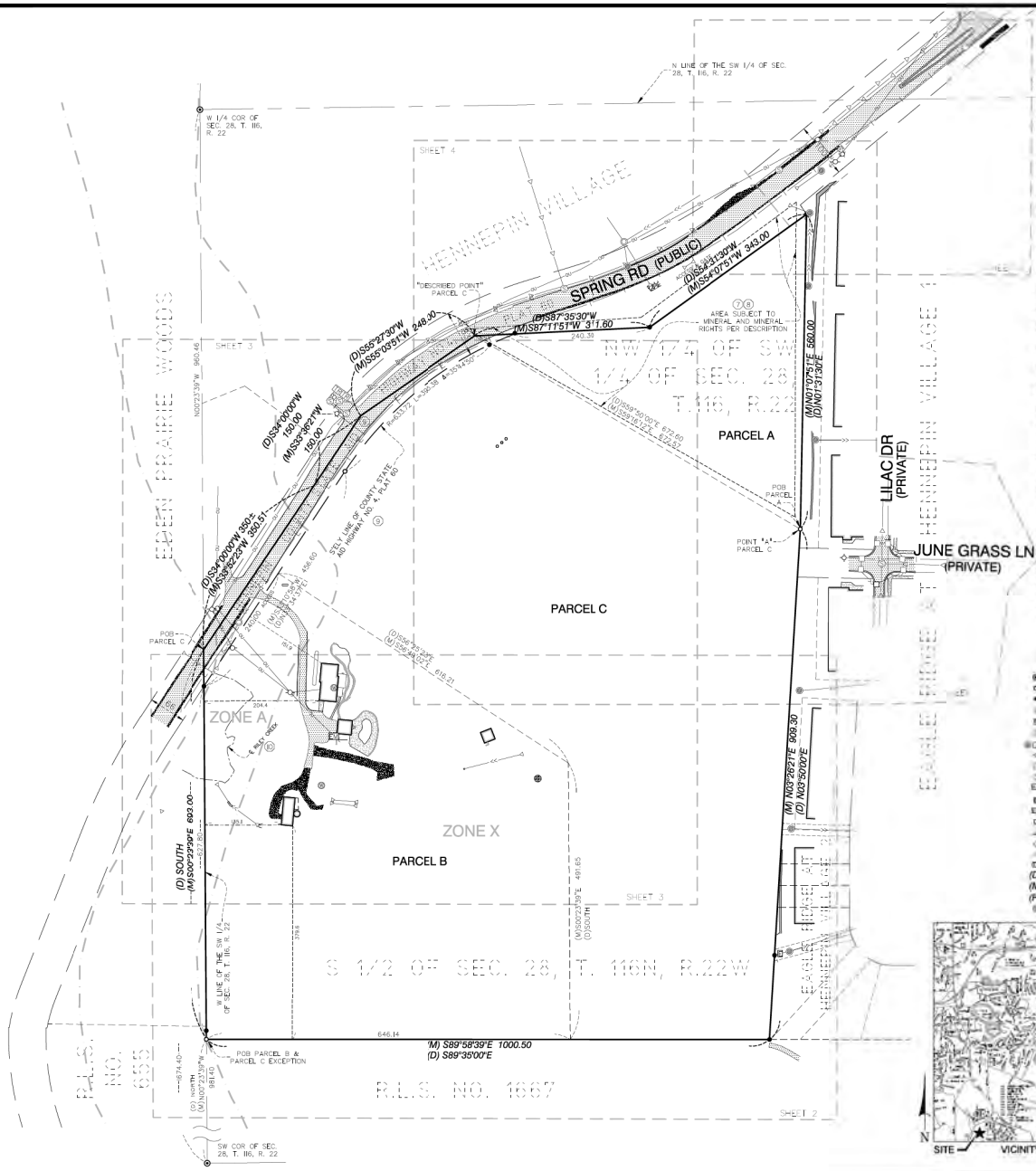
BY	DATE
DATE	ISSUE
4-7-21	BID SET
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

1

SHEET 1 of 41

FOR REVIEW ONLY
PRELIMINARY
NOT FOR CONSTRUCTION



PROPERTY DESCRIPTION

Parcel A

That part of the Northwest Quarter of the Southwest Quarter of Section 28, Township 116, Range 22, described as commencing at a point on the West line of said Section 28 distance 961.4 feet North from the Southwest corner thereof; thence South 89 degrees 35 minutes East 1000.5 feet; thence North 3 degree 50 minutes East 909.3 feet to the actual point of beginning; thence North 1 degree 31 minutes 30 seconds East 580 feet; thence South 84 degrees 31 minutes 30 seconds West 343 feet; thence South 87 degrees 35 minutes 30 seconds West 311.6 feet; thence South 59 degrees 50 minutes East 672.6 feet to the actual point of beginning.

For the purposes of this description, the Westline of the Southwest Quarter of said Section 28 is assumed to be a North and South line. Subject to minerals and minerals rights by the State of Minnesota; (As to that part of the above land which is included within the following description: Commencing at the Southwest corner of Section, thence North 1674.4/10 feet; thence North 32 degrees 0 minutes East 500 feet; thence 55 degrees 1/2 minutes East 250 feet to point of beginning of land to be described; thence South 59 degrees, 50 minutes East 672.6/10 feet; thence North 0 degrees, 40 minutes East 960 feet; thence South 53 degrees, 40 minutes West 343 feet; thence South 86 degrees 50 minutes West 310 feet to point of beginning, Section 28, Township 116, Range 22)

Registred Property - Certificate of Title 1378590

Parcel B

That part of the South ½ of Section 28, Township 116, Range 22, described as follows: Commencing at the Southwest corner of said Section 28; thence on an assumed bearing of North along the West line of said Southwest Quarter a distance of 961.40 feet to the point of beginning of the tract of land to be described; thence continuing on a bearing of North along said West line a distance of 627.80 feet to the Southeasterly right of way line of Hennepin County State Aid Highway No. 4, Plat 60 as recorded in Document No. 5080247; thence North 33 degrees 34 minutes 37 seconds East along said right of way line, a distance of 240.00 feet; thence South 05 degrees 25 minutes 23 seconds East, a distance of 616.21 feet; thence on a bearing of South a distance of 491.45 feet to an intersection with a line which bears South 89 degrees 35 minutes 00 second East from the point of beginning; thence North 89 degrees 35 minutes 00 seconds West a distance of 646.14 feet to the point of beginning, Hennepin County, Minnesota.

Abstract Property

Parcel C

All that part of the South 1/2 of Section 28, Township 116 North, Range 22, West of the 5th Principal Meridian, described as follows: Commencing at a point in the West line of said Section 28, distant 1674.4 feet North of the Southwest corner of said Section 28; thence South 89½ feet along the West line of said section;thence South 89 degrees, 35 minutes East 1000.5 feet; thence North 3 degrees and 50 minutes East 909.3 feet to a point hereinafter referred to as point "A";thence North 59 degrees and 50 minutes West 672.6 feet, more or less, to a point described as follow: Commencing at aforesaid point "A" thence 4orth 1 degree, 31 minutes and 30 seconds East 580 feet; thence South 84 degrees and 31 minutes and 30 seconds West 343 feet; thence South 87 degrees and 35 minutes and 30 seconds West 311.6 feet to said point to be described; thence South 55 degrees and 27 minutes and 30 seconds West 248 feet; thence South 34 degrees West 150 feet; thence South 34 degrees West 350 feet, more or less, to the point of beginning.

For the purpose of this description the West line of the Southwest 1/4 of Section 28 is assumed to be true North and South line. Subject to easement for County Road No. 4.

Except for the following property;

That part of the South 1/2 of Section 28, Township 116, Range 22, described as follows: Commencing at the Southwest corner of said Section 28; thence on an assumed bearing of North along the West line of said Southwest Quarter a distance of 961.40 feet to the point of beginning of the tract of land to be described; thence continuing on a bearing of North along said West line a distance of 627.80 feet to the Southeasterly right of way line of Hennepin County State Aid Highway No. 4, Plat 60 as recorded in Document No. 5080247; thence North 33 degrees 34 minutes 37 seconds East along said right of way line, a distance of 240.00 feet; thence South 05 degrees 25 minutes 23 seconds East, a distance of 616.21 feet; thence on a bearing of South a distance of 491.45 feet to an intersection with a line which bears South 89 degrees 35 minutes 00 second East from the Point of Beginning; thence North 89 degrees 35 minutes 00 seconds West a distance of 646.14 feet to the point of beginning, Hennepin County, Minnesota.

Abstract Property

LEGEND

- MONUMENT
- SET CAP IRON MONUMENT
- FOUND IRON MONUMENT
- WATER VALVE
- TELEPHONE BOX
- SANITARY MANHOLE
- CATCH BASIN
- POWER POLE
- STORM MANHOLE
- FIRE HYDRANT
- AIR CONDITIONER
- ELECTRIC BOX
- ELECTRIC METER
- CABLE BOX
- SIGN
- LIGHT POLE
- TES
- TRANSFORMER
- (D) DEED DIMENSION
- (M) MEASURED DIMENSION
- (P) PLAT DIMENSION
- @ AT
- GAS
- SANITARY SEWER
- STORM SEWER
- WATERMAIN
- FIBER OPTIC
- OVERHEAD UTILITY
- FENCE
- EDGE OF DELINEATED WETLAND
- CENTER OF CREEK
- EDGE OF BANK
- EDGE OF TREE
- CONCRETE
- GRAVEL
- BITUMINOUS
- RETAINING WALL
- FEMA LINE
- SCHEDULE B II EXCEPTIONS

CERTIFICATION

To Pulte Homes of Minnesota, LLC; PGP Title, Inc and First American Title Insurance Company:

This is to Certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes items 1, 2, 3, 4, 6(a), 7(a), 8, 9, 11, 13, 16, and 18 of Table A thereof. The field work was completed on January 19, 2021.

Date of Plat or Map: JANUARY 21, 2021

Peter Goers, Professional Land Surveyor
Minnesota License No. 44110
Email: pgoers@alliant-inc.com

NOTES

1. This survey and the property description shown here on are based upon information found in the commitment for title insurance prepared by PGP Title, Inc as agent for First American Title Insurance Company, file no. MN-207090-ANC, dated October 9, 2020.
2. The orientation of this bearing system is based on Hennepin County Coordinate NAD83 (86 adj).
3. All distances are infeet.

TABLE A ITEMS

1. Monuments were placed at the lot corners as shown on the survey.
2. Address of property is 9955 & 9875 Spring Road, Eden Prairie, MN
3. The property lies within Zone X (unshaded - areas determined to be outside the 0.2% annual chance floodplain) and Zone A (special flood hazard areas (SFHAs) subject to inundation by the 1% annual chance flood (no base flood elevations determined)), of Federal Emergency Management Agency (FEMA) Flood Insurance Community Panel No. 27053C0430F, effective November 4, 2016.
4. The area of the land as described in the title commitment:
   Total area: 1,222,836 square feet or 28.072 acres.
   Right-of-way 24,343 square feet or 0.559 acres.
   Total area less Right-of-way: 1,198,493 square feet or 27.513 acres.

6(a). No zoning information was provided.
7(a). Building dimensions shown on survey.
8. Substantial features observed in the process of conducting the fieldwork are shown hereon.
9. There are 0 regular striped parking stalls and 0 handicapped parking stalls located within the property.
11. The locations of underground utilities are depicted based on Gopher State One Call, available city maps, records and field locations and may not be exact. Verify critical utilities prior to construction or design.
13. Names of adjoining owners are depicted based on Hennepin County GIS tax information.
16. There was no evidence of recent earth moving work, building construction, or building additions observed in the process of conducting the fieldwork.
18. Wetlands were delineated by Alliant Engineering on September 25, 2019, and the wetland markers are depicted on the survey.

SCHEDULE B, SECTION II EXCEPTIONS

- Item no. 7 - Any lease, grant, exception or reservation of minerals or mineral rights together with any rights appurtenant thereto. *Depicted on survey.*
- Item no. 8 - All coal, oil, gas and other mineral rights heretofore conveyed, excepted, reserved or leased, together with all incidental rights thereto. *Depicted on survey.*
- Item no. 9 - Conditions, stipulations, restrictions, building lines and easements, together with incidental rights, as provided for on the recorded Plat of record as R.T. Document No. T1089716 and C.R. Document No. 5068547, titled "Hennepin County State Aid Highway #4 Plat 60" and recorded on December 4, 1985. *Depicted on survey.*
- Item no. 10 - Rights of the United States of America and/or the State of Minnesota, the county, the municipality and the public, in and to that part of the land which may be within Riley Creek (as to Parcel B). *Depicted on the survey.*
- Item no. 11- Subject to the effect, if any, of an Ordinance of the Town of Eden Prairie regulating platting and subdividing of land, a certified copy of which Ordinance is recorded in Book 785 of Miscellaneous Records, at Page 354 as Document No. 3068507, as pertains to Parce A. *Said document was no provided.*

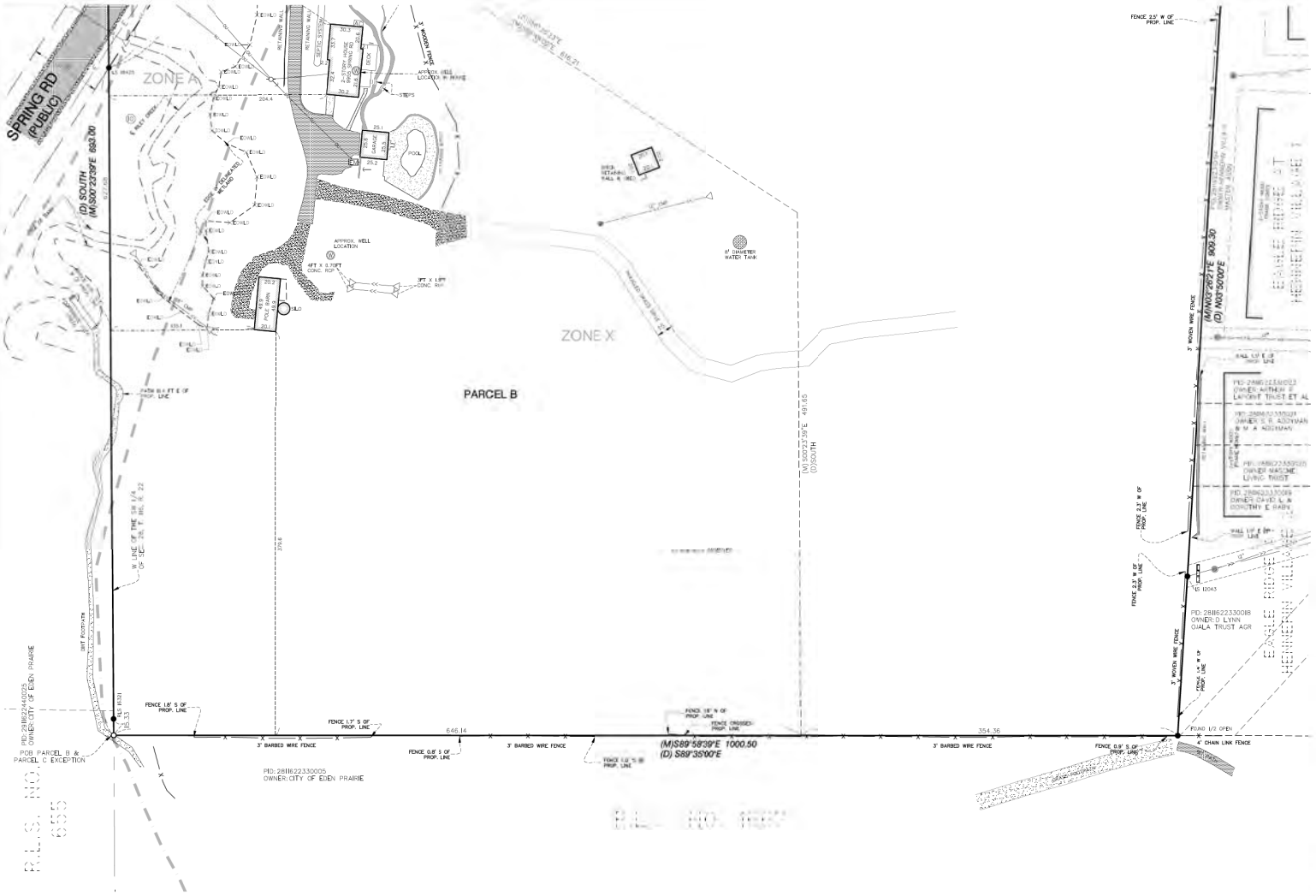
ALLIANT ENGINEERING
733 Marquette Ave, Ste 700
Minneapolis, MN 55402
612.758.3080 MAIN
612.758.3099 FAX
www.alliant-inc.com

ALTA/NSPS LAND TITLE SURVEY

STANDAL PROPERTY

9875 & 9955 SPRING ROAD
EDEN PRAIRIE, MN

DRAWN BY	JDT
CHECKED BY	PG
DATE ISSUED	01/21/2021
SCALE	1"=100'
JOB NO.	19-0139
FIELD CREW	DA,DD,PG



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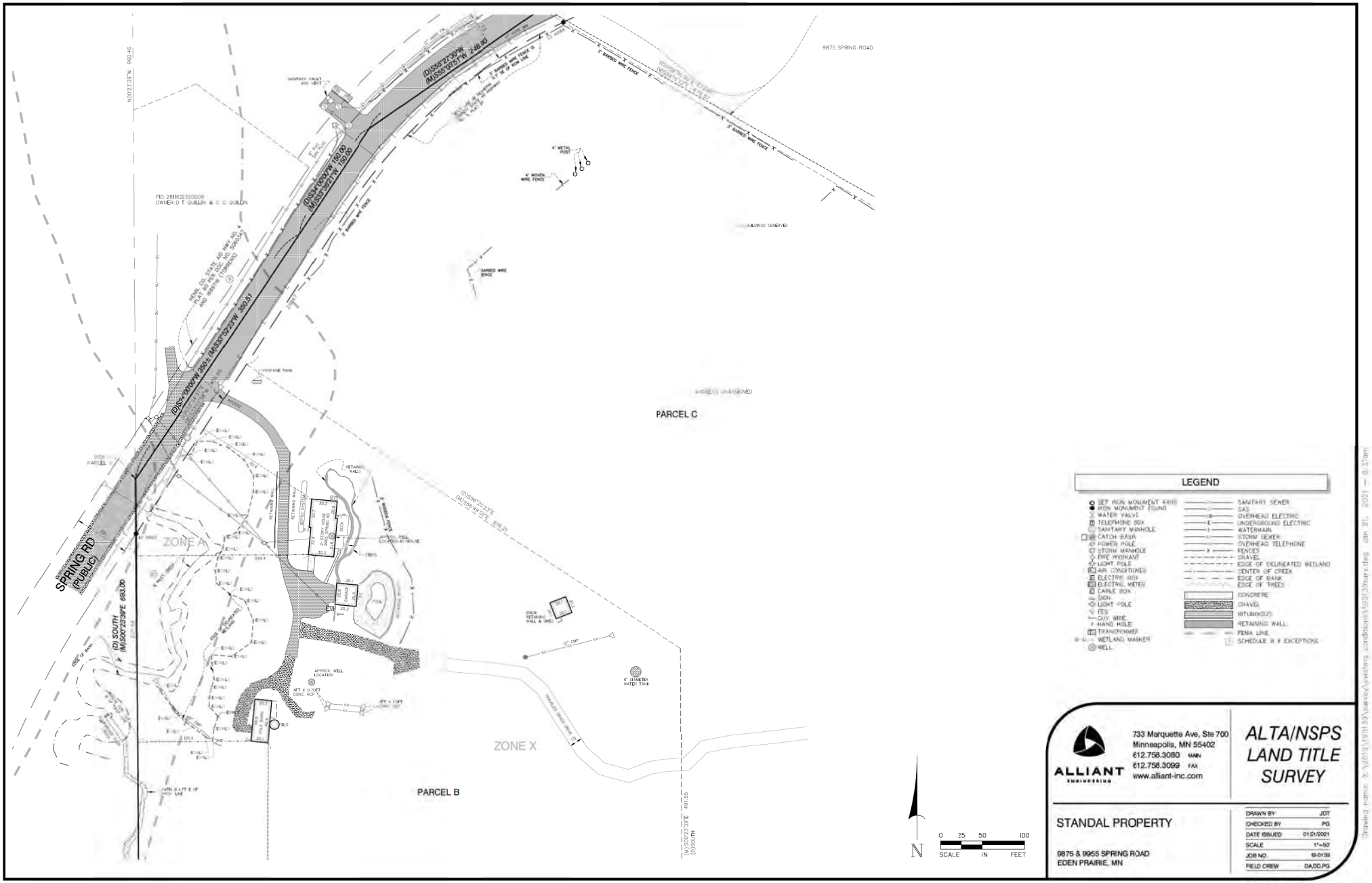
DATE ISSUED	01/21/2021
SCALE	1"=50'
JOB NO.	19-0139
FIELD CREW	DA,DD,PG

SHEET 2 OF 4 SHEETS



LEGEND

- SET IRON MONUMENT 44161
- IRON MONUMENT FOUND
- WATER VALVE
- TELEPHONE BOX
- SANITARY MANHOLE
- CATCH BASIN
- POWER POLE
- STORM MANHOLE
- FIRE HYDRANT
- LIGHT POLE
- AIR CONDITIONER
- ELECTRIC BOX
- ELECTRIC METER
- CABLE BOX
- SIGN
- LIGHT POLE
- TEE
- GUY WIRE
- HANG MOLE
- TRANSFORMER
- WETLAND MARKER
- WELL
- SANITARY SEWER
- GAS
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- WATERMAIN
- STORM SEWER
- OVERHEAD TELEPHONE
- FENCES
- GRAVEL
- EDGE OF DELINEATED WETLAND
- CENTER OF CREEK
- EDGE OF BANK
- EDGE OF TREES
- CONCRETE
- GRAVEL
- BITUMINOUS
- RETAINING WALL
- FEMA LINE
- SCHEDULE B II EXCEPTIONS

N

0 25 50 100
SCALE IN FEET

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SHEET 3 OF 4 SHEETS

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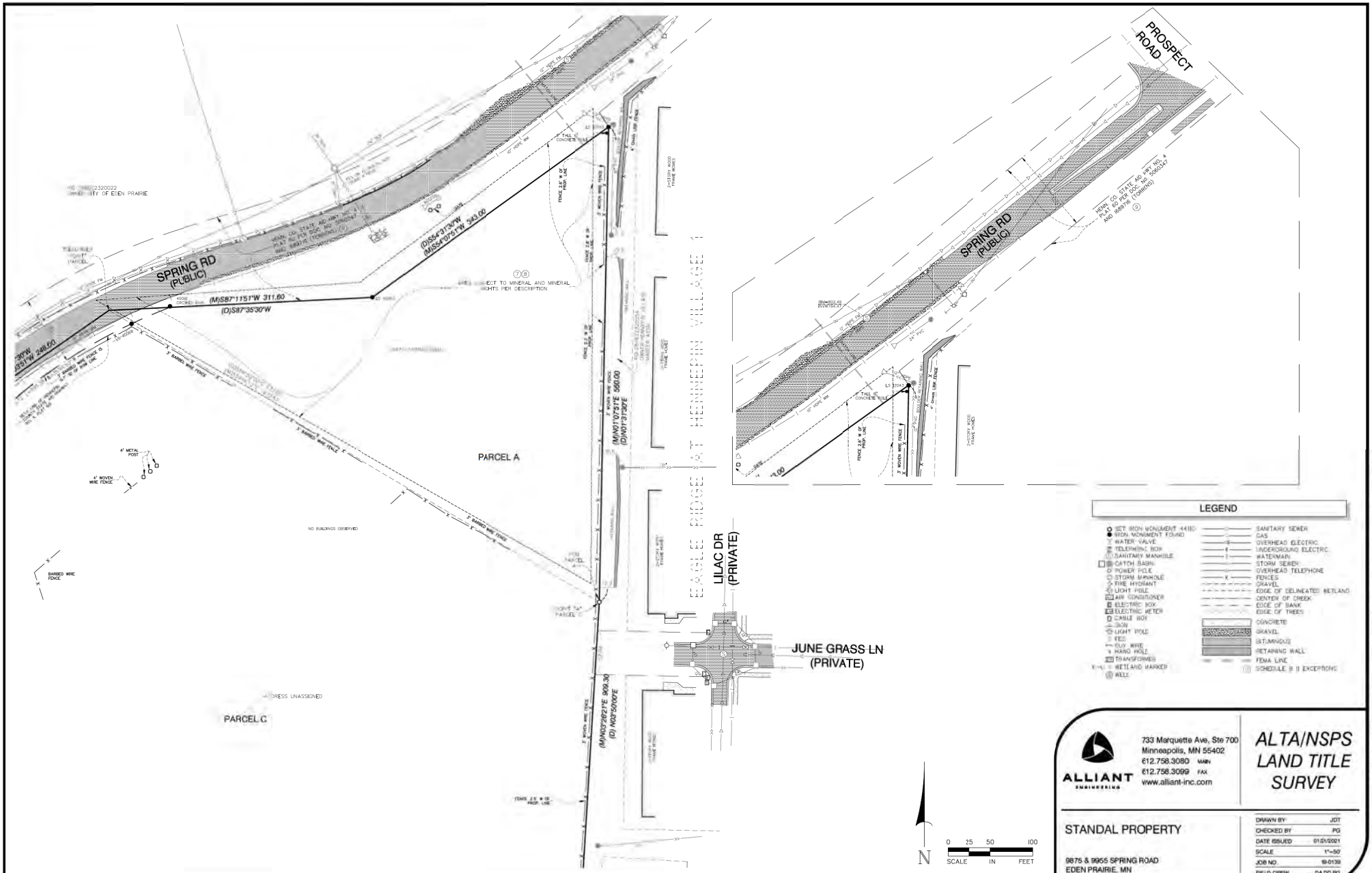

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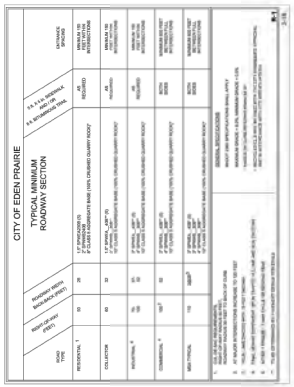
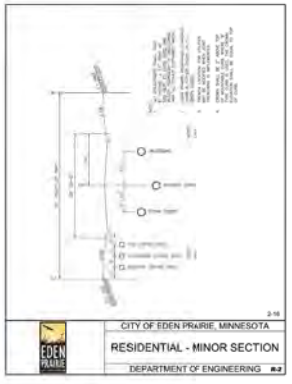
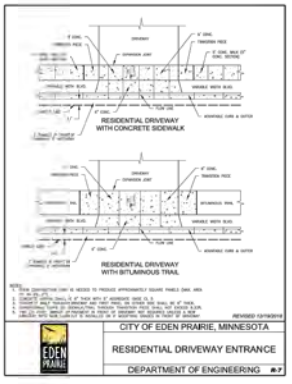
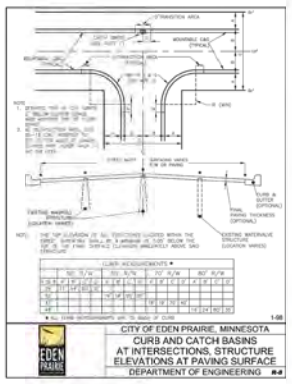
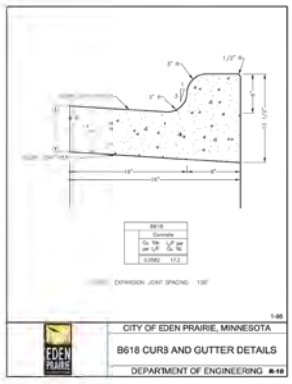
SHEET 4 OF 4 SHEETS

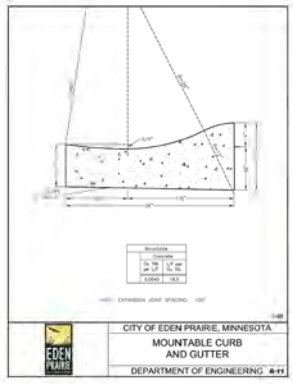


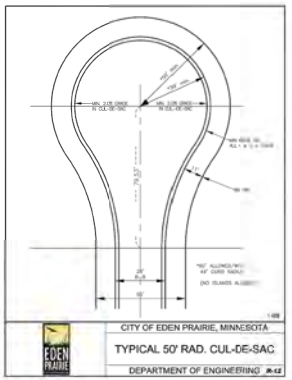


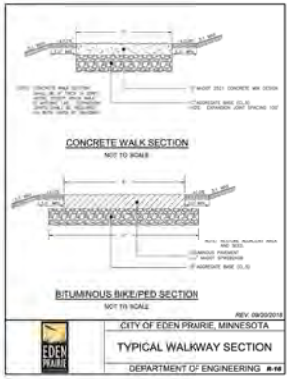


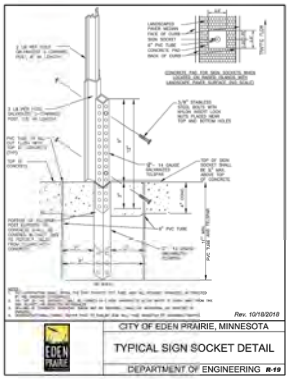


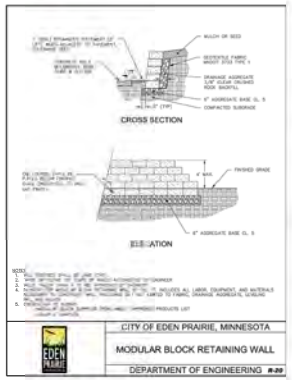


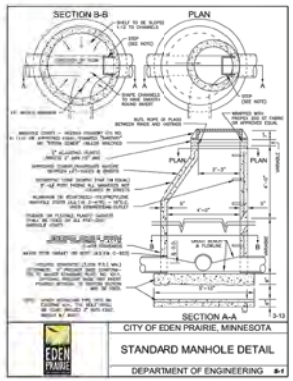


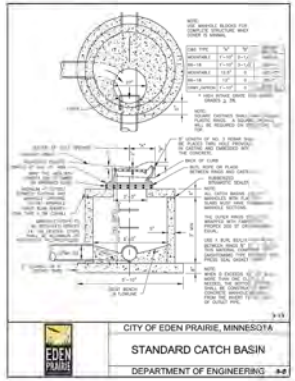


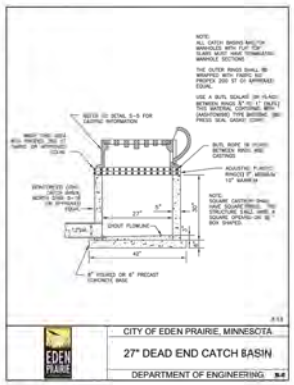


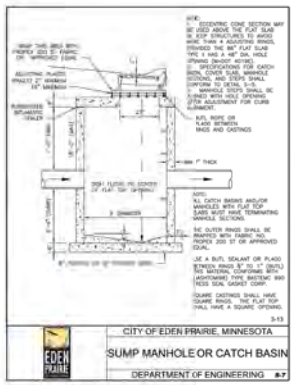


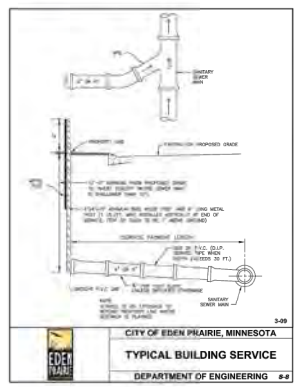


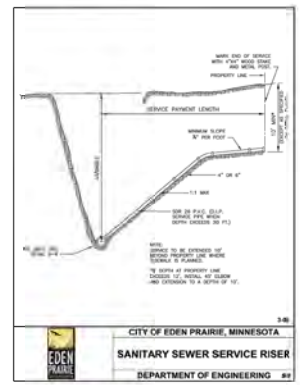












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PULTE HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
DETAILS

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

MARK RAUSCH, PE

Date License No.

QUALITY ASSURANCE/CONTROL

BY DATE

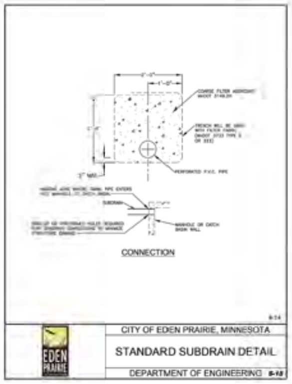
DATE	ISSUE
4-7-21	BID SET
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

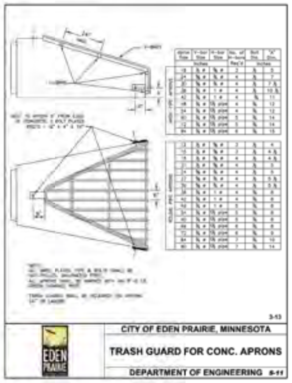
PROJECT TEAM DATA

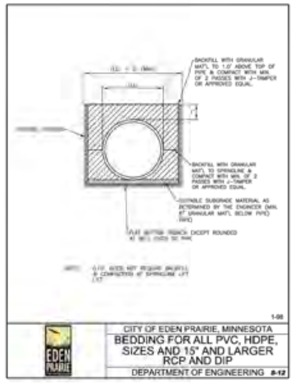
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

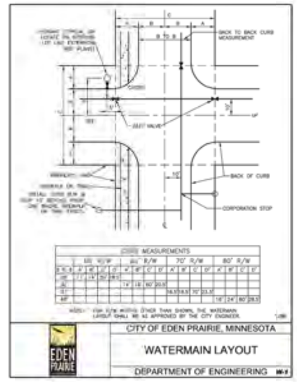
6

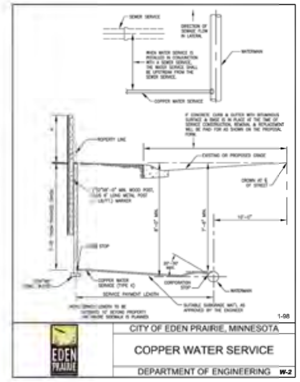
SHEET 6 of 41

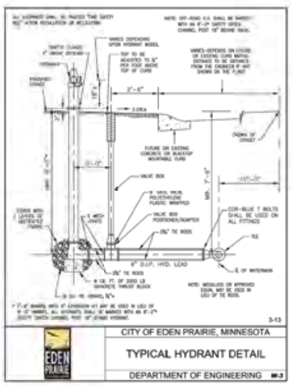


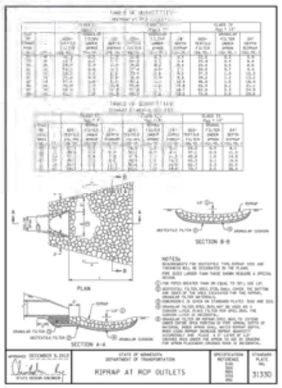


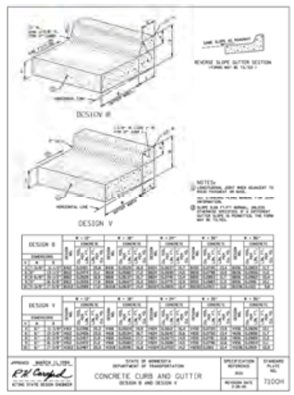












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FINAL PLAT AND LAND ALTERATION SET
DETAILS

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MARK RAUSCH, PE

Date License No.

QUALITY ASSURANCE/CONTROL

BY	DATE

DATE	ISSUE
4-1-21	BID SET
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA

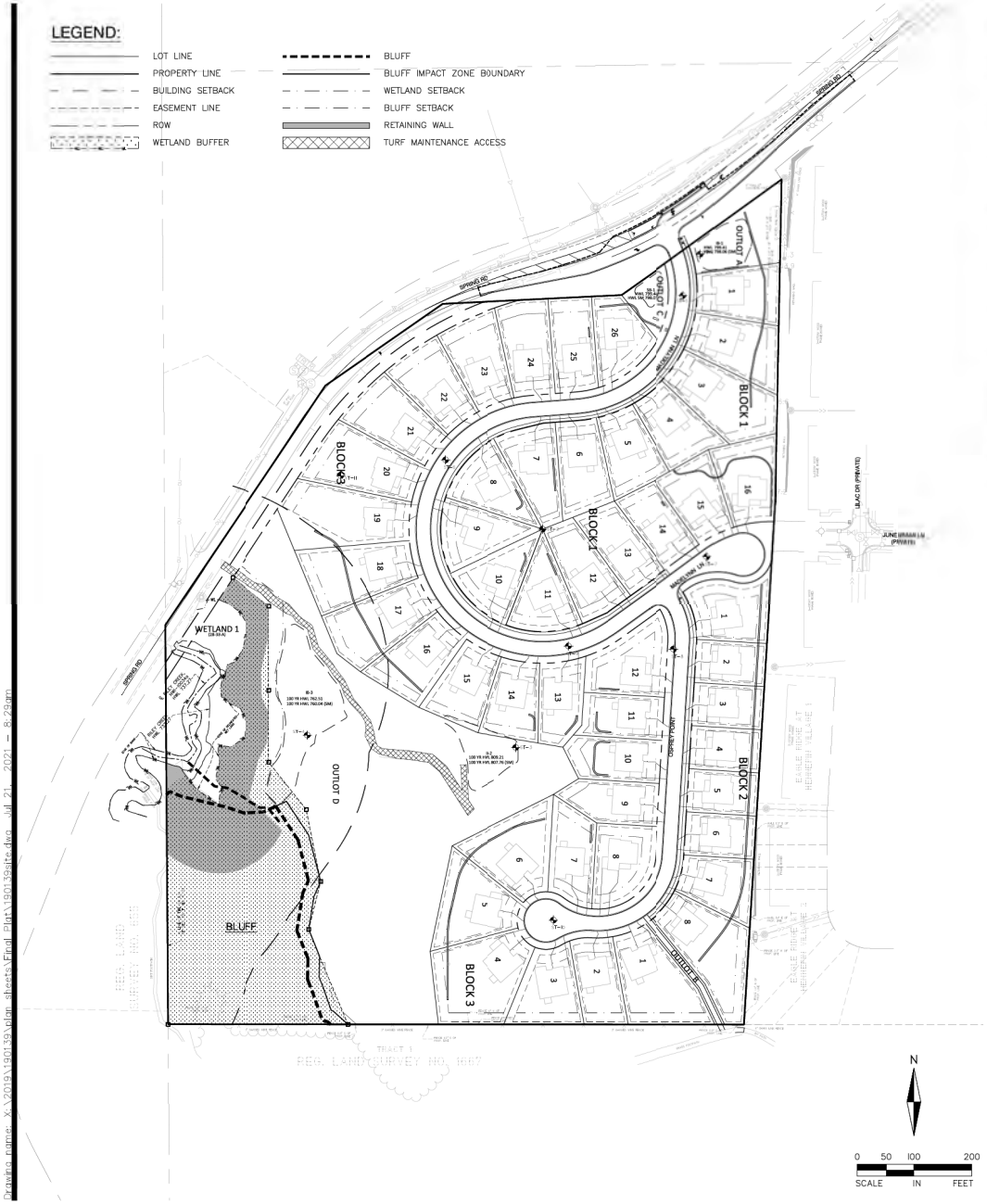
DESIGNED:	MPR
DRAWN:	BJP
PROJECT NO:	219-0139

7

SHEET 7 of 41

LEGEND:

- LOT LINE
- PROPERTY LINE
- BUILDING SETBACK
- EASEMENT LINE
- ROW
- WETLAND BUFFER
- BLUFF
- BLUFF IMPACT ZONE BOUNDARY
- WETLAND SETBACK
- BLUFF SETBACK
- RETAINING WALL
- TURF MAINTENANCE ACCESS



0 50 100 200
SCALE IN FEET

SITE PLAN DATA:

GROSS SITE AREA	28.07 ACRES
OUTLOTS	8.77 ACRES
INTERIOR ROW	2.85 ACRES
EXTERIOR ROW	0.91 ACRES
WETLAND AREA	0.74 ACRES *
BLUFF AREA	2.01 ACRES
BLUFF IMPACT ZONE	0.19 ACRES
DWELLING UNITS	50
MIN. RIGHT OF WAY	50'
CURRENT ZONING	RUR/L
2040 LAND USE	LOW DENSITY RESIDENTIAL (0.1-5 UPA)
PROPOSED ZONING	R1-9.5 PUD
PROPOSED LAND USE	LOW DENSITY RESIDENTIAL (0.1-5 UPA)

* REFER TO WETLAND MANAGEMENT PLAN FOR DETAILS

LOT DATA

TOTAL LOTS	=	50
MIN. LOT AREA	=	9,075 SF
AVG. LOT AREA	=	13,477 SF
LOT WIDTH	=	75'
MIN. LOT WIDTH	=	61.20'*
MIN. REQUIRED LOT WIDTH	=	70'
MIN. LOT WIDTH (CUL-DE-SAC)	=	46.37'*
MIN. REQUIRED LOT WIDTH (CUL-DE-SAC)	=	55'
MIN. LOT DEPTH	=	121'
FRONT YARD SETBACK	=	25'
REAR YARD SETBACK	=	20'
SIDE GARAGE SETBACK	=	7.5'
SIDE HOUSE SETBACK	=	7.5'
MIN. RIGHT OF WAY	=	50'

SHORELAND HARD SURFACE DATA**:

BLOCK 3 LOT 16	=	26.37%
BLOCK 3 LOT 17	=	22.34%
BLOCK 3 LOT 18	=	21.21%
BLOCK 3 LOT 19	=	6.00%

* MINIMUM LOT WIDTHS ARE CALCULATED FROM THE ROW

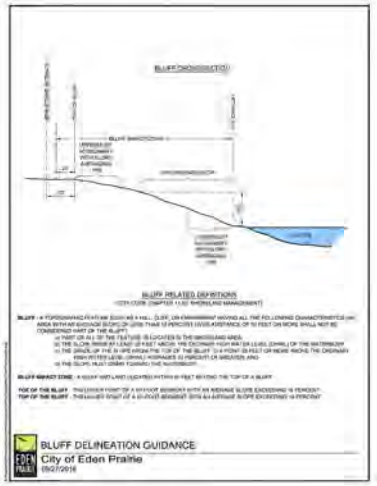
**LOTS 16-19, BLOCK 3 FALL WITHIN SHORELAND DISTRICT, MAX. HARD SURFACE = 30%

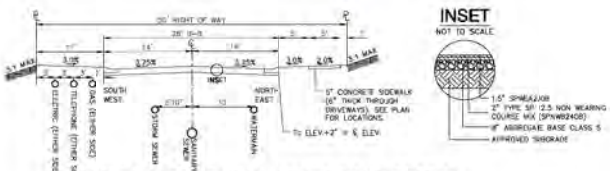
TYPICAL LOT DETAIL
NOT TO SCALE

RETAINING WALL NOTES:

RETAINING WALL MASS GRADING PREPARATION

1. ALL RETAINING WALLS SHALL BE ROUGH GRADED AT A 2:1 SLOPE WITH BASE OF SLOPE AT PROPOSED WALL FACE.
2. PROPOSED RETAINING WALL AREAS BETWEEN BUILDING PADS ARE TO BE ROUGH GRADED AT A 2:1 SLOPE WITH BASE OF SLOPE CONCIDING WITH COMMON LOT LINE.
3. THE RETAINING WALL SLOPE AREAS ARE TO BE MAINTAINED UNTIL RETAINING WALL CONSTRUCTION OCCURS. ANY EROSION SHALL BE REMETHED AND RESTORED.
4. BUILDING PERMITS ARE REQUIRED FOR ALL RETAINING WALLS 4 FEET IN HDSHT OR GREATER AND THE WALLS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER WITH DESIGN REVIEWED AND APPROVED BY THE CITY PRIOR TO INSTALLATION. ANY QUESTIONS REGARDING THE BUILDING PERMITS SHALL BE DIRECTED TO THE CITY BUILDING INSPECTOR.
5. INSTALL SAFETY RAILING ATOP ALL WALLS WHERE REQUIRED BY CODE.
6. RETAINING WALL CONTRACTOR AND/OR RETAINING WALL STRUCTURAL ENGINEER ARE RESPONSIBLE TO REVIEW CIVIL SITE ENGINEERING DRAWINGS. ANY OBSERVED CONCERNS WITH CIVIL SITE ENGINEERING DESIGN ELEMENTS RELATED TO RETAINING WALLS THAT REQUIRE MODIFICATIONS TO THE CIVIL SITE DESIGN IS THEIR RESPONSIBILITY TO COORDINATE WITH PROJECT OWNER AND CIVIL SITE ENGINEER. IF NO COORDINATION IS REQUESTED IT SHALL BE UNDERSTOOD THAT ALL CONDITIONS WITHIN THE CIVIL SITE DESIGN AND PLANS ARE ACCEPTABLE AND WILL NOT BE PROVIDED FOR IN THE RETAINING WALL DESIGN AND CONSTRUCTION.
7. RETAINING WALLS ARE TO BE FINAL DESIGNED AND PERMITTED BY OTHERS.
8. RETAINING WALLS DEPICTED ON ALLIANT GRADING PLAN ARE MODULAR BLOCK RETAINING WALLS.





INSET
NOT TO SCALE

TYPICAL RESIDENTIAL - MINOR ROAD SECTION
1"=10'

55 ROW RESIDENTIAL - MINOR ROAD SECTION
1"=10' - MADELYNN LANE, STATION: 6+51.74 - 15+42.90

POST REVIEW COPY
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Suite 700
Minneapolis, MN 55402
612.758.3080
www.alliant-inc.com

PULTE HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
SITE PLAN - OVERALL VIEW

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MARK RAYSICK, PE
Date: License No.

QUALITY ASSURANCE/CONTROL

BY	DATE
DATE	ISSUE
4-1-21	BO S/T
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

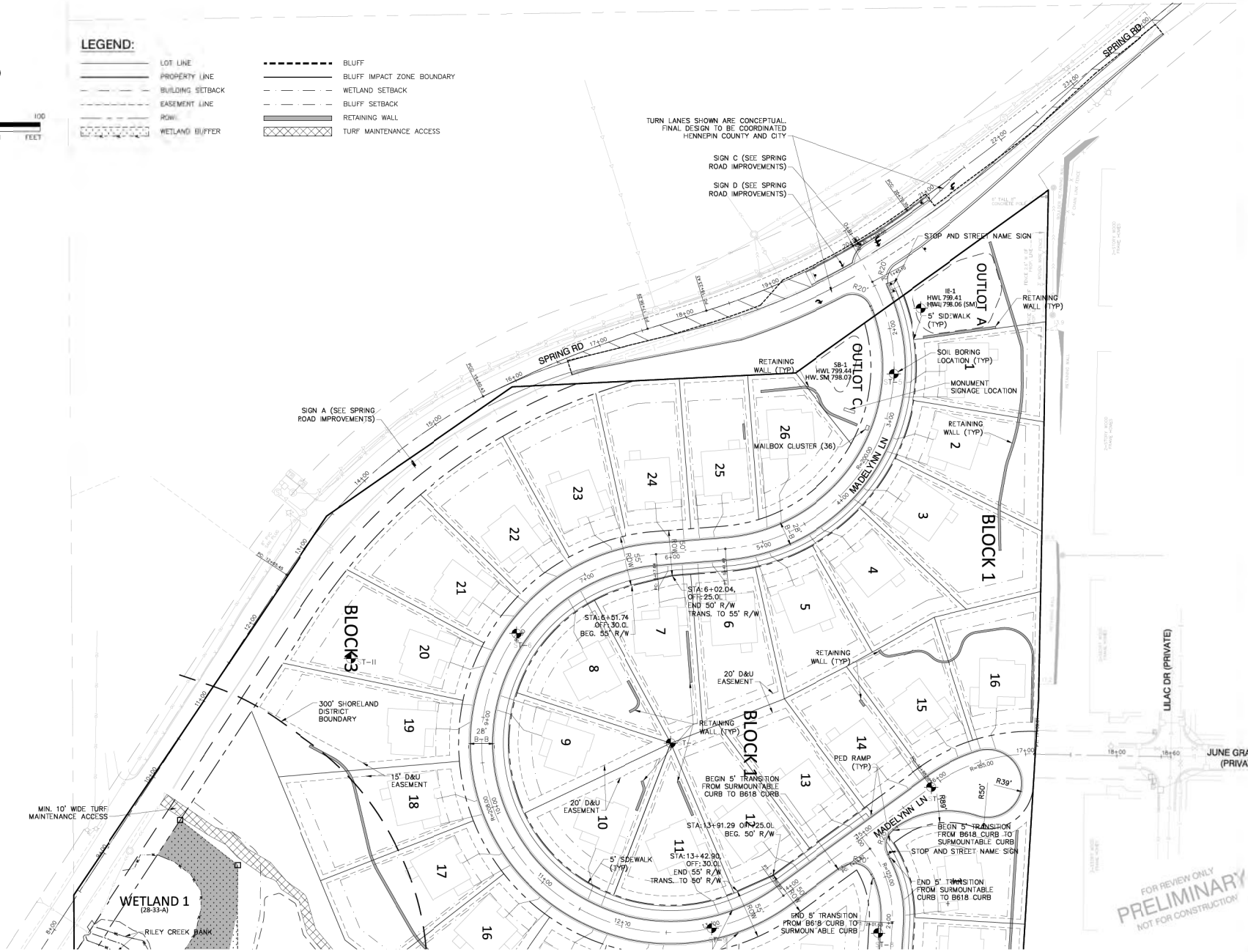
PROJECT TEAM DATA

DESIGNED:	MPR
DRAWN:	BJP
PROJECT NO:	219-0139

8

SHEET 8 of 41

Drawing name: X:\2019\1901339\plan sheets\Final Plat\1901339site.dwg Jul 21, 2021 - 8:20am



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FINAL PLAT AND LAND ALTERATION SET

SITE PLAN - VIEW A

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MARK RAUSCH, PE

Date License No.

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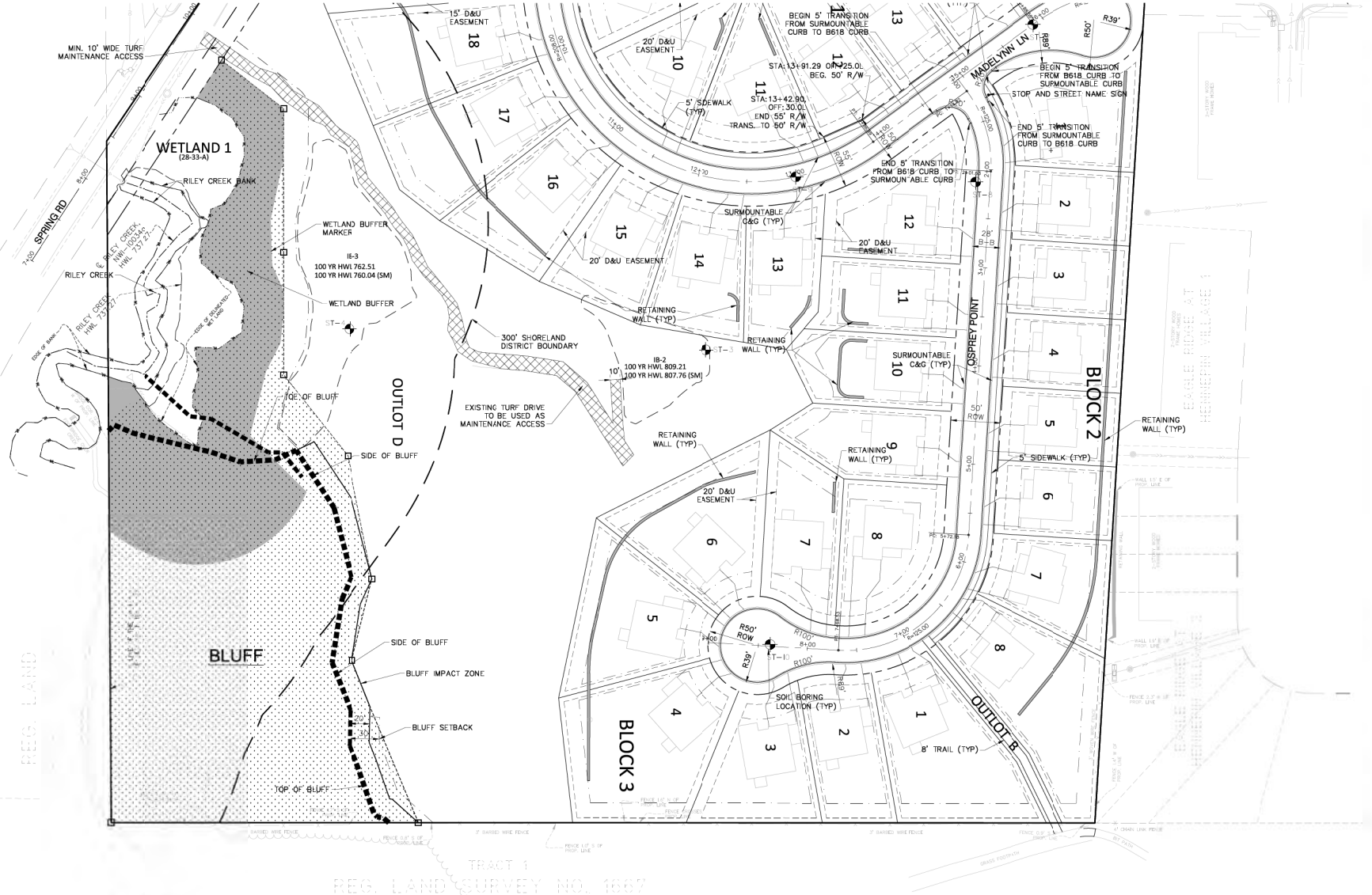
4-7-21	BID SET
5-28-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA

DESIGNED:	MPR
DRAWN:	BJP
PROJECT NO:	219-0139

9

SHEET 9 of 41



LEGEND:

- LOT LINE
- PROPERTY LINE
- BUILDING SETBACK
- EASEMENT LINE
- ROW
- WETLAND BUFFER
- BLUFF
- BLUFF IMPACT ZONE BOUNDARY
- WETLAND SETBACK
- BLUFF SETBACK
- RETAINING WALL
- TURF MAINTENANCE ACCESS

N

0 25 50 100
SCALE IN FEET

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EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
SITE PLAN - VIEW B

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MARK RAUSCH, PE
Date License No.

QUALITY ASSURANCE/CONTROL

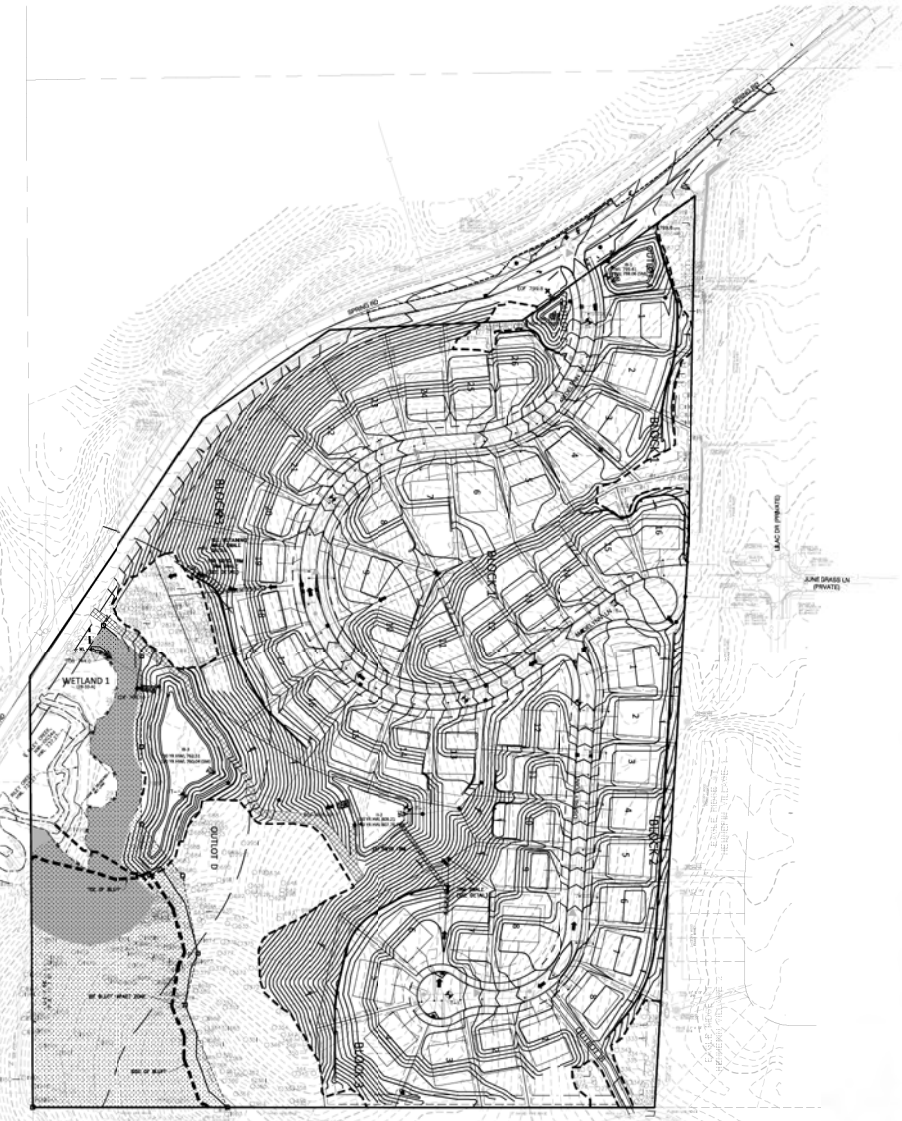
BY	DATE

DATE	ISSUE
4-7-21	BID SET
5-28-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

10

SHEET 10 of 41



0 50 100 200
SCALE IN FEET

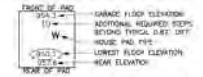
GRADING NOTES:

1. ALL FINISHED GRADES SHALL SLOPE AWAY FROM PROPOSED BUILDINGS AT MINIMUM GRADE OF 2.0%.
2. THE CONTRACTOR SHALL KEEP THE ADJACENT ROADWAYS FREE OF DEBRIS AND PREVENT THE OFF-SITE TRACKING OF SOIL IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY AND WATERSHED.
3. NOTIFY GOPHER STATE ONE CALL AT (800)252-1166, 48 HOURS PRIOR TO START OF CONSTRUCTION.
4. ALL IMPROVEMENTS TO CONFORM WITH CITY, AND COUNTY OR STATE CONSTRUCTION STANDARDS SPECIFICATION, LATEST EDITION.
5. VEHICLE TRACKING PAD SHALL BE PROVIDED AT ALL CONSTRUCTION ACCESS POINTS.
6. CONTRACTOR TO KEEP A COPY OF THE EROSION CONTROL PLAN ON SITE AT ALL TIMES.
7. REFER TO GEOTECHNICAL REPORT AND PROJECT MANUAL FOR SOIL CORRECTION REQUIREMENTS AND TESTING REQUIREMENTS.
8. STRIP TOPSOIL PRIOR TO ANY CONSTRUCTION. REUSE STOCKPILE ON SITE. STOCKPILE PERIMETERS MUST BE PROTECTED WITH SILT FENCE.
9. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES.
10. IMMEDIATELY FOLLOWING GRADING OF [3:1 OR GREATER] SIDE SLOPES AND DRAINAGE SWALES, WOOD FIBER BLANKET OR OTHER APPROVED SOIL STABILIZING METHOD [APPROVED BY ENGINEER] SHALL BE APPLIED OVER APPROVED SEED MIXTURE AND A MINIMUM OF 6" TOPSOIL.
11. THE GENERAL CONTRACTOR MUST DISCUSS DEWATERING PLANS WITH ALL SUBCONTRACTORS TO VERIFY HYDES REQUIREMENTS. IF DEWATERING IS REQUIRED DURING CONSTRUCTION CONTRACTOR SHOULD CONSULT WITH EROSION CONTROL INSPECTOR AND ENGINEER TO DETERMINE APPROPRIATE METHOD.
12. REFER TO STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ALL EROSION AND SEDIMENT CONTROL DEVICE LOCATION, DESCRIPTIONS, NOTES AND DETAILS INCLUDING CONCRETE WASHOUT STATION INSTRUCTIONS.
13. FOR ALL RETAINING WALLS 4 FEET IN HEIGHT OR GREATER AND THE WALLS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER WITH DESIGN REVIEWED AND APPROVED BY THE CITY PRIOR TO INSTALLATION.

DEVELOPER:

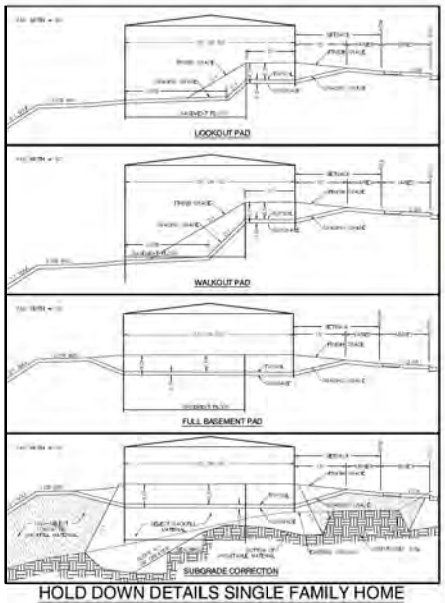
PULTE HOMES
7500 FLYING CLOUD DRIVE, SUITE 670
EDEN PRAIRIE, MN 55344

GRADING LEGEND:



GARAGE FLOOR ELEVATION
ADDITIONAL REQUIRED STEPS BEYOND TYPICAL 0.82' OFF
HOUSE PAD TYPE
LOWEST FLOOR ELEVATION
REAR ELEVATION

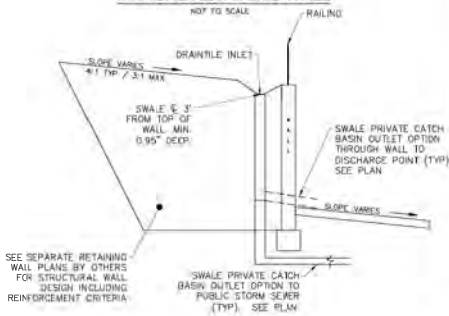
EXISTING CONTOUR
789 PROPOSED CONTOUR
PROPOSED RETAINING WALL
x62.44 x962.44 PROPOSED SPOT ELEVATION
1.0% DIRECTION OF DRAINAGE
EMERGENCY OVERFLOW ROUTING
PROPOSED CATCH BASINS
PROPOSED STORM SEWER
TW 70.0 TOP OF WALL ELEVATION
BW 68.0 BOTTOM OF WALL ELEVATION
PROPOSED EASEMENT
PROPERTY LINE
SETBACK LINE
LOT LINE
RIGHT-OF-WAY
TREE CLEARING LIMITS
EXISTING TREE TO REMAIN
WETLAND
WETLAND BUFFER
MAINTENANCE ACCESS



HOLD DOWN DETAILS SINGLE FAMILY HOME
NOT TO SCALE

TYPICAL RETAINING WALL

NOT TO SCALE



RETAINING WALL NOTES:

RETAINING WALL MASS GRADING PREPARATION

1. ALL RETAINING WALLS SHALL BE ROUGH GRADED AT A 2:1 SLOPE WITH BASE OF SLOPE AT PROPOSED WALL FACE.
2. PROPOSED RETAINING WALL AREAS BETWEEN BUILDING PADS ARE TO BE ROUGH GRADED AT A 2:1 SLOPE WITH BASE OF SLOPE COINCIDING WITH COMMON LOT LINE.
3. THE RETAINED WALL SLOPE AREAS ARE TO BE MAINTAINED UNTIL RETAINING WALL CONSTRUCTION OCCURS. ANY EROSION SHALL BE REMEDIED AND RESTORED.
4. BUILDING PERMITS ARE REQUIRED FOR ALL RETAINING WALLS 4 FEET IN HEIGHT OR GREATER AND THE WALLS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER WITH DESIGN REVIEWED AND APPROVED BY THE CITY PRIOR TO INSTALLATION. ANY QUESTIONS REGARDING THE BUILDING PERMITS SHALL BE DIRECTED TO THE CITY BUILDING INSPECTOR.
5. INSTALL SAFETY RAILING ATOP ALL WALLS WHERE REQUIRED BY CODE.
6. RETAINING WALL CONTRACTOR AND/OR RETAINING WALL STRUCTURAL ENGINEER ARE RESPONSIBLE TO REVIEW CIVIL SITE ENGINEERING DRAWINGS. ANY OBSERVED CONCERNS WITH CIVIL SITE ENGINEERING DESIGN ELEMENTS RELATED TO RETAINING WALLS THAT REQUIRE MODIFICATIONS TO THE CIVIL SITE DESIGN IS THEIR RESPONSIBILITY TO COORDINATE WITH PROJECT OWNER AND CIVIL SITE ENGINEER. IF NO COORDINATION IS REQUESTED IT SHALL BE UNDERSTOOD THAT ALL CONDITIONS WITHIN THE CIVIL SITE DESIGN AND PLANS ARE ACCEPTABLE AND ABLE TO BE PROVIDED FOR IN THE RETAINING WALL DESIGN AND CONSTRUCTION.
7. RETAINING WALLS ARE TO BE FINAL DESIGNED AND PERMITTED BY OTHERS.
8. RETAINING WALLS DEPICTED ON ALLIANT GRADING PLAN AS MODULAR BLOCK RETAINING WALLS.
9. DRAINTILE INLETS TO TIE INTO PUBLIC STORM SEWER OR WALL DRAINTILE SYSTEM. TO BE COMPLETED WITH FINAL WALL DESIGN.

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PULTE HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
GRADING AND DRAINAGE PLAN - OVERALL VIEW

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MARK RAUSCH, PE
Date License No.

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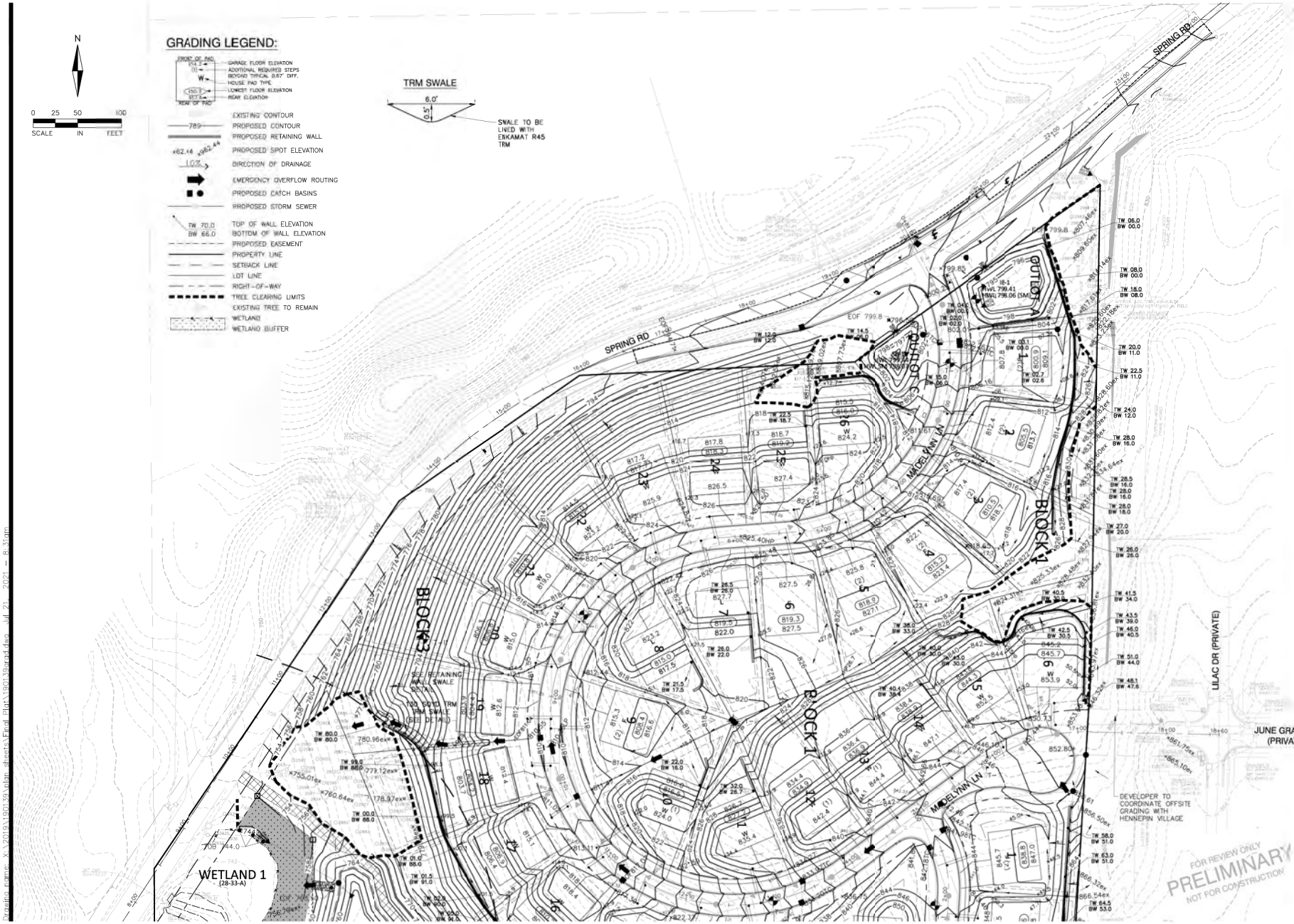
PROJECT TEAM DATA

DESIGNED:	MPR
DRAWN:	BJP
PROJECT NO:	219-0139

11

SHEET 11 of 41



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FINAL PLAT AND LAND ALTERATION SET

GRADING AND DRAINAGE PLAN - VIEW A

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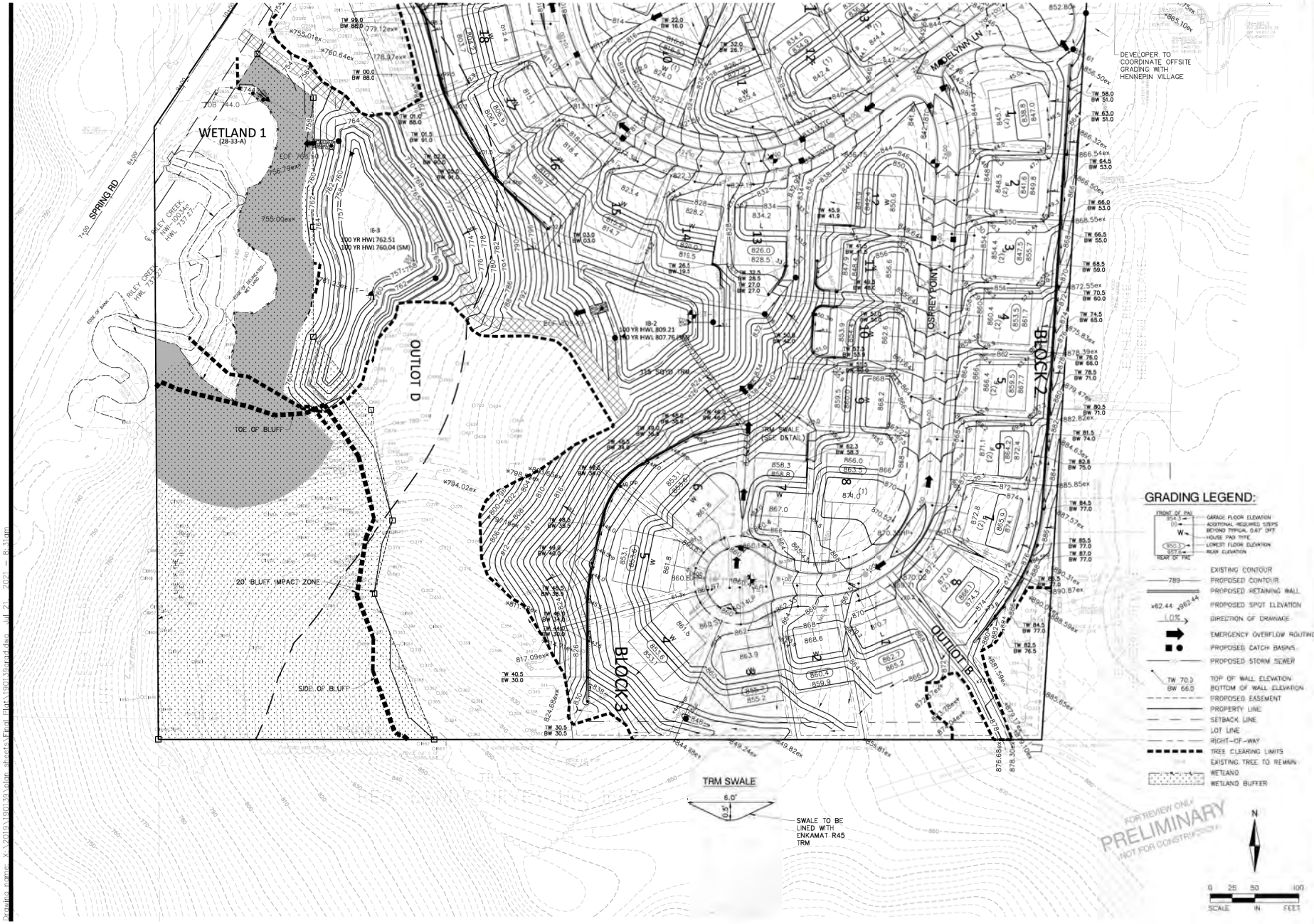
PROJECT TEAM DATA

DESIGNED:	MFR
DRAWN:	BJP
PROJECT NO:	219-0139

12

SHEET 12 of 41



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GRADING AND DRAINAGE PLAN - VIEW B

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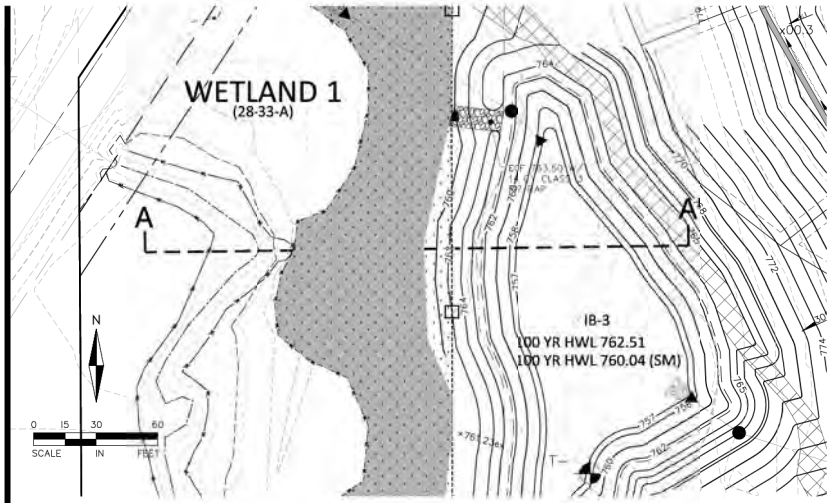
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

13

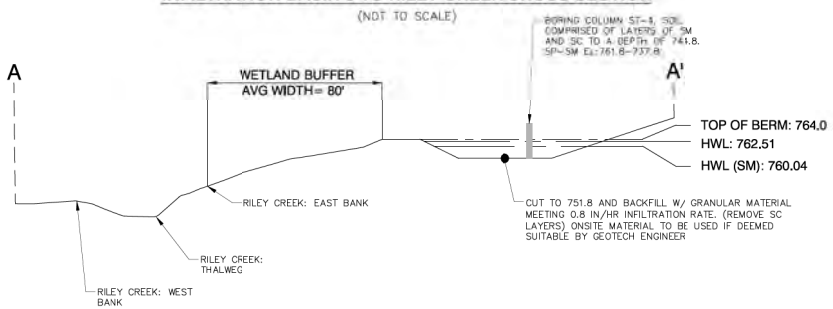
SHEET 13 of 41

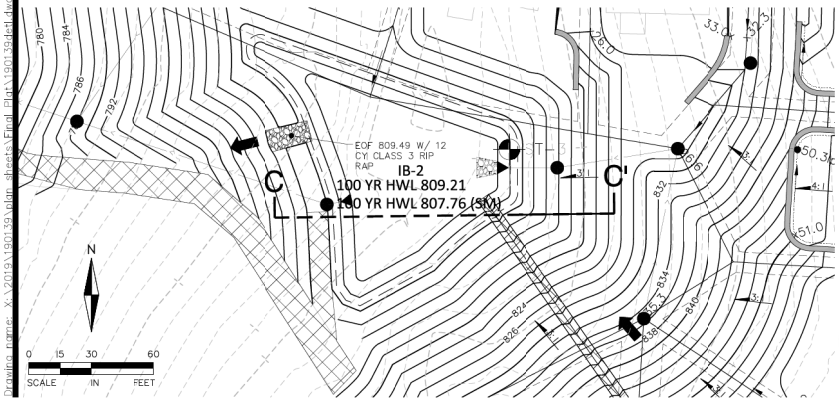
Drawing name: X:\2019\1901390\plan sheets\Final Plat\1901390grad.dwg Jul 21, 2021 - 8:31am

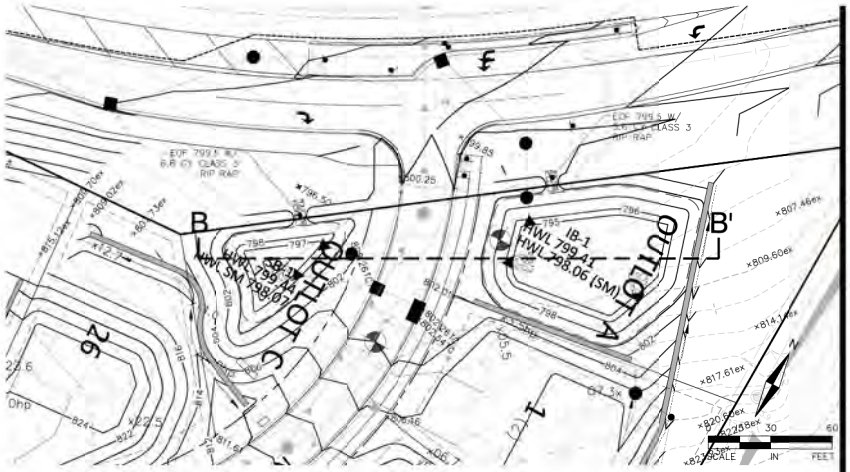


INFILTRATION BASIN 3 TO RILEY CREEK CROSS SECTION

(NOT TO SCALE)

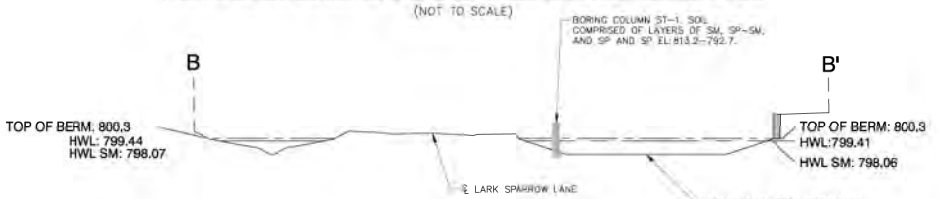






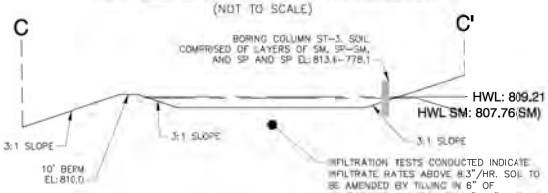
INFILTRATION BASIN 1 TO SEDIMENTATION BASIN 1 CROSS SECTION

(NOT TO SCALE)



INFILTRATION BASIN 2 CROSS SECTION

(NOT TO SCALE)



LEGEND:

- LOT LINE
- PROPERTY LINE
- BUILDING SETBACK
- EASEMENT LINE
- ROW
- WETLAND DELINEATION
- WETLAND BUFFER
- WETLAND SETBACK
- MAINTENANCE ACCESS

INFILTRATION BASIN NOTES:

1. IF INFILTRATION BASIN TO BE UTILIZED AS TEMPORARY SEDIMENT BASINS, 3' OF COVER OVER PROPOSED BOTTOM ELEVATION OR EXCAVATION ELEVATION TO BE LEFT IN PLACE DURING CONSTRUCTION
2. IF COMPACTION OCCURS AT THE BASE OF THE BASIN, THE SOIL SHALL BE REFRACTURED TO A DEPTH AT LEAST 36". IF SMEARING OCCURS, THE SMEARED AREAS OF THE INTERFACE SHALL BE CORRECTED BY RAKING OR ROTO-TILLING.
3. ON SITE MATERIAL TO BE UTILIZED FOR BACKFILL IN REMOVAL OF UNSUITABLE INFILTRATION MATERIAL LAYERS AS APPROVED BY THE GEOTECHNICAL ENGINEER.
4. INFILTRATION RATE TO BE A MINIMUM OF 0.8 IN/HR AND A MAXIMUM OF 8.3 IN/HR. A INFILTRATION TEST IS REQUIRED UPON COMPLETION OF BASIN CONSTRUCTION TO ENSURE INFILTRATION RATES ARE BEING MET.

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PULTE HOMES

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EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
INFILTRATION PLAN AND CROSS SECTION

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Date License No.

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7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

14

SHEET 14 of 41

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED RETAINING WALL
- DIRECTION OF DRAINAGE
- PROPOSED CATCH BASINS
- PROPOSED STORM SEWER
- PROPOSED EASEMENT
- PROPERTY LINE
- SETBACK LINE
- LOT LINE
- RIGHT-OF-WAY
- PROPOSED SILT FENCE (PRE GRADING)
- PROPOSED SILT FENCE (POST GRADING)
- INLET PROTECTION
- DND — DO NOT DISTURB AREAS
- ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- DIVERSION DITCH WITH ROCK CHECKS
- TURF REINFORCEMENT MAT

SEDIMENT BARRIERS
1. SILT FENCE (MnDOT 3886)
2. CURB LOG
3. ROCK WEEPER

ANTI-TRACKING CONTROL
1. 2" CRUSHED CLEAR ROCK (LAND DEVELOPMENT)

TEMPORARY SEED MIX
1. MnDOT-100 (OATS 20-120 DAY STABILIZATION)
2. MnDOT-150 (1-2 YEAR STABILIZATION)
3. MnDOT-190

INLET PROTECTION DEVICES
1. WIMCO (MnDOT TYPE A & C)
2. INFRASAFE STORM DRAIN/CULVERT
3. SILT SACK (MnDOT TYPE A)
4. DANDY BAG (MnDOT TYPE B)

PERMANENT SEED MIX/ STABILIZATION
1. MnDOT 270 (RESIDENTIAL TURF)
2. MN STATE SEED MIX 35-241 (MESIC PRIAIRE GENERAL)
3. MN STATE SEED MIX 33-261 (INFILTRATION SEED MIX)

GRADING ACTIVITY
1. CONCRETE WASHOUT IS DONE BY TRUCK WITH A MOBILE WASHOUT SYSTEM PROVIDED AND COMPLETED BY THE CONCRETE CONTRACTOR.

STABILIZATION BMP'S
1. STRAW/HAY
2. EROSION CONTROL BLANKET MnDOT CAT. 3
3. HYDROMULCH MnDOT TYPE 5
4. TURF REINFORCEMENT MT SC250 NORTH AMERICAN GREEN OR EQUAL-MNDOT CAT 6

N

0 50 100 200
SCALE IN FEET

CONSTRUCTION SEQUENCING:

MASS GRADING PHASE:
1. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
2. PREPARE TEMPORARY PARKING AND STORAGE AREA.
3. INSTALL THE PRE-GRADING SILT FENCES AND INLET PROTECTION BMPS ON THE SITE.
4. CONSTRUCT ALL PRE-GRADING EROSION AND SEDIMENTATION CONTROL BMPs.
5. COMPLETE MASS GRADING AND INSTALL TEMPORARY AND PERMANENT SEEDING AND PLANTING.
6. CONSTRUCT POST-GRADING SILT FENCE AND BMPS ON THE SITE.

STREET & UTILITY PHASE:
1. INSTALL UTILITIES, UNDERDRAINS, STORM SEWERS, CURBS AND GUTTERS.
2. INSTALL RIP RAP AROUND OUTLET STRUCTURES.
3. INSTALL INLET PROTECTION AROUND ALL STORM SEWER STRUCTURES.
4. PREPARE SITE FOR PAVING.
5. PAVE SITE.
6. INSTALL INLET PROTECTION DEVICES.
7. INSTALL POST STREET AND UTILITY SILT FENCE.
8. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES (ONLY IF SITE IS STABILIZED), IF REQUIRED BY THE CONTRACT

SWPPP BMP QUANTITIES: (PER PLAN)

SILT FENCE	8,720 LF
INLET PROTECTION	34 EA
ROCK CONSTRUCTION ENTRANCE	1 EA
SEED/SOD POST GRADING AREA	19.10 AC

SWPPP CONTACT:

PULTE HOMES
7500 FLYING CLOUD DRIVE, SUITE 670
EDEN PRAIRIE, MN 55344
PH: 952-229-4723
CONTACT: CHAD ONSGARD

PULTE HOMES ACTIVE SWPPP MAP LEGEND

* FIELD MANAGER TO COLOR CODE DURING CONSTRUCTION AS NECESSARY.

- ☐ Stockpiles
- ☐ Inlet Protection Devices
- ☐ Curb Logs
- ☐ Pavement (driveways)
- ☐ Silt Fence
- ☐ Sod (with install date)
- ☐ Temporary Mulch Cover
- ☐ Port-O-Potty
- ☐ Temporary Hydromulch
- ☐ Dumpsters
- ☐ Erosion Control Blanket
- ☐ _____
- ☐ Active Construction Rock Driveway (with install date)
- ☐ _____

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FINAL PLAT AND LAND ALTERATION SET
EROSION AND SEDIMENT CONTROL PLAN - OVERALL VIEW

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MARK NAUSCH, PE
Date License No.

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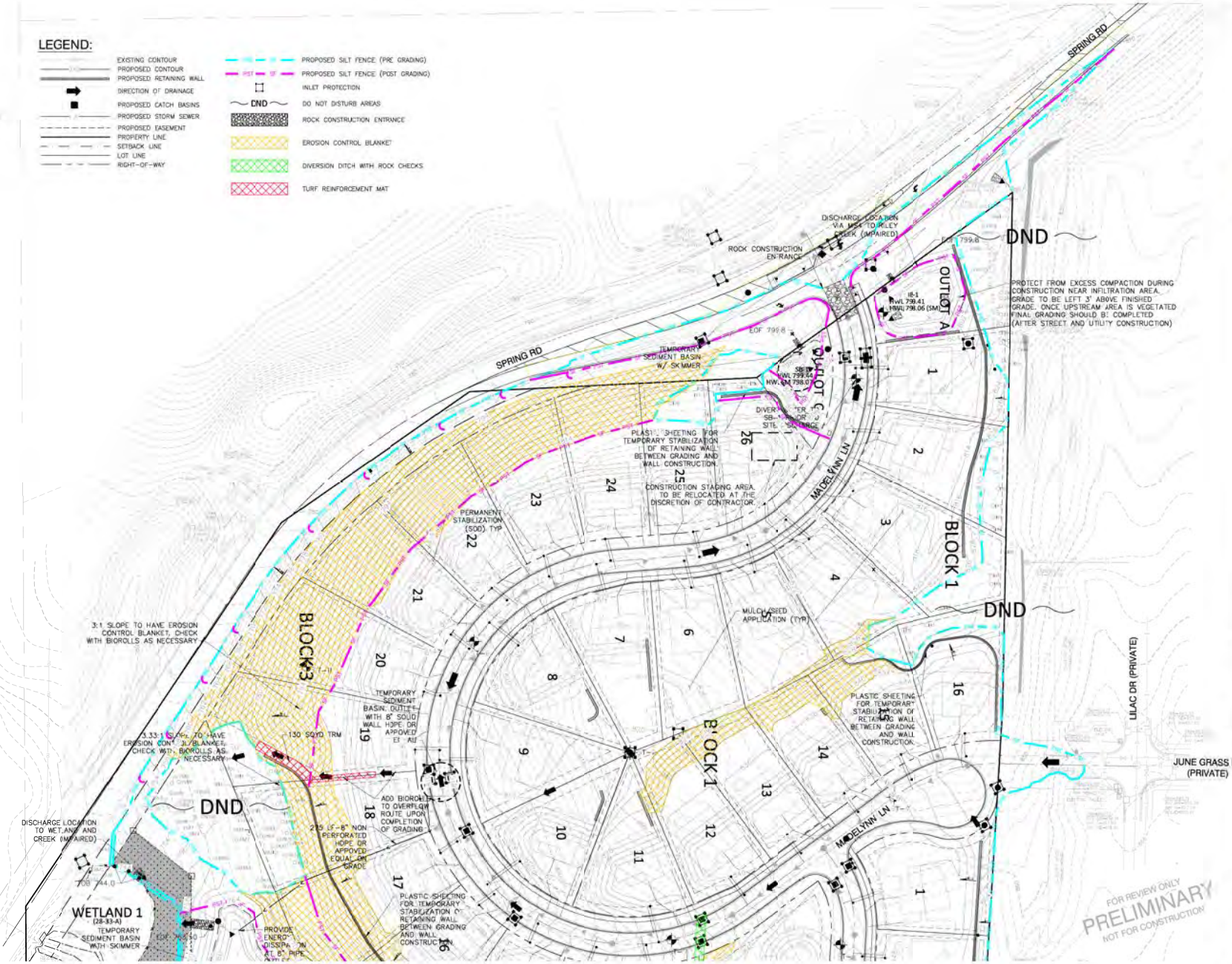
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

15

SHEET 15 of 41



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EROSION AND SEDIMENT CONTROL PLAN - VIEW A

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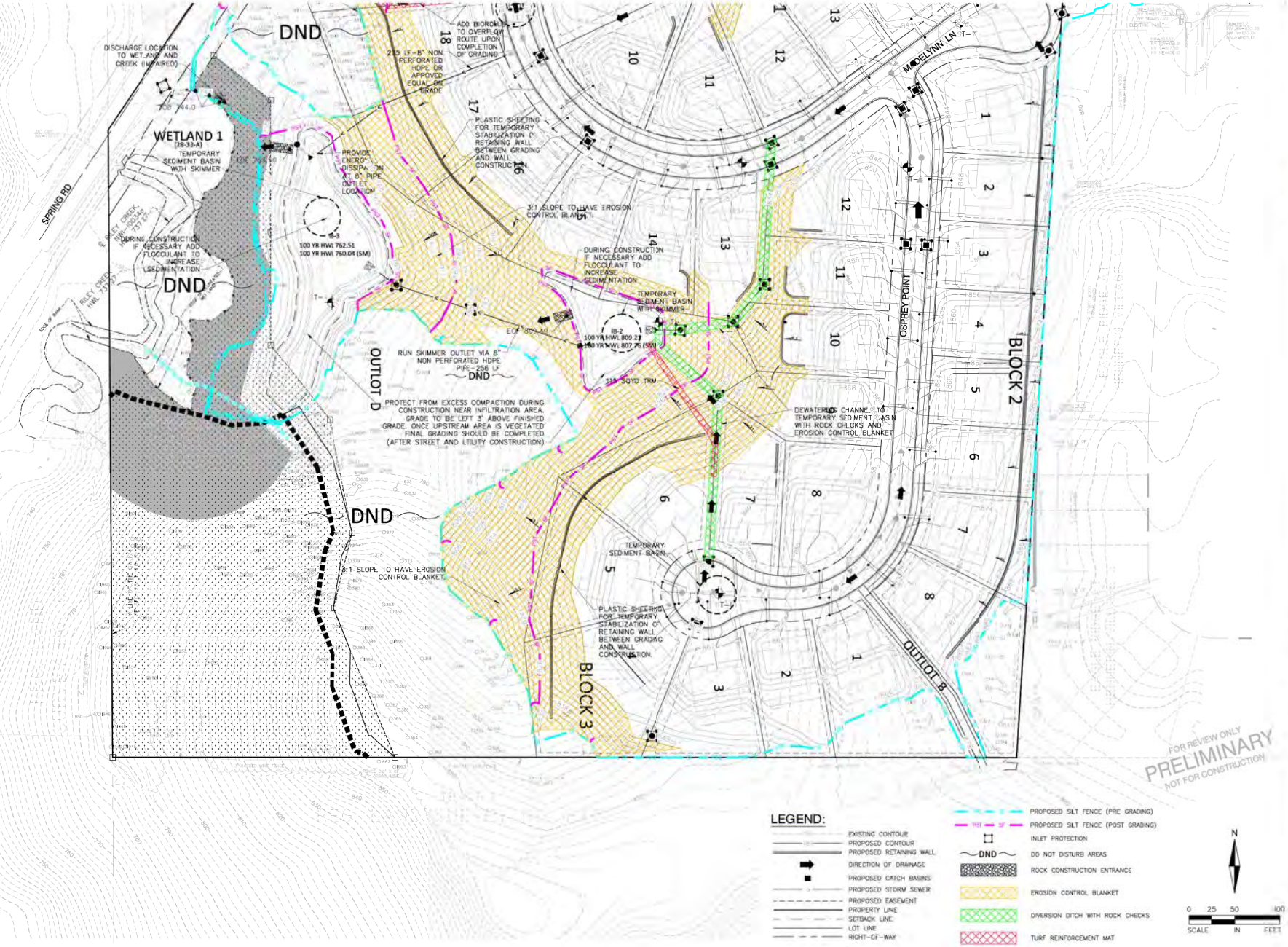
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

16

SHEET 16 of 41



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PULTE HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
EROSION AND SEDIMENT CONTROL PLAN - VIEW B

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

MARK RAUSCH, PE

Date License No.

QUALITY ASSURANCE/CONTROL

BY DATE

DATE	ISSUE
4-7-21	BID SET
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

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LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED RETAINING WALL
- DIRECTION OF DRAINAGE
- PROPOSED CATCH BASINS
- PROPOSED STORM SEWER
- PROPOSED EASEMENT
- PROPERTY LINE
- SETBACK LINE
- LOT LINE
- RIGHT-OF-WAY
- PROPOSED SILT FENCE (PRE GRADING)
- PROPOSED SILT FENCE (POST GRADING)
- INLET PROTECTION
- DND — DO NOT DISTURB AREAS
- ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- DIVERSION DITCH WITH ROCK CHECKS
- TURF REINFORCEMENT MAT

FOR REVIEW ONLY
PRELIMINARY
NOT FOR CONSTRUCTION

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SCALE IN FEET

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EDEN PRAIRIE, MN

FINAL PLAT AND LAND ALTERATION SET

VERTICAL CONSTRUCTION EROSION AND SEDIMENT CONTROL

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MARK RAUSCH, PE

Date License No.

QUALITY ASSURANCE/CONTROL

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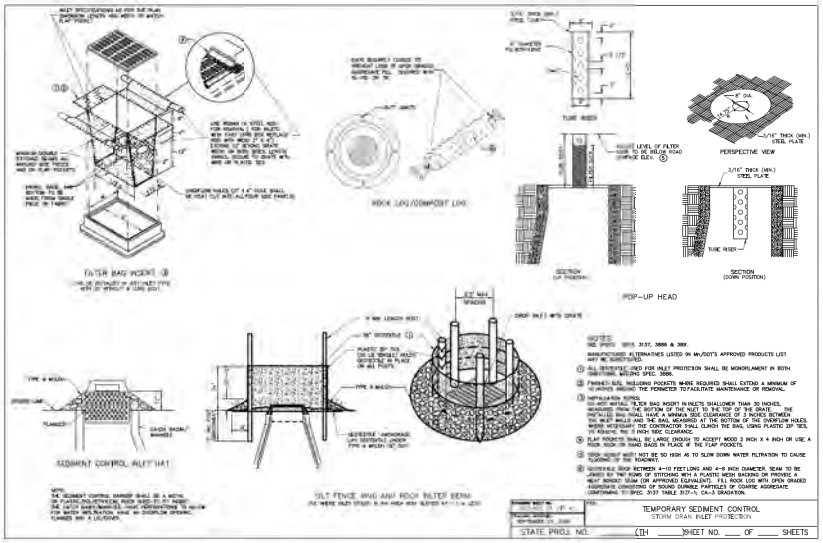
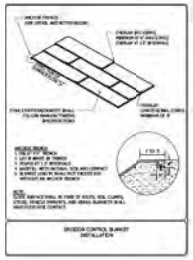
PROJECT TEAM DATA

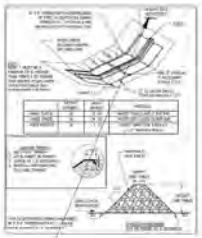
DESIGNED:	MPR
DRAWN:	BJP
PROJECT NO:	219-0139

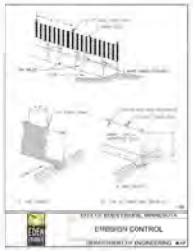
18

SHEET 18 of 41

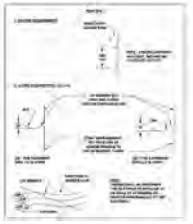


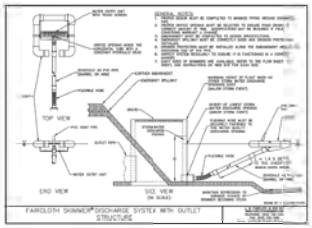






DIVERSION DITCHES TO UTILIZE EROSION CONTROL BLANKET INSTEAD OF GEOTEXTILE FABRIC





EROSION CONTROL GENERAL NOTES:

1. ANY LAND DISTURBING ACTIVITY SHALL OCCUR UNTIL A GRADING PERMIT HAS BEEN ISSUED FROM THE CITY OF SHOREWOOD, AND THE WATERSHED DISTRICT UNLESS EXEMPTED BY A PERMIT. THE HOURS OF OPERATION SHALL BE LIMITED TO 7:00 AM TO 9:00 PM MONDAY THROUGH SATURDAY.

2. BEST MANAGEMENT PRACTICES (BMP'S) SHOWN ON THESE EROSION AND SEDIMENT CONTROL PRACTICES DEFINED IN THE MPCA STORMWATER MANAGEMENT FOR URBAN AREAS AND THE MINNESOTA CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL PLANNING HANDBOOK.

3. ALL BMP'S SELECTED SHALL BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, AND ESTIMATED DURATION OF USE.

4. ALL BMP'S AND MATERIALS SHALL BE CONSTRUCTED ACCORDING TO THE APPROVED PLANS. ANY DEVIATION FROM THE APPROVED PLANS SHALL REQUIRE WRITTEN APPROVAL FROM THE ENGINEER OF RECORD.

5. A COPY OF THESE PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

6. THE BOUNDARIES OF THE LAND DISTURBING LIMITS SHOWN ON THE PLANS SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. NO DISTURBANCE BEYOND THIS DISTURBED LIMITS.

7. WHATEVER POSSIBLE, PRESERVE THE EXISTING TREES, GRASS AND OTHER VEGETATIVE COVER TO HELP FILTER RUNOFF.

8. ESTABLISH A PERMANENT VEGETATIVE COVER ON ALL APPROVED SOILS WHERE LAND IS COMING OUT OF AGRICULTURAL PRODUCTION. PLANT AS SOON AS POSSIBLE TO ESTABLISH DENSE GRASS FILTER PRIOR TO CONSTRUCTION AND TO MINIMIZE WEED GROWTH.

9. ALL TREES NOT LISTED FOR REMOVAL SHALL BE PROTECTED SO NOT OPERATE EQUIPMENT WITHIN THE DRIPLINE. MUST DONE OR WITHIN TREE PROTECTION FENCE AREAS.

10. ALL EROSION AND SEDIMENT CONTROL FACILITIES (BMP'S) SHALL BE INSTALLED AND IN OPERATION PRIOR TO LAND DISTURBANCE ACTIVITIES AND THEY SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETED AND THE POTENTIAL FOR EROSION HAS PASSED.

11. SILT FENCE IS REQUIRED AT DOWN GRADIENT PERIMETER OF DISTURBED AREAS AND STOCKPILES. PROTECT WETLANDS, WATERCOURSES AND ADJACENT PROPERTIES FROM SEDIMENTATION AND STORMWATER RUNOFF.

12. THE BMP'S SHOWN ON THIS PLANS ARE THE MINIMUM REQUIREMENTS FOR THE ANTICIPATED SITE CONDITIONS. NO CONSTRUCTION ACTIVITIES AND UNDERTAKEN ON SEASONAL CONSIDERATIONS THE PERMITTEE/CONTRACTOR SHALL MAINTAINED THAT MORE BMP'S WILL BE NECESSARY TO ENSURE EROSION AND SEDIMENT ON THE SITE DURING THE COURSE OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY CONSTRUCTION ACTIVITIES AND/OR CLIMATIC EVENTS AND TO PROVIDE ADDITIONAL BMP'S OVER AND ABOVE THE MINIMUM REQUIREMENTS SHOWN ON THE PLANS, AS MAY BE NEEDED TO PROVIDE EFFECTIVE PROTECTION OF WATER AND SOIL RESOURCES.

13. THE BMP'S SHALL BE INSPECTED DAILY BY THE PERMITTEE/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. SILT FENCES CLOGGED OR REPLACED AT SEDIMENT BUILDUP OF 1/3 OF SILT FENCE HEIGHT.

14. LAND DISTURBING ACTIVITIES SHALL OCCUR IN INCREMENTS OF WORKABLE SIZE SUCH THAT ADEQUATE BMP CONTROL CAN BE PROVIDED THROUGHOUT ALL PHASES OF CONSTRUCTION. THE SMALLEST PRACTICAL AREA SHALL BE EXPOSED OR OTHERWISE DISTURBED AT ANY ONE TIME.

15. OPERATE TRACK EQUIPMENT (DOZER) UP AND DOWN EXPOSED SOIL SLOPES ON FINAL PASS, LEAVING TRACK GROOVES PERPENDICULAR TO THE SLOPE. DO NOT BACK-BLADE. LEAVE A SURFACE ROUGH TO MINIMIZE EROSION.

16. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED FROM EROSION WITHIN 7 DAYS OF SUBSTANTIAL COMPLETION OF GRADING IN THAT AREA. TEMPORARY SEED AND MULCH SHALL COVER ALL EXPOSED SOILS IF GRADING COMPLETION IS DELAYED LONGER THAN 7 DAYS. PERMANENT SEED AND MULCH OR SOD IS REQUIRED WITHIN 3 DAYS OF COMPLETION OF FINAL GRADING.

17. GENERAL TEMPORARY SEED SHALL BE MNDOT MIX 150 @ 100 LBS. PER ACRE OR APPROVED EQUAL. PERMANENT SEED SHALL BE MNDOT MIX 270 @ 100 LBS. PER ACRE OR APPROVED EQUAL. PLANTING DATES PER MNDOT 2575. MULCH SHALL BE MNDOT TYPE 1 (CLEAN OAT STRAW) @ 2 TONS PER ACRE AND DISK ANCHORED IN PLACE OR APPROVED EQUAL. FERTILIZER SHALL BE 80-40-80 NPK PER ACRE (UNLESS P RESTRICTIONS APPLY) AND INCORPORATED INTO THE SEED BED.

18. POND, BASIN AND WETLAND AREAS SHALL BE SEEDED IN ACCORDANCE WITH LANDSCAPE PLAN.

19. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROPERLY DISPOSED OF WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.

20. AN ALTERNATE EROSION & SEDIMENT CONTROL PLAN SHALL BE REQUIRED FOR LAND DISTURBANCES ON EACH LOT AS PART OF ANY FUTURE BUILDING PERMIT FOR THE CONSTRUCTION OF STRUCTURES AND DRIVEWAYS.

EROSION CONTROL SCHEDULE:

1. PRIOR TO LAND CONSTRUCTION OR DEMOLITION, SILT FENCE AND FILTERS SHALL BE INSTALLED AS SHOWN TO INTERCEPT RUNOFF.

2. ALL EROSION CONTROL INSTALLATIONS SHALL REMAIN IN PLACE AND BE MAINTAINED IN GOOD CONDITION BY THE CONTRACTOR UNTIL THE SITE HAS BEEN RE-VEGETATED. CONTRACTOR MAY REMOVE NECESSARY SILT FENCING/FILTERS TO CONSTRUCT ROADWAYS, WHILE MAINTAINING ADEQUATE EROSION CONTROL IN ADJACENT AREA.

3. SUFFICIENT TOPSOIL SHALL BE STOCKPILED TO ALLOW FOR THE REPLACEMENT OF 6" OF TOPSOIL FOR DISTURBED AREAS TO BE RE-VEGETATED. STOCKPILED SOILS SHALL BE PROTECTED WITH ESTABLISHED VEGETATION, ANCHORED STRAW OR MULCH, ROLLED EROSION CONTROL MATERIALS, OR OTHER DURABLE COVERING PREVENTING MOVEMENT OF EXPOSED MATERIALS.

4. THE CONTRACTOR SHALL SCHEDULE SITE GRADING, UTILITY INSTALLATION AND PAVEMENT CONSTRUCTION SO THAT THE GENERAL SITE CAN BE MULCHED AND RE-SEEDED SOON AFTER DISTURBANCE. AREAS THAT WILL NOT BE SUBJECT TO CONSTRUCTION TRAFFIC SHALL BE SEEDED IMMEDIATELY AFTER THEY ARE BROUGHT TO FINISH GRADE AND MULCHED OR SODDED WITHIN SEVEN (7) DAYS OF BEING DISTURBED.

5. CONTRACTOR SHALL INSTALL EROSION CONTROL DEVICES AS INDICATED ON THIS EROSION CONTROL PLAN AND ANY ADDITIONAL REQUIRED MEASURES AS NEEDED. METHODS AND SEQUENCES OF CONSTRUCTION.

SEDIMENT CONTROL PRACTICES:

1. MINIMIZE CONTROL PRACTICES MUST PREVENT SEDIMENT FROM ENTERING SURFACE WATERS, INCLUDING CURB AND GUTTER SYSTEMS AND STORM SEWER INLETS.

2. SEDIMENT CONTROL PRACTICES MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UPGRADIENT LAND DISTURBING ACTIVITIES BEGIN. FILTER PRACTICES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED.

3. THE TIMING OF THE INSTALLATION OF SEDIMENT CONTROL PRACTICES MAY BE ADJUSTED TO ACCOMMODATE CONSTRUCTION ACTIVITIES SUCH AS CLEARING OR GRUBBING, OR PASSAGE OF VEHICLES. ANY EFFORT TO THE ACTIVITY MUST BE COMPLETED AS QUICKLY AS POSSIBLE AND THE SEDIMENT CONTROL PRACTICES MUST BE INSTALLED IMMEDIATELY AFTER THE ACTIVITY IS COMPLETED. HOWEVER, SEDIMENT CONTROL PRACTICES MUST BE INSTALLED BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE ACTIVITY IS NOT COMPLETE.

4. ALL STORM DRAIN INLETS MUST BE PROTECTED BY APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED.

5. TEMPORARY SOIL STOCKPILES MUST HAVE SILT FENCES OR OTHER EFFECTIVE SEDIMENT CONTROLS, AND CANNOT BE PLACED IN SURFACE WATERS, INCLUDING STORM WATER CONVEYANCES, SUCH AS CURB AND GUTTER SYSTEMS, OR CONDUITS AND DITCHES.

6. SITE CONSTRUCTION ENTRANCES WILL USE AS SHOWN ON THIS PLAN. ROCK CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT EACH ENTRANCE.

POLLUTION PREVENTION MANAGEMENT MEASURES:

THE CONTRACTOR SHALL IMPLEMENT THE FOLLOWING POLLUTION PREVENTION MANAGEMENT MEASURES ON THE SITE:

1. SOLID WASTE: COLLECTED SEDIMENT, ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS AND OTHER WASTES MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.

2. HAZARDOUS MATERIAL: OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, INCLUDING SECONDARY CONTAINMENT, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.

3. CONCRETE WASHOUT: NO CONCRETE TRUCK BY TRUCK WITH A MOBILE WASHOUT SYSTEM OWNED AND COMPLETED BY THE CONCRETE CONTRACTOR. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF.

4. NO ENGINE DEGREASING IS ALLOWED ON SITE.

EROSION AND SEDIMENT CONTROL MAINTENANCE PROGRAM:

1. INSPECT SILT FENCES IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. IMMEDIATELY REPAIR FAILED OR FAILING SILT FENCE.

2. REPLACEMENT – FABRIC SHALL BE REPLACED PROMPTLY WHEN IT DECOMPOSES OR BECOMES INEFFECTIVE BEFORE THE BARRIER IS NO LONGER NECESSARY.

3. SEDIMENT REMOVAL – SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-THIRD THE HEIGHT OF THE BARRIER. ANY SEDIMENT REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER FABRIC IS NO LONGER REQUIRED SHALL BE DISPOSED TO CONFORM WITH EXISTING GRADE, PREPARED, AND SEEDED WITH THE APPROPRIATE SEED MIX OR SODDED AS DIRECTED BY THE ENGINEER.

4. REMOVAL OF SILT FENCE – SILT FENCE SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPHILD SLOPING AREA HAS BEEN PERMANENTLY STABILIZED. IF THE UPHILD SLOPING AREA IS TO BE EXPOSED LONGER THAN SIX (6) MONTHS, THAT AREA SHALL BE COVERED WITH TEMPORARY VEGETATION WHEN FIRST EXPOSED.

5. THE CONTRACTOR MUST ROUTINELY INSPECT THE CONSTRUCTION SITE ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

6. ALL INSPECTIONS AND MAINTENANCE CONDUCTED DURING CONSTRUCTION MUST BE RECORDED IN WRITING AND THESE RECORDS MUST BE RETAINED WITH THE SWPPP. RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY SHALL INCLUDE:

A. DATE AND TIME OF INSPECTIONS;
B. NAME OF PERSON(S) CONDUCTING INSPECTIONS;
C. FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS;
D. CORRECTIVE ACTIONS TAKEN (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES;
E. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 1/2 INCH (0.5 INCHES) IN 24 HOURS;
F. DOCUMENTATION OF CHANGES MADE TO THE SWPPP AS REQUIRED IN PART III.A.4.

7. WHERE PARTS OF THE CONSTRUCTION SITE HAVE UNDERGOING FINAL STABILIZATION, BUT WORK REMAINS ON OTHER PARTS OF SITE, INSPECTIONS OF THE STABILIZED AREAS MAY BE REDUCED TO ONCE PER MONTH. WHERE WORK HAS BEEN SUSPENDED DUE TO FROZEN GROUND CONDITIONS, THE REQUIRED INSPECTIONS AND MAINTENANCE MUST TAKE PLACE AS SOON AS RUNOFF OCCURS AT THE SITE OR PRIOR TO RESUMING CONSTRUCTION, WHICHEVER COMES FIRST.

DUST CONTROL:

OPERATIONS SHALL UTILIZE ALL PRACTICAL MEANS TO REDUCE THE AMOUNT OF DUST CAUSED BY THE OPERATION. IN NO CASE SHALL THE AMOUNT OF DUST OR OTHER PARTICULATE MATTER EXCEED THE STANDARDS ESTABLISHED BY THE MINNESOTA POLLUTION CONTROL AGENCY. NO OPERATIONS SHALL BE ALLOWED WHEN WIND GUSTS EXCEED 30 MPH.

RPBCWD RULE C STANDARD NOTES:

1. NATURAL VEGETATION AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RESTORATION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
2. CONSTRUCTION SHOULD INCLUDE MINIMIZATION OF THE DISTURBANCE INTENSITY AND DURATION, INCLUDING PHASING OF DISTURBANCE TO MINIMIZE QUANTITY OF DISTURBED AREA AT ANY ONE TIME.
3. ALL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED TO REMOVE:
   1. A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF SOIL, OR
   2. A BULK DENSITY OF LESS THAN 1.4 GRAMS PER CUBIC CENTIMETER OR 87 POUNDS PER CUBIC FOOT IN THE UPPER 12 INCHES OF SOIL.

   IN ADDITION, UNPAVED, TRAFFIC AREAS AND OTHER EXISTING VEGETATION MUST BE PROTECTED UNTIL FINAL REVEGETATION OR OTHER STABILIZATION OF THE SITE.
4. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES. EVERY DAY WORK IS PERFORMED ON THE SITE AND AT LEAST WEEKLY UNTIL LAND-DISTURBING ACTIVITY HAS CEASED. THEREAFTER, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT THE WEEKLY.
5. STAKING, DYE AND MARKERS TO PROPOSED INFILTRATION FACILITIES TO PROHIBIT SOIL COMPACTION BY HEAVY EQUIPMENT, STOCKPILING OF MATERIALS, AND TRAFFIC. IF INFILTRATION FACILITIES ARE TO PLACE DURING CONSTRUCTION ACTIVITIES, BEST PRACTICES MUST BE EMPLOYED TO PREVENT SEDIMENT AND OTHER MATERIAL FROM ENTERING THE PRACTICE(S). INFILTRATION FACILITIES MUST NOT BE EXCAVATED TO WITHIN 1 FEET FINAL GRADE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND FULLY STABILIZED, AND ACCUMULATED SEDIMENT IN AN INFILTRATION FACILITY MUST BE REMOVED IN MANNER THAT PREVENTS COMPACTION OF THE FACILITY BOTTOM. TO PROVIDE A WELL-ADMITTED, HIGHLY POROUS SURFACE, THE SOILS BELOW AN INFILTRATION PRACTICE MUST BE LOOSENED TO A MINIMUM DEPTH OF 18 INCHES PRIOR TO INSTALLATION OF PLANTING.
6. TOPSOIL TO BE INSTALLED AS PART OF SITE RESTORATION MUST CONSIST OF LIGHT 5 PERCENT ORGANIC CONTENT CONSISTENT WITH THE DISTRICT'S TOPSOIL DEFINITION.
7. STABILIZATION OF DISTURBED AREAS MUST BEGIN IMMEDIATELY WHENEVER LAND DISTURBING ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME WITHIN SEVEN CALENDAR DAYS ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER, WITHIN 14 DAYS ELSEWHERE.

FINAL STABILIZATION:

THE CONTRACTOR MUST ENSURE FINAL STABILIZATION OF THE SITE. THE CONTRACTOR MUST SUBMIT A NOTICE OF TERMINATION (NOT) WHEN FINAL STABILIZATION IS COMPLETE. OR ANOTHER OWNER/OPERATOR (PERMITTEE) HAS ASSUMED CONTROL OF ALL AREAS OF THE SITE THAT HAVE NOT UNDERGONE FINAL STABILIZATION. FINAL STABILIZATION CAN BE ACHIEVED IN THE FOLLOWING WAY:

ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND ALL SOILS MUST BE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OVER THE ENTIRE POROUS SURFACE AREA, OR OTHER EQUIVALENT MEASURES NECESSARY TO PREVENT SOIL FAILURE UNDER EROSIVE CONDITIONS ARE:

A. ALL DRAINAGE DITCHES CONSTRUCTED TO TRANSPORT WATER FROM THE SITE AFTER CONSTRUCTION IS COMPLETE MUST BE STABILIZED TO PREVENT EROSION;
B. ALL TEMPORARY SYNTHETIC AND STRUCTURAL EROSION PREVENTION AND SEDIMENT CONTROL BMPS (SUCH AS SILT FENCE) MUST BE REMOVED AS PART OF THE SITE FINAL STABILIZATION; AND
C. THE CONTRACTORS MUST CLEAN OUT ALL SEDIMENT FROM CONVEYANCES AND FROM TEMPORARY SEDIMENTATION BASINS THAT ARE TO BE USED AS PERMANENT WATER QUALITY MANAGEMENT BASINS. SEDIMENT MUST BE STABILIZED TO PREVENT IT FROM BEING WASHED BACK INTO THE BASIN. CONVEYANCES OR STORAGE AREAS (DISTINGUISHING DIT-SITE DIR TO SURFACE WATERS). THE CLEAN OUT OF PERMANENTSEDIMENTS MUST BE SUFFICIENT TO RESTORE THE BASIN TO DESIGN CAPACITY.

SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED TO ACHIEVE (A) A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 200 PSI OR (B) A BULK DENSITY OF LESS THAN 87 POUNDS PER CUBIC FOOT IN THE UPPER 12 INCHES OF SOIL.

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FINAL PLAT AND LAND ALTERATION SET

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

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

MARK RAUSCH, PE
Date: License No.

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4-17-21	MD SUBMITTAL
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA

DESIGNED:	MFR
DRAWN:	BJP
PROJECT NO:	219-0138

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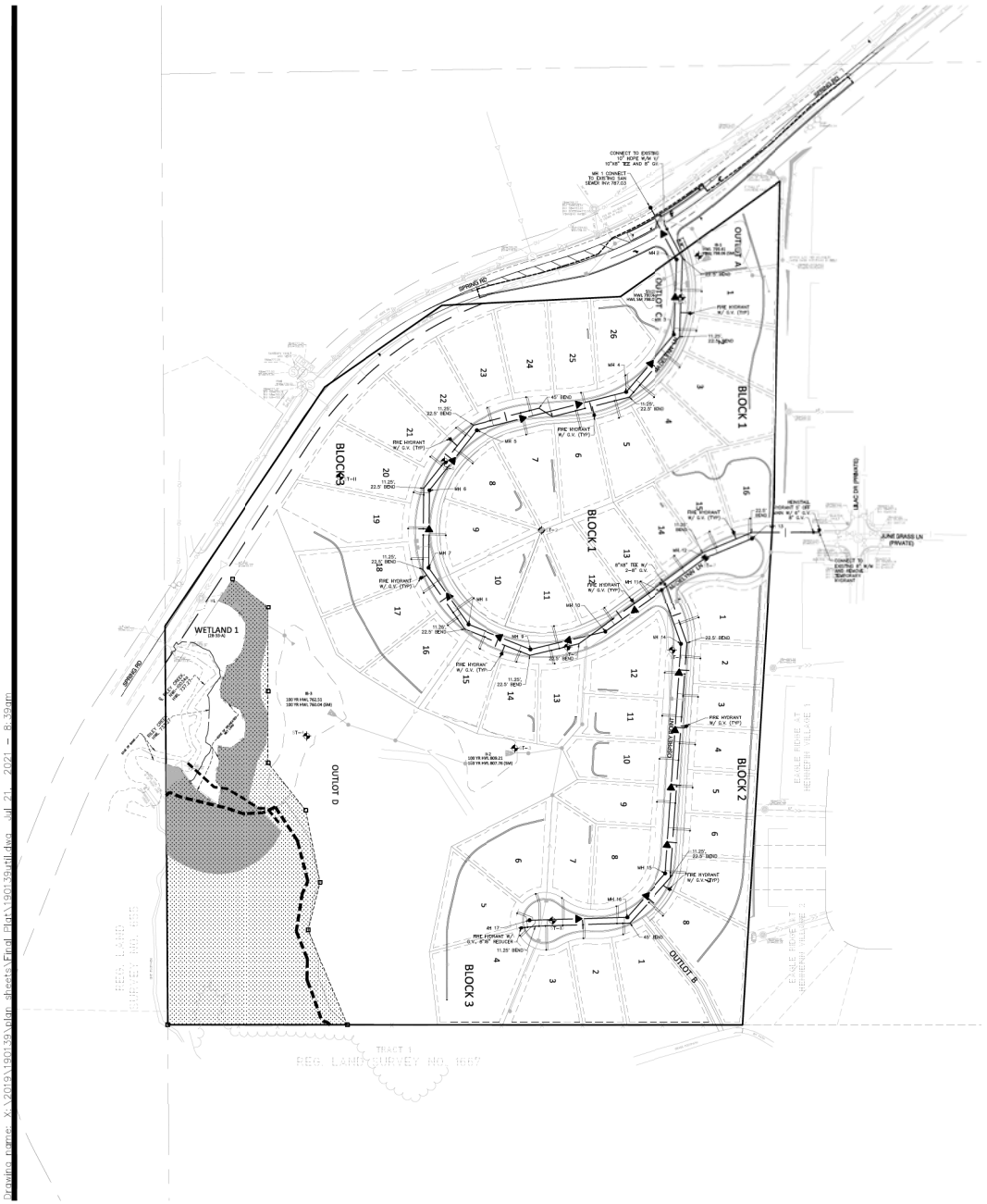

UTILITY NOTES:

1. EXISTING UTILITIES, SERVICE LOCATIONS, AND ELEVATIONS SHALL BE VERIFIED IN FIELD PRIOR TO CONSTRUCTION.
2. MAINTAIN A MINIMUM 18" VERTICAL SEPARATION AT ALL PIPE CROSSINGS. WATER AND SANITARY SEWER LINES TO MAINTAIN 10' HORIZONTAL SEPARATION.
3. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS PRIOR TO THE START OF CONSTRUCTION.
4. THE CONNECTION OF THE PUBLIC SEWER AT SPRING ROAD REQUIRES COORDINATION WITH HENNEPIN COUNTY.
5. PROVIDE POLYSTYRENE INSULATION FOR ALL STORM SEWER AND WATERMAIN CROSSINGS WHERE VERTICAL OR HORIZONTAL SEPARATION IS LESS THAN 3'.
6. ALL UTILITY WORK WITHIN THE R.O.W. SHALL COMPLY WITH THE CITY OF EDEN PRAIRIE ENGINEERING GUIDELINES.
7. PROVIDE TEMPORARY TRAFFIC CONTROL IN COMPLIANCE WITH MNDOT "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS–FIELD MANUAL" LATEST REVISION FOR ANY CONSTRUCTION WITHIN THE PUBLIC R.O.W.
8. ALL SANITARY MANHOLES TO BE 48" DIAMETER CONCRETE W/NEENAH R–1733 CASTING, UNLESS NOTED OTHERWISE.
9. WATERMAIN, SERVICES, AND VALVES SHALL BE INSTALLED WITH A MINIMUM OF 7.5' COVER. ALL WATERMAIN SHALL BE ENCASED WITH POLYETHYLENE FILM. 2" WIDE POLYETHYLENE TAPE SHALL BE USED TO SECURE THE FILM TO THE PIPE.
10. WATER SERVICES SHALL BE 1" DIA TYPE "K" COPPER 1" CORP. STOP AND 1" CURB BOX.
11. SEWER SERVICES SHALL BE 4" PVC SDR 26 WITH A SLOPE OF ¼" PER FOOT UNLESS NOTED OTHERWISE.
12. WATER SERVICES MAY BE PLACED IN THE SAME TRENCH PROVIDED THAT A 18" VERTICAL SEPARATION IS MAINTAINED AND IS LAID ON A BENCH OF UNDISTURBED EARTH.
13. ALL CURB BOXES SHALL BE ADJUSTED TO AN ELEVATION OF 1' BELOW FINISHED GRADE.
14. ALL WATERMAIN SHALL BE DIP CL52.
15. INTERIOR OR EXTERIOR DROP MANHOLES ARE REQUIRED FOR DROPS LARGER THAN 2 FEET.
16. ALL HYDRANTS SHALL BE WB–67 WITH "O" RING SEALS AND 6" G.V.

SANITARY SEWER SCHEDULE:

MH		PIPE	PIPE SLOPE	PIPE LENGTH	INVERT	INVERT	RIM	STRUCTURE	MANHOLE	PIPE TYPE
FROM	TO									
MH 17	MH 16	8	0.0040	169.29	848.30	847.62	860.50	48	12.20	SDR-26 PVC
MH 16	MH 15	8	0.0040	101.53	847.52	847.12	869.00	48	21.48	SDR-26 PVC
MH 15	MH 14	8	0.0367	400.00	847.02	832.34	870.07	48	23.05	SDR-26 PVC
MH 14	MH 11	8	0.0109	99.14	832.24	831.16	843.52	48	11.28	SDR-35 PVC
MH 13	MH 12	8	0.0625	86.82	840.38	834.95	852.79	48	12.41	SDR-35 PVC
MH 12	MH 11	8	0.0592	94.33	834.85	831.16	845.85	48	11.00	SDR-35 PVC
MH 11	MH 10	8	0.0480	122.61	831.06	825.17	842.06	48	11.00	SDR-35 PVC
MH 10	MH 9	8	0.0800	133.49	825.07	814.39	836.69	48	11.62	SDR-35 PVC
MH 9	MH 8	8	0.0800	117.43	814.29	804.90	825.83	48	11.54	SDR-35 PVC
MH 8	MH 7	8	0.0452	120.35	804.10	798.66	816.30	48	12.20	SDR-35 PVC
MH 7	MH 6	8	0.0040	134.74	798.56	798.02	810.65	48	12.09	SDR-35 PVC
MH 6	MH 5	8	0.0040	132.75	797.92	797.39	812.39	48	14.47	SDR-26 PVC
MH 5	MH 4	8	0.0040	268.83	797.29	796.21	821.02	48	23.73	SDR-26 PVC
MH 4	MH 3	8	0.0040	130.83	796.11	795.59	819.99	48	23.88	SDR-26 PVC
MH 3	MH 2	8	0.0486	130.83	795.49	789.13	809.35	48	13.86	SDR-35 PVC
MH 2	MH 1	8	0.0040	101.83	789.03	788.62	800.03	48	11.00	SDR-35 PVC
MH 1					787.03		796.88	48	9.85	

LEGEND:

- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- EXISTING STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED STORM MANHOLE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED MANHOLE
- PROPOSED GATE VALVE
- PROPOSED HYDRANT
- PROPOSED EASEMENT

N

0 50 100 200
SCALE IN FEET

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PULTE HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
SANITARY SEWER AND WATERMAIN PLAN

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

MARK RAUSCH, PE
Date License No.

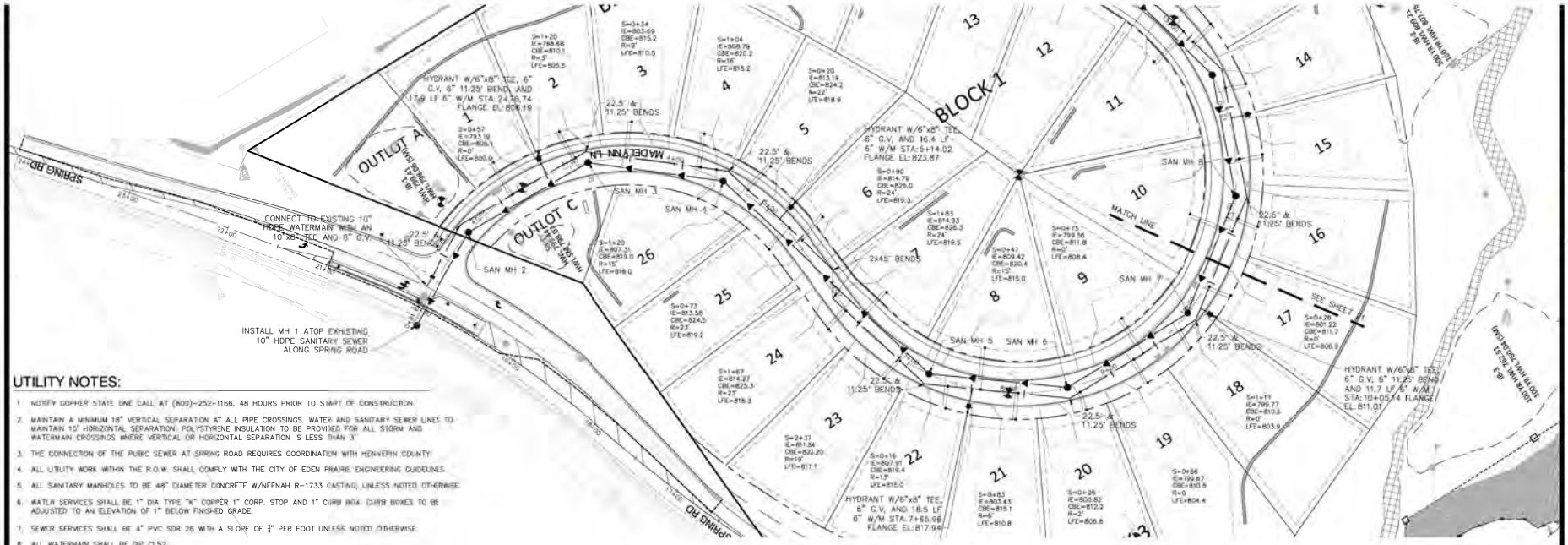
QUALITY ASSURANCE/CONTROL
BY DATE

DATE	ISSUE
4-7-21	BID SET
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

20

SHEET 20 of 41



UTILITY NOTES:

1. NOTIFY GOPHER STATE ONE CALL AT (800)-252-1166, 48 HOURS PRIOR TO START OF CONSTRUCTION.
2. MAINTAIN A MINIMUM 18" VERTICAL SEPARATION AT ALL PIPE CROSSINGS. WATER AND SANITARY SEWER LINES TO MAINTAIN 10' HORIZONTAL SEPARATION. POLYSTYRENE INSULATION TO BE PROVIDED FOR ALL STORM AND WATERMAIN CROSSINGS WHERE VERTICAL OR HORIZONTAL SEPARATION IS LESS THAN 3'.
3. THE CONNECTION OF THE PUBIC SEWER AT SPRING ROAD REQUIRES COORDINATION WITH HENNEPIN COUNTY.
4. ALL UTILITY WORK WITHIN THE R.O.W. SHALL COMPLY WITH THE CITY OF EDEN PRAIRIE ENGINEERING GUIDELINES.
5. ALL SANITARY MANHOLES TO BE 48" DIAMETER CONCRETE W/NEENAH R-1733 CASTING, UNLESS NOTED OTHERWISE.
6. WATER SERVICES SHALL BE 1" DIA TYPE "K" COPPER 1" CORP. STOP AND 1" CURB BOX. CURB BOXES TO BE ADJUSTED TO AN ELEVATION OF 1" BELOW FINISHED GRADE.
7. SEWER SERVICES SHALL BE 4" PVC SDR 26 WITH A SLOPE OF ¼" PER FOOT UNLESS NOTED OTHERWISE.
8. ALL WATERMAIN SHALL BE DIP CL52.
9. ALL HYDRANTS SHALL BE WB-67 WITH "O" RING SEALS AND 6" G.V.

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SCALE IN FEET

LEGEND:

S = SANITARY SERVICE WYE STATION(FROM DOWNSTREAM MH)
IE = SANITARY SERVICE INVERT ELEVATION
CBE = CURB BOX ELEVATION
LFE = LOW FLOOR ELEVATION
R = RISER LENGTH (ACTUAL LENGTH, NOT VERT. RISE (VERTICAL HEIGHT = R X 0.707

LEGEND:

- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
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- PROPOSED CATCH BASIN
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- PROPOSED WATERMAIN
- PROPOSED MANHOLE
- PROPOSED GATE VALVE
- PROPOSED HYDRANT
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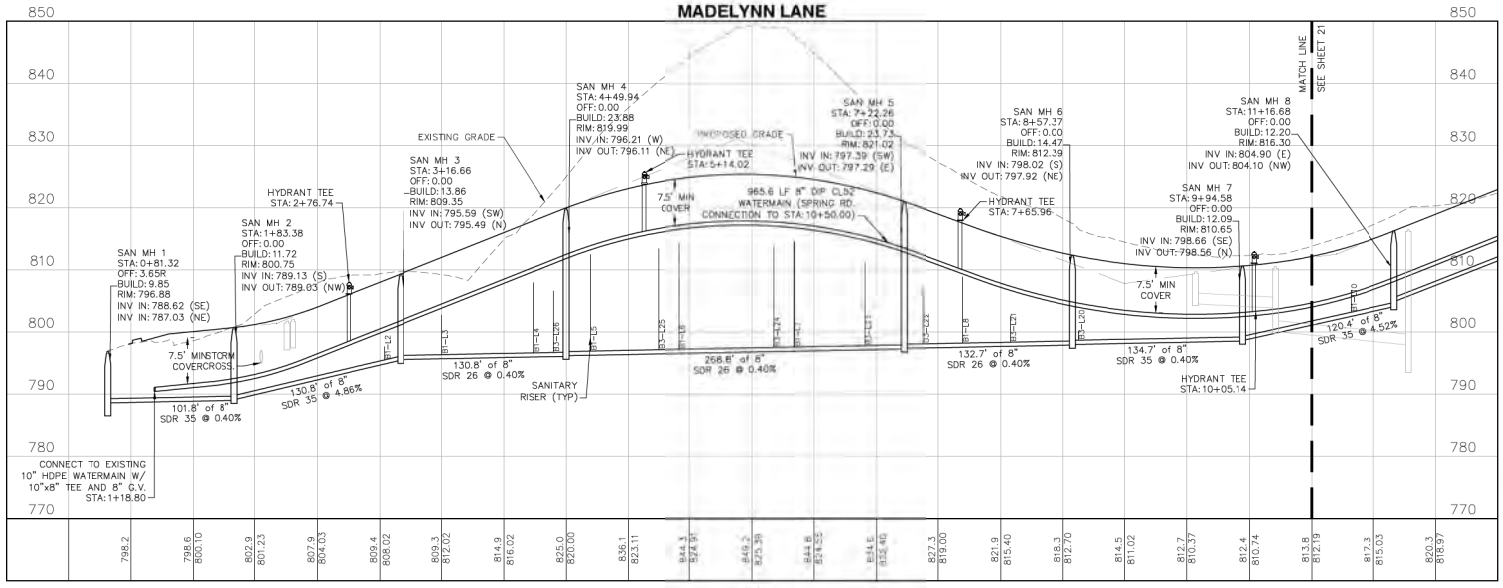

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MARK RAUSCH, PE
Date: License No.

QUALITY ASSURANCE/CONTROL

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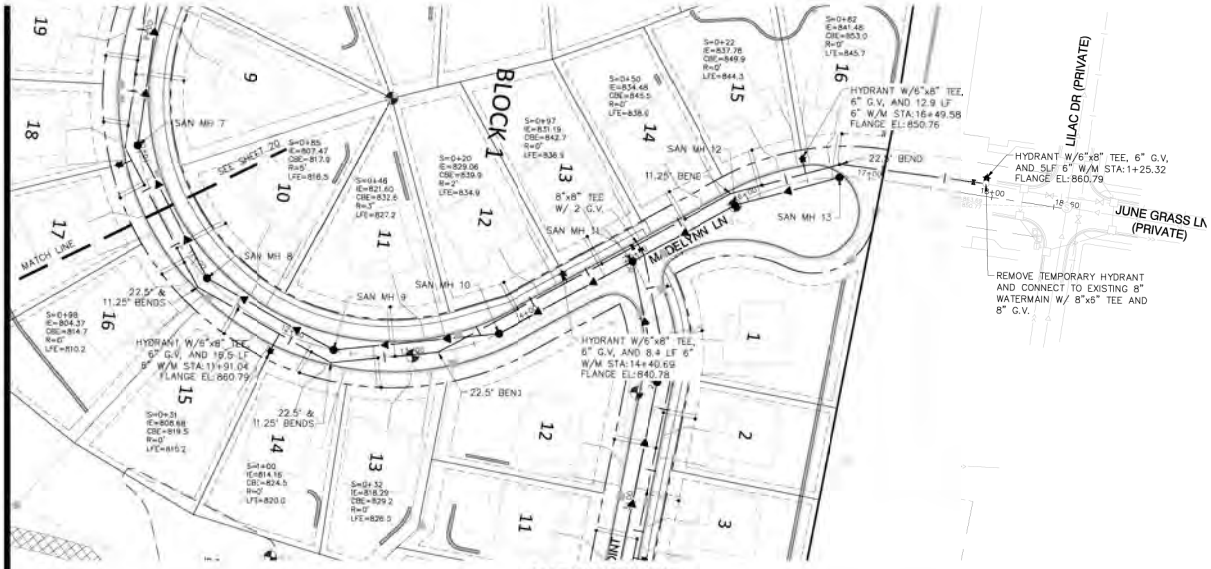
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-01.39

21

SHEET 21 of 41



UTILITY NOTES:

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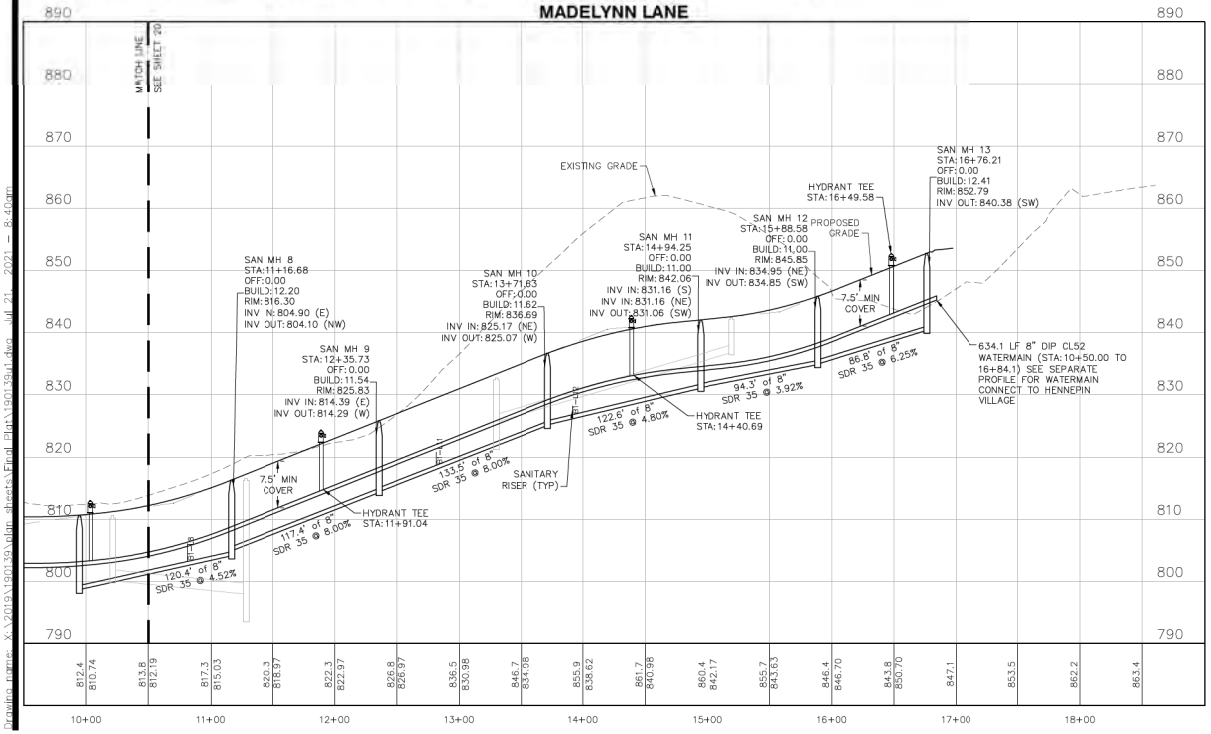
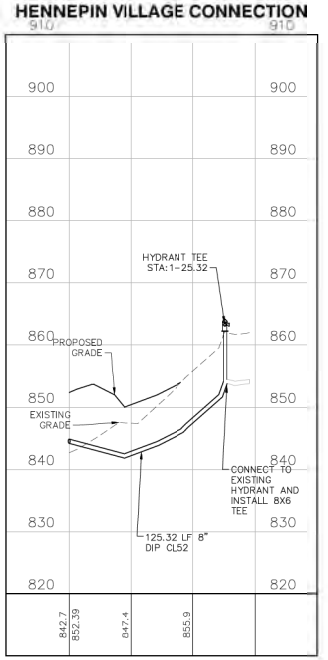


HENNEPIN VILLAGE CONNECTION



LEGEND:

- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY SEWER
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MARK NELSON, PE
Date License No.

QUALITY ASSURANCE/CONTROL

BY	DATE
DATE:	ISSUE
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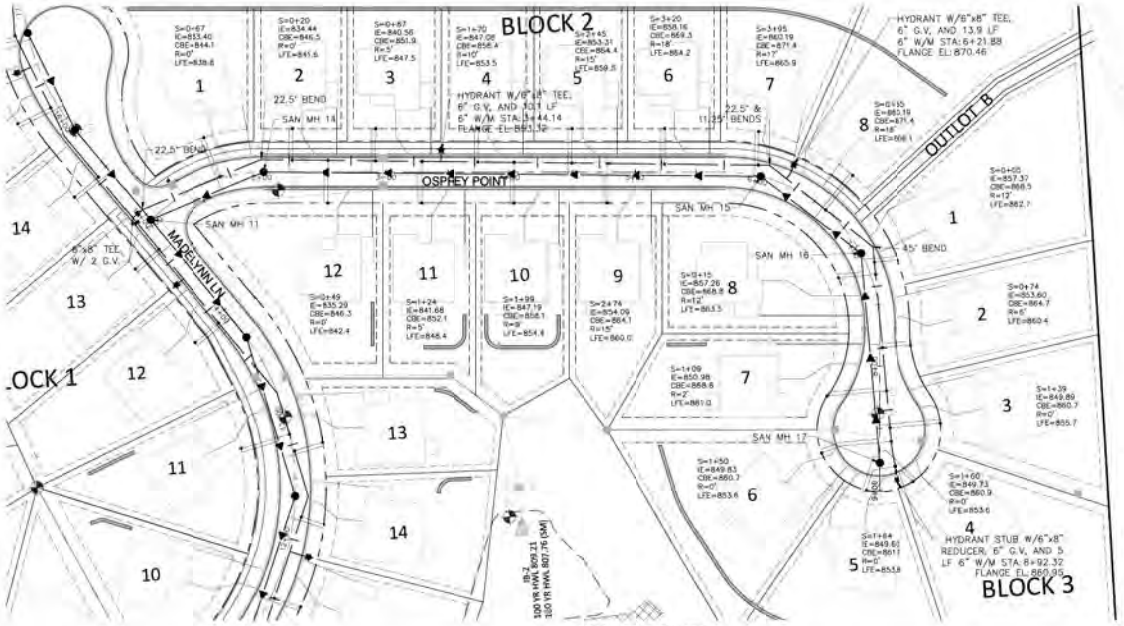
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

22

SHEET 22 of 41



UTILITY NOTES:

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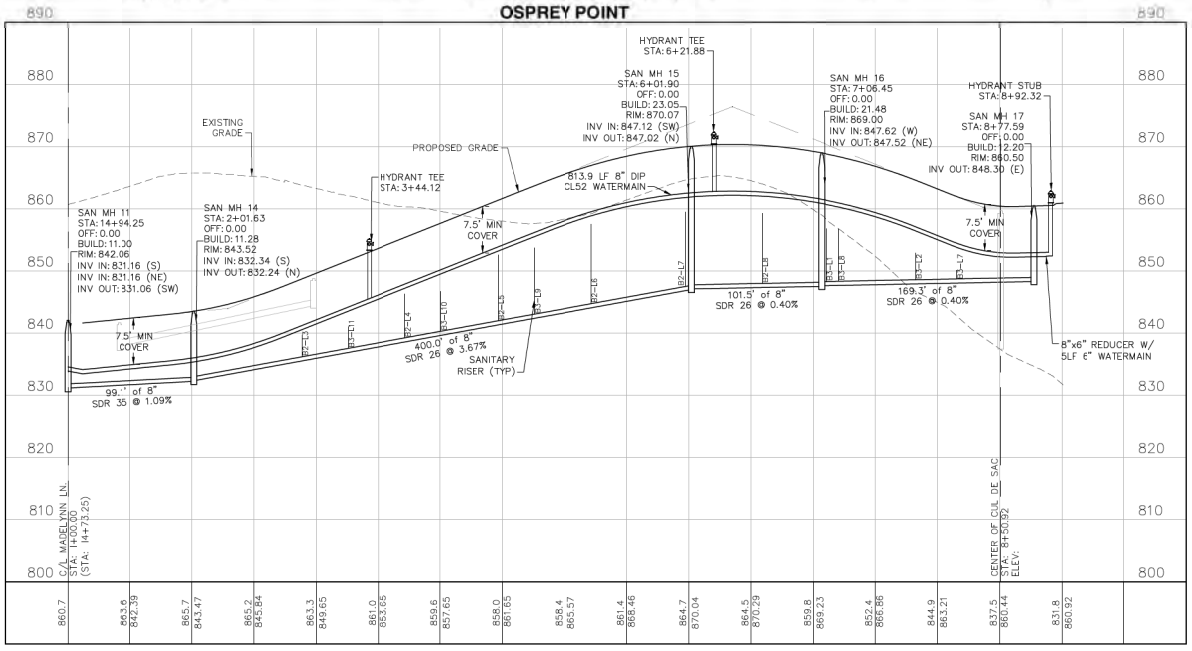

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FINAL PLAT AND LAND ALTERATION SET

SANITARY SEWER AND WATERMAIN PLAN AND PROFILES

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MARK RAUSCH, PE
Date: License No.

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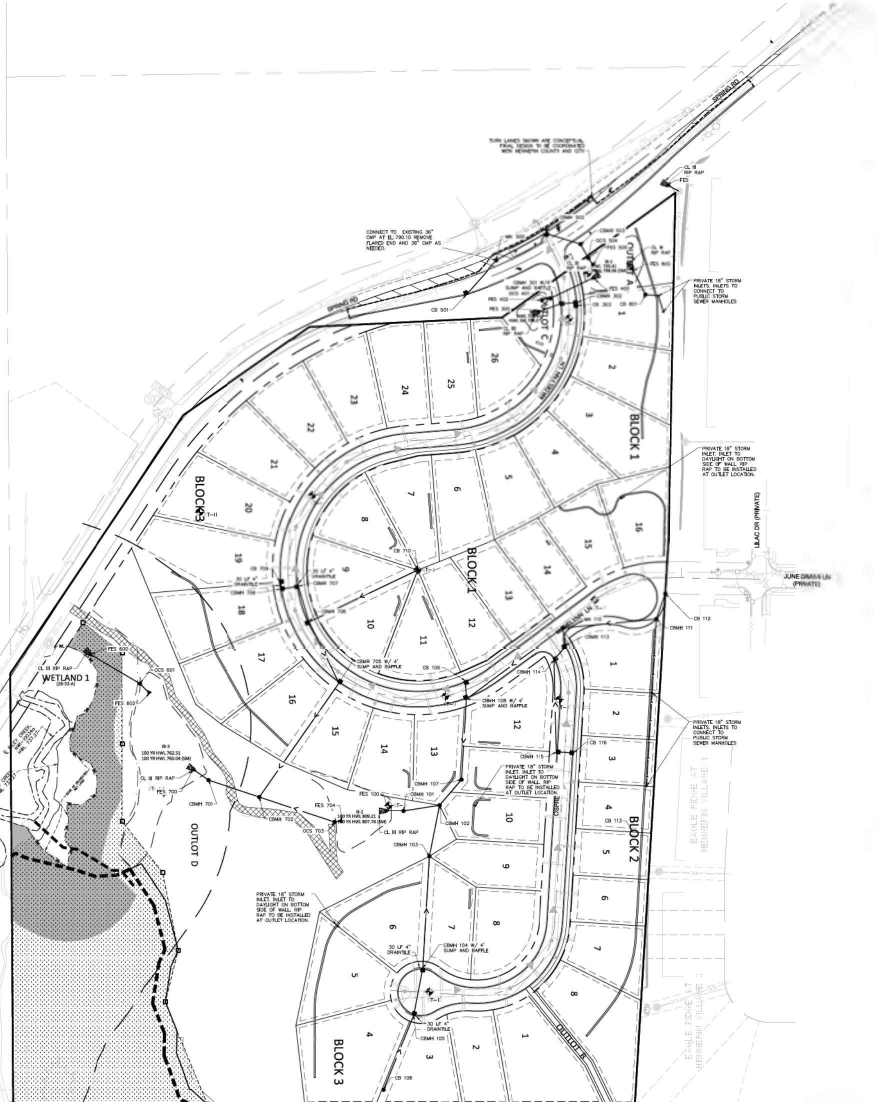
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

23

SHEET 23 of 41



UTILITY NOTES:

1. EXISTING UTILITIES, SERVICE LOCATIONS, AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS PRIOR TO THE START OF CONSTRUCTION.
3. MAINTAIN A MINIMUM 18" VERTICAL SEPARATION AT ALL PIPE CROSSINGS WITH WATERMAIN, LOWER WATERMAIN AS NECESSARY.
4. PROVIDE POLYSTYRENE INSULATION FOR ALL STORM SEWER AND WATERMAIN CROSSINGS WHERE VERTICAL OR HORIZONTAL SEPARATION IS LESS THAN 3'.
5. ALL UTILITY WORK WITHIN THE R.O.W. SHALL COMPLY WITH THE CITY OF EDEN PRAIRIE ENGINEERING GUIDELINES.
6. PROVIDE TEMPORARY TRAFFIC CONTROL IN COMPLIANCE WITH MNDOT "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS—FIELD MANUAL" LATEST REVISION, FOR ANY CONSTRUCTION WITHIN THE PUBLIC R.O.W.

STORMSEWER SCHEDULE:

MH/CB		P. DIA.	P. SLOPE	P. TYPE	PIPE	PIPE	FROM	TO	RIM	STR.	CAST	BUILD
FROM	TO	D (IN)	S (%)		LENGTH (FT)	VEL. (FT/S)	INVERT	INVERT	ELEV	TYPE	TYPE	(FT)
CB 116	CBMH 115	12	0.0106	RCP	28.00	4.670	844.81	844.51	848.81	2'x3'	R-3501-T	4.00
CBMH 115	CBMH 114	12	0.0444	RCP	148.02	9.559	844.41	837.84	848.81	48" DIA	R-3067-V	4.40
CBMH 114	CBMH 113	15	0.0077	RCP	28.28	4.467	837.59	837.37	841.68	48" DIA	R-3067-V	4.09
CBMH 113	CBMH 110	15	0.0130	RCP	28.67	5.002	837.27	836.90	841.48	48" DIA	R-3067-V	4.21
CB 112	CBMH 111	12	0.0321	RCP	43.35	8.127	849.00	847.61	853.00	27" DIA	R-4342	4.00
CBMH 111	MH 110	12	0.0583	RCP	151.11	10.953	847.51	838.70	851.51	48" DIA	R-4342	4.00
MH 110	CBMH 108	15	0.0560	RCP	192.90	12.677	836.80	825.61	842.46	48" DIA	R-1642	5.66
CB 109	CBMH 108	12	0.0159	RCP	29.62	5.720	829.47	829.00	833.47	2'x3'	R-3067-V	4.00
CBMH 108	CBMH 107	15	0.0332	RCP	128.78	9.562	825.51	821.23	832.70	72" DIA	R-3067-V	11.19
CBMH 107	CBMH 102	15	0.0367	RCP	54.31	11.368	820.98	818.98	832.80	48" DIA	R-4342	11.82
CB 106	CBMH 105	12	0.0054	RCP	129.00	3.533	843.50	842.80	847.50	27" DIA	R-4342	4.00
CBMH 105	CBMH 104	15	0.0092	RCP	77.33	5.049	842.55	841.84	859.64	48" DIA	R-3067-V	17.09
CBMH 104	CBMH 103	15	0.0578	RCP	180.42	12.655	841.74	831.31	859.64	72" DIA	R-3067-V	21.90
CBMH 103	CBMH 102	15	0.0810	RCP	83.62	14.981	829.31	822.54	835.30	48" DIA	R-4342	5.99
CBMH 102	CBMH 101	21	0.0513	RCP	58.62	14.021	814.04	811.03	826.60	60" DIA	R-4342	12.56
CBMH 101	FES 100	33	0.0029	RCP	29.31	4.795	806.08	806.00	815.70	60" DIA	R-4342	9.62
CB 303	CBMH 302	12	0.0046	RCP	5.00	3.077	797.79	797.77	801.85	2'x3'	R-3067-V	4.06
CBMH 302	CBMH 301	15	0.0056	RCP	29.00	3.939	797.52	797.36	801.52	48" DIA	R-3067-V	4.00
CBMH 301	FES 300	15	0.0070	RCP	37.39	8.484	797.26	797.00	801.52	72" DIA	R-3067-V	8.26
FES 402	OCS 401	21	0.1096	RCP	15.69	0.000	797.00	795.28	0.00	0.00	0.00	0.00
OCS 401	FES 400	21	0.0036	RCP	78.39	0.000	795.28	795.00	799.44	OCS	GRATE	4.16
FES 505	OCS 504	12	0.0000	RCP	13.50	0.000	795.00	795.00	0.00	0.00	0.00	0.00
OCS 504	CBMH 503	12	0.0275	RCP	31.23	0.000	795.00	794.14	799.80	OCS	GRATE	4.80
CBMH 503	CBMH 502	21	0.0124	RCP	49.60	0.000	792.39	791.78	797.85	48" DIA	R-4342	5.46
CBMH 502	MH 500	21	0.0044	RCP	107.69	0.000	791.68	791.21	798.46	48" DIA	R-3067-V	6.78
CB 501	MH 500	12	0.0044	RCP	43.04	0.000	794.12	793.93	798.12	2'x3'	R-3067-V	4.00
MH 500	0	0	0.0065	0	0.00	0.000	789.90	0.00	796.66	60" DIA	R-1642	6.76
FES 603	OCS 602	12	0.0002	RCP	22.11	0.000	757.00	757.00	0.00	0.00	0.00	0.00
OCS 602	FES 605	12	0.0044	RCP	94.40	0.000	744.42	744.00	762.70	OCS	GRATE	18.28
CB 710	CBMH 708	12	0.0431	RCP	164.00	9.418	815.00	808.64	819.00	27" DIA	R-4342	4.00
SB 709	CBMH 708	21	0.0244	RCP	11.53	10.290	805.72	805.44	809.72	2'x3'	R-3067-V	4.00
CBMH 708	CBMH 707	21	0.0139	RCP	28.00	7.767	805.18	804.80	809.68	48" DIA	R-3067-V	4.50
CBMH 707	CBMH 706	21	0.0115	RCP	59.61	7.064	804.55	803.86	809.69	48" DIA	R-3067-V	5.14
CBMH 706	CBMH 705	21	0.0200	RCP	109.45	9.316	800.11	797.93	810.54	48" DIA	R-3067-V	10.43
CBMH 705	CBMH 702	21	0.0636	RCP	223.63	16.613	797.83	783.60	816.57	72" DIA	R-4342	22.74
FES 704	OCS 703	15	0.0033	RCP	12.00	3.024	806.00	805.96	0.00	0.00	0.00	0.00
OCS 703	CBMH 702	15	0.0810	RCP	127.28	14.981	789.67	779.56	809.49	OCS	GRATE	19.62
CBMH 702	CBMH 701	21	0.0636	RCP	86.54	16.613	765.96	760.46	788.00	60" DIA	R-4342	22.04
CBMH 701	FES 700	21	0.0033	RCP	30.17	3.784	757.10	757.00	766.00	48" DIA	R-4342	8.90
CB 601	FES 600	12	0.0121	RCP	48.14	4.990	795.58	795.00	800.00	27" DIA	R-4342	10.42

LEGEND:

- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- EXISTING STORM SEWER
- PROPOSED STORM MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED SANITARY MANHOLE
- PROPOSED GATE VALVE
- PROPOSED HYDRANT
- EASEMENT LINE
- MAINTENANCE ACCESS

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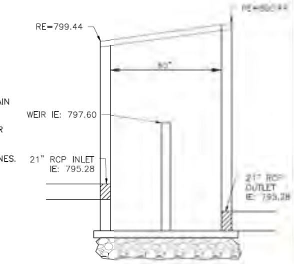

OCS 401
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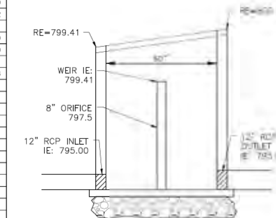

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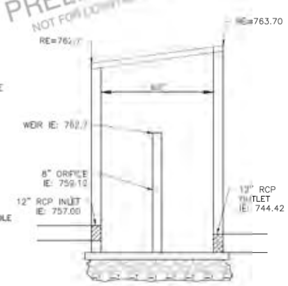
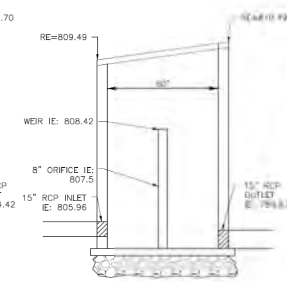


OCS 601
NOT TO SCALE



OCS 703
NOT TO SCALE

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NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
STORM SEWER PLAN

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MARK RAUSCH, PE

Date License No.

QUALITY ASSURANCE/CONTROL

BY DATE

DATE	ISSUE
4-1-21	BID SET
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

24

SHEET 24 of 41

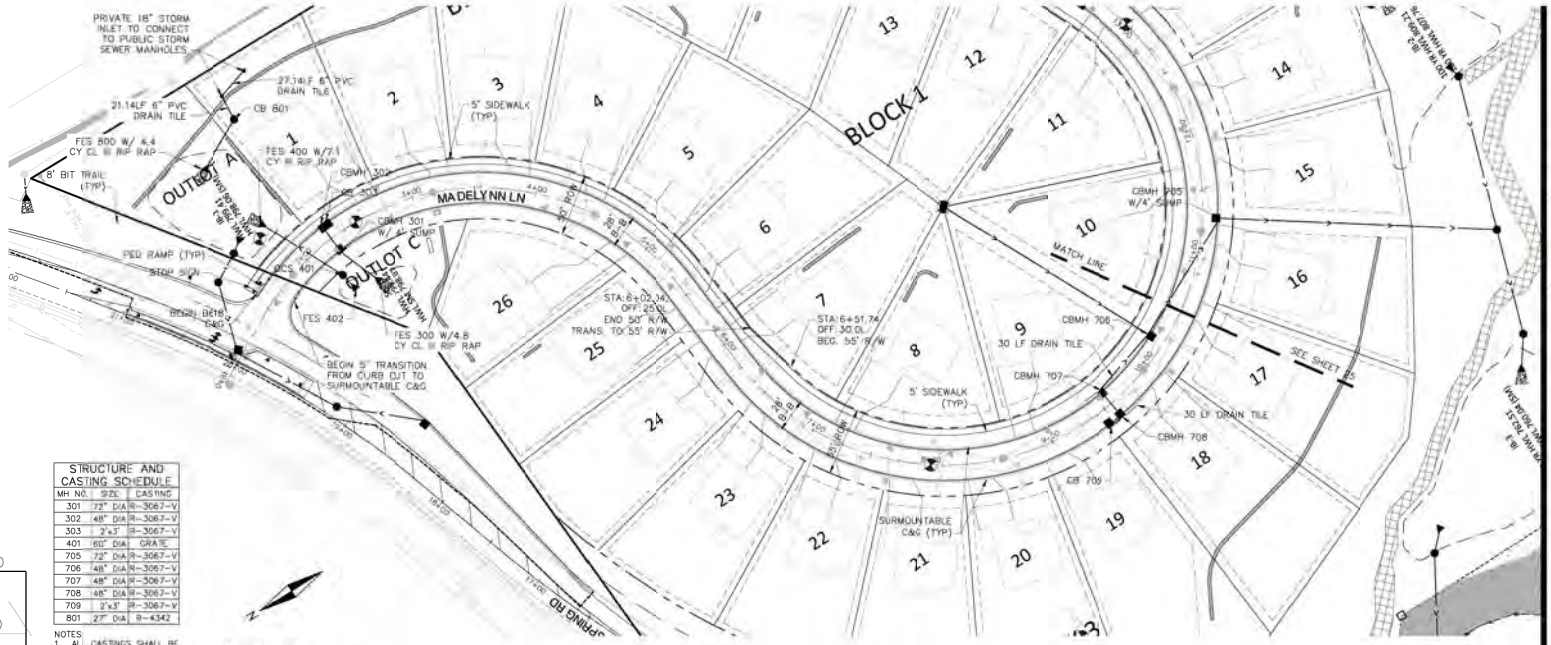
Drawing name: X:\2019\190139\plan sheets\Final Plat\190139strm.dwg Jul 21, 2021 – 8:41am

LEGEND:

- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- EXISTING STORM SEWER
- PROPOSED STORM MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED SANITARY MANHOLE
- PROPOSED GATE VALVE
- PROPOSED HYDRANT

NOTES:

1. NOTIFY GOPHER STATE ONE CALL AT (800)252-1166, 48 HOURS PRIOR TO START OF CONSTRUCTION
2. INSTALL INSULATION AT ALL WATERMAIN AND STORM SEWER CROSSINGS OF LESS THAN 3' SEPARATION.
3. ALL PIPE CROSSINGS WHICH INTERSECT WATERMAIN SHALL MAINTAIN A MINIMUM OF 18" VERTICAL SEPARATION.
4. ALL CURB AND GUTTER GRADES SHALL BE AT A MIN. OF 0.5%
5. SEE CITY OF EDEN PRAIRIE STANDARD PLATES FOR ALL DETAILS.

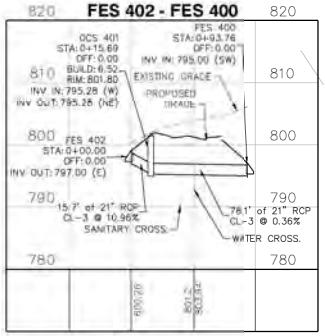


STRUCTURE AND CASTING SCHEDULE		
MH NO.	SIZE	CASTING
301	72" DIA	R-3067-V
302	48" DIA	R-3067-V
303	2'x3'	R-3067-V
401	60" DIA	GRATE
705	72" DIA	R-3067-V
706	48" DIA	R-3067-V
707	48" DIA	R-3067-V
708	48" DIA	R-3067-V
709	2'x3'	R-3067-V
801	27" DIA	R-4342

NOTES:
1. ALL CASTINGS SHALL BE NEENAH OR APPROVED EQUAL.

SCALE: 0 25 50 100 IN FEET

FES 402 - FES 400



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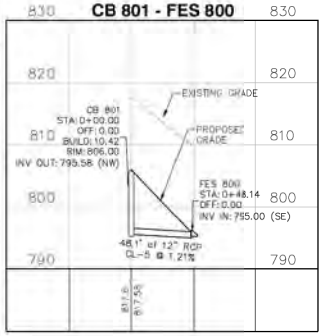
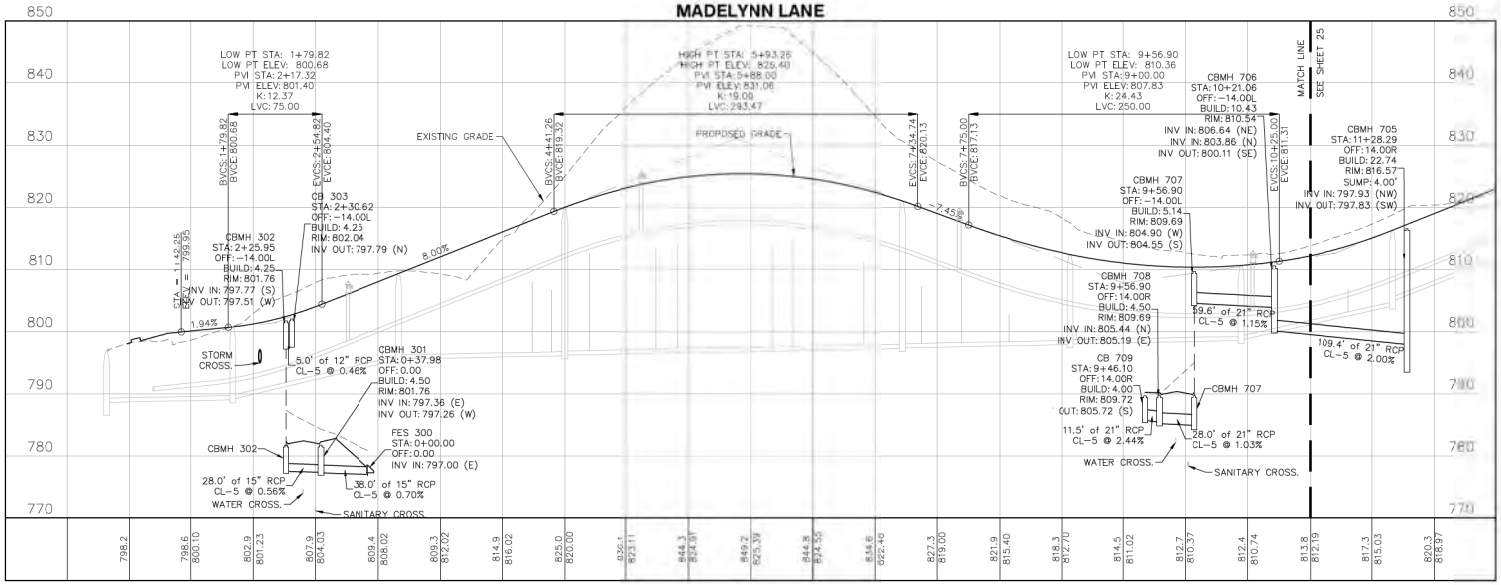


MADELYNN LANE



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PULTE HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
STREET AND STORM SEWER PLAN AND PROFILES

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MARK RAUSCH, PE
Date License No.

QUALITY ASSURANCE/CONTROL

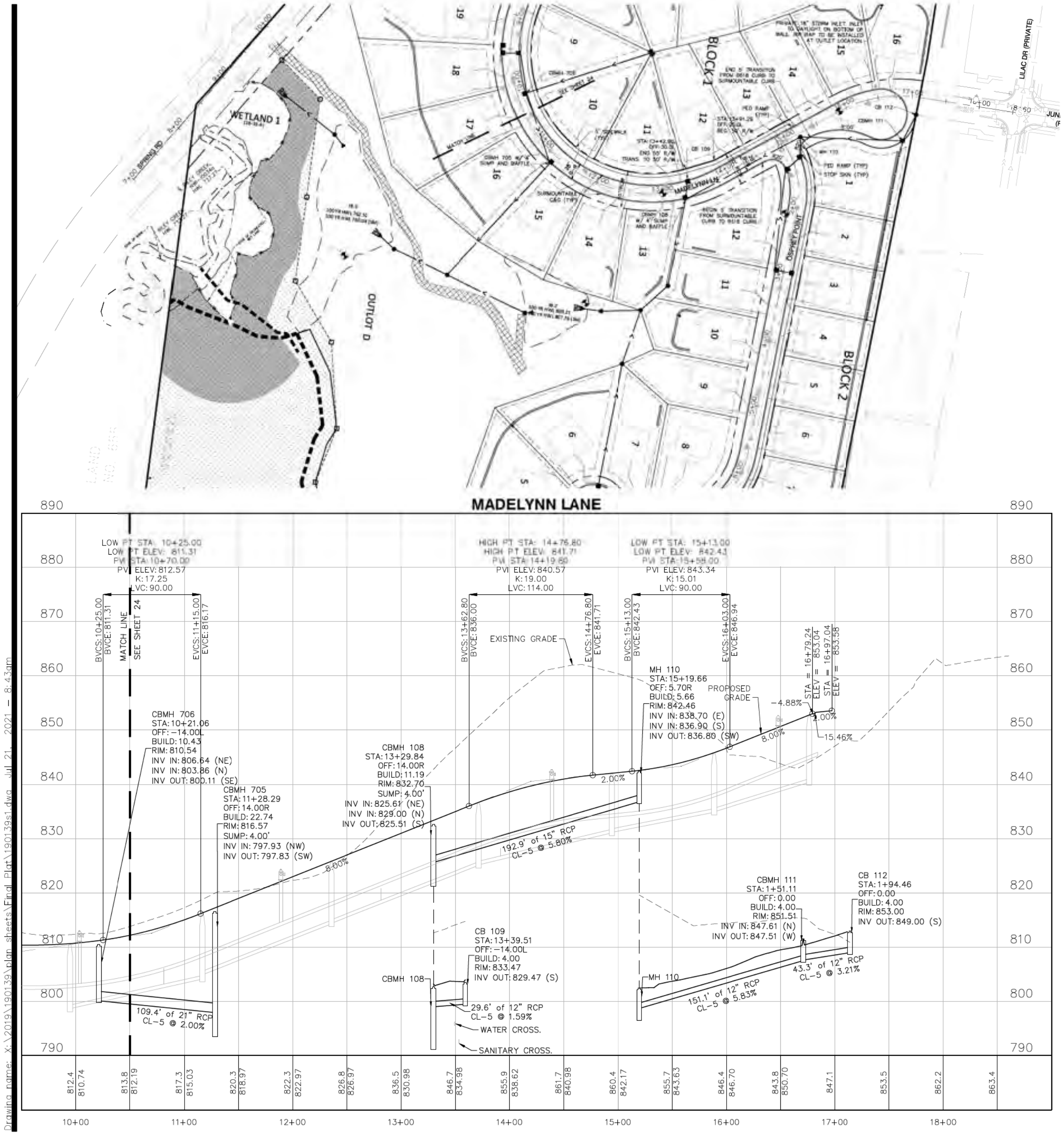
BY	DATE
DATE:	ISSUE
4-17-21	PRO S.T.
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA

DESIGNED:	MFR
DRAWN:	BJP
PROJECT NO:	219-0139

25

SHEET 25 of 41



N

0 25 50 100
SCALE IN FEET

LEGEND:

- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
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- PROPOSED SANITARY MANHOLE
- PROPOSED GATE VALVE
- PROPOSED HYDRANT

NOTES:

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2. INSTALL INSULATION AT ALL WATERMAIN AND STORM SEWER CROSSINGS OF LESS THAN 3' SEPARATION.
3. ALL PIPE CROSSINGS WHICH INTERSECT WATERMAIN SHALL MAINTAIN A MINIMUM OF 18" VERTICAL SEPARATION.
4. ALL CURB AND GUTTER GRADES SHALL BE AT A MIN. OF 0.5%.
5. SEE CITY OF EDEN PRAIRIE STANDARD PLATES FOR ALL DETAILS.

STRUCTURE AND CASTING SCHEDULE

MH NO.	SIZE	CASTING
108	72" DIA	R-3067-V
109	2'x3'	R-3067-V
110	48" DIA	R-1642
111	48" DIA	R-4342
112	27" DIA	R-4342
705	48" DIA	R-3067-V
706	72" DIA	R-3067-V

NOTES:
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FINAL PLAT AND LAND ALTERATION SET

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DATE	ISSUE
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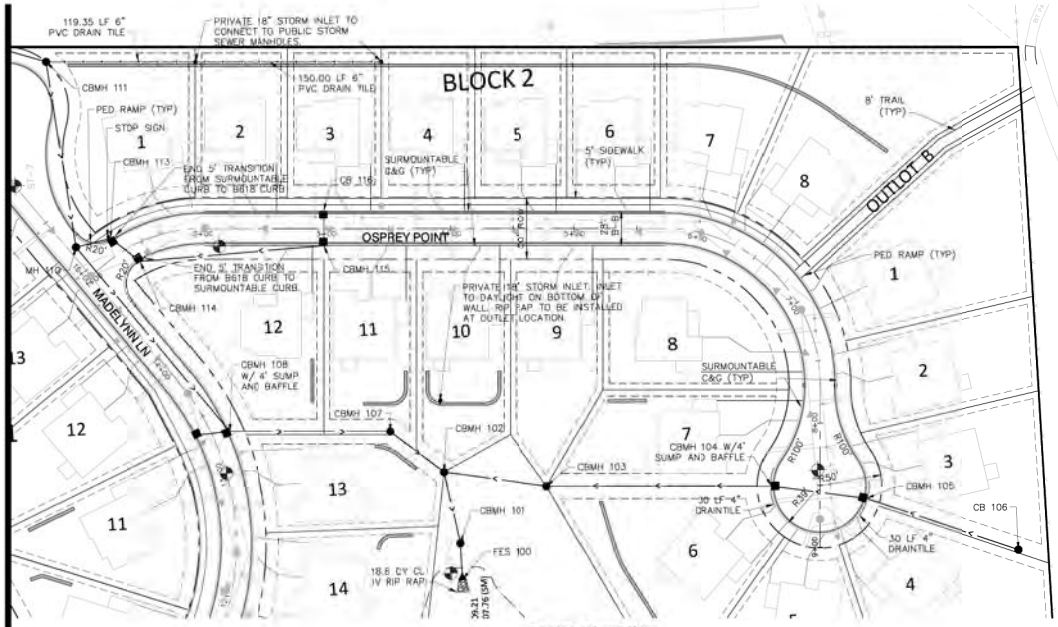
6-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139



STRUCTURE AND CASTING SCHEDULE			
MH NO.	SIZE	CASTING	
101	60" DIA	R-4342	
102	60" DIA	R-4342	
103	48" DIA	R-1842	
104	72" DIA	R-3067-V	
105	48" DIA	R-3067-V	
106	24" DIA	R-4342	
107	48" DIA	R-4342	
108	72" DIA	R-3067-V	
110	48" DIA	R-1842	
113	48" DIA	R-3067-V	
114	48" DIA	R-3067-V	
115	48" DIA	R-3067-V	
116	24x36"	R-3067-V	

NOTES:
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LEGEND:

- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING STORM SEWER
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY SEWER
- PROPOSED STORM MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED SANITARY MANHOLE
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- PROPOSED HYDRANT

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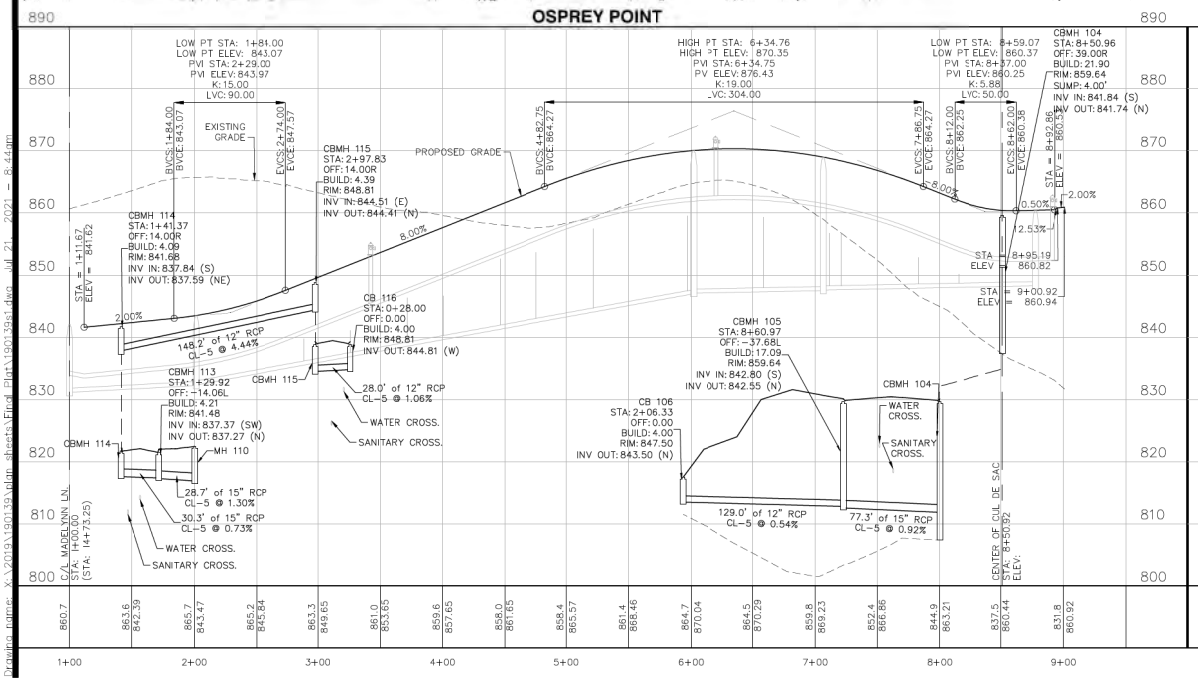

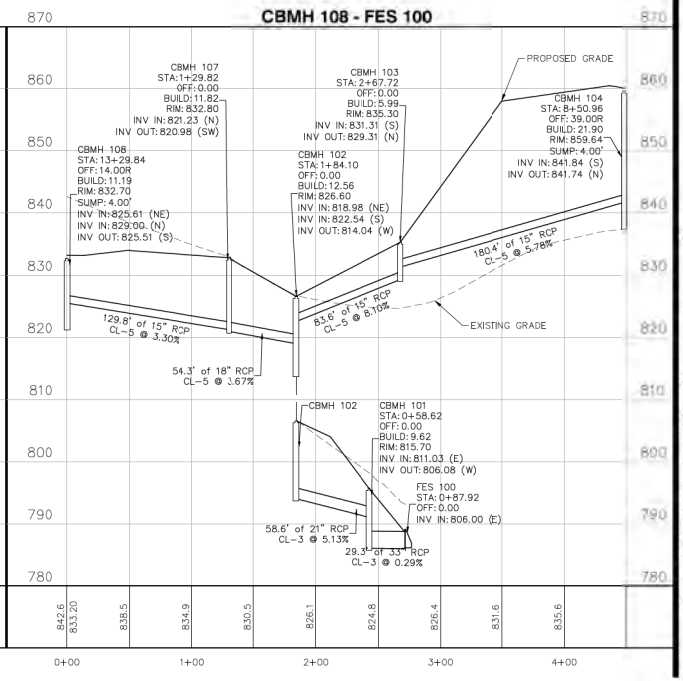

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STREET AND STORM SEWER PLAN AND PROFILES

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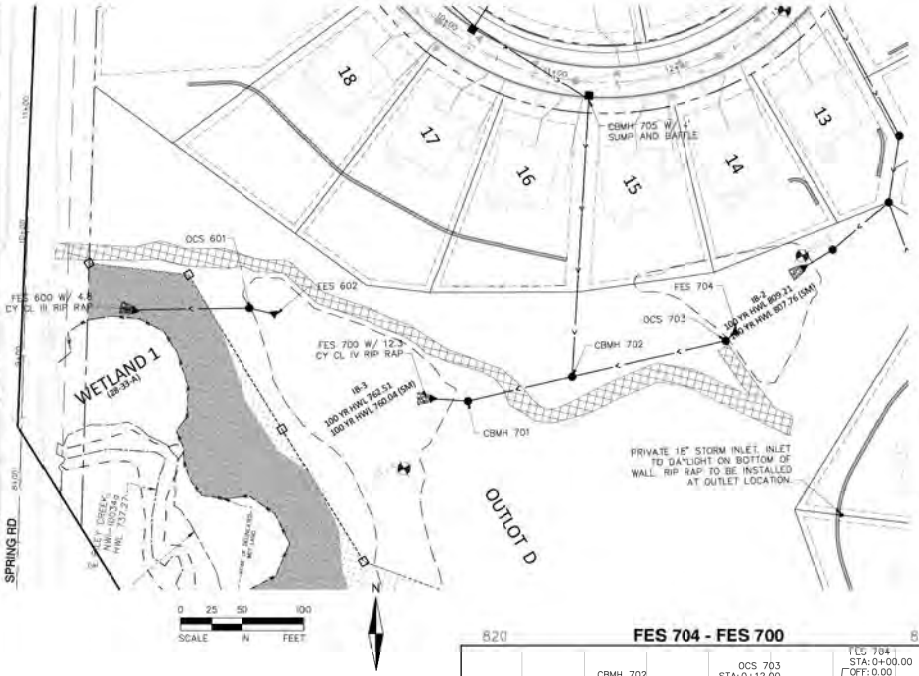
7-21-21	CITY SUBMITTAL

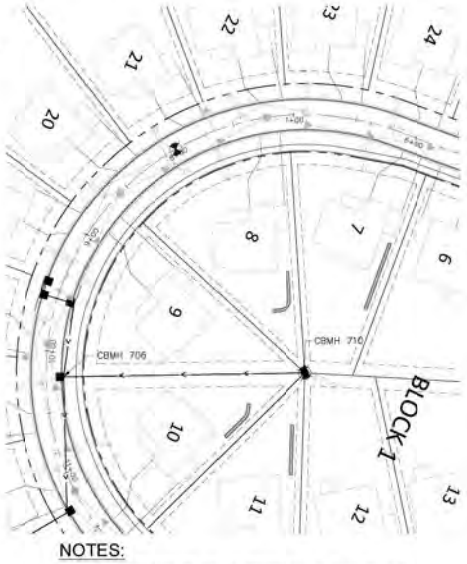
PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0138

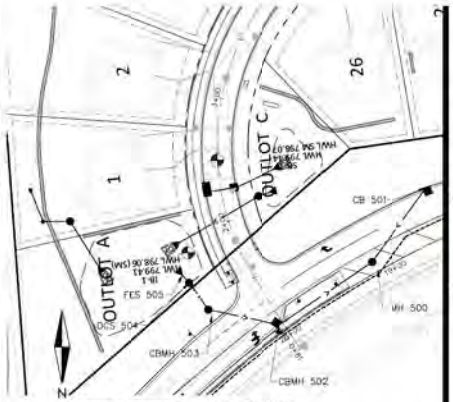
27

SHEET 27 of 41

Drawing name: K:\2019\1901361\plan sheets\Final Plat\1901361 dwg Jul 21, 2021 - 8:44am







STRUCTURE AND CASTING SCHEDULE			
MH NO.	SIZE	CASTING
500	60" DIA	R-1642
501	2'x3'	R-3067-V
502	48" DIA	R-3067-V
503	48" DIA	R-4342
504	60" DIA	GRATE
601	60" DIA	GRATE
601	48" DIA	R-1642
701	48" DIA	R-4342
702	60" DIA	R-4342
703	60" DIA	GRATE
705	48" DIA	R-3067-V
706	48" DIA	R-3067-V
710	27" DIA	R-4342

NOTES:
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LEGEND:

- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING STORM SEWER
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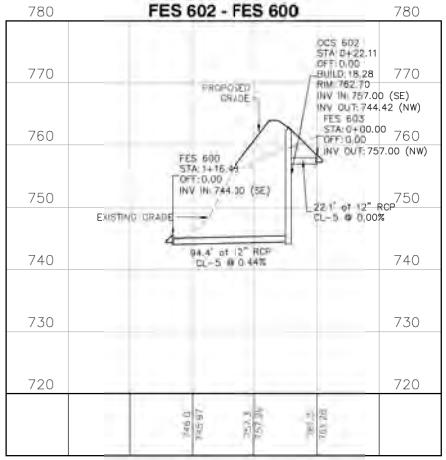
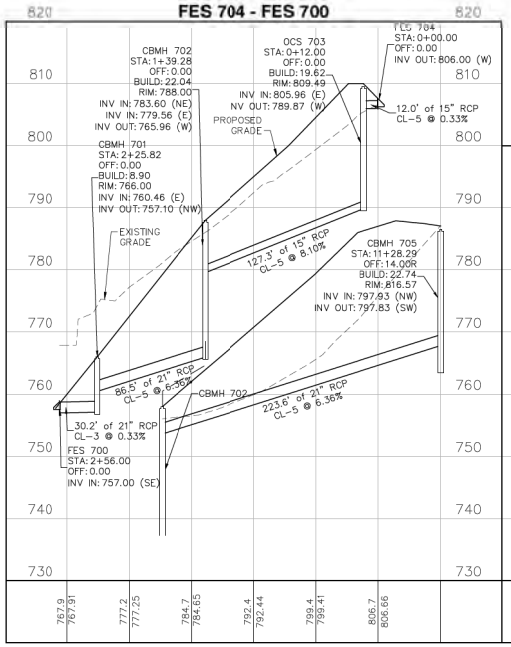
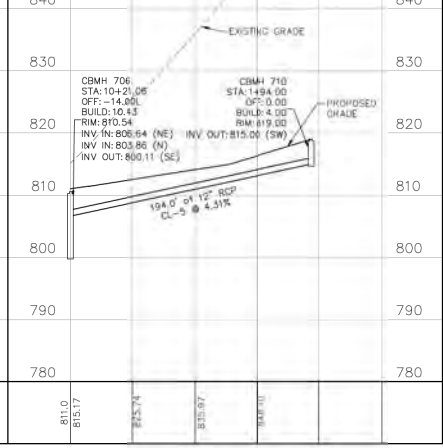
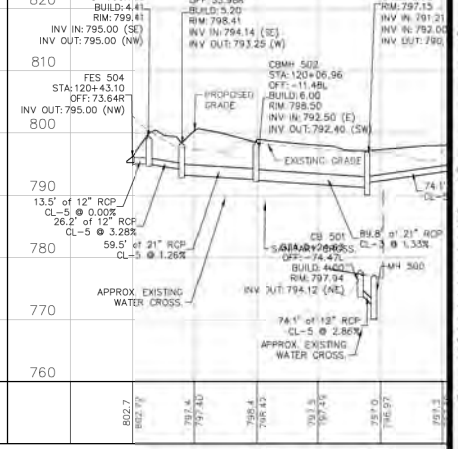
- PROPOSED SANITARY MANHOLE
- PROPOSED GATE VALVE
- PROPOSED HYDRANT









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PULTE HOMES

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EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
STREET AND STORM SEWER PLAN AND PROFILES

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MARK RAUSCH, PE
Date License No.

QUALITY ASSURANCE/CONTROL

BY	DATE

DATE:	ISSUE
4-1-21	BID SET
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA

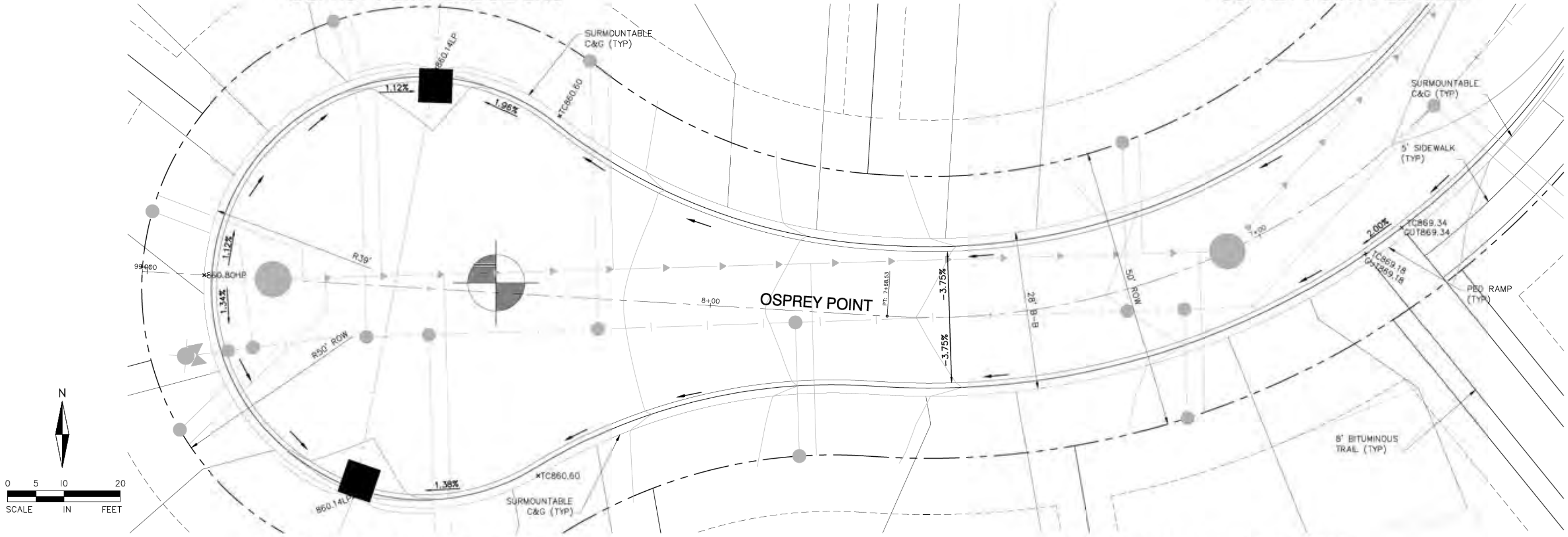
DESIGNED:	MPR
DRAWN:	BJP
PROJECT NO:	219-0139

28

SHEET 28 of 41

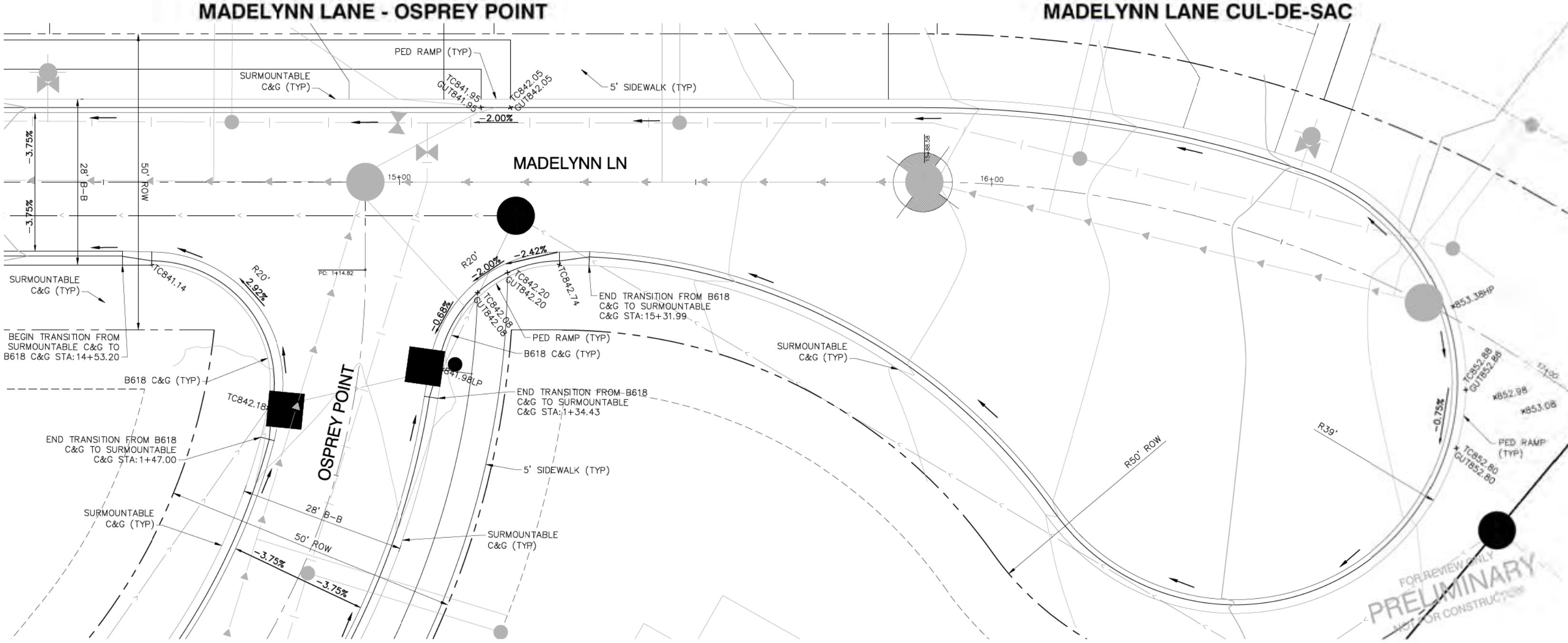
OSPREY POINT CUL-DE-SAC

OSPREY POINT PED RAMP



MADELYNN LANE - OSPREY POINT

MADELYNN LANE CUL-DE-SAC



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FINAL PLAT AND LAND ALTERATION SET

STREET INTERSECTION DETAILS

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Date | License No.

QUALITY ASSURANCE/CONTROL

BY | DATE

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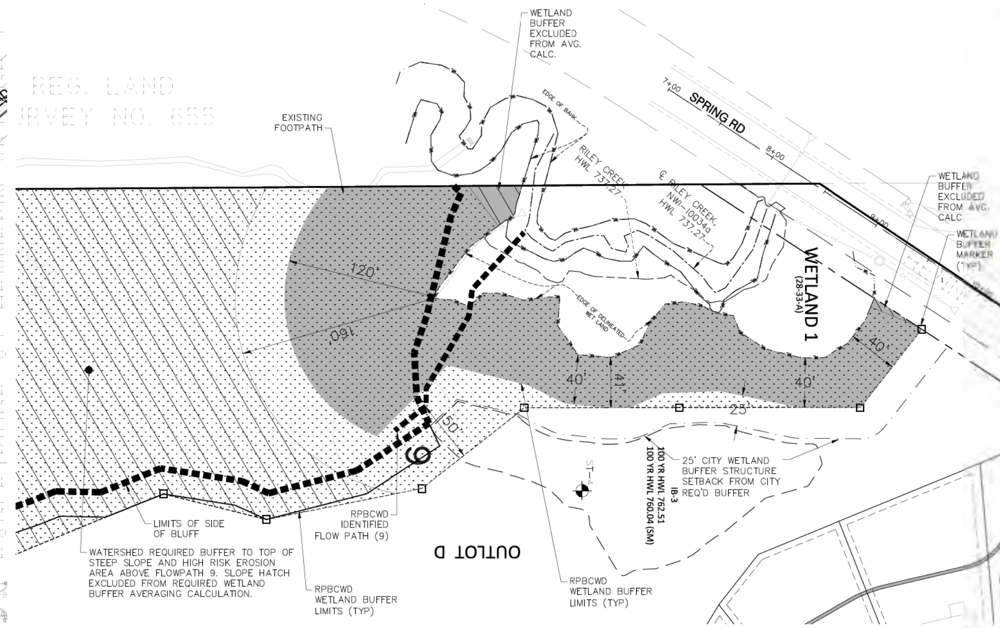
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

29

SHEET 29 of 41

Drawing name: X:\2019\190139\plan sheets\Final Plat\190139spot.dwg Jul 21, 2021 - 8:45am



WETLAND SUMMARY:

WETLAND ID:	WETLAND 1
WETLAND RATING:	EXCEPTIONAL (PER RPBCWD)
REQUIRED BUFFER MINIMUM WIDTH:	40' (PER RPBCWD), 40' (PER CITY)
REQUIRED BUFFER AVERAGE WIDTH:	80' (PER RPBCWD), 60' (PER CITY)
ALLOWED MAXIMUM BUFFER WIDTH:	160' (RPBCWD), 120' (CITY)
REQUIRED CITY STRUCTURE SETBACK TO CITY WETLAND BUFFER:	25'
WETLAND AREA*:	0.74 AC
WETLAND FRONTAGE:	530 LF (WITHIN PROPERTY, OUTSIDE R/W & WHERE REQUIRED AVERAGE BUFFER DISTANCE IS AVAILABLE)
MINIMUM BUFFER AREA REQUIRED (RPBCWD):	42,400 SF (80')
PROVIDED BUFFER AREA (RPBCWD)**:	60,741 SF
PROPOSED AVERAGE WIDTH (RPBCWD):	114.61'
MINIMUM BUFFER AREA REQUIRED (CITY):	31,800 SF (60')
PROVIDED BUFFER AREA (CITY)**:	43,267 SF
PROPOSED AVERAGE WIDTH (CITY):	81.64'

*AREA OF WETLAND LIMITS AND INSIDE PROPERTY BOUNDARY.
**RPBCWD AVERAGING RULES USED FOR CALCULATION OF RPBCWD BUFFER REQUIREMENT.
***CITY AVERAGING RULES USED FOR CALCULATION OF CITY BUFFER REQUIREMENT AND THE CITY'S REQUIRED 25' STRUCTURE SETBACK IS OFFSET FROM CITY BUFFER.

EXAMPLE BUFFER SIGNAGE

LEGEND:

- LOT LINE
- PROPERTY LINE
- BUILDING SETBACK
- EASEMENT LINE
- ROW
- WETLAND DELINEATION
- WETLAND BUFFER (AS REQUIRED BY RPBCWD)
- WETLAND BUFFER (AS REQUIRED BY CITY)
- 25' STRUCTURE SETBACK TO CITY WETLAND BUFFER
- WETLAND BUFFER MARKER (RPBCWD LIMITS)
- RPBCWD BUFFER PROVIDED BUT EXCLUDED FROM BUFFER AVERAGING CALCULATION
- RPBCWD IDENTIFIED FLOW PATH (9)

PRELIMINARY
NOT FOR CONSTRUCTION

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Pulte HOMES

NOBLE HILL
EDEN PRAIRIE, MN

FINAL PLAT AND LAND ALTERATION SET
WETLAND MANAGEMENT PLAN

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7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

Drawing name: X:\2019\190139\plan sheets\Final Plat\190139wetl.dwg Jul 21, 2021 - 8:46am

LEGEND

- PROPOSED DECIDUOUS OVERSTORY TREE
- PROPOSED CONIFEROUS TREE
- NATIVE SEED MIX MN SEED MIX #35-241, MESIC PRAIRIE GENERAL
- INFILTRATION MIX MN SEED MIX #33-261, STORMWATER SOUTH & WEST

TREE REPLACEMENT REQUIREMENTS:

REQUIRED DIAMETER INCHES
SIGNIFICANT TREE REQUIRED REPLACEMENT = 796 INCHES
HERITAGE TREE REQUIRED REPLACEMENT = 1,726 INCHES*
TOTAL REQUIRED REPLACEMENT = 2,522 DIAMETER INCHES

*A MINIMUM OF 20% OF HERITAGE REPLACEMENT TREES TO BE 8"/10' OR GREATER

SEE TREE INVENTORY/REPLACEMENT CALCULATIONS

PROPOSED DIAMETER INCHES		
FRONT YARD TREES =	10 @ 3" CAL. =	150 INCHES
OTHER DECIDUOUS TREES =	1 @ (8') 3.2" CAL. =	12.8 INCHES
	1 @ 3" CAL. =	21 INCHES
	74 @ 2.5" CAL. =	185 INCHES
	16 @ 1.5" CAL. =	179 INCHES
CONIFEROUS TREES =	56 @ 10' (4") =	624 INCHES
TOTAL INCHES PROVIDED =		997 INCHES

REMAINING MITIGATION = 2,522 - 997 = (A.) 1,525 INCHES
CASH IN LIEU ($125/INCH) = A. x $125 = $190,625

TREE COUNT
EXISTING TREES REMOVED: 441
EXISTING TREES SAVED: 344
PROPOSED TREES: 327

NOTE: TREE COUNT DOES NOT IMPACT MITIGATION REQUIREMENTS

PLANTING NOTES:

1. CALL GOPHER STATE ONE CALL AT 651-454-0002 FOR LOCATING ALL UNDERGROUND UTILITIES AND AVOID DAMAGE TO UTILITIES DURING THE COURSE OF THE WORK.
2. INSTALL 6" MIN. TOP SOIL TO ALL SOD AND SEED AREAS, EXCEPT THAT INFILTRATION BASIN AREAS SHALL RECEIVE ONLY 3" TOP SOIL. FINE GRADE ALL SOD AND SEED AREAS.
3. STAKE OR MARK ALL PLANT MATERIAL LOCATIONS PRIOR TO INSTALLATION. HAVE OWNERS REPRESENTATIVE APPROVE PLANTING LOCATION.
4. INSTALL 4-6" DEPTH SHREDDED HARDWOOD MULCH, NATURAL COLOR, AROUND ROOT SAUCER OF ALL TREES ISOLATED FROM PLANT BEDS.
5. PLANTING SOIL SHALL CONSIST OF 1:1:1 33% SELECT LOAMY TOPSOIL, 33% PEAT MOSS, 33% PIT RUN SAND.
6. COMPLETELY GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR BEGINNING AT THE DATE OF ACCEPTANCE. MAKE ALL REPLACEMENTS PROMPTLY (AS PER DIRECTION OF OWNER) EXCEPT THAT ALL BOULEVARD AND OUTLOT TREES (INCLUDING ORNAMENTAL TREES) SHALL HAVE A 2-YEAR ESTABLISHMENT PERIOD UPON APPROVAL OF WORK.
7. ALL MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AMERICAN ASSOCIATION OF NURSERYMEN.
8. ALL TREE TRUNKS SHALL BE WRAPPED WITH BROWN CREPE TREE WRAP. APPLY WRAP IN NOVEMBER AND REMOVE IN APRIL.
9. MAINTAIN ALL PLANT MATERIALS, INCLUDING WATERING, UNTIL THE TIME OF ACCEPTANCE.
10. COORDINATE ALL LANDSCAPE INSTALLATION WITH GENERAL CONTRACTOR.
11. STAKING AND GUYING OF TREES OPTIONAL; MAINTAIN PLUMBNESS OF TREES FOR DURATION OF WARRANTY PERIOD.
12. SWEEP AND WASH ALL PAVED SURFACES AND REMOVE ALL DEBRIS RESULTING FROM LANDSCAPE OPERATIONS.
13. SUPPLY DESIGN AND INSTALLATION FOR IRRIGATION SYSTEM WITH COVERAGE OF SOD AND PLANTING AREAS. USE RAINBIRD OR APPROVED EQUAL COORDINATE WITH G.C. PROVIDE RAIN SENSOR. COORDINATE WITH GENERAL CONTRACTOR ON LOCATION OF IRRIGATION.

SEEDING NOTES:

NATIVE SEED MIX: MN STATE SEED MIX 35-241 (MESIC PRIARIE GENERAL) SEEDING RATE TO BE 36.5 LBS/ACRE (PURE LIVE SEED).

INFILTRATION AREA SEED MIX: MN STATE SEED MIX 33-261, SEEDING RATE TO BE 25 LBS/ACRE (PURE LIVE SEED).

APPLY SEED PER THE FOLLOWING: MULCH SEEDED AREAS WITH MNDOT TYPE 3 (WITH CERTIFIED WEED FREE) MULCH AT A RATE OF 1 TON PER ACRE WITHIN 48 HOURS OF SEEDING. MULCH SHOULD THEN BE DISC ANCHORED TO KEEP IT FROM BLOWING AWAY.

SEEDING SHALL BE APPLIED FROM APRIL 15 – JULY 20 OR SEPTEMBER 20 - FREEZE UP. IF HYDROSEEDING UTILIZE APPROXIMATELY 500 GALLONS OF WATER PER ACRE. REFER TO MN/DOT SPEC 3884 FOR PROPER INSTALLATION OF HYDRO-SEED. ALL NATIVE SEEDS USED ON THIS PROJECT SHALL BE CERTIFIED TO BE OF MINNESOTA ORIGIN BY THE MINNESOTA CROP IMPROVEMENT ASSOCIATION (MCIA). SITE TO BE PREPARED BY LOOSENING TOPSOIL TO A MINIMUM DEPTH OF 3 INCHES. THE SITE TO BE HARROWED OR RAKED FOLLOWING SEEDING, AND THEN PACKED USING A CULTI-PACKER OR EQUIVALENT. SEE MNDOT SEEDING MANUAL FOR REFERENCE.

MAINTAIN SEEDED AREAS BY WATERING, REMULCHING AND REPLANTING AS NECESSARY TO ESTABLISH A UNIFORMLY DENSE STAND OF THE SPECIFIED GRASSES UNTIL ACCEPTED. ANY AREAS FAILING TO ESTABLISH A STAND SHALL BE RESEEDED, REFERTILIZED AND REMULCHED WHENEVER 70% VEGETATIVE COVER IS NOT ACHIEVED. RESEEDING SHALL CONFORM IN ALL RESPECTS TO THESE SPECIFICATIONS. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE WORK AREAS RESULTING FROM EROSION AND/OR EQUIPMENT. THE CONTRACTOR SHALL REPAIR DAMAGE, INCLUDING REGRADING, RESEEDING, ETC. AS NECESSARY, BEFORE SIGNIFICANT DAMAGE OCCURS.

REFER TO MN STATE SEED MIX MANUAL.

TOTAL	KEY	COMMON NAME	SCIENTIFIC NAME	PLANTING SIZE / ROOT TYPE	TOTAL INCHES	NOTES
FRONT YARD OVERSTORY TREES						
11	HB	Common Hackberry	Celtis occidentalis	3" cal. B&B	33 IN	Straight Trunk, No V-Crotch
9	HL	Skyline Honeylocust	Gleditisia triacantsos var. inermis 'Skycole'	3" cal. B&B	27 IN	Straight Trunk, No V-Crotch
4	KC	Espresso Kentucky Coffeetree	Gymnocladus dioicus 'Espresso'	3" cal. B&B	12 IN	Straight Trunk, No V-Crotch
19	RM	Red Sunset Maple	Acer rubrum 'Franksred'	3" cal. B&B	57 IN	Straight Trunk, No V-Crotch
7	SO	Swamp White Oak	Quercus bicolor	3" cal. B&B	21 IN	Straight Trunk, No V-Crotch
BACKYARD CONIFEROUS TREES (4"/10')						
9	BS	Blackhills Spruce	Picea glauca densata	10' ht. B&B	36 IN	Full Form
8	BF	Balsam Fir	Abies balsamea	10' ht. B&B	32 IN	Full Form
33	RP	Red Pine	Pinus strobus	10' ht. B&B	132 IN	Full Form
100	**LOT TREES SUBTOTAL**				**350 IN**	**SUBTOTAL INCHES**
ADDITIONAL OVERSTORY TREES						
86		Overstory Reforestation	See Reforestation Area Layout for Species	1.5" cal.	129 IN	Straight Trunk, No V-Crotch
3	RO	Red Oak	Quercus rubra	3" cal. B&B	9 IN	Straight Trunk, No V-Crotch
4	RB	River Birch	Betula nigra	8' ht. B&B	13 IN	Straight Trunk, No V-Crotch
11	KC (a.)	Espresso Kentucky Coffeetree	Gymnocladus dioicus 'Espresso'	2.5" cal. B&B	28 IN	Straight Trunk, No V-Crotch
4	RM	Red Sunset Maple	Acer rubrum 'Franksred'	3" cal. B&B	12 IN	Straight Trunk, No V-Crotch
13	SO (a.)	Swamp White Oak	Quercus bicolor	2.5" cal. B&B	33 IN	Straight Trunk, No V-Crotch
ADDITIONAL CONIFEROUS TREES						
37	BF	Balsam Fir	Abies balsamea	10' ht. B&B	148 IN	Full Form
31	BS	Blackhills Spruce	Picea glauca densata	10' ht. B&B	124 IN	Full Form
27	MJ	Medora Juniper	Juniperus scopulorum 'Medora'	10' ht. B&B	108 IN	Full Form
11	RP	Red Pine	Pinus resinosa	10' ht. B&B	44 IN	Full Form
227	**ADDITIONAL TREES SUBTOTAL**				**647 IN**	**SUBTOTAL INCHES**
327	**TREE GRAND TOTAL**				**997 IN**	**INCHES GRAND TOTAL**

Note:
- Height to caliper inches conversion 4" = 10'
- Quantities on plan supersede list quantities in a discrepancy.

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PULTE HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
TREE REPLACEMENT PLAN - OVERALL VIEW

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MARK KROMBEEK, PLA, ASLA

Date License No.

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BY	DATE
DATE	ISSUE
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7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MFR
DRAWN: BJP
PROJECT NO: 219-0139

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DRAWN: BJP
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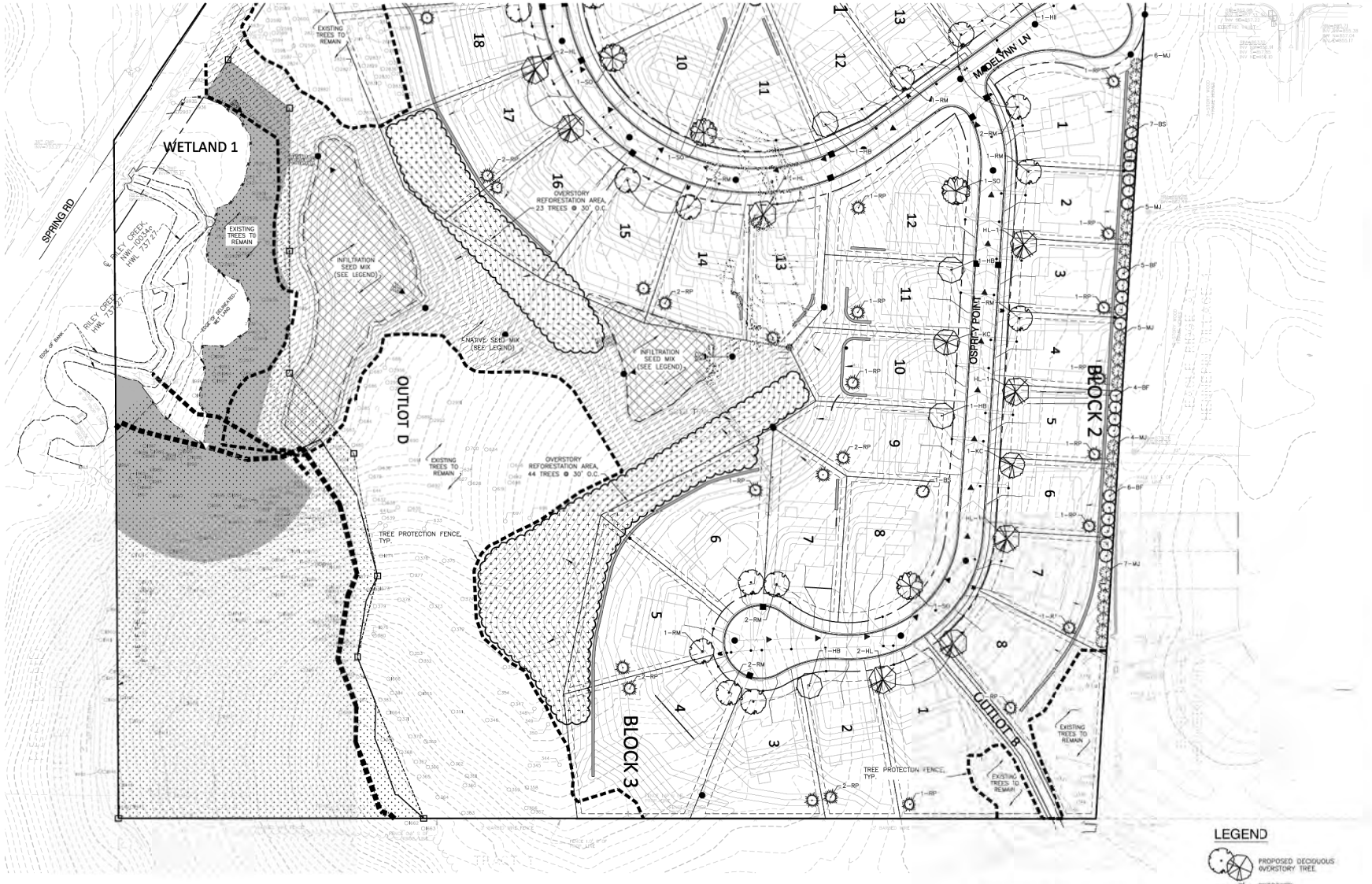

REFORESTATION AREA LAYOUT

OVERSTORY REFORESTATION AREA
TYPES: SWAMP WHITE OAK, RED OAK, DED RESISTANT ELM
SIZE: 1.5"
PLANTED: ODD NUMBER GROUPINGS, STAGGERED ROWS, 30' O.C.

LEGEND

- PROPOSED DECIDUOUS OVERSTORY TREE
- PROPOSED CONIFEROUS TREE
- NATIVE SEED MIX MN SEED MIX #35-241, MESIC PRAIRIE GENERAL
- INFILTRATION MIX MN SEED MIX #33-261, STORMWATER SOUTH & WEST

N

0 25 50 100
SCALE IN FEET

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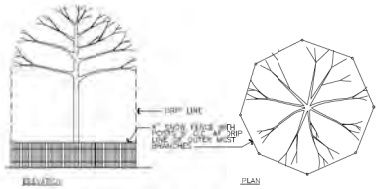
TREE PRESERVATION NOTES:

1. BEFORE ANY CONSTRUCTION OR GRADING OF DEVELOPMENT PROJECT IS TO OCCUR, A TREE PROTECTION FENCE (AT LEAST 4 FEET IN HEIGHT AND STAKED WITH POSTS NO LESS THAN EVERY 8 FEET) SHALL BE INSTALLED WHERE NOTED ON PLAN. SIGNS SHALL BE PLACED ALONG THIS FENCE LINE IDENTIFYING THE AREA AS A TREE PROTECTION AREA AND PROHIBITING GRADING BEYOND THE FENCE LINE. THIS FENCE MUST REMAIN IN PLACE UNTIL ALL GRADING AND CONSTRUCTION ACTIVITY IS TERMINATED.
2. NO EQUIPMENT, CONSTRUCTION MATERIALS OR SOIL MAY BE STORED WITHIN FENCED AREAS PROTECTING SIGNIFICANT TREES.
3. NO ENCROACHMENT, LAND DISTURBANCE, GRADE CHANGE, TRENCHING, FILLING, COMPACTION OF CHANGE IN SOIL CHEMISTRY SHALL OCCUR WITHIN FENCED AREAS PROTECTING SIGNIFICANT TREES.
4. CONTRACTOR TO PREVENT THE CHANGE IN SOIL CHEMISTRY DUE TO CONCRETE WASHOUT AND LEAKAGE OR SPILLAGE OF TOXIC MATERIALS, SUCH AS FUELS OR PAINTS.
5. DRAINAGE PATTERNS ON THE SITE SHALL NOT CHANGE CONSIDERABLY CAUSING DRASTIC ENVIRONMENTAL CHANGES IN THE SOIL MOISTURE CONTENT WHERE TREES ARE INTENDED TO BE PRESERVED.
6. NO SIGNIFICANT TREES SHALL BE REMOVED UNTIL THIS TREE PRESERVATION PLAN IS APPROVED BY THE CITY OF EDEN PRAIRIE.



NOTE: TREE PROTECTION SHALL BE PROVIDED BY CONTRACTOR AS REQUIRED TO ENSURE SURVIVABILITY OF EXISTING TREES TO REMAIN. NO HEAVY EQUIPMENT SHALL BE STORED WITHIN THE TREE DRIP LINE AS DESIGNATED ABOVE.

TREE PROTECTION FENCE
NOT TO SCALE

N

0 50 100 200
SCALE IN FEET

LEGEND:

- SIGNIFICANT OR HERITAGE TREE TO REMAIN
- SIGNIFICANT OR HERITAGE TREE TO BE REMOVED
- TREE PROTECTION FENCE

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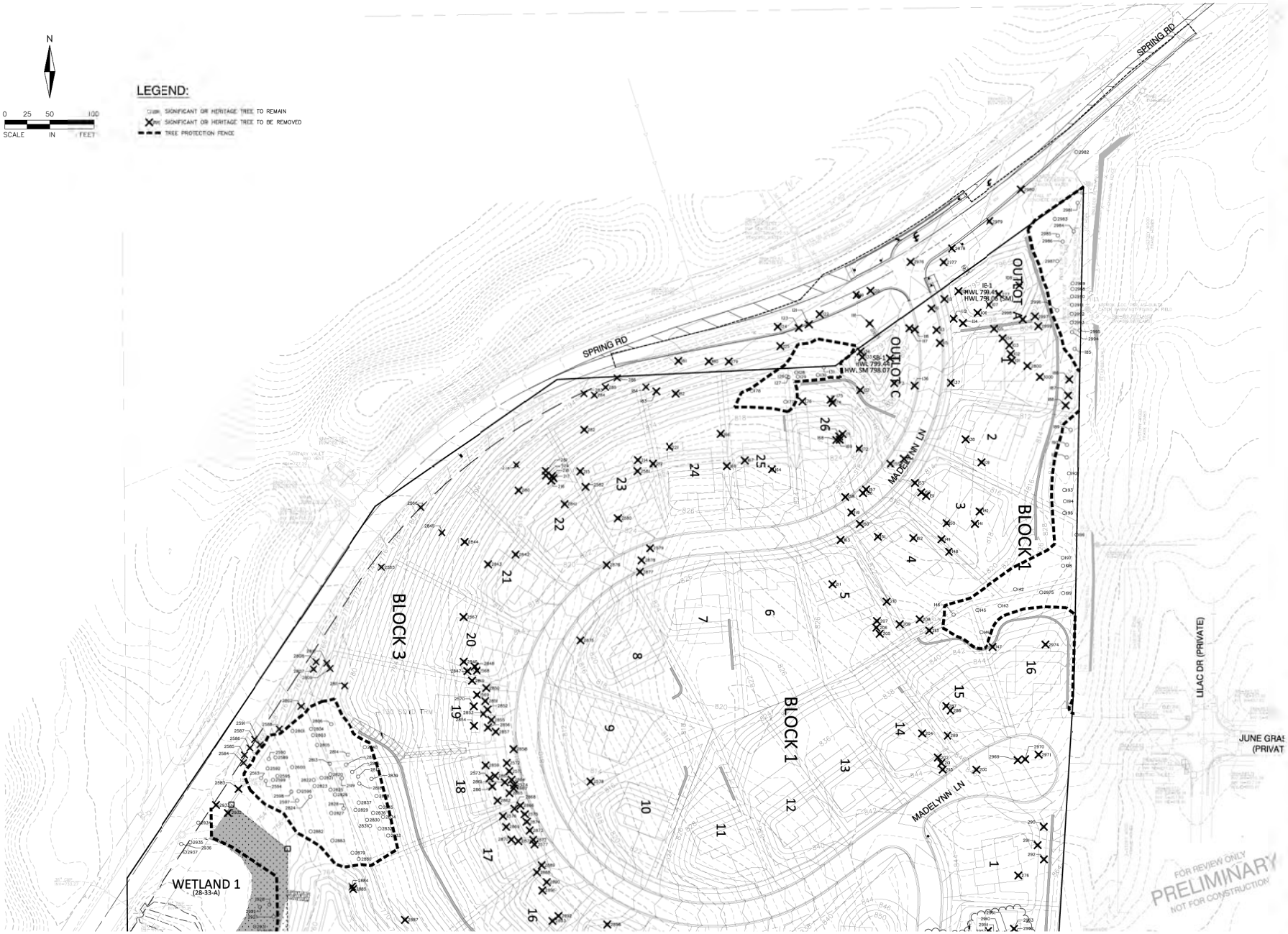

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TREE PRESERVATION PLAN - VIEW A

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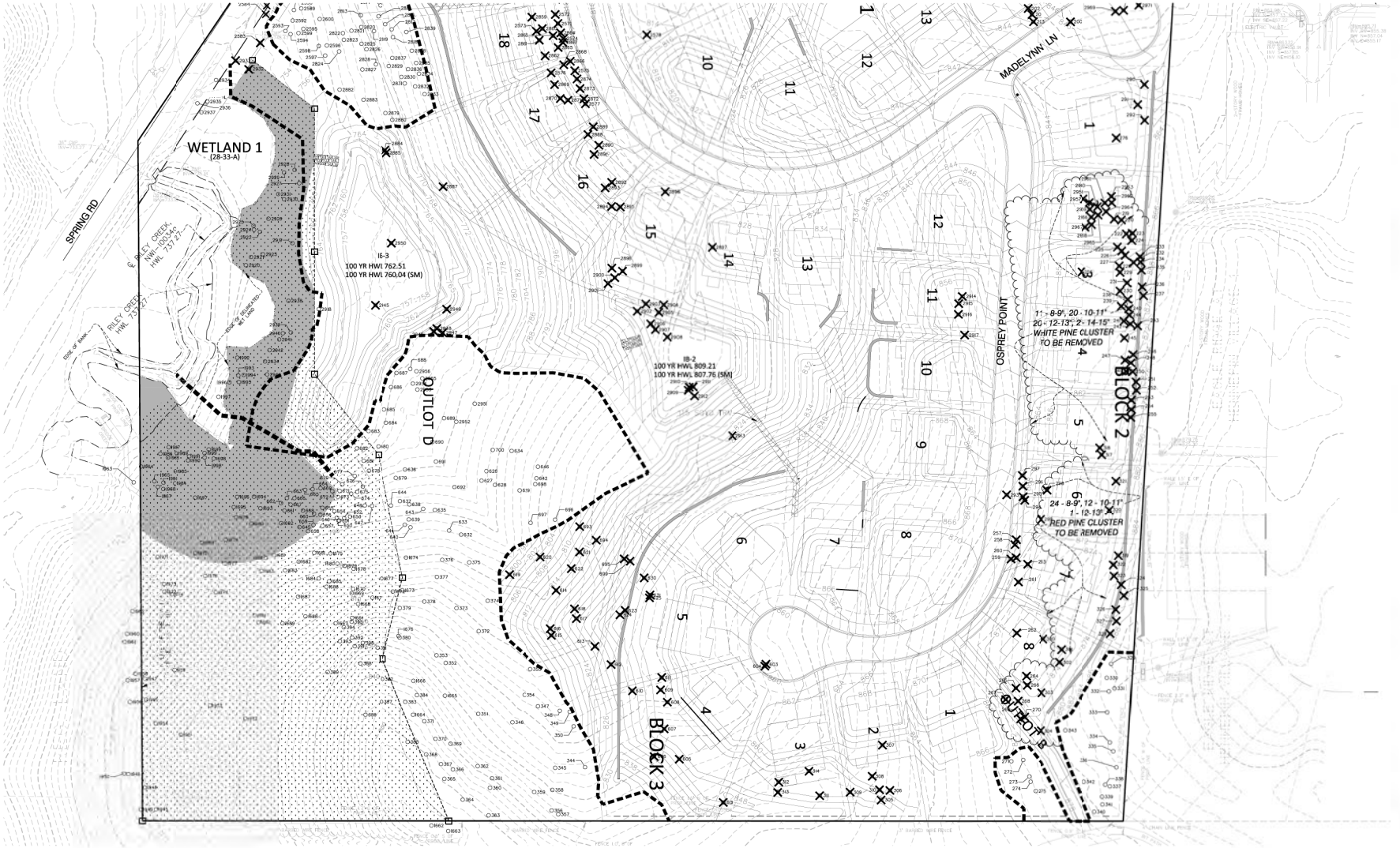

N

0 25 50 100
SCALE IN FEET

LEGEND:

- SIGNIFICANT OR HERITAGE TREE TO REMAIN
- SIGNIFICANT OR HERITAGE TREE TO BE REMOVED
- TREE PROTECTION FENCE

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Drawing name: X:\2019\1901393\plan sheets\Final Plat\1901393tree.dwg Jul 21, 2021 - 8:55am

EXISTING TREE INVENTORY

Tag	DBH	Common Name	Classification	Notes	Remove
101	15	Eastern Red Cedar	Significant		X
102	16	Red Pine	Significant		X
103	23	White Pine	Significant		X
104	16	White Spruce	Significant		X
105	16	White Spruce	Significant		X
106	27	White Pine	Heritage		X
107	12	Eastern Red Cedar	Significant		X
108	15	Eastern Red Cedar	Significant		X
109	15	Eastern Red Cedar	Significant		X
110	12	Eastern Red Cedar	Significant		X
111	9	Eastern Red Cedar	Significant		X
112	14	Black Cherry	Significant		X
113	25	Silver Maple	Significant		X
114	18	Silver Maple	Significant		X
115	20	White Ash	Significant		X
116	23	White Ash	Significant		X
117	37	White Oak	Heritage		X
118	13	Green Ash	in ROW		X
119	17	Green Ash	in ROW		X
120	17	Green Ash	in ROW		X
121	16	Black Cherry	in ROW		X
122	12	Green Ash	in ROW		X
123	34	Red Oak	in ROW	Heritage Tree	X
124	30	Red Oak	in ROW		X
125	34	Red Oak	in ROW	Heritage Tree	X
126	18	Red Oak	Significant		
127	18	Red Oak	Significant		
128	20	Red Oak	Significant		
129	12	Black Cherry	Significant		
130	14	Red Oak	Significant		
131	22	Red Oak	Significant	Very nice form, health	
132	14	Green Ash	Significant		X
133	13	Green Ash	Significant		X
134	13	Green Ash	Significant		X
135	14	Black Cherry	Significant		X
136	46	White Oak	Heritage	3x trunk 18,17,11	X
137	17	White Spruce	Significant		X
138	12	Red Pine	Significant		X
139	20	White Pine	Significant		X
140	24	Silver Maple	Significant		X
141	16	Silver Maple	Significant		X
142	35	White Oak	Heritage	Heritage Tree	
143	30	White Oak	Significant		
144	72	White Oak	Heritage	3x trunk 30,22,20	
145	22	White Oak	Significant	Rot at base	
146	17	Green Ash	Significant		
147	15	White Oak	Significant		X
148	46	White Oak	Heritage	forks at 6'	X
149	20	White Oak	Significant		X
150	15	White Oak	Significant		X
151	9	Eastern Red Cedar	Significant		X
152	12	Eastern Red Cedar	Significant		X
153	22	Green Ash	Significant		X
154	13	Green Ash	Significant		X
155	22	White Oak	Significant		X
156	20	White Oak	Significant		X
157	20	White Oak	Significant		X
158	18	White Oak	Significant		X
159	38	White Oak	Heritage	2x trunk 20,18	X
160	18	White Oak	Significant		X
161	15	Black Cherry	Significant		X
162	47	White Oak	Heritage	2x trunk 25,22	X
163	45	White Oak	Heritage	forks at 5'	X
164	8	Eastern Red Cedar	Significant		X
165	8	Eastern Red Cedar	Significant		X
166	10	Eastern Red Cedar	Significant		X
167	14	Red Oak	Significant		X
168	23	White Oak	Significant		X
169	18	White Oak	Significant		X
170	17	White Oak	Significant		X
171	15	White Oak	Significant		X
172	35	White Oak	Heritage	2x trunk 18,17	X
173	17	Hackberry	Significant		X
174	17	White Oak	Significant		X
175	20	White Oak	Significant		X
176	16	White Oak	Significant		X
177	13	Black Cherry	Significant		
178	12	Green Ash	Significant		
179	37	Red Oak	in ROW	Heritage Tree	X
180	36	Red Oak	in ROW	2x trunk 20,16	X
181	21	Red Oak	in ROW		X
182	18	White Oak	Significant		X
183	16	White Oak	Significant		X
184	9	Eastern Red Cedar	Significant		X
185	21	Eastern Red Cedar	Significant	2x trunk 15, 6	
186	15	Eastern Red Cedar	Significant		X
187	14	Eastern Red Cedar	Significant		X
188	21	Eastern Red Cedar	Significant	2x trunk 13, 7	X
189	15	Eastern Red Cedar	Significant		
190	14	Eastern Red Cedar	Significant		
191	34	Eastern Red Cedar	Heritage	3x trunk 13,11,10	
192	23	Eastern Red Cedar	Significant	2x trunk 13,10	
193	13	Eastern Red Cedar	Significant		
194	15	Eastern Red Cedar	Significant		
195	16	Eastern Red Cedar	Significant		
196	16	Red Oak	Significant		
197	12	Eastern Red Cedar	Significant		
198	12	Eastern Red Cedar	Significant		
199	10	Eastern Red Cedar	Significant		
200	21	Eastern Red Cedar	Significant	2x trunk 13,8	X
201	14	Eastern Red Cedar	Significant		X
202	15	Eastern Red Cedar	Significant		X
203	11	Eastern Red Cedar	Significant		X
204	18	Eastern Red Cedar	Significant		X
205	9	Eastern Red Cedar	Significant		X
206	10	Eastern Red Cedar	Significant		X
207	10	Eastern Red Cedar	Significant		X
208	12	Eastern Red Cedar	Significant		X
209	16	Eastern Red Cedar	Significant	2x trunk 10,6	X
210	11	Eastern Red Cedar	Significant		X
211	9	Eastern Red Cedar	Significant		X
212	8	Eastern Red Cedar	Significant		X
213	8	Eastern Red Cedar	Significant		X
214	8	Eastern Red Cedar	Significant		X
215	13	Green Ash	Significant		X
216	14	White Oak	Significant		X
217	10	White Oak			X
218	14	White Oak	Significant		X
219	12	White Pine	Significant		X
220	9	White Pine	Significant		X
221	10	Red Oak			X
222	13	White Pine	Significant		X
223	13	White Pine	Significant		X
224	11	White Pine	Significant		X
225	11	White Pine	Significant		X
226	9	White Pine	Significant		X
227	12	White Pine	Significant		X
228	10	White Pine	Significant		X
229	12	White Pine	Significant		X
230	12	White Pine	Significant		X
231	11	White Pine	Significant		X
232	13	White Pine	Significant		X
233	10	White Pine	Significant		X
234	11	White Pine	Significant		X
235	11	White Pine	Significant		X
236	14	White Pine	Significant	2x trunk 8,6	X
237	15	White Pine	Significant		X
238	12	White Pine	Significant		X
239	11	White Pine	Significant		X
240	12	White Pine	Significant		X
241	10	White Pine	Significant		X
242	15	White Pine	Significant		X
243	16	White Pine	Significant		X
244	14	White Pine	Significant		X
245	10	White Pine	Significant		X
246	15	White Pine	Significant		X
247	12	White Pine	Significant		X
248	12	White Pine	Significant		X
249	12	White Pine	Significant		X
250	13	White Pine	Significant		X
251	15	White Pine	Significant		X
252	15	White Pine	Significant		X
253	14	White Pine	Significant		X
254	16	White Pine	Significant		X
255	9	White Pine	Significant		X
256	20	Scotch Pine	Significant		X
257	15	Scotch Pine	Significant		X
258	12	Scotch Pine	Significant		X
259	13	Scotch Pine	Significant		X
260	13	Scotch Pine	Significant		X
261	14	Scotch Pine	Significant		X
262	13	Scotch Pine	Significant		X
263	16	Red Pine	Significant		X
264	15	Scotch Pine	Significant		X
265	11	Scotch Pine	Significant		X
266	13	Scotch Pine	Significant		X
267	15	Scotch Pine	Significant		X
268	14	Scotch Pine	Significant		X
269	20	Scotch Pine	Significant		X
270	19	Scotch Pine	Significant		X
271	12	Scotch Pine	Significant		
272	8	Scotch Pine	Significant		
273	13	Scotch Pine	Significant		
274	9	Scotch Pine	Significant		
275	12	Scotch Pine	Significant		
276	19	Eastern Red Cedar	Significant	2x trunk 10,9	X
277	37	White Oak	Heritage	Heritage Tree	X
278	16	White Oak	Significant		X
279	20	White Oak	Significant		X
280	31	White Oak	Significant		X
281	27	White Oak	Significant		X
282	15	Green Ash	Significant		X
283	20	White Oak	Significant		X
284	15	Green Ash	Significant		X
285	19	Eastern Red Cedar	Significant		X
286	8	Eastern Red Cedar	Significant		X
287	8	Eastern Red Cedar	Significant		X
288	8	Eastern Red Cedar	Significant		X
289	11	Eastern Red Cedar	Significant		X
290	9	Eastern Red Cedar	Significant		X
291	10	Eastern Red Cedar	Significant		X
292	8	Eastern Red Cedar	Significant		X
293	12	Scotch Pine	Significant		X
294	11	Red Pine	Significant		X
295	12	Red Pine	Significant		X
296	11	Red Pine	Significant		X
297	11	Red Pine	Significant		X
298	12	Blue Spruce	Significant		X
299	8	Blue Spruce	Significant		X
300	9	Blue Spruce	Significant		X
301	8	Blue Spruce	Significant		X
302	9	Blue Spruce	Significant		X
303	12	White Spruce	Significant		X
304	12	Blue Spruce	Significant		X
305	14	Scotch Pine	Significant		X
306	14	Scotch Pine	Significant		X
307	14	Scotch Pine	Significant		X
308	10	Scotch Pine	Significant		X
309	38	Red Oak	Heritage	Heritage Tree	X
310	11	Scotch Pine	Significant		X
311	22	White Oak	Significant		X
312	15	White Oak	Significant		X
313	13	White Oak	Significant		X
314	31	White Oak	Significant		X
315					
316	26	White Oak	Significant		X
317	16	Scotch Pine	Significant		X
318	10	Scotch Pine	Significant		X
319	12	Red Pine	Significant		X
320	8	Red Pine	Significant		X
321	10	Red Pine	Significant		X
322	8	Red Pine	Significant		X
323	8	Red Pine	Significant		X
324	9	Red Pine	Significant		X
325	10	Red Pine	Significant		X
326	8	Red Pine	Significant		X
327	8	Red Pine	Significant		X
328	9	Red Pine	Significant		X
329	9	Red Pine	Significant		
330	9	Red Pine	Significant		
331	10	Red Pine	Significant		
332	10	Red Pine	Significant		
333	9	Red Pine	Significant		
334	9	Red Pine	Significant		
335	9	Red Pine	Significant		
336	9	Red Pine	Significant		
337	9	Red Pine	Significant		
338	12	Red Pine	Significant		
339	22	Scotch Pine	Significant	2x trunk 12,10	
340	9	Red Pine	Significant		
341	11	Red Pine	Significant		
342	12	Red Pine	Significant		
343	9	Blue Spruce	Significant		
344	17	Black Cherry	Significant		
345	30	Green Ash	Significant		
346	16	Basswood	Significant		
347	14	Green Ash	Significant		
348	12	Green Ash	Significant		
349	14	Green Ash	Significant		
350	14	Hackberry	Significant		
351	25	White Oak	Significant		
352	21	Green Ash	Significant		
353	32	Basswood	Heritage	2x trunk 16,16	
354	14	Green Ash	Significant		
355	20	Black Cherry	Significant		
356	17	Basswood	Significant		
357	34	Basswood	Heritage	2x trunk 17,17	
358	29	Basswood	Dead or Dying	Poor health	
359	27	Green Ash	Significant		
360	17	Red Oak	Significant		
361	12	Red Oak	Significant		
362	13	Basswood	Significant		
363	14	Red Oak	Significant		
364	8	Eastern Red Cedar	Significant		
365	17	White Oak	Significant		
366	22	White Oak	Significant		
367	22	White Oak	Significant	2x trunk 12,10	
368	27	White Oak	Significant		
369	23	White Oak	Significant		
370	8	Eastern Red Cedar	Significant		
371	22	White Oak	Significant		
372	12	Hackberry	Significant		
373	28	Basswood	Significant		
374	12	Red Oak	Significant		
375	20	White Oak	Significant		
376	15	Basswood	Significant		
377	23	Basswood	Significant		
378	19	White Oak	Significant		
379	21	White Oak	Significant		
380	13	Black Cherry	Significant		
381	16	Eastern Red Cedar	Significant		
382	13	Eastern Red Cedar	Significant		
383	9	Eastern Red Cedar	Significant		
384	9	Black Cherry			
385	12	Eastern Red Cedar	Significant		
386	15	Red Pine	Significant		
387	8	Eastern Red Cedar	Significant		
388	12	Eastern Red Cedar	Significant		
389	13	Eastern Red Cedar	Significant		
390	8	Eastern Red Cedar	Significant		
391	13	Eastern Red Cedar	Significant		
392	15	Red Pine	Significant		
393	12	Eastern Red Cedar	Significant		
394	13	Eastern Red Cedar	Significant		
395	10	Eastern Red Cedar	Significant		
601	9	White Spruce	Significant		X
602	13	Green Ash	Significant		
603	20	White Oak	Significant		X
604	52	White Oak	Heritage	3x trunk 20,18,14	X
605	23	White Oak	Significant		X
606	14	Basswood	Significant		X
607	16	Green Ash	Significant		X
608	15	Green Ash	Significant		X
609	17	White Oak	Significant		X
610	17	Black Cherry	Significant	very nice	X
611	16	Bur Oak	Significant		X
612	15	Green Ash	Significant		X
613	13	Green Ash	Significant		X
614	12	Basswood	Significant		X
615	14	Green Ash	Significant		X
616	14	White Oak	Significant		X
617	12	Green Ash	Significant		X
618	15	Hackberry	Significant		X
619	38	Basswood	Dead or Dying	Massive dead rot in center	X
620	31	Red Oak	Significant		X
621	16	Basswood	Dead or Dying	Dead Top	X
622	30	Red Oak	Dead or Dying	Open cat face, large wound	X
623	13	Green Ash	Significant		X
624	13	Basswood	Significant		X
625	24	Red Oak	Significant		X
626	13	Basswood	Significant		
627	17	Basswood	Significant		
628	14	Basswood	Significant		
629	21	White Oak	Significant		
630	30	White Oak	Significant		
631	21	Red Oak	Significant		
632	11	Basswood	Significant		
633	17	Basswood	Significant		
634	26	White Oak	Significant		
635	21	White Oak	Significant		
636	9	Red Pine	Significant		
637	9	Red Pine	Significant		
638	9	Red Pine	Significant		
639	12	Red Pine	Significant		
640	10	Red Pine	Significant		
641	14	Red Pine	Significant		
642	14	Basswood	Significant		
643	19	White Oak	Significant		
644	18	White Oak	Significant		
645	9	Eastern Red Cedar	Significant		
646	13	Basswood	Significant		
647	36	Basswood	Heritage	2x trunk 19,17	
648	21	Basswood	Significant		
649	17	Basswood	Significant	2x trunk 14,13	
650	14	Basswood	Significant		
651	13	Basswood	Significant		
652	15	Basswood	Significant		
653	9	Scotch Pine	Significant		
654	11	Scotch Pine	Significant		
655	16	Scotch Pine	Significant		
656	12	Scotch Pine	Significant		
657	9	Scotch Pine	Significant		
658	11	Scotch Pine	Significant		
659	10	Scotch Pine	Significant		
660	11	Scotch Pine	Significant		
661	11	Scotch Pine	Significant		
662	14	Scotch Pine	Significant		
663	10	Scotch Pine	Significant		
664	17	Scotch Pine	Significant		
665	17	Scotch Pine	Significant		
666	13	Scotch Pine	Significant		
667	16	Scotch Pine	Significant		
668	16	Red Pine	Significant		
669	13	Red Pine	Significant		
670	12	Red Pine	Significant		
671	12	Red Pine	Significant		
672	10	Red Pine	Significant		
673	12	Red Pine	Significant		
674	12	Red Pine	Significant		
675	10	Red Pine	Significant		
676	13	Red Pine	Significant		
677	13	Red Pine	Significant		
678	9	Red Pine	Significant		
679	17	Scotch Pine	Significant		
680	17	Scotch Pine	Significant		
681	16	Red Pine	Significant		
682	17	Red Pine	Significant		
683	18	Scotch Pine	Significant		
684	13	Scotch Pine	Significant		
685	21	Scotch Pine	Significant		
686	15	Scotch Pine	Significant		

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Pulte HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
EXISTING TREE INVENTORY

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

MARK KRONBECK, PLA, ASLA

Date License No.

QUALITY ASSURANCE/CONTROL

BY DATE

DATE	ISSUE
4-1-21	BD SET
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

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SHEET 37 of 41

EXISTING TREE INVENTORY

Tag	DBH	Common Name:	Classification:	Notes:	Remove
687	21	Scotch Pine	Significant		
688	16	Scotch Pine	Significant		
689	15	Red Oak	Significant		
690	24	Basswood	Significant		
691	11	Basswood			
692	16	Black Cherry	Significant	Very Nice	
693	13	Basswood	Significant		X
694	12	White Ash	Significant		X
695	12	White Ash	Significant		X
696	13	Basswood	Significant		
697	20	White Oak	Significant		
698	12	White Ash	Significant		
699	20	Basswood	Significant		X
700	16	Basswood	Significant		
1661	10	Eastern Red Cedar	Significant		
1662	12	Red Oak	Off site		
1663	9	Eastern Red Cedar	Off site		
1664	13	Eastern Red Cedar	Significant		
1665	19	White Oak	Significant		
1666	17	Eastern Red Cedar	Significant		
1667	16	Eastern Red Cedar	Significant		
1668	15	Red Pine	Significant		
1669	10	White Spruce	Significant		
1670	8	Eastern Red Cedar	Significant		
1671	14	Red Pine	Significant		
1672	34	White Oak	Heritage		
1673	14	Red Oak	Significant		
1674	12	Basswood	Significant		
1675	27	White Oak	Significant	2/trunk 16,11	
1676	15	Red Pine	Significant		
1677	15	White Oak	Dead or Dying	poor health	
1678	3	Scotch Pine			
1679	12	Scotch Pine	Significant		
1680	8	Scotch Pine	Significant		
1681	16	Scotch Pine	Significant		
1682	17	Scotch Pine	Significant		
1683	18	White Oak	Significant		
1684	31	White Oak	Significant	2/trunk 16,15	
1685	24	White Oak	Significant		
1686	20	White Oak	Significant		
1687	17	Red Oak	Significant		
1688	9	Eastern Red Cedar	Significant		
1689	10	Eastern Red Cedar	Significant		
1690	17	Eastern Red Cedar	Significant		
1691	19	Eastern Red Cedar	Significant		
1692	25	Green Ash	Significant		
1693	14	Scotch Pine	Significant		
1694	10	Scotch Pine	Significant		
1695	17	Scotch Pine	Significant		
1696	24	White Oak	Significant		
1697	34	White Oak	Heritage		
1698	11	Scotch Pine	Significant		
1699	14	Scotch Pine	Significant		X
1945	18	Red Oak	Significant		
1946	18	Red Oak	Off site		
1947	26	Red Oak	Significant		
1948	24	Red Oak	Significant		
1949	14	Green Ash	Off site		
1950	20	Red Oak	Off site		
1951	19	Red Oak	Significant		
1952	25	Eastern Red Cedar	Heritage	2/trunk 13,12	
1953	16	Eastern Red Cedar	Significant		
1954	37	White Oak	Heritage		
1955	9	Eastern Red Cedar	Significant		
1956	20	White Oak	Off site		
1957	13	Green Ash	Off site		
1958	14	Red Oak	Off site		
1959	10	Eastern Red Cedar	Significant		
1960	18	Red Oak	Off site		
1961	18	Red Oak	Off site		
1962	17	Green Ash	Off site	95% crown death	
1963	15	White Oak	Significant		
1964	15	White Oak	Significant		
1965	20	Scotch Pine	Significant		
1966	13	Scotch Pine	Significant		
1967	13	Scotch Pine	Significant		
1968	14	Scotch Pine	Significant		
1969	13	Red Oak	Significant		
1970	26	White Oak	Significant		
1971	12	Eastern Red Cedar	Significant		
1972	18	White Oak	Significant		
1973	18	White Oak	Significant		
1974	12	White Oak	Significant		
1975	16	White Oak	Significant		
1976	16	Red Oak	Significant		
1977	28	White Oak	Significant		
1978	13	Red Oak	Significant		
1979	12	Hackberry	Significant		
1980	13	Black Cherry	Significant		
1981	13	Black Cherry	Significant		
1982	12	Black Cherry	Significant		
1983	12	Black Cherry	Significant		
1984	31	Scotch Pine	Significant		
1985	24	Scotch Pine	Significant		
1986	31	White Oak	Significant		

Tag	DBH	Common Name:	Classification:	Notes	Remove
1987	13	Scotch Pine	Significant		
1988	17	Scotch Pine	Significant		
1989	14	Scotch Pine	Significant		
1990	8	Scotch Pine	Significant		
1991	12	Scotch Pine	Significant		
1992	12	Scotch Pine	Significant		
1993	27	White Oak	Significant		
1994	22	Scotch Pine	Significant		
1995	11	Scotch Pine	Significant		
1996	15	Scotch Pine	Significant		
1997	13	Scotch Pine	Significant		
1998	11	Scotch Pine	Significant		
1999	13	Scotch Pine	Significant		
2565	13	Eastern Red Cedar	Significant		X
2566	15	Eastern Red Cedar	Significant		X
2567	40	White Oak	Heritage	2x trunk 22,18	X
2568	12	Red Pine	Significant		X
2569	12	Red Pine	Significant		X
2570	13	Red Pine	Significant		X
2571	12	Red Pine	Significant		X
2572	12	Red Pine	Significant		X
2573	13	Red Pine	Significant		X
2574	12	Red Pine	Significant		X
2575	13	Red Pine	Significant		X
2576	16	Scotch Pine	Significant		X
2577	13	Red Pine	Significant		X
2578	25	White Pine	Heritage	2x trunk 13,12	X
2579	13	Eastern Red Cedar	Significant		X
2580	12	Eastern Red Cedar	Significant		X
2581	12	Eastern Red Cedar	Significant		X
2582	14	Red Oak	Significant		X
2583	16	White Pine	Significant		X
2584	10	Scotch Pine	Significant		X
2585	11	Scotch Pine	Significant		X
2586	34	White Pine	Significant		X
2587	17	White Pine	Significant	Healthy Crown. Damaged bottom 8'	X
2588	11	White Spruce	Significant		X
2589	26	Northern White Cedar	Heritage	3x trunk 9,9,8	
2590	26	Northern White Cedar	Heritage	4x trunk 8,7,6,5	
2591	9	White Spruce	Significant		X
2592	12	White Spruce	Significant		
2593	24	Northern White Cedar	Heritage	2x trunk 12,12	
2594	32	Northern White Cedar	Heritage	4x trunk 9,8,8,7	
2595	29	Northern White Cedar	Heritage	5x trunk 8,7,6,4,4	
2596	10	Eastern Red Cedar	Significant		
2597	16	White Spruce	Significant		
2598	14	White Spruce	Significant		
2599	15	White Spruce	Significant		
2600	13	White Spruce	Significant		
2800	16	Eastern Red Cedar	Significant		X
2801	8	Eastern Red Cedar	Significant		
2802	19	White Oak	Significant		X
2803	10	Eastern Red Cedar	Significant		
2804	8	Eastern Red Cedar	Significant		
2805	9	Eastern Red Cedar	Significant		
2806	31	White Oak	Significant		
2807	25	White Oak	Significant		X
2808	40	Swamp White Oak	Heritage	2x trunk 22,18	X
2809	10	White Spruce	Significant		X
2810	10	White Spruce	Significant		X
2811	13	White Spruce	Significant		X
2812	10	White Spruce	Significant		
2813	11	Eastern Red Cedar	Significant		
2814	10	White Spruce	Significant		
2815	13	White Spruce	Significant		
2816	9	White Spruce	Significant		
2817	10	White Spruce	Significant		
2818	10	White Spruce	Significant		
2819	12	White Spruce	Significant		
2820	10	Eastern Red Cedar	Significant		
2821	9	Eastern Red Cedar	Significant		
2822	13	Eastern Red Cedar	Significant		
2823	10	Eastern Red Cedar	Significant		
2824	10	Northern White Cedar	Significant		
2825	38	Northern White Cedar	Significant	2x trunk 11,7	
2826	8	White Spruce	Significant		
2827	22	Swamp White Oak	Significant		
2828	10	Scotch Pine	Significant		
2829	11	Scotch Pine	Significant		
2830	14	Scotch Pine	Significant		
2831	9	White Spruce	Significant		
2832	10	White Spruce	Significant		
2833	18	White Spruce	Significant		
2834	21	White Spruce	Significant	11,10	
2835	9	White Spruce	Significant		
2836	9	White Spruce	Significant		
2837	10	White Spruce	Significant		
2838	18	White Spruce	Significant		
2839	18	White Spruce	Significant		
2840	11	White Spruce	Significant		
2841	18	White Ash	Significant		X
2842	10	Green Ash			X
2843	39	White Oak	Heritage	2x trunk 20,18	X
2844	16	Basswood	Significant		X

Tag	DBH	Common Name:	Classification:	Notes:	Remove
2636	26	White Oak	Significant		X
2646	11	Red Pine	Significant		X
2647	12	Red Pine	Significant		X
2648	9	Red Pine	Significant		X
2649	11	Red Pine	Significant		X
2650	12	Eastern Red Cedar	Significant		X
2651	9	Red Pine	Significant		X
2652	11	Red Pine	Significant		X
2653	9	Red Pine	Significant		X
2654	12	Red Pine	Significant		X
2655	11	Red Pine	Significant		X
2656	10	Red Pine	Significant		X
2657	10	Red Pine	Significant		X
2658	13	White Pine	Significant		X
2659	12	Red Pine	Significant		X
2660	11	Red Pine	Significant		X
2661	11	Red Pine	Significant		X
2662	11	Red Pine	Significant		X
2663	10	Red Pine	Significant		X
2664	9	Red Pine	Significant		X
2665	10	Red Pine	Significant		X
2666	12	Red Pine	Significant		X
2667	12	Red Pine	Significant		X
2668	10	Red Pine	Significant		X
2669	11	Red Pine	Significant		X
2670	10	Red Pine	Significant		X
2671	19	Red Pine	Significant		X
2672	11	Red Pine	Significant		X
2673	12	Red Pine	Significant		X
2674	10	Red Pine	Significant		X
2675	10	Eastern Red Cedar	Significant		X
2676	11	Eastern Red Cedar	Significant		X
2677	9	Eastern Red Cedar	Significant		X
2678	14	Eastern Red Cedar	Significant		X
2879	19	White Pine	Significant		
2880	17	White Pine	Significant		
2882	29	White Oak	Significant		
2883	29	White Oak	Significant		
2884	24	White Oak	Significant		X
2885	27	White Oak	Significant		X
2886	20	Red Oak	Significant		
2887	11	Crab Apple			X
2888	12	Red Pine	Significant		X
2889	9	Red Pine	Significant		X
2890	11	Red Pine	Significant		X
2891	10	Red Pine	Significant		X
2892	10	Red Pine	Significant		X
2893	9	Red Pine	Significant		X
2894	11	Red Pine	Significant		X
2895	12	Red Pine	Significant		X
2896	16	White Pine	Significant		X
2897	31	White Oak	Significant		X
2898	20	White Pine	Significant		X
2899	22	White Pine	Significant		X
2900	19	White Pine	Significant		X
2901	22	White Pine	Significant		X
2902	12	Red Pine	Significant		X
2903	12	Red Pine	Significant		X
2904	18	Scotch Pine	Significant		X
2905	16	Scotch Pine	Significant		X
2906	15	Scotch Pine	Significant		X
2907	15	Scotch Pine	Significant		X
2908	12	White Spruce	Significant		X
2909	27	Basswood	Significant	2x trunk 15,17	X
2910	15	Basswood	Significant		X
2911	25	Basswood	Significant	2x trunk 15,16	X
2912	44	Basswood	Heritage		X
2913	80	Basswood	Heritage	3x trunk 28,27,25	X
2914	10	Blue Spruce	Significant		X
2915	16	Blue Spruce	Significant		X
2916	9	Blue Spruce	Significant		X
2917	10	Blue Spruce	Significant		X
2918	32	White Oak	Heritage	Heritage Tree	
2919	26	White Oak	Significant		
2920	18	White Oak	Significant		
2921	24	White Oak	Significant		
2922	31	Red Oak	Significant	Great Form & Health	
2923	12	Black Cherry	Significant		
2924	19	White Oak	Significant		
2925	14	White Oak	Significant		
2926	23	White Oak	Significant		
2927	28	White Oak	Significant		
2928	24	White Oak	Significant		
2929	26	White Oak	Significant		
2930	16	Red Pine	Significant		
2931	14	Red Pine	Significant		
2932	17	White Pine	Significant		X
2933	15	White Pine	Significant		X
2934	15	Scotch Pine	Significant		
2935	13	Scotch Pine	Significant		
2936	14	Scotch Pine	Significant		
2937	13	Scotch Pine	Significant		

Tag	DBH	Common Name:	Classification:	Notes:	Remove
2038	18	White Pine	Significant	Missing leader	
2039	12	White Pine	Significant		
2940	14	White Pine	Significant		
2941	12	White Pine	Significant		
2942	16	White Pine	Significant		
2943	11	White Pine	Significant		
2944	13	White Pine	Significant		
2945	37	White Oak	Heritage	Overall Healthy. Large Cankers at 6'	E
2946	9	Red Pine	Significant		E
2947	13	Red Pine	Significant		E
2948	20	White Pine	Significant		E
2949	35	Honey Locust	Significant		E
2950	29	White Oak	Significant		E
2951	15	Red Oak	Significant		
2952	14	Red Oak	Significant		
2953	17	Scotch Pine	Significant		
2954	12	Scotch Pine	Significant		
2955	13	Scotch Pine	Significant		
2956	8	Scotch Pine	Dead or Dying	sickly, poor health	
2957	18	White Pine	Significant		E
2958	18	White Pine	Significant	2x trunk 10,8	E
2959	15	White Pine	Significant		E
2960	11	White Pine	Significant		E
2961	10	White Pine	Significant		E
2962	14	White Pine	Significant		E
2963	18	White Pine	Significant		E
2964	10	White Pine	Significant		E
2965	11	White Pine	Significant		E
2966	9	White Pine	Significant		E
2967	15	White Pine	Significant		E
2968	11	White Pine	Significant		E
2969	44	White Oak	Heritage	Heritage Tree	E
2970	21	White Oak	Significant		E
2971	37	White Oak	Heritage	Heritage Tree	E
2972	18	Green Ash	Significant		
2973	17	Black Cherry	Significant		
2974	13	Mulberry	Significant		E
2975	45	White Oak	Heritage		
2976	22	White Oak	In ROW		E
2977	14	Eastern Red Cedar	In ROW		E
2978	25	White Oak	In ROW		E
2979	13	Green Ash	In ROW		E
2980	16	Red Oak	In ROW		E
2981	24	White Oak	Significant		
2982	12	Eastern Red Cedar	Offsite		
2983	19	White Oak	Significant		
2984	31	White Oak	Significant		
2985	18	White Oak	Significant		
2986	9	Eastern Red Cedar	Significant		
2987	38	White Oak	Heritage	Heritage Tree	
2988	12	Eastern Red Cedar	Significant		
2989	8	Eastern Red Cedar	Significant		
2990	10	Eastern Red Cedar	Significant		
2991	14	Eastern Red Cedar	Significant		
2992	16	Eastern Red Cedar	Significant		
2993	13	Eastern Red Cedar	Significant		
2994	14	Eastern Red Cedar	Significant		
2995	16	Green Ash	Significant		
2996	15	Black Walnut	Significant		
2997	19	Black Walnut	Significant		E
2998	15	Black Walnut	Significant		E
2999	13	Black Walnut	Significant		E
3000	30	White Pine	Heritage		E

REPLACEMENT CALCULATIONS

SIGNIFICANT TREE REPLACEMENT FORMULA

A = TOTAL SIGNIFICANT DBH REMOVED*	5,617
B = TOTAL SIGNIFICANT DBH ON SITE*	10,539
C = TREE REPLACEMENT CONSTANT	0.50
D = REQUIRED REPLACEMENT (CALIPER INCHES)	
((A/B) x C) x A = D	1,419

HERITAGE TREE REPLACEMENT FORMULA

TOTAL HERITAGE DBH SURVEYED	1483
TOTAL HERITAGE DBH REMOVED (REPLACE AT 2:1 DBH)	861
TOTAL HERITAGE DBH SAVED	620

TOTALS	
REQUIRED SIGNIFICANT DBH REPLACEMENT	1,419
MINUS (-) HERITAGE DBH SAVED	-620
SIGNIFICANT DBH REQUIRED REPLACEMENT	799
PLUS (+) HERITAGE DBH REQUIRED REPLACEMENT (2:1 DBH)	1,726
REQUIRED REPLACEMENT DBH GRAND TOTAL	**2,525**
INCHES REQUIRED IN 4" /10' TREES (20% OF HERITAGE MIT.)	345
*DBHs OF UNTAGGED TREES IN SHELTERBELT (ALL COUNTED AS REMOVED)	925

NOTE: TREES IN RIGHT OF WAY ARE NOT INCLUDED IN CALCS

*UNTAGGED TREE INVENTORY

WHITE PINE UNTAGGED		
Ave. DBH	Count	Total Inches
8.5	11	93.5
10.5	20	210
12.5	20	250
14.5	2	29
TOTAL		582.5

RED PINE UNTAGGED		
Ave. DBH	Count	Total
8.5	24	204
10.5	12	126
12.5	1	12.5
TOTAL		342.5

GRAND TOTAL 925

TREE COUNT*

TOTAL SIGNIFICANT TREES: 789
= 665 (ONSITE)
+ 78 (ROW)
+ 90 (UNTAGGED)

TREES REMOVED: 445
= 339 (ONSITE)
+ 16 (ROW)
+ 90 (UNTAGGED)

TREES SAVED: 344 (ALL ONSITE)

*NOTE: TREE COUNT DOES NOT IMPACT MITIGATION REQUIREMENTS

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Minneapolis, MN 55402
612.758.3080
www.alliant-inc.com

PULTE HOMES

NOBLE HILL
EDEN PRAIRIE, MN
FINAL PLAT AND LAND ALTERATION SET
EXISTING TREE INVENTORY

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

MARK KRONBECK, PLA, ASLA
Date Licenses No.

QUALITY ASSURANCE/CONTROL

BY	DATE
DATE:	ISSUE
4-1-21	BID SET
5-20-21	CITY SUBMITTAL
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

38

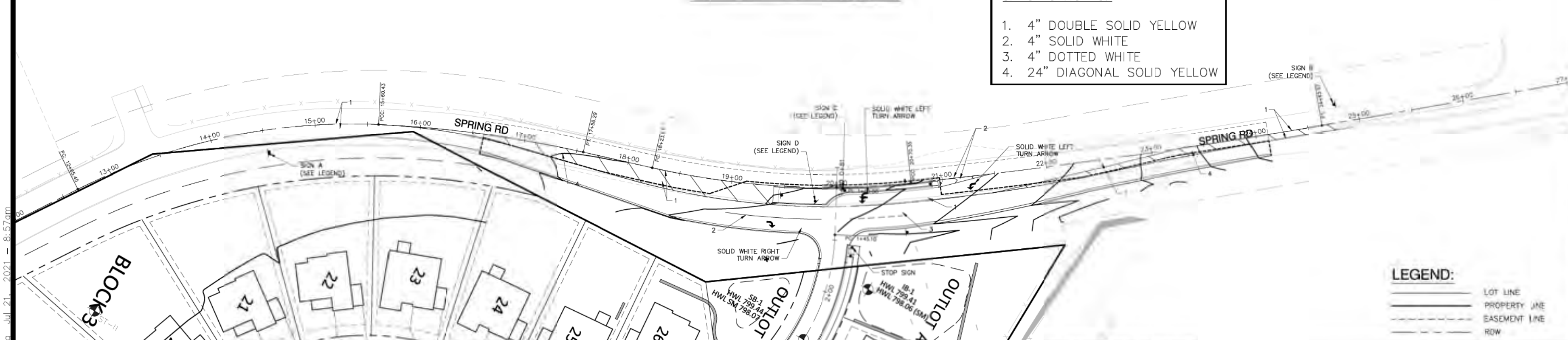
SHEET 38 of 41

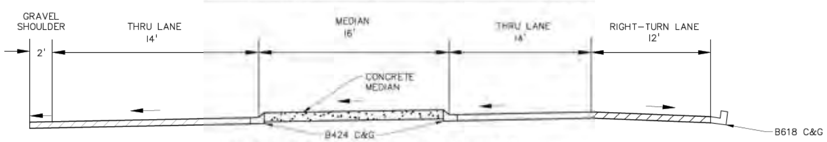
PLAN CONSTRUCTION

SIGNAGE AND STRIPING PLAN

SPECIFIC NOTES:

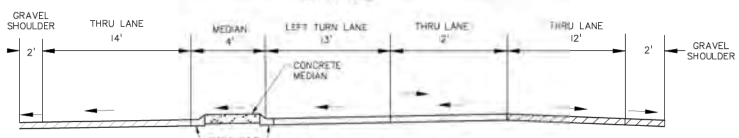
1. 4" DOUBLE SOLID YELLOW
2. 4" SOLID WHITE
3. 4" DOTTED WHITE
4. 24" DIAGONAL SOLID YELLOW





TYPICAL RIGHT TURN LANE SECTION

NOT TO SCALE



TYPICAL LEFT TURN LANE SECTION

NOT TO SCALE

TURN LANE NOTES

1. ALL GRADES ARE TO FINISHED PAVEMENT UNLESS OTHERWISE NOTED.
2. GOVERNING SPECIFICATIONS SHALL BE THE LATEST EDITION OF MNDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION."
3. ALL TEMPORARY TRAFFIC CONTROL DEVICES AND ALL PERMANENT SIGNING & MARKINGS SHALL CONFORM TO THE MMUTCD, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, 2014."
4. CONTRACTOR SHALL NOTIFY WASHINGTON COUNTY HIGHWAY DEPARTMENT AND SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL PRIOR TO PERFORMING ANY WORK WITHIN THE COUNTY RIGHT-OF-WAY.
5. CONTRACTOR SHALL REMOVE ALL CONFLICTING PAVEMENT MARKINGS.
6. ALL TURN LANE STRIPING SHALL BE COMPLETED USING MULTI-COMPONENT PAINT.
7. CONTRACTOR SHALL COORDINATE WORK AROUND AND RELOCATION OF SMALL UTILITIES.
8. CONTRACTOR TO MAINTAIN ACCESS TO EXISTING HOMES THROUGH CONSTRUCTION DURATION.

0 25 50 100
SCALE IN FEET

SIGN SCHEDULE

SIGN	SIGN NO.	SIZE	QUANTITY
Ⓐ	R3-8CA	36" X 30" (BLACK ON WHITE)	1
Ⓑ	R3-8AC	36" X 30" (BLACK ON WHITE)	1
Ⓒ	R3-2	24" SQUARE (BLACK ON WHITE)	1
Ⓒ	R5-1	30" SQUARE (RED ON WHITE)	1

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MARK RAUSCH, PE

Date License No.

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7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
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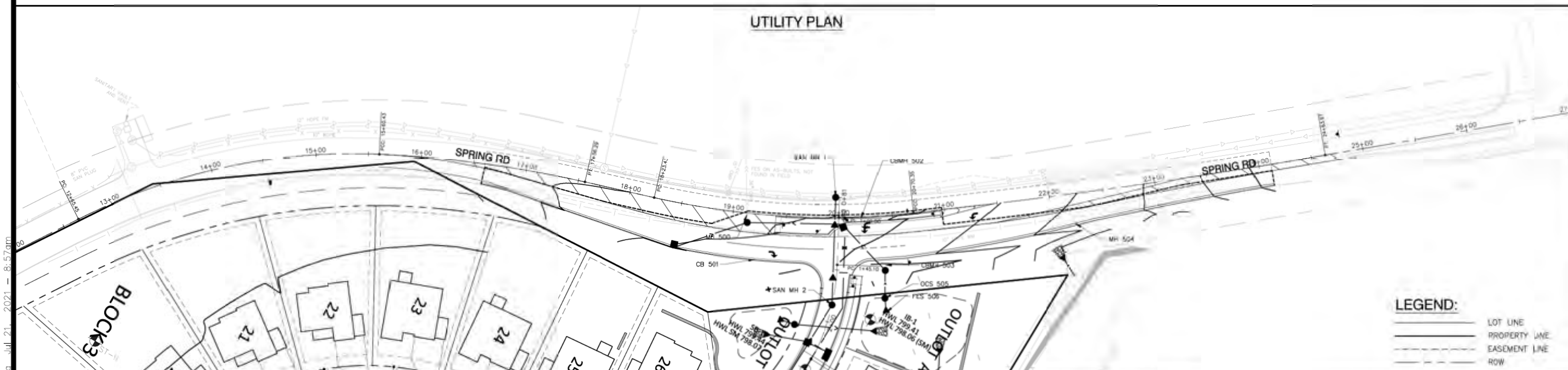
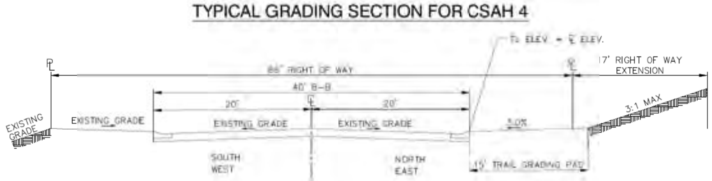
PROJECT NO: 219-0139



TYPICAL GRADING SECTION FOR CSAH 4



TURN LANE NOTES

1. ALL GRADES ARE TO FINISHED PAVEMENT UNLESS OTHERWISE NOTED.
2. GOVERNING SPECIFICATIONS SHALL BE THE LATEST EDITION OF MNDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION."
3. ALL TEMPORARY TRAFFIC CONTROL DEVICES AND ALL PERMANENT SIGNING & MARKINGS SHALL CONFORM TO THE MMUTCD, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, 2014."
4. CONTRACTOR SHALL NOTIFY HENNEPIN COUNTY HIGHWAY DEPARTMENT AND SUBMIT A TRAFFIC CONTROL PLAN FOR APPROVAL PRIOR TO PERFORMING ANY WORK WITHIN THE COUNTY RIGHT-OF-WAY. ALL WORK WITHIN THE SPRING ROAD RIGHT-OF-WAY WILL BE CONSTRUCTED TO MEET HENNEPIN COUNTY REQUIREMENTS.
5. CONTRACTOR SHALL REMOVE ALL CONFLICTING PAVEMENT MARKINGS.
6. ALL TURN LANE STRIPING SHALL BE COMPLETED USING MULTI-COMPONENT PAINT.
7. CONTRACTOR SHALL COORDINATE WORK AROUND AND RELOCATION OF SMALL UTILITIES.
8. CONTRACTOR TO MAINTAIN ACCESS TO EXISTING HOMES THROUGH CONSTRUCTION DURATION.
9. REFER TO DEVELOPMENT GRADING, UTILITY, AND STORM SEWER PLAN SHEETS FOR DETAILED DESIGN INFORMATION.

0 25 50 100
SCALE IN FEET

PRELIMINARY

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MARK RAUSCH, PE

Date License No.

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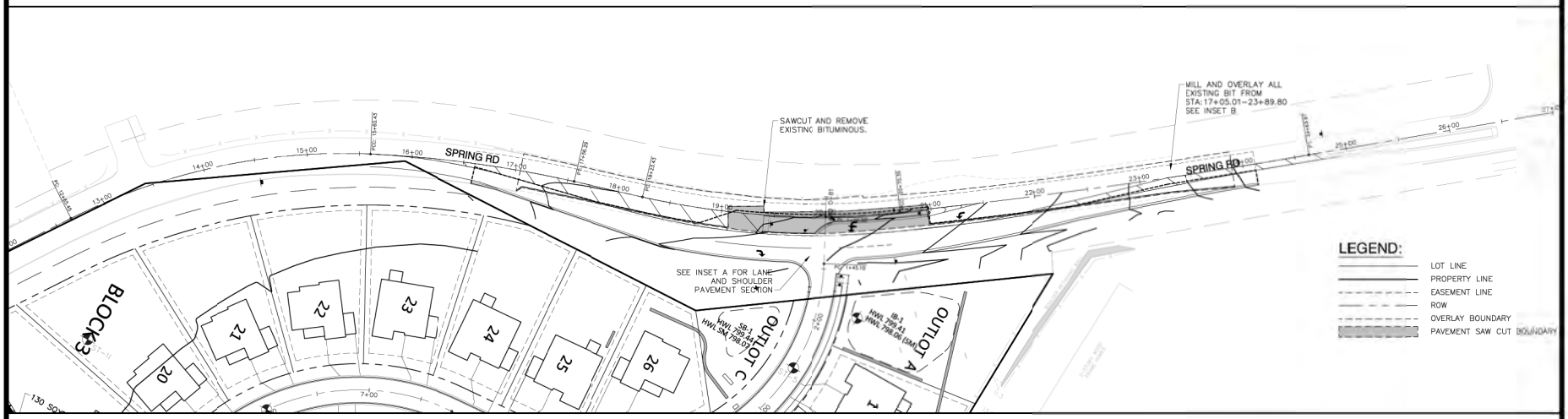
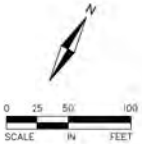
7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA
DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

SHEET 40
40 of 41

Drawing name: X:\2019\190139\plan sheets\Final Plat\190139turn.dwg Jul 21, 2021 - 8:57am





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MARK RAUSCH, PE

Date License No.

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7-21-21	CITY SUBMITTAL

PROJECT TEAM DATA

DESIGNED: MPR
DRAWN: BJP
PROJECT NO: 219-0139

41

SHEET 41 of 41

Drawing name: X:\2019\1901390\plan sheets\Final Plat\1901390tem.dwg Jul 21, 2021 - 8:56am

Braun Intertec Corporation
11001 Hampshire Avenue S
Minneapolis, MN 55438

Phone: 952.995.2000
Fax: 952.995.2020
Web: braunintertec.com

July 22, 2021 Project B2105970

Mr. Dean Lotter
Mr. Paul Heuer
Pulte Group
1815 Park Ridge Circle
Chaska, MN 55318

Re: Geotechnical Evaluation
Noble Hill Development Stability and Seepage Analyses
9955 Spring Road
Eden Prairie, Minnesota

Dear Mr. Lotter and Mr. Heuer:

Braun Intertec Corporation is pleased to provide this letter report summarizing our slope stability and seepage evaluation for ponds and slopes at the Noble Hill Development in Eden Prairie, Minnesota.

Project Information

Based on the information provided and our discussions with you, the project includes a single-family housing development located at approximately 9955 Spring Road in Eden Prairie, Minnesota. The project includes cut slopes at approximately 3H:1V (horizontal to vertical) inclinations and three stormwater infiltration ponds. Braun Intertec provided the geotechnical evaluation for the planned development in 2019 and 2020 under our project numbers B1909967 and B1909967.00, respectively.

Based on meetings held in early June 2021, we understand the Riley Purgatory Black Creek Watershed District Board (RPBCWD) showed concerns and requested additional information for the site. The RPBCWD worked with Barr Engineering to produce Technical Memorandum – Technical Scope for Analysis of Noble Hills Development, prepared by Barr Engineering, dated June 22, 2021. Based on the Technical Memorandum, the primary concerns included the following:

- Stability of the moderately steep slopes during construction and following project build out.
- The effects of land disturbing activities, stormwater management, and vegetation work on erosion potential along the proposed slopes.
- Potential for groundwater seeps or springs along the steep slopes at the site.

The Technical Memorandum summarized three analysis approaches to provide additional information and analyses for the planned project. Based on information provided, the RPBCWD recommended following the “moderate” approach method summarized in the memorandum.

Reference Documents

We reviewed the following information in June and July 2021 for use in our slope stability and seepage analyses.

- Technical Memorandum – Technical Scope for Analysis of Noble Hills Development, prepared by Barr Engineering, dated June 22, 2021.
- Noble Hill, Eden Prairie, MN, Final Plat and Land Alteration Set, prepared by Alliant Engineering, Inc., dated May 20, 2021.
- Noble Hill Storm Water Management Study, Eden Prairie, MN, prepared by Alliant Engineering, Inc., dated May 20, 2021.
- Noble Hill Development/Standal Property Memorandum of Field Review Observations of Riley Purgatory Bluff Creek Watershed Possible Mapped Stream Locations, prepared by Alliant Engineering, Inc., dated May 3, 2021.
- Geotechnical Evaluation Report, Standal Property, Spring Road and June Grass Lane, Eden Prairie, MN, prepared by Braun Intertec, dated October 10, 2019 (B1909967).
- Supplemental Soil Borings, the Overlook Residential Development, prepared by Braun Intertec, dated March 5, 2020 (B1909967.00).
- Engineering Evaluation, Noble Hill Residential Development, prepared by Braun Intertec, dated May 26, 2021 (B1909967.01).

Scope of Services

We performed our scope of services for the project in accordance with our Proposal QTB141677 to Pulte Group, dated June 29, 2021, and authorized on June 29, 2021. Our scope of services included the following tasks.

- Reviewing the background information and reference documents previously cited.
- Staking and clearing the exploration locations of underground utilities. We selected and staked the new exploration locations. We acquired the existing ground surface elevations and soil boring locations with GPS technology using the State of Minnesota's permanent GPS base station network. The Soil Boring Location Sketch included in the Appendix shows the approximate locations of the borings.
- Performing four standard penetration test (SPT) borings, denoted as ST-12 to ST-15, to nominal depths of 30 to 50 feet below grade across the site.
- Installing three piezometers in Borings ST-13, ST-14, and ST-15 and monitoring groundwater levels in the piezometers three to six times after installation.
- Performing a site reconnaissance to review the site potential areas of concern for signs of potential existing slope instability, exposed soils, springs/seeps, and other geologic features.
- Performing slope stability and seepage analyses for two cross-sections through the planned stormwater ponds and associated slopes. We completed analyses for existing and planned conditions based on the provided site plans and topographic survey information.
- Preparing this letter report to summarize our findings and analysis results.

Previous Geotechnical Information

We completed 11 soil borings between September 2019 and January 2020 extending to depths of approximately 10 to 50 feet below the existing ground surface. In general, the soil borings encountered up to 2 feet of topsoil underlain by loose to medium dense sandy alluvial soils (SC, SM, SP-SM, and SP). Borings ST-3 and ST-4 are in the general vicinity of ponds IP-2 and IP-3. Groundwater was only encountered in Boring ST-4 at a depth of approximately 19 1/2 feet, corresponding to elevation of about 744 feet MSL.

Site Reconnaissance

We completed a site reconnaissance on July 7, 2021. We walked the site, where safe to do so, in the area of the planned infiltration ponds, IB-2 and IB-3, and associated slopes leading up to the planned housing lots and down to the wetland boundary. There is an existing driveway that extends from Spring Road east up the slope to the existing house and barn. The site is partially tree-covered with large trees to the south and east of the barn and areas of a former Christmas tree farm to the east of the existing house. The rest of the area is grass- and brush-covered. There is an access road that is primarily grass-covered with some bare areas that extend to the east from the house and to the tree farm. Figure 1 shows a photograph of the existing tree farm access road and typical site conditions.

Figure 1. Photograph of Existing Tree Farm Access Road

During our site reconnaissance, we did not observe signs of slope instability, seepage, or surficial erosion. Most of the slopes have inclinations of less than 2H:1V. In general, the large trees on and around the existing site slopes appear to be standing near-vertical, which potentially indicates little to no slope movement. There is evidence of runoff down the existing access roads, but it is not causing deeper erosion runnels or surficial slumps on or along the roads.

Soil Boring Results

Table 1 provides a summary of the soil boring results, in the general order we encountered the strata. Please refer to the Log of Boring sheets attached to this letter for additional details. The attached Descriptive Terminology of Soil sheet includes definitions of abbreviations used in Table 1.

Table 1. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Topsoil/ topsoil fill	SP-SM, SM	---	▪ Predominantly SM. ▪ Dark brown to black. ▪ Thicknesses at boring locations varied from about 1 to 6 1/2 feet. ▪ Slightly organic. ▪ Trace gravel. ▪ Moisture condition generally moist.
Fill	SP-SM	6 BPF	▪ Only encountered in Boring ST-12. ▪ General penetration resistance of 6 BPF. ▪ Moisture condition generally moist. ▪ Thickness at boring location of 2 1/2 feet. ▪ Trace organics. ▪ Trace gravel. ▪ Brown to dark brown.
Alluvial	SP ,SP-SM, SM	2 to 36 BPF	▪ General penetration resistance of 4 to 20 BPF; very loose to medium dense. ▪ Moisture condition generally moist to wet. ▪ Variable quantities of gravel.

*Abbreviations defined in the attached Descriptive Terminology of Soil sheet.

The boring logs show the results of laboratory testing we performed, next to the tested sample depth. Lab testing was performed in general accordance with ASTM Standards.

Groundwater

Table 2 summarizes the depths where we observed groundwater; the attached Log of Boring sheets also include this information and additional details. Additionally, we monitored the piezometers installed in Borings ST-13, ST-14, and ST-15 after installation and after rain events.

Table 2. Groundwater Elevation Summary

Boring	Existing Ground Elevation (ft)	Date Measured	Depth to Groundwater[2] (ft)	GW Elevation[2] (ft)	Notes
ST-4	763.8	9/19/2019	19.5	744.3	Drilled[3]
ST-12	814.0	6/30/2021	NE	NE	Drilled
ST-13	780.39	7/1/2021	34.5	745.89	Drilled
(Piezo)		7/7/2021	35.48	744.91	Measured[4]
		7/13/2021	35.51	744.88	Measured
		7/15/2021	35.52	744.87	Measured
		7/19/2021	35.5	744.89	Measured
ST-14	824.86	6/30/2021	NE	<775.36	Drilled
(Piezo)		7/7/2021	49.26	775.6[1]	Measured
		7/13/2021	NE	<775.36	Measured
		7/15/2021	NE	<775.36	Measured
		7/19/2021	NE	<775.36	Measured
ST-15	760.1	7/1/2021	20	740.1	Drilled
(Piezo)		7/7/2021	16.68	743.42	Measured
		7/13/2021	16.80	743.3	Measured
		7/15/2021	16.77	743.33	Measured
		7/19/2021	16.76	743.34	Measured

1. Apparent false reading
2. NE: Not encountered
3. Depth to groundwater measured during drilling the soil boring
4. Depth to groundwater measured days after drilling

It is our opinion that the piezometer installed in Boring ST-14 is dry. We had an apparent reading on July 7, 2021, but it equated to less than 1/2-inch of water and appears to be a remnant of the piezometer construction because the piezometer readings after the July 7, 2021 reading did not encounter groundwater. Although this piezometer is dry, it provides us information that the groundwater level has a flatter gradient as the existing slope increases (rises) up to the east.

Soil Properties for Slope Stability and Seepage Analyses

We estimated the strength (effective peak friction angle) and hydraulic conductivity properties of the soils based on the results of the SPT borings, laboratory testing, empirical correlations, and geotechnical data from similar projects. The strength and hydraulic properties used in the analyses are presented in Tables 3 and 4, respectively.

Table 3. Shear Strength Properties of Soil

Formation	Unit Weight (pcf)	Effective Strength Parameters	
		Friction Angle[1] (deg)	Cohesion (psf)
Silty sand fill	120	32	0
Silty sand	110	30	0
Poorly graded Sand	120	34	0

[1] Estimated based on Figure 7 of the NAVFAC DM 7.01.

Table 4. Hydraulic Conductivity Properties of Soil

Formation	K_v (ft/day)	K_h[1] (ft/day)	K_v/K_h
Silty sand fill	0.5	1	0.5
Silty Sand	0.5	1	0.5
Poorly graded Sand	5	10	0.5

[1] Estimated based on Figure 2.11 of "Correlations of Soil and Rock Properties in Geotechnical Engineering" by Ameratunga, Sivakugan and Das (2016).

Slope Stability and Seepage Analyses Discussion

We developed the slope stability and seepage analysis computer models by overlaying the soil profiles interpreted from SPT borings along the sections on the topographic cross-sections provided to us. Further, we assigned the strength and hydraulic conductivity properties to each soil layer. The two cross-sections (designated as Sections A-A' and B-B') through the stormwater ponds and associated slopes are shown on the attached soil boring location sketch.

We performed the finite element seepage analyses with the Seep/W component of the GeoStudio, Version 2021.3, software suite to analyze seepage and pore-water pressures based on the known hydraulic boundary conditions. We estimated the steady-state groundwater based on the piezometric readings. For the transient seepage analysis, we specified time-total head functions based on the design high water levels in the ponds and Riley Creek. The results of the seepage analyses were incorporated into the slope stability models to calculate factor-of-safety values for steady-state and transient seepage conditions.

- Based on assumptions from Alliant and requirements from the State regulations, the water levels in the ponds will remain at the high water elevations (El. 762.7 for lower pond and El. 809.5 for upper pond) for approximately 12 hours and will recede to the bottom of the pond elevation in 60 hours (48 hours of drawdown).

- It will take 10 to 15 days to recede the seepage from the bottom of the pond to the groundwater through the soils below the pond.

- The water level in Riley Creek will be at El. 737.25 (100-year flood level) at least for the duration of high water levels in the ponds.

We performed the slope stability analyses using the Slope/W component of the GeoStudio, Version 2021.3, software suite. Slope/W is a limit equilibrium software that performs a search for the critical slip surface, a surface with the lowest factor of safety, for the combination of slope geometry, groundwater conditions, material parameters, and subsurface conditions. The minimum safety factor against instability is reported. Slope stability analyses were performed based on steady-state groundwater flow conditions estimated from the piezometric data and the transient flow conditions defined by the time-total head functions as stated above.

We analyzed the slopes to meet or exceed an allowable factor of safety of at least 1.5, which is considered a standard design factor of safety for cut, fill, and natural slopes.

Seepage Analyses Results

Based on the seepage analysis results, we found no significant groundwater mounding below the ponds. However, a rise in groundwater near the toe of the slope is expected from a simultaneous rise in water level in Riley Creek. Graphical results of the selected seepage analyses are attached.

Slope Stability Analyses Results

The results of our stability analyses indicate the factor-of-safety of the existing and proposed slopes exceeded the minimum target factor-of-safety values for both steady-state and transient groundwater flow conditions. Graphical results of the selected stability analyses are attached.

Conclusions

Based on our field exploration, we encountered sandy alluvial soils common to this area. Additionally, the groundwater monitoring completed in the piezometers showed steady groundwater levels. We did not observe signs of existing slope instability or seepage during our site reconnaissance.

Based on our soil information and slope stability analyses, the proposed cut and fill slopes meet and/or exceed the recommended factor of safety of 1.5. We assume that a Sediment and Erosion Control Plan has been submitted to the RPBCWD for protecting the planned 3H:1V slopes during construction and during initial planting/seeding to reduce the potential for surficial erosion.

Based on our analyses, we do not expect significant variation in the groundwater flow pattern, due to ponding of water in the infiltration basins, that could affect the stability of the slope or the ponds. Additionally, the seepage models indicated no significant groundwater mounding below the ponds.

Procedures

We drilled the penetration test borings with an all-terrain vehicle-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples at 2 1/2- or 5-foot intervals in general accordance with ASTM D1586. The boring logs show the actual sample intervals and corresponding depths.

We sealed penetration test boreholes meeting the Minnesota Department of Health (MDH) Environmental Borehole criteria with an MDH-approved grout. We will forward the sealing records for those boreholes to the Minnesota Department of Health Well Management Section.

Attached are the Log of Boring sheets for our penetration test borings. The logs identify and describe the penetrated geologic materials, and present the results of penetration resistance and other in-situ tests performed. We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The Appendix includes a chart explaining the classification system we used.

Qualifications

We developed our evaluation and recommendations from a limited amount of site information. Variations in site conditions may not be revealed until performing additional exploration work or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may reevaluate our recommendations. Such variations could increase construction costs, and we recommend including a contingency to accommodate them.

Continuity of Professional Responsibility

We based this report on a limited amount of information, and we made a number of assumptions to help us develop our recommendations. We should be retained to review the geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

General

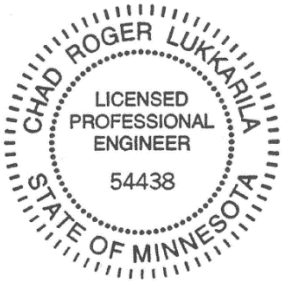
In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

To have questions answered or schedule a time to meet and discuss our approach to this project further, please contact Chad Lukkarila at 952.995.2322 (clukkarila@braunintertec.com) or Gregg Jandro at 952.995.2270 (gjandro@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION

Professional 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.



Chad R. Lukkarila, PE
Group Manager, Senior Engineer
License Number: 54438
July 22, 2021

Bryan J. Ripp, PE, CFM
Senior Engineer

Gregg R. Jandro, PE, PG
Vice President, Principal Engineer

Attachments:
Soil Boring Location Sketch
Log of Boring Sheets ST-12 through ST-15
Descriptive Terminology of Soil
Cross-Section A-A' Seepage and Stability Analyses
Cross-Section B-B' Seepage and Stability Analyses

A——A' EXISTING AND FINAL GRADE PROFILE LOCATION

DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

DENOTES APPROXIMATE LOCATION OF PREVIOUSLY PERFORMED SOIL BORING

75' 0 150'

SCALE: 1"= 150'

BRAUN INTERTEC
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Minneapolis, MN 55438
952.995.2000
braunintertec.com

Drawing Information

Project No:	B2105970
Drawing No:	B2105970
Drawn By:	JAG
Date Drawn:	6/29/21
Checked By:	CL
Last Modified:	7/12/21

Project Information

Noble Hill Development

9955 Spring Road

Eden Prairie, Minnesota

Existing and Final Grade Profile Overview

F:\2021\B2105970\CAD\B2105970.dwg,Profile Overview,7/12/2021 2:30:55 PM

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2105970
Geotechnical Evaluation
Noble Hill Development - Eden Prairie
9955 Spring Road
Eden Prairie, Minnesota

BORING: **ST-12**

LOCATION: See attached sketch

NORTHING: 112305 EASTING: 475878

DRILLER: C. Gorman | LOGGED BY: C. Lukkarila | START DATE: 06/30/21 | END DATE: 06/30/21

SURFACE ELEVATION: 814.0 ft | RIG: 7504 | METHOD: 3 1/4" HSA | SURFACING: Soil | WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
812.5		SILTY SAND (SM), fine to medium-grained, trace roots, black, moist (TOPSOIL FILL)					
1.5		FILL: POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, trace organic, brown, moist		2-3-3 (6) 12"			
810.0							
4.0		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, trace Gravel, brown, moist, loose to medium dense (ALLUVIUM)	5	3-4-5 (9) 18"			
				3-7-7 (14) 18"			
			10	3-5-7 (12) 18"		11	P200=10%
				5-7-8 (15) 18"			
			15	5-7-8 (15) 18"		7	
796.0							
18.0		POORLY GRADED SAND (SP), fine to medium-grained, light brown, moist, medium dense (ALLUVIUM)	20	6-10-13 (23) 18"		5	P200=4%
			25	4-8-10 (18) 18"			
			30	5-9-12 (21) 18"			
783.0							
31.0		END OF BORING Boring then backfilled with bentonite grout					Water not observed while drilling.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2105970
Geotechnical Evaluation
Noble Hill Development - Eden Prairie
9955 Spring Road
Eden Prairie, Minnesota

BORING: **ST-13**
LOCATION: See attached sketch
NORTHING: 11569 EASTING: 475225
DRILLER: C. Gorman LOGGED BY: C. Lukkarila START DATE: 07/01/21 END DATE: 07/01/21
SURFACE ELEVATION: 780.4 ft RIG: 7504 METHOD: 3 1/4" HSA SURFACING: Soil WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
779.6		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace roots, dark brown, moist (TOPSOIL)					
0.8		SILTY SAND (SM), fine to medium-grained, trace Gravel, brown to dark brown, moist, loose (ALLUVIUM)		1-2-2 (4) 10"			
			5	4-2-1 (3) 12"			
				3-4-4 (8) 18"		15	P200=12%
771.4							
9.0		POORLY GRADED SAND (SP), fine to medium-grained, light brown, moist to wet, loose to dense (ALLUVIUM)	10	4-4-5 (9) 18"			
				3-6-7 (13) 18"			
			15	4-6-7 (13) 18"		4	
			20	5-6-9 (15) 18"			
			25	3-5-7 (12) 18"			
			30	4-12-14 (26) 18"		5	P200=5%

Continued on next page

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2105970
Geotechnical Evaluation
Noble Hill Development - Eden Prairie
9955 Spring Road
Eden Prairie, Minnesota

BORING: **ST-13**

LOCATION: See attached sketch

NORTHING: 11569 EASTING: 475225

DRILLER: C. Gorman | LOGGED BY: C. Lukkarila | START DATE: 07/01/21 | END DATE: 07/01/21

SURFACE ELEVATION: 780.4 ft | RIG: 7504 | METHOD: 3 1/4" HSA | SURFACING: Soil | WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
	▽	POORLY GRADED SAND (SP), fine to medium-grained, light brown, moist to wet, loose to dense (ALLUVIUM) *Wet at 35 feet*	35	4-10-12 (22) 18"			
			40	5-16-20 (36) 18"			
			45	5-10-12 (22) 18"			1 inch piezometer installed to 45 feet Water observed at 34.5 feet while drilling.
734.4 46.0		END OF BORING					
			50				
			55				
			60				
			65				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2105970
Geotechnical Evaluation
Noble Hill Development - Eden Prairie
9955 Spring Road
Eden Prairie, Minnesota

BORING: **ST-14**

LOCATION: See attached sketch

NORTHING: 111405 EASTING: 475547

DRILLER: C. Gorman | LOGGED BY: C. Lukkarila | START DATE: 06/30/21 | END DATE: 06/30/21

SURFACE ELEVATION: 824.9 ft | RIG: 7504 | METHOD: 3 1/4" HSA | SURFACING: Soil | WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
823.7		SILTY SAND (SM), trace roots, dark brown, moist (TOPSOIL)					
1.2		SILTY SAND (SM), fine to medium-grained, trace Gravel, dark brown, moist, loose (ALLUVIUM)		2-2-2 (4) 18"			
			5	2-2-2 (4) 18"		13	
		Gravel lenses at 7 1/2 feet		2-3-3 (6) 18"			
			10	2-3-3 (6) 18"		15	P200=15%
813.4							
11.5		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, moist, medium dense (ALLUVIUM)		7-9-9 (18) 18"			
			15	11-10-11 (21) 10"			
806.9							
18.0		POORLY GRADED SAND (SP), fine to medium-grained, light brown, moist, medium dense to dense (ALLUVIUM)					
			20	4-11-15 (26) 18"			
			25	4-10-12 (22) 18"		5	
			30	5-10-13 (23) 18"			

Continued on next page

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2105970
Geotechnical Evaluation
Noble Hill Development - Eden Prairie
9955 Spring Road
Eden Prairie, Minnesota

BORING: **ST-14**

LOCATION: See attached sketch

NORTHING: 111405 EASTING: 475547

DRILLER: C. Gorman | LOGGED BY: C. Lukkarila | START DATE: 06/30/21 | END DATE: 06/30/21

SURFACE ELEVATION: 824.9 ft | RIG: 7504 | METHOD: 3 1/4" HSA | SURFACING: Soil | WEATHER: Sunny

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		POORLY GRADED SAND (SP), fine to medium-grained, light brown, moist, medium dense to dense (ALLUVIUM)	35	4-6-7 (13) 18"			
			40	4-11-16 (27) 18"			
		Trace Gravel at 45 feet	45	4-10-12 (22) 18"			1 inch piezometer installed to 49 1/2 feet
775.4 49.5		END OF BORING	50	4-16-18 (34) 18"			Water not observed while drilling.
			55				
			60				
			65				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2105970
Geotechnical Evaluation
Noble Hill Development - Eden Prairie
9955 Spring Road
Eden Prairie, Minnesota

BORING: **ST-15**

LOCATION: See attached sketch

NORTHING: 111533 EASTING: 475041

DRILLER: C. Gorman | LOGGED BY: C. Lukkarila | START DATE: 07/01/21 | END DATE: 07/01/21

SURFACE ELEVATION: 760.1 ft | RIG: 7504 | METHOD: 3 1/4" HSA | SURFACING: | WEATHER:

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		SILTY SAND (SM), fine to medium-grained, slightly organic, trace roots, trace Gravel, dark brown to black (TOPSOIL)		1-1-2 (3) 10"			
			5	1-1-2 (3) 10"		15	OC=3%
753.6							
6.5		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, dark brown, moist, loose (ALLUVIUM)		1-2-2 (4) 18"			
751.1							
9.0		SILTY SAND (SM), fine to medium-grained, trace Gravel, trace Clay, dark brown, moist, loose (ALLUVIUM)	10	4-5-5 (10) 18"		16	P200=26%
				3-5-5 (10) 18"			
			15	4-5-5 (10) 14"		16	DD=102 pcf
741.1							
19.0	▽	POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, brown, moist, very loose (ALLUVIUM)	20	2-1-1 (2) 18"			
			25	2-2-2 (4) 18"		21	P200=8%
			30	2-2-1 (3) 18"			1 inch piezometer installed to 30 feet
729.1							
31.0		END OF BORING					Water observed at 20.0 feet while drilling.

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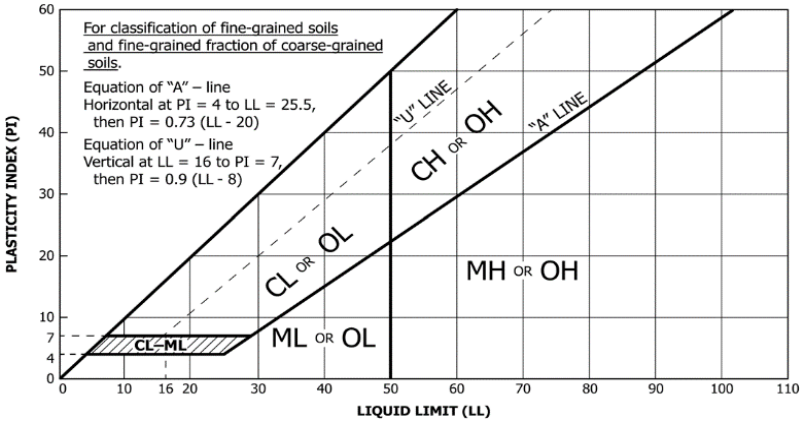
Descriptive Terminology of Soil

Based on Standards ASTM D2487/2488
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines[C])	$C_u \geq 4$ and $1 \leq C_c \leq 3$[D]	GW	Well-graded gravel[E]
			$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$)[D]	GP	Poorly graded gravel[E]
		Gravels with Fines (More than 12% fines[C])	Fines classify as ML or MH	GM	Silty gravel[E F G]
			Fines Classify as CL or CH	GC	Clayey gravel[E F G]
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines[H])	$C_u \geq 6$ and $1 \leq C_c \leq 3$[D]	SW	Well-graded sand[I]
			$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$)[D]	SP	Poorly graded sand[I]
		Sands with Fines (More than 12% fines[H])	Fines classify as ML or MH	SM	Silty sand[F G I]
			Fines classify as CL or CH	SC	Clayey sand[F G I]
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean clay[K L M]
			PI < 4 or plots below "A" line[J]	ML	Silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OL	Organic clay[K L M N] / Organic silt[K L M O]
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay[K L M]
			PI plots below "A" line	MH	Elastic silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OH	Organic clay[K L M P] / Organic silt[K L M Q]
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

A. Based on the material passing the 3-inch (75-mm) sieve.
B. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
C. Gravels with 5 to 12% fines require dual symbols:
   GW-GM well-graded gravel with silt
   GW-GC well-graded gravel with clay
   GP-GM poorly graded gravel with silt
   GP-GC poorly graded gravel with clay
D. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
E. If soil contains ≥ 15% sand, add "with sand" to group name.
F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
G. If fines are organic, add "with organic fines" to group name.
H. Sands with 5 to 12% fines require dual symbols:
   SW-SM well-graded sand with silt
   SW-SC well-graded sand with clay
   SP-SM poorly graded sand with silt
   SP-SC poorly graded sand with clay
I. If soil contains ≥ 15% gravel, add "with gravel" to group name.
J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
L. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
M. If soil contains ≥ 30% plus No. 200 predominantly gravel, add "gravelly" to group name.
N. PI ≥ 4 and plots on or above "A" line.
O. PI < 4 or plots below "A" line.
P. PI plots on or above "A" line.
Q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	**q_p**	Pocket penetrometer strength, tsf
WD	Wet density, pcf	**q_U**	Unconfined compression test, tsf
P200	% Passing #200 sieve	**LL**	Liquid limit
MC	Moisture content, %	**PL**	Plastic limit
OC	Organic content, %	**PI**	Plasticity index

Particle Size Identification

Boulders..... over 12"
Cobbles..... 3" to 12"
Gravel
  Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
  Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
Sand
  Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
  Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
  Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
Silt..... No. 200 (0.075 mm) to .005 mm
Clay..... < .005 mm

Relative Proportions[L, M]

trace..... 0 to 5%
little..... 6 to 14%
with..... ≥ 15%

Inclusion Thicknesses

lens..... 0 to 1/8"
seam..... 1/8" to 1"
layer..... over 1"

Apparent Relative Density of Cohesionless Soils

Very loose ..... 0 to 4 BPF
Loose ..... 5 to 10 BPF
Medium dense..... 11 to 30 BPF
Dense..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils	Blows Per Foot	Approximate Unconfined Compressive Strength
Very soft	0 to 1 BPF	< 0.25 tsf
Soft	2 to 4 BPF	0.25 to 0.5 tsf
Medium	5 to 8 BPF	0.5 to 1 tsf
Stiff	9 to 15 BPF	1 to 2 tsf
Very Stiff	16 to 30 BPF	2 to 4 tsf
Hard	over 30 BPF	> 4 tsf

Moisture Content:

Dry: Absence of moisture, dusty, dry to the touch.
Moist: Damp but no visible water.
Wet: Visible free water, usually soil is below water table.

Drilling Notes:

Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

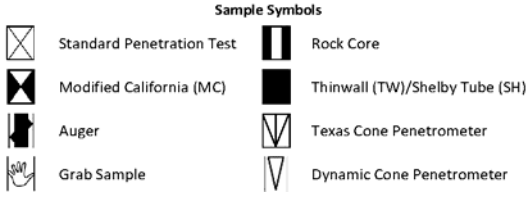
Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

Water Level: Indicates the water level measured by the drillers either while drilling (▽), at the end of drilling (▼), or at some time after drilling (▼).

Sample Symbols

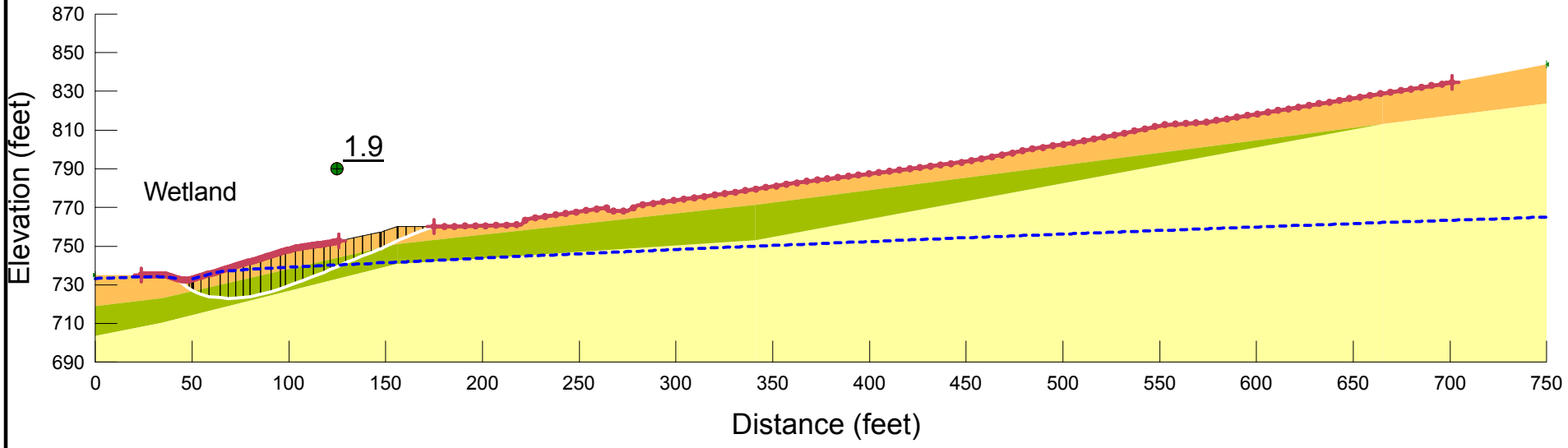


5/2021

Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: 1A. Regular Groundwater Level
Kind: SLOPE/W
Analysis Type: Spencer
Checked By: Chad Lukkarila

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1. Silty Sand	Mohr-Coulomb	110	0	30
	2. Sand/Silty Sand	Mohr-Coulomb	110	0	30
	3. Sand	Mohr-Coulomb	120	0	34

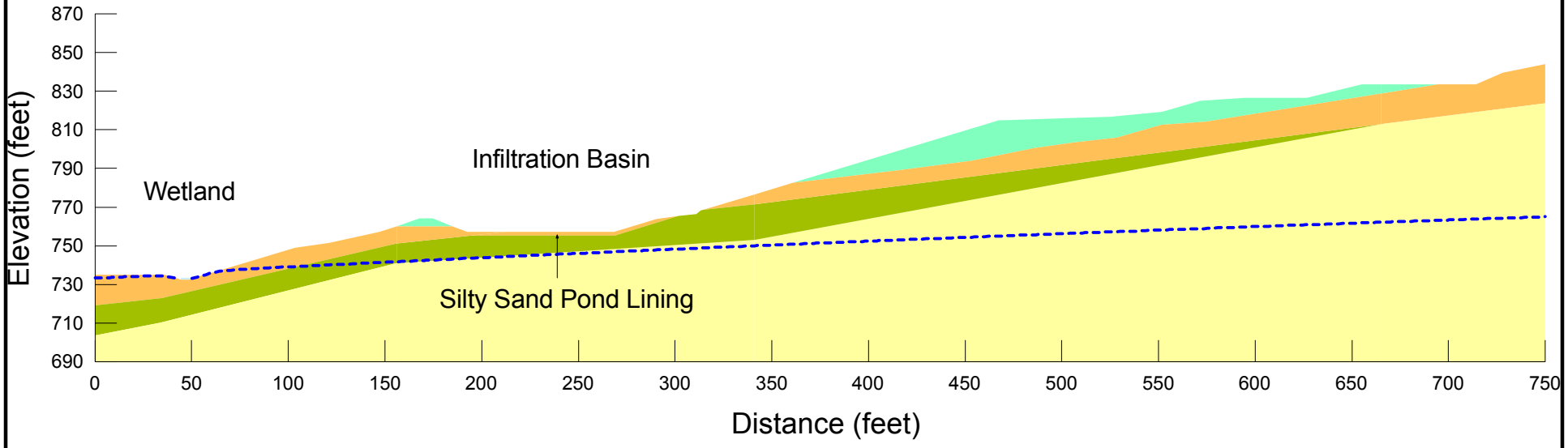


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: A. Steady-State Seepage
Kind: SEEP/W
Analysis Type: Steady-State
Checked By: Chad Lukkarila

Section A-A'

Color	Name	Hydraulic Material Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio
	1. Silty Sand	Saturated / Unsaturated	Silty Sand	Silty Sand	0.5
	2. Sand/Silty Sand	Saturated / Unsaturated	Sand	Sand	0.5
	3. Sand	Saturated / Unsaturated	Sand	Sand	0.5
	4. Silty Sand Fill	Saturated / Unsaturated	Silty Sand	Silty Sand	0.5

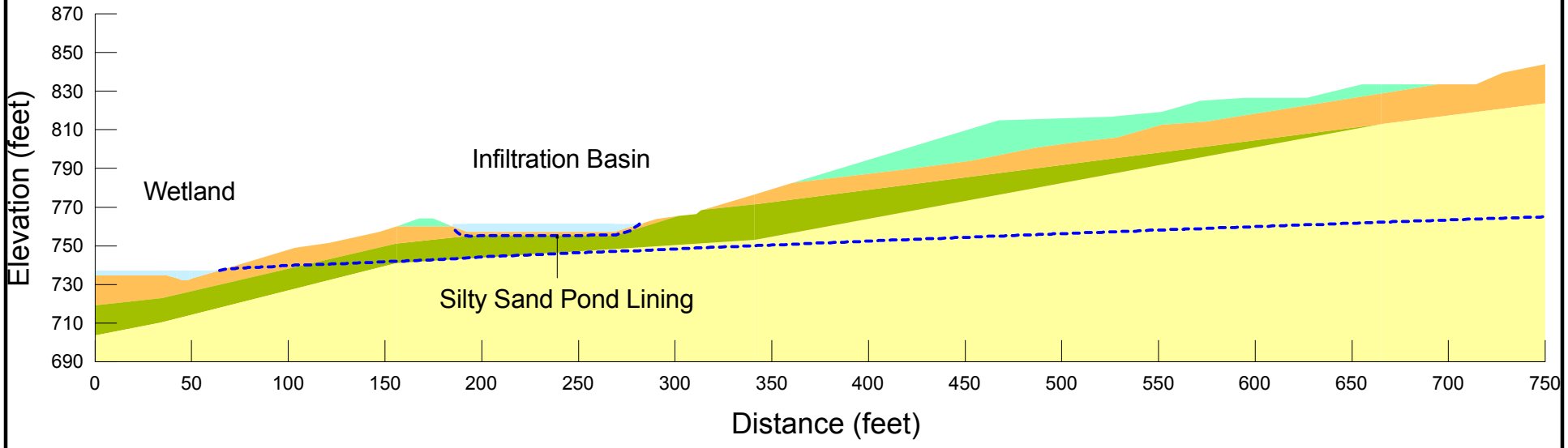


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: B. Transient Seepage
Kind: SEEP/W
Analysis Type: Transient
Checked By: Chad Lukkarila

Section A-A'

Color	Name	Hydraulic Material Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio
	1. Silty Sand	Saturated / Unsaturated	Silty Sand	Silty Sand	0.5
	2. Sand/Silty Sand	Saturated / Unsaturated	Sand	Sand	0.5
	3. Sand	Saturated / Unsaturated	Sand	Sand	0.5
	4. Silty Sand Fill	Saturated / Unsaturated	Silty Sand	Silty Sand	0.5

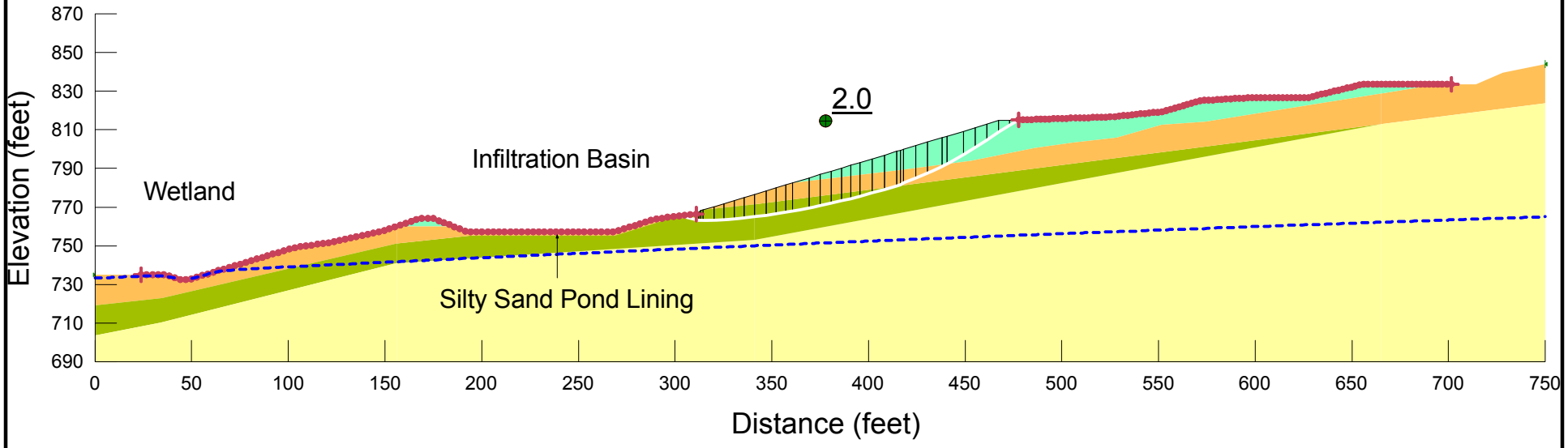


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: 1A. Cut Slope Stability
Kind: SLOPE/W
Analysis Type: Spencer
Checked By: Chad Lukkarila

Section A-A'

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1. Silty Sand	Mohr-Coulomb	110	0	30
	2. Sand/Silty Sand	Mohr-Coulomb	110	0	30
	3. Sand	Mohr-Coulomb	120	0	34
	4. Silty Sand Fill	Mohr-Coulomb	120	0	32

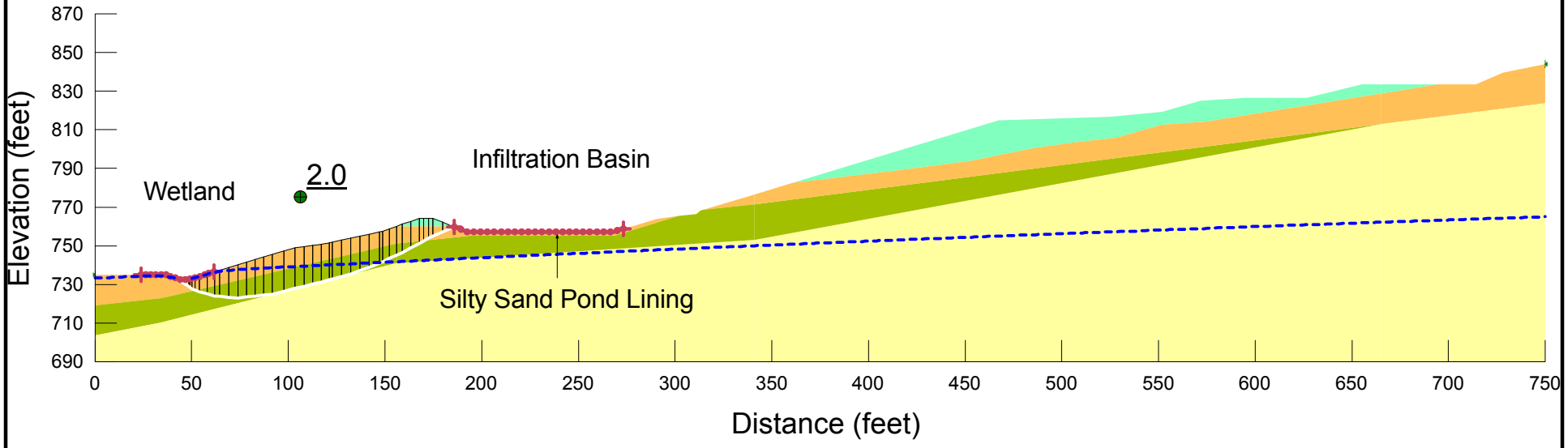


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: 2A. Pond Stability (Dry Pond)
Kind: SLOPE/W
Analysis Type: Spencer
Checked By: Chad Lukkarila

Section A-A'

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1. Silty Sand	Mohr-Coulomb	110	0	30
	2. Sand/Silty Sand	Mohr-Coulomb	110	0	30
	3. Sand	Mohr-Coulomb	120	0	34
	4. Silty Sand Fill	Mohr-Coulomb	120	0	32

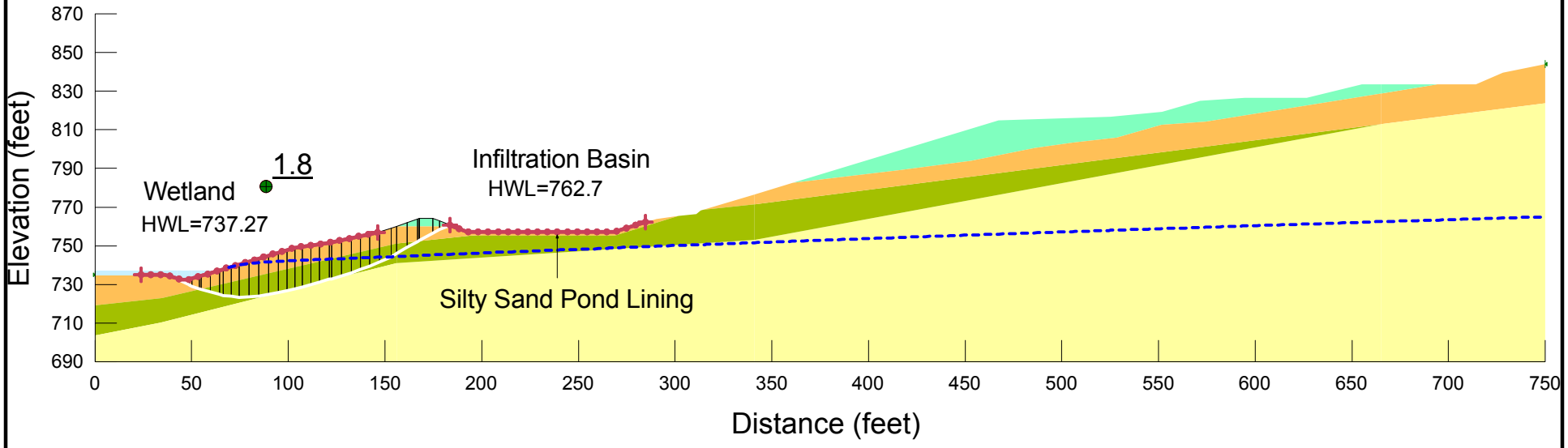


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: 1B. Pond Stability (HWL)
Kind: SLOPE/W
Analysis Type: Spencer
Checked By: Chad Lukkarila

Section A-A'

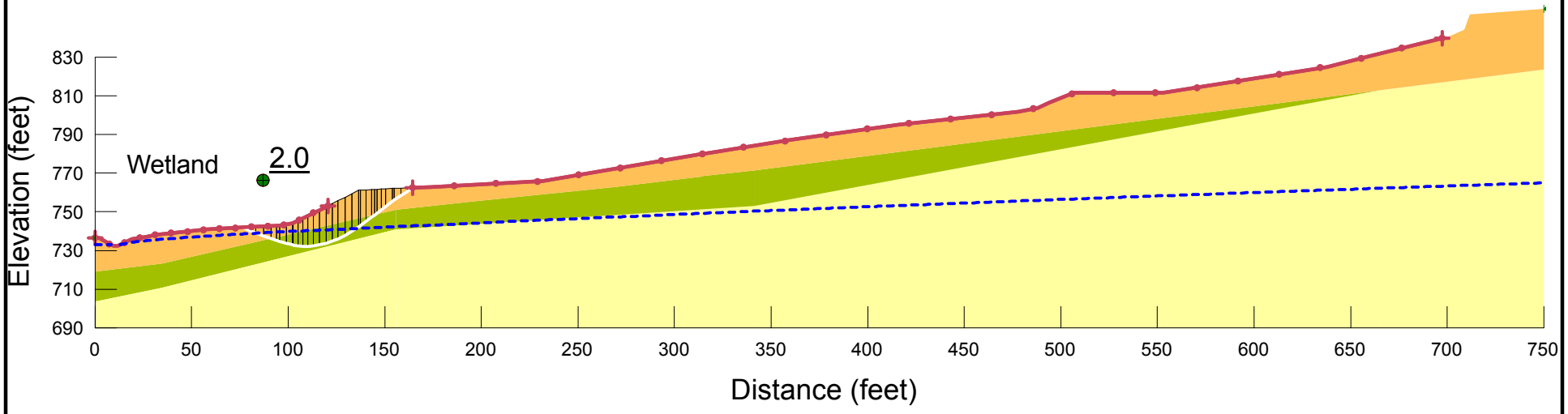
Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1. Silty Sand	Mohr-Coulomb	110	0	30
	2. Sand/Silty Sand	Mohr-Coulomb	110	0	30
	3. Sand	Mohr-Coulomb	120	0	34
	4. Silty Sand Fill	Mohr-Coulomb	120	0	32



Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: 1A. Regular Geoundwater Level
Kind: SLOPE/W
Analysis Type: Spencer
Checked By: Chad Lukkarila

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1. Silty Sand	Mohr-Coulomb	110	0	30
	2. Sand/Silty Sand	Mohr-Coulomb	110	0	30
	3. Sand	Mohr-Coulomb	120	0	34
	4. Silty Sand Fill	Mohr-Coulomb	120	0	32

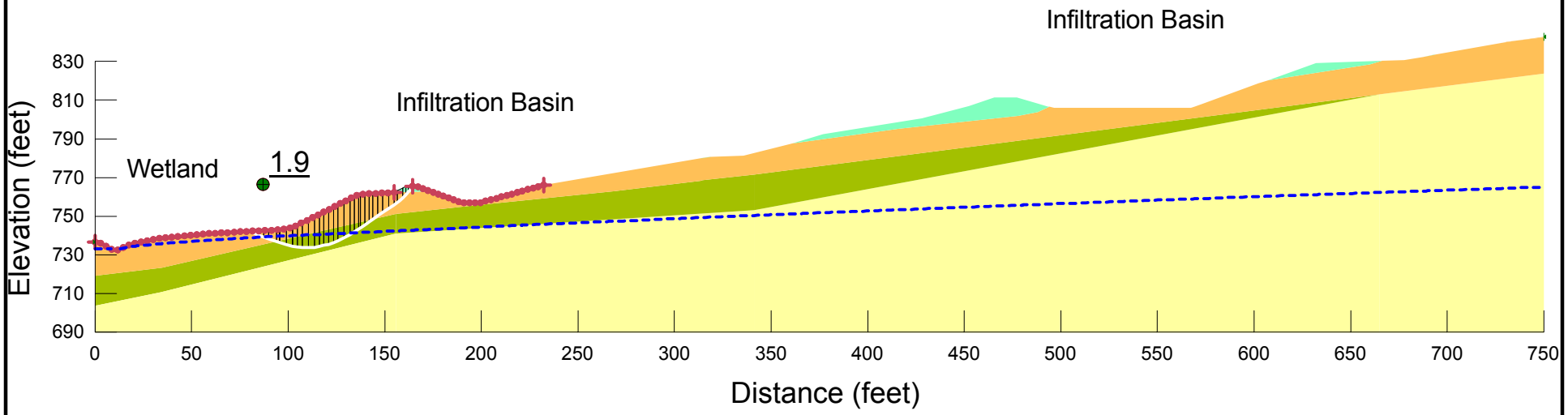


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: 1A. Lower Basin Stability (Dry Pond)
Kind: SLOPE/W
Analysis Type: Spencer
Checked By: Chad Lukkarila

Section B-B'

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1. Silty Sand	Mohr-Coulomb	110	0	30
	2. Sand/Silty Sand	Mohr-Coulomb	110	0	30
	3. Sand	Mohr-Coulomb	120	0	34
	4. Silty Sand Fill	Mohr-Coulomb	120	0	32

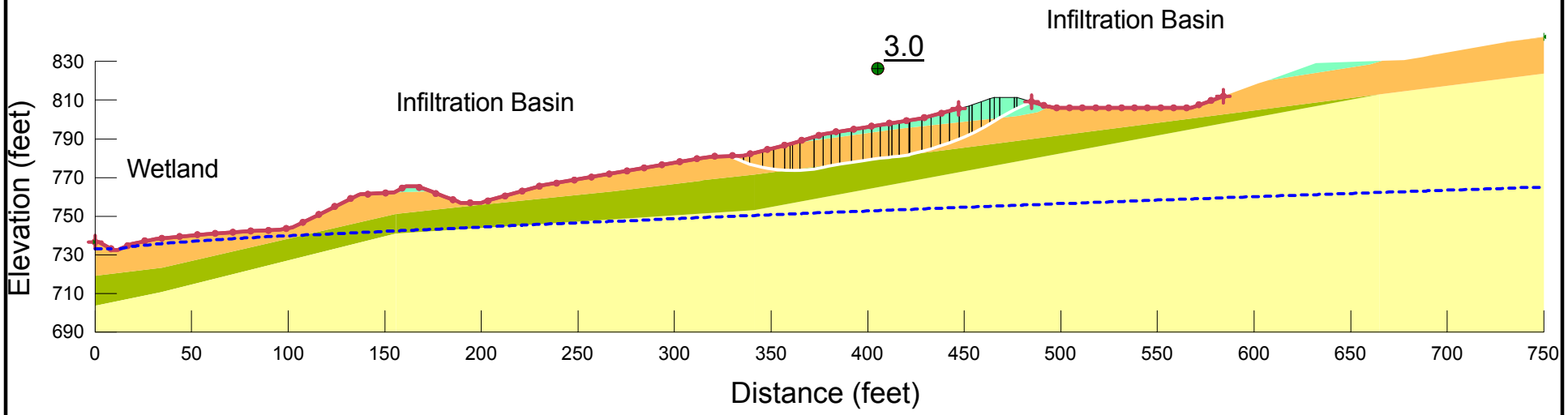


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: 2A. Upper Basin Stability (Dry Pond)
Kind: SLOPE/W
Analysis Type: Spencer
Checked By: Chad Lukkarila

Section B-B'

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1. Silty Sand	Mohr-Coulomb	110	0	30
	2. Sand/Silty Sand	Mohr-Coulomb	110	0	30
	3. Sand	Mohr-Coulomb	120	0	34
	4. Silty Sand Fill	Mohr-Coulomb	120	0	32

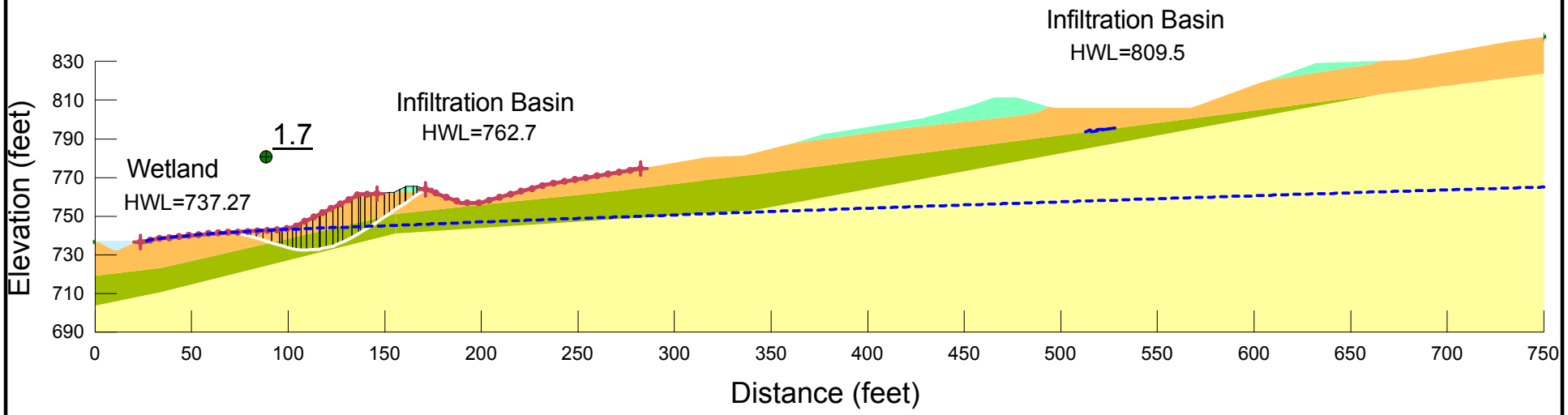


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: 1B. Lower Basin Stability (HWL)
Kind: SLOPE/W
Analysis Type: Spencer
Checked By: Chad Lukkarila

Section B-B'

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1. Silty Sand	Mohr-Coulomb	110	0	30
	2. Sand/Silty Sand	Mohr-Coulomb	110	0	30
	3. Sand	Mohr-Coulomb	120	0	34
	4. Silty Sand Fill	Mohr-Coulomb	120	0	32

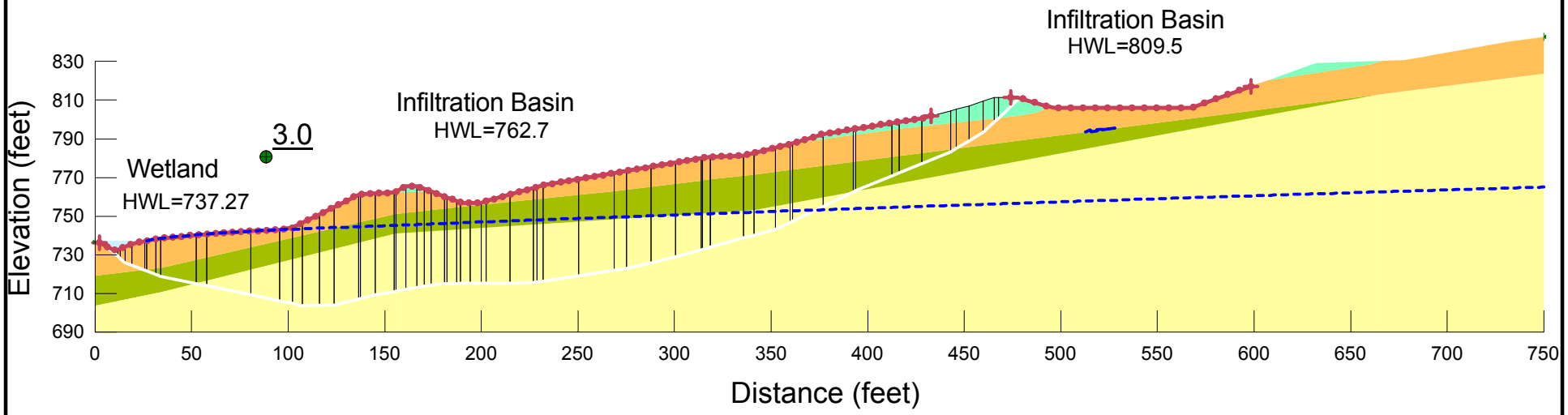


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: 2B. Upper Basin Stability (HWL)
Kind: SLOPE/W
Analysis Type: Spencer
Checked By: Chad Lukkarila

Section B-B'

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1. Silty Sand	Mohr-Coulomb	110	0	30
	2. Sand/Silty Sand	Mohr-Coulomb	110	0	30
	3. Sand	Mohr-Coulomb	120	0	34
	4. Silty Sand Fill	Mohr-Coulomb	120	0	32

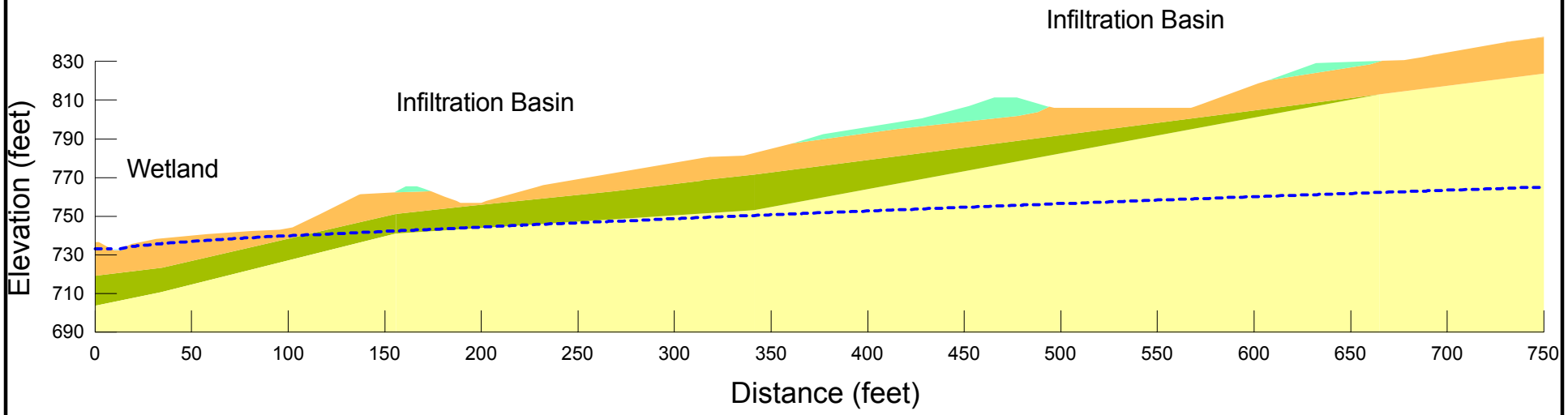


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: A. Steady-State Seepage
Kind: SEEP/W
Analysis Type: Steady-State
Checked By: Chad Lukkarila

Section B-B'

Color	Name	Hydraulic Material Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio	Rotation (°)
	1. Silty Sand	Saturated / Unsaturated	Silty Sand	Silty Sand	0.5	0
	2. Sand/Silty Sand	Saturated / Unsaturated	Sand	Sand	0.5	0
	3. Sand	Saturated / Unsaturated	Sand	Sand	0.5	0
	4. Silty Sand Fill	Saturated / Unsaturated	Silty Sand	Silty Sand	0.5	0

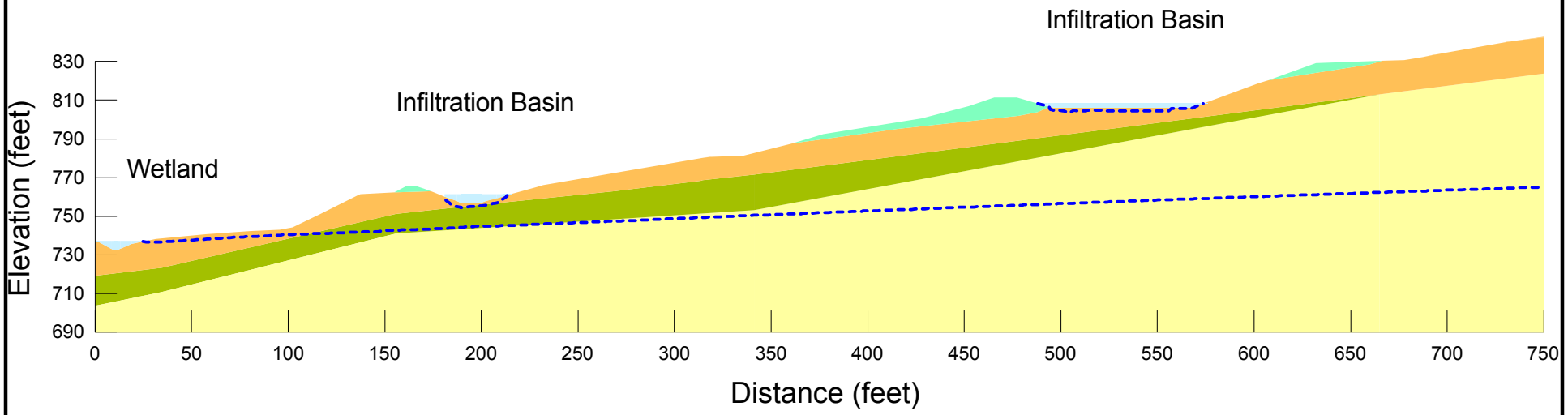


Title: B2105970 - Noble Hill in Eden Prairie
Last Edited By: Rahman, Mohd
Date: 07/20/2021
Effective Stress Analysis

Name: B. Transient Seepage
Kind: SEEP/W
Analysis Type: Transient
Checked By: Chad Lukkarila

Section B-B'

Color	Name	Hydraulic Material Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio	Rotation (°)
	1. Silty Sand	Saturated / Unsaturated	Silty Sand	Silty Sand	0.5	0
	2. Sand/Silty Sand	Saturated / Unsaturated	Sand	Sand	0.5	0
	3. Sand	Saturated / Unsaturated	Sand	Sand	0.5	0
	4. Silty Sand Fill	Saturated / Unsaturated	Silty Sand	Silty Sand	0.5	0



resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: Riley-Purgatory-Bluff Creek Watershed District Board of Managers
From: Jessica Olson and Scott Sobiech, Barr Engineering
Subject: Middle Riley Streambank Stabilization and Bearpath Golf Course Renovation Project – Consider Award of Project
Date: July 30, 2021
Project: 23/27-0053.14 029
c: Terry Jeffery – RPBCWD Interim Administrator

Requested Board Action

It is requested that the RPBCWD Board of Managers:

1) Consider award of the project to Sunram Construction, Inc. at the bid price of $439,582.

2) Authorize the President or interim administrator to sign the Notice of Award, execute the contracts, and sign the Notice to Proceed at the appropriate points in the contracting process.

3) Authorize the interim administrator to execute change orders within 10% of the contract amount.

The Middle Riley Creek stabilization and Bearpath Golf Course Renovation project is located on Riley Creek immediately upstream of Lake Riley, west of Dell Road and north of Riley Lake Road, entirely within Bearpath Golf Course in Eden Prairie, Minnesota. This project was identified in a March 2020 feasibility study for the area with the goal of the project to protect, restore, and enhance water resources while providing a natural stream corridor through the golf course that meets the aesthetic and use goals for Bearpath Golf and Country Club.

The proposed restoration measures include realigning the Middle Riley Creek channel and grading the channel bank and floodplain in portions of the upstream and downstream locations to improve connection to the floodplain and to prevent streambank erosion. In addition, rock riffles, cross vanes, and J-hook vanes will be placed in the channel at key locations to provide grade control and reduce the risk of future erosion. Total buffer area designated for the project is 690,800 square feet, which is 117,700 square feet more than required by strict interpretation of the RPBCWD rules. In addition to the buffer area, nearly 0.6 acres of mono-culture sod will be converted to native prairie vegetation adjacent to the #14 tee box area.

The RPBCWD Board of Managers ordered the Middle Riley Creek stabilization project at the April 2020 regular meeting for the detailed design, preparation of construction documents, and permitting for the recommended project from the feasibility study. The RPBCWD Board of Managers authorized bidding at their July 2021 meeting. Following the Board's authorization, the project was bid in July 2021. An advertisement for bid was circulated in local publications and on Quest Construction Data Network (CDN).

Bids were opened on July 28, 2021 at a virtual bid opening. Two bids were received and are listed below in Table 1.

Table 1. Summary of Bids Received for the Middle Riley Creek Stabilization Project

Bidder	Total Base Bid Entered on the Bid Form[1]
Sunram Construction, Inc.	$439,582
MNL Inc.	$563,387

[1]Engineer's opinion of probable cost was $344,000.

After verifying the bid pricing, Sunram Construction, Inc. was the lowest bidder. As required in the instruction to bidders, the Engineer notified Sunram to submit its bid security in hard-copy wet-signature form. As of the date of this memo, we continue to work with the lowest bidder to verify their qualifications.

The lowest bid is roughly 28% higher than the engineer's opinion of probable construction cost. While there is value in the project's water resource protection for Riley Creek, Lake Riley, and adjacent high value wetlands in the form of buffers, prairie restoration, pollutant reduction, and education opportunities, it appears to be coming at a premium cost. It is our opinion that the premium construction cost is due to the extremely condensed construction window, site restrictions (e.g., vehicle access and parking), and extensive contract coordination required to sequence the work. It is requested that the RPBCWD Board of Managers:

- Consider award of the project to Sunram Construction, Inc. at the bid price of $439,582.
- If a project award is made, we recommend authorizing the:
    - President or interim administrator to sign the Notice of Award, execute the contracts, and sign the Notice to Proceed at the appropriate points in the contracting process.
    - Interim Administrator to execute change orders within 10% of the contract amount.

If the Board of Managers decide to award the project the following would be completed:

- An Authorized Representative signs the Notice of Award to be sent to the successful bidder
- Successful bidder provides the following information:
    - Fully-executed Notice of Award
    - Three fully-executed counterparts of the Form of Agreement
    - Performance and Payment Bond
    - Certificate of Insurance and all other insurance documentation identified in the Contract Documents

- Barr Engineering will coordinate with the successful bidder regarding the construction schedule
- Notice to Proceed is issued in late-August
- Construction begins within 10 days of Notice to Proceed with stream stabilization work being completed by November 15, 2021 and substantial completion by May 15, 2022, and final completion by May 15, 2025.

COOPERATIVE AGREEMENT
Between Bearpath Golf and Country Club and
Riley-Purgatory-Bluff Creek Watershed District

Middle Riley Creek Stabilization Project

DRAFT July 1, 2021

This cooperative agreement is made by and between Bearpath Golf and Country Club, a Minnesota limited partnership (Bearpath) and Riley-Purgatory-Bluff Creek Watershed District, a watershed district created pursuant to Minnesota Statutes chapters 103B and 103D (RPBCWD); to achieve shared water-resource protection and improvement goals through design, construction and maintenance of a stabilization project along Middle Riley Creek on the campus of Bearpath Golf and Country Club (the Bearpath Property),which is owned in fee by Bearpath Golf and Country Club. While this agreement is primarily established for the project described below, it is the intent of both parties to continue a partnership beyond the term of this agreement and work cooperatively in the future to meet the shared goals of the RPBCWD and the Bearpath Property.

Recitals

WHEREAS RPBCWD has an approved water resources management plan pursuant to Minnesota Statutes section 103B.231 (the Plan) that has as a primary goal the improvement of water quality in Riley Creek and in the Riley Creek watershed generally;

WHEREAS the Plan identifies creek restoration and stabilization at Riley Creek as a Proposed Project in the Riley Creek Watershed (Plan, Section 8, Table 8-2);

WHEREAS Bearpath believes that through cooperative work with RPBCWD Bearpath can assist in improving water quality in Riley Creek and the Riley Creek Watershed as well as pursue its goal to improve the quality of the golf course;

WHEREAS Riley Creek is listed on the Minnesota Pollution Control Agency's list of impaired waters for turbidity, aquatic macroinvertebrate bioassessments, fishes bioassessments, and *E. coli*, and the Minnesota River, into which Riley Creek flows, is impaired for nutrients/eutrophication and turbidity;

WHEREAS RPBCWD and Bearpath recognized a mutual opportunity to address streambank erosion, impairments, and golf course impacts by partnering in a project to restore a section of Middle Riley Creek (R3);

WHEREAS at the direction of the RPBCWD board of managers and in collaboration with Bearpath, the RPBCWD engineer studied the feasibility of providing a biologically diverse stream reach that significantly reduces streambank erosion and sediment and phosphorus loading to Riley Creek and downstream waterbodies; improves water quality, and improves natural stream habitat for aquatic organisms along 815 feet of Riley Creek Reach R3 (the Project); the engineer estimated that the Project would result in 0.2 acres of in-channel habitat improvements and 0.5 acres of riparian habitat improvements; reduce TSS by 16,640 lbs/yr and reduce TP by 8.3 lbs/yr; restore 815 feet of reach R3; and generally would help protect Riley Creek from erosion by moving the stream away from the banks;

WHEREAS the Project will increase public awareness of erosion issues and water quality of Riley Creek due to the accessible location of the project for Bearpath members; stabilize the slope failure area on the Hole 16 green and the bank erosion that is exposing golf course infrastructure next to the Hole #13 tee box; provide a natural stream corridor and additional and improved habitat by increasing stream length; provide greater stream depth variability and other in-stream enhancements that will potentially allow more opportunities for macroinvertebrates and fish to use this reach of Riley Creek; and improve long-term stability of the reach of Riley Creek that passes through the Bearpath Property;

WHEREAS on April 1, 2020, the RPBCWD board of managers conducted a duly-noticed public hearing on and ordered the Project in accordance with Minnesota Statutes section 103B.251;

WHEREAS Bearpath has committed to contribute $43,500 in cash and other in kind contributions to for a total equivalent value not to exceed $82,500 except as provided in paragraph 3.C; RPBCWD will cover the remaining costs of the Project, the total estimated cost of which is $510,000 through its ad valorem property tax levy to implement its watershed management plan pursuant to Minnesota Statutes Section 103B.21, 77% of which is paid by RPBCWD property taxpayers in Hennepin County and 23% is paid by RPBCWD property taxpayers in Carver County;

WHEREAS the Project will be constructed entirely on the Bearpath Property in the area depicted and labeled "Construction Limits" in Exhibit B, attached to and incorporated into this agreement;

WHEREAS Bearpath will own and maintain the Project when it is completed;

WHEREAS Bearpath and RPBCWD acknowledge that their ability to achieve Project objectives depends on each party satisfactorily and promptly performing individual obligations and working cooperatively with the other party to this agreement; and

WHEREAS Minnesota Statutes §103D.335, subdivisions 7 and 21 authorize RPBCWD to enter this cooperative agreement with Bearpath.

Agreement

NOW, THEREFORE Bearpath and RPBCWD enter into this agreement to document their understanding as to the scope of the Project, affirm their commitments as to the responsibilities of and tasks to be undertaken by each party, grant and assign the necessary land-use rights, and facilitate communication and cooperation to successfully complete the Project.

1 Organization and Relationship of the Parties

A. The RPBCWD administrator and Bearpath's Executive Golfer, Kevin Cashman, will serve as project leads and the principal contacts for their respective organizations for the Project, charged to conduct the day-to-day activities necessary to ensure that the Project is completed in accordance with the terms of this agreement.

B. The project leads will coordinate and communicate informally and formally to timely address any issues of concern to ensure the successful completion of the Project.

C. Bearpath and RPBCWD enter this agreement with the joint purposes of improving water quality and stabilizing and reducing erosion in Riley Creek while at the same time allowing Bearpath to pursue its goal of maintaining and improving the quality of the Bearpath golf course; maintaining its designation as a Jack Nicklaus Signature golf course; and maintaining its status as a top quality golf course by incorporating the following characteristics into any design: challenge, aesthetics, conditioning, distinctiveness, character, shot options, and layout variety. Only contractual remedies are available for the failure of a party to fulfill the terms of this agreement.

D. Notwithstanding the foregoing or any other provision of this agreement, Bearpath's and RPBCWD's obligations and rights under paragraphs 2E, 3B, 5C, 6A and 6C of the agreement will survive the termination of the agreement.

E. This agreement creates no right in and waives no immunity, defense or liability limitation with respect to any non-party.

2 Project Design, Construction and Maintenance

A. The Project is further defined for purposes of this cooperative agreement as the work specified in the designs that RPBCWD generated with its engineer, and plans and specifications attached to and incorporated into this agreement as Exhibit C. The design provides that Bearpath may coordinate its design and relocation of Hole #13 tee boxes and #12 green area of the golf course designated as Phase I on the plans in Exhibit C. RPBCWD work in the Project is designated as Phase II on the plans in Exhibit C.

B. The Project will include, after completion of construction, assessment of the effectiveness of the Project by the parties and development by the RPBCWD engineer of specific written schedules, procedures and protocols for routine and major operation and maintenance of the Project. This agreement also provides terms and conditions for post-construction operation and maintenance of the Project.

C. **Construction contracting**. RPBCWD will solicit bids in accordance with applicable state and federal law, and will contract with the bidder it determines is the lowest-cost responsible and responsive bidder. The contract for construction will:

   i. Require the contractor to indemnify, defend and hold harmless Bearpath, its officers, employees and agents, from any and all actions, costs, damages and liabilities of any nature arising from the contractor's negligent or otherwise wrongful act or omission, or breach of a specific contractual duty, or a subcontractor's negligent or otherwise

wrongful act or omission, or breach of a specific contractual duty owed by the contractor to RPBCWD;

ii. Require that the contractor for the Project name Bearpath as an additional insured for general liability with primary and noncontributory coverage for general liability and provide a certificate showing same prior to construction;

iii. Extend the contractor's warranties under the agreement to Bearpath;

iv. Require the contractor to determine and obtain all permits and other regulatory approvals applicable to the Project on behalf of RPBCWD and Bearpath.

D. **Construction**.

i. RPBCWD, or the RPBCWD engineer on RPBCWD's behalf, will provide construction oversight for and oversee implementation of the Project. RPBCWD may adjust the plans and specifications for the work during implementation, as long as the revised plans do not require RPBCWD to exceed the scope of the rights granted under this agreement, and such changes are made in coordination with Bearpath to ensure compatibility of the Project with Bearpath's continued use and operation of the Bearpath Property for its customary and intended purposes. Project construction is planned to commence on or about September 1, 2021, with site restoration and planting to take place in spring 2022 before the golf season commences.

ii. RPBCWD will coordinate construction activities with Bearpath's construction to relocate Hole #13 tee boxes and modifying Hole #12 tee, fairway and green areas.

iii. RPBCWD will timely engage and consult Bearpath on material changes to the Project plans and specifications.

iv. Until substantial completion of construction of the Project for the purposes intended, if RPBCWD, in its judgment, should decide that the Project is infeasible, RPBCWD, at its option, may declare the agreement rescinded and annulled. If RPBCWD so declares, all obligations herein, performed or not, will be voided, except that RPBCWD will return the Bearpath Property materially to its prior condition or to a condition agreed to by Bearpath.

v. RPBCWD will notify Bearpath within five business days of receipt of a certification of substantial completion from the contractor contracted to construct the Project.

vi. Within 90 days of certification of substantial completion or termination of this agreement, RPBCWD will ensure that the Project site is substantially restored to a condition consistent with the use of the Property for its intended purposes as approved by Bearpath, and consistent with the ordinary time required to re-establish vegetation.

E. **Maintenance**.

i. After completion of the three-year vegetation establishment period for the Project, Bearpath will provide, at its sole expense ongoing routine maintenance of the Project. RPBCWD will provide, at its sole expense, ongoing technical assistance and support for maintenance of the Project, and conduct specialized maintenance and repairs.

ii. The Maintenance Plan in Exhibit D delineates necessary routine maintenance of the Project, as well as roles and responsibilities supplemental to and consistent with the

terms of this agreement for implementation of maintenance work for the Streambank Stabilization Easement Areas and Buffer Maintenance Areas shown on Exhibit B.

iii. RPBCWD may conduct monitoring of the performance of the Project.

3 Costs

A. Except for reimbursement as provided in paragraph 3C herein, each party will be responsible for the costs of performance of its obligations and exercise of its rights under this agreement.

B. As provided in paragraph 2.F.i herein, Bearpath will be responsible for the costs of routine post-construction maintenance of the Project in conformance with the Maintenance Plan.

C. On receipt of documentation of payment as may be reasonably requested, Bearpath will reimburse RPBCWD $43,500 of documented costs of construction of the Project plus all costs associated with rebuilding the portion so the boulder wall beyond the 50 feet associated with the slope failure into Riley Creek at the unit price per lineal foot secured through the project bidding process times the length rebuilt. Because the RPBCWD and Bearpath Contractors will jointly access the site using the same route, Bearpath will reimburse RPBCWD 50 percent of the cost of restoring the access route jointly used by both contractors. Additionally, Bearpath will commit the following expenditures or in-kind contributions:

   i. $950 in payment to Barr Engineering for conceptual design development, information from which was used in the Middle Riley Creek Stabilization Feasibility Report;

   ii. $6,550 in future payments planned, and under contract, from Bearpath to Barr Engineering, for consulting on final golf-related design development and golf feature construction related to the Project;

   iii. All design and construction costs, estimated at $24,700, related to relocation of Hole #13 tee boxes and modifying Hole #12 green area to accommodate the Project;

   iv. In-kind long-term maintenance of the Project, in accordance with the Maintenance Plan, excluding material costs associated with implementing the Maintenance Plan, an estimated value of $6,800 (40 hours of labor per year);

D. The entirety of the Project work will be the subject of one single permit jointly prepared and submitted by Bearpath and RPBCWD, including Bearpath's in-kind work on Hole #13 tee boxes and modifying Hole #12 tee, fairway and green areas ; Bearpath will be responsible for any other permits and access agreements for its work related to the Project;

E. Except as specifically provided otherwise herein, each of the parties will bear the costs of fulfilling its responsibilities and obligations under this agreement and, in the event of

cancellation, the parties will bear all costs incurred prior to RPBCWD's issuance of notice to Bearpath in accordance with paragraph 2.E.iv herein.

4 Grant of Property-Use Rights

Bearpath holds fee simple on the parcel(s) legally described in Exhibit A to this Agreement and agrees to grant RPBCWD an easement over the areas identified in Exhibit B to this Agreement. This easement will provide for access and use of the burdened areas for purposes of construction and ongoing inspection and maintenance of the Project, and provide for conservation of the Project and related buffer areas. Buffer areas will be memorialized by installing monuments flush with the ground as approved by Bearpath so as not to interfere with play. Bearpath will facilitate communication with property owners in order for RPBCWD to acquire rights to access the site using roadways under ownership of the Bearpath HOA (PID: 1911622230035, 1911622230027, 1911622220019, 191162224006, and 19116221140016).

5 RPBCWD's Further Rights and Obligations

A. RPBCWD will not be deemed to have acquired by entry into or performance under this agreement any form of interest or ownership in the Bearpath Property. RPBCWD will not by entry into or performance under this agreement be deemed to have exercised any form of control over the use, operation or management of any portion of the Bearpath Property or adjacent property so as to render RPBCWD a potentially responsible party for any contamination or exacerbation of any contamination conditions under state and/or federal law, except in the event that any contamination occurs due to actions taken by the RPBCWD.

B. RPBCWD will provide (in both digital and paper copy format) as-built construction drawings of the Project to Bearpath within 90 days of certification of the Project as substantially complete for the intended purposes.

C. RPBCWD contracted with the RPBCWD engineer for the development of the plans and specification for the Project, along with all necessary construction documentation, and the Maintenance Plan. Notwithstanding the foregoing, RPBCWD makes no warranty to Bearpath regarding the RPBCWD engineer's or another non-party's performance in design, construction or construction management for the Project.

6 Potential Future Collaboration

Bearpath has identified a potential future project for coordination with RPBCWD on the addition of a stone wall or similar structure near the #1 green area to facilitate in separating the buffer area from the playable course and preventing erosion; reworking of the #6 tee area and a bunker to facilitate better play and water treatment; and to rework the #8 tee area and green, both of which abut the buffer zone. Included in the work on #8 will be the addition of a stone wall or

similar structure to prevent erosion on the green and to create an obvious boundary between the golf course and the buffer zone.

7 General Terms

A. **Publicity and endorsement**. RPBCWD and Bearpath will collaboratively develop, produce and disseminate public education and outreach materials and conduct at least one, and possibly annual, public educational and informational meetings about the Project. Each party, at its sole expense, may develop, produce and, after approval of the other party, distribute educational, outreach and publicity materials related to the Project. Any publicity regarding the Project must identify Bearpath and RPBCWD as sponsoring entities. For purposes of this provision, publicity includes notices, informational pamphlets, press releases, research, reports, signs and similar public notices prepared by or for Bearpath or RPBCWD individually or jointly with others, or any subcontractors, with respect to the Project.

B. **Data management**. All designs, written materials, technical data, research or any other work in progress will be shared among the parties to this agreement on request, except as prohibited by law. As soon as is practicable, the party preparing plans, specifications, contractual documents, materials for public communication or education will provide them to the other parties for recordkeeping and other necessary purposes.

C. **Data Practices**. All data created, collected, received, maintained or disseminated for any purpose in the course of this agreement is governed by the Minnesota Government Data Practices Act, Minnesota Statutes chapter 13, and any state rules adopted to implement the act, as well as federal regulations on data privacy

D. **Entire agreement**. This agreement, as it may be amended in writing, contains the complete and entire agreement between the parties relating to the subject matter hereof, and supersedes all prior negotiations, agreements, representations and understandings, if any, between the parties respecting such matters. The recitals stated at the outset are incorporated into and made a part of the agreement.

E. **Force majeure**. RPBCWD will not be liable for failure to complete the Project if the failure results from an act of god (including fire, flood, earthquake, storm, other natural disaster or other weather conditions that make it infeasible or materially more costly to perform the specified work), embargo, labor dispute, strike, lockout or interruption or failure of public utility service. In asserting force majeure, RPBCWD must demonstrate that it took reasonable steps to minimize delay and damage caused by foreseeable events, that it substantially fulfilled all non-excused obligations, and that it timely notified Bearpath of the likelihood or actual occurrence of the force majeure event. Delay will be excused only for the duration of the force majeure.

F. **Waivers**. The waiver by Bearpath of any breach or failure to comply with any provision of this agreement by the other parties will not be construed as nor will it constitute a continuing waiver of such provision or a waiver of any other breach of or failure to comply with any other provision of this agreement.

G. **Notices**. Any notice, demand or communication under this agreement by any party to the others will be deemed to be sufficiently given or delivered if it is dispatched by registered or certified mail, postage prepaid to:

Bearpath	RPBCWD
James Senske	Terry Jeffery
Owner	Interim Administrator
18100 Bearpath Trail	18681 Lake Drive East
Eden Prairie, MN, 55347	Chanhassen, MN 55317
jsenske@cbmn.bank	tjeffery@rpbcwd.org
(952) 841-9770	952-807-6885

H. **Term; termination.** This agreement is effective on execution by each of the parties and will terminate three years from the date of execution of this agreement or on the written agreement of all three parties.

[SIGNATURE PAGE FOLLOWS.]

IN WITNESS WHEREOF, the parties have caused the agreement to be duly executed intending to be bounded thereby.

Bearpath

_____

By: James Senske, Owner

Date: _____

and

_____

By: [NAME],

Date: _____

Riley-Purgatory-Bluff Creek Watershed District

_____

By: Dick Ward, President

Date: _____

Approved as to form & execution:

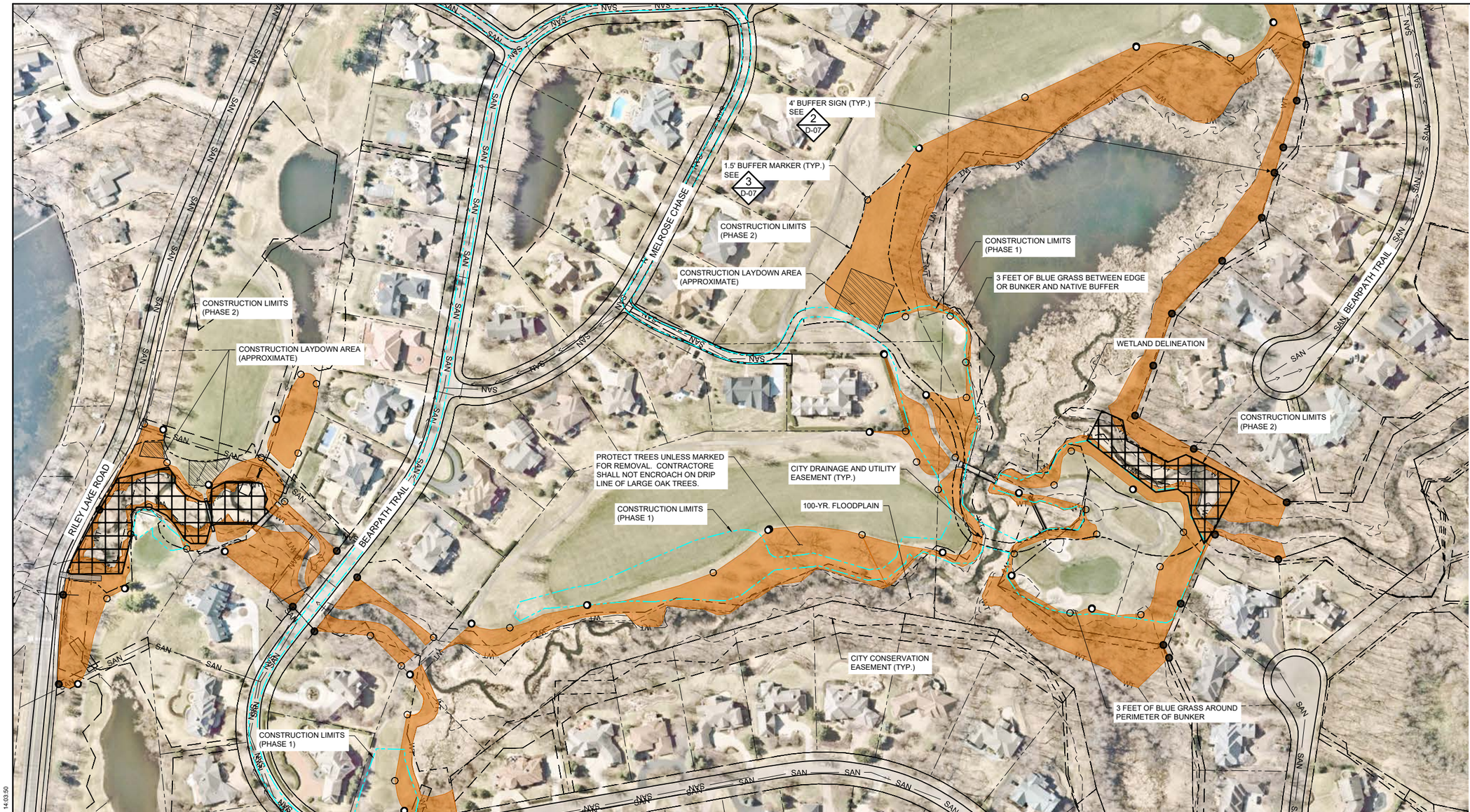
_____

RPBCWD counsel

EXHIBIT A
Legal Description of the Bearpath Property

[This should come from Bearpath.]

EXHIBIT B
Easement



1 PLAN: EASEMENTS, FLOODPLAINS AND WETLAND BOUNDARIES - FULL SITE

0 100 200
SCALE IN FEET

DRAFT

SYMBOL AND PATTERN LEGEND

- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- EXISTING PROPERTY LINE
- SAN — EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CITY CONSERVATION EASEMENT
- CITY DRAINAGE AND UTILITY EASEMENT
- BUFFER MAINTENANCE AREAS
- 4' BUFFER SIGN
- FLUSH MOUNT BUFFER MARKER
- STREAMBANK STABILIZATION EASEMENT AREAS

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
2. ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
4. CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE FINAL CONSTRUCTION LIMITS TO BE COORDINATED WITH THE OWNER AND STAKED IN THE FIELD.
5. CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 8" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
8. TREE SURVEY COMPLETED 05/04/2020. "SIGNIFICANT TREES" MEET THE DEFINITION REQUIREMENTS.
9. CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE THE TRANSFER OF AQUATIC AND TERRESTRIAL INVASIVE SPECIES TO THE MAXIMUM EXTENT POSSIBLE.
10. SOIL SURFACES COMPACTED DURING CONSTRUCTION MUST BE DECOMPACTED TO A SOIL COMPACTING PRESSURE OF LESS THAN 1400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 1 INCH OF SOIL.
11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
12. CONTRACTOR SHALL CONTACT ENGINEER AT LEAST 24 HOURS PRIOR TO CONSTRUCTION OF CRITICAL DESIGN ITEMS TO ALLOW FOR CONSTRUCTION OBSERVATION. CRITICAL DESIGN ITEMS INCLUDE:
    - -RIPRAP TOE PROTECTION INSTALLATION
    - -VRSS INSTALLATION
    - -BOULDER VANE INSTALLATION
13. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.

EXHIBIT B
Easements

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	05/25/2021	ISSUED FOR BID

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

PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 05/25/2021 LICENSE # 43102

CLIENT	07/15/20	08/06/20	—	05/11/21	—	—	—	
BID	—	—	—	—	05/25/21	—	—	—
CONSTRUCTION	—	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—	—
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RELEASED TO/FOR	A	B	C	D	0	1	2	
	DATE RELEASED							

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

Project Office:
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
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Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Scale	AS SHOWN
Date	05/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

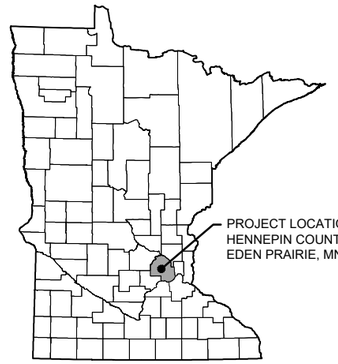
MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

EASEMENTS, FLOODPLAINS & WETLAND BOUNDARIES
FULL SITE

BARR PROJECT No. 23/27-00534.14
CLIENT PROJECT No.
DWG. No. C-04
REV. No. 0

EXHIBIT C
Project Plans

MIDDLE RILEY CREEK STABILIZATION AND BEARPATH GOLF COURSE RENOVATION
RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT



MINNESOTA COUNTY MAP

CONTACTS:

ENGINEER CONTACT:
Jessica Olson
Barr Engineering Co.
325 South Lake Avenue
Duluth, MN 55802
218-259-7118
jolson@barr.com

OWNER'S REPRESENTATIVE CONTACT:
Terry Jeffery
Interim District Administrator
Riley Purgatory Watershed District
18681 Lake Drive East
Chanhassen, MN 55317
952-807-6885
tjeffery@rpbcwd.org

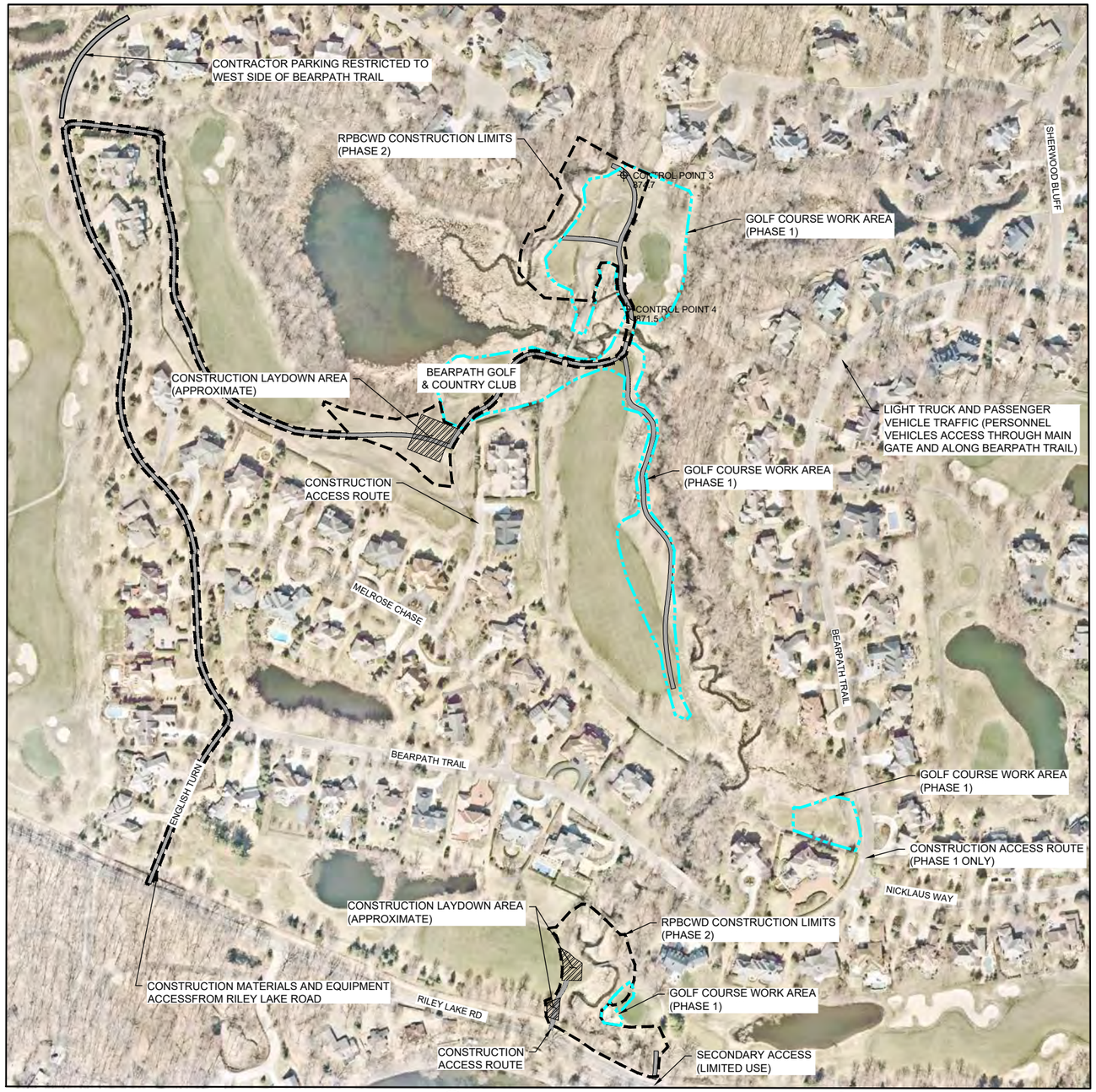
PROPERTY OWNER CONTACT:
Bearpath Golf & Country Club
Attn: Kevin Cashman
18100 Bearpath Trail
Eden Prairie, MN 55347
952-975-0123
kcashman@bearpathgolf.com

GENERAL NOTES:

1. CONTOUR DATA SHOWN IN THIS PLAN SET IS BASED ON 2015 LiDAR TOPOGRAPHY AND SURVEYS PERFORMED BY RPBCWD STAFF ON MAY 4 AND 18, 2020 AND SUPPLEMENTED BY SURVEY DATA FROM A SURVEY PERFORMED BY BARR ENGINEERING ON JUNE 11, 2020.
2. IMAGERY; COPYRIGHT PICTOMETRY INTERNATIONAL CORP AND HENNEPIN COUNTY, MINNESOTA, 2017.
3. HORIZONTAL DATUM AND COORDINATE SYSTEM: HENNIPEN COUNTY COORDINATES, NAD83, US SURVEY FEET.
4. VERTICAL DATUM: NAVD88.
5. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE SITE ACCESS AND WORK TIMING.
6. ALL ACCESS POINTS FROM LAKE RILEY ROAD MUST BE SECURE AT ALL TIMES. IF ACCESS IS UNLOCKED, RESPONSIBLE CONTRACTOR MUST ENSURE ONLY AUTHORIZED EQUIPMENT AND PERSONNEL ACCESS SITE.

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	117922.4829'	465761.5527'	875.23'	VRS SPIKE 1
2	117850.1325'	465717.6763'	880.15'	VRS SPIKE 2
3	119806.1150'	465879.4807'	874.71'	VRS SPIKE 3
4	119491.9292'	465886.5323'	871.54'	VRS SPIKE 4

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



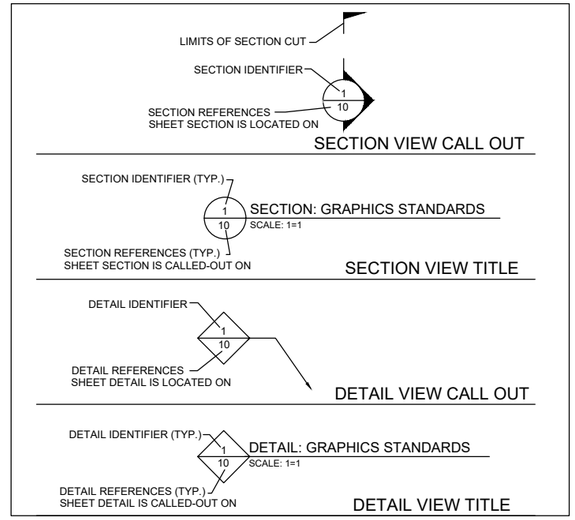
1 PLAN: PROJECT LOCATION

0 150 300
SCALE IN FEET

N

INDEX OF SHEETS

SYMBOLS AND ABBREVIATIONS:



ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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

PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

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BID	—	—	—	—	06/25/21	—	—	—
CONSTRUCTION	—	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—	—
RELEASED TO/FOR	A	B	C	D	0	1	2	
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Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION
& BEARPATH GOLF COURSE RENOVATION

TITLE SHEET, PROJECT LOCATION, AND SHEET INDEX

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No. -
DWG. No. G-01
REV. No. 0

1.0 GENERAL CONSTRUCTION ACTIVITY INFORMATION:

THIS STORMWATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN PREPARED IN COMPLIANCE WITH THE MINNESOTA GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY NO. MNR100001 (GENERAL PERMIT), AS REQUIRED BY THE MINNESOTA POLLUTION CONTROL AGENCY (MPCA) UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM (NPDES/SDS) PROGRAM.

THE PROJECT IS LOCATED IN THE CITY OF EDEN PRAIRIE, HENNEPIN COUNTY, MINNESOTA. PROPOSED CONSTRUCTION ACTIVITIES WILL TAKE PLACE WITHIN SECTION 19 TOWNSHIP 116 NORTH RANGE 22 WEST. THE APPROXIMATE CENTROID OF THE PROJECT HAS A LATITUDE OF 44.8404389 AND A LONGITUDE OF -93.5107298.

THIS PROJECT INVOLVES THE REPAIR OF EROSION ON THE EXISTING BANKS OF RILEY CREEK TO REDUCE THE TRANSPORT OF EXCESS SEDIMENT DOWNSTREAM TO LAKE RILEY. CONSTRUCTION WILL CONSIST OF CLEARING AND GRUBBING, CONSTRUCTION OF ACCESS AND STAGING AREAS, EARTHWORK REPAIRING ERODED BANKS., CONSTRUCTING ROCK RIFFLES, J-HOOKS, REGRADING THE CHANNEL, CONSTRUCTION OF A STORM SEWER EXTENSION, PLACEMENT OF RIPRAP, INSTALLATION OF ROCK VANES, CONSTRUCTION OF VEGETATED REINFORCEMENT SOIL SLOPES (VRSS) AND TOE WOOD, AND RESTORATION THROUGH SEEDING AND EROSION CONTROL BLANKET. THE PROJECT IS NOT A PART OF A LARGER COMMON PLAN OF DEVELOPMENT. THE PROJECT AS PROPOSED HAS A TOTAL DISTURBANCE AREA OF 7.55 ACRES. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE REQUIRED TO MINIMIZE SEDIMENT FROM BEING TRANSPORTED INTO THE LAKE RILEY, REFER TO PROJECT DRAWINGS FOR FURTHER DETAILS. (CSW PERMIT PART III.A.1)

1.1 PROJECT SIZE AND CUMULATIVE IMPERVIOUS SURFACE:

- THE ANTICIPATED AREA OF DISTURBANCE IS APPROXIMATELY 7.55 ACRES (STAGE 1 = 4.33 ACRES, STAGE 2 = 3.22 ACRES).
- THE TOTAL AREA OF PRE-CONSTRUCTION IMPERVIOUS AREA IS APPROXIMATELY 0.13 ACRES.
- THE TOTAL AREA OF POST-CONSTRUCTION IMPERVIOUS AREA IS APPROXIMATELY 0.05 ACRES.
- THE TOTAL NEW IMPERVIOUS AREA IS APPROXIMATELY -0.08 ACRES.

1.2 DATES OF CONSTRUCTION:

- ANTICIPATED START DATE: SEPTEMBER 2021 ANTICIPATED END DATE: JUNE 2022

1.3 CONTACT INFORMATION:

OWNER: RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
MAILING ADDRESS: 18681 LAKE DRIVE EAST, CHANNHASSEN, MN. 55317
CONTACT PERSON: TERRY JEFFERY TITLE: INTERIM DISTRICT ADMINISTRATOR
PHONE NUMBER: 952-807-6885 EMAIL ADDRESS: tjeffery@RPBCWD.ORG
ALTERNATE CONTACT PERSON: SCOTT SOBIECH TITLE: DISTRICT ENGINEER
PHONE NUMBER: 952-832-2755 EMAIL ADDRESS: ssobiech@BARR.COM

OPERATOR / GENERAL CONTRACTOR (WILL OVERSEE IMPLEMENTATION OF THE SWPPP): TBD
MAILING ADDRESS: TBD
CONTACT PERSON: TBD TITLE: TBD
PHONE NUMBER: TBD EMAIL ADDRESS: TBD

PARTY RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT SYSTEM:
BEARPATH GOLF & COUNTRY CLUB
MAILING ADDRESS: 18100 BEARPATH TRAIL, EDEN PRAIRE, MN. 55347
CONTACT PERSON: KEVIN CASHMAN
PHONE NUMBER: 952-975-0123
EMAIL ADDRESS: kcashman@BEARPATHGOLF.COM

2.0 RECEIVING WATERS:

WATERS WITHIN ONE MILE (NEAREST STRAIGHT LINE DISTANCE) THAT ARE LIKELY TO RECEIVE STORMWATER RUNOFF FROM THE PROJECT SITE (CSW PERMIT ITEM 5.10) INCLUDE:

NAME OF WATER BODY	TYPE [1]	WATER BODY ID [2]	SPECIAL WATER? [3]	IMPAIRED WATER? [3]	PUBLIC WATER WITH WORK IN WATER RESTRICTIONS?
LAKE RILEY	LAKE	27-0132P	NO	YES	NO
RILEY CREEK	CREEK	07020012-855	NO	NO	YES

(1) TYPE EXAMPLES: DITCH, POND, WETLAND, CALCAREOUS FEN, LAKE, STREAM, RIVER
(2) WATER BODY IDENTIFICATION (ID) MIGHT NOT BE AVAILABLE FOR ALL WATER BODIES. USE THE SPECIAL AND IMPAIRED WATERS SEARCH TOOL AT: HTTPS://WWW.PCA.STATE.MN.US/WATER/STORMWATER-SPECIAL-AND-IMPAIRED-WATERS-SEARCH
(3) REFER TO CSW PERMIT SECTION 23. IMPAIRED WATER FOR THE FOLLOWING POLLUTANT(S) OR STRESSOR(S): PHOSPHORUS (NUTRIENT EUTROPHICATION BIOLOGICAL INDICATORS), TURBIDITY, TOTAL SUSPENDED SOLIDS (TSS), DISSOLVED OXYGEN, OR AQUATIC BIOTA (FISH BIOASSESSMENT, AQUATIC PLANT BIOASSESSMENT, AND AQUATIC MACROINVERTEBRATE BIOASSESSMENT)

2.1 SPECIAL AND IMPAIRED WATERS: THE MPCA'S SPECIAL AND IMPAIRED WATERS SEARCH TOOL WAS USED TO LOCATE SPECIAL AND IMPAIRED WATERS WITHIN ONE MILE (AERIAL RADIUS MEASUREMENT) OF THE PROJECT SITE. LAKE RILEY AND RILEY CREEK HAVE AN EPA-APPROVED IMPAIRMENT FOR NUTRIENTS, FISHES BIOSASSESSMENTS, MERCURY IN FISH TISSUE, MACROINVERTIBATE BIOSASSESSMENTS AND TURBIDITY. THESE IMPAIRMENTS ARE CONSIDERED CONSTRUCTION RELATED AND DO REQUIRE ADDITIONAL BEST MANAGEMENT PRACTICES (BMPS) OR PLAN REVIEW FOR COMPLIANCE WITH THE GENERAL PERMIT. (CSW PERMIT ITEM 2.7 AND SECTION 23)

ADDITIONAL BMPS OR OTHER SPECIFIC CONSTRUCTION RELATED IMPLEMENTATION ACTIVITIES IDENTIFIED IN AN APPROVED TOTAL MAXIMUM DAILY LOAD (TMDL) INCLUDE NEED TO UPDATE BASED ON TMDL - MIGHT INCLUDE THINGS LIKE IMMEDIATE STABILIZATION OF EXPOSED SOIL AREAS. (CSW PERMIT ITEM 5.19)

2.2 PUBLIC WATERS WITH WORK IN WATER RESTRICTIONS: RILEY CREEK IS IDENTIFIED BY THE DNR AS A PUBLIC WATER. WORK IS RESTRICTED FOR PUBLIC WATERS IN CHANHASSEN, MINNESOTA BETWEEN MARCH 15TH AND JUNE 15TH. DURING THE RESPECTIVE RESTRICTION PERIODS, ALL EXPOSED SOILS WITHIN 200 FEET OF THE WATER'S EDGE WILL HAVE EROSION PREVENTION STABILIZATION ACTIVITIES INITIATED IMMEDIATELY AFTER CONSTRUCTION ACTIVITY HAS CEASED (AND COMPLETED WITHIN 24 HOURS). (CSW PERMIT ITEM 5.11)

2.3 WETLAND IMPACTS: THIS PROJECT MAY RESULT IN ADVERSE IMPACTS TO WETLANDS, INCLUDING EXCAVATION, DEGRADATION OF WATER QUALITY, AND FILLING THEREFORE [DESCRIBE MITIGATION MEASURES] TO ADDRESS THE IMPACTS. PERMITS OR APPROVALS FROM AN OFFICIAL STATE WIDE WETLAND PROGRAM ISSUED SPECIFICALLY FOR THIS PROJECT ARE ATTACHED FOR REFERENCE. (CSW PERMIT ITEMS 2.4 AND 2.10, AND SECTION 22)

2.4 ENVIRONMENTAL REVIEW AND OTHER REQUIRED REVIEWS: STORMWATER MITIGATION MEASURES ARE NOT REQUIRED AS A RESULT OF AN ENVIRONMENTAL REVIEW (E.G., EAW OR EIS), ENDANGERED OR THREATENED SPECIES REVIEW, ARCHEOLOGICAL SITE REVIEW, OR OTHER LOCAL, STATE, OR FEDERAL REVIEW CONDUCTED FOR THE PROJECT. (CSW PERMIT ITEMS 2.8, 2.9, AND 5.16)

2.5 KARST AREAS OR DRINKING WATER SUPPLY MANAGEMENT AREAS: THIS PROJECT DOES NOT INCLUDE ANY KARST OR DRINKING WATER SUPPLY MANAGEMENT AREAS. (CSW PERMIT ITEMS 16.19, 16.20, AND 18.10)

3.0 PROJECT PLANS AND SPECIFICATIONS:

REQUIRED FEATURE	SHEET NUMBER
• PROJECT LOCATION AND CONSTRUCTION LIMITS	G-01
• EXISTING AND FINAL GRADES, INCLUDING DRAINAGE AREA BOUNDARIES, DIRECTIONS OF FLOW AND ALL DISCHARGE POINTS WHERE STORMWATER IS LEAVING THE SITE OR ENTERING A SURFACE WATER	C-07,C-09,C-14,C-15
• SOIL TYPES AT THE SITE	G-03
• LOCATIONS OF IMPERVIOUS SURFACES	C-01, C-02, C-14, C-15
• LOCATIONS OF AREAS NOT BE BE DISTURBED (E.G., BUFFER ZONES, WETLANDS, ETC.)	C-04, C-05, C-06
• LOCATIONS OF AREAS OF STEEP SLOPES	C-07, C-09, C-14, C-15
• LOCATIONS OF AREAS WHERE CONSTRUCTION WILL BE PHASED TO MINIMIZE DURATION OF EXPOSED SOILS	NA
• PORTIONS OF THE SITE THAT DRAIN TO A PUBLIC WATER WITH DNR WORK IN WATER RESTRICTIONS FOR FISH SPAWNING TIMEFRAMES	C-01, C-02
• LOCATIONS OF ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS AS REQUIRED IN PERMIT SECTIONS 8 THROUGH 10 AND 14 THROUGH 19	C-01, C-02, C-11, C-12
• BUFFER ZONES AS REQUIRED IN PERMIT ITEMS 9.17 AND 23.11	C-04, C-05, C-06
• LOCATIONS OF POTENTIAL POLLUTION-GENERATING ACTIVITIES IDENTIFIED IN PERMIT SECTION 12	C-07, C-09
• STANDARD DETAILS FOR EROSION AND SEDIMENT CONTROL BMPS TO BE INSTALLED AT THE SITE	C-03, C-13

4.0 BEST MANAGEMENT PRACTICES (BMPS):

4.1 EROSION PREVENTION PRACTICES:

1. BEFORE LAND DISTURBING ACTIVITIES BEGIN, THE LIMITS OF THE AREAS TO BE DISTURBED DURING CONSTRUCTION WILL BE DELINEATED WITH FLAGS, STAKES, SIGNS, SILT FENCE, ETC.
2. TEMPORARY STABILIZATION OF SOILS AND SOIL STOCKPILES: (CSW PERMIT ITEMS 8.4, 8.5, AND 23.9)
   a. AREAS OF EXPOSED SOIL WILL BE STABILIZED WITH EROSION CONTROL BLANKET OR EQUIVALENT MEASURES.
   b. IF PRESENT, SOIL STOCKPILES WILL BE STABILIZED WITH FAST GROWING COVER CORP, MULCH SUCH AS STRAW MULCH OR EQUIVALENT MEASURES.
   c. TEMPORARY STOCKPILES WITHOUT SIGNIFICANT SILT, CLAY, OR ORGANIC COMPONENTS (E.G., CLEAN AGGREGATE STOCKPILES, DEMOLITION CONCRETE STOCKPILES, SAND STOCKPILES) AND THE CONSTRUCTED BASE COMPONENTS OF ROADS, PARKING LOTS, AND SIMILAR SURFACES ARE EXEMPT FROM THESE STABILIZATION REQUIREMENTS.
2. STABILIZATION OF DITCH AND SWALE WETTED PERIMETERS: (CSW PERMIT ITEMS 8.6 THROUGH 8.8)
   a. IF SOILS WITHIN EXISTING STORMWATER DITCHES OR SWALES ARE DISTURBED, THEY WILL BE STABILIZED WITH [CHANNEL EROSION CONTROL BLANKET, RIPRAP, TURF REINFORCEMENT MAT] OR EQUIVALENT MEASURES.
   b. MULCH, HYDROMULCH, TACKIFIER, POLYACRYLAMIDE, OR SIMILAR EROSION PREVENTION PRACTICES WILL NOT BE USED TO STABILIZE ANY PART OF AN EXISTING STORMWATER DITCH OR SWALE WITH A CONTINUOUS SLOPE OF GREATER THAN 2 PERCENT.
   c. THE LAST 200 LINEAL FEET OF LENGTH OF THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DITCH OR SWALE THAT DRAINS WATER FROM ANY PORTION OF THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE INTO ANY SURFACE WATER WILL BE STABILIZED WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE.
   d. STABILIZATION OF THE REMAINING PORTIONS OF ANY TEMPORARY OR PERMANENT DITCHES OR SWALES WILL BE COMPLETED WITHIN 14 CALENDAR DAYS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE AND CONSTRUCTION IN THAT PORTION OF THE DITCH HAS TEMPORARILY OR PERMANENTLY CEASED.
3. ENERGY DISSIPATION AT PIPE OUTLETS: ENERGY DISSIPATION AT PIPE OUTLETS WILL BE PROVIDED WITH ONE OR MORE OF THE FOLLOW METHODS: RIP RAP, SPLASH PADS, GABIONS, OR EQUIVALENT MEASURES. (CSW PERMIT ITEM 8.9)
4. EROSION PREVENTION IMPLEMENTATION TIMELINES: (CSW PERMIT ITEMS 5.4, 8.4 THROUGH 8.6, AND 23.9)
   a. STABILIZATION OF EXPOSED SOIL AREAS (INCLUDING STOCKPILES) WILL BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHENEVER ANY CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS.
   b. IF THE EXPOSED SOIL AREAS DRAIN TO A DISCHARGE POINT THAT IS WITHIN ONE MILE (AERIAL RADIUS MEASUREMENT) OF A SPECIAL OR IMPAIRED WATER (SEE SECTION 2.0), STABILIZATION OF EXPOSED SOIL AREAS (INCLUDING STOCKPILES) WILL BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHENEVER ANY CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 7 CALENDAR DAYS.
   c. THE FOLLOWING ACTIVITIES CAN BE TAKEN TO INITIATE STABILIZATION: PREPPING THE SOIL FOR VEGETATIVE OR NON-VEGETATIVE STABILIZATION, APPLYING MULCH OR OTHER NON-VEGETATIVE PRODUCT TO THE EXPOSED SOIL AREA, OR SEEDING OR PLANTING THE EXPOSED AREA.
5. ADDITIONAL EROSION PREVENTION MEASURES: THE FOLLOWING ADDITIONAL EROSION PREVENTION METHODS WILL BE IMPLEMENTED AT THE SITE DURING CONSTRUCTION: (CSW PERMIT ITEMS 8.2, 8.3, AND 8.10)
   a. CONSTRUCTION PHASING WILL BE UTILIZED TO MINIMIZE THE AREA OF SOIL EXPOSED AT ANY ONE TIME.
   b. SOIL DISTURBANCE WILL BE MINIMIZED WHEREVER POSSIBLE TO AID IN EROSION PREVENTION.
   c. EXISTING VEGETATION WILL BE PRESERVED WHEREVER POSSIBLE TO LIMIT EXPOSED SOIL AND THUS WILL SERVE AS NATURAL VEGETATIVE BUFFERS.
   d. EXPOSED SOIL ON STEEP SLOPES (≤3H:1V) WILL BE STABILIZED USING EROSION CONTROL BLANKETS AND SEEDING.
   e. HORIZONTAL SLOPE GRADING WILL BE UTILIZED TO MINIMIZE EROSION POTENTIAL.
   f. TERRACING WILL BE USED TO MINIMIZED EROSION POTENTIAL.

4.2 SEDIMENT CONTROL PRACTICES:

1. DOWNGRADIENT PERIMETER CONTROLS: (CSW PERMIT ITEMS 9.2 THROUGH 9.6)
   a. SEDIMENT CONTROL PRACTICES WILL BE ESTABLISHED ON ALL DOWNGRADIENT PERIMETERS AND LOCATED UPGRADIENT OF ANY BUFFER ZONES. PERIMETER SEDIMENT CONTROLS WILL INCLUDE: [SILT FENCE, SEDIMENT CONTROL LOGS / BIOROLLS (FILLED WITH COMPOST, WOOD CHIPS, ROCK, ETC.), VEGETATIVE BUFFERS (RETAIN EXISTING VEGETATION WHERE POSSIBLE) OR EQUIVALENT MEASURES.
   b. PERIMETER SEDIMENT CONTROL PRACTICES MUST BE INSTALLED BEFORE ANY UPGRADIENT LAND-DISTURBING ACTIVITIES BEGIN AND REMAIN IN PLACE UNTIL PERMANENT COVER HAS BEEN ESTABLISHED.
   c. IF SEDIMENT CONTROL PRACTICES HAVE BEEN ADJUSTED OR REMOVED TO ACCOMMODATE SHORT-TERM ACTIVITIES (SUCH AS CLEARING, GRUBBING, OR PASSAGE OF VEHICLES), THE CONTROLS MUST BE RE-INSTALLED IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY HAS BEEN COMPLETED. SEDIMENT CONTROL PRACTICES MUST BE RE-INSTALLED BEFORE THE NEXT PRECIPITATION EVENT, EVEN IF THE SHORT-TERM ACTIVITY IS NOT COMPLETE.
   d. IF THE DOWNGRADIENT SEDIMENT CONTROLS ARE OVERLOADED (BASED ON FREQUENT FAILURE OR EXCESSIVE MAINTENANCE REQUIREMENT), INSTALL ADDITIONAL UPGRADIENT SEDIMENT CONTROL PRACTICES OR REDUNDANT BMPS TO ELIMINATE THE OVERLOADING AND AMEND THE SWPPP TO IDENTIFY THESE ADDITIONAL PRACTICES.
2. SOIL STOCKPILE PERIMETER CONTROLS: TEMPORARY SOIL STOCKPILES WILL BE SURROUNDED BY: SEDIMENT CONTROL LOGS / BIOROLLS (FILLED WITH COMPOST, WOOD CHIPS, ROCK, ETC.) OR EQUIVALENT MEASURES, AND SHALL NOT BE PLACED IN ANY NATURAL BUFFERS OR SURFACE WATERS.(CSW PERMIT ITEMS 9.9 AND 9.10)
3. STORM DRAIN INLET PROTECTION: (CSW PERMIT ITEMS 9.7 AND 9.8)
   a. INLET PROTECTION BMPS WILL BE INSTALLED AROUND ALL STORM DRAIN INLETS DOWNGRADIENT OF CONSTRUCTION ACTIVITIES.
   b. STORM DRAIN INLETS WILL BE PROTECTED UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED.
   c. INLET PROTECTION BMPS WILL BE: [SEDIMENT CONTROL LOG, FILTER SACK, ROCK WITH FILTER FABRIC, FILTER FENCE BOX] OR EQUIVALENT MEASURES.
4. VEHICLE TRACKING BMPS: (CSW PERMIT ITEMS 9.11 AND 9.12)
   a. VEHICLE TRACKING BMPS WILL BE INSTALLED TO MINIMIZE THE TRACKING OUT OF SEDIMENT FROM THE CONSTRUCTION AREA AND WILL INCLUDE: ROCK PADS OR AN EQUIVALENT SYSTEM.
   b. IF SUCH VEHICLE TRACKING BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE PAVED ROAD, STREET SWEEPING WILL ALSO BE EMPLOYED. SEDIMENT WILL BE REMOVED BY SWEEPING WITHIN 24 HOURS.
5. PROTECTION OF INFILTRATION AREAS: IF NECESSARY, ADDITIONAL SEDIMENT CONTROLS (E.G., DIVERSION BERMS) WILL BE INSTALLED TO KEEP RUNOFF AWAY FROM PLANNED INFILTRATION AREAS WHEN EXCAVATED PRIOR TO ESTABLISHING PERMANENT COVER WITHIN THE CONTRIBUTING DRAINAGE AREA. (CSW PERMIT ITEMS 16.4 AND 16.5)
6. MINIMIZATION OF SOIL COMPACTION AND PRESERVATION OF TOPSOIL: SOIL COMPACTION WILL BE MINIMIZED AND TOPSOIL WILL BE PRESERVED WHERE POSSIBLE. (CSW PERMIT ITEMS 5.24, 9.14, AND 9.15)
7. PRIORITIZATION OF ONSITE INFILTRATION AND SEDIMENT REMOVAL: (CSW PERMIT ITEM 9.16)
   a. PRIOR TO OFFSITE DISCHARGE, INFILTRATION AND SEDIMENT REMOVAL WILL BE IMPLEMENTED ONSITE WHERE POSSIBLE.
   b. DISCHARGES FROM BMPS WILL BE DIRECTED TO VEGETATED AREAS OF THE SITE (INCLUDING ANY NATURAL BUFFERS) IN ORDER TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION. IF EROSION IS NOTED TO OCCUR AS THE RESULT OF SUCH A DISCHARGE, VELOCITY DISSIPATION BMPS WILL BE CONSIDERED AND INSTALLED AS NECESSARY TO PREVENT EROSION.
8. BUFFER ZONE OR REDUNDANT SEDIMENT CONTROLS TO PROTECT SURFACE WATERS: (CSW PERMIT ITEM 9.17)
   a. A 50-FOOT NATURAL BUFFER WILL BE PRESERVED IN CONSTRUCTION AREAS DISCHARGING TO A NON-SPECIAL/NON-IMPAIRED SURFACE WATER OR WETLAND. IF A NON-SPECIAL/NON-IMPAIRED SURFACE WATER OR WETLAND IS LOCATED WITHIN 50 FEET OF THE PROJECT'S EARTH DISTURBANCES AND STORMWATER FLOWS TO THE SURFACE WATER, OR WHEN A BUFFER IS INFEASIBLE, REDUNDANT SEDIMENT CONTROLS WILL BE PROVIDED.
   b. A 100-FOOT NATURAL BUFFER WILL BE PRESERVED IN CONSTRUCTION AREAS DISCHARGING TO A SPECIAL OR IMPAIRED SURFACE WATER. IF A SPECIAL OR IMPAIRED SURFACE WATER IS LOCATED WITHIN 100 FEET OF THE PROJECT'S EARTH DISTURBANCES AND STORMWATER FLOWS TO THE SURFACE WATER, OR WHEN A BUFFER IS INFEASIBLE, REDUNDANT SEDIMENT CONTROLS WILL BE PROVIDED.
   c. REDUNDANT PERIMETER CONTROLS WILL BE INSTALLED AT LEAST 5 FEET APART UNLESS LIMITED BY LACK OF AVAILABLE SPACE.
9. SEDIMENTATION TREATMENT CHEMICALS: NOT APPLICABLE; USE OF SEDIMENTATION TREATMENT CHEMICALS (E.G., POLYMERS, FLOCCULANTS, ETC.) IS NOT ANTICIPATED AS PART OF THE PROJECT. (CSW PERMIT ITEMS 5.22 AND 9.18)
10. TEMPORARY SEDIMENT BASIN(S): THE PROJECT WILL NOT INCLUDE 10 OR MORE ACRES OF DISTURBED SOIL DRAINING TO A COMMON LOCATION OR 5 OR MORE ACRES DRAINING TO A COMMONLOCATION WITHIN 1 MILE OR A SPECIAL OR IMPAIRED WATER THEREFORE TEMPORARY SEDIMENT BASINS ARE NOT REQUIRED. (CSW PERMIT ITEMS 5.6, 9.13, AND 23.10 AND SECTION 14)

4.3 DEWATERING AND BASIN DRAINING: NO DEWATERING OR BASIN DRAINING WILL OCCUR AS PART OF THIS PROJECT. (CSW PERMIT SECTION 10 AND ITEM 10.5)

4.4 BMP DESIGN FACTORS: THE FOLLOWING BMP DESIGN FACTORS HAVE BEEN CONSIDERED IN DESIGNING THE TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL BMPS:

1. EXPECTED AMOUNT, FREQUENCY, INTENSITY, AND DURATION OF PRECIPITATION:
2. NATURE OF STORMWATER RUNOFF AND RUN-ON AT THE SITE, INCLUDING FACTORS SUCH AS EXPECTED FLOW FROM IMPERVIOUS SURFACES, SLOPES, AND SITE DRAINAGE FEATURES:
3. STORMWATER VOLUME, VELOCITY, AND PEAK FLOW RATES TO MINIMIZE DISCHARGE OF POLLUTANTS IN STORMWATER AND TO MINIMIZE CHANNEL AND STREAMBANK EROSION AND SCOUR IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS:
4. RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT:

4.5 BMP QUANTITIES: ANTICIPATED EROSION PREVENTION AND SEDIMENT CONTROL BMP QUANTITIES NEEDED FOR THE LIFE OF THE PROJECT: ARE INCLUDED IN THE BID DOCUMENTS

(SEE PAGE 2 OF 2)

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

CLIENT	07/15/20	08/06/20	—	05/11/21	—	—	—
BID	—	—	—	—	06/25/21	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—
	—	—	—	—	—	—	—
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	DATE RELEASED						

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Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION
& BEARPATH GOLF COURSE RENOVATION

STORMWATER POLLUTION PREVENTION PLAN
(SWPPP)

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. G-02
REV. No. 0

5.0 PERMANENT STORMWATER MANAGEMENT SYSTEM:

A PERMANENT STORMWATER MANAGEMENT SYSTEM IS REQUIRED IF THE PROJECT RESULTS IN ONE ACRE OR MORE OF NEW IMPERVIOUS SURFACES OR RESULTS IN A NET INCREASE OF ONE OR MORE ACRES OF CUMMULATIVE NEW IMPERVIOUS SURFACES IN TOTAL OR IF THE PROJECT IS PART OF A LARGER PLAN OF DEVELOPMENT. (CSW PERMIT ITEM 15.3)

5.1 A PERMANENT STORMWATER TREATMENT SYSTEM IS NOT REQUIRED. (CSW PERMIT ITEMS 5.15, 15.4-15.9, AND 23.14)

5.2 THIS IS NOT A LINEAR PROJECT WITH LACK OF RIGHT OR WAY. (CSW PERMIT ITEM 15.9)

5.3 THIS PROJECT DOES NOT DISCHARGE TO A TROUT STREAM (OR A TRIBUTARY TO A TROUT STREAM). (CSW PERMIT ITEM 23.12)

6.0 INSPECTION AND MAINTENANCE ACTIVITIES:

6.1 PERSONS WITH REQUIRED TRAINING: TRAINED INDIVIDUALS INCLUDE THOSE PARTIES RESPONSIBLE FOR INSTALLING, SUPERVISING, REPAIRING, INSPECTING, AND MAINTAINING EROSION PREVENTION AND SEDIMENT CONTROL BMPS AT THE SITE. TRAINED INDIVIDUALS ARE ALSO RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP AND COMPLIANCE WITH THE GENERAL PERMIT UNTIL THE CONSTRUCTION ACTIVITIES ARE COMPLETE, PERMANENT COVER HAS BEEN ESTABLISHED, AND A NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED. (CSW PERMIT ITEMS 5.20, 5.21, AND 11.9 AND SECTION 21)

THESE INDIVIDUALS WILL BE TRAINED IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL PERMIT, INCLUDING THE REQUIREMENT THAT THE CONTENT AND EXTENT OF TRAINING WILL BE COMMENSURATE WITH THE INDIVIDUAL'S JOB DUTIES AND RESPONSIBILITIES.

BELOW IS A LIST OF PEOPLE RESPONSIBLE FOR THIS PROJECT WHO ARE KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BMPS.

TRAINED INDIVIDUAL	RESPONSIBILITY	TRAINING ENTITY*	TRAINING DATE
ERIC FITZGERALD	PREPARATION OF THE SWPPP	UNIVERSITY OF MINNESOTA	MARCH 2021
TBD	OVERSIGHT OF SWPPP IMPLEMENTATION, REVISION, AND AMMENDMENT	TBD	TBD
TBD	PERFORMANCE OF SWPPP INSPECTIONS	TBD	TBD
TBD	PERFORMANCE OR SUPERVISION OF INSTALLATION, MAINTENANCE, AND REPAIR OF BMPS	TBD	TBD

*TRAINING DOCUMENTATION AVAILABLE UPON REQUEST.

6.2 FREQUENCY OF INSPECTIONS: A TRAINED PERSON WILL ROUTINELY INSPECT THE ENTIRE CONSTRUCTION SITE. (CSW PERMIT ITEMS 11.2, 11.10, AND 23.13)

- AT LEAST ONCE EVERY 7 DAYS DURING ACTIVE CONSTRUCTION
- WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS

INSPECTION FREQUENCY MAY BE ADJUSTED UNDER THE FOLLOWING CIRCUMSTANCES:

- WHERE PARTS OF THE CONSTRUCTION AREAS HAVE PERMANENT COVER, BUT WORK REMAINS ON OTHER PARTS OF THE SITE, INSPECTIONS OF THE AREAS WITH PERMANENT COVER MAY BE REDUCED TO ONCE PER MONTH.
- WHERE CONSTRUCTION AREAS HAVE PERMANENT COVER AND NO CONSTRUCTION ACTIVITY IS OCCURRING ON THE SITE, INSPECTIONS CAN BE REDUCED TO ONCE PER MONTH AND, AFTER 12 MONTHS, MAY BE SUSPENDED COMPLETELY UNTIL CONSTRUCTION ACTIVITY RESUMES.
- WHERE CONSTRUCTION ACTIVITY HAS BEEN SUSPENDED DUE TO FROZEN GROUND CONDITIONS, THE INSPECTIONS MAY BE SUSPENDED. THE REQUIRED INSPECTIONS AND MAINTENANCE SCHEDULE MUST BEGIN WITHIN 24 HOURS AFTER RUNOFF OCCURS AT THE SITE OR UPON RESUMING CONSTRUCTION, WHICHEVER COMES FIRST.

6.3 INSPECTION REQUIREMENTS: EACH CONSTRUCTION STORMWATER SITE INSPECTION WILL INCLUDE INSPECTION OF THE FOLLOWING AREAS: (CSW PERMIT ITEMS 11.3 THROUGH 11.8)

- ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS AND POLLUTION PREVENTION MANAGEMENT MEASURES
- SURFACE WATERS FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION
- CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING
- STREETS AND OTHER AREAS ADJACENT TO THE PROJECT FOR EVIDENCE OF OFF SITE ACCUMULATIONS OF SEDIMENT

6.4 MAINTENANCE REQUIREMENTS: MAINTENANCE OF THE FOLLOWING AREAS AND BMPS WILL BE PERFORMED AS FOLLOWS: (CSW PERMIT ITEMS 11.3 THROUGH 11.8)

- NONFUNCTIONAL BMPS WILL BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.
- PERIMETER CONTROL DEVICES WILL BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 OF THE HEIGHT OF THE DEVICE.
- TEMPORARY AND PERMANENT SEDIMENTATION BASINS WILL BE DRAINED AND THE SEDIMENT REMOVED WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME.
- DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS WILL BE REMOVED, AND THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL WILL BE RE-STABILIZED. THE REMOVAL AND STABILIZATION WILL BE COMPLETED WITHIN 7 CALENDAR DAYS OF DISCOVERY UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS. IF PRECLUDED DUE TO ACCESS CONSTRAINTS, REASONABLE EFFORTS TO OBTAIN ACCESS WILL BE USED. REMOVAL AND STABILIZATION WILL TAKE PLACE WITHIN 7 CALENDAR DAYS OF OBTAINING ACCESS.
- TRACKED SEDIMENT ON PAVED SURFACES WILL BE REMOVED WITHIN 1 CALENDAR DAY OF DISCOVERY.
- AREAS UNDERGOING STABILIZATION WILL BE RESTABILIZED AS NECESSARY TO ACHIEVE REQUIRED COVER.

6.5 RECORDKEEPING REQUIREMENTS: (CSW PERMIT ITEMS 11.11 AND 24.5 AND SECTIONS 6 AND 20)

1. ALL INSPECTIONS AND MAINTENANCE ACTIVITIES WILL BE RECORDED IN WRITING WITHIN 24 HOURS OF BEING CONDUCTED AND THESE RECORDS WILL BE RETAINED WITH THE SWPPP. RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY WILL INCLUDE THE DATE AND TIME; NAME OF INSPECTOR(S); FINDINGS OF INSPECTIONS; CORRECTIVE ACTIONS (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES); AND DATE OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCHES IN 24 HOURS AND THE AMOUNT OF RAINFALL FOR EACH EVENT.
   a. IF ANY DISCHARGE IS OBSERVED DURING THE INSPECTION, THE LOCATION AND APPEARANCE OF THE DISCHARGE (I.E., COLOR, ODOR, SETTLED OR SUSPENDED SOLIDS, OIL SHEEN, AND OTHER OBVIOUS INDICATORS OF POLLUTANTS) WILL BE DOCUMENTED AND A PHOTOGRAPH WILL BE TAKEN.
2. THE SWPPP WILL BE AMENDED TO INCLUDE ADDITIONAL OR MODIFIED BMPS TO CORRECT PROBLEMS OR ADDRESS SITUATIONS WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE, WEATHER, OR SEASONAL CONDITIONS THAT HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR GROUNDWATER.
   a. THE SWPPP WILL BE AMENDED WHEN INSPECTIONS OR INVESTIGATIONS BY THE SITE OWNER, OPERATOR, OR CONTRACTORS OR BY USEPA/MPCA OFFICIALS INDICATE THAT THE SWPPP IS NOT EFFECTIVE IN ELIMINATING OR MINIMIZING THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR GROUNDWATER; THE DISCHARGES ARE CAUSING WATER QUALITY STANDARD EXCEEDANCES; OR THE SWPPP IS NOT CONSISTENT WITH A USEPA APPROVED TMDL.
   b. ANY AMENDMENTS TO THE SWPPP PROPOSED AS A RESULT OF THE INSPECTION WILL BE DOCUMENTED AS REQUIRED WITHIN 7 CALENDAR DAYS.
   c. AMENDMENTS WILL BE COMPLETED BY AN APPROPRIATELY TRAINED INDIVIDUAL. CHANGES INVOLVING THE USE OF A LESS STRINGENT BMP WILL INCLUDE A JUSTIFICATION DESCRIBING HOW THE REPLACEMENT BMP IS EFFECTIVE FOR THE SITE CHARACTERISTICS.
3. RECORDS RETENTION: THE SWPPP, INCLUDING ALL CHANGES TO IT, AND INSPECTION AND MAINTENANCE RECORDS WILL BE KEPT AT THE SITE DURING CONSTRUCTION BY THE PERMITTEE WHO HAS OPERATIONAL CONTROL OF THE SITE. THE SWPPP CAN BE KEPT IN EITHER A FIELD OFFICE OR IN AN ON SITE VEHICLE DURING NORMAL WORKING HOURS.
4. RECORD AVAILABILITY: THE PERMITTEES WILL MAKE THE SWPPP, INCLUDING INSPECTION REPORTS, MAINTENANCE RECORDS, AND TRAINING RECORDS, AVAILABLE TO FEDERAL, STATE, AND LOCAL OFFICIALS WITHIN THREE DAYS UPON REQUEST FOR THE DURATION OF THE PERMIT COVERAGE AND FOR THREE YEARS FOLLOWING THE NOTICE OF TERMINATION.

7.0 POLLUTION PREVENTION MEASURES:

1. ANY CONSTRUCTION PRODUCTS AND LANDSCAPE MATERIALS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS WILL BE STORED UNDER COVER (E.G., PLASTIC SHEETING OR TEMPORARY ROOFS) TO PREVENT DISCHARGE OF POLLUTANTS THROUGH MINIMIZATION OF CONTACT WITH STORMWATER. STORAGE OF SUCH MATERIALS WITHIN THE PROJECT AREA WILL BE MINIMIZED TO THE EXTENT POSSIBLE. (CSW PERMIT ITEM 12.2)
2. PESTICIDES, FERTILIZERS, AND TREATMENT CHEMICALS WILL BE STORED UNDER COVER (E.G., PLASTIC SHEETING, TEMPORARY ROOFS, WITHIN A BUILDING, OR IN WEATHER-PROOF CONTAINERS) TO PREVENT DISCHARGE OF POLLUTANTS THROUGH MINIMIZATION OF CONTACT WITH STORMWATER. STORAGE OF SUCH MATERIALS WITHIN THE PROJECT AREA WILL BE MINIMIZED TO THE EXTENT POSSIBLE. (CSW PERMIT ITEM 12.3)
3. HAZARDOUS MATERIALS AND TOXIC WASTE (E.G., OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT SOLVENTS, PETROLEUM-BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) WILL BE STORED AND DISPOSED OF IN COMPLIANCE WITH MINNESOTA RULES CHAPTER 7045, INCLUDING SECONDARY CONTAINMENT (AS APPLICABLE). HAZARDOUS MATERIALS WILL BE PROPERLY STORED IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS, OR OTHER DISCHARGES AND PREVENT PRECIPITATION FROM FALLING ONTO THE CONTAINERS OR STORED HAZARDOUS MATERIALS. (CSW PERMIT ITEMS 2.3 AND 12.4)
4. SOLID WASTE WILL BE COLLECTED, STORED, AND DISPOSED OF PROPERLY IN COMPLIANCE WITH MINNESOTA RULES CHAPTER 7035. THIS INCLUDES STORAGE WITHIN COVERED TRASH CONTAINERS AND DAILY REMOVAL OF LITTER AND DEBRIS. STORAGE OF SOLID WASTE WITHIN THE PROJECT AREA WILL BE MINIMIZED TO THE EXTENT POSSIBLE. (CSW PERMIT ITEM 12.5)
5. PORTABLE TOILETS WILL BE LOCATED AWAY FROM SURFACE WATERS AND POSITIONED AND SECURED TO THE GROUND SO THEY WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE WILL BE DISPOSED OF IN ACCORDANCE WITH MINNESOTA RULES, CHAPTER 7041. PORTABLE TOILETS WILL BE PERIODICALLY EMPTIED AND THE WASTE HAULED OFF-SITE BY A LICENSED HAULER. (CSW PERMIT ITEM 12.6)
6. VEHICLE FUELING WILL ONLY OCCUR IN DESIGNATED AREAS. SPILL KITS SIZED APPROPRIATELY FOR THE AMOUNT OF REFUELING TAKING PLACE WILL BE LOCATED. SPILL KITS WILL BE CLEARLY LABELED AND CONTAIN MATERIALS TO ASSIST IN SPILL CLEANUP INCLUDING ABSORBENT PADS, BOOMS FOR CONTAINING SPILLS, AND HEAVY-DUTY PROTECTIVE GLOVES. SPILLS WILL BE REPORTED TO THE MINNESOTA DUTY OFFICER AS REQUIRED BY MINNESOTA STATUTES, SECTION 115.061. (CSW PERMIT ITEMS 2.3 AND 12.7)
   a. ANY FUEL TANKS BROUGHT ON-SITE WILL HAVE PROPERLY SIZED CONTAINMENT AND WILL NOT BE TOPPED OFF TO AVOID SPILLS FROM OVERFILLING. FUEL TANKS WILL MEET INDUSTRY STANDARDS (DESIGNED TO HOLD FUEL TYPE, PROPERLY MAINTAINED, NOT ILLEGALLY MODIFIED, NOT MISSING LEAK INDICATOR FLOATS FOR DOUBLE WALLED TANKS, SIGHT GAUGES NOT USED, ETC.) OR BE REMOVED FROM THE WORK AREA.
   b. GUIDELINES FOR SPILL PREVENTION AND RESPONSE INCLUDE:
      - TAKE REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS, INCLUDING FUEL, FROM ANY AREA WHERE CHEMICALS OR FUEL WILL BE LOADED OR UNLOADED, INCLUDING THE USE OF DRIP PANS OR ABSORBENTS UNLESS INFEASIBLE;
      - PERFORM REGULAR PREVENTATIVE MAINTENANCE ON TANKS AND FUEL LINES;
      - INSPECT PUMPS, CYLINDERS, HOSES, VALVES, AND OTHER MECHANICAL EQUIPMENT ON-SITE FOR DAMAGE OR DETERIORATION;
      - DO NOT WASH OR RINSE FUELING AREAS WITH WATER;
      - MAINTAIN ADEQUATE SUPPLIES TO CLEAN UP DISCHARGED MATERIALS AND PROVIDE AN APPROPRIATE DISPOSAL METHOD FOR RECOVERED SPILLED MATERIALS;
      - REPORT AND CLEAN UP SPILLS IMMEDIATELY AS REQUIRED BY MINNESOTA STATUTES, SECTION 115.061, USING DRY CLEAN UP MEASURES WHERE POSSIBLE; AND
      - MAINTAIN COPIES OF SAFETY DATA SHEETS (SDSS) FOR HAZARDOUS MATERIALS ON-SITE IN LOCATIONS READILY AVAILABLE TO EMERGENCY RESPONDERS.
7. IF VEHICLE AND EQUIPMENT WASHING IS NECESSARY, A VEHICLE WASH STATION WILL BE LOCATED IN A DESIGNATED AREA. RUNOFF FROM THE WASHING AREA WILL BE CONTAINED IN A SEDIMENT BASIN AND WASTE FROM THE WASHING ACTIVITY WILL BE PROPERLY DISPOSED OF. ANY SOAPS, DETERGENTS, OR SOLVENTS WILL BE PROPERLY USED AND STORED. ANY DETERGENTS AND OTHER CLEANERS NOT PERMITTED FOR DISCHARGE WILL NOT BE USED. (CSW PERMIT ITEMS 2.3 AND 12.8)
8. THE PROJECT WILL NOT RESULT IN CONCRETE OR OTHER WASHOUT ACTIVITIES. IF NECESSARY, A DESCRIPTION OF THE STORAGE AND DISPOSAL OF CONCRETE AND OTHER WASHOUT WASTES SO THAT WASTES DO NOT CONTACT THE GROUND WILL BE ADDED. (CSW PERMIT ITEMS 2.3 AND 12.9)

8.0 PERMANENT COVER AND PERMIT TERMINATION CONDITIONS:

1. THE AREAS DISTURBED DURING CONSTRUCTION WILL BE STABILIZED WITH PERMANENT COVER UPON COMPLETION OF WORK. PERMANENT COVER MAY BE VEGETATIVE OR NON-VEGETATIVE, AS APPROPRIATE. ESTABLISHMENT OF PERMANENT COVER MAY INCLUDE THE FOLLOWING ACTIVITIES: SEEDING, MULCHING, EROSION CONTROL BLANKETS. (CSW PERMIT ITEM 5.17)
2. FOR A CONSTRUCTION-SITE TO ACHIEVE "PERMANENT COVER", THE FOLLOWING REQUIREMENTS MUST BE COMPLETED PRIOR TO TERMINATION OF PERMIT COVERAGE: (CSW PERMIT SECTIONS 4 AND 13)
   a. ALL SOIL DISTURBING CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED AND PERMANENT COVER HAS BEEN INSTALLED OVER ALL AREAS. VEGETATIVE COVER CONSISTS OF A UNIFORM PERENNIAL VEGETATION WITH A DENSITY OF 70% OF ITS EXPECTED FINAL GROWTH. VEGETATION IS NOT REQUIRED WHERE THE FUNCTION OF A SPECIFIC AREA DICTATES NO VEGETATION (SUCH AS IMPERVIOUS SURFACES OR THE BASE OF A SAND FILTER).
   b. ALL SEDIMENT HAS BEEN REMOVED FROM CONVEYANCE SYSTEMS, INCLUDING CULVERTS.
   c. ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS HAVE BEEN REMOVED. BMPS DESIGNED TO DECOMPOSE ON-SITE MAY BE LEFT IN PLACE.

WITHIN 30 DAYS AFTER THE TERMINATION CONDITIONS ARE COMPLETE, A NOTICE OF TERMINATION (NOT) FORM WILL BE SUBMITTED TO THE MPCA.

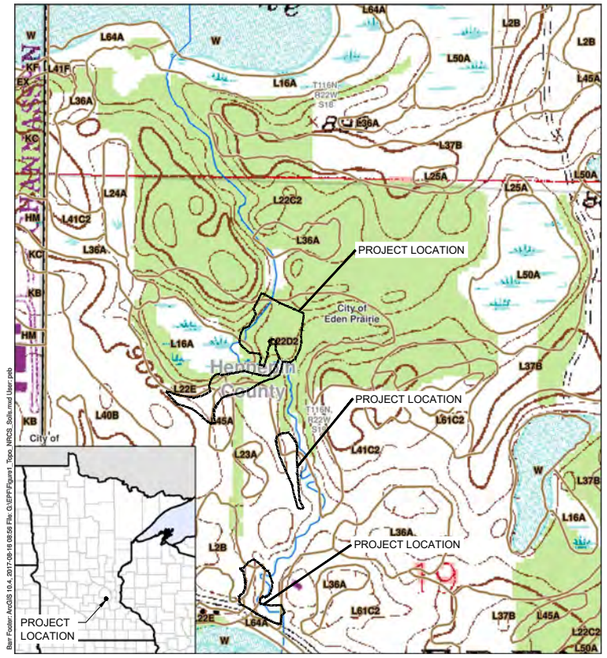

Figure 1

TOPOGRAPHIC MAP WITH SURFACE WATERS AND SOIL TYPES
Stormwater Pollution Prevention Plan
Hennepin County, Minnesota

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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.
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	07/15/20	08/06/20		05/11/21			
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CONSTRUCTION							
PERMITTING			03/12/21				
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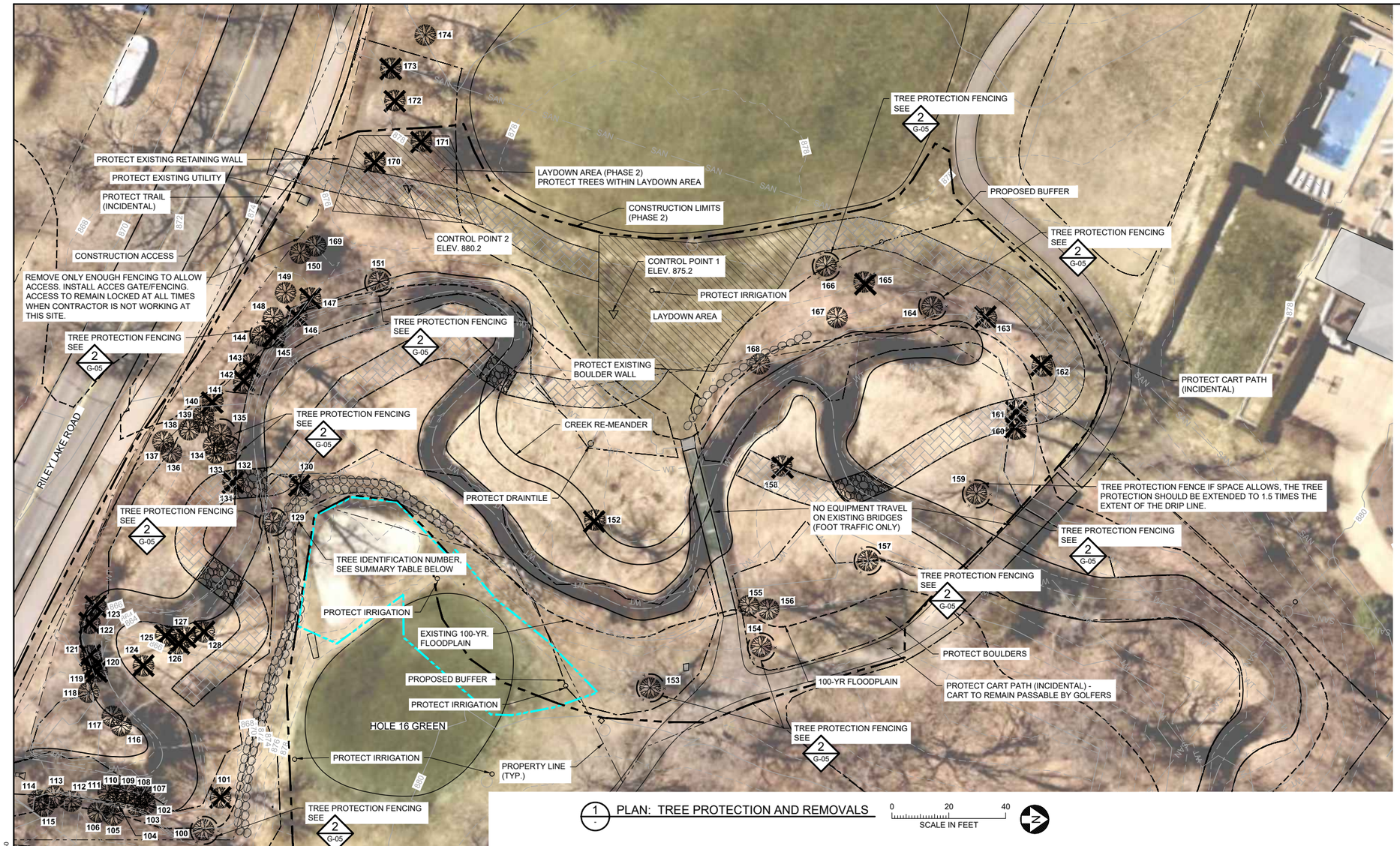
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION
& BEARPATH GOLF COURSE RENOVATION

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

BARR PROJECT No.	23/27-0053.14
CLIENT PROJECT No.	
DWG. No.	G-03
REV. No.	0



1 PLAN: TREE PROTECTION AND REMOVALS

0 20 40
SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- EXISTING TREE TO REMAIN, PROTECT IN PLACE
- REMOVE EXISTING CONIFEROUS OR DECIDUOUS TREE
- TREE PROTECTION FENCE, SEE SHEET G-09
- 101 — TREE IDENTIFICATION NUMBER, SEE TABLE FOR TREE SURVEY AND TREE REMOVAL SUMMARY

NOTES:

1. ASH TREES MUST BE REMOVED BETWEEN OCTOBER 1ST AND APRIL 30TH AND TAKEN TO AN APPROVED SITE FOR DISPOSAL. CONTRACTOR MUST PROVIDE ASSURANCE THAT ASH TREES DO NOT LEAVE QUARANTINED AREA.

OAK WILT

TO PROTECT AGAINST OAK WILT ALL PRUNING, ROOT CUTTING, OR DAMAGE TO THE OAK TREES SHALL BE AVOIDED BETWEEN APRIL 1ST AND JULY 31ST. ANY WOUNDING OR ROOT CUTTING WILL REQUIRE THE SEALING OF ALL WOUNDS WITH AN APPROVED PAINT OR SHELLAC AND AN INSPECTION BY THE CITY FORESTER. EXPOSED, CUT, OR DAMAGED ROOTS MUST BE IMMEDIATELY COVERED WITH SOIL OR SEALED AND INSPECTED BY THE CITY FORESTER.

CONTRACTOR SHALL CONTACT THE CITY FORESTER, PRIOR TO DEMOLITION OR OTHER LAND DISTURBANCE ASSOCIATED WITH SITE CONSTRUCTION, TO VERIFY TREE PROTECTION MEASURES.

TREE SURVEY AND REMOVAL TABLE - SOUTH

TREE ID #	TREE SPECIES	DBH (INCHES)	SIGN.	TREE HEALTH	REMOVED BY
100	BASSWOOD	11		HEALTHY	NO
101	RED ASH	16	S	HEALTHY	RPBCWD
102	ASH	7		HEALTHY	NO
103	BASSWOOD	12	S	HEALTHY	NO
104	ASH	9		HEALTHY	NO
105	ASH	13	S	HEALTHY	NO
106	ASH	15	S	HEALTHY	NO
107	ASH	3		DEAD	RPBCWD
108	BASSWOOD	6		HEALTHY	NO
109	ASH	6		DEAD	NO
110	ASH	7		HEALTHY	NO
111	ASH	4		HEALTHY	NO
112	ASH	14	S	HEALTHY	NO
113	MAPLE	7		HEALTHY	NO
114	ASH	10		HEALTHY	NO
115	MAPLE	5		HEALTHY	NO
116	ASH	10		HEALTHY	NO
117	ASH	6		HEALTHY	NO
118	BASSWOOD	10		HEALTHY	NO
119	ASH	3		HEALTHY	RPBCWD
120	ASH	9		HEALTHY	RPBCWD
121	ASH	4		HEALTHY	RPBCWD
122	UNKNOWN	5		DEAD	RPBCWD
123	BUCKTHORN	9		DEAD	RPBCWD
124	ASH	10		HEALTHY	RPBCWD
125	ASH	15	S	HEALTHY	RPBCWD
126	ASH	8		HEALTHY	RPBCWD
127	ASH	9		HEALTHY	RPBCWD
128	ASH	12	S	UNHEALTHY	RPBCWD
129	OAK	13	S	HEALTHY	NO
130	ASH	27	S	HEALTHY	RPBCWD
131	ASH	9		HEALTHY	NO
132	ASH	11		HEALTHY	RPBCWD
133	ELM	6		HEALTHY	NO
134	ELM	5		HEALTHY	NO
135	BOX ELDER	15		HEALTHY	NO
136	BOX ELDER	6		HEALTHY	NO
137	BOX ELDER	7		HEALTHY	NO
138	ASH	9		HEALTHY	NO
139	MAPLE	3		HEALTHY	NO
140	ASH	8		HEALTHY	NO
141	ASH	4		HEALTHY	RPBCWD
142	ASH	4		HEALTHY	RPBCWD
143	ASH	6		HEALTHY	RPBCWD
144	BASSWOOD	28	S	UNHEALTHY	NO
145	MAPLE	4		HEALTHY	RPBCWD
146	ASH	4		HEALTHY	RPBCWD
147	OAK	6		HEALTHY	RPBCWD
148	ASH	9		HEALTHY	NO
149	ASH	14	S	HEALTHY	NO
150	OAK	6		HEALTHY	NO
151	MAPLE	27	S	HEALTHY	NO
152	ASH	25	S	HEALTHY	RPBCWD
153	RED OAK	30	S	HEALTHY	NO
154	SUGAR MAPLE	17	S	HEALTHY	NO
155	MAPLE	13	S	HEALTHY	NO
156	MAPLE	15	S	UNHEALTHY	NO
157	ASH	12	S	HEALTHY	NO
158	ASH	13	S	HEALTHY	RPBCWD
159	BOX ELDER	16	S	HEALTHY	NO
160	ELM	16		HEALTHY	RPBCWD
161	RED ASH	16	S	HEALTHY	RPBCWD
162	ASH	22	S	HEALTHY	BEARPATH
163	SYCAMORE	20	S	HEALTHY	RPBCWD
164	CHERRY	12	S	HEALTHY	NO
165	RED ASH	14	S	HEALTHY	BEARPATH
166	MAPLE	13	S	UNHEALTHY	NO
167	BOX ELDER	16		HEALTHY	NO
168	BASSWOOD	15	S	HEALTHY	NO
169	ASH	9		HEALTHY	RPBCWD
170	ASH	10		HEALTHY	RPBCWD
171	ASH	12		HEALTHY	RPBCWD
172	ASH	8		HEALTHY	BEARPATH
173	ASH	14		HEALTHY	BEARPATH
174	CEDAR	8	S	HEALTHY	NO

NOTE: SIGNIFICANT TREES DENOTED BY 'S'

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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PRINTED NAME JESSICA OLSON

SIGNATURE

DATE 06/25/2021 LICENSE # 43102

	07/15/20	08/06/20		05/11/21			
BID				06/25/21			
CONSTRUCTION							
PERMITTING			03/12/21				

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DATE RELEASED

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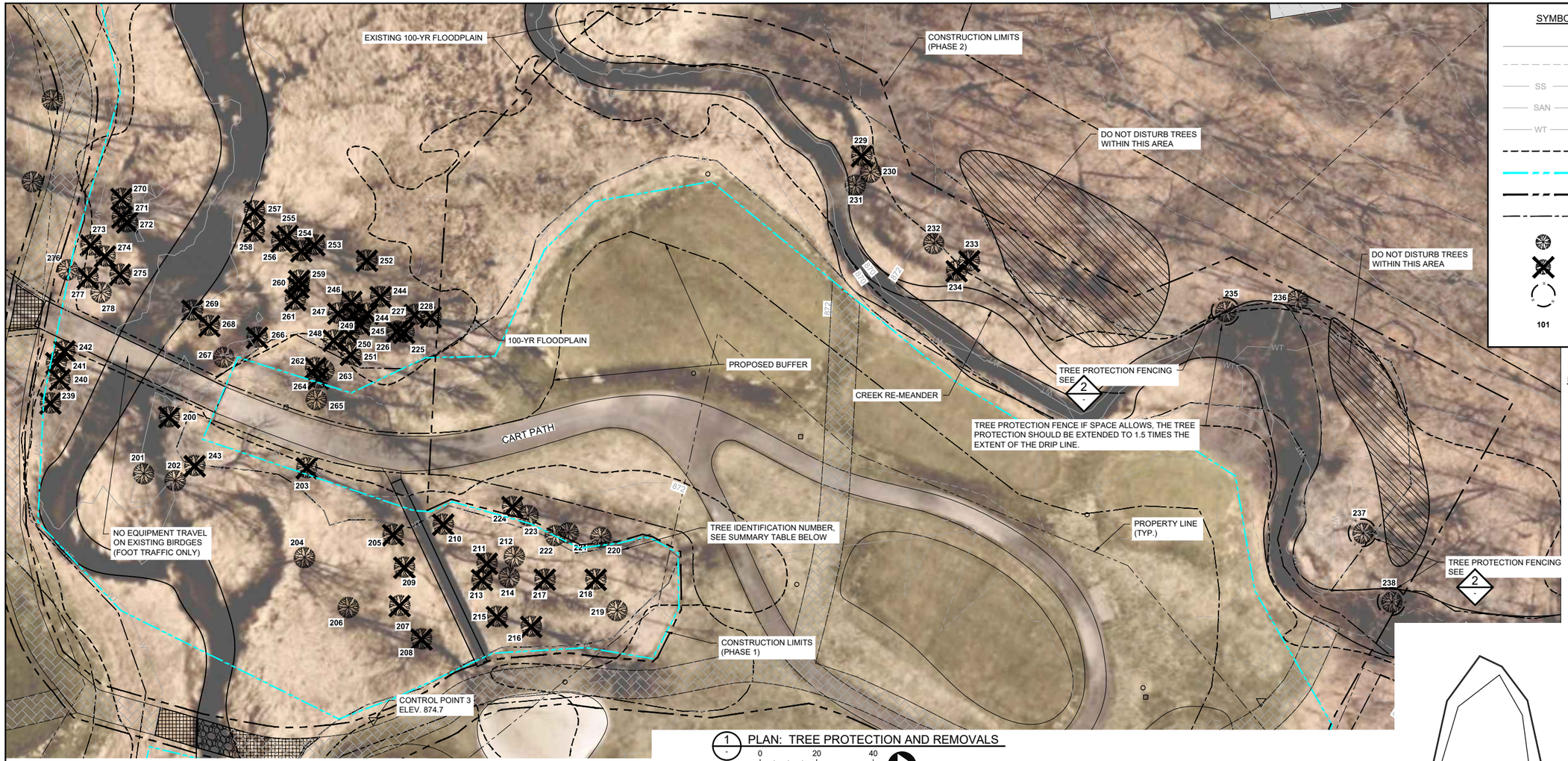
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION
& BEARPATH GOLF COURSE RENOVATION

TREE PROTECTION AND REMOVALS PLAN SOUTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. G-04
REV. No. 0



SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- EXISTING TREE TO REMAIN, PROTECT IN PLACE
- REMOVE EXISTING CONIFEROUS OR DECIDUOUS TREE
- TREE PROTECTION FENCE, SEE SHEET G-09
- 101 — TREE IDENTIFICATION NUMBER, SEE TABLE FOR TREE SURVEY AND TREE REMOVAL SUMMARY

NOTES:

1. ASH TREES MUST BE REMOVED BETWEEN OCTOBER 1ST AND APRIL 30TH AND TAKEN TO AN APPROVED SITE FOR DISPOSAL. CONTRACTOR MUST PROVIDE ASSURANCE THAT ASH TREES DO NOT LEAVE QUARANTINED AREA.

OAK WILT

TO PROTECT AGAINST OAK WILT ALL PRUNING, ROOT CUTTING, OR DAMAGE TO THE OAK TREES SHALL BE AVOIDED BETWEEN APRIL 1ST AND JULY 31ST. ANY WOUNDING OR ROOT CUTTING WILL REQUIRE THE SEALING OF ALL WOUNDS WITH AN APPROVED PAINT OR SHELLAC AND AN INSPECTION BY THE CITY FORESTER. EXPOSED, CUT, OR DAMAGED ROOTS MUST BE IMMEDIATELY COVERED WITH SOIL OR SEALED AND INSPECTED BY THE CITY FORESTER.

CONTRACTOR SHALL CONTACT THE CITY FORESTER, PRIOR TO DEMOLITION OR OTHER LAND DISTURBANCE ASSOCIATED WITH SITE CONSTRUCTION, TO VERIFY TREE PROTECTION MEASURES.

1 — PLAN: TREE PROTECTION AND REMOVALS

0 20 40

SCALE IN FEET

TREE SURVEY AND REMOVAL TABLE - NORTH

TREE ID #	TREE SPECIES	DBH (INCHES)	SIGN.	TREE HEALTH	REMOVED BY
200	ASH	18	S	HEALTHY	BEARPATH
201	ASH	14	S	UNHEALTHY	NO
202	ELM	18		HEALTHY	NO
203	ASH	16	S	UNHEALTHY	BEARPATH
204	BASSWOOD	15	S	HEALTHY	NO
205	ASH	8		HEALTHY	BEARPATH
206	BASSWOOD	7 (4)		HEALTHY	NO
207	ASH	4		HEALTHY	BEARPATH
208	ELM	16		HEALTHY	BEARPATH
209	BOX ELDER	4		HEALTHY	BEARPATH
210	ASH	7		HEALTHY	BEARPATH
211	ASH	7		HEALTHY	BEARPATH
212	OAK	6		UNHEALTHY	NO
213	ASH	7 (2)		HEALTHY	BEARPATH
214	BASSWOOD	8		HEALTHY	NO
215	ASH	12	S	HEALTHY	BEARPATH
216	ASH	14	S	HEALTHY	BEARPATH
217	ASH	4		HEALTHY	BEARPATH
218	ASH	6		HEALTHY	BEARPATH
219	WILLOW	5		HEALTHY	NO
220	OAK	9		HEALTHY	NO
221	WILLOW	9		HEALTHY	NO
222	WILLOW	8		HEALTHY	NO
223	BASSWOOD	11		HEALTHY	NO
224	ASH	8		HEALTHY	BEARPATH
225	ASH	6		DEAD	BEARPATH
226	ASH	8		DEAD	BEARPATH
227	ASH	12		HEALTHY	BEARPATH
228	ASH	7		HEALTHY	BEARPATH
229	ASH	10		HEALTHY	BEARPATH
230	RED OAK	10 (2)		HEALTHY	NO
231	ASH	14	S	HEALTHY	NO
232	BASSWOOD	14	S	HEALTHY	NO
233	ASH	11		HEALTHY	RPBCWD
234	BASSWOOD	12	S	HEALTHY	RPBCWD
235	BASSWOOD	8		HEALTHY	NO
236	BASSWOOD	8		HEALTHY	NO
237	OAK	24	S	HEALTHY	NO
238	ELM	16		HEALTHY	NO
239	ASH	13		HEALTHY	BEARPATH
240	ASH	1		HEALTHY	BEARPATH
241	ASH	18		HEALTHY	BEARPATH
242	ASH	13		HEALTHY	BEARPATH
243	ASH	18		UNHEALTHY	BEARPATH
244	ASH	8		HEALTHY	BEARPATH
245	ASH	6		HEALTHY	BEARPATH
246	ASH	11		HEALTHY	BEARPATH
247	ASH	7		HEALTHY	BEARPATH
248	ASH	7		DEAD	BEARPATH
249	ASH	13		HEALTHY	BEARPATH
250	ASH	14		HEALTHY	BEARPATH
251	UNKNOWN	5		DEAD	BEARPATH
252	ASH	7		HEALTHY	BEARPATH
253	ASH	15		HEALTHY	BEARPATH
254	ASH	12		HEALTHY	BEARPATH
255	ELM	7		DEAD	BEARPATH
256	ASH	9		UNHEALTHY	BEARPATH
257	ASH	10		HEALTHY	BEARPATH
258	ASH	17		HEALTHY	BEARPATH
259	ASH	7		HEALTHY	BEARPATH
260	ASH	7		HEALTHY	BEARPATH
261	ASH	8		HEALTHY	BEARPATH
262	ASH	12		HEALTHY	BEARPATH
263	HACKBERRY	5		HEALTHY	NO
264	ASH	18		HEALTHY	BEARPATH
265	OAK	18		HEALTHY	NO
266	ASH	3		HEALTHY	BEARPATH
267	ELM	10,13,7		HEALTHY	NO
268	ASH	10,6		HEALTHY	BEARPATH
269	ASH	14		HEALTHY	BEARPATH
270	ASH	13		HEALTHY	BEARPATH
271	ASH	10		DEAD	BEARPATH
272	ASH	12		HEALTHY	BEARPATH
273	ASH	2		HEALTHY	BEARPATH
274	ASH	5		UNHEALTHY	BEARPATH
275	ASH	12		UNHEALTHY	BEARPATH
276	BASSWOOD	11		HEALTHY	NO
277	ASH	12		HEALTHY	BEARPATH
278	BUCKTHORN	5,6		HEALTHY	NO

NOTE: SIGNIFICANT TREES DENOTED BY 'S'

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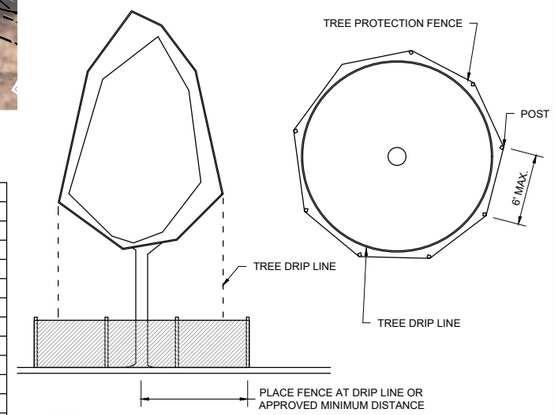

NOTES:

1. TREE PROTECTION FENCING SHALL BE INSTALLED ACCORDING TO PLAN PRIOR TO DEMOLITION OR OTHER SITE WORK. ANY RELOCATION OF THE TREE PROTECTION FENCING TO BE APPROVED BY CITY FORESTER. TREE PROTECTION FENCING SHALL BE MAINTAINED FOR THE DURATION OF THE CONSTRUCTION PROCESS.
2. CONSTRUCTION MATERIALS, STOCKPILES, EQUIPMENT, VEHICLES, AND TEMPORARY FACILITIES SHALL NOT BE STORED OR OPERATED WITHIN THE TREE PROTECTION ZONE.
3. ROOTS OUTSIDE OF THE TREE PROTECTION ZONE EXPOSED OR DAMAGED DURING EXCAVATION OR OTHER CONSTRUCTION ACTIVITY SHALL BE CLEANLY CUT AS DIRECTED BY THE CITY FORESTER.
4. ADDITIONAL TREE PROTECTION MEASURES MAY BE REQUIRED.

2 — DETAIL: TREE PROTECTION FENCING
NOT TO SCALE

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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PRINTED NAME JESSICA OLSON

SIGNATURE

DATE 06/25/2021 LICENSE # 43102

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BID					06/25/21		
CONSTRUCTION							
PERMITTING			03/12/21				

RELEASED TO/FOR — DATE RELEASED

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Scale	AS SHOWN
Date	06/25/2021
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Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION
& GOLF COURSE RENOVATION

TREE PROTECTION AND REMOVALS PLAN
NORTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. G-05
REV. No. 0

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23270053.14\MIDDLE RILEY STREAM\23270053t4_G-04_TREE INVENTORY.DWG PLOT SCALE: 1:2 PLOT DATE: 6/25/2021 2:01 PM
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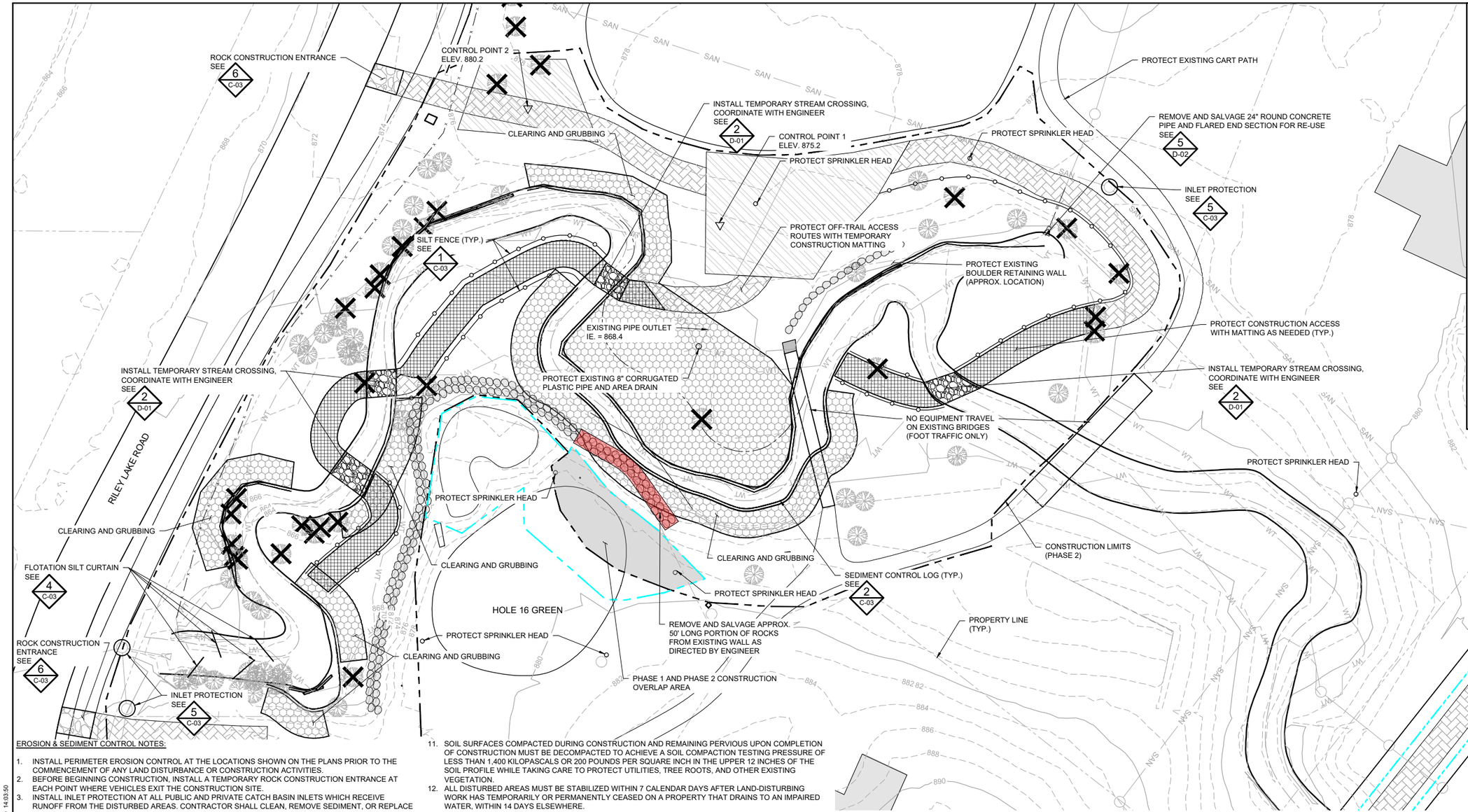

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- WT — EXISTING WETLAND DELINEATION
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- SILT FENCE
- SEDIMENT CONTROL LOGS
- CONSTRUCTION ACCESS ROUTE
- CONSTRUCTION ACCESS ROUTE WITH PROTECTIVE MATTING
- TEMPORARY CREEK CROSSING
- CLEARING AND GRUBBING AREA
- REMOVE AND SALVAGE TREE
- PROTECT EXISTING TREE

GENERAL NOTES:

1. RILEY CREEK IS IDENTIFIED BY THE DNR AS A PUBLIC WATER. WORK IN AND AROUND THE CREEK MAY NOT OCCUR BETWEEN MARCH 15TH AND JUNE 15TH.
2. ALL TREES TO BE PROTECTED UNLESS SPECIFICALLY IDENTIFIED FOR REMOVAL OR DIRECTED BY ENGINEER.
3. PROTECT ALL EXISTING IRRIGATION SYSTEM COMPONENTS, INCLUDING BUT NOT LIMITED TO SPRINKLER HEADS.

EROSION & SEDIMENT CONTROL NOTES:

1. INSTALL PERIMETER EROSION CONTROL AT THE LOCATIONS SHOWN ON THE PLANS PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES.
2. BEFORE BEGINNING CONSTRUCTION, INSTALL A TEMPORARY ROCK CONSTRUCTION ENTRANCE AT EACH POINT WHERE VEHICLES EXIT THE CONSTRUCTION SITE.
3. 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.
4. 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.
5. NATURAL TOPOGRAPHY AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RETENTION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
6. ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY THE DISTRICT MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADEQUATE STABILIZATION.
7. FINAL SITE STABILIZATION MEASURES MUST SPECIFY THAT AT LEAST SIX INCHES OF TOPSOIL WITH A MINIMUM OF 5% ORGANIC MATTER BE SPREAD AND INCORPORATED INTO THE UNDERLYING SOIL DURING FINAL SITE TREATMENT WHEREVER TOPSOIL HAS BEEN REMOVED.
8. CONSTRUCTION SITE WASTE SUCH AS DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE MUST BE PROPERLY MANAGED.
9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION AND VEGETATION IS ESTABLISHED SUFFICIENTLY TO ENSURE STABILITY OF THE SITE, AS DETERMINED BY THE DISTRICT.
10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE REMOVED UPON FINAL STABILIZATION.
11. SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED TO ACHIEVE A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF THE SOIL PROFILE WHILE TAKING CARE TO PROTECT UTILITIES, TREE ROOTS, AND OTHER EXISTING VEGETATION.
12. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER, WITHIN 14 DAYS ELSEWHERE.
13. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES EVERY DAY WORK IS PERFORMED ON THE SITE AND AT LEAST WEEKLY UNTIL LAND-DISTURBING ACTIVITY HAS CEASED. THEREAFTER, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.
14. 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.
15. FLOW IN RILEY CREEK WILL BE PASSED AROUND THE ACTIVE WORK AREA. CONTRACTOR IS RESPONSIBLE FOR CONTROL OF WATER TO MANAGE WATER FLOW AND LEVELS AS NECESSARY, REFER TO SPECIFICATIONS.
16. 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.
17. ACTIVITIES MUST BE CONDUCTED SO AS TO MINIMIZE THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G., ZEBRA MUSSELS, EURASIAN WATERMILFOIL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.
18. WHEREVER CONSTRUCTION ACCESS ROUTE CROSSES EXISTING TRAILS, PROTECT WITH MATTING OR ENGINEER-APPROVED ALTERNATIVE.

1 - PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL

0 20 40 SCALE IN FEET

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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Date	06/25/2021
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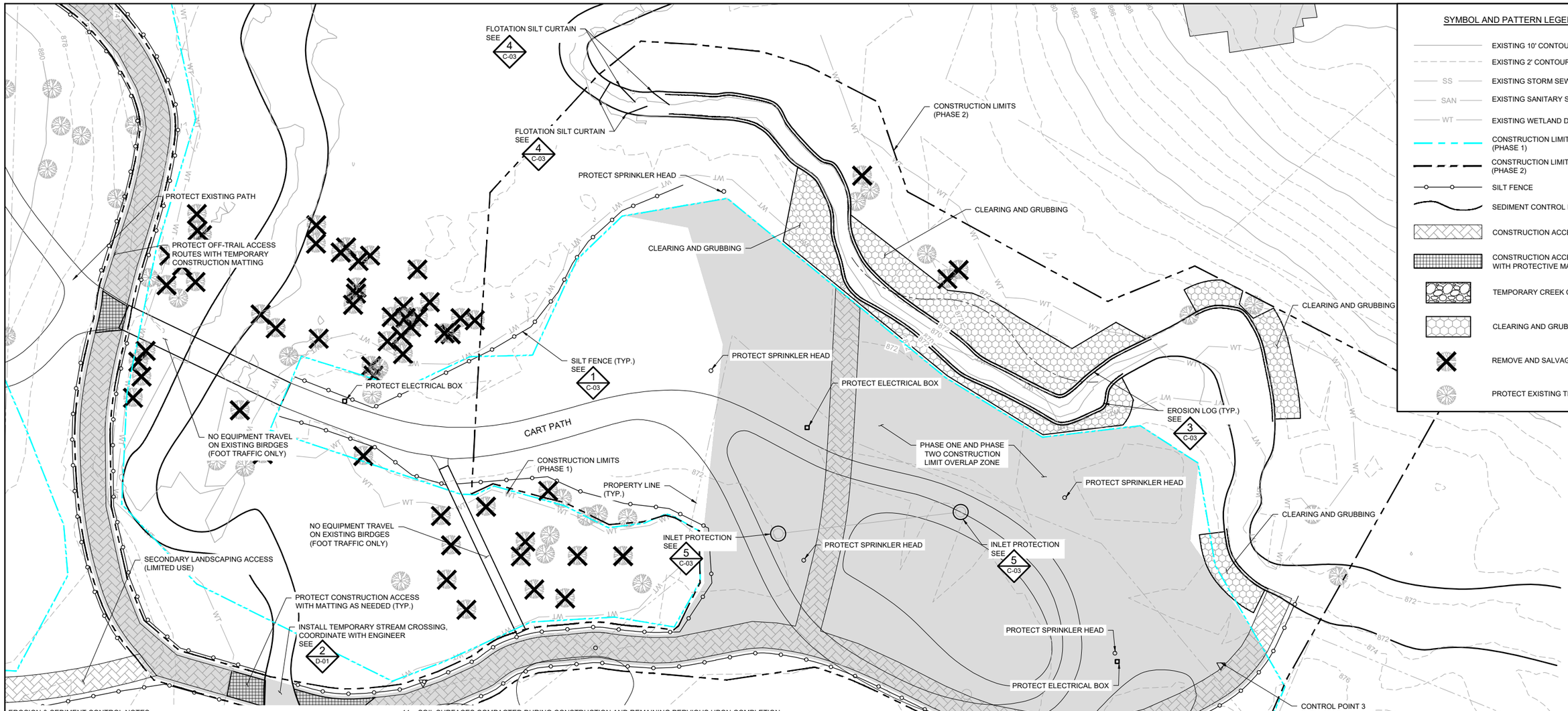
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

EXISTING CONDITIONS, REMOVALS & EROSION CONTROL PLAN SOUTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-01
REV. No. 0



EROSION & SEDIMENT CONTROL NOTES:

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7. FINAL SITE STABILIZATION MEASURES MUST SPECIFY THAT AT LEAST SIX INCHES OF TOPSOIL WITH A MINIMUM OF 5% ORGANIC MATTER BE SPREAD AND INCORPORATED INTO THE UNDERLYING SOIL DURING FINAL SITE TREATMENT WHEREVER TOPSOIL HAS BEEN REMOVED.
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12. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER, WITHIN 14 DAYS ELSEWHERE.
13. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES EVERY DAY WORK IS PERFORMED ON THE SITE AND AT LEAST WEEKLY UNTIL LAND-DISTURBING ACTIVITY HAS CEASED. THEREAFTER, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.
14. 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.
15. FLOW IN RILEY CREEK WILL BE PASSED AROUND THE ACTIVE WORK AREA. CONTRACTOR IS RESPONSIBLE FOR CONTROL OF WATER TO MANAGE WATER FLOW AND LEVELS AS NECESSARY, REFER TO SPECIFICATIONS.
16. 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.
17. ACTIVITIES MUST BE CONDUCTED SO AS TO MINIMIZE THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G., ZEBRA MUSSELS, EURASIAN WATERMILFOIL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.
18. WHEREVER CONSTRUCTION ACCESS ROUTE CROSSES EXISTING TRAILS, PROTECT WITH MATTING OR ENGINEER-APPROVED ALTERNATIVE.

1 - PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL

0 20 40
SCALE IN FEET

GENERAL NOTES:

1. RILEY CREEK IS IDENTIFIED BY THE DNR AS A PUBLIC WATER. WORK IN AND AROUND THE CREEK MAY NOT OCCUR BETWEEN MARCH 15TH AND JUNE 15TH.
2. ALL TREES TO BE PROTECTED UNLESS SPECIFICALLY IDENTIFIED FOR REMOVAL OR DIRECTED BY ENGINEER.
3. PROTECT ALL EXISTING IRRIGATION SYSTEM COMPONENTS, INCLUDING BUT NOT LIMITED TO SPRINKLER HEADS.
4. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE SITE ACCESS AND WORK TIMING.
5. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE SCHEDULES AND SCOPE TO PLACE AND REMOVE STREAM CROSSING TO ALLOW FOR COMPLETION OF ALL CONSTRUCTION ACTIVITIES IN A TIMELY FASHION.

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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

PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

CLIENT	07/15/20	08/06/20	—	05/11/21	—	—	—
BID	—	—	—	—	06/25/21	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	—	03/12/21	—	—	—
	—	—	—	—	—	—	—
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	DATE RELEASED						

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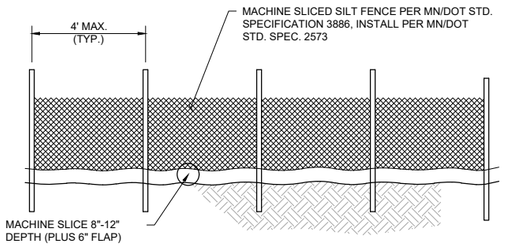
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

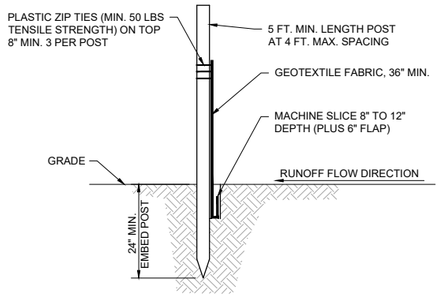
MIDDLE RILEY CREEK STABILIZATION (PHASE 1 & 2)
EDEN PRAIRIE, MN

EXISTING CONDITIONS, REMOVALS & EROSION CONTROL PLAN
NORTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-02
REV. No. 0



DOWNSTREAM VIEW

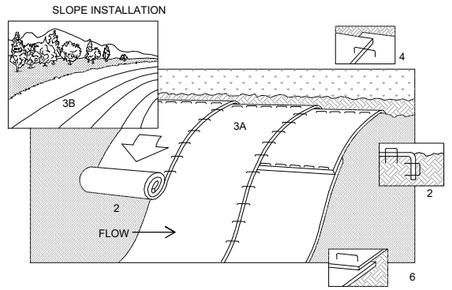


SECTION VIEW

NOTES:

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

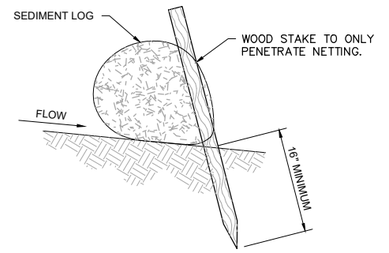
1 - DETAIL: SILT FENCE - MACHINE SLICED
NOT TO SCALE



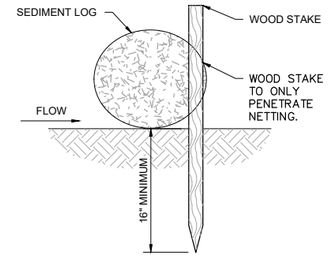
NOTES:

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

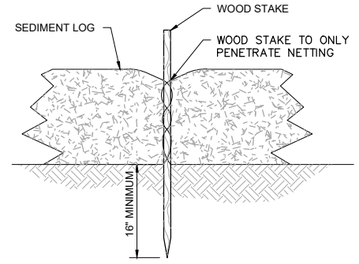
2 - DETAIL: EROSION CONTROL BLANKET - INSTALLATION
NOT TO SCALE



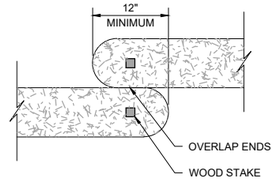
SIDE VIEW ON SLOPE



SIDE VIEW FLAT



FRONT VIEW

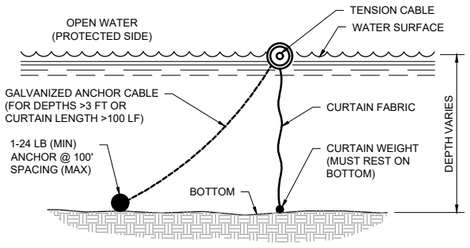


TOP VIEW

NOTES:

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

3 - DETAIL: EROSION LOG - STAKING
NOT TO SCALE

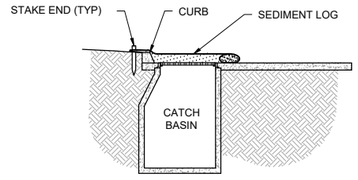


SECTION

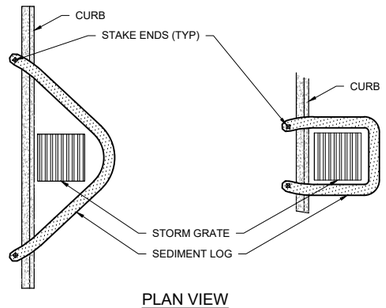
NOTES:

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

4 - DETAIL: FLOTATION SILT CURTAIN
NOT TO SCALE



SECTION VIEW

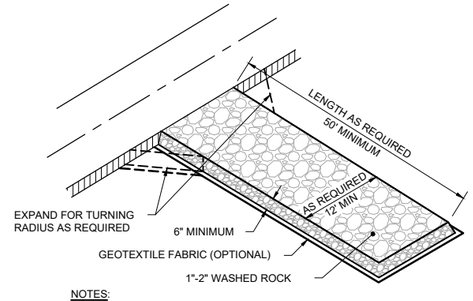


PLAN VIEW

NOTES:

1. INLET PROTECTION SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED OR IMMEDIATELY FOLLOWING CATCHBASIN INSTALLATION, AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. MATERIALS SHALL BE SUFFICIENT TO ALLOW FLOW WHILE BLOCKING SEDIMENT. NO HOLES OR GAPS SHALL BE PRESENT IN/UNDER SEDIMENT LOG.
3. INLET PROTECTION SHALL BE CLEANED AS REQUIRED.
4. MATERIALS AND ANY ACCUMULATED SEDIMENT SHALL BE REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

5 - DETAIL: INLET PROTECTION - SEDIMENT LOG
NOT TO SCALE



NOTES:

1. MAINTAIN ENTRANCE THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACE AS REQUIRED TO PREVENT TRACKING OFFSITE.
2. REMOVE ENTRANCE IN CONJUNCTION WITH FINAL GRADING AND SITE STABILIZATION.

6 - DETAIL: CONSTRUCTION ENTRANCE - ROCK
NOT TO SCALE

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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SIGNATURE
DATE 06/25/2021 LICENSE # 43102

	07/15/20	08/06/20		05/11/21			
CLIENT					06/25/21		
BID							
CONSTRUCTION							
PERMITTING				03/12/21			
RELEASED TO/FOR	A	B	C	D	0	1	2
	DATE RELEASED						

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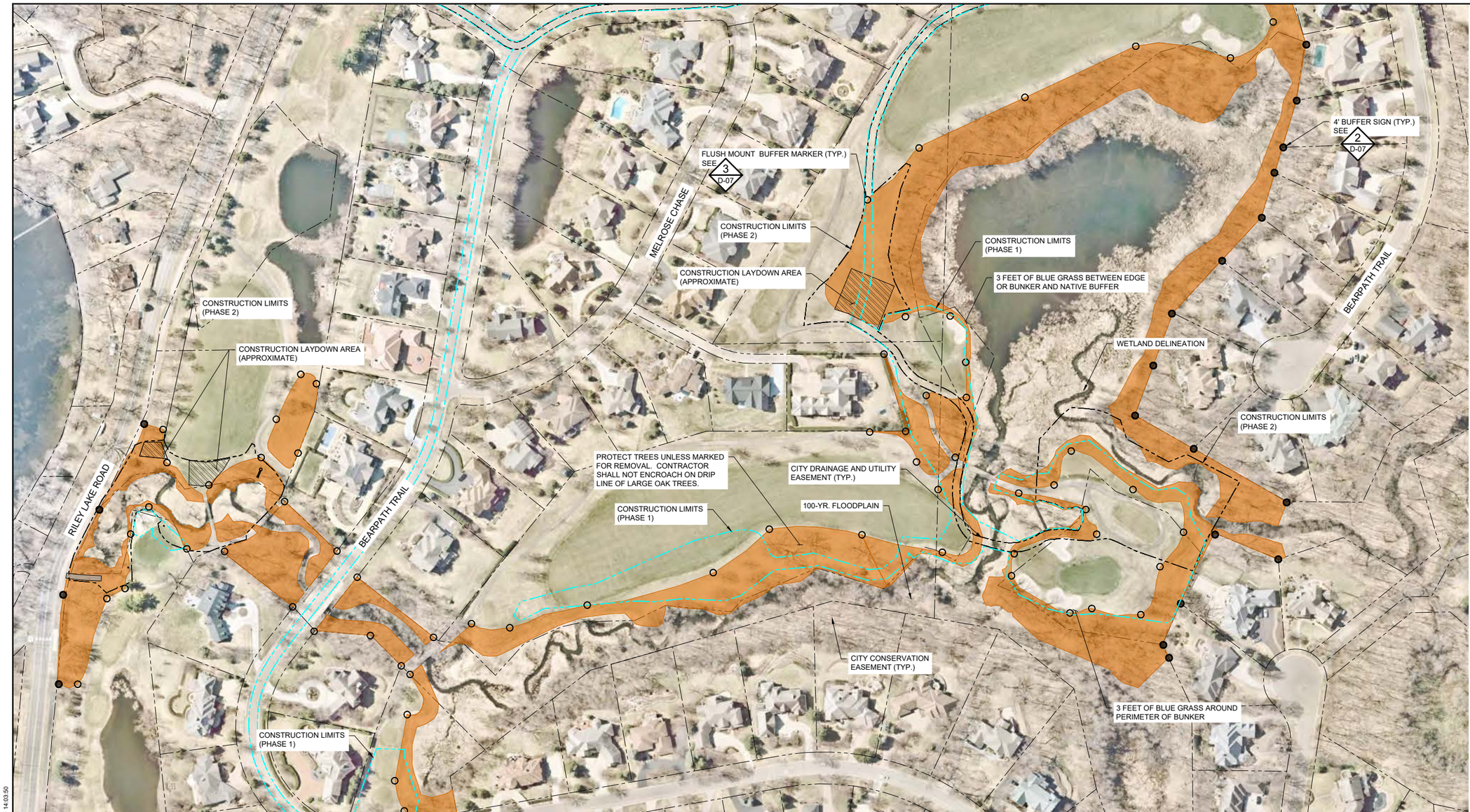
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

EROSION CONTROL DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-03
REV. No. 0



SYMBOL AND PATTERN LEGEND

- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- EXISTING PROPERTY LINE
- SAN — EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CITY CONSERVATION EASEMENT
- CITY DRAINAGE AND UTILITY EASEMENT
- PROPOSED BUFFER
- 4' BUFFER SIGN
- FLUSH MOUNT BUFFER MARKER

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
2. ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
4. CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE FINAL CONSTRUCTION LIMITS TO BE COORDINATED WITH THE OWNER AND STAKED IN THE FIELD.
5. CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 8" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
8. TREE SURVEY COMPLETED 05/04/2020. "SIGNIFICANT TREES" MEET THE DEFINITION REQUIREMENTS.
9. CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE THE TRANSFER OF AQUATIC AND TERRESTRIAL INVASIVE SPECIES TO THE MAXIMUM EXTENT POSSIBLE.
10. SOIL SURFACES COMPACTED DURING CONSTRUCTION MUST BE DECOMPACTED TO A SOIL COMPACTING PRESSURE OF LESS THAN 1400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 1 INCH OF SOIL.
11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
12. CONTRACTOR SHALL CONTACT ENGINEER AT LEAST 24 HOURS PRIOR TO CONSTRUCTION OF CRITICAL DESIGN ITEMS TO ALLOW FOR CONSTRUCTION OBSERVATION. CRITICAL DESIGN ITEMS INCLUDE:
    - -RIPRAP TOE PROTECTION INSTALLATION
    - -VRSS INSTALLATION
    - -BOULDER VANE INSTALLATION
13. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.

1 - PLAN: EASEMENTS, FLOODPLAINS AND WETLAND BOUNDARIES - FULL SITE

0 100 200
SCALE IN FEET

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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CONSTRUCTION	—	—	—	—	—	—	—	
PERMITTING	—	—	03/12/21	—	—	—	—	
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RELEASED TO/FOR	A	B	C	D	0	1	2	
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Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

EASEMENTS, FLOODPLAINS & WETLAND BOUNDARIES
FULL SITE

BARR PROJECT No. 23/27-00534.14
CLIENT PROJECT No.
DWG. No. C-04
REV. No. 0

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23270053.14\MIDDLE RILEY STREAM\23270053x14_C-04_EASEMENTS - FULL SITE.DWG PLOT SCALE: 1:2 PLOT DATE: 6/28/2021 11:23 AM
BAR_M:\AutoCAD\2011\AutoCAD 2011 Support\enu\Template\Barr_2011_Template.dwt Plot at 1 10/05/2010 14:03:50

SYMBOL AND PATTERN LEGEND

- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- EXISTING PROPERTY LINE
- SAN — EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CITY CONSERVATION EASEMENT
- CITY DRAINAGE AND UTILITY EASEMENT
- PROPOSED BUFFER
- 4' BUFFER SIGN
- 1.5' BUFFER MARKER

NOTES:

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    - -VRSS INSTALLATION
    - -BOULDER VANE INSTALLATION
13. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.

1 PLAN: EASEMENTS, FLOODPLAINS AND WETLAND BOUNDARIES - SOUTH

0 20 40
SCALE IN FEET

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	117922.4829'	465761.5527'	875.23'	VRS SPIKE 1
2	117850.1325'	465717.6763'	880.15'	VRS SPIKE 2

GENERAL NOTE:

BUFFER LINES ARE APPROXIMATE AND WILL BE ADJUSTED IN THE FIELD TO MEET PERMIT AND GOLF COURSE REQUIREMENTS.

ISSUED FOR BID

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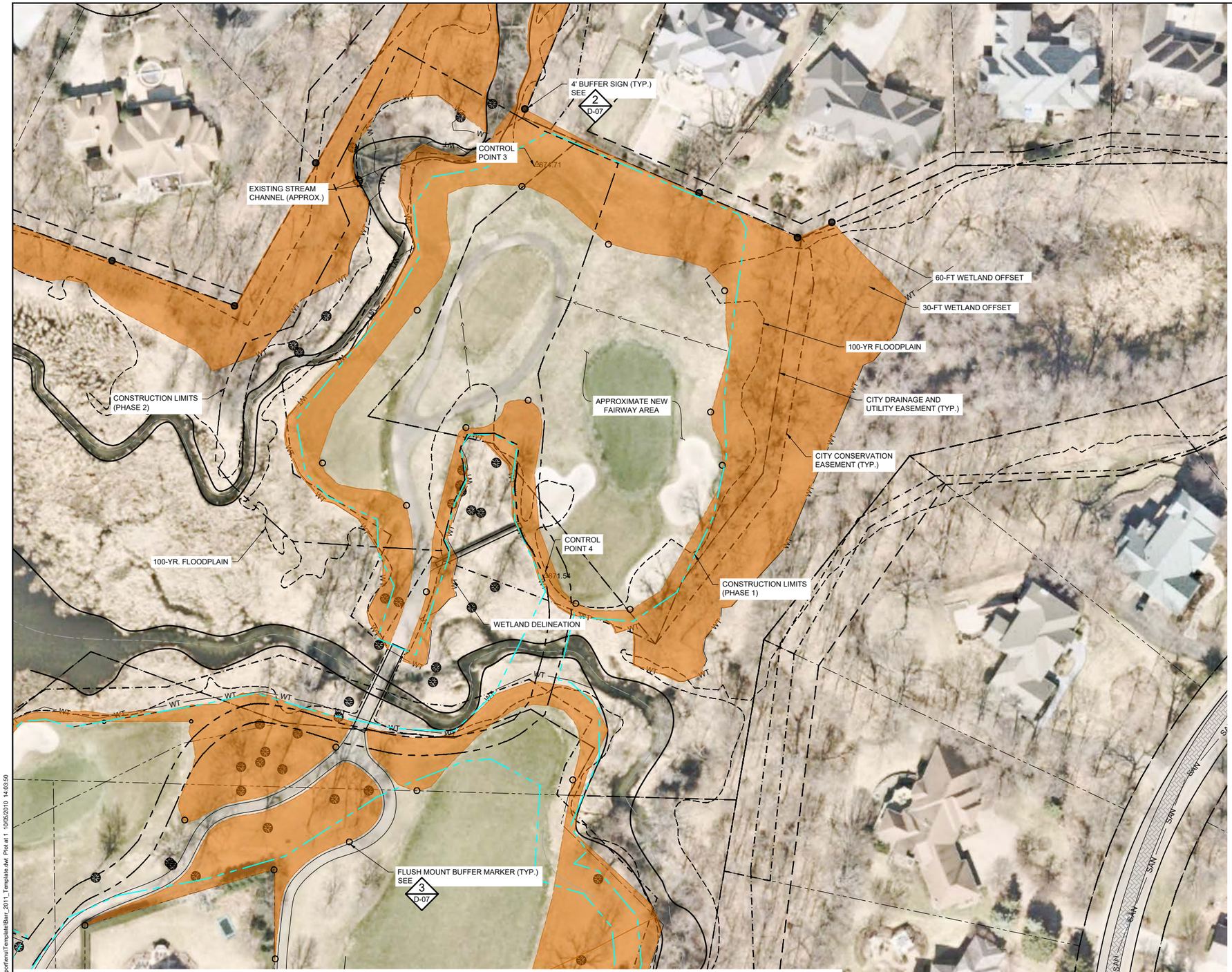
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

EASEMENTS, FLOODPLAINS & WETLAND BOUNDARIES SOUTH

BARR PROJECT No. 23/27-00534.14
CLIENT PROJECT No.
DWG. No. C-05
REV. No. 0



1 - PLAN: EASEMENTS, FLOODPLAINS AND WETLAND BOUNDARIES - NORTH

0 40 80

SCALE IN FEET

N

SYMBOL AND PATTERN LEGEND

- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- EXISTING PROPERTY LINE
- SAN — EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CITY CONSERVATION EASEMENT
- CITY DRAINAGE AND UTILITY EASEMENT
- PROPOSED BUFFER
- 4' BUFFER SIGN
- FLUSH MOUNT BUFFER MARKER

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
2. ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
4. CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE FINAL CONSTRUCTION LIMITS TO BE COORDINATED WITH THE OWNER AND STAKED IN THE FIELD.
5. CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 8" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
8. TREE SURVEY COMPLETED 05/04/2020. "SIGNIFICANT TREES" MEET THE DEFINITION REQUIREMENTS.
9. CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE THE TRANSFER OF AQUATIC AND TERRESTRIAL INVASIVE SPECIES TO THE MAXIMUM EXTENT POSSIBLE.
10. SOIL SURFACES COMPACTED DURING CONSTRUCTION MUST BE DECOMPACTED TO A SOIL COMPACTING PRESSURE OF LESS THAN 1400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 1 INCH OF SOIL.
11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
12. CONTRACTOR SHALL CONTACT ENGINEER AT LEAST 24 HOURS PRIOR TO CONSTRUCTION OF CRITICAL DESIGN ITEMS TO ALLOW FOR CONSTRUCTION OBSERVATION. CRITICAL DESIGN ITEMS INCLUDE:
    -RIPRAP TOE PROTECTION INSTALLATION
    -VRSS INSTALLATION
    -BOULDER VANE INSTALLATION
13. CONTRACTOR MUST PROVIDE AREAS A MINIMUM OF 10 FEET WIDE FOR GOLFER ACCESS ACROSS ACCESS ROUTE AS DIRECTED IN THE FIELD.
14. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.

CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
3	119806.1150'	465879.4807'	874.71'	VRS SPIKE 3
4	119491.9292'	465886.5323'	871.54'	VRS SPIKE 4

GENERAL NOTE:

BUFFER LINES ARE APPROXIMATE AND WILL BE ADJUSTED IN THE FIELD TO MEET PERMIT AND GOLF COURSE REQUIREMENTS.

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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

PRINTED NAME JESSICA OLSON

SIGNATURE

DATE 06/25/2021 LICENSE # 43102

	07/15/20	08/06/20		05/11/21			
BID					06/25/21		
CONSTRUCTION							
PERMITTING			03/12/21				

RELEASED TO/FOR: A B C D 0 1 2 — DATE RELEASED

BARR

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www.barr.com

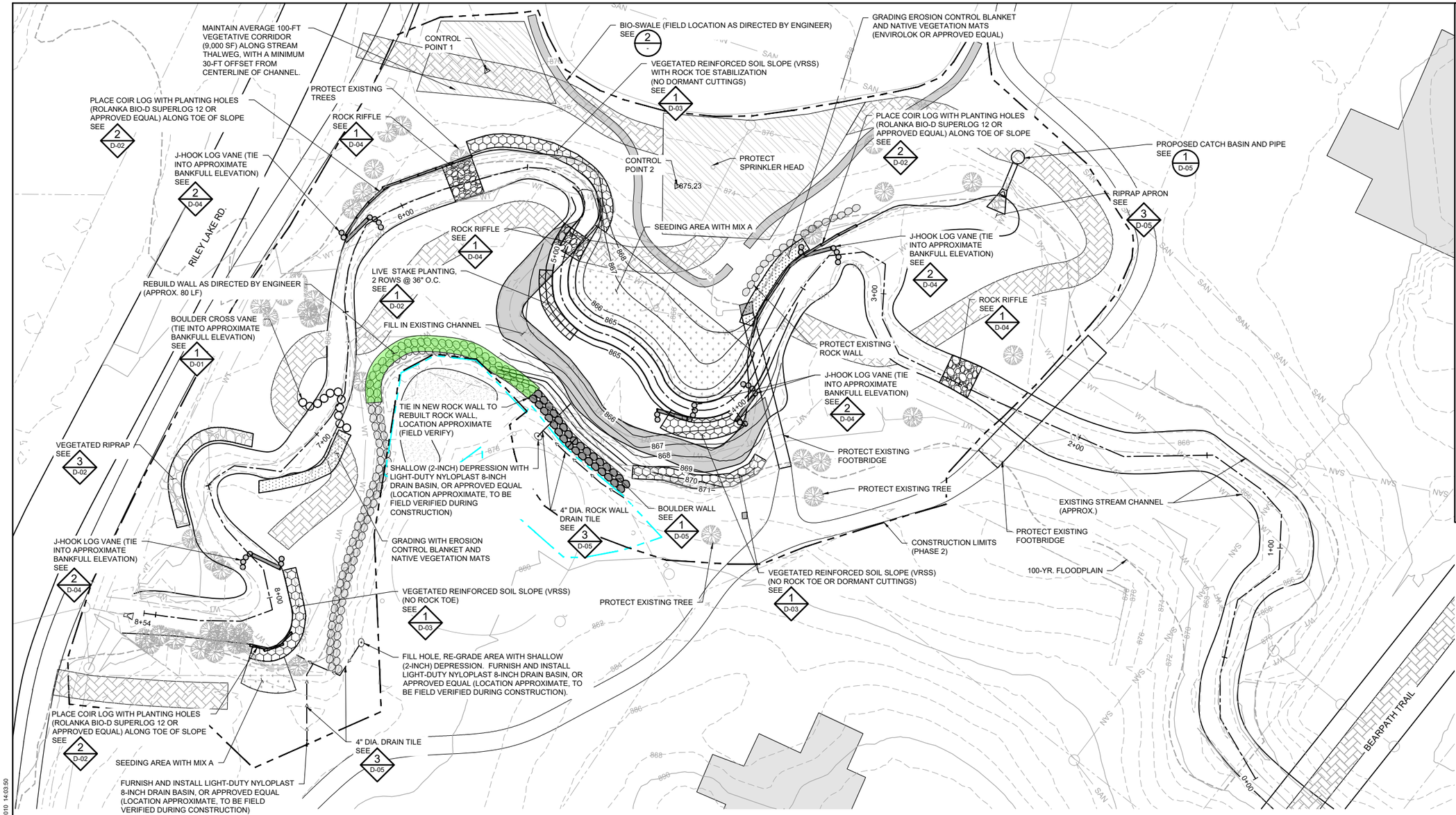
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATRY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

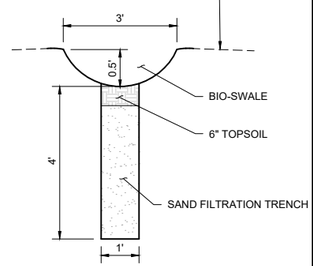
EASEMENTS, FLOODPLAINS & WETLAND BOUNDARIES
NORTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-06
REV. No. 0



SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- EXISTING STREAM THALWEG (APPROX.)
- EXISTING 100-YR FLOODPLAIN
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- ROCK RIFFLE
- LIVE STAKES
- VRSS
- FILL EXISTING CREEK
- SEEDING AREA WITH MIX A
- BOULDER CROSS VANE
- GRADING WITH EROSION CONTROL BLANKET AND NATIVE VEGETATION MATS
- J-HOOK LOG VANE



NOTE:
BIO-SWALE MUST BE MINIMUM 1.5' OFFSET FROM CART PATH.

2 / - SECTION: BIO-SWALE
0 1 2 3 4
SCALE IN FEET

1 / - PLAN: CREEK STABILIZATION SOUTH
0 20 40
SCALE IN FEET

NOTES:

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    - -RIPRAP TOE PROTECTION INSTALLATION
    - -VRSS INSTALLATION
    - -BOULDER VANE INSTALLATION
13. SEE CONSTRUCTION SPECIFICATIONS FOR REQUIRED CONTRACTOR QUALIFICATIONS FOR GOLF COURSE FEATURE RESTORATION AND INSTALLATION.

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	117922.4829'	465761.5527'	875.23'	VRS SPIKE 1
2	117850.1325'	465717.6763'	880.15'	VRS SPIKE 2

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

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CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	—	03/12/21	—	—	—
	—	—	—	—	—	—	—
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DATE RELEASED							

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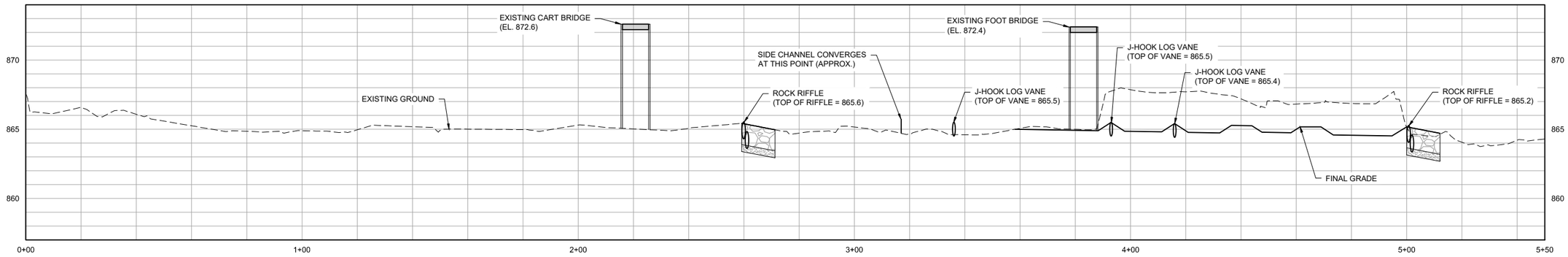
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

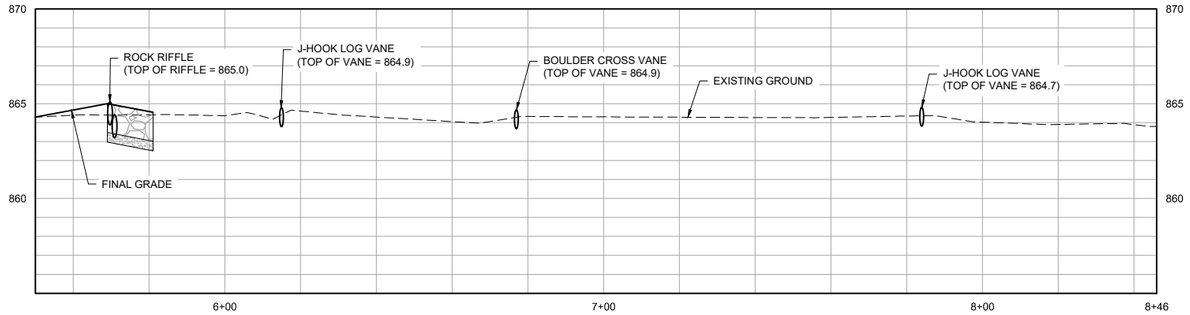
STREAM STABILIZATION SOUTH PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-07
REV. No. 0



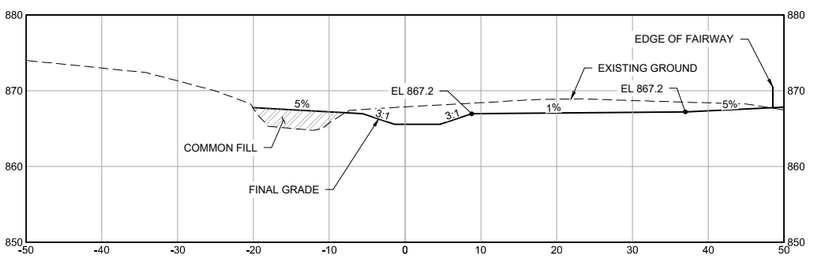
1 - PROFILE: CREEK STABILIZATION SOUTH (STA. 0+00 - 5+50)

0 20 40 HORIZONTAL SCALE IN FEET
0 4 8 VERTICAL SCALE IN FEET



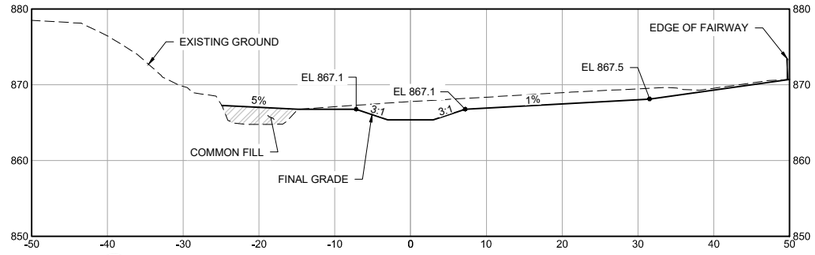
2 - PROFILE: CREEK STABILIZATION SOUTH (STA. 5+50 - 8+46)

0 20 40 HORIZONTAL SCALE IN FEET
0 4 8 VERTICAL SCALE IN FEET



3 - SECTION: CREEK STABILIZATION SOUTH (STA. 4+00) LOOKING DOWNSTREAM

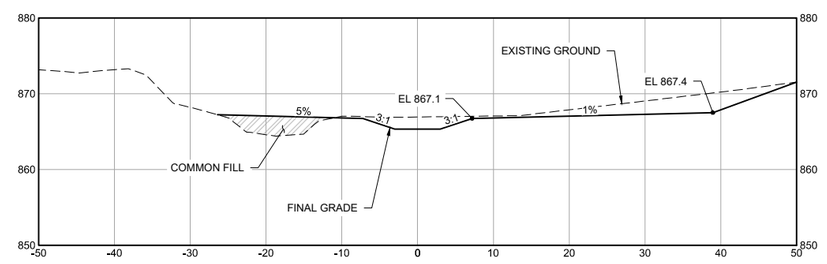
0 10 20 SCALE IN FEET



4 - SECTION: CREEK STABILIZATION SOUTH (STA. 4+25) LOOKING DOWNSTREAM

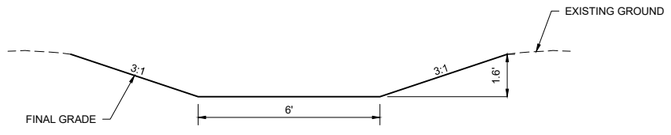
0 10 20 SCALE IN FEET

NOTE:
SEE SHEET D-05 FOR ROCK WALL DETAIL.



5 - SECTION: CREEK STABILIZATION SOUTH (STA. 4+75) LOOKING DOWNSTREAM

0 10 20 SCALE IN FEET



6 - SECTION: TYPICAL RIFFLE SECTION

NOT TO SCALE

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
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PRINTED NAME JESSICA OLSON
SIGNATURE
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CONSTRUCTION	—	—	—	—	—	—	—	
PERMITTING	—	—	—	03/12/21	—	—	—	
	—	—	—	—	—	—	—	
RELEASED TO/FOR	A	B	C	D	0	1	2	
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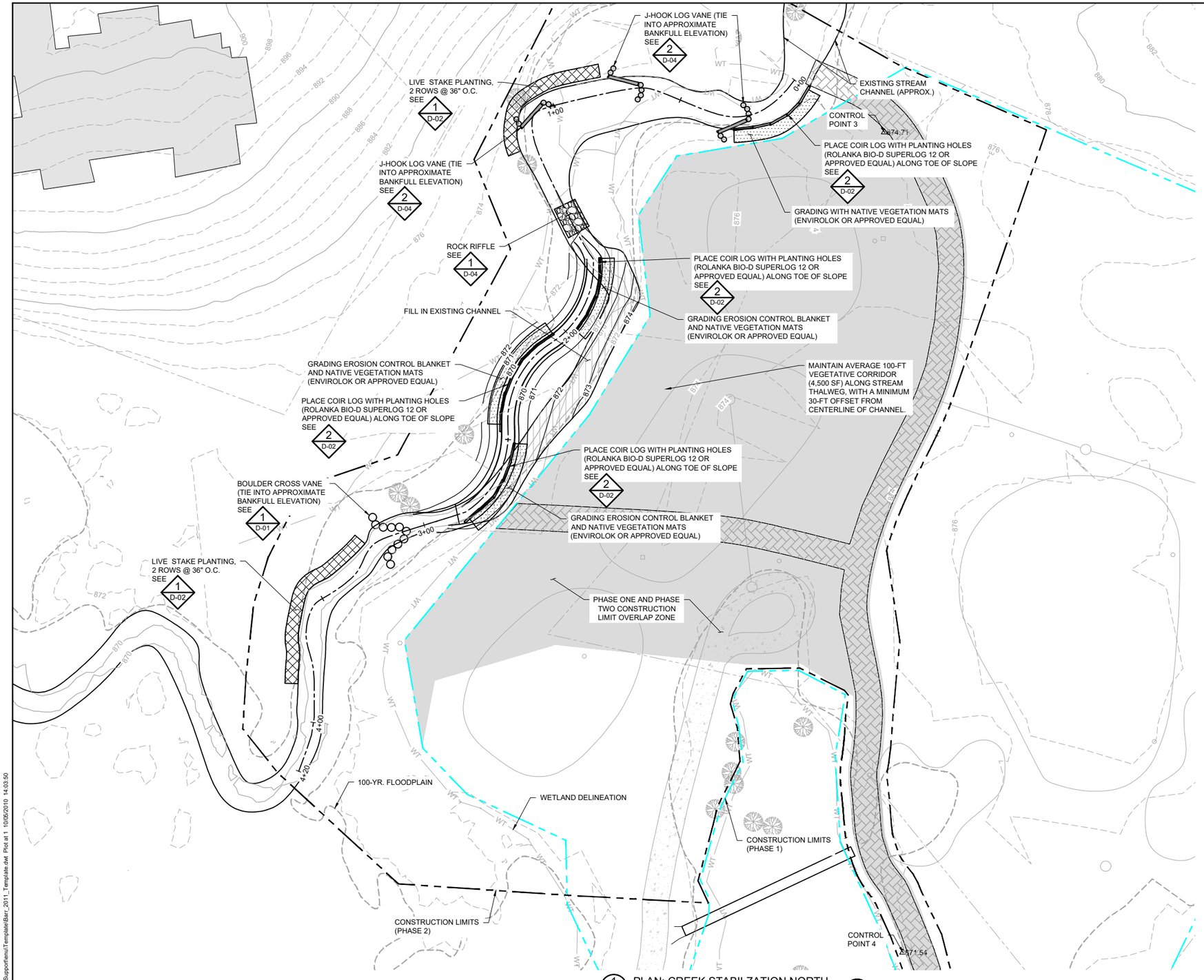
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

STREAM STABILIZATION SOUTH
PROFILE AND SECTIONS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-08
REV. No. 0



1 - PLAN: CREEK STABILZATION NORTH

0 20 40

SCALE IN FEET

NOTES:

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    -VRSS INSTALLATION
    -BOULDER VANE INSTALLATION
13. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE TIMING OF ALL CONSTRUCTION ACTIVITIES TO MINIMIZE DELAYS AND ENSURE ALL WORK IS COMPLETED ACCORDING TO PLANS.

CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
3	119806.1150'	465879.4807'	874.71'	VRS SPIKE 3
4	119491.9292'	465886.5323'	871.54'	VRS SPIKE 4

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RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

STREAM STABILIZATION NORTH
PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-09
REV. No. 0

CADD USER: Eric.P. Fitzgerald FILE: M:\DESIGN\23270053.14\MIDDLE RILEY ST\RE.MN\23270053.14_C-09_STREAM PLAN & PROFILE - NORTH.DWG PLOT SCALE: 1:2 PLOT DATE: 6/28/2021 11:31 AM
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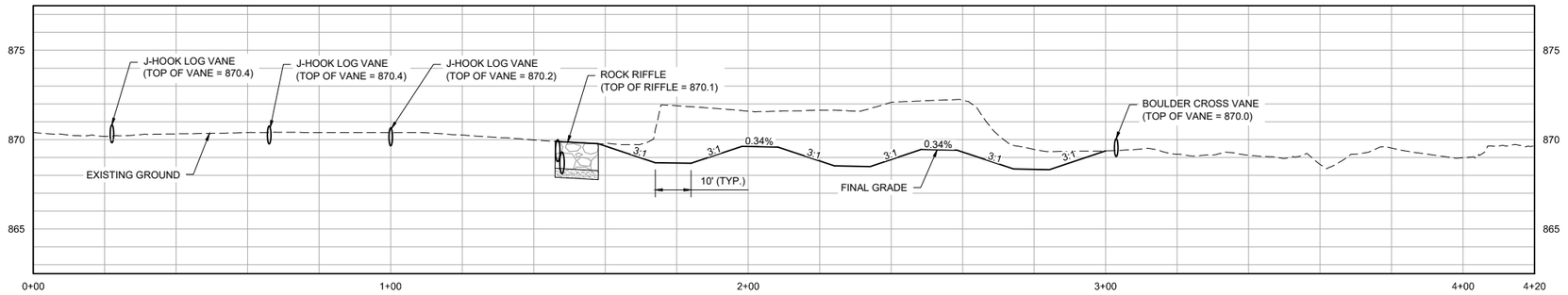
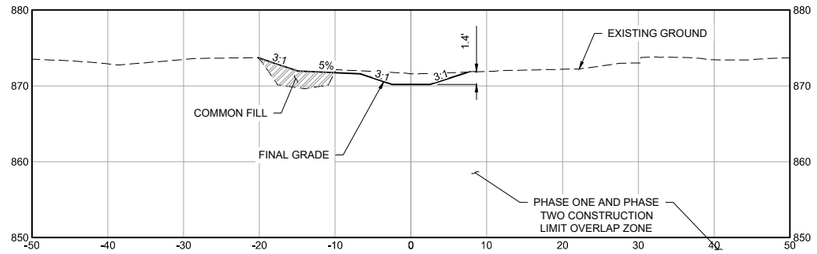


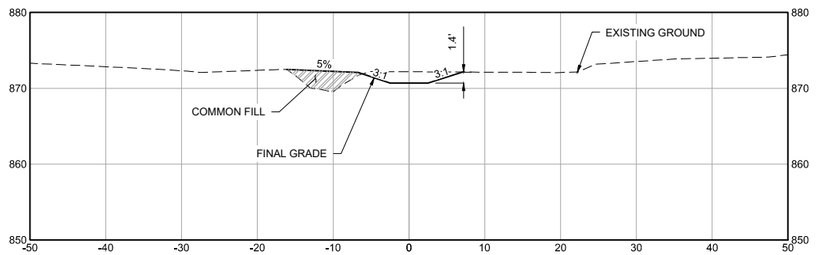
1 - PROFILE: CREEK STABILIZATION NORTH

HORIZONTAL SCALE IN FEET: 0, 20, 40 — VERTICAL SCALE IN FEET: 0, 4, 8



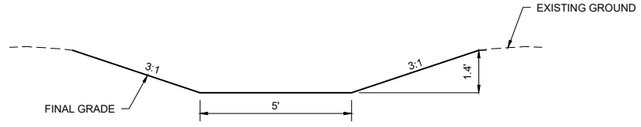
2 - SECTION: CREEK STABILIZATION NORTH (STA. 2+00) LOOKING DOWNSTREAM

SCALE IN FEET: 0, 10, 20



3 - SECTION: CREEK STABILIZATION NORTH (STA. 2+50) LOOKING DOWNSTREAM

SCALE IN FEET: 0, 10, 20



4 - SECTION: TYPICAL RIFFLE SECTION

NOT TO SCALE

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
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CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—

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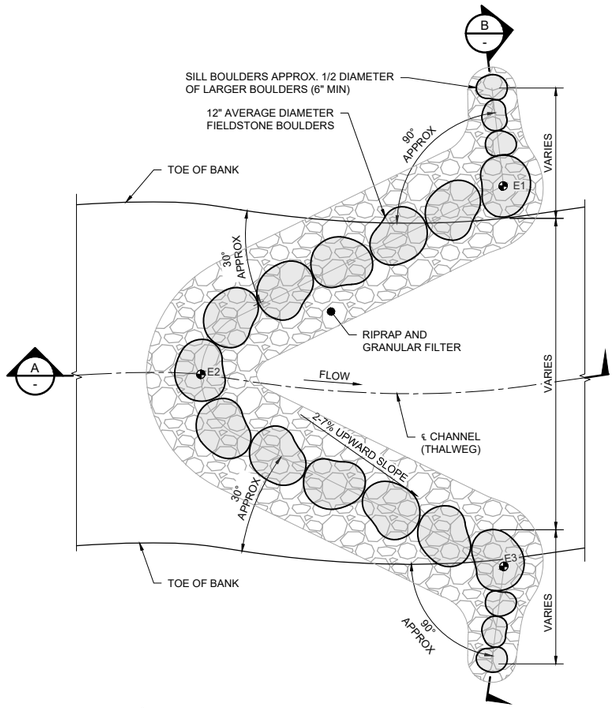
CHANHASSEN, MN

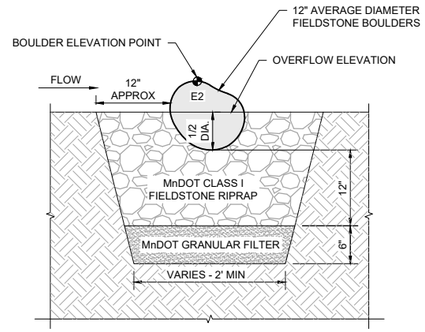
MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

STREAM STABILIZATION NORTH
PROFILE AND SECTIONS

BARR PROJECT No.	23/27-0053.14
CLIENT PROJECT No.	
DWG. No.	C-10
REV. No.	0



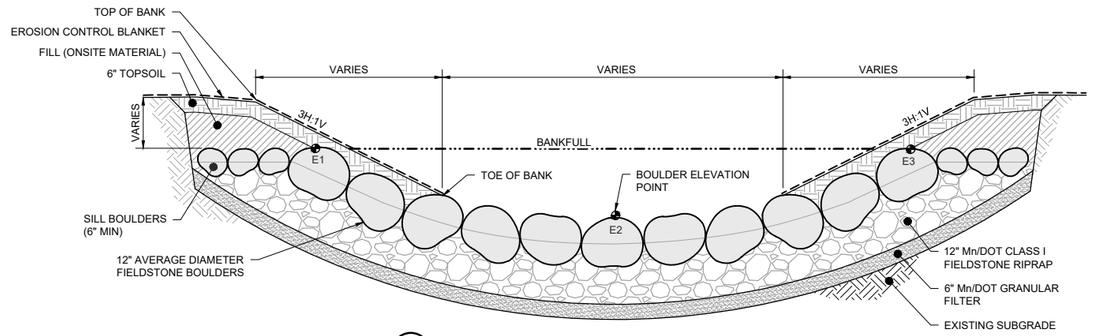
1 - DETAIL: CROSS VANE - SINGLE BOULDER
NOT TO SCALE



A - SECTION: CROSS VANE - SINGLE BOULDER
NOT TO SCALE

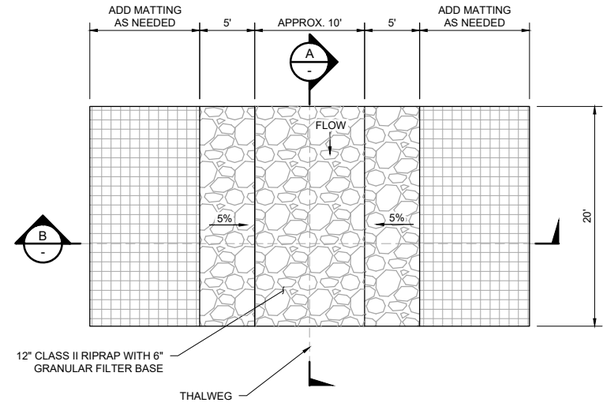
NOTES:

1. CROSS VANE LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND MAY BE MODIFIED IN THE FIELD BY THE ENGINEER.
2. FINAL BOULDER PLACEMENT TO BE APPROVED BY THE ENGINEER IN THE FIELD. CONTRACTOR MAY BE REQUIRED TO ADJUST BOULDER ELEVATIONS AND ROTATION.
3. THERE SHALL BE NO SIGNIFICANT GAPS BETWEEN BOULDERS. RIPRAP BEDDING SHALL BE PLACED ON THE UPSTREAM SIDE OF THE BOULDERS TO PLUG SMALL GAPS (MAY REQUIRE HAND PLACEMENT).
4. BOULDERS OF AN UNSUITABLE SHAPE MAY BE RE-LOCATED OR REJECTED.
5. INSTALL EROSION CONTROL BLANKET ON DISTURBED BANKS.

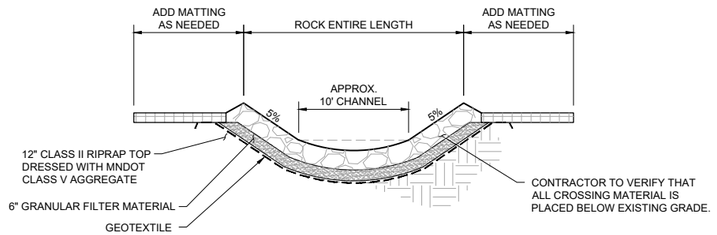


B - SECTION: CROSS VANE - SINGLE BOULDER
NOT TO SCALE

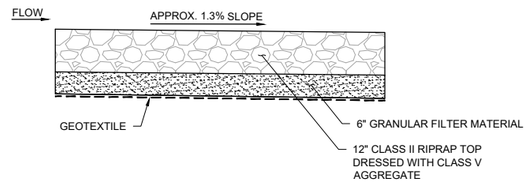
BOULDER VANES							
FEATURE LOCATION	E1 STATION	E1 ELEVATION	E2 STATION	E2 ELEVATION	E3 STATION	E3 ELEVATION	NOTES
NORTH STREAM	3+17	872.1	3+03	870.4	3+17	871.7	
SOUTH STREAM	6+94	866.5	6+77	864.0	6+94	866.4	



2 - DETAIL: TEMPORARY CREEK CROSSING OPTION
NOT TO SCALE



D - SECTION: TEMPORARY CREEK CROSSING OPTION
NOT TO SCALE



C - SECTION: TEMPORARY CREEK CROSSING OPTION
NOT TO SCALE

NOTES:

1. NO DOLOMITE OR LIMESTONE SHALL BE ALLOWED FOR ANY IN-CHANNEL BOULDERS, RIPRAP OR AGGREGATE.
2. THE TEMPORARY CREEK CROSSING SHALL BE PLACED SUCH THAT THE FINISHED GRADE IS AT OR BELOW THE ORIGINAL CREEK GRADE. CONTRACTOR SHALL SURVEY CREEK CROSSING BEFORE AND AFTER PLACEMENT OF RIPRAP TO CONFIRM CORRECT PLACEMENT OF RIPRAP.

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

	07/15/20	08/06/20		05/11/21			
BID					06/25/21		
CONSTRUCTION							
PERMITTING			03/12/21				
RELEASED TO/FOR	A	B	C	D	0	1	2
	DATE RELEASED						

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

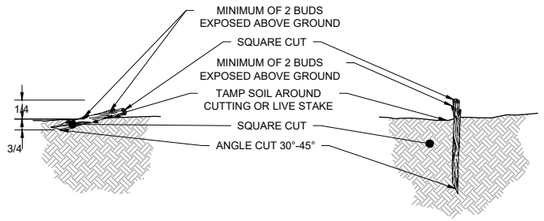
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

STABILIZATION DETAILS

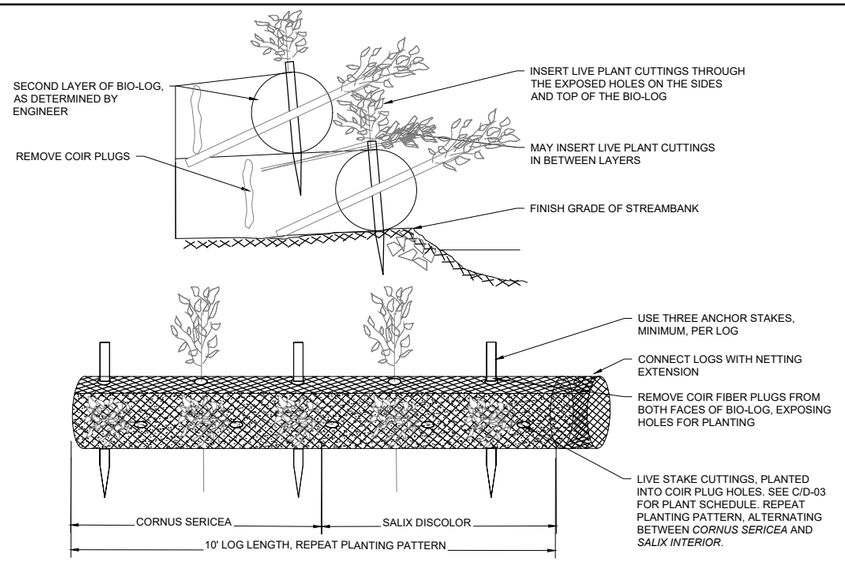
BARR PROJECT No.	
23/27-0053.14	
CLIENT PROJECT No.	
DWG. No.	REV. No.
D-01	0



GENERAL NOTES:

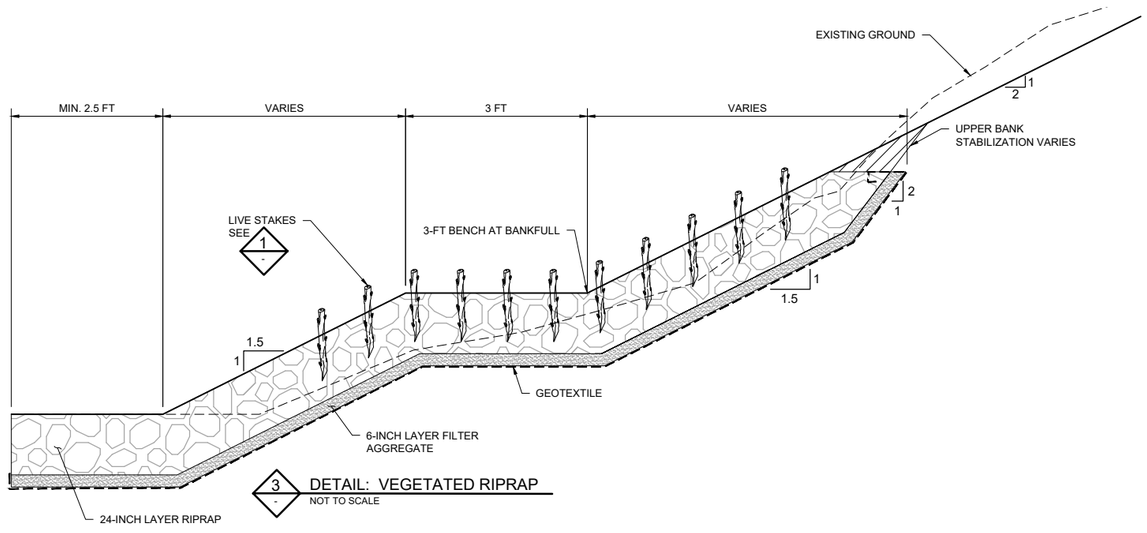
1. LIVE STAKE OR CUTTING PLANTED PERPENDICULAR TO GROUND SURFACE.
2. SEE SHEET D-03 FOR PLANT MATERIAL LIST FOR SPECIES LENGTH AND SPACING.
3. LIVE STAKES SHALL BE 3/4" DIAMETER MINIMUM. LIVE CUTTINGS SHALL BE 3/4" DIAMETER MINIMUM.

1 / - DETAIL: LIVE CUTTINGS OR LIVE STAKES
NOT TO SCALE



NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

2 / - DETAIL: COIR LOG WITH PLANTING HOLES
NOT TO SCALE



3 / - DETAIL: VEGETATED RIPRAP
NOT TO SCALE

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0	EPF	SAB2	JCO	06/25/2021	

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CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—
	—	—	—	—	—	—	—
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	DATE RELEASED						

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Scale	AS SHOWN
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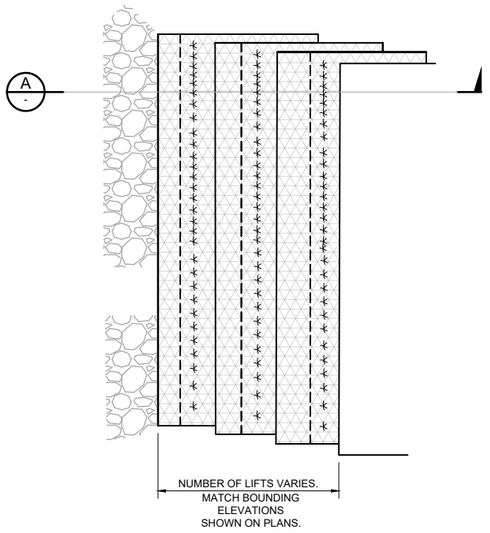
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

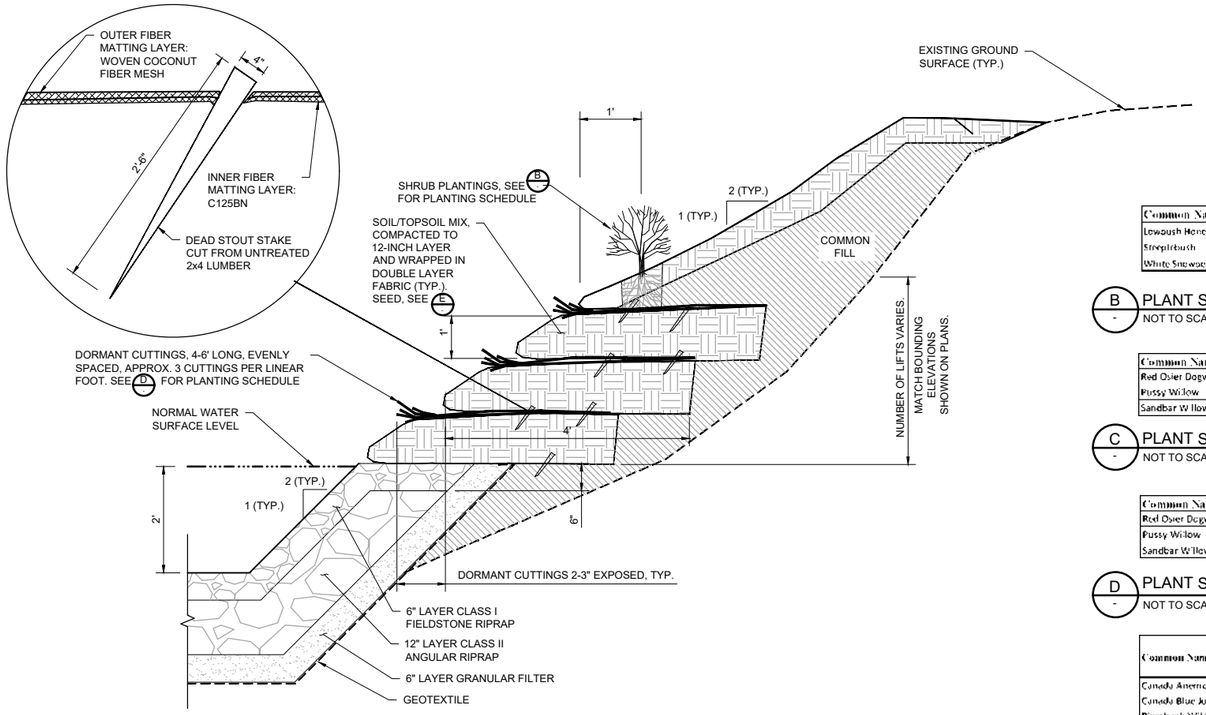
MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

STABILIZATION DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. D-02
REV. No. 0



1 D-03 DETAIL: LIVE PLANT VEGETATED REINFORCED SOIL SLOPE (V.R.S.S.)
NOT TO SCALE



A - SECTION: LIVE PLANT VEGETATED REINFORCED SOIL SLOPE (V.R.S.S.)
NOT TO SCALE

Common Name	Scientific Name	Quantity	Spacing	Size
Lowbush Honeysuckle	*Diervilla lonicera*	28	4' O.C.	#2 Pot
Steeplebush	*Spiraea tomentosa*	138	4' O.C.	#1 Pot
White Snowberry	*Symphoricarpos albus*	28	4' O.C.	#2 Pot

B - PLANT SCHEDULE: SHRUBS
NOT TO SCALE

Common Name	Scientific Name	Quantity	Spacing
Red Osier Dogwood	*Cornus sericea*	149	Per Plan
Pussy Willow	*Salix discolor*	148	Per Plan
Sandbar Willow	*Salix interior*	58	Per Plan

C - PLANT SCHEDULE: LIVE STAKES
NOT TO SCALE

Common Name	Scientific Name	Quantity	Spacing
Red Osier Dogwood	*Cornus sericea*	153	Per Plan
Pussy Willow	*Salix discolor*	77	Per Plan
Sandbar Willow	*Salix interior*	77	Per Plan

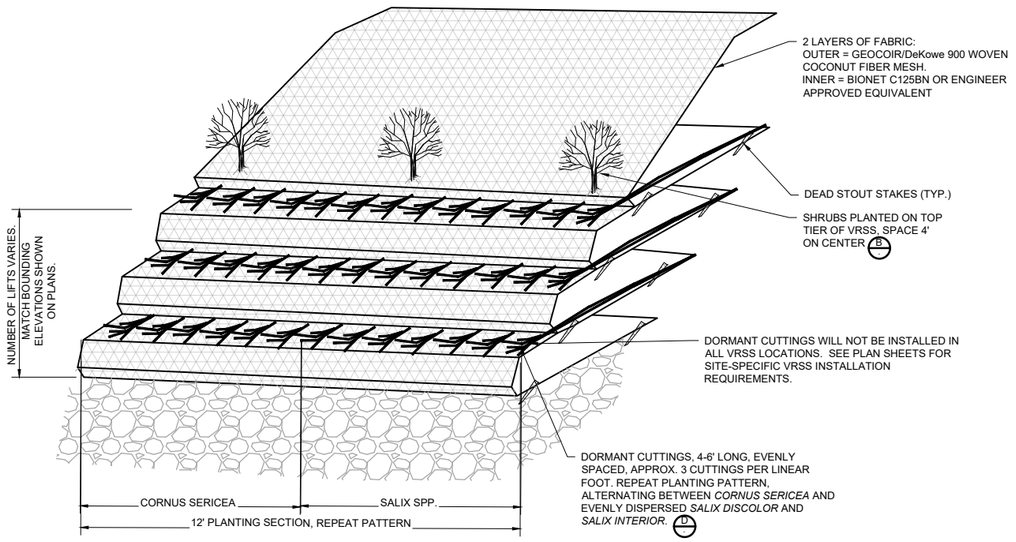
D - PLANT SCHEDULE: DORMANT CUTTINGS (4-6')
NOT TO SCALE

Common Name	Scientific Name	PLS Rate (lb/ac)	% of Mix (by weight)
Canada Anemone	*Anemone canadensis*	0.50	1.9%
Canada Blue Joint Grass	*Calamagrostis canadensis*	4.00	15.5%
Riverbank Wild Rye	*Elymus riparius*	4.50	17.4%
Grass-Leaved Goldenrod	*Euthamia graminifolia*	0.04	0.2%
Fowl Manna Grass	*Glyceria striata*	6.00	23.2%
Rice Cut Grass	*Leersia oryzoides*	4.00	15.5%
Fowl Bluegrass	*Poa palustris*	5.50	21.3%
Wool Grass	*Scirpus cyperinus*	0.30	1.2%
Prairie Cordgrass	*Spartina pectinata*	1.00	3.9%
	Total	25.84	100%

E - PLANT SCHEDULE: VRSS SEED MIX
NOT TO SCALE

NOTES:

1. THE ENGINEER MUST BE NOTIFIED AT LEAST 3 DAYS PRIOR TO ROOT WAD INSTALLATION AND MUST BE ON SITE DURING INSTALLATION.
2. SOAK DORMANT CUTTINGS FOR A MINIMUM OF 24 HOURS IN FLOWING WATER BEFORE PLANTING. SOAKING FOR 5-7 DAYS IS CONSIDERED IDEAL. THE DORMANT CUTTINGS SHOULD ONLY BE INSTALLED DURING THE DORMANT SEASON, AFTER LEAF DROP IN THE FALL AND BEFORE BUD BREAK IN THE SPRING. DORMANT CUTTINGS STORED IN COLD STORAGE WITH NO VISIBLE SIGN OF BUD BREAK MAY BE USED INTO LATE SPRING.
3. INSTALL RIPRAP AND GRANULAR FILTER AGGREGATE AS SPECIFIED IN SECTION 02375 AND AS SHOWN ON THE DRAWINGS.
4. EXCAVATE THE EXISTING STREAMBANK SLOPE SHOREWARD FROM AND LEVEL WITH THE TOP OF THE RIPRAP TO FORM A STABLE, UNDISTURBED SURFACE. A FLAT BENCH SHOULD BE CREATED FROM THE TOE OF THE STABLE CUT SLOPE TO THE TOE OF THE PROPOSED STREAM BANK RIPRAP.
5. DORMANT CUTTINGS ARE TO BE PLACED ON TOP OF THE RIPRAP EXCAVATED BENCH AT 3 BRANCHES PER LINEAR FOOT; THE BASAL END OF THE CUTTINGS SHOULD EXTEND AT LEAST 2 FOOT PAST THE BACK OF THE RIPRAP. NO MORE THAN 6 INCHES OF THE BUDDING END OF THE LIVE BRANCH SHOULD EXTEND PAST THE FRONT OF THE RIPRAP. COVER THE DORMANT CUTTINGS WITH TOPSOIL TO CREATE AN EVEN SURFACE FOR THE CONSTRUCTION OF THE FIRST SOIL LIFT.
6. LAY NATURAL FIBER MATTING ON BOTTOM OF THE BENCH, OVERLAPPING ADJACENT MATTING BY 1 FOOT. THE OUTER EXPOSED FIBER MATTING LAYER OF EACH SOIL LIFT SHALL BE GEOCOIR/DEKOWE 900 WOVEN COCONUT FIBER MESH, BIOD-MATTM 90, OR AN ENGINEER APPROVED EQUIVALENT.
7. THE INNER LAYER OF EACH SOIL LIFT SHALL BE BIONET C125BN OR AN ENGINEER APPROVED EQUIVALENT. LAY THE INNER LAYER OF BIONET ON TOP OF NATURAL FIBER MATTING OF EACH SOIL LIFT. FABRIC SHOULD BE INSTALLED SMOOTH WITH NO UNNECESSARY FOLDS OR WRINKLES. STAKE THE SHOREWARD END OF THE FIBER MATTING IN PLACE WITH WOODEN STAKES SPACED EVERY THREE FEET AS SHOWN ON THE DRAWINGS.
8. THE FIRST 6 TO 8 INCHES OF THE BOTTOM SOIL LIFT SHALL BE FILLED WITH GRAVEL AND SAND MATERIAL EXCAVATED FROM THE STREAM BED. THE TOP 6 TO 8 INCHES ON THE FRONT OF SURFACE LAYER SHOULD BE COMPRISED OF TOPSOIL MIX AS SHOWN ON THE DRAWINGS.
9. THE TOPSOIL LAYER SHALL BE SEEDED WITH THE VRSS SEED MIX AT 0.7 POUNDS PER 1,000 SQUARE FEET OF LIFT SURFACE AREA AS SHOWN ON THE DRAWINGS.
10. FOLD THE FIBER MATTING OVER THE FILL MATERIAL AND STAKE IN PLACE SO THE FABRIC IS TAUT AND SMOOTH WITH NO UNNECESSARY FOLDS OR WRINKLES. BACKFILL BEHIND THE BOTTOM SOIL LIFT WITH GRANULAR FILTER MATERIAL TO MEET THE EXISTING SLOPE AS SHOWN ON THE DRAWINGS.



2 D-03 DETAIL: LIVE PLANT VEGETATED REINFORCED SOIL SLOPE (V.R.S.S.)
NOT TO SCALE

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NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
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BID					06/25/21		
CONSTRUCTION							
PERMITTING				03/12/21			
RELEASED TO/FOR							
DATE RELEASED							

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Scale	AS SHOWN
Date	06/25/2021
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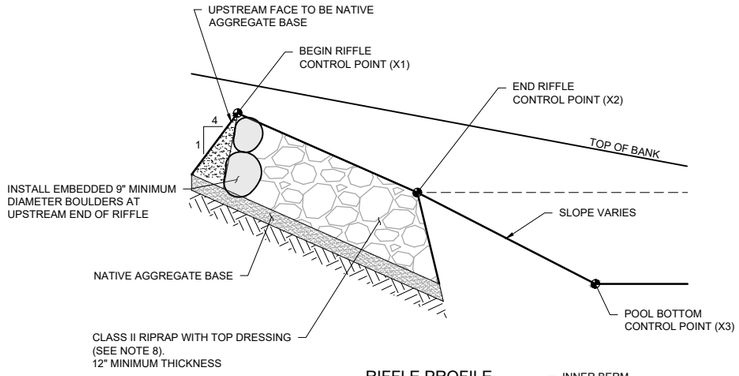
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

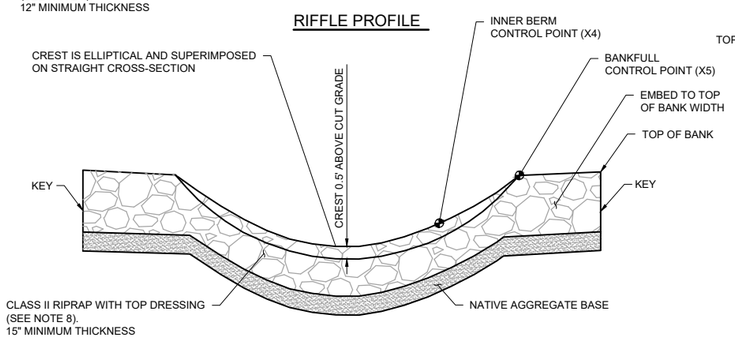
MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

STABILIZATION DETAILS

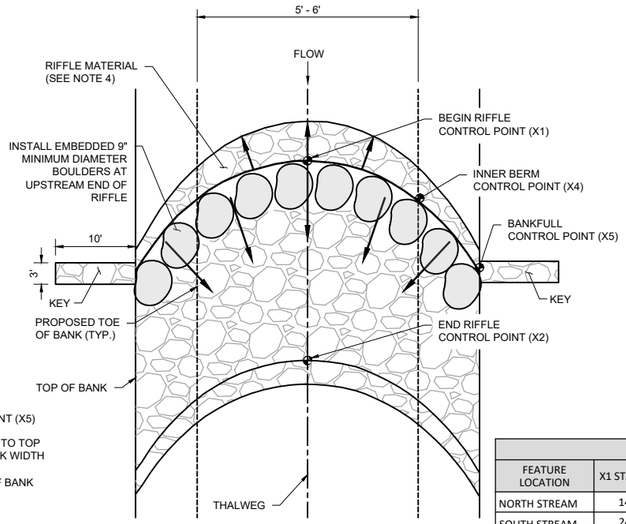
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. D-03
REV. No. 0



RIFFLE PROFILE



RIFFLE CROSS SECTION

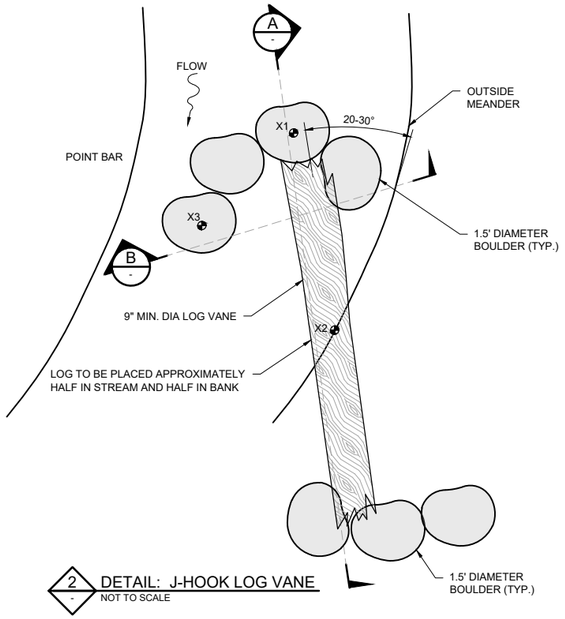


1 - DETAIL: ROCK RIFFLE
NOT TO SCALE

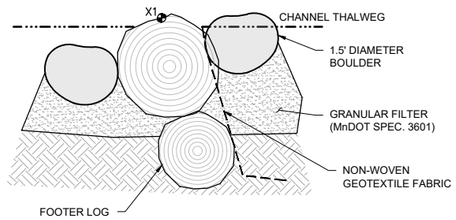
NOTES:

1. ROCK RIFFLES SHALL BE INSTALLED WITHIN THE EXISTING RIVER CHANNEL AS SPECIFIED.
2. ELEVATION CONTROL POINTS SHALL BE DESIGNATED AT THE BEGINNING AND END OF RIFFLE POINTS TO ESTABLISH PART OF THE PROFILE OF THE CHANNEL. SURVEY OF CONTROL POINTS SHALL BE REQUIRED TO ESTABLISH ACCURATE RIFFLE INSTALLATION.
3. RIFFLE MATERIAL SHALL BE CLASS II RIPRAP FROM THE SITE AND/OR IMPORTED, INSTALLED WITH A MINIMUM THICKNESS OF 15".
4. THE FACE OF THE RIFFLE UPSTREAM OF THE BEGIN RIFFLE CONTROL POINT SHALL BE NATIVE AGGREGATE BASE. 9" MINIMUM DIAMETER BOULDERS EMBEDDED IN RIFFLE IMMEDIATELY DOWNSTREAM OF THE NATIVE AGGREGATE BASE.
5. THE PLACEMENT OF BACKFILL AND/OR RIFFLE MATERIAL SHALL BE DONE IN A MANNER TO CREATE A SMOOTH PROFILE, WITH NO ABRUPT 'JUMP' (TRANSITION) BETWEEN THE UPSTREAM POOL-GLIDE AND THE RIFFLE, AND LIKEWISE NO ABRUPT 'DROP' (TRANSITION) BETWEEN THE RIFFLE AND THE DOWNSTREAM RUN-POOL. A THALWEG SHALL BE FASHIONED WITHIN THE RIFFLE WIDTH SO THAT THE FINISHED CROSS SECTION OF THE RIFFLE MATERIAL MATCHES THE SHAPE AND DIMENSIONS SHOWN ON THE RIFFLE TYPICAL SECTION.
6. SEE THE ROCK RIFFLES TABLE FOR STATIONING AND ELEVATIONS.
7. SEE TYPICAL RIFFLE SECTION (D-04) FOR CHANNEL DIMENSIONS.
8. RIFFLE SURFACE TO BE TOP-DRESSED WITH 6" OF MnDOT CLASS I RIPRAP TO REDUCE VOID SPACE.

Rock Riffles												
FEATURE LOCATION	X1 STATION	X1 ELEVATION	X2 STATION	X2 ELEVATION	X2 BANKFULL	X3 STATION	X3 ELEVATION	X4 STATION	X4 ELEVATION	X5 STATION	X5 BANKFULL	NOTES
NORTH STREAM	146	870.1	158	869.8	871.5	-	-	147	870.3	148	871.5	
SOUTH STREAM	245	865.5	257	865.2	867.1	-	-	246	865.7	247	867.1	
SOUTH STREAM	500	865.2	512	864.9	866.8	-	-	501	865.4	502	866.8	
SOUTH STREAM	562	865.0	574	864.7	866.6	-	-	563	865.2	564	866.6	



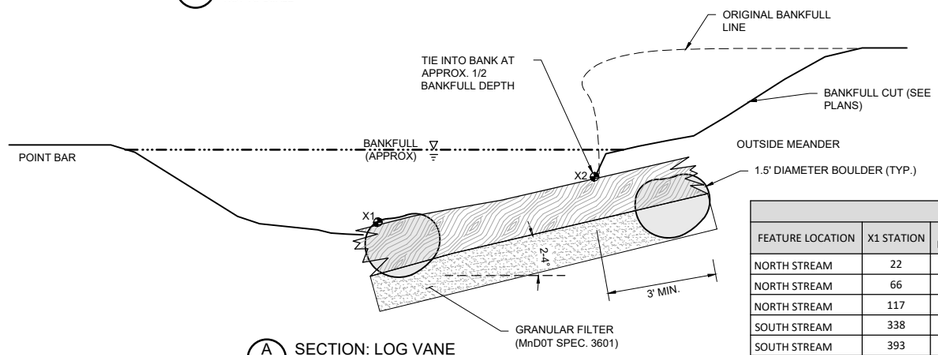
2 - DETAIL: J-HOOK LOG VANE
NOT TO SCALE



B - SECTION: LOG VANE
NOT TO SCALE

GENERAL NOTES:

1. THE ENGINEER MUST BE NOTIFIED AT LEAST 3 DAYS PRIOR TO LOG VANE INSTALLATION AND MUST BE ON SITE DURING INSTALLATION.
2. TO THE EXTENT POSSIBLE, LOG VANES SHOULD BE CREATED FROM TREES THAT WILL BE REMOVED FROM THE SITES WITHIN THE PROJECT AREA.
3. EITHER DRIVE THE LOG VANE INTO THE BANK, OR EXCAVATE A TRENCH IN WHICH TO PLACE THE LOG VANE. IF THE LOG VANE IS DRIVEN INTO THE BANK, SHARPEN THE END OF THE LOG VANE TO A POINT.
4. THE LOG VANE MUST BE PLACED AT APPROXIMATELY A 20-30 DEGREE ANGLE, OR AS DIRECTED BY THE ENGINEER.
5. PLACE FOOTER LOG SLIGHTLY UPSTREAM AND UNDER MAIN LOG TO PROVIDE PROTECTION AGAINST SCOUR.
6. NON-WOVEN GEOTEXTILE FABRIC IS ATTACHED WITH ROOFING NAILS TO ENTIRE LENGTH OF LOG ON UPSTREAM SIDE AND EXTENDED OVER FOOTER LOG AND UNDER AGGREGATE BEDDING.
7. THE LOG VANE MUST BE PLACED IN THE BANK SO THAT AT LEAST 1/2 OF THE LOG VANE IS EMBEDDED INTO THE BANK.
8. LARGE BOULDERS ARE PLACED ON BOTH SIDES OF THE LOG VANE AT THE INTERFACE WITH THE BANK TO CREATE A CUT-OFF SILL.
9. LARGE BOULDERS ARE ALSO PLACED AT THE END OF THE LOG VANE IN THE CHANNEL AS DIRECTED BY THE ENGINEER.
10. PLACE GRANULAR FILTER AGGREGATE (MN/DOT STANDARD SPECIFICATION 3601) AS BEDDING FOR BOULDERS IF NECESSARY.
11. MATCH EXISTING GRADE OR PLANNED GRADE AS APPROPRIATE WITH BACKFILL.
12. REVEGETATE AND STABILIZE WITH SEED AND MULCH AS SPECIFIED FOR EACH SITE AS SHOWN IN THE DRAWINGS AND DIRECTED BY THE ENGINEER.
13. EXCAVATE SCOUR HOLE IN STREAM BED ADJACENT TO LOG VANE AS DIRECTED BY THE ENGINEER.



A - SECTION: LOG VANE
NOT TO SCALE

J-Hook Log Vanes									
FEATURE LOCATION	X1 STATION	X1 ELEVATION	X1 BANKFULL	X2 STATION	X2 ELEVATION	X2 BANKFULL	X3 STATION	X3 ELEVATION	NOTES
NORTH STREAM	22	870.4	871.8	28	871.1	871.8	24	870.6	
NORTH STREAM	66	870.4	871.8	78	871.1	871.8	68	870.6	
NORTH STREAM	117	870.2	871.6	129	870.9	871.6	119	870.4	
SOUTH STREAM	338	865.5	867.1	346	866.3	867.1	340	865.7	
SOUTH STREAM	393	865.5	867.1	404	866.3	867.1	395	865.7	
SOUTH STREAM	416	865.4	867.0	427	866.2	867.0	418	865.6	
SOUTH STREAM	615	864.9	866.5	623	865.7	866.5	617	865.1	
SOUTH STREAM	784	864.7	866.3	792	865.5	866.3	786	864.9	

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BID							
CONSTRUCTION							
PERMITTING			03/12/21				
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Corporate Headquarters: Minneapolis, Minnesota
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MINNEAPOLIS, MN 55435
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Fax: (952) 832-2601
www.barr.com

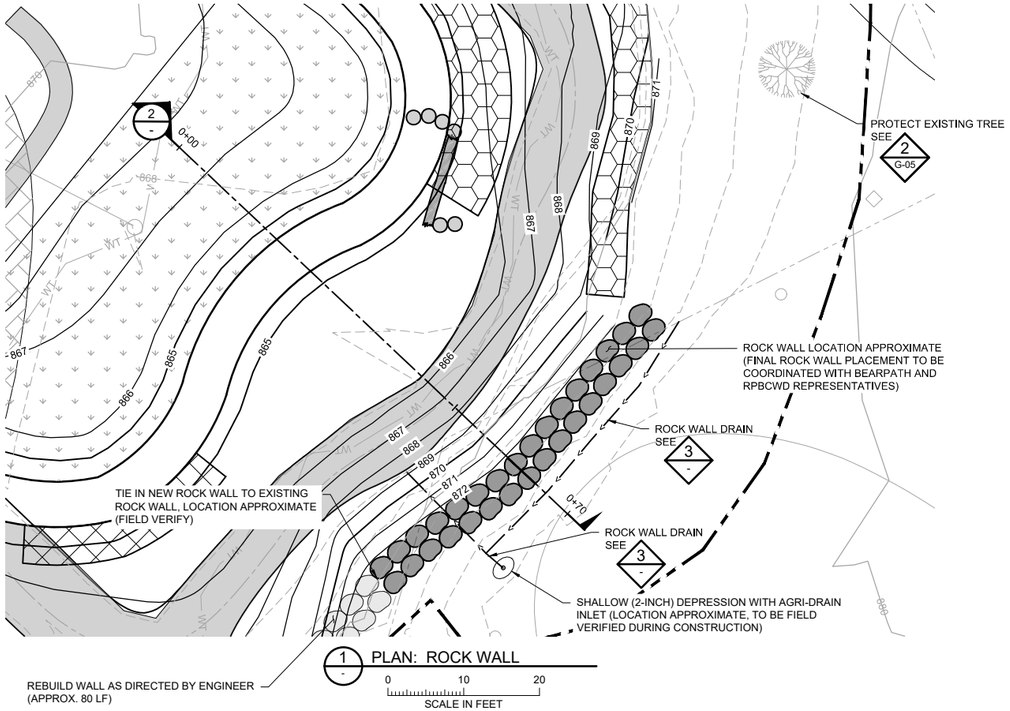
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

STABILIZATION DETAILS

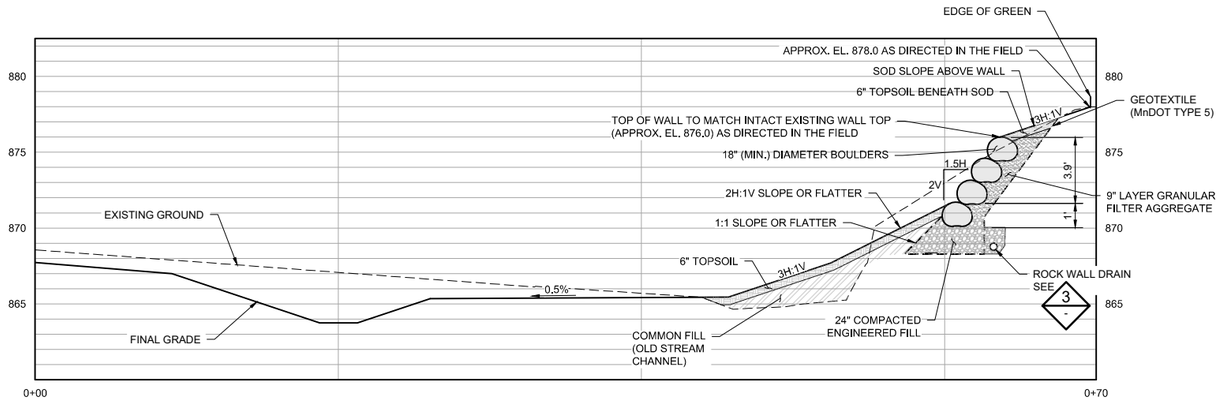
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. D-04
REV. No. 0



1 - PLAN: ROCK WALL

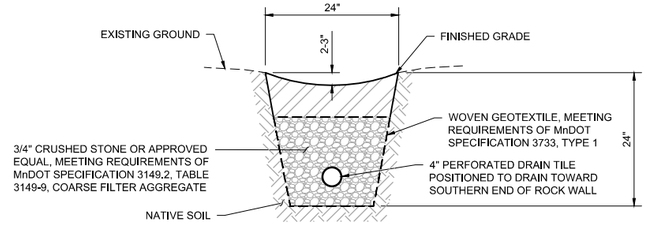
0 10 20
SCALE IN FEET

ROCK WALL RENDERING



2 - SECTION: ROCK WALL

0 5 10
SCALE IN FEET



NOTE:
CRUSHED LIMESTONE IS NOT ALLOWED.

3 - DETAIL: ROCK WALL DRAIN
NOT TO SCALE

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

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BID	—	—	—	—	06/25/21	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—
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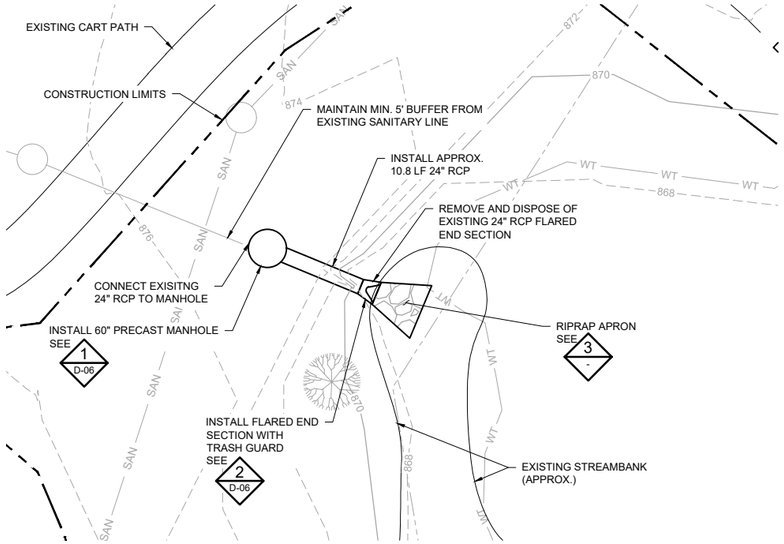
RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

ROCK WALL DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. D-05
REV. No. 0



1 - PLAN: STORM SEWER OUTFALL IMPROVEMENTS

0 20 40

HORIZONTAL SCALE IN FEET

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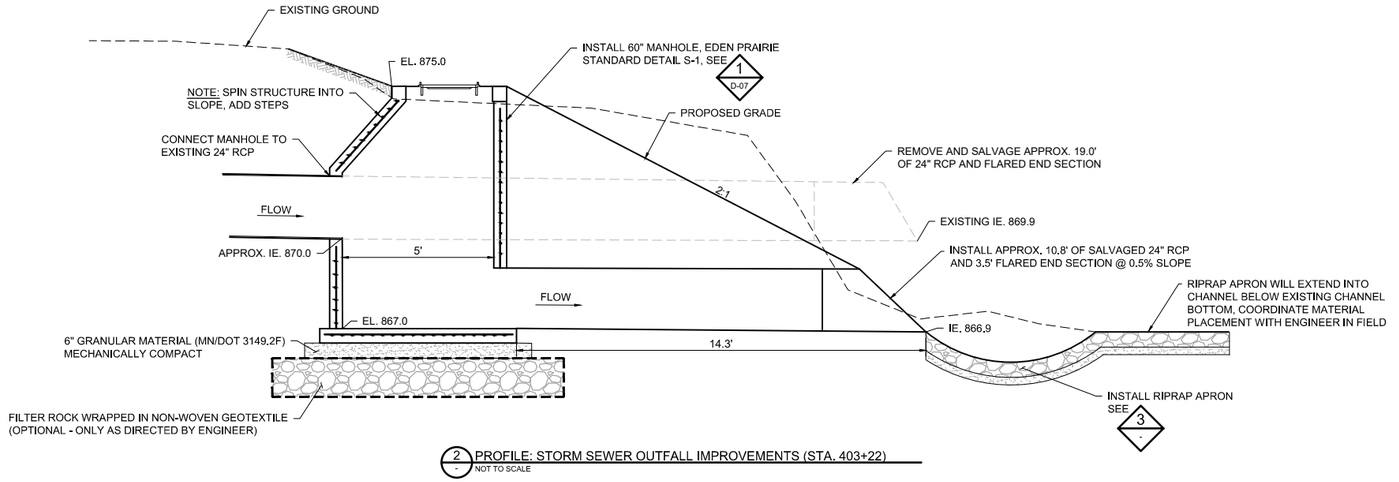
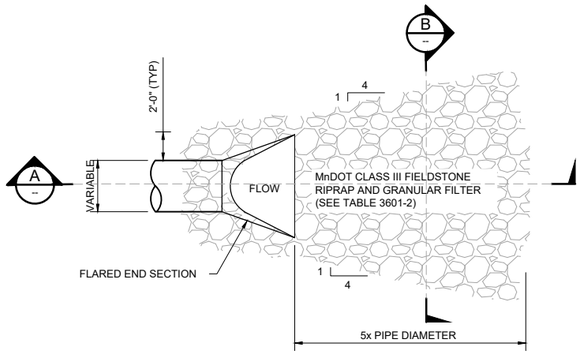
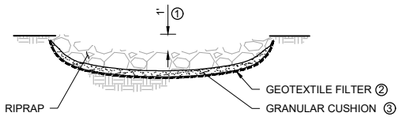


2 - PROFILE: STORM SEWER OUTFALL IMPROVEMENTS (STA. 403+22)

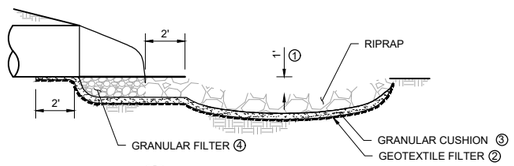
NOT TO SCALE





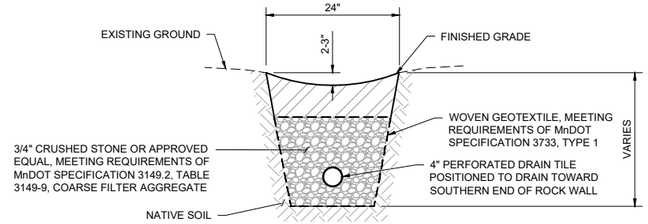
B - SECTION: RIPRAP APRON

NOT TO SCALE



A - SECTION: RIPRAP APRON

NOT TO SCALE



4 - DETAIL: DRAIN TILE BEDDING

NOT TO SCALE

NOTES:

REQUIREMENTS FOR GEOTEXTILE TYPE, RIPRAP SIZE AND THICKNESS SHALL BE DESIGNATED IN THE PLANS.

PIPE SIZES LARGER THAN THOSE SHOWN REQUIRE A SPECIAL DESIGN.

① FOR PIPES GREATER THAN OR EQUAL TO 30", USE 1.5'.

② GEOTEXTILE FILTER, SPEC. 3733, SHALL COVER THE BOTTOM AND SIDES OF THE AREA EXCAVATED FOR THE RIPRAP.

③ GRANULAR FILTER, SPEC. 3601, USED AS A CUSHION LAYER. PLACE FILTER PER SPEC. 2511. THE CUSHION LAYER IS INCIDENTAL.

④ GRANULAR FILTER OR RIPRAP, SPEC. 3601, TO EXTEND UNDER ENTIRE OPEN PORTION OF PIPE APRON. DEPTH OF MATERIAL UNDER APRON SHALL MATCH RIPRAP DEPTH. WHEN USING RIPRAP, INCREASE RIPRAP QUANTITY ACCORDINGLY AND PLACE A 3" LAYER OF 1.5" CRUSHED ROCK UNDER THE APRON TO AID IN GRADING FOR APRON PLACEMENT. CRUSHED ROCK IS INCIDENTAL.

3 - DETAIL: RIPRAP APRON

NOT TO SCALE

ISSUED FOR BID

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0	EPF	SAB2	JCO	06/25/2021	

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RILEY PURGATORY BLUFF CREEK WD

CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)

EDEN PRAIRIE, MN

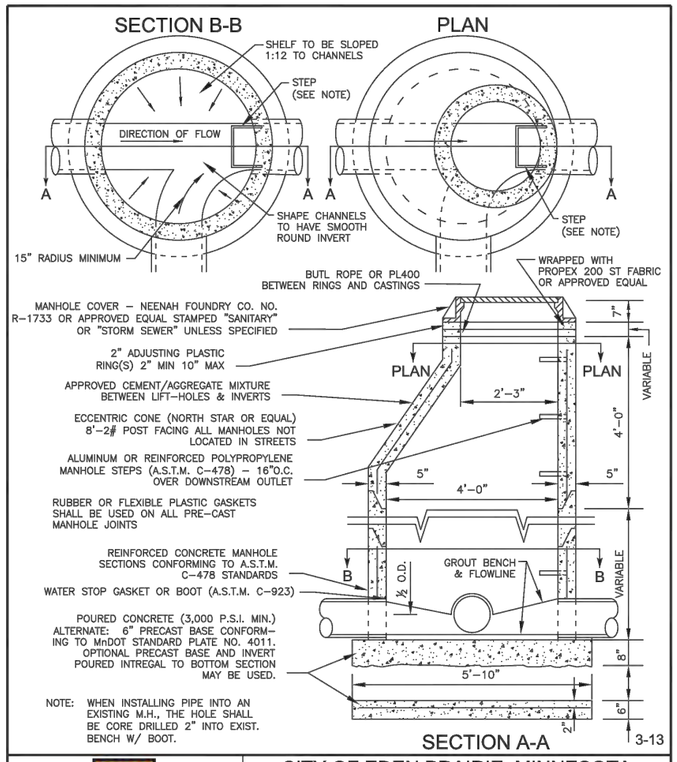
OUTLET IMPROVEMENT DETAILS

BARR PROJECT No. 23/27-0053.14

CLIENT PROJECT No.

DWG. No. D-06

REV. No. 0



CITY OF EDEN PRAIRIE, MINNESOTA

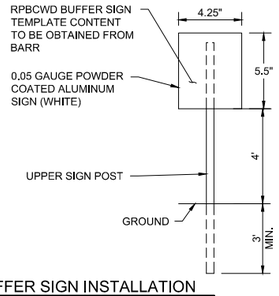
STANDARD MANHOLE DETAIL

DEPARTMENT OF ENGINEERING **S-1**

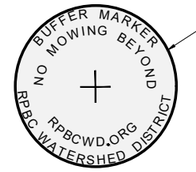
1 - DETAIL: STANDARD MANHOLE
NOT TO SCALE

NOTES:

1. SIGNS TO BE INSTALLED AT LOCATIONS ON SHEET C-04.
2. SIGNS TO BE ADDED TO EXISTING POSTS. RELOCATE EXISTING SIGN ON POSTS AS NECESSARY TO FIT BOTH SIGNS.
3. CONTRACTOR TO OBTAIN SIGN DESIGN FROM ENGINEER PRIOR TO MAKING SIGNS.
4. BOLTS SHALL BE TAMPER PROOF.
5. POSTS SHALL BE PAINTED GREEN, 3 LB/FT



2 - DETAIL: BUFFER SIGN INSTALLATION
NOT TO SCALE



3-1/4" DOMED ALUMINUM BUFFER MARKER OR APPROVED EQUAL

NOTES:

1. BUFFER MAKER TO BE IDENTIFIED WITH A DURABLE MARKER OR CAP BEARING INFORMATION SHOWN ON DETAIL WITH A MINIMUM DIAMETER OF 3 INCHES.
2. BUFFER MARKER TO BE COMPOSED OF A DURABLE MATERIAL.
3. BUFFER MARKER TO DETECTABLE WITH CONVENTIONAL INSTRUMENTS FOR FINDING FERROUS OR MAGNETIC OBJECTS.
4. BUFFER MARKER TO BE INSTALLED FLUSH TO THE GROUND SURFACE.
5. BUFFER MARKER TO BE MOUNTED TO A BURIED PIECE OF REBAR WITH A MINIMUM LENGTH OF 18 INCHES AND A MINIMUM DIAMETER OF 1/2 INCH (#4 REBAR IS ACCEPTABLE).

3 - DETAIL: FLUSH MOUNT BUFFER MARKERS
NOT TO SCALE

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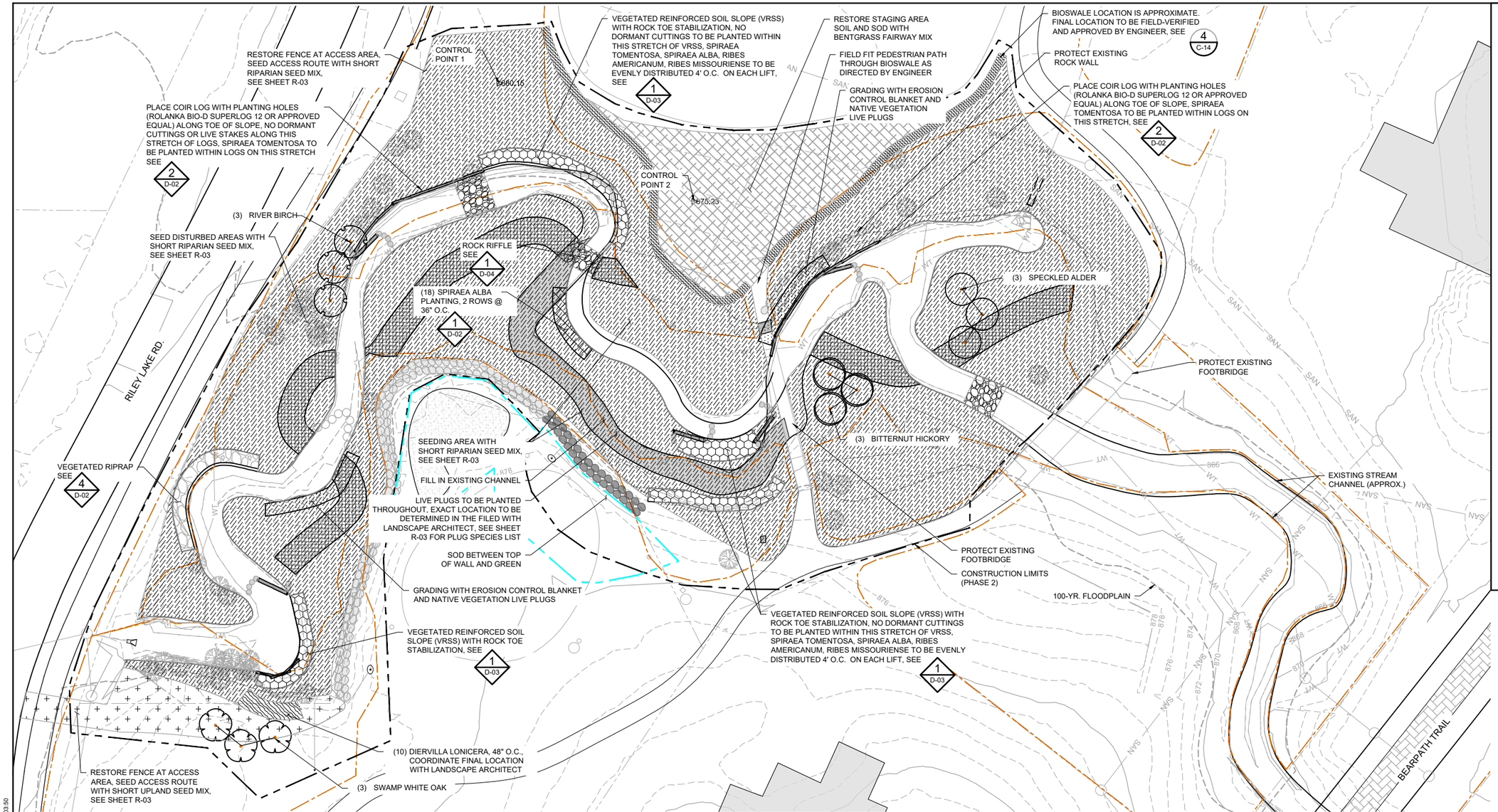
RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

OUTLET IMPROVEMENT DETAILS

BARR PROJECT No.	23/27-0053.14
CLIENT PROJECT No.	
DWG. No.	D-07
REV. No.	0



1 PLAN: CREEK RESTORATION SOUTH

0 20 40
SCALE IN FEET

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	117922.4829'	465761.5527'	875.23'	VRS SPIKE 1
2	117850.1325'	465717.6763'	880.15'	VRS SPIKE 2

GENERAL LANDSCAPE NOTES:

1. PLANTING SHALL CONFORM TO MNDOT SPEC 2571, PLANT INSTALLATION AND ESTABLISHMENT, EXCEPT AS INDICATED OTHERWISE IN THE PLANTING SHEETS.
2. INFORM THE LANDSCAPE ARCHITECT OF PLANTING TWO DAYS PRIOR TO PLANT DELIVERY.
3. CONTRACTOR SHALL COORDINATE LAYOUT OF ALL PLANTS WITH DIRECTION OF LANDSCAPE ARCHITECT IN THE FIELD.
4. CONFIRM ALL QUANTITIES, SHAPES AND LOCATIONS OF VRSS, BIOLOGS, AND ALL SEEDING AND PLANTING AREAS; ADJUST QUANTITIES AS REQUIRED TO CONFORM TO THE SITE CONDITIONS. CONFIRM ANY ADJUSTMENTS WITH THE LANDSCAPE ARCHITECT.
5. LOCATE ALL UTILITIES. NOTIFY THE LANDSCAPE ARCHITECT OF ANY CONFLICTS WITH PLANT INSTALLATION.
6. LONG-TERM STORAGE OF MATERIALS OR SUPPLIES ON-SITE WILL NOT BE ALLOWED. ANY PLANT STOCK NOT PLANTED ON DAY OF DELIVERY SHALL BE HEELED IN AND WATERED UNTIL INSTALLATION. PLANTS NOT MAINTAINED IN THIS MANNER WILL BE REJECTED.
7. THE PLAN TAKES PRECEDENCE OVER THE PLANT SCHEDULE IF DISCREPANCIES EXIST. ADVISE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.

PROTECTIONS:

8. THE CONTRACTOR SHALL AVOID DAMAGING EXISTING TREES. DO NOT STORE OR DRIVE HEAVY MATERIALS OVER TREE ROOTS. DO NOT DAMAGE TREE BARK OR BRANCHES.
9. THE CONTRACTOR SHALL KEEP PAVEMENTS, FIXTURES AND BUILDINGS CLEAN AND UNSTAINED. ANY DAMAGE TO EXISTING FACILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE PROJECT SITE SHALL BE KEPT CLEAR OF CONSTRUCTION WASTES AND DEBRIS.
10. PROVIDE SILT FENCE IF NECESSARY TO PROTECT STREET FROM EROSION.

SEEDING:

11. ANY EXOTIC INVASIVE PLANTS AND WEEDS WITHIN THE SEEDING AREAS SHALL BE SPRAYED WITH HERBICIDE 14 DAYS PRIOR TO SEEDING OR AS PER MANUFACTURE'S RECOMMENDATION. SIGNAGE INDICATING THE USE OF HERBICIDES MUST BE POSTED ON SITE.
12. ALL HERBICIDE APPLICATION SHALL BE APPLIED BY A LICENSED APPLICATOR WITHIN THE STATE OF MINNESOTA.
13. SEED IN ACCORDANCE WITH THE SPECIFICATIONS. SEEDING IS TO TAKE PLACE IMMEDIATELY FOLLOWING FINAL GRADING AND SOIL PLACEMENT TO PREVENT EROSION AND COMPACTION.
14. COVER CROP IS TO BE SEEDED WITHIN ALL AREAS.
15. AFTER SEEDING, TYPE 8 MULCH MATERIAL SHALL BE DISC-ANCHORED OVER ENTIRE SEEDING AREA IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3882.
16. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. IN THE CASE OF ANY DISCREPANCIES BETWEEN THIS DETAIL, PLANS, OR SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN.

MAINTENANCE AND CARE:

17. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PORTION OF THE WORK IS IN PLACE. PLANT MATERIAL SHALL BE PROTECTED AND MAINTAINED UNTIL THE INSTALLATION OF PLANTINGS IS COMPLETE, INSPECTION HAS BEEN MADE AND PLANTING IS ACCEPTED EXCLUSIVE OF THE GUARANTEE.
18. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, MULCHING, REMOVAL OF DEAD MATERIAL PRIOR TO GROWING SEASON, RE-SETTING PLANTS AND PROPER GRADE, AND KEEPING PLANTS IN A PLUMB POSITION.
19. WATERING: MAINTAIN A WATERING SCHEDULE WHICH WILL THOROUGHLY WATER ALL PLANTS ONCE A WEEK. IN EXTREMELY HOT, DRY WEATHER, WATER MORE OFTEN AS REQUIRED BY INDICATIONS OF HEAT STRESS SUCH AS WILTING LEAVES. CHECK MOISTURE UNDER MULCH PRIOR TO WATERING TO DETERMINE NEED. CONTRACTOR SHALL MAKE THE NECESSARY ARRANGEMENTS FOR WATER.
16. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. IN THE CASE OF ANY DISCREPANCIES BETWEEN THIS DETAIL, PLANS, OR SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN.

SOIL LOOSENING & AMENDMENT REQUIREMENTS:

17. SOIL LOOSENING APPLIES TO ALL DISTURBED SOILS TO BE RE-VEGETATED, INCLUDING SEEDING/SODDING/LANDSCAPE AREAS (NOT INCLUDING AREAS UNDER EXISTING TREE DRIP-LINES OR WITHIN 5-FEET OF BUILDING/PAVEMENT FOUNDATIONS), TO RESTORE SOIL PERMEABILITY.
18. SOIL REMEDIATION MUST BE IMPLEMENTED PRIOR TO ANY INSTALLATION OF IRRIGATION SYSTEM COMPONENTS, TREES, SHRUBS, SOD AND/OR SEED. NO WHEELED EQUIPMENT SHALL BE USED ON LOOSENED SOIL - WIDE TRACK EQUIPMENT ONLY.
19. SOIL LOOSENING MUST PRESERVE EXISTING TREES. NO LOOSENING SHALL OCCUR WITHIN DRIP LINE OF ANY EXISTING TREE.
20. ALL DISTURBED AREAS TO BE RE-VEGETATED SHALL HAVE 12-INCH MINIMUM DEPTH OF SOIL LOOSENING (E.G. SOIL RIPPING,6-INCH MAX. TOOTH SPACING).
21. LOOSENED SOILS SHALL HAVE A MAXIMUM OF 200 PSI IN TOP 12 INCHES.
22. CONTRACTOR TO TEST EXISTING TOPSOIL PRIOR TO PLANTING (MINIMUM 3 TESTS AT LEAST 500 FEET APART). IF EXISTING TOP 6" OF SOIL DOES NOT HAVE AT LEAST 5% SOIL ORGANIC CONTENT CONTRACTOR IS TO AMEND WITH MNDOT 3890 GRADE 2 COMPOST TO MEET REQUIREMENT. IMPLEMENTATION DOCUMENTATION SHALL BE PROVIDED TO ENGINEER TO VERIFY EXISTING ORGANIC CONTENT IN SOIL AND PROPOSED AMENDMENTS.

ISSUED FOR BID

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Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

RESTORATION PLAN
SOUTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. R-01
REV. No. 0

CADD USER: Eric P. Fitzgerald FILE: M:\DESIGN\23270053.14\MIDDLE RILEY SITRE\AM\23270053I4_R-01_RESTORATION PLAN - SOUTH.DWG PLOT SCALE: 1:2 PLOT DATE: 6/28/2021 11:51 AM
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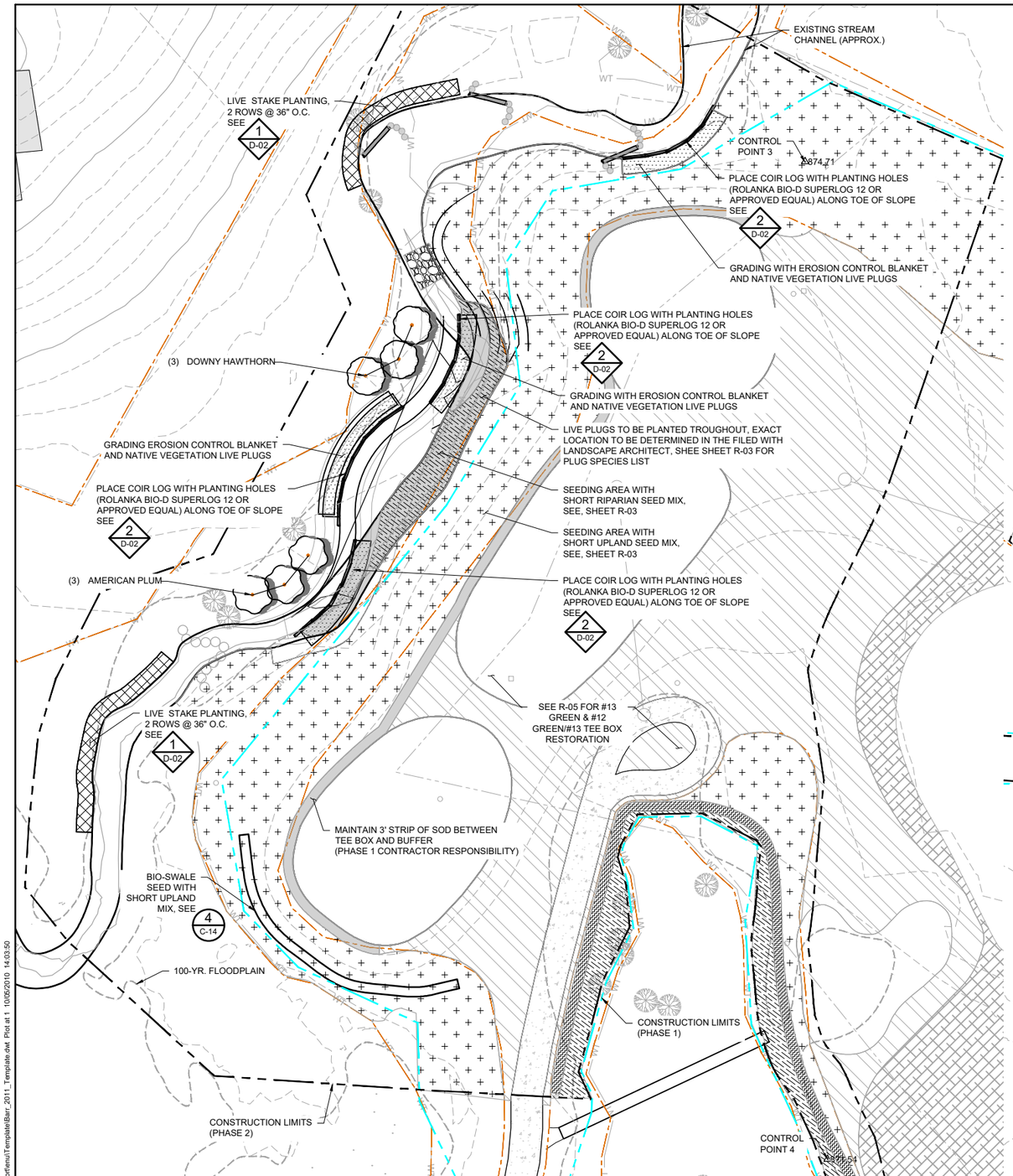


1 - PLAN: CREEK RESTORATION NORTH

0 20 40

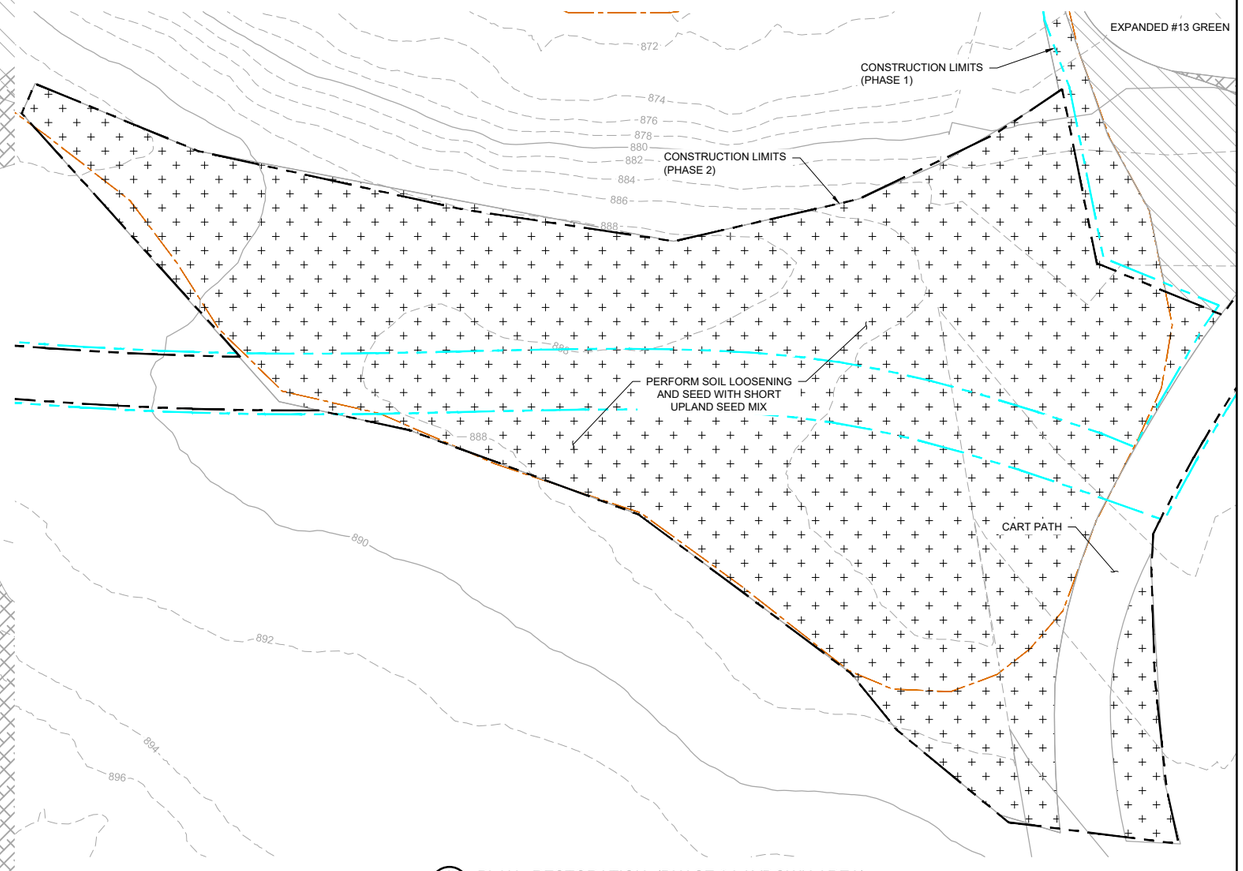
SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- EXISTING STREAM THALWEG (APPROX.)
- EXISTING 100-YR FLOODPLAIN
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- ROCK RIFFLE
- LIVE STAKES
- VRSS
- SOD
- SEEDING AREA WITH SHORT RIPARIAN SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SORT UPLAND SEED MIX, SEE SHEET R-03
- SOD AREA WITH KENTUCKY BLUEGRASS MIX, OWNER TO SPECIFY SOD MIX
- GRADING WITH EROSION CONTROL BLANKET AND NATIVE VEGETATION LIVE PLUGS
- SEEDING AREA WITH BIO-SWALE SEED MIX, SEE SHEET R-03
- SOD AREA WITH BENTGRASS MIX, OWNER TO SPECIFY SOD MIX
- J-HOOK LOG VANE
- BOULDER CROSS VANE

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
3	119806.1150'	465879.4807'	874.71'	VRS SPIKE 3
4	119491.9292'	465886.5323'	871.54'	VRS SPIKE 4

NOTES:
1. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE TIMING OF ALL CONSTRUCTION ACTIVITIES TO MINIMIZE DELAYS AND ENSURE ALL WORK IS COMPLETED ACCORDING TO PLANS.
2. NATIVE VEGETATION PLANTS TO BE COMPLETED BY PHASE 2 CONTRACTOR, THE TIMING OF WHICH MUST BE COORDINATED WITH PHASE 1 CONTRACTOR.
3. PHASE 2 CONTRACTOR RESPONSIBLE FOR BIOSWALE AND NATIVE VEGETATION RESTORATION WITHIN PHASE 2 CONSTRUCTION LIMITS AND AREAS THAT OVERLAP WITH PHASE 1 LIMITS. ALL OTHER RESTORATION WITHIN OVERLAP AREAS IS THE RESPONSIBILITY OF THE PHASE 1 CONTRACTOR.



2 - PLAN: RESTORATION (PHASE 2 LAYDOWN AREA)

0 30 60

SCALE IN FEET

ISSUED FOR BID

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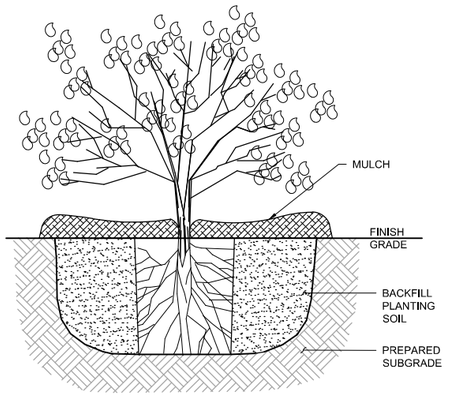
RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

RESTORATION PLAN
NORTH

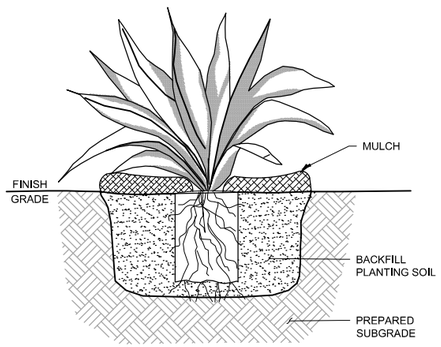
BARR PROJECT No.	
23/27-0053.14	
CLIENT PROJECT No.	
DWG. No.	REV. No.
R-02	0

NOTES:
1. PREPARE PLANTING SOIL PER PLAN AND AS SPECIFIED.
2. PROVIDE AND INSTALL PLANTS PER PLANTING SCHEDULE.
3. DIG PLANT HOLES 18" MIN. LARGER THAN ROOT MASS, ALL SIDES.
4. SET SHRUB ON LIGHTLY FIRMED BACKFILL SOIL AT THE SAME DEPTH GROWN IN THE NURSERY.
5. BACKFILL WITH PLANTING SOIL. FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AND ENSURE NO AIR GAPS IN SOIL REMAIN.
6. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF PLANTING.
7. APPLY MULCH OVER SOIL SURFACE (SOIL PREPARED AS PER PLAN).
8. NO MULCH SHALL BE ALLOWED TO BE IN CONTACT WITH PLANT.
9. NOTIFY OWNER FOR ALL INSPECTIONS FOR PLANTING AND REPLACEMENTS, AS SPECIFIED.



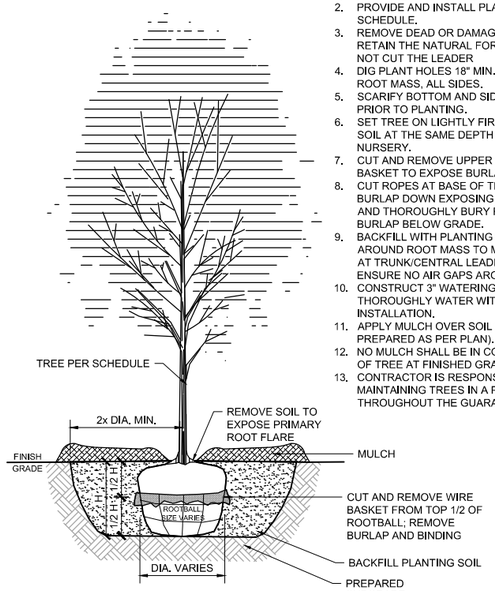
1 R-03 DETAIL: SHRUB PLANTING
NOT TO SCALE

NOTES:
1. PREPARE PLANTING SOIL PER PLAN AND AS SPECIFIED.
2. PROVIDE AND INSTALL PLANTS PER PLANTING SCHEDULE.
3. DIG PLANTING HOLES 18" MIN. LARGER THAN ROOT MASS, ALL SIDES.
4. SET PERENNIAL OR GRASS ON LIGHTLY FIRMED BACKFILL SOIL AT THE SAME DEPTH GROWN IN THE NURSERY.
5. BACKFILL WITH PLANTING SOIL. FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AND ENSURE NO AIR GAPS IN SOIL REMAIN.
6. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF PLANTING.
7. APPLY MULCH OVER SOIL SURFACE (SOIL PREPARED AS PER PLAN).
8. NO MULCH SHALL BE ALLOWED TO BE IN CONTACT WITH PLANT.
9. NOTIFY OWNER FOR ALL INSPECTIONS FOR PLANTING AND REPLACEMENTS, AS SPECIFIED.



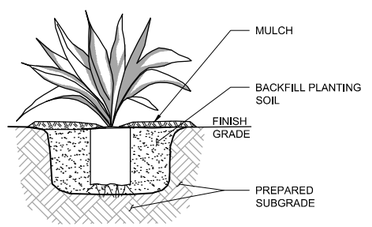
2 R-03 DETAIL: PERENNIAL PLANTING
NOT TO SCALE

NOTES:
1. PREPARE SOIL PER PLAN AND AS SPECIFIED.
2. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
3. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF PLANT. DO NOT CUT THE LEADER
4. DIG PLANT HOLES 18" MIN. LARGER THAN ROOT MASS, ALL SIDES.
5. SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING.
6. SET TREE ON LIGHTLY FIRMED BACKFILL SOIL AT THE SAME DEPTH GROWN IN THE NURSERY.
7. CUT AND REMOVE UPPER 1/2 OF WIRE BASKET TO EXPOSE BURLAP.
8. CUT ROPES AT BASE OF TRUNK, PULL BURLAP DOWN EXPOSING 1/2 OF ROOTBALL AND THOROUGHLY BURY ROPES AND BURLAP BELOW GRADE.
9. BACKFILL WITH PLANTING SOIL, FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AT TRUNK/CENTRAL LEADER. WATER TO ENSURE NO AIR GAPS AROUND ROOT MASS.
10. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF INSTALLATION.
11. APPLY MULCH OVER SOIL SURFACE (SOIL PREPARED AS PER PLAN).
12. NO MULCH SHALL BE IN CONTACT WITH BASE OF TREE AT FINISHED GRADE.
13. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TREES IN A PLUMB POSITION THROUGHOUT THE GUARANTEE PERIOD.



3 R-03 DETAIL: TREE PLANTING
NOT TO SCALE

NOTES:
1. EXCAVATE HOLE 3 TIMES WIDTH OF ROOTBALL.
2. BREAK BOTTOM OF ROOTBALL TO LOOSEN ROOTS.
3. PLANT THROUGH MULCH AND EROSION CONTROL BLANKET, ALIGNING TOP OF ROOTBALL EVEN WITH SOIL FINISH GRADE. FIRM SOIL TO ENSURE GOOD CONTACT WITH ROOTS.
4. WATER THOROUGHLY AFTER PLANTING.
5. SEE SPECIFICATIONS FOR FURTHER INSTRUCTION REGARDING PLANTING LAYOUT AND PROCEDURES.



4 R-03 DETAIL: HERBACEOUS PLUG PLANTING
NOT TO SCALE

Middle Riley Creek Short Upland Mix

Common Name	Scientific Name	PLS Rate (lb/ac)	% of Mix (by weight)
Sideoats Grama	*Bouteloua curtipendula*	3.0	6.1%
Blue Grama	*Bouteloua gracilis*	2.5	5.1%
Purple Love Grass	*Eragrostis spectabilis*	0.3	0.6%
June Grass	*Koeleria macrantha*	0.25	0.5%
Fowl Bluegrass	*Poa palustris*	0.1	0.2%
Little Bluestem	*Schizachyrium scoparium*	1.0	2.0%
Prairie Dropseed	*Sporobolus heterolepis*	0.3	0.6%
	Grasses Subtotal	**10.59**	**21%**
Porcupine Sedge	*Carex hystericina*	0.25	0.5%
Long-beaked Sedge	*Carex sprengelii*	0.18	0.2%
Pennsylvania Sedge	*Carex pensylvanica*	0.25	0.5%
	Sedges & Rushes Subtotal	**0.66**	**1%**
Canada Anemone	*Anemone canadensis*	0.06	0.2%
Yellowstem	*Agalinis tenuifolia*	0.06	0.1%
Butterfly Milkweed	*Asclepias tuberosa*	0.06	0.1%
Whorled Milkweed	*Asclepias verticillata*	0.02	0.0%
Partridge Pea	*Chamaecrista fasciculata*	1.5	3.0%
Purple Prairie Clover	*Dalea purpurea*	0.06	0.1%
Narrow-leaved Coneflower	*Echinacea angustifolia*	0.08	0.2%
Prairie Phlox	*Phlox pilosa*	0.02	0.0%
Wild Lupine	*Lupinus perennis*	0.8	1.6%
Spotted Bee Balm	*Monarda punctata*	0.01	0.0%
Large-flowered Beardtongue	*Penstemon grandiflorus*	0.06	0.1%
Black-eyed Susan	*Rudbeckia hirta*	0.11	0.2%
Aromatic Aster	*Symphyotrichum oblongifolium*	0.06	0.1%
Goat's Rue	*Tephrosia virginiana*	0.5	1.0%
Prairie Spiderwort	*Tradescantia bracteata*	0.03	0.1%
Golden Alexanders	*Zizia aurea*	0.2	0.4%
	Forbs Subtotal	**3.15**	**6%**
Oats	*Avena sativa*	35	70.3%
	Cover Crop Subtotal	**35**	**70.3%**
	Total	**49.40**	**100%**

Middle Riley Creek Short Riparian Mix

Common Name	Scientific Name	PLS Rate (lb/ac)	% of Mix (by weight)
Blue Joint Grass	*Calamagrostis canadensis*	0.02	0.0%
Virginia Wild Rye	*Elymus riparius*	0.8	1.3%
Rattlesnake Grass	*Glyceria canadensis*	0.12	0.3%
Fowl Manna Grass	*Glyceria striata*	0.25	0.4%
Rice Cut Grass	*Leersia oryzoides*	0.10	0.3%
Switchgrass	*Panicum virgatum*	0.15	0.3%
Fowl Bluegrass	*Poa palustris*	2.0	3.2%
Prairie Cordgrass	*Spartina pectinata*	1.0	2.3%
Purpletop	*Tridens flavus*	0.21	0.6%
	Grasses Subtotal	**4.94**	**11.2%**
Bristly Sedge	*Carex comosa*	0.18	0.3%
Porcupine Sedge	*Carex hystericina*	0.06	0.2%
Awl-fruited Sedge	*Carex stipata*	0.17	0.4%
Woolly Sedge	*Scirpus cyperinus*	0.31	0.2%
	Sedges & Rushes Subtotal	**0.54**	**1.2%**
Canada Anemone	*Anemone canadensis*	0.11	0.3%
Poke Milkweed	*Asclepias exaltata*	0.21	0.6%
Swamp Milkweed	*Asclepias incarnata*	0.21	0.6%
Common Beggarticks	*Bidens frondosa*	0.06	0.1%
Narrow-leaved Coneflower	*Echinacea angustifolia*	0.10	0.3%
Blue Flag Iris	*Iris virginica*	1.0	2.3%
Meadow Blazing Star	*Liatris ligulistylis*	0.01	0.1%
Prairie Blazing Star	*Liatris pycnostachya*	0.01	0.1%
Great Blue Lobelia	*Lobelia siphilitica*	0.03	0.1%
Monkey Flower	*Mimulus ringens*	0.01	0.1%
Wild Bergamot	*Monarda fistulosa*	0.06	0.1%
Virginia mountain mint	*Pycnanthemum virginianum*	0.12	0.3%
Willow Aster	*Symphyotrichum praealtum*	0.10	0.3%
Golden Alexanders	*Zizia aurea*	0.12	0.3%
	Forbs Subtotal	**2.75**	**6.4%**
Oats	*Avena sativa*	35	81.5%
	Cover Crop Subtotal	**35**	**81.5%**
	Total	**43.23**	**100%**

Bioswale Seed Mix

Common Name	Scientific Name	PLS Rate (lb/ac)	% of Mix (by weight)
Blue Grama	*Bouteloua gracilis*	2.5	6.0%
Ivory Sedge	*Carex eburnea*	0.5	1.2%
Dark-Styled Wood Sedge	*Carex nigra*	1.25	3.0%
Hairy Wood Sedge	*Carex pubescens*	1.5	3.6%
Path Rush	*Juncus tenuis*	0.10	0.2%
Pennsylvania Sedge	*Carex pensylvanica*	0.75	1.8%
	Subtotal	**6.60**	**16%**
Oats	*Avena sativa*	35	84.0%
	Cover Crop Subtotal	**35.00**	**84%**
	Total	**41.66**	**100%**

Perennial Plugs

Common Name	Scientific Name	Quantity	Spacing	Size
Sweet Flag	*Acorus americanus*	48	Field Fit	Plug
Butterfly Milkweed	*Asclepias tuberosa*	36	Field Fit	Plug
Swamp Milkweed	*Asclepias incarnata*	48	Field Fit	Plug
Wild White Indigo	*Baptisia alba*	24	Field Fit	Plug
Porcupine Sedge	*Carex hystericina*	120	Field Fit	Plug
Lake Sedge	*Carex lacustris*	120	Field Fit	Plug
Pennsylvania Sedge	*Carex pensylvanica*	180	Field Fit	Plug
Sprengel's Sedge	*Carex sprengelii*	60	Field Fit	Plug
Common Fox Sedge	*Carex stipata*	200	Field Fit	Plug
Fox Sedge	*Carex vulpinoidea*	120	Field Fit	Plug
Turtlehead	*Chelone glabra*	82	Field Fit	Plug
Prairie Coreopsis	*Coreopsis palmata*	36	Field Fit	Plug
Sneezeweed	*Helenium autumnale*	74	Field Fit	Plug
Blue Flag Iris	*Iris versicolor*	120	Field Fit	Plug
Meadow Blazing Star	*Liatris ligulistylis*	36	Field Fit	Plug
Dotted Blazing Star	*Liatris punctata*	24	Field Fit	Plug
Cardinal Flower	*Lobelia cardinalis*	48	Field Fit	Plug
Great Blue Lobelia	*Lobelia siphilitica*	84	Field Fit	Plug
Wild Lupine	*Lupinus perennis*	60	Field Fit	Plug
Spotted Bee Balm	*Monarda punctata*	74	Field Fit	Plug
Foxglove Beardtongue	*Penstemon digitalis*	48	Field Fit	Plug
Wild Blue Phlox	*Phlox divaricata*	48	Field Fit	Plug
Mountain Mint	*Pycnanthemum virginianum*	42	Field Fit	Plug
Little Bluestem	*Schizachyrium scoparium*	200	Field Fit	Plug
Giant Burreed	*Sparganium eurycarpum*	74	Field Fit	Plug
Cord Grass	*Spartina pectinata*	60	Field Fit	Plug
Aromatic Aster	*Symphyotrichum oblongifolium*	36	Field Fit	Plug
Ohio Spiderwort	*Tradescantia ohiensis*	48	Field Fit	Plug
	Total	**2000**		

Trees

Common Name	Scientific Name	Quantity	Spacing	Size
Speckled Alder	*Alnus rugosa*	3	Per Plan	# 10 Pot
River Birch	*Betula nigra*	3	Per Plan	# 10 Pot
Bitternut Hickory	*Cory cordiformis*	3	Per Plan	# 10 Pot
Downy Hawthorne	*Crataegus mollis*	3	Per Plan	# 10 Pot
American Plum	*Prunus americana*	3	Per Plan	# 10 Pot
Swamp White Oak	*Quercus bicolor*	3	Per Plan	# 10 Pot

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	BHD	SAB2	JCO	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

	07/15/20	08/06/20		05/11/21			
BID				06/25/21			
CONSTRUCTION							
PERMITTING			03/12/21				
RELEASED TO/FOR	A	B	C	D	0	1	2
DATE RELEASED							

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Scale	AS SHOWN
Date	06/25/2021
Drawn	BHD
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

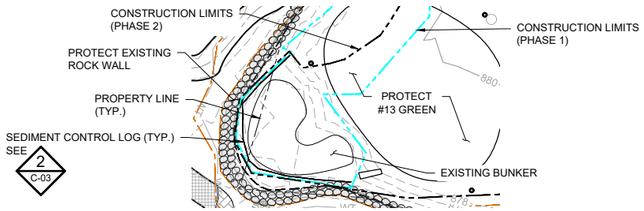
MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

RESTORATION DETAILS

BARR PROJECT No. 23/70-0053.29
CLIENT PROJECT No.
DWG. No. R-03
REV. No. 0

EROSION & SEDIMENT CONTROL NOTES:

1. INSTALL PERIMETER EROSION CONTROL AT THE LOCATIONS SHOWN ON THE PLANS PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES.
2. BEFORE BEGINNING CONSTRUCTION, INSTALL A TEMPORARY ROCK CONSTRUCTION ENTRANCE AT EACH POINT WHERE VEHICLES EXIT THE CONSTRUCTION SITE.
3. 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.
4. 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.
5. NATURAL TOPOGRAPHY AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RETENTION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
6. ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY THE DISTRICT MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADEQUATE STABILIZATION.
7. FINAL SITE STABILIZATION MEASURES MUST SPECIFY THAT AT LEAST SIX INCHES OF TOPSOIL WITH A MINIMUM OF 5% ORGANIC MATTER BE SPREAD AND INCORPORATED INTO THE UNDERLYING SOIL DURING FINAL SITE TREATMENT WHEREVER TOPSOIL HAS BEEN REMOVED.
8. CONSTRUCTION SITE WASTE SUCH AS DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE MUST BE PROPERLY MANAGED.
9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION AND VEGETATION IS ESTABLISHED SUFFICIENTLY TO ENSURE STABILITY OF THE SITE, AS DETERMINED BY THE DISTRICT.
10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE REMOVED UPON FINAL STABILIZATION.
11. SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED TO ACHIEVE A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF THE SOIL PROFILE WHILE TAKING CARE TO PROTECT UTILITIES, TREE ROOTS, AND OTHER EXISTING VEGETATION.
12. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER, WITHIN 14 DAYS ELSEWHERE.
13. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES EVERY DAY WORK IS PERFORMED ON THE SITE AND AT LEAST WEEKLY UNTIL LAND-DISTURBING ACTIVITY HAS CEASED. THEREAFTER, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.
14. 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.
15. FLOW IN RILEY CREEK WILL BE PASSED AROUND THE ACTIVE WORK AREA. CONTRACTOR IS RESPONSIBLE FOR CONTROL OF WATER TO MANAGE WATER FLOW AND LEVELS AS NECESSARY, REFER TO SPECIFICATIONS.
16. 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.
17. ACTIVITIES MUST BE CONDUCTED SO AS TO MINIMIZE THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G., ZEBRA MUSSELS, EURASIAN WATERMILFOIL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.



1 - PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#16 GREEN)

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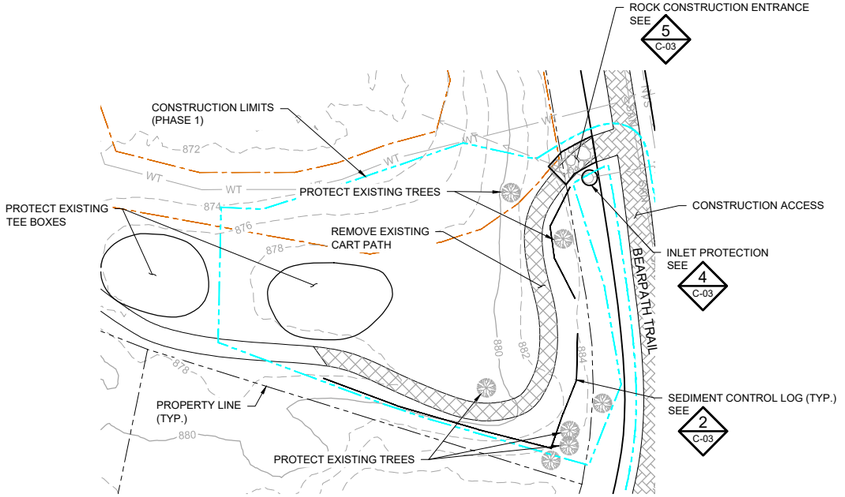
SCALE IN FEET

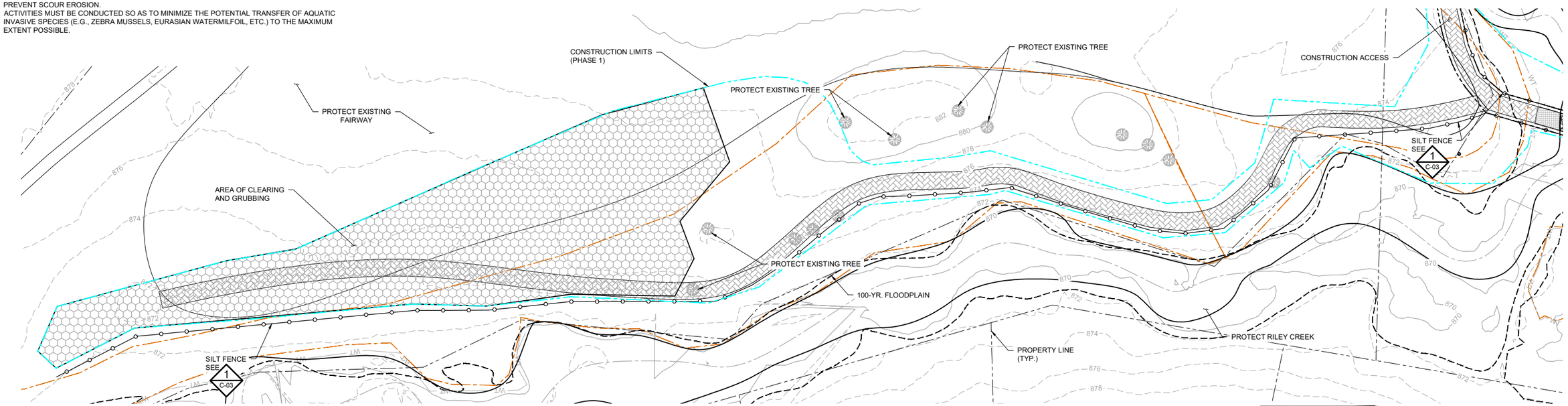


2 - PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#12 TEE BOX)

0 30 60
SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING PROPERTY LINE
- EXISTING 100-YR FLOODPLAIN
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- SILT FENCE
- SEDIMENT CONTROL LOGS
- CONSTRUCTION ACCESS ROUTE
- TEMPORARY CREEK CROSSING
- EXISTING TREE



2 - PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#12 FAIRWAY)

0 30 60
SCALE IN FEET

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	EPF	JCO	BJL	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME BRAD LINDAMAN
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

	A	B	C	0	1	2	3
CLIENT		05/11/21					
BID			06/25/21				
CONSTRUCTION							
PERMITTING	03/12/21						

RELEASED TO/FOR — DATE RELEASED

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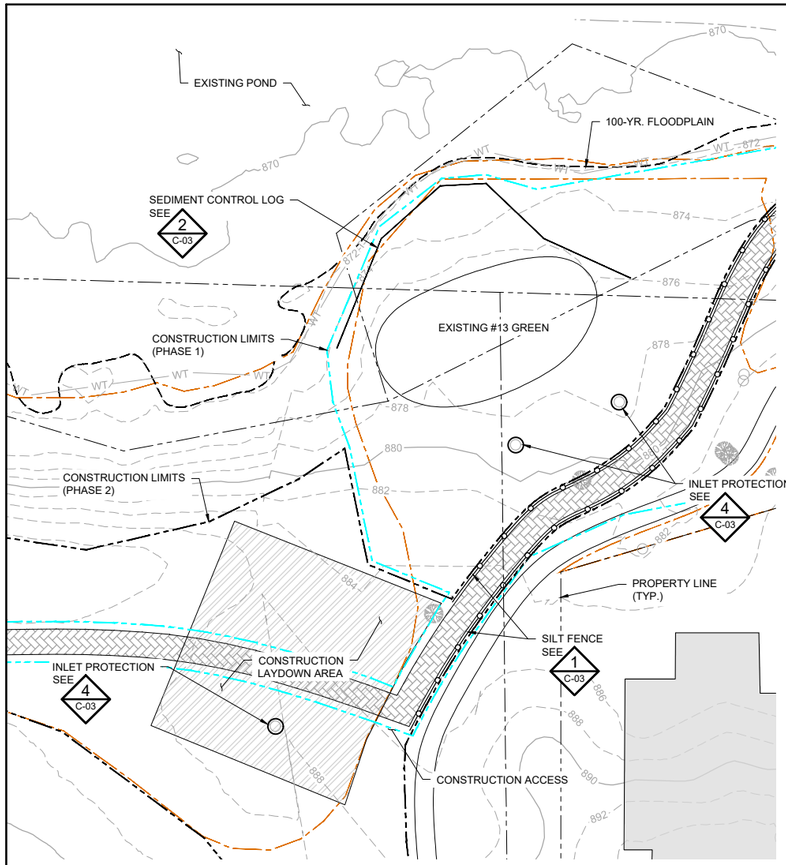
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	BJL
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

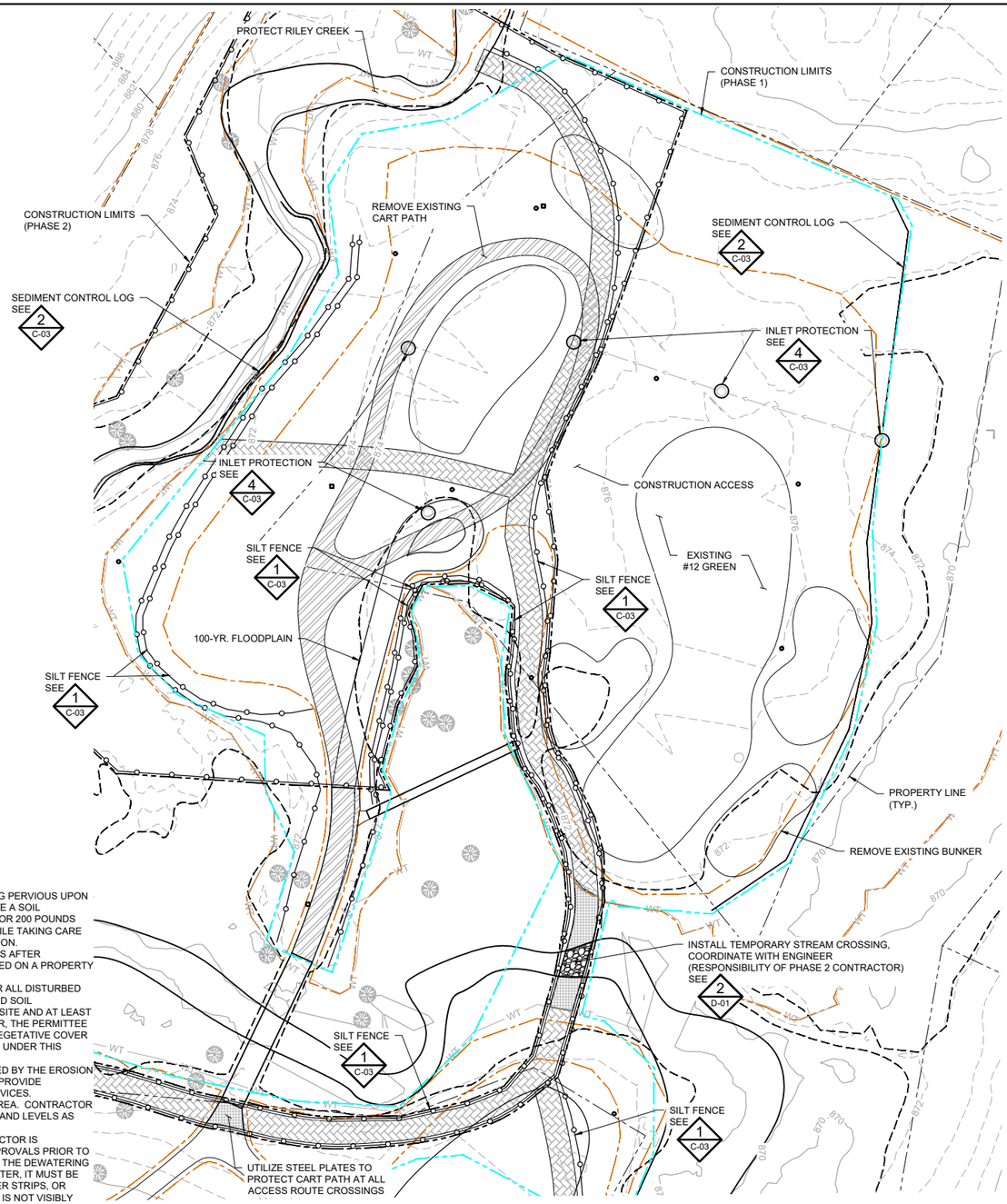
EXISTING CONDITIONS, REMOVALS & EROSION CONTROL PLAN
#16 GREEN, #12 TEE BOX & #12 FAIRWAY

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-11
REV. No. 0



1 - PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#13 GREEN)

0 30 60
SCALE IN FEET



2 - PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#12 GREEN & #13 TEE BOX)

0 30 60
SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING PROPERTY LINE
- EXISTING 100-YR FLOODPLAIN
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- SILT FENCE
- SEDIMENT CONTROL LOGS
- CONSTRUCTION ACCESS ROUTE
- TEMPORARY CREEK CROSSING
- EXISTING TREE

GENERAL NOTES:

1. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE SITE ACCESS AND WORK TIMING.

EROSION & SEDIMENT CONTROL NOTES:

1. INSTALL PERIMETER EROSION CONTROL AT THE LOCATIONS SHOWN ON THE PLANS PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES.
2. BEFORE BEGINNING CONSTRUCTION, INSTALL A TEMPORARY ROCK CONSTRUCTION ENTRANCE AT EACH POINT WHERE VEHICLES EXIT THE CONSTRUCTION SITE.
3. 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.
4. 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.
5. NATURAL TOPOGRAPHY AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RETENTION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
6. ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY THE DISTRICT MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADEQUATE STABILIZATION.
7. FINAL SITE STABILIZATION MEASURES MUST SPECIFY THAT AT LEAST SIX INCHES OF TOPSOIL WITH A MINIMUM OF 5% ORGANIC MATTER BE SPREAD AND INCORPORATED INTO THE UNDERLYING SOIL DURING FINAL SITE TREATMENT WHEREVER TOPSOIL HAS BEEN REMOVED.
8. CONSTRUCTION SITE WASTE SUCH AS DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE MUST BE PROPERLY MANAGED.
9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION AND VEGETATION IS ESTABLISHED SUFFICIENTLY TO ENSURE STABILITY OF THE SITE, AS DETERMINED BY THE DISTRICT.
10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE REMOVED UPON FINAL STABILIZATION.
11. SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED TO ACHIEVE A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF THE SOIL PROFILE WHILE TAKING CARE TO PROTECT UTILITIES, TREE ROOTS, AND OTHER EXISTING VEGETATION.
12. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER, WITHIN 14 DAYS ELSEWHERE.
13. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES EVERY DAY WORK IS PERFORMED ON THE SITE AND AT LEAST WEEKLY UNTIL LAND-DISTURBING ACTIVITY HAS CEASED. THEREAFTER, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.
14. 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.
15. FLOW IN RILEY CREEK WILL BE PASSED AROUND THE ACTIVE WORK AREA. CONTRACTOR IS RESPONSIBLE FOR CONTROL OF WATER TO MANAGE WATER FLOW AND LEVELS AS NECESSARY, REFER TO SPECIFICATIONS.
16. 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.
17. ACTIVITIES MUST BE CONDUCTED SO AS TO MINIMIZE THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G., ZEBRA MUSSELS, EURASIAN WATERMILFOIL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	JCO	BJL	06/25/2021	ISSUED FOR BID

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PRINTED NAME BRAD LINDAMAN
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

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Scale	AS SHOWN
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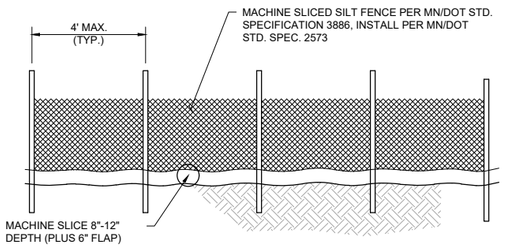
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

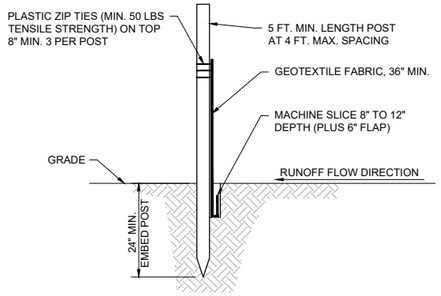
BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

EXISTING CONDITIONS, REMOVALS & EROSION CONTROL PLAN
#13 GREEN & #12 GREEN/#13 TEE BOX

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-12
REV. No. 0



DOWNSTREAM VIEW

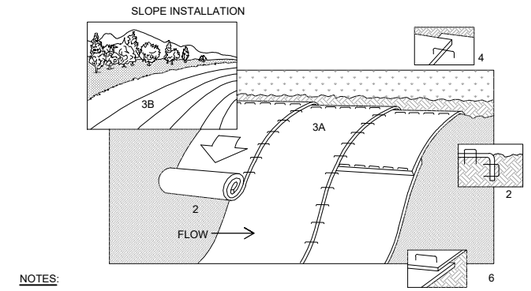


SECTION VIEW

NOTES:

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

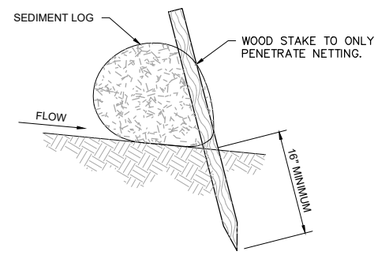
1 - DETAIL: SILT FENCE - MACHINE SLICED
NOT TO SCALE



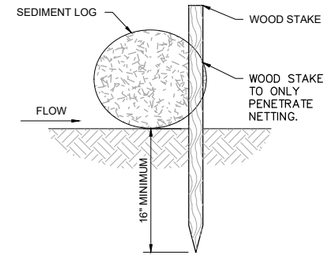
NOTES:

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

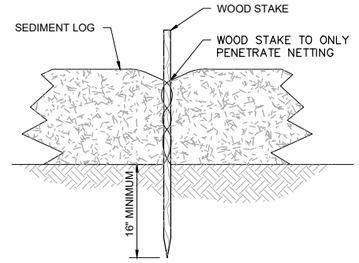
2 - DETAIL: EROSION CONTROL BLANKET - INSTALLATION
NOT TO SCALE



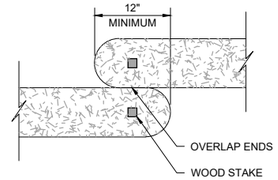
SIDE VIEW ON SLOPE



SIDE VIEW FLAT



FRONT VIEW

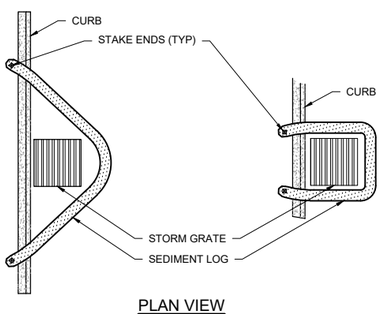


TOP VIEW

NOTES:

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

3 - DETAIL: SEDIMENT CONTROL LOG
NOT TO SCALE



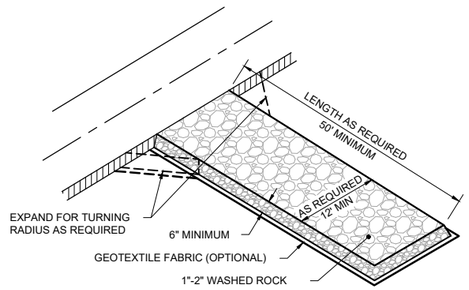
SECTION VIEW

PLAN VIEW

NOTES:

1. INLET PROTECTION SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED OR IMMEDIATELY FOLLOWING CATCHBASIN INSTALLATION, AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. MATERIALS SHALL BE SUFFICIENT TO ALLOW FLOW WHILE BLOCKING SEDIMENT. NO HOLES OR GAPS SHALL BE PRESENT IN/UNDER SEDIMENT LOG.
3. INLET PROTECTION SHALL BE CLEANED AS REQUIRED.
4. MATERIALS AND ANY ACCUMULATED SEDIMENT SHALL BE REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

4 - DETAIL: INLET PROTECTION - SEDIMENT LOG
NOT TO SCALE



NOTES:

1. MAINTAIN ENTRANCE THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACE AS REQUIRED TO PREVENT TRACKING OFFSITE.
2. REMOVE ENTRANCE IN CONJUNCTION WITH FINAL GRADING AND SITE STABILIZATION.

5 - DETAIL: CONSTRUCTION ENTRANCE - ROCK
NOT TO SCALE

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

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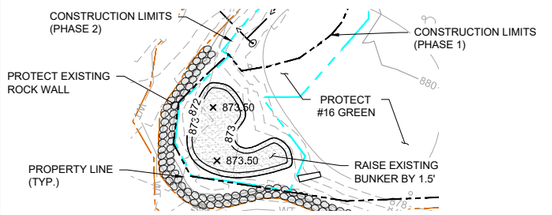
BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

EROSION CONTROL DETAILS

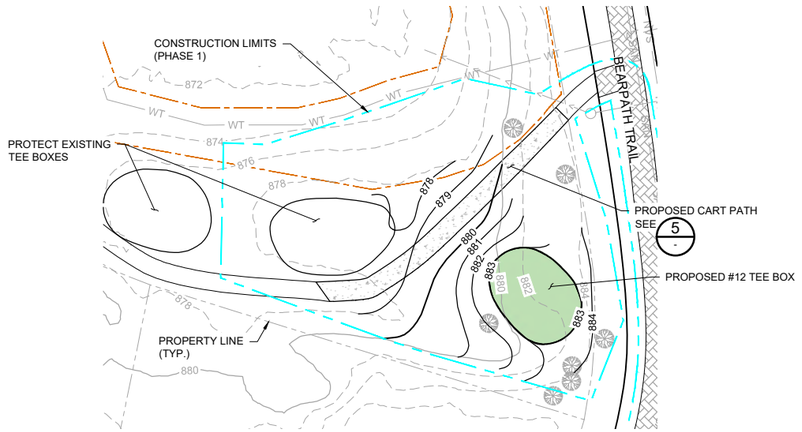
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-13
REV. No. 0



NOTE:
CONTRACTOR TO COORDINATE WITH OWNERS
REPRESENTATIVE TO ALLOW ACCESS TO REBUILD BUNKER.

1 - PLAN: PROPOSED CONDITIONS AND GRADING (#16 GREEN)

0 30 60
SCALE IN FEET



2 - PLAN: PROPOSED CONDITIONS AND GRADING (#12 TEE BOX)

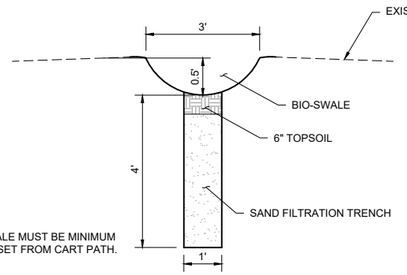
0 30 60
SCALE IN FEET

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
2. ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
4. CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE FINAL CONSTRUCTION LIMITS TO BE COORDINATED WITH THE OWNER AND STAKED IN THE FIELD.
5. CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 8" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
8. TREE SURVEY COMPLETED 05/04/2020. "SIGNIFICANT TREES" MEET THE DEFINITION REQUIREMENTS.
9. CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE THE TRANSFER OF AQUATIC AND TERRESTRIAL INVASIVE SPECIES TO THE MAXIMUM EXTENT POSSIBLE.
10. SOIL SURFACES COMPACTED DURING CONSTRUCTION MUST BE DECOMPACTED TO A SOIL COMPACTING PRESSURE OF LESS THAN 1400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 1 INCH OF SOIL.
11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
12. CONTRACTOR SHALL CONTACT ENGINEER AT LEAST 24 HOURS PRIOR TO CONSTRUCTION OF CRITICAL DESIGN ITEMS TO ALLOW FOR CONSTRUCTION OBSERVATION. CRITICAL DESIGN ITEMS INCLUDE:
    -RIPRAP TOE PROTECTION INSTALLATION
    -VRSS INSTALLATION
    -BOULDER VANE INSTALLATION

SYMBOL AND PATTERN LEGEND

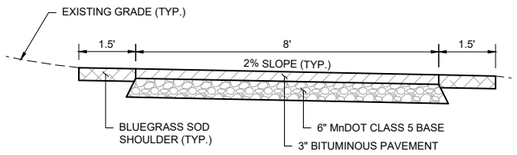
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- PROPOSED GOLF COURSE
- PROPOSED SAND BUNKER
- PLANTING AREA
- BENT GRASS SEEDING AREA



NOTE:
BIO-SWALE MUST BE MINIMUM
1.5' OFFSET FROM CART PATH.

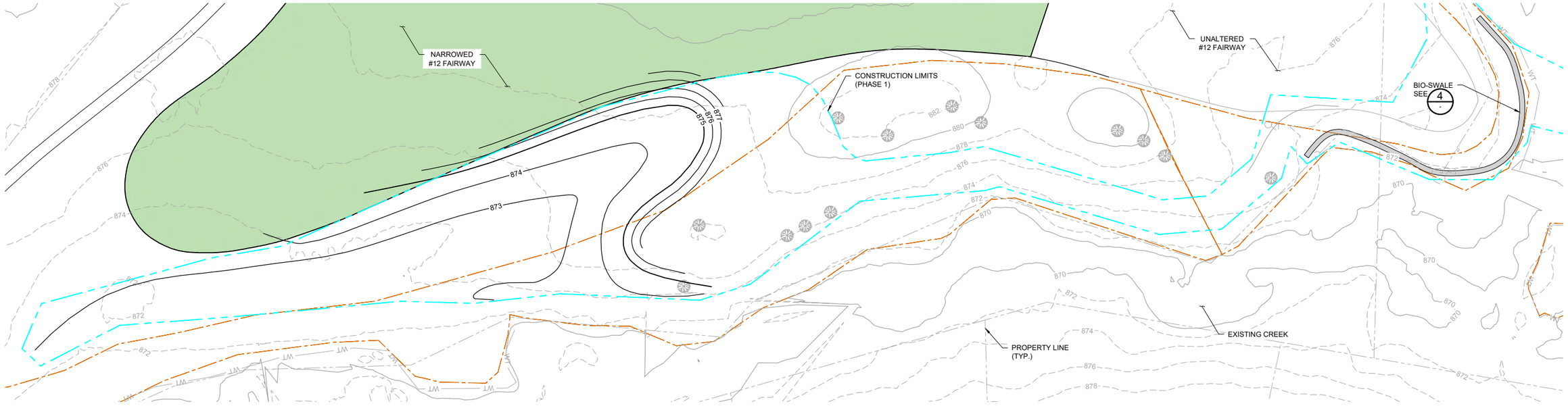
4 - SECTION: BIO-SWALE

0 1 2 3 4
SCALE IN FEET



5 - SECTION: BITUMINOUS CART PATH

0 1 2 3 4
SCALE IN FEET



NOTE:
THIS EXCAVATION AREA TO COMPENSATE
FOR FILL IN #13 TEE BOX AND #12 GREEN.

3 - PLAN: PROPOSED CONDITIONS AND GRADING (#12 FAIRWAY)

0 30 60
SCALE IN FEET

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

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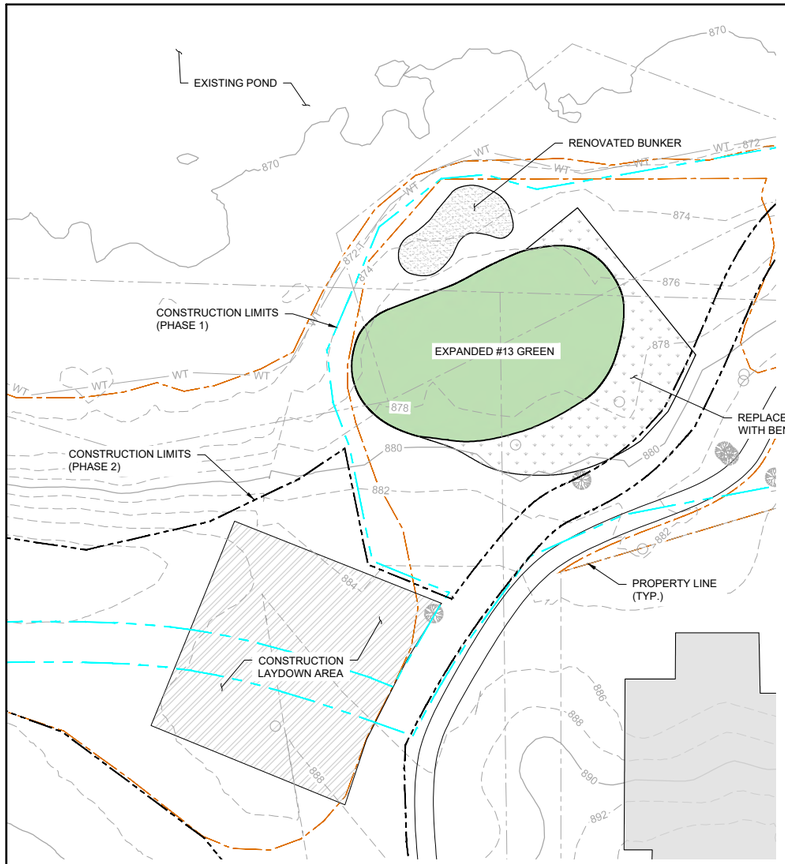
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

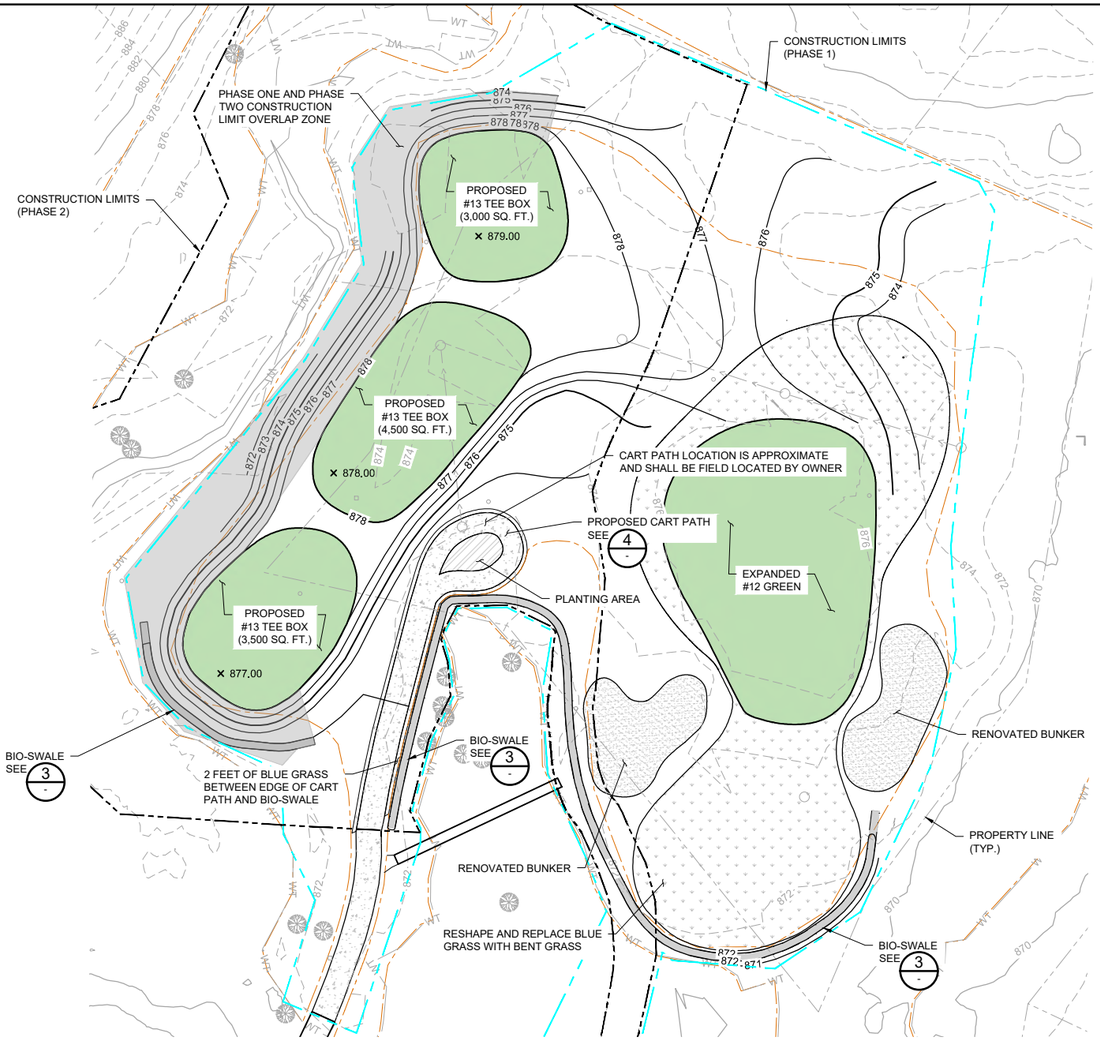
PROPOSED CONDITIONS AND GRADING PLAN
#16 GREEN, #12 TEE BOX & #12 FAIRWAY

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-14
REV. No. 0



1 - PLAN: PROPOSED CONDITIONS AND GRADING (#13 GREEN)

SCALE IN FEET: 0 30 60



2 - PLAN: PROPOSED CONDITIONS AND GRADING (#12 GREEN & #13 TEE BOX)

SCALE IN FEET: 0 30 60

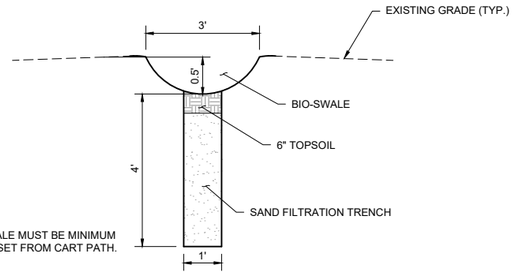
SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- PROPOSED GOLF COURSE
- PROPOSED SAND BUNKER
- PLANTING AREA
- BENT GRASS SEEDING AREA

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

NOTES:

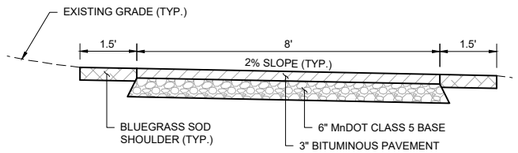
1. CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
2. ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
4. CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE FINAL CONSTRUCTION LIMITS TO BE COORDINATED WITH THE OWNER AND STAKED IN THE FIELD.
5. CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 8" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
8. TREE SURVEY COMPLETED 05/04/2020. "SIGNIFICANT TREES" MEET THE DEFINITION REQUIREMENTS.
9. CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE THE TRANSFER OF AQUATIC AND TERRESTRIAL INVASIVE SPECIES TO THE MAXIMUM EXTENT POSSIBLE.
10. SOIL SURFACES COMPACTED DURING CONSTRUCTION MUST BE DECOMPACTED TO A SOIL COMPACTING PRESSURE OF LESS THAN 1400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 1 INCH OF SOIL.
11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
12. CONTRACTOR SHALL CONTACT ENGINEER AT LEAST 24 HOURS PRIOR TO CONSTRUCTION OF CRITICAL DESIGN ITEMS TO ALLOW FOR CONSTRUCTION OBSERVATION. CRITICAL DESIGN ITEMS INCLUDE:
    - -RIPRAP TOE PROTECTION INSTALLATION
    - -VRSS INSTALLATION
    - -BOULDER VANE INSTALLATION



NOTE:
BIO-SWALE MUST BE MINIMUM 1.5' OFFSET FROM CART PATH.

3 - SECTION: BIO-SWALE

SCALE IN FEET: 0 1 2 3 4



4 - SECTION: BITUMINOUS CART PATH

SCALE IN FEET: 0 1 2 3 4

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	BHD	JCO	BJL	06/25/2021	ISSUED FOR BID

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

PRINTED NAME BRAD LINDAMAN

SIGNATURE

DATE 06/25/2021 LICENSE # 43102

CLIENT		05/11/21					
BID				06/25/21			
CONSTRUCTION							
PERMITTING	03/12/21						
RELEASED TO/FOR	A	B	C	0	1	2	3
DATE RELEASED							

BARR

Corporate Headquarters:
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Ph: 1-800-632-2277

Project Office:
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4300 MARKETPOINTE DRIVE
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MINNEAPOLIS, MN 55435
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www.barr.com

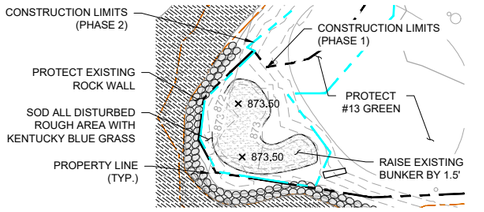
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	JCO
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

PROPOSED CONDITIONS AND GRADING PLAN
#13 GREEN & #12 GREEN/#13 TEE BOX

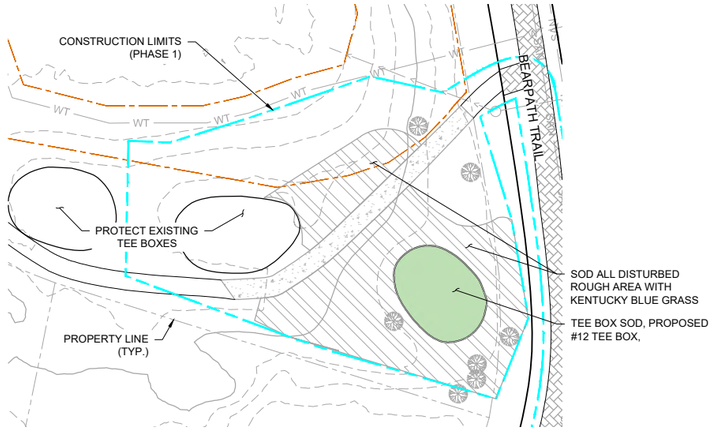
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-15
REV. No. 0



NOTE:
CONTRACTOR TO COORDINATE WITH OWNERS REPRESENTATIVE TO ALLOW ACCESS TO REBUILD BUNKER.

1 - PLAN: RESTORATION (#16 GREEN)

0 30 60
SCALE IN FEET



2 - PLAN: RESTORATION (#12 TEE BOX)

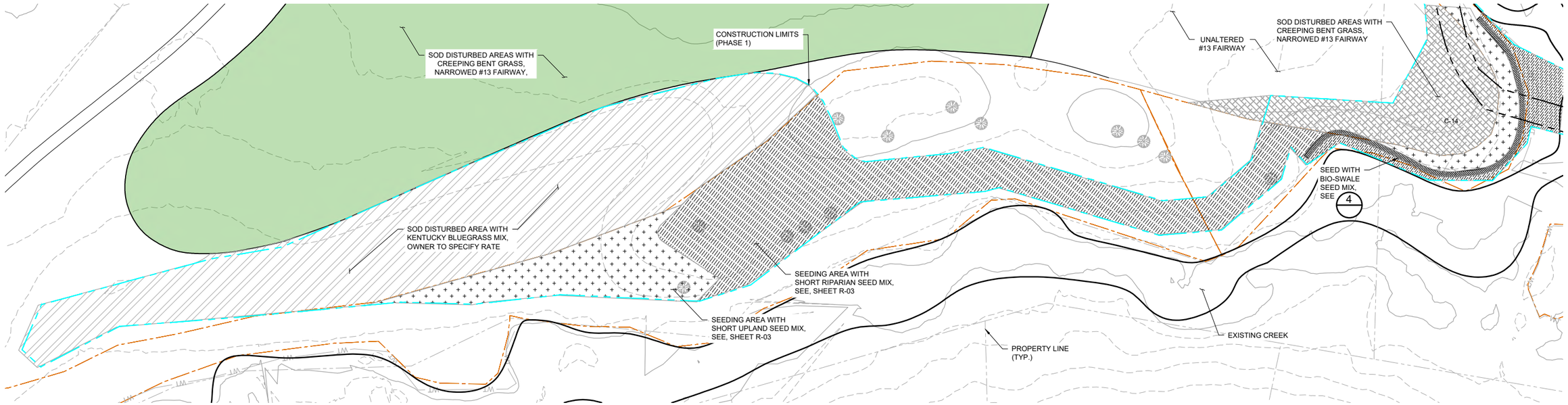
0 30 60
SCALE IN FEET

NOTES:

1. SEE SHEET R-01 FOR SITE RESTORATION DETAILS.
2. SEE SHEET R-03 FOR PLANTING SCHEDULE.
3. SEE SHEET C-14 FOR GENERAL CONSTRUCTION NOTES.
4. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- PROPOSED GOLF COURSE
- PROPOSED SAND BUNKER
- SEEDING AREA WITH BIO-SWALE SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SHORT RIPARIAN SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SHORT UPLAND SEED MIX, SEE SHEET R-03
- SOD AREA WITH KENTUCKY BLUEGRASS MIX, OWNER TO SPECIFY SOD MIX
- SOD AREA WITH BENTGRASS MIX, OWNER TO SPECIFY SOD MIX



3 - PLAN: RESTORATION (#12 FAIRWAY)

0 30 60
SCALE IN FEET

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	BHD	JCO	BJL	06/25/2021	ISSUED FOR BID

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

PRINTED NAME BRAD LINDAMAN
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

CLIENT		05/11/21					
BID				06/25/21			
CONSTRUCTION							
PERMITTING	03/12/21						
RELEASED TO/FOR	A	B	C	0	1	2	3
DATE RELEASED							

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www.barr.com

Scale	AS SHOWN
Date	06/25/2021
Drawn	BHD
Checked	JCO
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

RESTORATION PLAN
#16 GREEN, #12 TEE BOX & #12 FAIRWAY

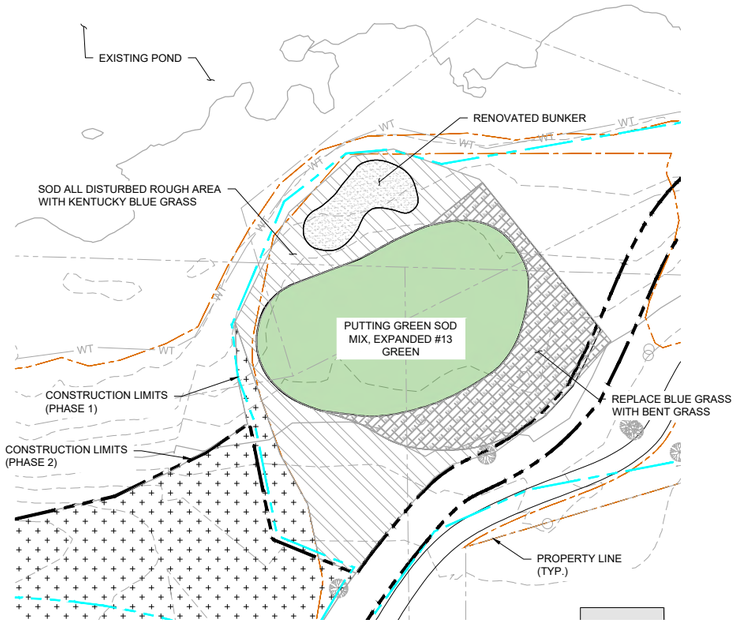
BARR PROJECT No.	23/27-0053.14
CLIENT PROJECT No.	
DWG. No.	R-04
REV. No.	0

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- PROPOSED GOLF COURSE
- PROPOSED SAND BUNKER
- SEEDING AREA WITH BIO-SWALE SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SHORT RIPARIAN SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SHORT UPLAND SEED MIX, SEE SHEET R-03
- SOD AREA WITH KENTUCKY BLUEGRASS MIX, OWNER TO SPECIFY SOD MIX
- SOD AREA WITH BENTGRASS MIX, OWNER TO SPECIFY SOD MIX

NOTES:

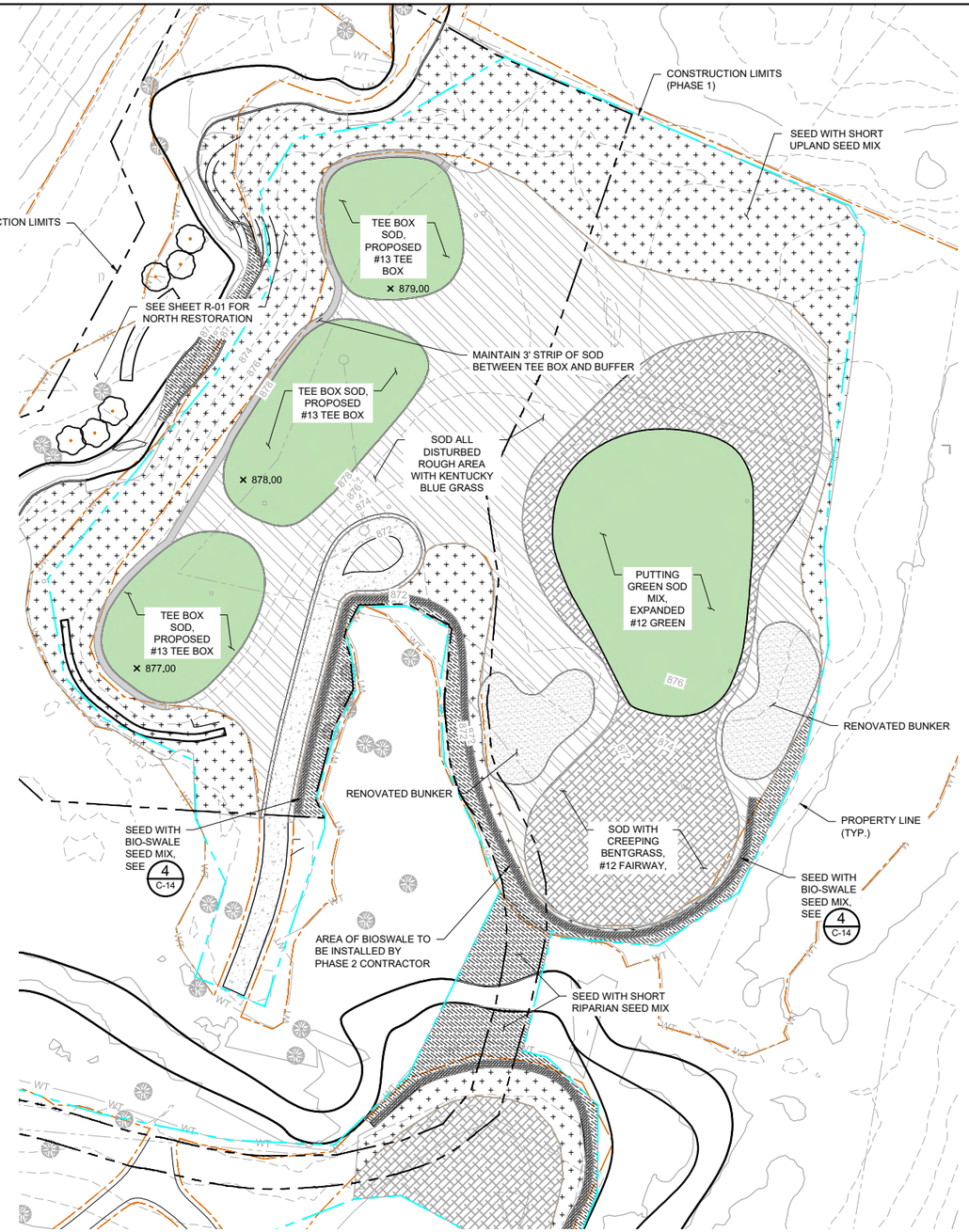
1. SEE SHEET R-01 FOR SITE RESTORATION DETAILS.
2. SEE SHEET R-03 FOR PLANTING SCHEDULE.
3. SEE SHEET C-14 FOR GENERAL CONSTRUCTION NOTES.
4. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.
5. PHASE 2 CONTRACTOR RESPONSIBLE FOR BIOSWALE AND NATIVE VEGETATION RESTORATION WITHIN PHASE 2 CONSTRUCTION LIMITS AND AREAS THAT OVERLAP WITH PHASE 1 LIMITS. ALL OTHER RESTORATION WITHIN OVERLAP AREAS IS THE RESPONSIBILITY OF THE PHASE 1 CONTRACTOR.



1 - PLAN: RESTORATION (#13 GREEN)

0 30 60

SCALE IN FEET



2 - PLAN: RESTORATION (#12 GREEN & #13 TEE BOX)

0 30 60

SCALE IN FEET

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	BHD	JCO	BJL	06/25/2021	ISSUED FOR BID

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

PRINTED NAME BRAD LINDAMAN

SIGNATURE

DATE 06/25/2021 LICENSE # 43102

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT		05/11/21					
BID				06/25/21			
CONSTRUCTION							
PERMITTING	03/12/21						

DATE RELEASED

BARR

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Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	JCO
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

RESTORATION PLAN
#13 GREEN & #12 GREEN/#13 TEE BOX

BARR PROJECT No.	
23/27-0053.14	
CLIENT PROJECT No.	
DWG. No.	REV. No.
R-05	0

EXHIBIT D
Maintenance Agreement

Bearpath will be assigned the primary responsibility for Project inspection and maintenance of stream bank stabilization measure shown on Exhibit C according to the following inspection and maintenance procedure.

Bearpath will conduct an annual inspection of the Project during the growing season each year. All inspections will include the tasks listed below, along with any other visual observation necessary. In addition, stream bank erosion issues often develop following high flow events; therefore the inspection tasks listed below should also be performed following storm events exceeding a 10-year return period for storm events with durations of 12 hours or greater, as defined by Atlas 14 (3.96 inches) and as recorded at the National Weather Service station in Chanhassen.

- Inspect the condition of each of the stream bank protection locations throughout the Project Area. Criteria to note include but are not limited to the following:
    - For areas with riprap protection, should note:
        - The general condition of the riprap.
        - Observed displacement of riprap material.
    - For areas with rock vanes, log vanes, and cross vanes for bank protection, should note:
        - Displacement of boulders used to construct the vanes.
        - Potential undermining of the vanes due to scour immediately downstream of the vanes.
        - Flow patterns that appear to be eroding around the vane.
        - Any bank erosion within approximately 10 feet of the vane.
    - For areas with vegetated reinforced soil slope (VRSS) for bank protection, should note:
        - The general condition of the VRSS (moved, rotted, etc.).
        - Any bank erosion within approximately 10 feet of the VRSS.
    - For areas with planted coir log, should note:
        - The general condition of the coir log.
        - The survival rates of vegetative plantings.
        - Any scour behind the coir log.
        - Any bank erosion within approximately 10 feet of the coir log.
    - For areas with re-established vegetation, should note:
        - The general condition of seeded areas and vegetative plantings.
        - The survival rates of vegetative plantings.
        - The percent cover by grasses and forbs in seeded areas.
- Document significant bank erosion locations, as defined as areas with raw, unvegetated banks greater than approximately two feet tall and with bank angles steeper than approximately 45 degrees.
- Note any observed changes in the stream flow pattern or direction throughout the Project, and note other locations where bank protection may be required;
- Examine storm sewer outlets for undermining, blockage and scour at the outlet and erosion;
- Record location of accumulated debris, downed trees and branches that may adversely redirect the stream flow into the stream banks;
- Take photographs to document the inspection findings in the preceding inspection tasks.

The inspection results will be summarized in a brief inspection report

Maintenance

Routine maintenance activities may include removal of fallen trees that may impede the flow of water, revegetating exposed soils, replacement of boulders for cross vanes, repair of displaced riprap and maintenance of buffer areas as identified through the inspection report. Maintenance will consist of activities to ensure that the flow of water is not impeded. All maintenance activities will comply with RPBCWD's standard buffer maintenance requirements as summarized below:

- Buffer vegetation must not be cultivated, cropped, pastured, mowed, fertilized, subject to the placement of mulch or yard waste, or otherwise disturbed, except for periodic cutting or burning that promotes the health of the buffer, actions to address disease or invasive species, mowing for purposes of public safety, temporary disturbance for placement or repair of buried utilities, or other actions to maintain or improve buffer quality and performance, each as approved by RPBCWD in advance in writing or when implemented pursuant to a written maintenance plan approved by RPBCWD.
- Diseased, noxious, invasive or otherwise hazardous trees or vegetation may be selectively removed from buffer areas and trees may be selectively pruned to maintain health.
- Pesticides and herbicides may be used in accordance with Minnesota Department of Agriculture rules and guidelines.
- No fill, debris or other material will be placed within a buffer.
- No structure or impervious cover (hard surface) may be created within a buffer area.

Routine Maintenance of the Project is defined as activities that will not require equipment that would adversely impact the Project area, as follows:

- Removing fallen trees that are causing bank erosion;
- Vegetation maintenance, such as vegetation replacement that does not require the use of heavy equipment within the Project area;
- Replacement of cross vane boulders and repair of displaced riprap.

Routine Maintenance does not include reconstruction of failed toe and bank stabilization design elements requiring heavy equipment. Bearpath may solicit the RPBCWD for funding to address these non-Routine Maintenance repairs collaboratively.

Nonroutine maintenance needs and funding availability for nonroutine maintenance will be collaboratively reviewed by Bearpath and RPBCWD on an annual basis.

Annual report

A brief Project inspection and maintenance report will be developed on or before January 31 of each year and shared with RPBCWD. The report will contain the following information:

- A summary of the inspection, including the presence or absence of any and all items specifically mentioned in the Inspections section above.
- Describe any maintenance activities completed for the previous 12-month period ending December 31, including dates and actions.
- A record of the location and quantity of any debris or fallen trees removed from Riley Creek.
- List the type and quantities of materials used to repair bank protection at any repair locations stabilized.

EXHIBIT A

BARR

TEMPORARY ACCESS - PARCEL ID#'s
1911622230027, 1911622230035, 1911622220019, 191162224006, 19116221140016

MIDDLE RILEY CREEK STABILIZATION
& BEARPATH GOLF COURSE RENOVATION

0 200 400
SCALE IN FEET

N

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: RPBCWD Board of Managers
From: Jessica Olson
Subject: Middle Riley Creek Project – Request for additional engineering services budget
Date: July 28, 2021
Project: 23/27-0053.14 029B

Requested Board Action

Barr requests that the RPBCWD Board of Managers consider authorizing Barr Engineering to spend an additional budget of $49,000 for construction administration and observation services related to the Middle Riley Creek Stabilization Project.

In March 2020, the RPBCWD completed a feasibility study to identify cost effective stabilization options and recommendations for streambank erosion along Middle Riley Creek through the Bearpath community. The feasibility study recommended a set of alternatives to remeander the creek, stabilize eroding banks, raise the channel bed and create a reconnection to the floodplain. At the April 2020 Board meeting, the RPBCWD Board of Managers authorized final design and preparation of construction documents for the Middle Riley Creek stabilization project based on findings in the feasibility study, with the assumption that final design would be completed in 2020 and construction would take place over the winter of 2020/2021. Because the project is entirely on private property owned by Bearpath Golf and Country Club (Bearpath), the design process was completed in partnership with the Bearpath.

The original design and construction observation task order for $112,900 plus expenses for permit fees and newspaper advertisements was authorized by the Board on April 1, 2020 with an anticipated construction being complete and the project closed out by early 2021. Several factors impacted the schedule that have resulted in an anticipated construction beginning a year later than the original anticipated timeline. Early on we had hoped to absorb these project delay costs and other items summarized below into the project without requesting additional budget but to no avail. As early as June 2020, we communicated with Administrator Bleser of additional work needed to complete the project (tree inventory, compilation of district survey data, additional survey needs). In September of 2020 and again in February 2021 Administrator Bleser was informed of foreseen design budget shortfalls due to extensive coordination efforts with the project partner, unanticipated design iterations, and additional site visits.

After extensive design and coordination efforts that have exceeded the original project expectations, we anticipated a budget shortfall would happen and included the following text in the June engineer's report: *"Because of multiple design iterations, ongoing frequent coordination with Bearpath, unanticipated site visits*

to address Bearpath questions and concerns, more than anticipated golf-course requested drawing and specification revisions, coordination and design/specification updates related to prairie establishment, significantly greater effort needed for creek and wetland buffer mapping/permitting, Barr taking on additional project coordination and management due to the prior administrator's departure, anticipated increased time required for additional coordination with Bearpath and construction observation (including an extended vegetation establishment period), Barr has nearly expended the entire authorized engineering budget and will be requesting additional funding for the project bidding and construction administration services. "

As of the June engineering services invoice (thru 6/31) there was $87 left in Barr's authorized budget for this project ($112,900+$6,700+$9,900= $129,500, which is comprised of the original task order and Administrator authorized surveying and tree inventory work to date, respectively). Because the entire engineering design, coordination, and construction administration budget is exhausted, Barr is requesting additional project budget for the following reasons:

- Ongoing coordination with Bearpath has involved unanticipated site visits, additional design iterations, drawing and specification revisions, and coordination to address questions and concerns.
    - During the design phase of the project the original task order included up to three site visits and to date Barr has participated in six separate meetings.
    - Seven different drawing sets were provided to Bearpath for review and improved coordination with Bearpath's golf course designer (Nickalaus Group) rather than only the 60%, 90%, and 100% design phases.
    - Task Order 29B included three coordination meetings with Bearpath and/or other stakeholders. To date there have been at least nine coordination meetings discussing design elements, contractor coordination, permitting, project revisions, cooperative agreements, buffer requirements.
    - Extensive coordination related to the cooperative agreement including meetings and negotiations with Bearpath, the development of a draft maintenance plan, and exhibits.
- Creek and wetland buffer mapping and permitting required significantly more effort than anticipated because the buffer area was originally anticipated to be only the area adjacent to the creek stabilization. However, during the detailed design phase of the project, RPBCWD completed wetland delineations identifying additional wetland that would be disturbed by the project, thus requiring buffer to extend further than originally anticipated. Extra work included:
    - Unanticipated permitting efforts to request variances from minimum buffer width and signage style because of site restrictions related to Beapath's course design.
    - Bearpath's willingness to expand buffer areas and prairie restoration areas to enhance resource protection along a larger creek reach and additional wetland areas.
    - Development of a bioswale design element to help retain and treat runoff in areas not achieving the minimum buffer widths.
- Barr staff taking on additional project coordination and management activities related to the departure of the prior District Administrator.
- Because of extensive contractor coordination requirements, pavement condition tracking, concerns with site access, and 3-year vegetation management period, construction administration is anticipated to require more oversight and on-site presence than originally anticipated.

- During design it was discovered that the roadways to access the site are owned by the Bearpath homeowners association. This resulted in the need to coordinate the development of an access license with the HOA.

Task Order 29B anticipated roughly 730 hours for design and permitting but as of July 16 Barr had expended about 1,280 hours. The Task Order 29B allotted 120 hours for construction administration, which has not yet started, and we anticipate construction administration activities will take more time than originally scoped due to increased time required for coordination efforts with Bearpath and an extended vegetation establishment period.

Because the design, permitting, and coordination of the project required significantly more time than originally anticipated in order to facilitate the forward-movement of the project with the District's partner, additional budget is needed to complete construction administration services and close-out activities. The following table summarizes the approved budget, the amount spent as of June 30th, and anticipated additional budget to complete the engineering work associated with the Middle Riley Creek Stabilization Project design and construction administration (Task Order 29B). Approximately $13,500 of additional budget has been expended since June 30th for tasks including finalizing specifications in response to legal counsel comments, finalizing drawings, revising site access, coordinating cooperative and HOA agreements, soliciting bids as authorized at the July Board meeting, leading the mandatory pre-bid meeting, and responding to bidder questions. We are anticipating the total construction administration budget at project completion in 2024, assuming no change orders, smooth construction, minimal punch list items, and close-out activities go smoothly, to be roughly $45,000 - $55,000:

Task Order 29B	Authorized Budget	Amount Spent Through 6/30/21	Requested Budget Increase
• **Design of Restoration Project (Design, Permitting, EAW, Maintenance Plan, Plans and Specifications)** • **Construction Services (Bidding, Construction Oversight and Administration)**	$129,500	$129,413	$49,000
Budget Remaining (as of 6/30/21)		**$87**	
Budget Increase Request			**$49,000**

1-Barr's total authorized budget for this project ($112,900+$6,700+$9,900= $129,500, which is comprised of the original task order and Administrator authorized surveying and tree inventory work to date, respectively)

RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2021-017

Received complete: May 17, 2021

Board Meeting: August 4, 2021

Applicant: Riley Purgatory Bluff Creek Watershed District – Attn: Terry Jeffery, on behalf of itself and Bearpath Golf and Country Club (Bearpath)

Consultant: Barr Engineering

Project: Middle Riley Creek Stabilization and Bearpath Golf Course Renovation – The project will involve the stabilization of two segments of Riley Creek, totaling 970 feet, upstream of Lake Riley. The project includes realigning the existing creek channel, grading to reconnect the creek with its floodplain, installation of rock riffles, cross vanes, and J-hook vanes within the channel at key locations to provide grade control, improve the in-stream and riparian habitat in conjunction with the reduction in sediment load delivered downstream from channel and bank erosion. To accommodate the creek stabilization, Bearpath Golf and Country Club will elevate hole #13 tee boxes, moving them to the east and remove a portion of the existing impervious trail and improve hole #12 green area. In addition, and auxiliary to the creek stabilization, Bearpath will concurrently undertake course improvements.

Location: Along Riley Creek from Bearpath Trail to Lake Riley Road, Eden Prairie, MN

Reviewer: Bob Obermeyer, PE and Scott Sobiech, PE; Barr Engineering Co.

Potential Board Variance Action

Manager_____moved and Manager_____seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the August 4, 2021 meeting of the managers:

Resolved that variance requests 1 and 2 from compliance with Rule D for Permit 2021-017 are approved based on the facts and analysis provided by the RPBCWD engineer below and placed in the record at the August 4, 2021, meeting of the managers, and the managers' findings in the record of the August 4th meeting, and subject to the following conditions: 1. [CONDITION(S)],

Proposed Board Action

Manager _____ moved and Manager _____ seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the August 4, 2021 meeting of the managers:

Resolved that the application for Permit 2021-017 is approved, subject to the conditions and stipulations set forth in the Recommendations section of the attached report;

Resolved that on determination by the RPBCWD administrator that the conditions of approval have been met, the RPBCWD president or administrator is authorized and directed to sign and deliver Permit 2021-017 to the applicant on behalf of RPBCWD.

Upon vote, the resolutions were adopted, _____ [VOTE TALLY].

Applicable Rule Conformance Summary

Rule	Issue	Conforms to RPBCWD Rules?	Comments
B	**Floodplain Management and Drainage Alterations**	Yes	
C	**Erosion Control Plan**	See Comment	See Rule Specific Permit Condition C1.
D	**Wetland and Creek Buffers**	See Comment	See Rule Specific Permit Condition D1.
F	**Streambank and Shoreline Stabilization**	See Comment	See Rule Specific Permit Condition F1.
G	**Waterbody Crossings and Structures**	Yes	
K	**Variances and Exceptions**	See Comment	See Rule K Variance Request.
L	**Permit Fees**	NA	Governmental Agency
M	**Financial Assurances**	NA	Governmental Agency

Project Description and Background

The proposed project is located on Riley Creek north of Riley Lake Road and entirely within Bearpath Golf Course in Eden Prairie, Minnesota. The project includes the stabilization of two segments of Riley Creek; a southern reach between the Hole #16 fairway and green and a northern reach west of the Hole #13 tee box (580 and 390 feet, respectively) .The southern reach includes steep eroding outer bend streambanks that are 4 to 6 feet tall along with streambank undercutting (see Figure 1), while the northern reach includes erosion along outer bend of streambanks as well as a segment that appears to have been straightened (see Figure 2). In addition, the project with restore 0.4 acres of wetland adjacent to Riley Creek, designated about 15.6 acres of wetland and creek buffer, and convert and additional 0.6 acres of mowed turf to native prairie restoration.

The proposed project includes realigning the Middle Riley Creek channel and grading the channel bank and floodplain in portions of the upstream and downstream locations to improve the creek's connection to the floodplain and minimize streambank erosion. The realigned channel shape and capacity have been designed to minimize shear stress for both the stream's baseflow and 100-year design storm. Specific bank stabilization measures placed in the channel at key locations to provide grade control and reduce the risk of future erosion will include J-hook log vanes, rock cross-vanes, live stakes, vegetated riprap, and Vegetated Reinforced Soil Slope (VRSS). To the extent possible, log vanes will utilize wood salvaged on site.

One grade-control riffle, one cross-vane, and three J-hooks will be installed in the northern (upstream) reach to provide channel bottom stability and direct flows away from outer banks. Additionally, 114 linear feet of channel will be realigned in the reach. For the southern (downstream) reach, three grade-control riffles, one cross-vane, and five J-hook vanes will be installed along with realigning 154 linear feet of the channel. The Project will also replace a storm sewer outfall within the southern reach.

Figure 1. Southern Site Photos

Figure 2. Northern Site Photos

To accommodate the creek stabilization, Bearpath will elevate and relocate hole #13 tee boxes to the east, remove roughly 400 feet of the existing impervious cart path, reconstruct about 210 feet of 8-foot-wide bituminous cart path, and improve hole #12 green area. Materials to elevate the #13 tee back and improve #12 green will be excavated from the eastern portion of the #12 fairway and transported to the green and tee box areas.

In addition, and auxiliary to the creek-stabilization work, Bearpath will renovate bunkers at #12, #13 and #16 greens, modify vegetation at greens #12 and #13 greens; construct a new #12 tee box and realign approximately 125 feet of 8-foot-wide cart path at #12 tee area. Under the cooperative agreement for the project, the application for the creek-stabilization work includes these course renovations, and analysis of compliance with RPBCWD regulatory requirements is included below.

On behalf of itself and Bearpath, RPBCWD is proposing wetland and creek buffers for areas downgradient from all proposed land-disturbing activities and around wetlands that will be disturbed by project work. In addition, Bearpath proposes to provide buffer along Riley Creek and other wetlands not disturbed or downgradient from land-disturbing activities (see Sheets C-04, C-05 and C-06 on the attached plan set).

Table 1 provides a brief explanation of how each resource is implicated by the project.

Table 1 Water Resources potential impacts by proposed project

Water Resource	Potential resource impacts
Riley Creek	Creek is disturbed for stream stabilization measures
Wetland 27-116-19-009 (NW wetland)	Wetland is disturbed for stream stabilization measures
Wetland 27-116-19-010 (NE wetland)	Wetland is downgradient from #12 green modifications
Wetland 27-116-19-025 (#12 Fairway)	Wetland is downgradient from the soil borrow area used for raising the #13 tee box
Wetland 27-116-19-040 (#16 Fairway and Green – South Site)	Wetland is disturbed for stream stabilization measures

The project site information is summarized below in Table 2:

Table 2 Project site information

	Project Total
Existing Site Impervious (acres)	3.34
Existing Impervious Area Disturbed (acres)	0.1 (3.9% disturbed)
New (Increase) in Site Impervious Area (acres)	0.05
Proposed Impervious Area (acres)	3.29
Exempt Trail and Sidewalk Area (acres)	0.05
Total Disturbed Area (acres)	5.01
Total Site Area (acres)	41.6

Exhibits:

1. Permit Application dated March 25, 2021. (Will be complete on receipt of cooperative easement agreement currently being work on with Bearpath.)
2. Table 3 summarizes the required and supplied submittals with this application. In addition, information about how the project complies with the criteria in each rule is summarized in the following subsections. The information provided is included in the plan set, latest revision date June 28, 2021, project narrative, dated May 4, 2021 (revised), wetland application and delineation report prepared by District staff submitted to the City of Eden Prairie, the local government unit administering WCA, on June 3 for review and approval as well as for type and boundary determination

Table 3 Permit materials

Submittal	Relevant Rule(s)	Submittal status Electronic Copy
One reduced size plan set (11”x17”)	All applications	X
Site Plan	B, F, J	X
Grading Plan	B, C, D, F, G	X
Determination of 100-year floodplain	B	X
Cut, Fill, and change in storage volume computations	B	X
Erosion Control Plan	B, C, F, G	X
Project Narrative	C	X
Construction Implementation Schedule	C	X
Proposed changes to floodplain	B, C	X
SWPPP	C	X
Wetland delineation report	D	X
Restoration Plan	D, F	X

Rule Specific Permit Analysis

Rule B - Floodplain Management and Drainage Alterations

Because portions of Riley Creek will be realigned as part of the project, which involves placing fill below the existing 100-year flood profile of Riley Creek, the project must conform to the RPBCWD’s Floodplain Management and Drainage Alterations rule (Rule B). In the realigned channel segments, the project will raise (i.e., fill) the channel bed in some locations 0.5 feet to reconnect to the adjacent floodplain.

Because the project does not propose to construct or reconstruct structures that have low floors, Rule B subsection 3.1 does not apply.

The summary of the changes to the floodplain storage capacity is provided in Table 4. The project meets the requirements for compensatory storage (+/- 1 foot) for any fill placed in the floodplain by providing a net increase in storage of 194 cubic yards for the northern reach and 287 cubic yards for the southern reach, thus conforming with Rule B, subsection 3.2.

Table 4 Stage storage computation below existing 100-year flood elevation

Northern Location				Southern Location			
Elevation	Existing Storage volume (CY)	Proposed Storage Volume (CY)	Difference (CY)[1]	Elevation	Existing Storage volume (CY)	Proposed Storage Volume (CY)	Difference (CY)[1]
870	33	133	100	864	0	26	26
871	114	161	47	865	15	126	111
872	308	362	54	866	263	342	79
873[2,4]	621	628	-7	867	488	510	22
-	-	-	-	868	827	856	29
-	-	-	-	869	1,111	1129	18
-	-	-	-	870[3,4]	1,265	1267	2
	Total Change		**194**		**Total Change``**		**287**

Notes
(1) Negative (-) volume indicates fill
(2) The maximum 100-year flood elevation for the northern area is 873
(3) The maximum 100-year flood elevation for the southern area is 870
(4) No change in floodplain storage above elevation 873 for Northern Location and 870 for Southern Location

Because filling of floodplain has the potential to alter the timing and duration of flows leaving the site, the applicant must demonstrate that the alterations are not reasonably likely to have an adverse offsite impact and not reasonably likely adversely affect flood risk, basin or channel stability, groundwater hydrology, stream baseflow, water quality, or aquatic or riparian habitat (Rule B subsection 3.3). Modeling indicates the project will not alter surface flow beyond the project limits. By stabilizing the streambanks and reconnecting flows to the floodplain the proposed project will improve water quality and riparian habitat; and the project will have no impact on groundwater hydrology or stream base flow. The project will result in a slight increase in the flood level along one isolated section within the northern reach (a segment of approximately 150 feet) and 25 feet in the southern reach. Despite the slight increase in the highwater level (less than 0.1 feet), there will not be an increase to the flood risk for any adjacent properties or structures. The increase in the flood level is limited to the Bearpath property and is within the degree of engineering accuracy for the modeling completed. The modeling shows the improvements will not have adverse offsite impacts. Based on these findings, the RPBCWD engineer concurs with the hydraulic analysis conducted by the applicant's engineer which demonstrates that the project will not materially alter flood elevations or surface flow, thus the project meets the requirements of Rule B, subsection 3.3.

Criteria 3.4 is met because no enclosed structure(s) will be placed within 100-ft of the centerline of the watercourse. This restriction does not apply to the two existing bridges within 100 feet of the creek (Rule B, subsection 3.4a) or to the golf course path that is less than 10 feet wide and designed primarily for nonmotorized use (Rule B, subsection 3.4b).

An erosion prevention and sediment control plan has been provided, per Criteria 3.5, along with the plans and specifications that include notes for controlling terrestrial and aquatic invasive species entering and leaving the site, per Criteria 3.6.

The proposed project conforms to the floodplain management and drainage alteration requirements of Rule B.

Rule C – Erosion and Sediment Control

The project disturbs more than 5,000 square feet, so it must meet all the requirements in Rule C. Table 5 summarizes how the Rule C criteria are met.

Table 5 Rule C Criteria and how criteria are met

Rule C Criteria	How Criteria is addressed
3.1a	The channel and the immediate floodplain will be disturbed by project grading. The project notes call for on-site topsoil to be preserved (Sheet C-01, C-02).
3.1b	The plans include callouts and/or notes to require rock construction entrances, inlet protections, floating silt curtains, sediment logs, and silt fence to prevent erosion from leaving the site. (Sheet G-02, C-01, C-02)
3.1c	The SWPPP includes provisions to utilize phasing to minimize the duration of disturbance. (Sheet G-02)
3.1d	Plans call for slopes steeper than 3:1 to be stabilized with VRSS or other measure (C-01, C-02)
3.1e	Inlet protection is a requirement the erosion control plan, Note 3. (Sheet C-01, C-02)
3.1f	Note 7 in the erosion control plan specifies the requirement to include a minimum of six inches of topsoil. (Sheets C-01, C-02, C-11 and C-12)
3.1g	The Pollution Prevention Management Measures section of the SWPPP includes provisions to manage construction site waste and to prevent chemical, litter, concrete, and sanitary waste.
3.2a	Note 9 on Sheet C-01& C-02 requires BMP maintenance until vegetation establishment
3.2b	Note 10 on Sheet C-01& C-02 requires removal of BMPs when stabilization has been established
3.2c	Note 11 on Sheet C-01& C-02 requires decompaction
3.2d	Note 12 on Sheet C-01& C-02 requires stabilization within 7 calendar days of work temporarily or permanently stopping.
3.3	Inspection and maintenance requirements are addressed on the Erosion Control Plan (Sheet C-01& C-02)
3.3a	Erosion control blanket or straw mulch will be required on all disturbed areas. (Sheet R-01 & R-02)
3.3b	Not applicable
3.3c	Sediment barriers are required at all necessary areas. (Sheets C-01 & C-02)
3.3d	Erosion control blanket will be used on all slopes steeper than 3:1 (H:V).
3.3e	Stockpiled soils are addressed in the BMPs subsection of the Temporary Sediment Control Practices in the SWPPP (Sheet G-02)
3.3f	A Rock Construction Entrance is required (Sheet C-01 & C-02)

The erosion and sediment control plan prepared by Barr Engineering Co. includes installation of perimeter controls (i.e., silt fence and floating silt curtain), inlet protection for storm sewer catch basins, stabilized rock construction entrances, decompaction of areas compacted during construction, six inches

of topsoil, and retention of native topsoil onsite. To conform to the RPBCWD Rule C requirements the following revisions are needed:

C1. The Applicant must provide the name and contact information of the general contractor responsible for the site. RPBCWD must be notified if the responsible party changes during the permit term.

Rule D – Wetland and Creek Buffers

Because the proposed work triggers a permit under RPBCWD Rules B, F, and G for the streambank stabilization and temporary stream crossing, Subsections 2.1 and 3.1 require buffer adjacent to Riley Creek, a public water course, with an average width of 50 feet and a minimum width of 30 feet from the thalweg of the watercourse. In addition, wetlands border large portions of the creek in the project area (as shown by the wetland delineations included on Sheet C-04 of the construction drawings.) Because two wetlands will be disturbed for the proposed channel modifications and two are downgradient of the construction activities, Rule D, Subsections 2.1a and 3.1 apply and require buffers on these wetlands.

The wetland boundary determinations within the project limits were completed by the RPBCWD staff and submitted to the City of Eden Prairie, the LGU administering WCA, on June 3 for type and boundary determination. RPBCWD staff also completed Minnesota Routine Assessment Method (MnRAM) analyses and determined that the wetlands onsite are exceptional and high value (Appendix D1), as detailed in Table 6. Rule D, Subsection 3.2.b.ii requires for a high value wetland, a buffer being a minimum of 30 feet in width with an average width of 60 feet. For an exceptional value wetland, a buffer being a minimum of 40 feet with an average width of 80 feet is required.

The buffers will be located on land owned by the Bearpath Golf and Country Club. The buffers are shown on Sheets C-04, C-05 and C-06 on the attached plan set. The buffer widths are summarized in Table 6 below.

Table 6 Wetland Buffer Analysis

Wetland ID	RPBCWD Wetland Value	Required Minimum Width[1] (ft)	Required Average Width[1] (ft)	Provided Minimum Width (ft)	Provided Average Width (ft)
Riley Creek	NA	30	50	11	63
Wetland 27-116-19-009 (NW wetland)	Exceptional	40	80	8	82
Wetland 27-116-19-010 (NE wetland)	High	30	60	8	92
Wetland 27-116-19-025 (#12 Fairway)	High	30	60	8	70
Wetland 27-116-19-040 (#16 Fairway and Green – South Site)	Exceptional	40	80	10	110

[1] Average and minimum required buffer width under Rule D, Subsection 3.2ba.

The applicant is requesting approval of variances for the minimum buffer-width shortfalls shown in Table 6, based on impact to the existing golf course layout. (See Rule K variance discussion)

Some of the identified buffer areas are currently are being mowed by Bearpath. Bearpath will cease mowing within these areas, which will allow the native vegetation to be established. In addition, the project is proposing revegetating disturbed areas within the proposed buffer with native vegetation in conformance with Rule D, Subsection 3.3.

Buffer markers located at inflection points in the buffer's upland edge and along the edge of the buffer at intervals of 200 feet or less are required by Rule D, Subsection 3.4. As shown on Sheets C-04, C-05 and C-06 of the attached plans, the buffer markers will be located per Rule D criteria. Bearpath has requested a variance from the requirement for free-standing signs on private property to allow flush to the ground markers (See Rule K variance discussion). The RPBCWD and Bearpath are currently working on a cooperative agreement for long-term project maintenance, including maintenance of the buffer areas (subsection 3.5). Subsection 3.5 also requires the maintenance requirements of the buffer areas be recorded with Hennepin County. A note on sheet C-01 requires that the contractor conduct activities in a way that will minimize the potential for the transfer of AIS (subsection 3.6).

Aside from the variance requests, the following revisions are needed to conform to the RPBCWD Rule D:

D1. Buffer areas and maintenance requirements must be documented in a declaration recorded after approval by RPBCWD. The declaration must also include an exhibit clearly showing the buffer area and monument locations.

Rule F – Shoreline and Streambank Stabilization

Because the applicant proposes to install improvements to stabilize Riley Creek, a public watercourse, the project must conform to the criteria in Rule F. In addition, there are two areas in the creek that will be realigned slightly to reduce the erosion potential and stabilize the creek.

As shown on Figure 1 and Figure 2, there are eroding banks throughout this project reach, thus demonstrating a need for stabilization conforming with Rule F, Subsection 3.1.

For criteria 3.2b, the streambank shear stress was computing using the HEC-RAS modeling software from the US Army Corps of Engineers. Based on the modeling results, the shear stress along the majority of the reach is between <0.1 pounds per square foot (psf) and 0.6 psf for the 10-year storm event resulting in the majority of the reach being desingated a low energy stream because the maximum shear stress is less than 2.5 pounds per square foot (psf). Therefore, erosion along most of the reach could be stabilized with bioengineering. Because the engineer concurs that with the shear stress computations provided by the applicant's engineer demonstrating that the localized shear stress at some bends in the creek is estimated at 2.7 psf, the bends are consider medium energy sites and the erosion could be stabilized with combination of bioengineering and riprap.

The design for the stream includes bioengineering methods, which are consistent with the design criteria for a low energy stream, as well as in-channel structures to facilitate floodplain connection. The proposed design includes the placement of the following bioengineering methods along the streambanks: coir log with native plantings, bank grading and native vegetation, vegetated reinforced

soil slopes (VRSS) without rock toe stabilization, VRSS with rock toe stabilization, and native live stake plantings (rule F, subsection 3.3.a.i). Bank grading will produce finished stabilized slope below the ordinary high water level (OHW) of 3H:1V as indicated on plan Sheet C-08 and C-10 (3.3.a.ii).

The drawing indicated that field stone vegetated-riprap is proposed for the medium energy creek bend and demonstrates the riprap aligns with the creek channel. The proposed riprap will have an average size of 9 inches in diameter (MNDOT Class III Riprap), a geotextile (MnDOT 3733), and transitional layer of 6 inches of granular bedding consistent with Rule F, Subsections 3.3b.i and 3.3b.iii. Notes on the plan sheet prohibit the use of limestone or dolomite consistent with Rule F, Subsections 3.3b.i. The proposed natural stone riprap for the vegetated riprap can withstand shear stress of 3.8 psf, which is consistent with the erosion intensity for the flow in the creek at this bend location (Rule F, Subsection 3.3b.i).

The drawing confirms the vegetated riprap on the creek bend conforms to the natural alignment of the tributary (3.3.b.ii). The placement of riprap is for the purpose of stabilizing the creek bends, thus riprap is not proposed for cosmetic purposes (Rule F, subsection 3.3.b.vi)

As indicated on Sheet C-01, C-02, C-11, and C-12 of the attached plan set, construction activities must be conducted to minimize the potential transfer of invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible. (Rule F, subsection 3.3e)

The Minnesota Department of Natural Resources has waived jurisdiction over the proposed work to RPBCWD. To benefit from the authorization available under DNR General Permit #2015-1192 issued for work in the Riley-Purgatory-Bluff watershed, the applicant will need to comply with the terms and conditions of the general permit.

The following revisions are needed to conform to the RPBCWD Rule F:

F1. The vegetated riprap detail on sheet D-02 must be revised so the riprap will extend no higher than the top of bank, the finished stabilized slope will be 3:1 below the OHW, the riprap will not reduce the cross-sectional area (3.3.a.ii and 3.3.b.v).

Rule G – Waterbody Crossings and Structures

An existing storm sewer flared end section, shown in Figure 4, is to be replaced as part of the project. Because this replacement will result in work that is in contact with the bank of the waterbody, Rule G applies. In addition, the project proposes to install an at-grade crossing of the creek to facilitate site access as well as constructing riffles, cross vanes, and log vanes in contact with the bed of Riley Creek to restore a natural pool-riffle sequence along the reach.

Because no directional boring or horizontal drilling is proposed, and no structures will be removed, the criteria in subsections 3.4 and 3.6 require no analysis here.

A note on plan sheet G-02 requires no activity in the creek between March 15 and June 15, thus conforming to Rule G subsection 3.7a. The project plans and specifications indicate the banks will be immediately stabilized after completion of permitted work and revegetated as soon as growing

conditions allow (Rule G, Subsection 3.7b). A note is included on the plan sheet indicating the project will be constructed to minimize the potential transfer of aquatic invasive species (e.g., zebra mussels, Eurasian watermilfoil, etc.) to the maximum extent possible (Rule G, Subsection 3.7c).

Flared end section specific analysis

Figure 3. Erosion at existing flared end section near the #16 Green

As illustrated in Figure 3, the flared end section has become perched approximately 2.5-feet above the existing channel bottom.

The proposed grading will not elevate the stream bed to the invert of the existing flared end section. A new manhole in addition to the new flared end section will be installed bringing the outlet to the elevation of the proposed stream bed.

Because leaving the existing flared end section in place will result in continuing erosion that will contribute to degraded water quality on all reaches of Riley Creek downstream of this project, there is a demonstrated public benefit (improved water quality) from replacing this flared end section, meeting section 3.1b.

Criteria 3.3 is met because as shown on plan sheet D-06, the new flared end section will include a riprap apron and stilling basin to reduce risk of bank erosion. The flared end section will be replaced to prevent scour. Also, the drop into the new manhole structure will dissipate stormwater energy discharging into the channel. Because there is an upgradient, existing stormwater pond which will reduce peak flows and reduce pollutants the project conforms with criteria 3.3b and 3.3c.

Rule G, Subsection 3.7d requires compliance with the applicable criteria in subsections 3.3 of Rule F. Construction drawings submitted show the finished, stabilized side slopes of the channel banks will not be steeper than 3:1 as required by Rule F, Subsection 3.3a (ii). Drawings confirm the replaced outfall will follow the existing alignment of the watercourse (Rule F, Subsection 3.3a (iii)). The project proposes the use field stone riprap for the construction of the crossing with an average size of 9 inches in diameter (MNDOT Class III Riprap), a geotextile (MnDOT 3733), and transitional layer of 6 inches of granular bedding consistent with Rule F, Subsections 3.3b.i and 3.3b.iii.. Because the proposed riprap can withstand flow velocities greater anticipated leaving the outfall, the riprap design is consistent with the expected erosion intensity at this location, thus conforming to Rule F, Subsection 3.3.a.iv. Notes on the plan sheet prohibit the use of limestone or dolomite consistent with Rule F, Subsections 3.3b.i. The outfall detail on sheet detail on sheet D-06 indicates the riprap will extend no higher than the top of bank (Rule F, Subsection 3.3b.v).

Grade control features and at-grade waterbody crossing specific analysis

The at-grade waterbody crossing is needed to facilitate site access to restore the streambanks and install grade control features along the creek to reduce the amount of TSS and TP being contributed to Riley Creek and Lake Riley, both of which are impaired waterbodies. Therefore, this work represents a public benefit by reducing erosion and the pollutant load entering the downstream impaired waters (Rule G, Subsection 3.1b)

Subsection 3.2:

a. The plans require that the proposed creek crossing be constructed at grade, meaning the cross-sectional flow area of the proposed crossing will be equal to or slightly greater than the existing cross section, thus maintaining adequate hydraulic capacity (Rule G, subsection 3.2a).

b. Because the drawings show the crossing will be installed at-grade, maintain the same cross-sectional area, and use materials sized to withstand the anticipated erosive forces (see Rule G, Subsection 3.7d discussion below), the project will not alter flows and is thus not reasonably likely to increase scour, erosion, or sedimentation. (Rule G subsections 3.2b and 3.3c)

c. Criteria 3.2d is achieved because the proposed at-grade crossing maintains consistent elevations and flow characteristics, thus wildlife passage after the project will be the same as pre-project conditions.

d. A creek crossing is needed for equipment and materials to access the creek stabilization sites. The project meets the "minimal impact" solution because other crossing alternatives, such as culverts, would have had a much larger footprint to meet the same design objectives and result in additional floodplain fill and riparian wetland impacts. In addition, without the crossing the larger stream stabilization project would not be accessible. (Rule G subsections 3.2e)

RPBCWD completed a 2020 feasibility study for this area which analyzed two stabilization concepts, stabilize in-place or re-meandering. The final recommendation in the feasibility report was a combination of the two concepts. This combined approach includes the stream realignment near the Hole 13 tee box and restoration of the downstream segment largely in the existing stream pattern. A slight channel realignment away from the Hole 16 green is necessary to achieve a 3:1 slope. Additionally, the recommended approach would include the boulder wall that aligns with the aesthetic goals of the golf course. This recommendation provides the greatest level of habitat improvements and a resilient solution to the stream erosion. The proposed project further refined the recommended concept to reduce the stream re-meandering length and incorporate significant riparian buffer to further protect the waterbodies, thus the proposed design represents the minimal impact solution, and it represents the minimal disturbance area to significantly reduce pollution from this reach (Rule G, subsection 3.5a and 3.5b). The Rule B analysis provided above demonstrates the project complies with district's floodplain rule as required by Rule G, subsection 3.5c.

The proposed grading, rock riffle, cross vanes, log vanes, and vegetation reestablishment will help control flows, reduce velocities, and reduce erosion within the creek. Water quality modeling indicates the project will improve water quality by significantly reducing the erosion caused by the eroding banks within the project area by approximately 17,000 lbs. of TSS per year and 8.3 lbs. of TP per year. Because implementation of the plans will provide a reduction in pollutant loading and show that discharges rates

are unchanged, the proposed alterations are not likely to cause adverse impacts and the project conforms to Rule G, Subsection 3.5d.

Rule G, Subsection 3.7d requires compliance with the applicable criteria in subsections 3.3 of Rule F. Construction drawings submitted show the finished, stabilized side slopes of the channel banks associated with the at-grade crossing and grade control features will not be steeper than 3:1 as required by Rule F, Subsection 3.3a (ii). Drawings confirm the proposed crossing and grade control features will follow the existing alignment of the watercourse (Rule F, Subsection 3.3a (iii)). The project proposes the use field stone riprap for the construction of the crossing with an average size of 6 inches in diameter (MNDOT Class II Riprap), with a geotextile (MnDOT 3733) and transitional layer of 6 inches of granular bedding consistent with Rule F, Subsections 3.3b.i and 3.3b.iii.. Notes on the plan sheet prohibit the use of limestone or dolomite consistent with Rule F, Subsections 3.3b.i. Because the proposed riprap can withstand flow velocities of between 5-10 feet per second, which is slightly greater than the anticipated velocities (3-6 fps), the crossing design is consistent with the erosion intensity for the flow in creek at this location, thus conforming to Rule F, Subsection 3.3.a.iv and 3.3.b.i. Because the crossing, vane, and riffle purpose and design are different than typical riprap installation, Rule F, Subsection 3.3b does not impose requirements on this permit.

The proposed streambank stabilization complies with RPBCWD Rule G. The Minnesota Department of Natural Resources has waived jurisdiction. To benefit from the authorization available under DNR General Permit #2015-1192 issued for work in the Riley-Purgatory-Bluff watershed, the applicant will need to comply with the terms and conditions of the general permit.

Rule J – Stormwater Management

The project will disturb more than 5,000 square feet of land-surface area; however, the project will reduce the amount of paved trail and the portions of the trail that will be realigned will not exceed 10 feet in width and will be bordered downgradient by a pervious area a least half the trails width. In addition, the proposed site grading and slight reduction in impervious surface will not change the stormwater flows at the site boundary.

Under Rule J, subsection 2.2d and 2.4e, the project is exempt from Rule J.

Rule K – Variances and Exceptions

Table 7 summarizes the Applicant's request for approval of two variances from the RPBCWD regulatory requirements.

Table 7. Variance request summary

Variance number	Rule	Subsection	Requested Variance	Notes
1.	D	3.2b	Minimum width along 27% of the buffer on all four wetlands and the creek	Bioswale proposed along about 70% of shortfall areas
2.	D	3.4	Buffer-signage requirements	Allow for flush mount marker

.

Rule K requires the Board of Managers to find that because of unique conditions inherent to the subject property the application of rule provisions will impose a practical difficulty on the Applicant. Assessment of practical difficulty is conducted against the following criteria:

1. how substantial the variation is from the rule provision;
2. the effect of the variance on government services;
3. whether the variance will substantially change the character of or cause material adverse effect to water resources, flood levels, drainage, or the general welfare in the District, or be a substantial detriment to neighboring properties;
4. whether the practical difficulty can be alleviated by a technically and economically feasible method other than a variance. Economic hardship alone may not serve as grounds for issuing a variance if any reasonable use of the property exists under the terms of the District rules;
5. how the practical difficulty occurred, including whether the landowner, the landowner's agent or representative, or a contractor, created the need for the variance; and
6. considering all the above factors, whether allowing the variance will serve the interests of justice.

Variance Request #1

The variance request is from the minimum width requirement for the wetlands on the site and Riley Creek (Rule D, Subsection 3.2.b). The required and provided buffer widths are summarized in the Table 9. . The buffer-size variances requested are related and based on area Bearpath wishes to see converted to buffer.

- Related to variance criterion 1 – Table 8 and Table 9, below, identify the required and provided buffer areas as well as the shortfalls in the required minimum buffer widths for Riley Creek and the four onsite wetlands. The summary table shows substantial shortfalls from the minimum buffer widths require for the four wetlands and Riley Creek. The most substantial shortfall in the minimum widths is for is Wetland 27-116-19-009 (32 feet or 80% shortfall). The largest shortfall in the average buffer width is for Wetland 27-116-19-040 (30 feet or 75% shortfall). Considering the site in aggregate, a shortfall in the minimum width occurs along 27% of the combined length of creek and wetland boundary.

Table 8 Wetland and Creek Buffer Area Summary

Resource ID	Needed Area (sq ft)	Provided Area (sq ft)
Riley Creek	279,200	350,900
Wetland 27-116-19-009 (NW wetland)	191,600	197,400
Wetland 27-116-19-010 (NE wetland)	31,400	48,100
Wetland 27-116-19-025 (#12 Fairway)	13,700	16,000
Wetland 27-116-19-040 (#16 Fairway and Green – South Site)	57,200	78,400
	573,100	690,800

Table 9 Wetland and Creek Buffer Analysis

Resource ID	RPBCWD Wetland Value	Required Minimum Width[1] (ft)	Required Average Width[1] (ft)	Provided Minimum Width (ft)	Provided Average Width (ft)	Shortfall in Minimum Width Provided	% Shortfall in Minimum Width Provided
Riley Creek	NA	30	50	11	63	19	63
Wetland 27-116-19-009 (NW wetland)	Exceptional	40	80	8	82	32	80
Wetland 27-116-19-010 (NE wetland)	High	30	60	8	92	22	73
Wetland 27-116-19-025 (#12 Fairway)	High	30	60	8	70	22	73
Wetland 27-116-19-040 (#16 Fairway and Green – South Site)	Exceptional	40	80	10	110	30	75

[1] Average and minimum required buffer width under Rule D, Subsection 3.2.a.

- Regarding variance criteria 2 and 3 – The information submitted demonstrates that the proposed buffer minimum widths will not have adverse effects to the resource because the runoff from the adjacent areas is from vegetated expanses (golf course turf or woodland), similar to existing conditions. As shown in Table 8 below, the proposed additional buffer area will more than offset the encroachment caused by the reduced buffer widths.

- Technical measures considered to alleviate the practical difficulty (variance criterion 4) include relocating and reducing the golf course features. The features are needed at these locations to accommodate the golf course design, most of which is existing. The applicant is also proposing to install 917 linear feet of vegetated bioswales along the edges of wetlands 27-116-19-010 and 27-116-19-040 to offset the shortfall. The bioswales, planted with native vegetation, between the land-disturbing activities and the regulated features alleviate some of the shortfall by promoting infiltration, pollutant reduction, and habitat. In addition, Bearpath proposes to provide buffer along Riley Creek and other wetlands not disturbed or downgradient from land-disturbing activities (see Sheets C-04, C-05 and C-06 on the attached plan set)
- Regarding variance criterion 5, the applicant has created the need for the variance by enhancing and restoring portions of Riley Creek that are contributing excess sediment to the creek and Lake Riley.

The engineer finds there is adequate technical basis for the managers to rely on to grant the requested variance because of the added resource protection of the additional buffer area provided by the project and the installation of bioswale in 72% of the area with shortfalls from the minimum buffer width.

Variance Request #2

The second variance request is from Rule D, Subsection 3.4 requiring free-standing signs on private property.

- Related to variance criterion 1 – There are 79 buffer signs required to meet the monumentation requirement in Rule D, Subsection 3.4. The request variance is to replace 62 of the free standing signs along the playable portion of the course with flush to the ground markers. This represents a 78% shortfall from the free-standing sign requirement.

- Regarding variance criteria 2 and 3 – Converting to a flush to the ground monument will reduce the ability for grounds crew conducting maintenance on the golf course to easily identify the edge of the buffer areas. GPS location of the flush to the ground markers will be require with the information used by Bearpath maintenance personal in mowing and buffer maintenance activities on the course. The use of flush to the ground monuments will have no impact on government service and not materially change or impact the water resources. However, without free-standing signs there is a reduced public educational value.

- Technical measures considered to alleviate the practical difficulty (variance criterion 4) include using flush to the ground markers that will be located with GPS coordinates. The flush mount buffer maker will have minimum diameter of 3 inches, identify the monument as a "Buffer Marker", state "No Mowing Beyond", and include RPBCWD's web address. In addition, Bearpath will adopt the following measures to assure no mowing of buffer areas:

    - Use the GPS locations of the flush to the ground markers the during mowing and buffer maintenance activities on the course.
    - A course map that identifies the buffer areas will be displayed in the maintenance shop;
    - Annual inspections pursuant to the maintenance plan will confirm buffer compliance and any necessary corrections.

    Bearpath will also adopt the following measures to provide education of its members and golf course players about Bearpath's commitment to environmental stewardship:

    - Education display in the clubhouse that describes environmental stewardship efforts, including partnership with RPBCWD in stream restoration, maintenance of native vegetation buffers;

- Regarding variance criterion 5, the applicant has created the need for the variance by enhancing and restoring portions of Riley Creek that are contributing excess sediment to the creek and Lake Riley. Bearpath is designation as a Jack Nicklaus Signature golf course. It is the engineer's understanding that maintaining the Jack Nicklaus Signature golf course status requires incorporating the following characteristics into any design modification: challenge, aesthetics, conditioning, distinctiveness, character, shot options, and layout variety. Bearpath has expressed concerns with the number and location of the free-standing buffer signs required by the District rule and the signs compatibility with Jack Nicklaus Signature golf course golf course aesthetics requirements. The project is almost entirely for water-resource improvement purposes being undertaken and scoped by RPBCWD. Therefore, it may not be reasonable to

require the property owner to dedicate additional land area, where such dedication would negatively affect its ongoing, established use.

The engineer makes no determination as to whether there is an adequate technical basis for the managers to rely on to grant the requested variances from the free-standing sign requirement (Rule D, subsection 3.4).

Applicable General Requirements:

1. The RPBCWD Administrator and Engineer shall be notified at least three days prior to commencement of work.
2. Construction must be consistent with the plans, specifications, and models that were submitted by the applicant that were the basis of permit approval. The date(s) of the approved plans, specifications, and modeling are listed above and on the permit. The granting of the permit does not in any way relieve the permittee, its engineer, or other professional consultants of responsibility for the permitted work.
3. The grant of the permit does not relieve the permittee of any responsibility to obtain approval of any other regulatory body with authority.
4. The issuance of this permit does not convey any rights to either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
5. In all cases where the doing by the permittee of anything authorized by this permit involves the taking, using or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements or interests, the permittee, before proceeding therewith, must acquire all necessary property rights and interest.
6. RPBCWD's determination to issue this permit was made in reliance on the information provided by the applicant. Any substantive change in the work affecting the nature and extent of applicability of RPBCWD regulatory requirements or substantive changes in the methods or means of compliance with RPBCWD regulatory requirements must be the subject of an application for a permit modification to the RPBCWD.
7. If the conditions herein are met and the permit is issued by RPBCWD, the applicant, by accepting the permit, grants access to the site of the work at all reasonable times during and after construction to authorized representatives of the RPBCWD for inspection of the work.

Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.

2. Aside from the variance requests from the provisions of Rule D cited above (subsection 3.2 and 3.4), the proposed project will conform to the remaining criteria of Rules D if the Rule Specific Permit Conditions listed above are met.

3. The proposed project conforms to Rules B, and G and will conform to Rules C and F if the Rule Specific Permit Conditions listed above are met.

4. Under Minnesota Department of Natural Resources General Permit 2015-1192 (attached to this report) and given the waiver described above by DNR to the general permit, approval of work under RPBCWD rules F and G constitutes approval under applicable DNR work in waters rules. Compliance with conditions on approval and payment of applicable fees, if any, are necessary to benefit from general permit and the responsibility of the applicants.

Recommendation:

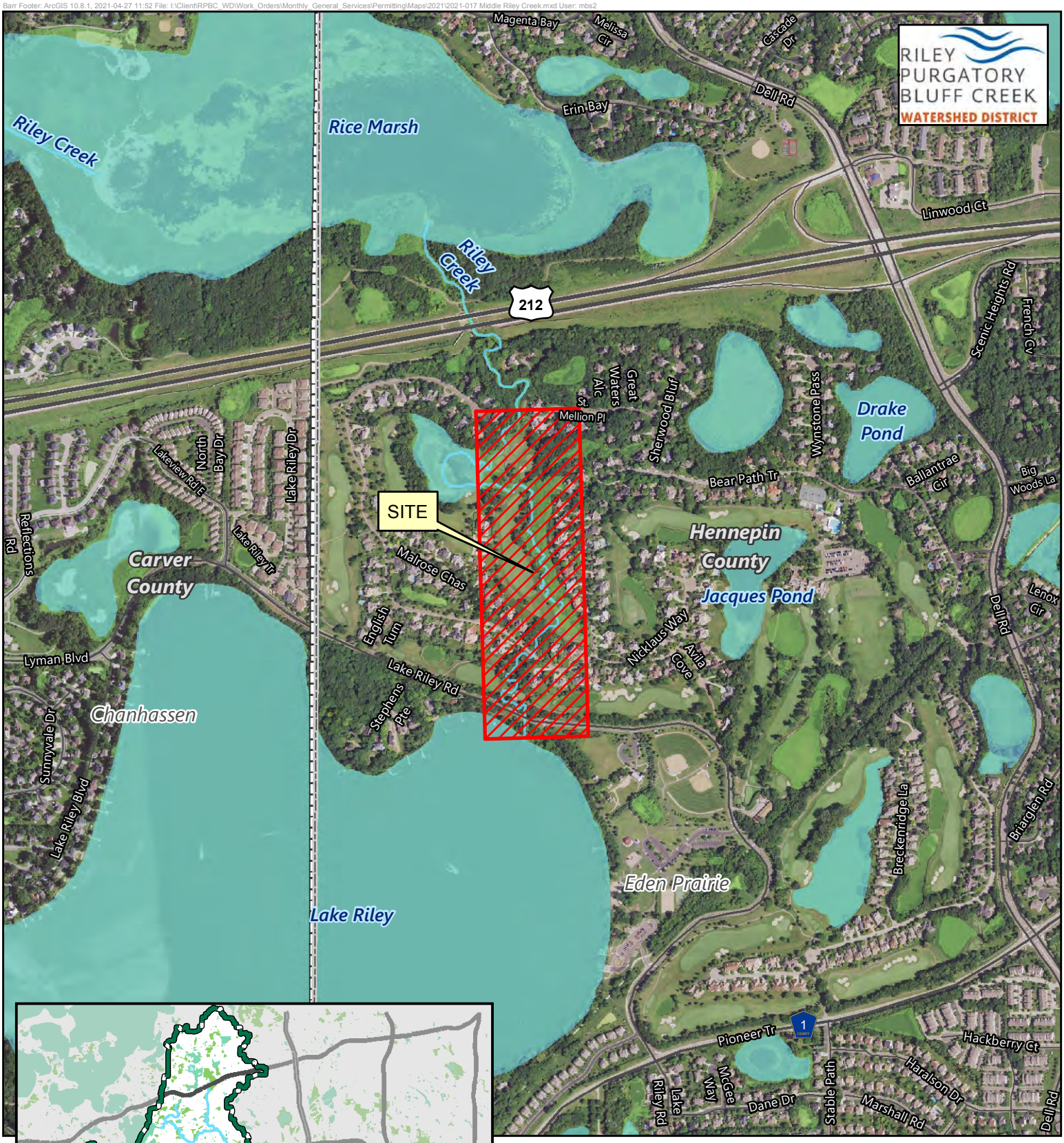
Approval, contingent upon:

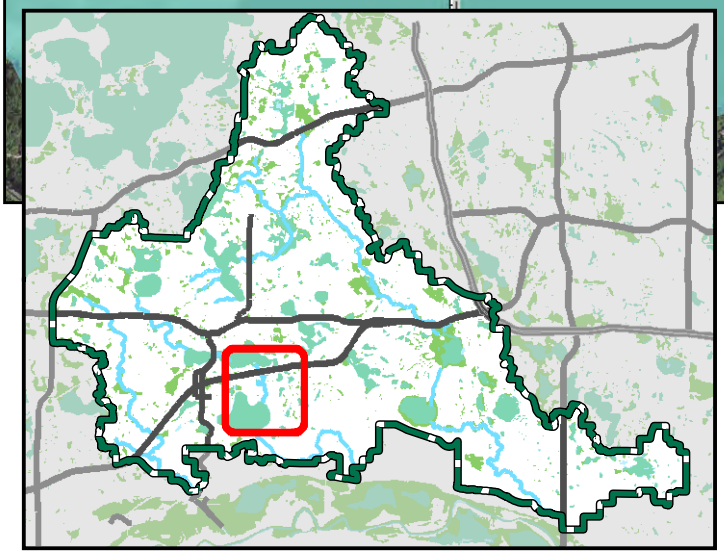
1. Continued compliance with General Requirements.

2. The applicant must provide the name and contact information of the individual responsible for erosion prevention and sediment control at the site (Phases 1 and 2). RPBCWD must be notified if the responsible party changes during the permit term.

3. The vegetated riprap detail on sheet D-02 must be revised so the riprap will extend no higher than the top of bank, the finished stabilized slope will be 3:1 below the OHW, the riprap will not reduce the cross-sectional area (3.3.a.ii and 3.3.b.v).

4. In accordance with Rule 3.5, a receipt showing recordation of a maintenance declaration for the wetland buffer areas and the waterbody crossings. A draft of the declaration must be approved by the District prior to recordation





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Feet

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Permit Location Map

MIDDLE RILEY CREEK
Permit 2021-017
Riley Purgatory Bluff Creek
Watershed District

MIDDLE RILEY CREEK STABILIZATION AND BEARPATH GOLF COURSE RENOVATION
RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

MINNESOTA COUNTY MAP

CONTACTS:

ENGINEER CONTACT:
Jessica Olson
Barr Engineering Co.
325 South Lake Avenue
Duluth, MN 55802
218-299-7118
jolson@barr.com

OWNER'S REPRESENTATIVE CONTACT
Terry Jeffery
Interim District Administrator
Riley Purgatory Watershed District
18681 Lake Drive East
Chanhassen, MN 55317
952-607-6885
tjeffery@rpbcwd.org

PROPERTY OWNER CONTACT
Bearpath Golf & Country Club
Attn: Kevin Cashman
18100 Bearpath Trail
Eden Prairie, MN 55347
952-975-0123
kcashman@bearpathgolf.com

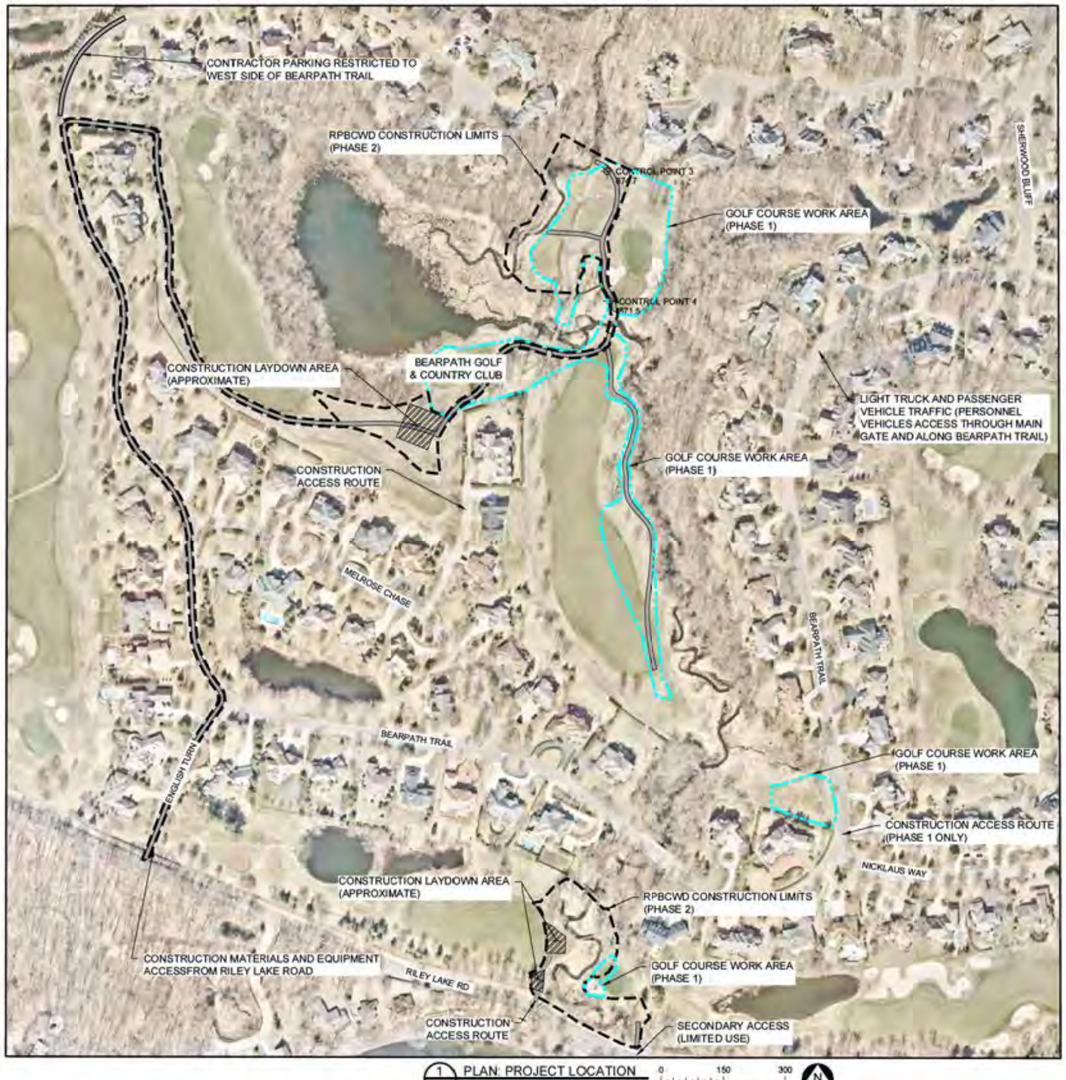
GENERAL NOTES:

1. CONTOUR DATA SHOWN IN THIS PLAN SET IS BASED ON 2015 LIDAR TOPOGRAPHY AND SURVEYS PERFORMED BY RPBCWD STAFF ON MAY 4 AND 18, 2020 AND SUPPLEMENTED BY SURVEY DATA FROM A SURVEY PERFORMED BY BARR ENGINEERING ON JUNE 11, 2020.
2. IMAGERY: COPYRIGHT PICTOMETRY INTERNATIONAL CORP AND HENNEPIN COUNTY, MINNESOTA, 2017.
3. HORIZONTAL DATUM AND COORDINATE SYSTEM: HENNIPEN COUNTY COORDINATES, NAD83, US SURVEY FEET.
4. VERTICAL DATUM: NAVD88.
5. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE SITE ACCESS AND WORK TIMING.
6. ALL ACCESS POINTS FROM LAKE RILEY ROAD MUST BE SECURE AT ALL TIMES. IF ACCESS IS UNLOCKED, RESPONSIBLE CONTRACTOR MUST ENSURE ONLY AUTHORIZED EQUIPMENT AND PERSONNEL ACCESS SITE.

CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	117922.4829'	465761.5527'	875.23'	VRS SPIKE 1
2	117850.1325'	465717.6763'	880.15'	VRS SPIKE 2
3	119806.1150'	465879.4807'	874.71'	VRS SPIKE 3
4	119491.9292'	465886.5323'	871.54'	VRS SPIKE 4

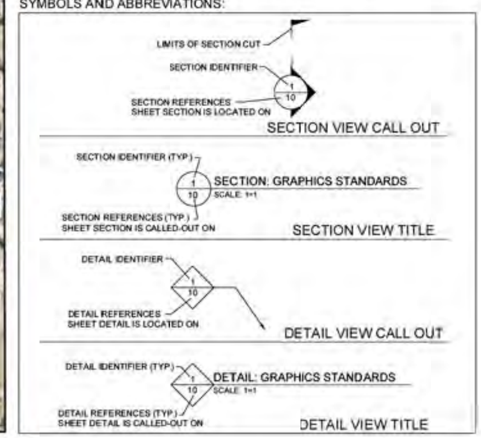
GOPHER STATE ONE CALL
GOPHER STATE ONE CALL.
CALL BEFORE YOU DIG.
1-800-252-1166



1 PLAN: PROJECT LOCATION

INDEX OF SHEETS

SYMBOLS AND ABBREVIATIONS:



ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: JESSICA OLSON
SIGNATURE: [signature]
DATE: 06/25/2021 LICENSE #: 43102

RELEASED TO/FOR	A	B	C	D	0	1	2
CLIENT	07/10/20	08/06/20	—	05/11/21	—	—	—
BID	—	—	—	—	06/25/21	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—
DATE RELEASED							

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

Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION & BEARPATH GOLF COURSE RENOVATION

TITLE SHEET, PROJECT LOCATION, AND SHEET INDEX

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No. —
DWG. No. G-01
REV. No. 0

1.0 GENERAL CONSTRUCTION ACTIVITY INFORMATION:

THIS STORMWATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN PREPARED IN COMPLIANCE WITH THE MINNESOTA GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY NO. MNR100001 (GENERAL PERMIT), AS REQUIRED BY THE MINNESOTA POLLUTION CONTROL AGENCY (MPCA) UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM (NPDES/SDS) PROGRAM.

THE PROJECT IS LOCATED IN THE CITY OF EDEN PRAIRIE, HENNEPIN COUNTY, MINNESOTA. PROPOSED CONSTRUCTION ACTIVITIES WILL TAKE PLACE WITHIN SECTION 19 TOWNSHIP 116 NORTH RANGE 22 WEST. THE APPROXIMATE CENTROID OF THE PROJECT HAS A LATITUDE OF 44.8404389 AND A LONGITUDE OF -93.5107298.

THIS PROJECT INVOLVES THE REPAIR OF EROSION ON THE EXISTING BANKS OF RILEY CREEK TO REDUCE THE TRANSPORT OF EXCESS SEDIMENT DOWNSTREAM TO LAKE RILEY. CONSTRUCTION WILL CONSIST OF CLEARING AND GRUBBING, CONSTRUCTION OF ACCESS AND STAGING AREAS, EARTHWORK REPAIRING ERODED BANKS., CONSTRUCTING ROCK RIFFLES, J-HOOKS, REGRADING THE CHANNEL, CONSTRUCTION OF A STORM SEWER EXTENSION, PLACEMENT OF RIPRAP, INSTALLATION OF ROCK VANES, CONSTRUCTION OF VEGETATED REINFORCEMENT SOIL SLOPES (VRSS) AND TOE WOOD, AND RESTORATION THROUGH SEEDING AND EROSION CONTROL BLANKET. THE PROJECT IS NOT A PART OF A LARGER COMMON PLAN OF DEVELOPMENT. THE PROJECT AS PROPOSED HAS A TOTAL DISTURBANCE AREA OF 7.55 ACRES. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE REQUIRED TO MINIMIZE SEDIMENT FROM BEING TRANSPORTED INTO THE LAKE RILEY, REFER TO PROJECT DRAWINGS FOR FURTHER DETAILS. (CSW PERMIT PART III.A.1)

1.1 PROJECT SIZE AND CUMULATIVE IMPERVIOUS SURFACE:
- THE ANTICIPATED AREA OF DISTURBANCE IS APPROXIMATELY 7.55 ACRES (STAGE 1 = 4.33 ACRES, STAGE 2 = 3.22 ACRES).
- THE TOTAL AREA OF PRE-CONSTRUCTION IMPERVIOUS AREA IS APPROXIMATELY 0.13 ACRES.
- THE TOTAL AREA OF POST-CONSTRUCTION IMPERVIOUS AREA IS APPROXIMATELY 0.05 ACRES.
- THE TOTAL NEW IMPERVIOUS AREA IS APPROXIMATELY -0.08 ACRES.

1.2 DATES OF CONSTRUCTION:
- ANTICIPATED START DATE: SEPTEMBER 2021 — ANTICIPATED END DATE: JUNE 2022

1.3 CONTACT INFORMATION:
OWNER: RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT
MAILING ADDRESS: 18681 LAKE DRIVE EAST, CHANNHASSEN, MN. 55317
CONTACT PERSON: TERRY JEFFERY — TITLE: INTERIM DISTRICT ADMINISTRATOR
PHONE NUMBER: 952-807-6885 — EMAIL ADDRESS: tjeffery@RPBCWD.ORG
ALTERNATE CONTACT PERSON: SCOTT SOBIECH — TITLE: DISTRICT ENGINEER
PHONE NUMBER: 952-832-2755 — EMAIL ADDRESS: ssobiech@BARR.COM

OPERATOR / GENERAL CONTRACTOR (WILL OVERSEE IMPLEMENTATION OF THE SWPPP): TBD
MAILING ADDRESS: TBD
CONTACT PERSON: TBD — TITLE: TBD
PHONE NUMBER: TBD — EMAIL ADDRESS: TBD

PARTY RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT SYSTEM:
BEARPATH GOLF & COUNTRY CLUB
MAILING ADDRESS: 18100 BEARPATH TRAIL, EDEN PRAIRE, MN. 55347
CONTACT PERSON: KEVIN CASHMAN
PHONE NUMBER: 952-975-0123
EMAIL ADDRESS: kcashman@BEARPATHGOLF.COM

2.0 RECEIVING WATERS:

WATERS WITHIN ONE MILE (NEAREST STRAIGHT LINE DISTANCE) THAT ARE LIKELY TO RECEIVE STORMWATER RUNOFF FROM THE PROJECT SITE (CSW PERMIT ITEM 5.10) INCLUDE:

NAME OF WATER BODY	TYPE (1)	WATER BODY ID (2)	SPECIAL WATER? (3)	IMPAIRED WATER? (3)	PUBLIC WATER WITH WORK IN WATER RESTRICTIONS?
LAKE RILEY	LAKE	27-0132P	NO	YES	NO
RILEY CREEK	CREEK	07020012-855	NO	NO	YES

(1) TYPE EXAMPLES: DITCH, POND, WETLAND, CALCAREOUS FEN, LAKE, STREAM, RIVER
(2) WATER BODY IDENTIFICATION (ID) MIGHT NOT BE AVAILABLE FOR ALL WATER BODIES. USE THE SPECIAL AND IMPAIRED WATERS SEARCH TOOL AT: HTTPS://WWW.PCA.STATE.MN.US/WATER/STORMWATER-SPECIAL-AND-IMPAIRED-WATERS-SEARCH
(3) REFER TO CSW PERMIT SECTION 23. IMPAIRED WATER FOR THE FOLLOWING POLLUTANT(S) OR STRESSOR(S): PHOSPHORUS (NUTRIENT EUTROPHICATION BIOLOGICAL INDICATORS), TURBIDITY, TOTAL SUSPENDED SOLIDS (TSS), DISSOLVED OXYGEN, OR AQUATIC BIOTA (FISH BIOASSESSMENT, AQUATIC PLANT BIOASSESSMENT, AND AQUATIC MACROINVERTEBRATE BIOASSESSMENT)

2.1 SPECIAL AND IMPAIRED WATERS: THE MPCA'S SPECIAL AND IMPAIRED WATERS SEARCH TOOL WAS USED TO LOCATE SPECIAL AND IMPAIRED WATERS WITHIN ONE MILE (AERIAL RADIUS MEASUREMENT) OF THE PROJECT SITE. LAKE RILEY AND RILEY CREEK HAVE AN EPA-APPROVED IMPAIRMENT FOR NUTRIENTS, FISHES BIOSASSESMENTS, MERCURY IN FISH TISSUE, MACROINVERTIBATE BIOSASSESMENTS AND TURBIDITY. THESE IMPAIRMENTS ARE CONSIDERED CONSTRUCTION RELATED AND DO REQUIRE ADDITIONAL BEST MANAGEMENT PRACTICES (BMPS) OR PLAN REVIEW FOR COMPLIANCE WITH THE GENERAL PERMIT. (CSW PERMIT ITEM 2.7 AND SECTION 23)

ADDITIONAL BMPS OR OTHER SPECIFIC CONSTRUCTION RELATED IMPLEMENTATION ACTIVITIES IDENTIFIED IN AN APPROVED TOTAL MAXIMUM DAILY LOAD (TMDL) INCLUDE NEED TO UPDATE BASED ON TMDL - MIGHT INCLUDE THINGS LIKE IMMEDIATE STABILIZATION OF EXPOSED SOIL AREAS. (CSW PERMIT ITEM 5.19)

2.2 PUBLIC WATERS WITH WORK IN WATER RESTRICTIONS: RILEY CREEK IS IDENTIFIED BY THE DNR AS A PUBLIC WATER. WORK IS RESTRICTED FOR PUBLIC WATERS IN CHANHASSEN, MINNESOTA BETWEEN MARCH 15TH AND JUNE 15TH. DURING THE RESPECTIVE RESTRICTION PERIODS, ALL EXPOSED SOILS WITHIN 200 FEET OF THE WATER'S EDGE WILL HAVE EROSION PREVENTION STABILIZATION ACTIVITIES INITIATED IMMEDIATELY AFTER CONSTRUCTION ACTIVITY HAS CEASED (AND COMPLETED WITHIN 24 HOURS). (CSW PERMIT ITEM 5.11)

2.3 WETLAND IMPACTS: THIS PROJECT MAY RESULT IN ADVERSE IMPACTS TO WETLANDS, INCLUDING EXCAVATION, DEGRADATION OF WATER QUALITY, AND FILLING THEREFORE [DESCRIBE MITIGATION MEASURES] TO ADDRESS THE IMPACTS. PERMITS OR APPROVALS FROM AN OFFICIAL STATE WIDE WETLAND PROGRAM ISSUED SPECIFICALLY FOR THIS PROJECT ARE ATTACHED FOR REFERENCE. (CSW PERMIT ITEMS 2.4 AND 2.10, AND SECTION 22)

2.4 ENVIRONMENTAL REVIEW AND OTHER REQUIRED REVIEWS: STORMWATER MITIGATION MEASURES ARE NOT REQUIRED AS A RESULT OF AN ENVIRONMENTAL REVIEW (E.G., EAW OR EIS), ENDANGERED OR THREATENED SPECIES REVIEW, ARCHEOLOGICAL SITE REVIEW, OR OTHER LOCAL, STATE, OR FEDERAL REVIEW CONDUCTED FOR THE PROJECT. (CSW PERMIT ITEMS 2.8, 2.9, AND 5.16)

2.5 KARST AREAS OR DRINKING WATER SUPPLY MANAGEMENT AREAS: THIS PROJECT DOES NOT INCLUDE ANY KARST OR DRINKING WATER SUPPLY MANAGEMENT AREAS. (CSW PERMIT ITEMS 16.19, 16.20, AND 18.10)

3.0 PROJECT PLANS AND SPECIFICATIONS:

REQUIRED FEATURE	SHEET NUMBER
• PROJECT LOCATION AND CONSTRUCTION LIMITS	G-01
• EXISTING AND FINAL GRADES, INCLUDING DRAINAGE AREA BOUNDARIES, DIRECTIONS OF FLOW AND ALL DISCHARGE POINTS WHERE STORMWATER IS LEAVING THE SITE OR ENTERING A SURFACE WATER	C-07,C-09,C-14,C-15
• SOIL TYPES AT THE SITE	G-03
• LOCATIONS OF IMPERVIOUS SURFACES	C-01, C-02, C-14, C-15
• LOCATIONS OF AREAS NOT BE BE DISTURBED (E.G., BUFFER ZONES, WETLANDS, ETC.)	C-04, C-05, C-06
• LOCATIONS OF AREAS OF STEEP SLOPES	C-07, C-09, C-14, C-15
• LOCATIONS OF AREAS WHERE CONSTRUCTION WILL BE PHASED TO MINIMIZE DURATION OF EXPOSED SOILS	NA
• PORTIONS OF THE SITE THAT DRAIN TO A PUBLIC WATER WITH DNR WORK IN WATER RESTRICTIONS FOR FISH SPAWNING TIMEFRAMES	C-01, C-02
• LOCATIONS OF ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS AS REQUIRED IN PERMIT SECTIONS 8 THROUGH 10 AND 14 THROUGH 19	C-01, C-02, C-11, C-12
• BUFFER ZONES AS REQUIRED IN PERMIT ITEMS 9.17 AND 23.11	C-04, C-05, C-06
• LOCATIONS OF POTENTIAL POLLUTION-GENERATING ACTIVITIES IDENTIFIED IN PERMIT SECTION 12	C-07, C-09
• STANDARD DETAILS FOR EROSION AND SEDIMENT CONTROL BMPS TO BE INSTALLED AT THE SITE	C-03, C-13

4.0 BEST MANAGEMENT PRACTICES (BMPS):

4.1 EROSION PREVENTION PRACTICES:
1. BEFORE LAND DISTURBING ACTIVITIES BEGIN, THE LIMITS OF THE AREAS TO BE DISTURBED DURING CONSTRUCTION WILL BE DELINEATED WITH FLAGS, STAKES, SIGNS, SILT FENCE, ETC.
2. TEMPORARY STABILIZATION OF SOILS AND SOIL STOCKPILES: (CSW PERMIT ITEMS 8.4, 8.5, AND 23.9)
   a. AREAS OF EXPOSED SOIL WILL BE STABILIZED WITH EROSION CONTROL BLANKET OR EQUIVALENT MEASURES.
   b. IF PRESENT, SOIL STOCKPILES WILL BE STABILIZED WITH FAST GROWING COVER CORP, MULCH SUCH AS STRAW MULCH OR EQUIVALENT MEASURES.
   c. TEMPORARY STOCKPILES WITHOUT SIGNIFICANT SILT, CLAY, OR ORGANIC COMPONENTS (E.G., CLEAN AGGREGATE STOCKPILES, DEMOLITION CONCRETE STOCKPILES, SAND STOCKPILES) AND THE CONSTRUCTED BASE COMPONENTS OF ROADS, PARKING LOTS, AND SIMILAR SURFACES ARE EXEMPT FROM THESE STABILIZATION REQUIREMENTS.
2. STABILIZATION OF DITCH AND SWALE WETTED PERIMETERS: (CSW PERMIT ITEMS 8.6 THROUGH 8.8)
   a. IF SOILS WITHIN EXISTING STORMWATER DITCHES OR SWALES ARE DISTURBED, THEY WILL BE STABILIZED WITH [CHANNEL EROSION CONTROL BLANKET, RIPRAP, TURF REINFORCEMENT MAT] OR EQUIVALENT MEASURES.
   b. MULCH, HYDROMULCH, TACKIFIER, POLYACRYLAMIDE, OR SIMILAR EROSION PREVENTION PRACTICES WILL NOT BE USED TO STABILIZE ANY PART OF AN EXISTING STORMWATER DITCH OR SWALE WITH A CONTINUOUS SLOPE OF GREATER THAN 2 PERCENT.
   c. THE LAST 200 LINEAL FEET OF LENGTH OF THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DITCH OR SWALE THAT DRAINS WATER FROM ANY PORTION OF THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE INTO ANY SURFACE WATER WILL BE STABILIZED WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE.
   d. STABILIZATION OF THE REMAINING PORTIONS OF ANY TEMPORARY OR PERMANENT DITCHES OR SWALES WILL BE COMPLETED WITHIN 14 CALENDAR DAYS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE AND CONSTRUCTION IN THAT PORTION OF THE DITCH HAS TEMPORARILY OR PERMANENTLY CEASED.
3. ENERGY DISSIPATION AT PIPE OUTLETS: ENERGY DISSIPATION AT PIPE OUTLETS WILL BE PROVIDED WITH ONE OR MORE OF THE FOLLOW METHODS: RIP RAP, SPLASH PADS, GABIONS, OR EQUIVALENT MEASURES. (CSW PERMIT ITEM 8.9)
4. EROSION PREVENTION IMPLEMENTATION TIMELINES: (CSW PERMIT ITEMS 5.4, 8.4 THROUGH 8.6, AND 23.9)
   a. STABILIZATION OF EXPOSED SOIL AREAS (INCLUDING STOCKPILES) WILL BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHENEVER ANY CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS.
   b. IF THE EXPOSED SOIL AREAS DRAIN TO A DISCHARGE POINT THAT IS WITHIN ONE MILE (AERIAL RADIUS MEASUREMENT) OF A SPECIAL OR IMPAIRED WATER (SEE SECTION 2.0), STABILIZATION OF EXPOSED SOIL AREAS (INCLUDING STOCKPILES) WILL BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHENEVER ANY CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 7 CALENDAR DAYS.
   c. THE FOLLOWING ACTIVITIES CAN BE TAKEN TO INITIATE STABILIZATION: PREPPING THE SOIL FOR VEGETATIVE OR NON-VEGETATIVE STABILIZATION, APPLYING MULCH OR OTHER NON-VEGETATIVE PRODUCT TO THE EXPOSED SOIL AREA, OR SEEDING OR PLANTING THE EXPOSED AREA.
5. ADDITIONAL EROSION PREVENTION MEASURES: THE FOLLOWING ADDITIONAL EROSION PREVENTION METHODS WILL BE IMPLEMENTED AT THE SITE DURING CONSTRUCTION: (CSW PERMIT ITEMS 8.2, 8.3, AND 8.10)
   a. CONSTRUCTION PHASING WILL BE UTILIZED TO MINIMIZE THE AREA OF SOIL EXPOSED AT ANY ONE TIME.
   b. SOIL DISTURBANCE WILL BE MINIMIZED WHEREVER POSSIBLE TO AID IN EROSION PREVENTION.
   c. EXISTING VEGETATION WILL BE PRESERVED WHEREVER POSSIBLE TO LIMIT EXPOSED SOIL AND THUS WILL SERVE AS NATURAL VEGETATIVE BUFFERS.
   d. EXPOSED SOIL ON STEEP SLOPES (≤3H:1V) WILL BE STABILIZED USING EROSION CONTROL BLANKETS AND SEEDING.
   e. HORIZONTAL SLOPE GRADING WILL BE UTILIZED TO MINIMIZE EROSION POTENTIAL.
   f. TERRACING WILL BE USED TO MINIMIZED EROSION POTENTIAL.

4.2 SEDIMENT CONTROL PRACTICES:
1. DOWNGRADIENT PERIMETER CONTROLS: (CSW PERMIT ITEMS 9.2 THROUGH 9.6)
   a. SEDIMENT CONTROL PRACTICES WILL BE ESTABLISHED ON ALL DOWNGRADIENT PERIMETERS AND LOCATED UPGRADIENT OF ANY BUFFER ZONES. PERIMETER SEDIMENT CONTROLS WILL INCLUDE: [SILT FENCE, SEDIMENT CONTROL LOGS / BIOROLLS (FILLED WITH COMPOST, WOOD CHIPS, ROCK, ETC.), VEGETATIVE BUFFERS (RETAIN EXISTING VEGETATION WHERE POSSIBLE) OR EQUIVALENT MEASURES.
   b. PERIMETER SEDIMENT CONTROL PRACTICES MUST BE INSTALLED BEFORE ANY UPGRADIENT LAND-DISTURBING ACTIVITIES BEGIN AND REMAIN IN PLACE UNTIL PERMANENT COVER HAS BEEN ESTABLISHED.
   c. IF SEDIMENT CONTROL PRACTICES HAVE BEEN ADJUSTED OR REMOVED TO ACCOMMODATE SHORT-TERM ACTIVITIES (SUCH AS CLEARING, GRUBBING, OR PASSAGE OF VEHICLES), THE CONTROLS MUST BE RE-INSTALLED IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY HAS BEEN COMPLETED. SEDIMENT CONTROL PRACTICES MUST BE RE-INSTALLED BEFORE THE NEXT PRECIPITATION EVENT, EVEN IF THE SHORT-TERM ACTIVITY IS NOT COMPLETE.
   d. IF THE DOWNGRADIENT SEDIMENT CONTROLS ARE OVERLOADED (BASED ON FREQUENT FAILURE OR EXCESSIVE MAINTENANCE REQUIREMENT), INSTALL ADDITIONAL UPGRADIENT SEDIMENT CONTROL PRACTICES OR REDUNDANT BMPS TO ELIMINATE THE OVERLOADING AND AMEND THE SWPPP TO IDENTIFY THESE ADDITIONAL PRACTICES.
2. SOIL STOCKPILE PERIMETER CONTROLS: TEMPORARY SOIL STOCKPILES WILL BE SURROUNDED BY: SEDIMENT CONTROL LOGS / BIOROLLS (FILLED WITH COMPOST, WOOD CHIPS, ROCK, ETC.) OR EQUIVALENT MEASURES, AND SHALL NOT BE PLACED IN ANY NATURAL BUFFERS OR SURFACE WATERS (CSW PERMIT ITEMS 9.9 AND 9.10)
3. STORM DRAIN INLET PROTECTION: (CSW PERMIT ITEMS 9.7 AND 9.8)
   a. INLET PROTECTION BMPS WILL BE INSTALLED AROUND ALL STORM DRAIN INLETS DOWNGRADIENT OF CONSTRUCTION ACTIVITIES.
   b. STORM DRAIN INLETS WILL BE PROTECTED UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED.
   c. INLET PROTECTION BMPS WILL BE: [SEDIMENT CONTROL LOG, FILTER SACK, ROCK WITH FILTER FABRIC, FILTER FENCE BOX] OR EQUIVALENT MEASURES.
4. VEHICLE TRACKING BMPS: (CSW PERMIT ITEMS 9.11 AND 9.12)
   a. VEHICLE TRACKING BMPS WILL BE INSTALLED TO MINIMIZE THE TRACKING OUT OF SEDIMENT FROM THE CONSTRUCTION AREA AND WILL INCLUDE: ROCK PADS OR AN EQUIVALENT SYSTEM.
   b. IF SUCH VEHICLE TRACKING BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE PAVED ROAD, STREET SWEEPING WILL ALSO BE EMPLOYED. SEDIMENT WILL BE REMOVED BY SWEEPING WITHIN 24 HOURS.
5. PROTECTION OF INFILTRATION AREAS: IF NECESSARY, ADDITIONAL SEDIMENT CONTROLS (E.G., DIVERSION BERMS) WILL BE INSTALLED TO KEEP RUNOFF AWAY FROM PLANNED INFILTRATION AREAS WHEN EXCAVATED PRIOR TO ESTABLISHING PERMANENT COVER WITHIN THE CONTRIBUTING DRAINAGE AREA. (CSW PERMIT ITEMS 16.4 AND 16.5)
6. MINIMIZATION OF SOIL COMPACTION AND PRESERVATION OF TOPSOIL: SOIL COMPACTION WILL BE MINIMIZED AND TOPSOIL WILL BE PRESERVED WHERE POSSIBLE. (CSW PERMIT ITEMS 5.24, 9.14, AND 9.15)
7. PRIORITIZATION OF ONSITE INFILTRATION AND SEDIMENT REMOVAL: (CSW PERMIT ITEM 9.16)
   a. PRIOR TO OFFSITE DISCHARGE, INFILTRATION AND SEDIMENT REMOVAL WILL BE IMPLEMENTED ONSITE WHERE POSSIBLE.
   b. DISCHARGES FROM BMPS WILL BE DIRECTED TO VEGETATED AREAS OF THE SITE (INCLUDING ANY NATURAL BUFFERS) IN ORDER TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION. IF EROSION IS NOTED TO OCCUR AS THE RESULT OF SUCH A DISCHARGE, VELOCITY DISSIPATION BMPS WILL BE CONSIDERED AND INSTALLED AS NECESSARY TO PREVENT EROSION.
8. BUFFER ZONE OR REDUNDANT SEDIMENT CONTROLS TO PROTECT SURFACE WATERS: (CSW PERMIT ITEM 9.17)
   a. A 50-FOOT NATURAL BUFFER WILL BE PRESERVED IN CONSTRUCTION AREAS DISCHARGING TO A NON-SPECIAL/NON-IMPAIRED SURFACE WATER OR WETLAND. IF A NON-SPECIAL/NON-IMPAIRED SURFACE WATER OR WETLAND IS LOCATED WITHIN 50 FEET OF THE PROJECT'S EARTH DISTURBANCES AND STORMWATER FLOWS TO THE SURFACE WATER, OR WHEN A BUFFER IS INFEASIBLE, REDUNDANT SEDIMENT CONTROLS WILL BE PROVIDED.
   b. A 100-FOOT NATURAL BUFFER WILL BE PRESERVED IN CONSTRUCTION AREAS DISCHARGING TO A SPECIAL OR IMPAIRED SURFACE WATER. IF A SPECIAL OR IMPAIRED SURFACE WATER IS LOCATED WITHIN 100 FEET OF THE PROJECT'S EARTH DISTURBANCES AND STORMWATER FLOWS TO THE SURFACE WATER, OR WHEN A BUFFER IS INFEASIBLE, REDUNDANT SEDIMENT CONTROLS WILL BE PROVIDED.
   c. REDUNDANT PERIMETER CONTROLS WILL BE INSTALLED AT LEAST 5 FEET APART UNLESS LIMITED BY LACK OF AVAILABLE SPACE.
9. SEDIMENTATION TREATMENT CHEMICALS: NOT APPLICABLE. USE OF SEDIMENTATION TREATMENT CHEMICALS (E.G. POLYMERS, FLOCCULANTS, ETC.) IS NOT ANTICIPATED AS PART OF THE PROJECT. (CSW PERMIT ITEMS 5.22 AND 9.18)
10. TEMPORARY SEDIMENT BASIN(S): THE PROJECT WILL NOT INCLUDE 10 OR MORE ACRES OF DISTURBED SOIL DRAINING TO A COMMON LOCATION OR 5 OR MORE ACRES DRAINING TO A COMMONLOCATION WITHIN 1 MILE OR A SPECIAL OR IMPAIRED WATER THEREFORE TEMPORARY SEDIMENT BASINS ARE NOT REQUIRED. (CSW PERMIT ITEMS 5.6, 9.13, AND 23.10 AND SECTION 14)

4.3 DEWATERING AND BASIN DRAINING: NO DEWATERING OR BASIN DRAINING WILL OCCUR AS PART OF THIS PROJECT (CSW PERMIT SECTION 10 AND ITEM 10.5)

4.4 BMP DESIGN FACTORS: THE FOLLOWING BMP DESIGN FACTORS HAVE BEEN CONSIDERED IN DESIGNING THE TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL BMPS:
1. EXPECTED AMOUNT, FREQUENCY, INTENSITY, AND DURATION OF PRECIPITATION;
2. NATURE OF STORMWATER RUNOFF AND RUN-ON AT THE SITE, INCLUDING FACTORS SUCH AS EXPECTED FLOW FROM IMPERVIOUS SURFACES, SLOPES, AND SITE DRAINAGE FEATURES;
3. STORMWATER VOLUME, VELOCITY, AND PEAK FLOW RATES TO MINIMIZE DISCHARGE OF POLLUTANTS IN STORMWATER AND TO MINIMIZE CHANNEL AND STREAMBANK EROSION AND SCOUR IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS;
4. RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT;

4.5 BMP QUANTITIES: ANTICIPATED EROSION PREVENTION AND SEDIMENT CONTROL BMP QUANTITIES NEEDED FOR THE LIFE OF THE PROJECT: ARE INCLUDED IN THE BID DOCUMENTS.

(SEE PAGE 2 OF 2)

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: JESSICA OLSON
SIGNATURE:
DATE: 06/25/2021 LICENSE #: 42102

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, PERMITTING — DATE RELEASED: A B C D 0 1 2

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Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION & BEARPATH GOLF COURSE RENOVATION
STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

BARR PROJECT No.: 23/27-0053.14
CLIENT PROJECT No.:
DWG. No.: G-02 — REV. No.: 0

5.0 PERMANENT STORMWATER MANAGEMENT SYSTEM:

A PERMANENT STORMWATER MANAGEMENT SYSTEM IS REQUIRED IF THE PROJECT RESULTS IN ONE ACRE OR MORE OF NEW IMPERVIOUS SURFACES OR RESULTS IN A NET INCREASE OF ONE OR MORE ACRES OF CUMMULATIVE NEW IMPERVIOUS SURFACES IN TOTAL OR IF THE PROJECT IS PART OF A LARGER PLAN OF DEVELOPMENT. (CSW PERMIT ITEM 15.3)

5.1 A PERMANENT STORMWATER TREATMENT SYSTEM IS NOT REQUIRED. (CSW PERMIT ITEMS 5.15, 15.4-15.9, AND 23.14)

5.2 THIS IS NOT A LINEAR PROJECT WITH LACK OF RIGHT OR WAY. (CSW PERMIT ITEM 15.9)

5.3 THIS PROJECT DOES NOT DISCHARGE TO A TROUT STREAM (OR A TRIBUTARY TO A TROUT STREAM). (CSW PERMIT ITEM 23.12)

6.0 INSPECTION AND MAINTENANCE ACTIVITIES:

6.1 PERSONS WITH REQUIRED TRAINING: TRAINED INDIVIDUALS INCLUDE THOSE PARTIES RESPONSIBLE FOR INSTALLING, SUPERVISING, REPAIRING, INSPECTING, AND MAINTAINING EROSION PREVENTION AND SEDIMENT CONTROL BMPS AT THE SITE. TRAINED INDIVIDUALS ARE ALSO RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP AND COMPLIANCE WITH THE GENERAL PERMIT UNTIL THE CONSTRUCTION ACTIVITIES ARE COMPLETE, PERMANENT COVER HAS BEEN ESTABLISHED, AND A NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED. (CSW PERMIT ITEMS 5.20, 5.21, AND 11.9 AND SECTION 21)

THESE INDIVIDUALS WILL BE TRAINED IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL PERMIT, INCLUDING THE REQUIREMENT THAT THE CONTENT AND EXTENT OF TRAINING WILL BE COMMENSURATE WITH THE INDIVIDUAL'S JOB DUTIES AND RESPONSIBILITIES.

BELOW IS A LIST OF PEOPLE RESPONSIBLE FOR THIS PROJECT WHO ARE KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BMPS.

TRAINED INDIVIDUAL	RESPONSIBILITY	TRAINING ENTITY*	TRAINING DATE
ERIC FITZGERALD	PREPARATION OF THE SWPPP	UNIVERSITY OF MINNESOTA	MARCH 2021
TBD	OVERSIGHT OF SWPPP IMPLEMENTATION, REVISION, AND AMMENDMENT	TBD	TBD
TBD	PERFORMANCE OF SWPPP INSPECTIONS	TBD	TBD
TBD	PERFORMANCE OR SUPERVISION OF INSTALLATION, MAINTENANCE, AND REPAIR OF BMPS	TBD	TBD

*TRAINING DOCUMENTATION AVAILABLE UPON REQUEST.

6.2 FREQUENCY OF INSPECTIONS: A TRAINED PERSON WILL ROUTINELY INSPECT THE ENTIRE CONSTRUCTION SITE. (CSW PERMIT ITEMS 11.2, 11.10, AND 23.13)

- AT LEAST ONCE EVERY 7 DAYS DURING ACTIVE CONSTRUCTION
- WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS

INSPECTION FREQUENCY MAY BE ADJUSTED UNDER THE FOLLOWING CIRCUMSTANCES:

- WHERE PARTS OF THE CONSTRUCTION AREAS HAVE PERMANENT COVER, BUT WORK REMAINS ON OTHER PARTS OF THE SITE, INSPECTIONS OF THE AREAS WITH PERMANENT COVER MAY BE REDUCED TO ONCE PER MONTH.
- WHERE CONSTRUCTION AREAS HAVE PERMANENT COVER AND NO CONSTRUCTION ACTIVITY IS OCCURRING ON THE SITE, INSPECTIONS CAN BE REDUCED TO ONCE PER MONTH AND, AFTER 12 MONTHS, MAY BE SUSPENDED COMPLETELY UNTIL CONSTRUCTION ACTIVITY RESUMES.
- WHERE CONSTRUCTION ACTIVITY HAS BEEN SUSPENDED DUE TO FROZEN GROUND CONDITIONS, THE INSPECTIONS MAY BE SUSPENDED. THE REQUIRED INSPECTIONS AND MAINTENANCE SCHEDULE MUST BEGIN WITHIN 24 HOURS AFTER RUNOFF OCCURS AT THE SITE OR UPON RESUMING CONSTRUCTION, WHICHEVER COMES FIRST.

6.3 INSPECTION REQUIREMENTS: EACH CONSTRUCTION STORMWATER SITE INSPECTION WILL INCLUDE INSPECTION OF THE FOLLOWING AREAS: (CSW PERMIT ITEMS 11.3 THROUGH 11.8)

- ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS AND POLLUTION PREVENTION MANAGEMENT MEASURES
- SURFACE WATERS FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION
- CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING
- STREETS AND OTHER AREAS ADJACENT TO THE PROJECT FOR EVIDENCE OF OFF SITE ACCUMULATIONS OF SEDIMENT

6.4 MAINTENANCE REQUIREMENTS: MAINTENANCE OF THE FOLLOWING AREAS AND BMPS WILL BE PERFORMED AS FOLLOWS: (CSW PERMIT ITEMS 11.3 THROUGH 11.8)

- NONFUNCTIONAL BMPS WILL BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.
- PERIMETER CONTROL DEVICES WILL BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 OF THE HEIGHT OF THE DEVICE.
- TEMPORARY AND PERMANENT SEDIMENTATION BASINS WILL BE DRAINED AND THE SEDIMENT REMOVED WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME.
- DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS WILL BE REMOVED, AND THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL WILL BE RE-STABILIZED. THE REMOVAL AND STABILIZATION WILL BE COMPLETED WITHIN 7 CALENDAR DAYS OF DISCOVERY UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS. IF PRECLUDED DUE TO ACCESS CONSTRAINTS, REASONABLE EFFORTS TO OBTAIN ACCESS WILL BE USED. REMOVAL AND STABILIZATION WILL TAKE PLACE WITHIN 7 CALENDAR DAYS OF OBTAINING ACCESS.
- TRACKED SEDIMENT ON PAVED SURFACES WILL BE REMOVED WITHIN 1 CALENDAR DAY OF DISCOVERY.
- AREAS UNDERGOING STABILIZATION WILL BE RESTABILIZED AS NECESSARY TO ACHIEVE REQUIRED COVER.

6.5 RECORDKEEPING REQUIREMENTS: (CSW PERMIT ITEMS 11.11 AND 24.5 AND SECTIONS 6 AND 20)

1. ALL INSPECTIONS AND MAINTENANCE ACTIVITIES WILL BE RECORDED IN WRITING WITHIN 24 HOURS OF BEING CONDUCTED AND THESE RECORDS WILL BE RETAINED WITH THE SWPPP. RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY WILL INCLUDE THE DATE AND TIME; NAME OF INSPECTOR(S); FINDINGS OF INSPECTIONS; CORRECTIVE ACTIONS (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES); AND DATE OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCHES IN 24 HOURS AND THE AMOUNT OF RAINFALL FOR EACH EVENT.
   a. IF ANY DISCHARGE IS OBSERVED DURING THE INSPECTION, THE LOCATION AND APPEARANCE OF THE DISCHARGE (I.E., COLOR, ODOR, SETTLED OR SUSPENDED SOLIDS, OIL SHEEN, AND OTHER OBVIOUS INDICATORS OF POLLUTANTS) WILL BE DOCUMENTED AND A PHOTOGRAPH WILL BE TAKEN.
2. THE SWPPP WILL BE AMENDED TO INCLUDE ADDITIONAL OR MODIFIED BMPS TO CORRECT PROBLEMS OR ADDRESS SITUATIONS WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE, WEATHER, OR SEASONAL CONDITIONS THAT HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR GROUNDWATER.
   a. THE SWPPP WILL BE AMENDED WHEN INSPECTIONS OR INVESTIGATIONS BY THE SITE OWNER, OPERATOR, OR CONTRACTORS OR BY USEPA/MPCA OFFICIALS INDICATE THAT THE SWPPP IS NOT EFFECTIVE IN ELIMINATING OR MINIMIZING THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR GROUNDWATER; THE DISCHARGES ARE CAUSING WATER QUALITY STANDARD EXCEEDANCES; OR THE SWPPP IS NOT CONSISTENT WITH A USEPA APPROVED TMDL.
   b. ANY AMENDMENTS TO THE SWPPP PROPOSED AS A RESULT OF THE INSPECTION WILL BE DOCUMENTED AS REQUIRED WITHIN 7 CALENDAR DAYS.
   c. AMENDMENTS WILL BE COMPLETED BY AN APPROPRIATELY TRAINED INDIVIDUAL. CHANGES INVOLVING THE USE OF A LESS STRINGENT BMP WILL INCLUDE A JUSTIFICATION DESCRIBING HOW THE REPLACEMENT BMP IS EFFECTIVE FOR THE SITE CHARACTERISTICS.
3. RECORDS RETENTION: THE SWPPP, INCLUDING ALL CHANGES TO IT, AND INSPECTION AND MAINTENANCE RECORDS WILL BE KEPT AT THE SITE DURING CONSTRUCTION BY THE PERMITTEE WHO HAS OPERATIONAL CONTROL OF THE SITE. THE SWPPP CAN BE KEPT IN EITHER A FIELD OFFICE OR IN AN ON SITE VEHICLE DURING NORMAL WORKING HOURS.
4. RECORD AVAILABILITY: THE PERMITTEES WILL MAKE THE SWPPP, INCLUDING INSPECTION REPORTS, MAINTENANCE RECORDS, AND TRAINING RECORDS, AVAILABLE TO FEDERAL, STATE, AND LOCAL OFFICIALS WITHIN THREE DAYS UPON REQUEST FOR THE DURATION OF THE PERMIT COVERAGE AND FOR THREE YEARS FOLLOWING THE NOTICE OF TERMINATION.

7.0 POLLUTION PREVENTION MEASURES:

1. ANY CONSTRUCTION PRODUCTS AND LANDSCAPE MATERIALS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS WILL BE STORED UNDER COVER (E.G., PLASTIC SHEETING OR TEMPORARY ROOFS) TO PREVENT DISCHARGE OF POLLUTANTS THROUGH MINIMIZATION OF CONTACT WITH STORMWATER. STORAGE OF SUCH MATERIALS WITHIN THE PROJECT AREA WILL BE MINIMIZED TO THE EXTENT POSSIBLE. (CSW PERMIT ITEM 12.2)
2. PESTICIDES, FERTILIZERS, AND TREATMENT CHEMICALS WILL BE STORED UNDER COVER (E.G., PLASTIC SHEETING, TEMPORARY ROOFS, WITHIN A BUILDING, OR IN WEATHER-PROOF CONTAINERS) TO PREVENT DISCHARGE OF POLLUTANTS THROUGH MINIMIZATION OF CONTACT WITH STORMWATER. STORAGE OF SUCH MATERIALS WITHIN THE PROJECT AREA WILL BE MINIMIZED TO THE EXTENT POSSIBLE. (CSW PERMIT ITEM 12.3)
3. HAZARDOUS MATERIALS AND TOXIC WASTE (E.G., OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT SOLVENTS, PETROLEUM-BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) WILL BE STORED AND DISPOSED OF IN COMPLIANCE WITH MINNESOTA RULES CHAPTER 7045, INCLUDING SECONDARY CONTAINMENT (AS APPLICABLE). HAZARDOUS MATERIALS WILL BE PROPERLY STORED IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS, OR OTHER DISCHARGES AND PREVENT PRECIPITATION FROM FALLING ONTO THE CONTAINERS OR STORED HAZARDOUS MATERIALS. (CSW PERMIT ITEMS 2.3 AND 12.4)
4. SOLID WASTE WILL BE COLLECTED, STORED, AND DISPOSED OF PROPERLY IN COMPLIANCE WITH MINNESOTA RULES CHAPTER 7035. THIS INCLUDES STORAGE WITHIN COVERED TRASH CONTAINERS AND DAILY REMOVAL OF LITTER AND DEBRIS. STORAGE OF SOLID WASTE WITHIN THE PROJECT AREA WILL BE MINIMIZED TO THE EXTENT POSSIBLE. (CSW PERMIT ITEM 12.5)
5. PORTABLE TOILETS WILL BE LOCATED AWAY FROM SURFACE WATERS AND POSITIONED AND SECURED TO THE GROUND SO THEY WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE WILL BE DISPOSED OF IN ACCORDANCE WITH MINNESOTA RULES, CHAPTER 7041. PORTABLE TOILETS WILL BE PERIODICALLY EMPTIED AND THE WASTE HAULED OFF-SITE BY A LICENSED HAULER. (CSW PERMIT ITEM 12.6)
6. VEHICLE FUELING WILL ONLY OCCUR IN DESIGNATED AREAS. SPILL KITS SIZED APPROPRIATELY FOR THE AMOUNT OF REFUELING TAKING PLACE WILL BE LOCATED. SPILL KITS WILL BE CLEARLY LABELED AND CONTAIN MATERIALS TO ASSIST IN SPILL CLEANUP INCLUDING ABSORBENT PADS, BOOMS FOR CONTAINING SPILLS, AND HEAVY-DUTY PROTECTIVE GLOVES. SPILLS WILL BE REPORTED TO THE MINNESOTA DUTY OFFICER AS REQUIRED BY MINNESOTA STATUTES, SECTION 115.061. (CSW PERMIT ITEMS 2.3 AND 12.7)
   a. ANY FUEL TANKS BROUGHT ON-SITE WILL HAVE PROPERLY SIZED CONTAINMENT AND WILL NOT BE TOPPED OFF TO AVOID SPILLS FROM OVERFILLING. FUEL TANKS WILL MEET INDUSTRY STANDARDS (DESIGNED TO HOLD FUEL TYPE, PROPERLY MAINTAINED, NOT ILLEGALLY MODIFIED, NOT MISSING LEAK INDICATOR FLOATS FOR DOUBLE WALLED TANKS, SIGHT GAUGES NOT USED, ETC.) OR BE REMOVED FROM THE WORK AREA.
   b. GUIDELINES FOR SPILL PREVENTION AND RESPONSE INCLUDE:
      - TAKE REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS, INCLUDING FUEL, FROM ANY AREA WHERE CHEMICALS OR FUEL WILL BE LOADED OR UNLOADED, INCLUDING THE USE OF DRIP PANS OR ABSORBENTS UNLESS INFEASIBLE;
      - PERFORM REGULAR PREVENTATIVE MAINTENANCE ON TANKS AND FUEL LINES;
      - INSPECT PUMPS, CYLINDERS, HOSES, VALVES, AND OTHER MECHANICAL EQUIPMENT ON-SITE FOR DAMAGE OR DETERIORATION;
      - DO NOT WASH OR RINSE FUELING AREAS WITH WATER;
      - MAINTAIN ADEQUATE SUPPLIES TO CLEAN UP DISCHARGED MATERIALS AND PROVIDE AN APPROPRIATE DISPOSAL METHOD FOR RECOVERED SPILLED MATERIALS;
      - REPORT AND CLEAN UP SPILLS IMMEDIATELY AS REQUIRED BY MINNESOTA STATUTES, SECTION 115.061, USING DRY CLEAN UP MEASURES WHERE POSSIBLE; AND
      - MAINTAIN COPIES OF SAFETY DATA SHEETS (SDSS) FOR HAZARDOUS MATERIALS ON-SITE IN LOCATIONS READILY AVAILABLE TO EMERGENCY RESPONDERS.
7. IF VEHICLE AND EQUIPMENT WASHING IS NECESSARY, A VEHICLE WASH STATION WILL BE LOCATED IN A DESIGNATED AREA. RUNOFF FROM THE WASHING AREA WILL BE CONTAINED IN A SEDIMENT BASIN AND WASTE FROM THE WASHING ACTIVITY WILL BE PROPERLY DISPOSED OF. ANY SOAPS, DETERGENTS, OR SOLVENTS WILL BE PROPERLY USED AND STORED. ANY DETERGENTS AND OTHER CLEANERS NOT PERMITTED FOR DISCHARGE WILL NOT BE USED. (CSW PERMIT ITEMS 2.3 AND 12.8)
8. THE PROJECT WILL NOT RESULT IN CONCRETE OR OTHER WASHOUT ACTIVITIES. IF NECESSARY, A DESCRIPTION OF THE STORAGE AND DISPOSAL OF CONCRETE AND OTHER WASHOUT WASTES SO THAT WASTES DO NOT CONTACT THE GROUND WILL BE ADDED. (CSW PERMIT ITEMS 2.3 AND 12.9)

8.0 PERMANENT COVER AND PERMIT TERMINATION CONDITIONS:

1. THE AREAS DISTURBED DURING CONSTRUCTION WILL BE STABILIZED WITH PERMANENT COVER UPON COMPLETION OF WORK. PERMANENT COVER MAY BE VEGETATIVE OR NON-VEGETATIVE, AS APPROPRIATE. ESTABLISHMENT OF PERMANENT COVER MAY INCLUDE THE FOLLOWING ACTIVITIES: SEEDING, MULCHING, EROSION CONTROL BLANKETS. (CSW PERMIT ITEM 5.17)
2. FOR A CONSTRUCTION-SITE TO ACHIEVE "PERMANENT COVER", THE FOLLOWING REQUIREMENTS MUST BE COMPLETED PRIOR TO TERMINATION OF PERMIT COVERAGE: (CSW PERMIT SECTIONS 4 AND 13)
   a. ALL SOIL DISTURBING CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED AND PERMANENT COVER HAS BEEN INSTALLED OVER ALL AREAS. VEGETATIVE COVER CONSISTS OF A UNIFORM PERENNIAL VEGETATION WITH A DENSITY OF 70% OF ITS EXPECTED FINAL GROWTH. VEGETATION IS NOT REQUIRED WHERE THE FUNCTION OF A SPECIFIC AREA DICTATES NO VEGETATION (SUCH AS IMPERVIOUS SURFACES OR THE BASE OF A SAND FILTER).
   b. ALL SEDIMENT HAS BEEN REMOVED FROM CONVEYANCE SYSTEMS, INCLUDING CULVERTS.
   c. ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS HAVE BEEN REMOVED. BMPS DESIGNED TO DECOMPOSE ON-SITE MAY BE LEFT IN PLACE.

WITHIN 30 DAYS AFTER THE TERMINATION CONDITIONS ARE COMPLETE, A NOTICE OF TERMINATION (NOT) FORM WILL BE SUBMITTED TO THE MPCA.

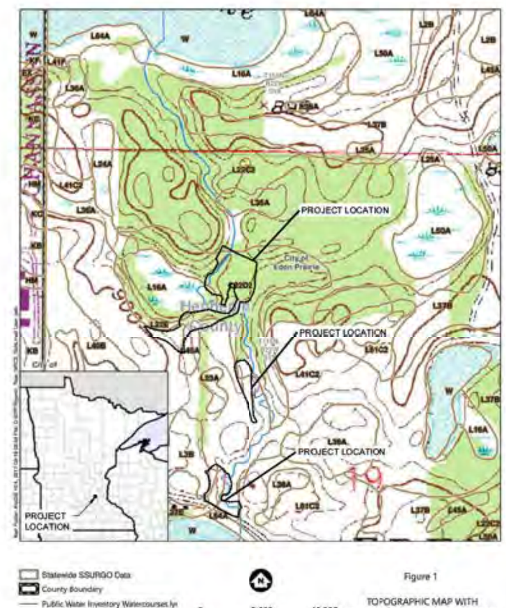

Figure 1

TOPOGRAPHIC MAP WITH SURFACE WATERS AND SOIL TYPES
Stormwater Pollution Prevention Plan
Hennepin County, Minnesota

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EFF	SAB2	JCO	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: JESSICA OLSON
SIGNATURE:
DATE: 06/25/2021 LICENSE #: 43102

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, PERMITTING
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Scale	AS SHOWN
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Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION & BEARPATH GOLF COURSE RENOVATION

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. G-03
REV. No. 0

1 PLAN: TREE PROTECTION AND REMOVALS

0 20 40 SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- EXISTING TREE TO REMAIN, PROTECT IN PLACE
- REMOVE EXISTING CONIFEROUS OR DECIDUOUS TREE
- TREE PROTECTION FENCE, SEE SHEET G-09
- 101 TREE IDENTIFICATION NUMBER, SEE TABLE FOR TREE SURVEY AND TREE REMOVAL SUMMARY

NOTES:

1. ASH TREES MUST BE REMOVED BETWEEN OCTOBER 1ST AND APRIL 30TH AND TAKEN TO AN APPROVED SITE FOR DISPOSAL. CONTRACTOR MUST PROVIDE ASSURANCE THAT ASH TREES DO NOT LEAVE QUARANTINED AREA.

OAK WILT

TO PROTECT AGAINST OAK WILT ALL PRUNING, ROOT CUTTING, OR DAMAGE TO THE OAK TREES SHALL BE AVOIDED BETWEEN APRIL 1ST AND JULY 31ST. ANY WOUNDING OR ROOT CUTTING WILL REQUIRE THE SEALING OF ALL WOUNDS WITH AN APPROVED PAINT OR SHELLAC AND AN INSPECTION BY THE CITY FORESTER. EXPOSED, CUT, OR DAMAGED ROOTS MUST BE IMMEDIATELY COVERED WITH SOIL OR SEALED AND INSPECTED BY THE CITY FORESTER.

CONTRACTOR SHALL CONTACT THE CITY FORESTER, PRIOR TO DEMOLITION OR OTHER LAND DISTURBANCE ASSOCIATED WITH SITE CONSTRUCTION, TO VERIFY TREE PROTECTION MEASURES.

TREE SURVEY AND REMOVAL TABLE - SOUTH

TREE ID #	TREE SPECIES	DBH (INCHES)	SIGN.	TREE HEALTH	REMOVED BY
100	BASSWOOD	11		HEALTHY	NO
101	RED ASH	16	S	HEALTHY	RPBCWD
102	ASH	7		HEALTHY	NO
103	BASSWOOD	12	S	HEALTHY	NO
104	ASH	9		HEALTHY	NO
105	ASH	13	S	HEALTHY	NO
106	ASH	15	S	HEALTHY	NO
107	ASH	3		DEAD	RPBCWD
108	BASSWOOD	6		HEALTHY	NO
109	ASH	6		DEAD	NO
110	ASH	7		HEALTHY	NO
111	ASH	4		HEALTHY	NO
112	ASH	14	S	HEALTHY	NO
113	MAPLE	7		HEALTHY	NO
114	ASH	10		HEALTHY	NO
115	MAPLE	5		HEALTHY	NO
116	ASH	10		HEALTHY	NO
117	ASH	6		HEALTHY	NO
118	BASSWOOD	10		HEALTHY	NO
119	ASH	3		HEALTHY	RPBCWD
120	ASH	9		HEALTHY	RPBCWD
121	ASH	4		HEALTHY	RPBCWD
122	UNKNOWN	5		DEAD	RPBCWD
123	BUCKTHORN	9		DEAD	RPBCWD
124	ASH	10		HEALTHY	RPBCWD
125	ASH	15	S	HEALTHY	RPBCWD
126	ASH	8		HEALTHY	RPBCWD
127	ASH	9		HEALTHY	RPBCWD
128	ASH	12	S	UNHEALTHY	RPBCWD
129	OAK	13	S	HEALTHY	NO
130	ASH	27	S	HEALTHY	RPBCWD
131	ASH	9		HEALTHY	NO
132	ASH	11		HEALTHY	RPBCWD
133	ELM	6		HEALTHY	NO
134	ELM	5		HEALTHY	NO
135	BOX ELDER	15		HEALTHY	NO
136	BOX ELDER	6		HEALTHY	NO
137	BOX ELDER	7		HEALTHY	NO
138	ASH	9		HEALTHY	NO
139	MAPLE	3		HEALTHY	NO
140	ASH	8		HEALTHY	NO
141	ASH	4		HEALTHY	RPBCWD
142	ASH	4		HEALTHY	RPBCWD
143	ASH	6		HEALTHY	RPBCWD
144	BASSWOOD	28	S	UNHEALTHY	NO
145	MAPLE	4		HEALTHY	RPBCWD
146	ASH	4		HEALTHY	RPBCWD
147	OAK	6		HEALTHY	RPBCWD
148	ASH	9		HEALTHY	NO
149	ASH	14	S	HEALTHY	NO
150	OAK	6		HEALTHY	NO
151	MAPLE	27	S	HEALTHY	NO
152	ASH	25	S	HEALTHY	RPBCWD
153	RED OAK	30	S	HEALTHY	NO
154	SUGAR MAPLE	17	S	HEALTHY	NO
155	MAPLE	13	S	HEALTHY	NO
156	MAPLE	15	S	UNHEALTHY	NO
157	ASH	12	S	HEALTHY	NO
158	ASH	13	S	HEALTHY	RPBCWD
159	BOX ELDER	16	S	HEALTHY	NO
160	ELM	16		HEALTHY	RPBCWD
161	RED ASH	16	S	HEALTHY	RPBCWD
162	ASH	22	S	HEALTHY	BEARPATH
163	SYCAMORE	20	S	HEALTHY	RPBCWD
164	CHERRY	12	S	HEALTHY	NO
165	RED ASH	14	S	HEALTHY	BEARPATH
166	MAPLE	13	S	UNHEALTHY	NO
167	BOX ELDER	16		HEALTHY	NO
168	BASSWOOD	15	S	HEALTHY	NO
169	ASH	9		HEALTHY	RPBCWD
170	ASH	10		HEALTHY	RPBCWD
171	ASH	12		HEALTHY	RPBCWD
172	ASH	8		HEALTHY	BEARPATH
173	ASH	14		HEALTHY	BEARPATH
174	CEDAR	8	S	HEALTHY	NO

NOTE: SIGNIFICANT TREES DENOTED BY 'S'

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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

PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

CLIENT / BID / CONSTRUCTION / PERMITTING — RELEASED TO/FOR: A B C D 0 1 2 — DATE RELEASED

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Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION
& BEARPATH GOLF COURSE RENOVATION

TREE PROTECTION AND REMOVALS PLAN
SOUTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. G-04
REV. No. 0

1 PLAN: TREE PROTECTION AND REMOVALS

0 20 40 SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SS — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- EXISTING TREE TO REMAIN, PROTECT IN PLACE
- REMOVE EXISTING CONIFEROUS OR DECIDUOUS TREE
- TREE PROTECTION FENCE, SEE SHEET G-09
- 101 TREE IDENTIFICATION NUMBER, SEE TABLE FOR TREE SURVEY AND TREE REMOVAL SUMMARY

NOTES:

1. ASH TREES MUST BE REMOVED BETWEEN OCTOBER 1ST AND APRIL 30TH AND TAKEN TO AN APPROVED SITE FOR DISPOSAL. CONTRACTOR MUST PROVIDE ASSURANCE THAT ASH TREES DO NOT LEAVE QUARANTINED AREA.

OAK WILT

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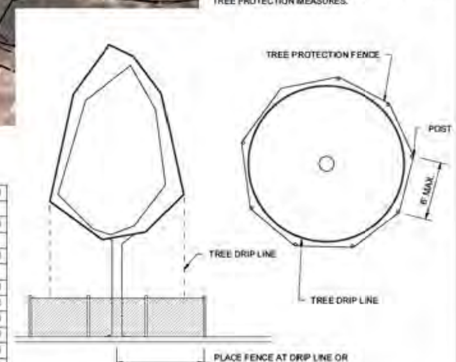
CONTRACTOR SHALL CONTACT THE CITY FORESTER, PRIOR TO DEMOLITION OR OTHER LAND DISTURBANCE ASSOCIATED WITH SITE CONSTRUCTION, TO VERIFY TREE PROTECTION MEASURES.

TREE SURVEY AND REMOVAL TABLE - NORTH

TREE ID #	TREE SPECIES	DBH (INCHES)	SIGN.	TREE HEALTH	REMOVED BY
200	ASH	16	S	HEALTHY	BEARPATH
201	ASH	14	S	UNHEALTHY	NO
202	ELM	18		HEALTHY	NO
203	ASH	16	S	UNHEALTHY	BEARPATH
204	BASSWOOD	15	S	HEALTHY	NO
205	ASH	8		HEALTHY	BEARPATH
206	BASSWOOD	7 (4)		HEALTHY	NO
207	ASH	4		HEALTHY	BEARPATH
208	ELM	16		HEALTHY	BEARPATH
209	BOX ELDER	4		HEALTHY	BEARPATH
210	ASH	7		HEALTHY	BEARPATH
211	ASH	7		HEALTHY	BEARPATH
212	OAK	6		UNHEALTHY	NO
213	ASH	7 (2)		HEALTHY	BEARPATH
214	BASSWOOD	8		HEALTHY	NO
215	ASH	12	S	HEALTHY	BEARPATH
216	ASH	14	S	HEALTHY	BEARPATH
217	ASH	4		HEALTHY	BEARPATH
218	ASH	6		HEALTHY	BEARPATH
219	WILLOW	5		HEALTHY	NO
220	OAK	9		HEALTHY	NO
221	WILLOW	9		HEALTHY	NO
222	WILLOW	8		HEALTHY	NO
223	BASSWOOD	11		HEALTHY	NO
224	ASH	6		HEALTHY	BEARPATH
225	ASH	6		DEAD	BEARPATH
226	ASH	8		DEAD	BEARPATH
227	ASH	12		HEALTHY	BEARPATH
228	ASH	7		HEALTHY	BEARPATH
229	ASH	10		HEALTHY	BEARPATH
230	RED OAK	10 (2)		HEALTHY	NO
231	ASH	14	S	HEALTHY	NO
232	BASSWOOD	14	S	HEALTHY	NO
233	ASH	11		HEALTHY	RPBCWD
234	BASSWOOD	12	S	HEALTHY	RPBCWD
235	BASSWOOD	8		HEALTHY	NO
236	BASSWOOD	8		HEALTHY	NO
237	OAK	24	S	HEALTHY	NO
238	ELM	16		HEALTHY	NO
239	ASH	13		HEALTHY	BEARPATH
240	ASH	1		HEALTHY	BEARPATH
241	ASH	16		HEALTHY	BEARPATH
242	ASH	13		HEALTHY	BEARPATH
243	ASH	18		UNHEALTHY	BEARPATH
244	ASH	8		HEALTHY	BEARPATH
245	ASH	6		HEALTHY	BEARPATH
246	ASH	11		HEALTHY	BEARPATH
247	ASH	7		HEALTHY	BEARPATH
248	ASH	7		DEAD	BEARPATH
249	ASH	13		HEALTHY	BEARPATH
250	ASH	14		HEALTHY	BEARPATH
251	UNKNOWN	5		DEAD	BEARPATH
252	ASH	7		HEALTHY	BEARPATH
253	ASH	15		HEALTHY	BEARPATH
254	ASH	12		HEALTHY	BEARPATH
255	ELM	7		DEAD	BEARPATH
256	ASH	9		UNHEALTHY	BEARPATH
257	ASH	10		HEALTHY	BEARPATH
258	ASH	17		HEALTHY	BEARPATH
259	ASH	7		HEALTHY	BEARPATH
260	ASH	7		HEALTHY	BEARPATH
261	ASH	8		HEALTHY	BEARPATH
262	ASH	12		HEALTHY	BEARPATH
263	HACKBERRY	5		HEALTHY	NO
264	ASH	18		HEALTHY	BEARPATH
265	OAK	18		HEALTHY	NO
266	ASH	3		HEALTHY	BEARPATH
267	ELM	10,13,7		HEALTHY	NO
268	ASH	10,6		HEALTHY	BEARPATH
269	ASH	14		HEALTHY	BEARPATH
270	ASH	13		HEALTHY	BEARPATH
271	ASH	10		DEAD	BEARPATH
272	ASH	12		HEALTHY	BEARPATH
273	ASH	2		HEALTHY	BEARPATH
274	ASH	5		UNHEALTHY	BEARPATH
275	ASH	12		UNHEALTHY	BEARPATH
276	BASSWOOD	11		HEALTHY	NO
277	ASH	12		HEALTHY	BEARPATH
278	BUCKTHORN	5,6		HEALTHY	NO

NOTE: SIGNIFICANT TREES DENOTED BY 'S'

ISSUED FOR BID



NOTES:

1. TREE PROTECTION FENCING SHALL BE INSTALLED ACCORDING TO PLAN PRIOR TO DEMOLITION OR OTHER SITE WORK. ANY RELOCATION OF THE TREE PROTECTION FENCING TO BE APPROVED BY CITY FORESTER. TREE PROTECTION FENCING SHALL BE MAINTAINED FOR THE DURATION OF THE CONSTRUCTION PROCESS.
2. CONSTRUCTION MATERIALS, STOCKPILES, EQUIPMENT, VEHICLES, AND TEMPORARY FACILITIES SHALL NOT BE STORED OR OPERATED WITHIN THE TREE PROTECTION ZONE.
3. ROOTS OUTSIDE OF THE TREE PROTECTION ZONE EXPOSED OR DAMAGED DURING EXCAVATION OR OTHER CONSTRUCTION ACTIVITY SHALL BE CLEANLY CUT AS DIRECTED BY THE CITY FORESTER.
4. ADDITIONAL TREE PROTECTION MEASURES MAY BE REQUIRED.

2 DETAIL: TREE PROTECTION FENCING
NOT TO SCALE

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, PERMITTING — A B C D 0 1 2 — DATE RELEASED

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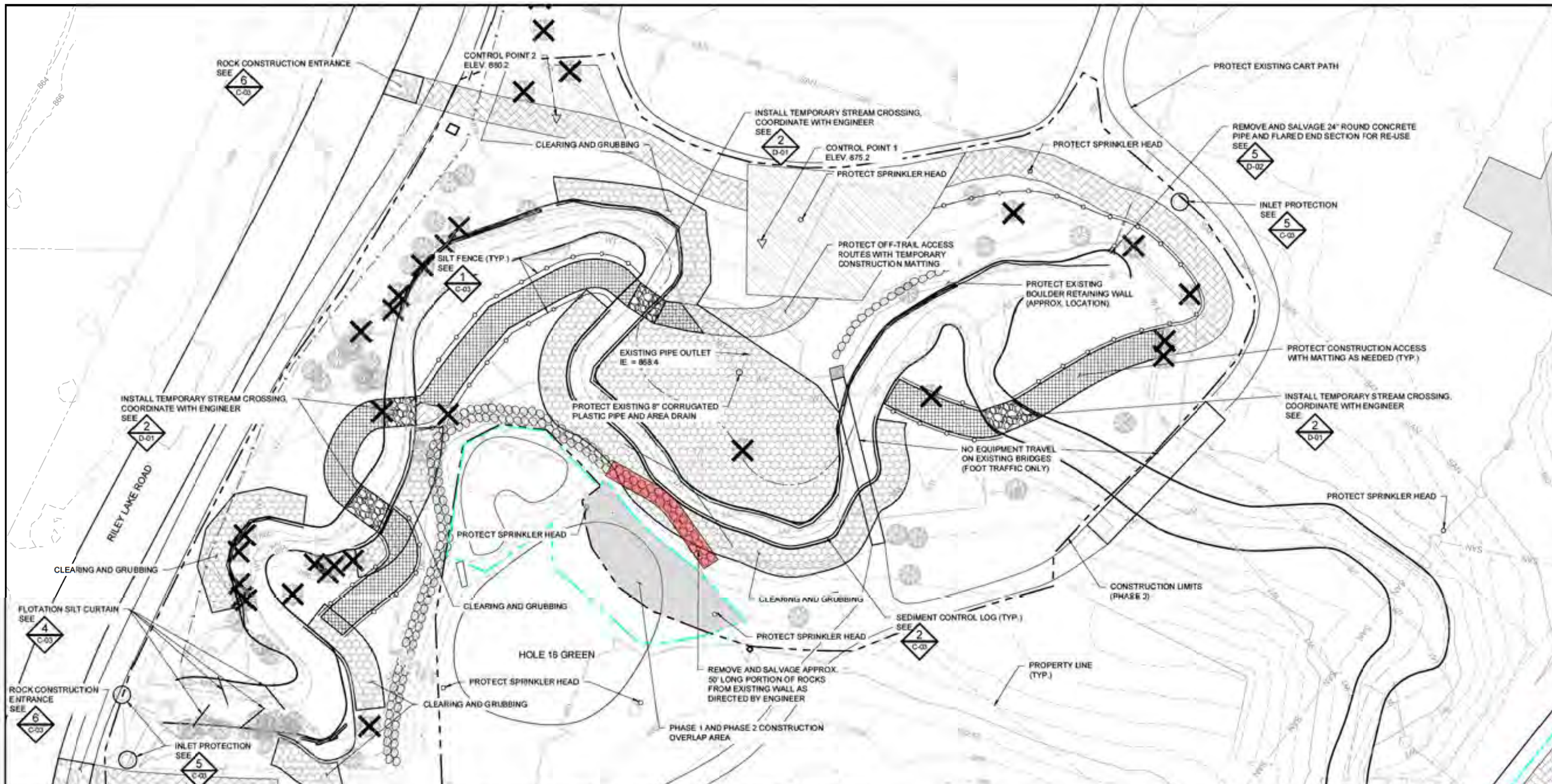
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION
& GOLF COURSE RENOVATION

TREE PROTECTION AND REMOVALS PLAN
NORTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. G-05
REV. No. 0



SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WETLAND DELINEATION
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- SILT FENCE
- SEDIMENT CONTROL LOGS
- CONSTRUCTION ACCESS ROUTE
- CONSTRUCTION ACCESS ROUTE WITH PROTECTIVE MATTING
- TEMPORARY CREEK CROSSING
- CLEARING AND GRUBBING AREA
- REMOVE AND SALVAGE TREE
- PROTECT EXISTING TREE

GENERAL NOTES:

1. RILEY CREEK IS IDENTIFIED BY THE DNR AS A PUBLIC WATER. WORK IN AND AROUND THE CREEK MAY NOT OCCUR BETWEEN MARCH 15TH AND JUNE 15TH.
2. ALL TREES TO BE PROTECTED UNLESS SPECIFICALLY IDENTIFIED FOR REMOVAL OR DIRECTED BY ENGINEER.
3. PROTECT ALL EXISTING IRRIGATION SYSTEM COMPONENTS, INCLUDING BUT NOT LIMITED TO SPRINKLER HEADS.

1 PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL

0 20 40 SCALE IN FEET

EROSION & SEDIMENT CONTROL NOTES:

1. INSTALL PERIMETER EROSION CONTROL AT THE LOCATIONS SHOWN ON THE PLANS PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES.
2. BEFORE BEGINNING CONSTRUCTION, INSTALL A TEMPORARY ROCK CONSTRUCTION ENTRANCE AT EACH POINT WHERE VEHICLES EXIT THE CONSTRUCTION SITE.
3. 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.
4. 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.
5. NATURAL TOPOGRAPHY AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RETENTION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
6. ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY THE DISTRICT MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADEQUATE STABILIZATION.
7. FINAL SITE STABILIZATION MEASURES MUST SPECIFY THAT AT LEAST SIX INCHES OF TOPSOIL WITH A MINIMUM OF 5% ORGANIC MATTER BE SPREAD AND INCORPORATED INTO THE UNDERLYING SOIL DURING FINAL SITE TREATMENT WHEREVER TOPSOIL HAS BEEN REMOVED.
8. CONSTRUCTION SITE WASTE SUCH AS DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE MUST BE PROPERLY MANAGED.
9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION AND VEGETATION IS ESTABLISHED SUFFICIENTLY TO ENSURE STABILITY OF THE SITE, AS DETERMINED BY THE DISTRICT.
10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE REMOVED UPON FINAL STABILIZATION.
11. SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED TO ACHIEVE A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF THE SOIL PROFILE WHILE TAKING CARE TO PROTECT UTILITIES, TREE ROOTS, AND OTHER EXISTING VEGETATION.
12. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER. WITHIN 14 DAYS ELSEWHERE.
13. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES EVERY DAY WORK IS PERFORMED ON THE SITE AND AT LEAST WEEKLY UNTIL LAND-DISTURBING ACTIVITY HAS CEASED. THEREAFTER, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.
14. 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.
15. FLOW IN RILEY CREEK WILL BE PASSED AROUND THE ACTIVE WORK AREA. CONTRACTOR IS RESPONSIBLE FOR CONTROL OF WATER TO MANAGE WATER FLOW AND LEVELS AS NECESSARY, REFER TO SPECIFICATIONS.
16. 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.
17. ACTIVITIES MUST BE CONDUCTED SO AS TO MINIMIZE THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G., ZEBRA MUSSELS, EURASIAN WATERMILFOIL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.
18. WHEREVER CONSTRUCTION ACCESS ROUTE CROSSES EXISTING TRAILS, PROTECT WITH MATTING OR ENGINEER-APPROVED ALTERNATIVE.

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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

PRINTED NAME: JESSICA OLSON
SIGNATURE:
DATE: 06/25/2021 LICENSE #: 42100

RELEASED TO/FOR	A	B	C	D	0	1	2
CLIENT	07/15/20	09/08/20	—	03/11/21	—	—	—
BID	—	—	—	—	06/25/21	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—
DATE RELEASED							

BARR

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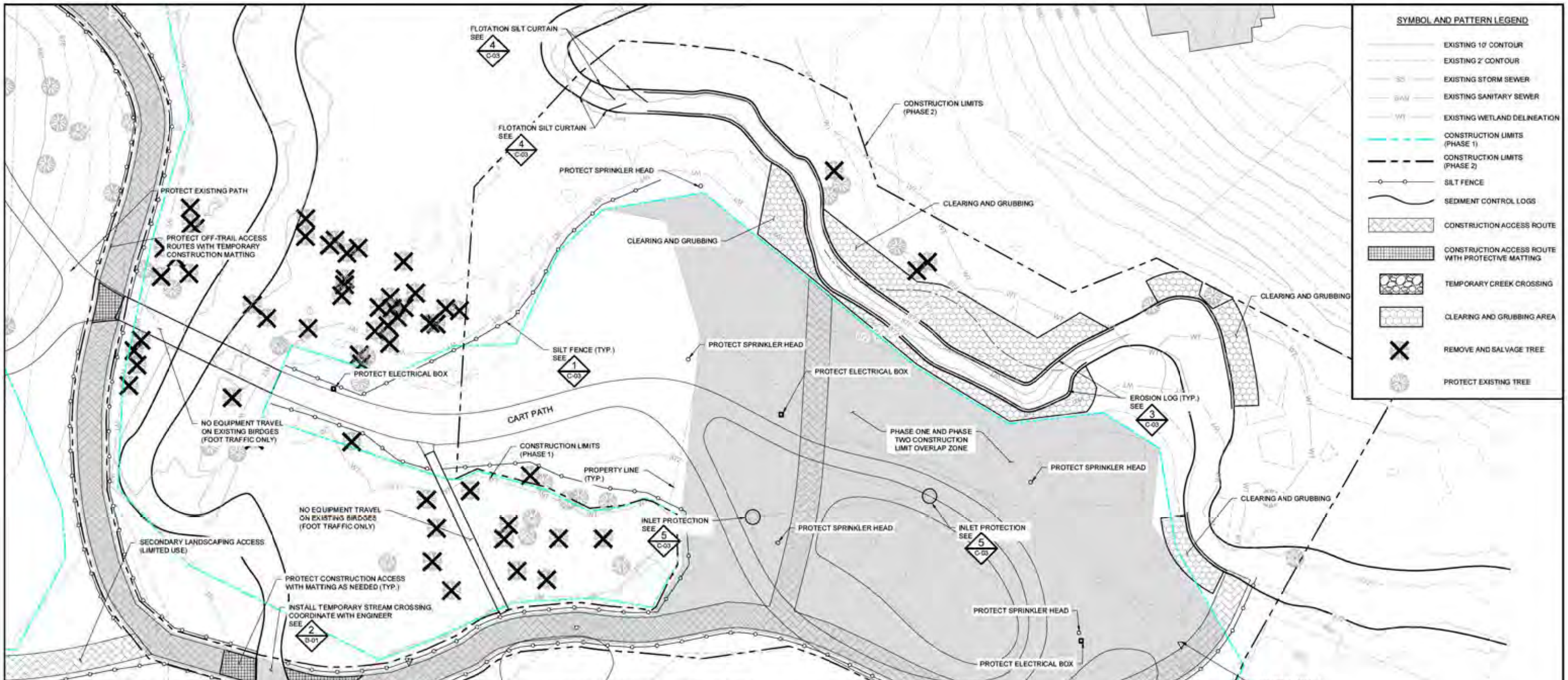
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
EXISTING CONDITIONS, REMOVALS & EROSION CONTROL PLAN SOUTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-01
REV. No. 0



EROSION & SEDIMENT CONTROL NOTES:

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9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION AND VEGETATION IS ESTABLISHED SUFFICIENTLY TO ENSURE STABILITY OF THE SITE, AS DETERMINED BY THE DISTRICT.
10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE REMOVED UPON FINAL STABILIZATION.
11. SOIL SURFACES COMPACTED DURING CONSTRUCTION AND REMAINING PERVIOUS UPON COMPLETION OF CONSTRUCTION MUST BE DECOMPACTED TO ACHIEVE A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF THE SOIL PROFILE WHILE TAKING CARE TO PROTECT UTILITIES, TREE ROOTS, AND OTHER EXISTING VEGETATION.
12. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER, WITHIN 14 DAYS ELSEWHERE.
13. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES EVERY DAY WORK IS PERFORMED ON THE SITE AND AT LEAST WEEKLY UNTIL LAND-DISTURBING ACTIVITY HAS CEASED. THEREAFTER, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.
14. 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.
15. FLOW IN RILEY CREEK WILL BE PASSED AROUND THE ACTIVE WORK AREA. CONTRACTOR IS RESPONSIBLE FOR CONTROL OF WATER TO MANAGE WATER FLOW AND LEVELS AS NECESSARY, REFER TO SPECIFICATIONS.
16. 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.
17. ACTIVITIES MUST BE CONDUCTED SO AS TO MINIMIZE THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G., ZEBRA MUSSELS, EURASIAN WATERMILFOIL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.
18. WHEREVER CONSTRUCTION ACCESS ROUTE CROSSES EXISTING TRAILS, PROTECT WITH MATTING OR ENGINEER-APPROVED ALTERNATIVE.

GENERAL NOTES:

1. RILEY CREEK IS IDENTIFIED BY THE DNR AS A PUBLIC WATER. WORK IN AND AROUND THE CREEK MAY NOT OCCUR BETWEEN MARCH 15TH AND JUNE 15TH.
2. ALL TREES TO BE PROTECTED UNLESS SPECIFICALLY IDENTIFIED FOR REMOVAL OR DIRECTED BY ENGINEER.
3. PROTECT ALL EXISTING IRRIGATION SYSTEM COMPONENTS, INCLUDING BUT NOT LIMITED TO SPRINKLER HEADS.
4. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE SITE ACCESS AND WORK TIMING.
5. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE SCHEDULES AND SCOPE TO PLACE AND REMOVE STREAM CROSSING TO ALLOW FOR COMPLETION OF ALL CONSTRUCTION ACTIVITIES IN A TIMELY FASHION.

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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

PRINTED NAME: JESSICA OLSON
SIGNATURE:
DATE: 06/25/2021 LICENSE # 42102

RELEASED TO/FOR	A	B	C	D	0	1	2
CLIENT	07/15/20	09/08/20	—	03/11/21	—	—	—
BID	—	—	—	—	06/25/21	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—

DATE RELEASED

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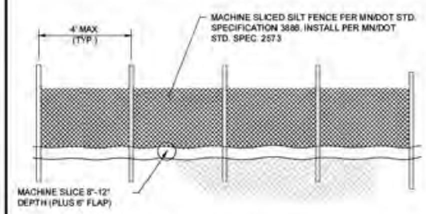
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

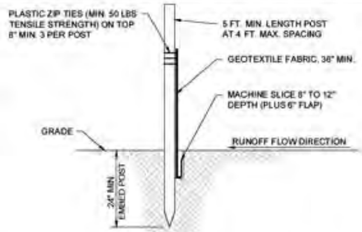
MIDDLE RILEY CREEK STABILIZATION (PHASE 1 & 2)
EDEN PRAIRIE, MN

EXISTING CONDITIONS, REMOVALS & EROSION CONTROL PLAN NORTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-02
REV. No. 0



DOWNSTREAM VIEW

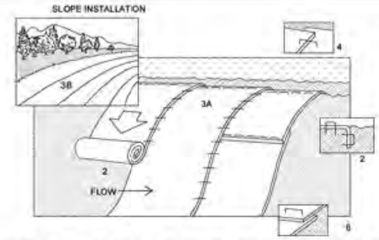


SECTION VIEW

NOTES:

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

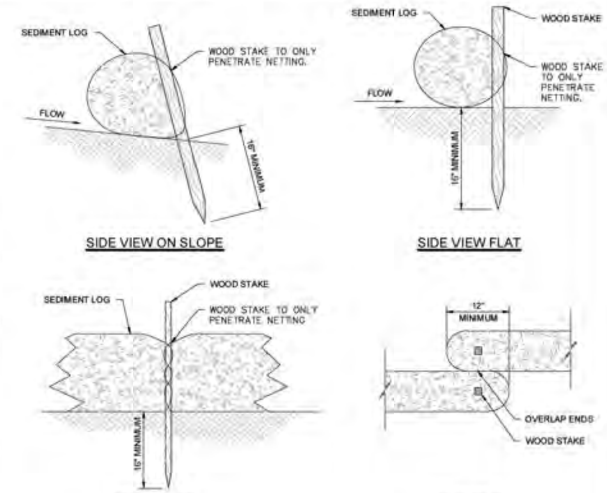
1 DETAIL: SILT FENCE - MACHINE SLICED
NOT TO SCALE



NOTES:

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

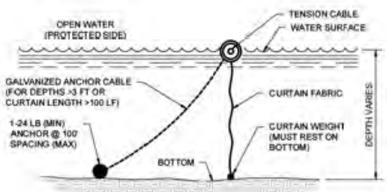
2 DETAIL: EROSION CONTROL BLANKET - INSTALLATION
NOT TO SCALE



NOTES:

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

3 DETAIL: EROSION LOG - STAKING
NOT TO SCALE

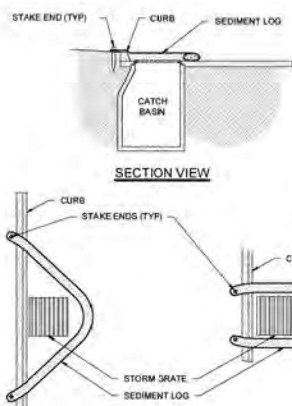


SECTION

NOTES:

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

4 DETAIL: FLOTATION SILT CURTAIN
NOT TO SCALE

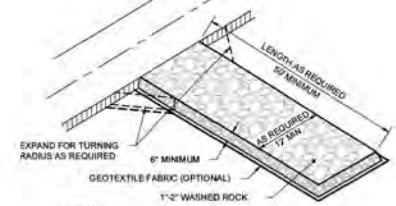


PLAN VIEW

NOTES:

1. INLET PROTECTION SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED OR IMMEDIATELY FOLLOWING CATCHBASIN INSTALLATION, AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. MATERIALS SHALL BE SUFFICIENT TO ALLOW FLOW WHILE BLOCKING SEDIMENT. NO HOLES OR GAPS SHALL BE PRESENT IN/UNDER SEDIMENT LOG.
3. INLET PROTECTION SHALL BE CLEANED AS REQUIRED.
4. MATERIALS AND ANY ACCUMULATED SEDIMENT SHALL BE REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

5 DETAIL: INLET PROTECTION - SEDIMENT LOG
NOT TO SCALE



NOTES:

1. MAINTAIN ENTRANCE THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACE AS REQUIRED TO PREVENT TRACKING OFFSITE.
2. REMOVE ENTRANCE IN CONJUNCTION WITH FINAL GRADING AND SITE STABILIZATION.

6 DETAIL: CONSTRUCTION ENTRANCE - ROCK
NOT TO SCALE

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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PRINTED NAME: JESSICA OLSON
SIGNATURE: ______
DATE: 06/25/2021 LICENSE # 43102

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, PERMITTING — A B C D 0 1 2 — DATE RELEASED

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

Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
EROSION CONTROL DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-03
REV. No. 0

1 PLAN: EASEMENTS, FLOODPLAINS AND WETLAND BOUNDARIES - FULL SITE

0 100 200 SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- EXISTING PROPERTY LINE
- SAN — EXISTING SANITARY SEWER
- > — EXISTING STORM SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CITY CONSERVATION EASEMENT
- CITY DRAINAGE AND UTILITY EASEMENT
- PROPOSED BUFFER
- ● 4' BUFFER SIGN
- ○ FLUSH MOUNT BUFFER MARKER

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
2. ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
4. CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE. FINAL CONSTRUCTION LIMITS TO BE COORDINATED WITH THE OWNER AND STAKED IN THE FIELD.
5. CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 8" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
8. TREE SURVEY COMPLETED 05/04/2020. "SIGNIFICANT TREES" MEET THE DEFINITION REQUIREMENTS.
9. CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE THE TRANSFER OF AQUATIC AND TERRESTRIAL INVASIVE SPECIES TO THE MAXIMUM EXTENT POSSIBLE.
10. SOIL SURFACES COMPACTED DURING CONSTRUCTION MUST BE DECOMPACTED TO A SOIL COMPACTING PRESSURE OF LESS THAN 1400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 1 INCH OF SOIL.
11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
12. CONTRACTOR SHALL CONTACT ENGINEER AT LEAST 24 HOURS PRIOR TO CONSTRUCTION OF CRITICAL DESIGN ITEMS TO ALLOW FOR CONSTRUCTION OBSERVATION. CRITICAL DESIGN ITEMS INCLUDE:
   - -RIPRAP TOE PROTECTION INSTALLATION
   - -VRSS INSTALLATION
   - -BOULDER VANE INSTALLATION
13. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

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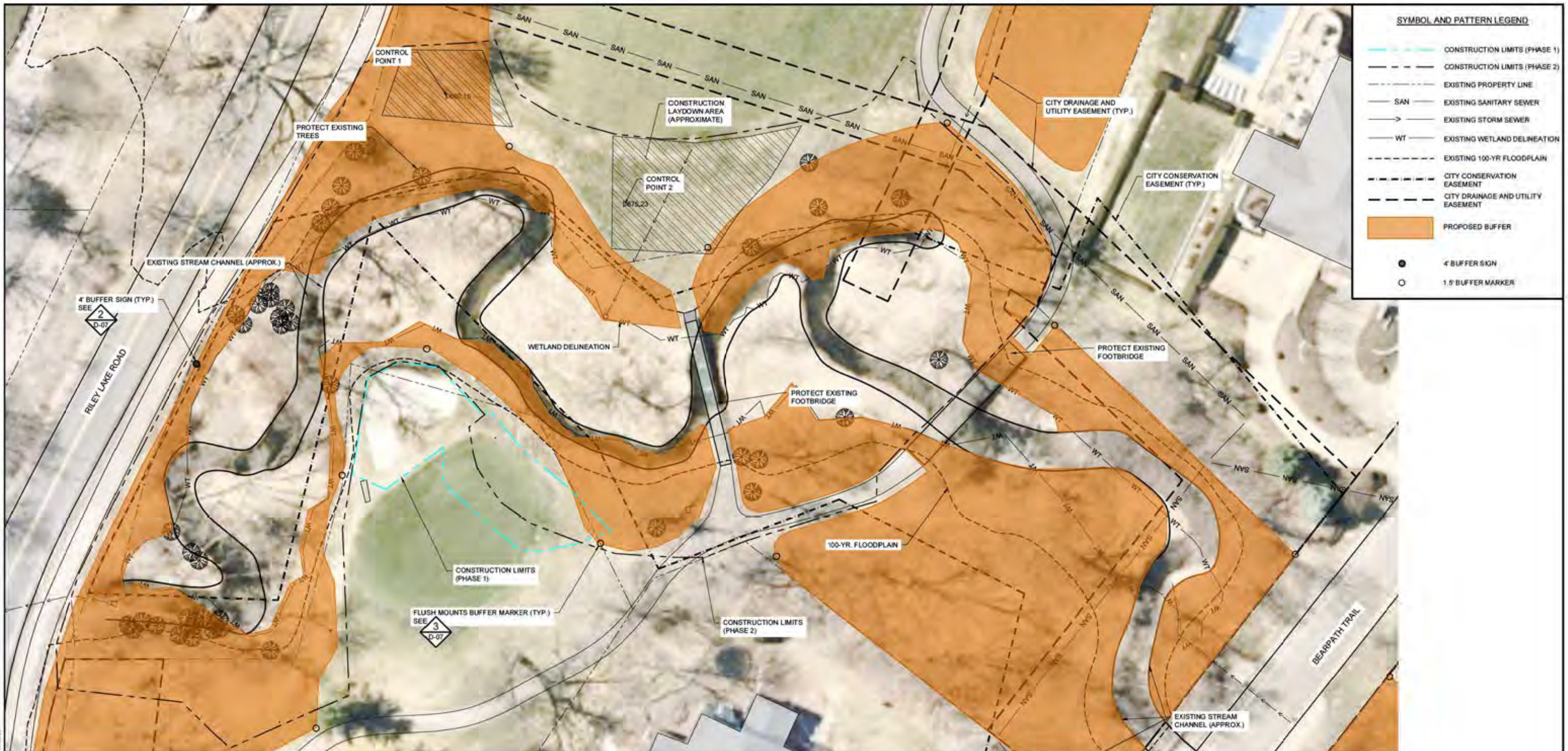
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

EASEMENTS, FLOODPLAINS & WETLAND BOUNDARIES
FULL SITE

BARR PROJECT No. 23/27-00534.14
CLIENT PROJECT No.
DWG. No. C-04
REV. No. 0



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6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 8" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
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11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
12. CONTRACTOR SHALL CONTACT ENGINEER AT LEAST 24 HOURS PRIOR TO CONSTRUCTION OF CRITICAL DESIGN ITEMS TO ALLOW FOR CONSTRUCTION OBSERVATION. CRITICAL DESIGN ITEMS INCLUDE:
   - RIPRAP TOE PROTECTION INSTALLATION
   - VRSS INSTALLATION
   - BOULDER VANE INSTALLATION
13. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.

1 PLAN: EASEMENTS, FLOODPLAINS AND WETLAND BOUNDARIES - SOUTH

0 20 40 SCALE IN FEET

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	117922.4829'	465761.5527'	875.23'	VRS SPIKE 1
2	117850.1325'	465717.6763'	880.15'	VRS SPIKE 2

GENERAL NOTE:

BUFFER LINES ARE APPROXIMATE AND WILL BE ADJUSTED IN THE FIELD TO MEET PERMIT AND GOLF COURSE REQUIREMENTS.

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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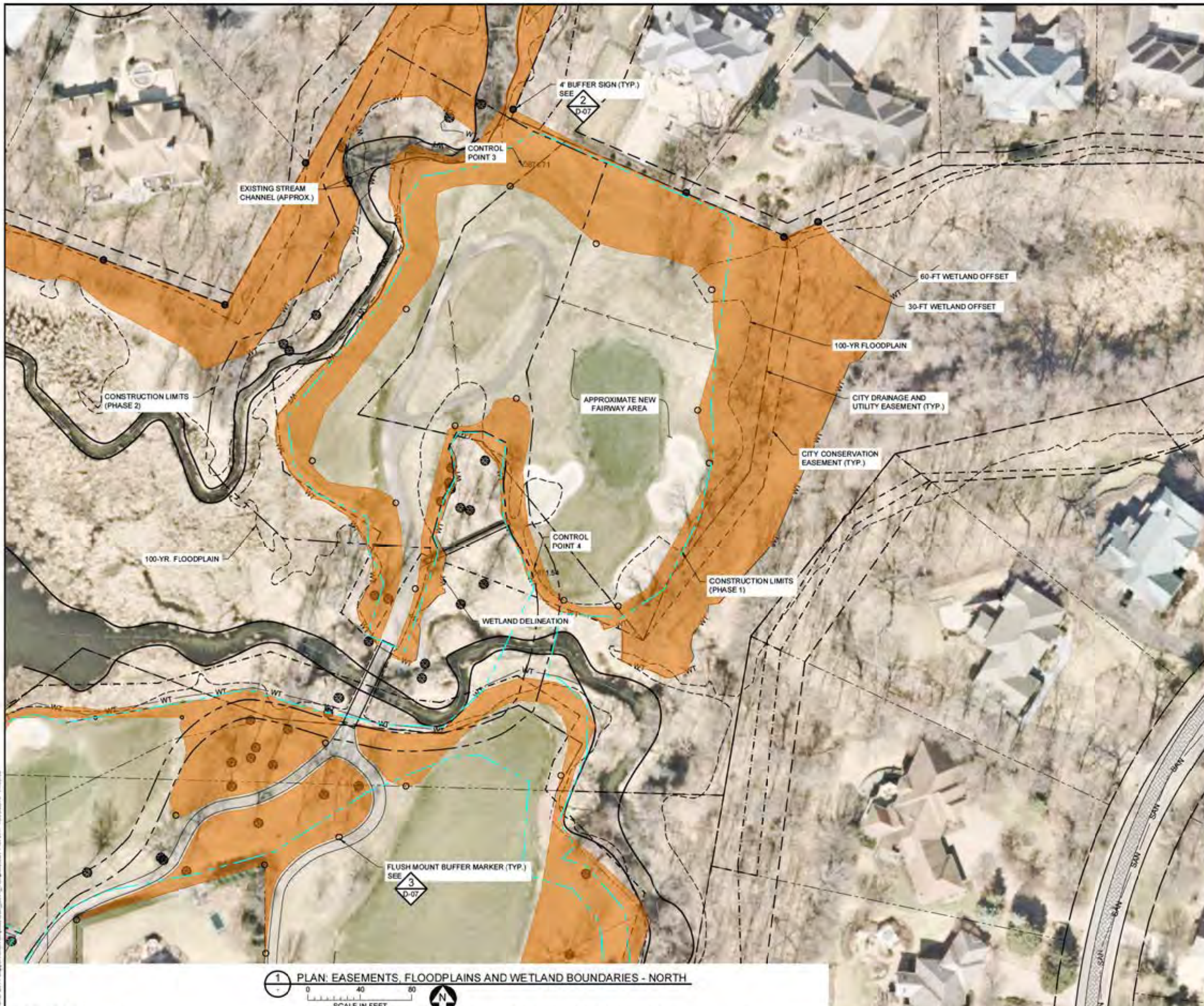
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

EASEMENTS, FLOODPLAINS & WETLAND BOUNDARIES SOUTH

BARR PROJECT No. 23/27-00534.14
CLIENT PROJECT No.
DWG. No. C-05
REV. No. 0



1 PLAN: EASEMENTS, FLOODPLAINS AND WETLAND BOUNDARIES - NORTH

0 40 80

SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- EXISTING PROPERTY LINE
- SAN — EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- WT — EXISTING WETLAND DELINEATION
- EXISTING 100-YR FLOODPLAIN
- CITY CONSERVATION EASEMENT
- CITY DRAINAGE AND UTILITY EASEMENT
- PROPOSED BUFFER
- 4' BUFFER SIGN
- FLUSH MOUNT BUFFER MARKER

NOTES:

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3. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
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5. CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 8" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
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   -RIPRAP TOE PROTECTION INSTALLATION
   -VRSS INSTALLATION
   -BOULDER VANE INSTALLATION
13. CONTRACTOR MUST PROVIDE AREAS A MINIMUM OF 10 FEET WIDE FOR GOLFER ACCESS ACROSS ACCESS ROUTE AS DIRECTED IN THE FIELD.
14. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
3	119806.1160'	465879.4807'	874.71'	VRS SPIKE 3
4	119491.9292'	465886.5323'	871.54'	VRS SPIKE 4

GENERAL NOTE:

BUFFER LINES ARE APPROXIMATE AND WILL BE ADJUSTED IN THE FIELD TO MEET PERMIT AND GOLF COURSE REQUIREMENTS.

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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

PRINTED NAME JESSICA OLSON

SIGNATURE

DATE 06/25/2021 LICENSE # 43102

CLIENT / BID / CONSTRUCTION / PERMITTING

RELEASED TO/FOR: A B C D 0 1 2 — DATE RELEASED

BARR

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

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

Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATRY BLUFF CREEK WD

CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)

EDEN PRAIRIE, MN

EASEMENTS, FLOODPLAINS & WETLAND BOUNDARIES NORTH

BARR PROJECT No. 23/27-0053.14

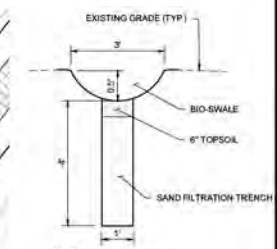
CLIENT PROJECT No.

DWG. No. C-06

REV. No. 0

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- EXISTING STREAM THALWEG (APPROX.)
- EXISTING 100-YR FLOODPLAIN
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- ROCK RIFFLE
- LIVE STAKES
- VRSS
- FILL EXISTING CREEK
- SEEDING AREA WITH MIX A
- BOULDER CROSS VANE
- GRADING WITH EROSION CONTROL BLANKET AND NATIVE VEGETATION MATS
- J-HOOK LOG VANE



NOTE:
BIO-SWALE MUST BE MINIMUM 1.5' OFFSET FROM CART PATH.

2 SECTION: BIO-SWALE

SCALE IN FEET (0 1 2 3 4)

1 PLAN: CREEK STABILIZATION SOUTH

SCALE IN FEET (0 20 40)

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	117922.4829'	465761.5527'	875.23'	VRS SPIKE 1
2	117850.1325'	465717.6763'	890.15'	VRS SPIKE 2

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
2. ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
4. CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE FINAL CONSTRUCTION LIMITS TO BE COORDINATED WITH THE OWNER AND STAKED IN THE FIELD.
5. CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 8" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
8. TREE SURVEY COMPLETED 05/04/2020. "SIGNIFICANT TREES" MEET THE DEFINITION REQUIREMENTS.
9. CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE THE TRANSFER OF AQUATIC AND TERRESTRIAL INVASIVE SPECIES TO THE MAXIMUM EXTENT POSSIBLE.
10. SOIL SURFACES COMPACTED DURING CONSTRUCTION MUST BE DECOMPACTED TO A SOIL COMPACTING PRESSURE OF LESS THAN 1400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 1 INCH OF SOIL.
11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
12. CONTRACTOR SHALL CONTACT ENGINEER AT LEAST 24 HOURS PRIOR TO CONSTRUCTION OF CRITICAL DESIGN ITEMS TO ALLOW FOR CONSTRUCTION OBSERVATION. CRITICAL DESIGN ITEMS INCLUDE:
   - -RIPRAP TOE PROTECTION INSTALLATION
   - -VRSS INSTALLATION
   - -BOULDER VANE INSTALLATION
13. SEE CONSTRUCTION SPECIFICATIONS FOR REQUIRED CONTRACTOR QUALIFICATIONS FOR GOLF COURSE FEATURE RESTORATION AND INSTALLATION.

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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PRINTED NAME: JESSICA OLSON
SIGNATURE:
DATE: 06/25/2021 LICENSE #: 43102

RELEASED TO/FOR	A	B	C	D	0	1	2
CLIENT	07/15/20	08/05/20	—	05/11/21	—	—	—
BID	—	—	—	—	06/25/21	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—

DATE RELEASED

BARR
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Scale	AS SHOWN
Date	06/25/2021
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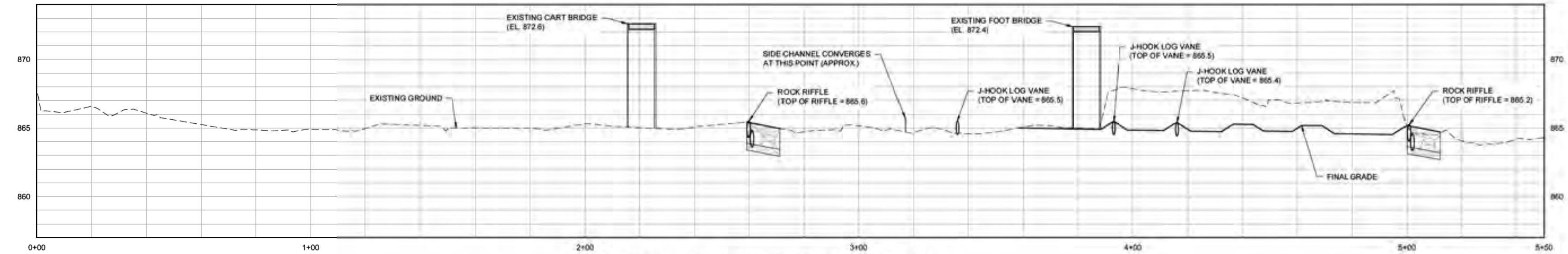
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

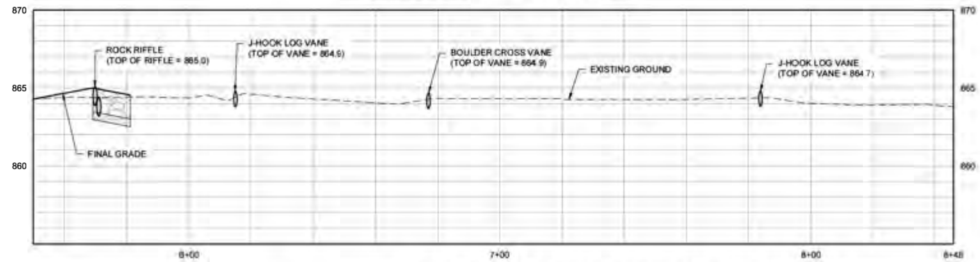
STREAM STABILIZATION SOUTH
PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-07
REV. No. 0



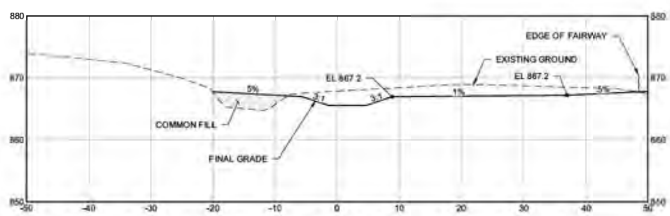
1 PROFILE: CREEK STABILIZATION SOUTH (STA. 0+00 - 5+50)

0 20 40 HORIZONTAL SCALE IN FEET — 0 4 8 VERTICAL SCALE IN FEET



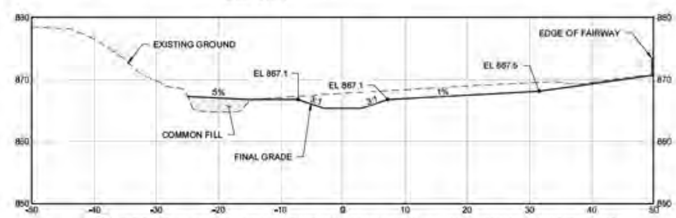
2 PROFILE: CREEK STABILIZATION SOUTH (STA. 5+50 - 8+46)

0 20 40 HORIZONTAL SCALE IN FEET — 0 4 8 VERTICAL SCALE IN FEET



3 SECTION: CREEK STABILIZATION SOUTH (STA. 4+00) LOOKING DOWNSTREAM

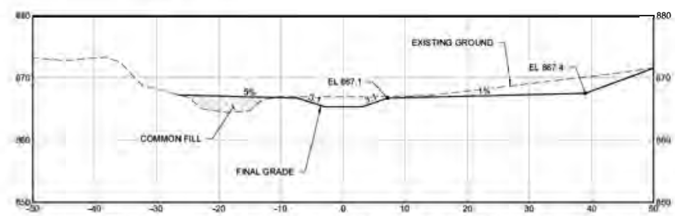
0 10 20 SCALE IN FEET



4 SECTION: CREEK STABILIZATION SOUTH (STA. 4+25) LOOKING DOWNSTREAM

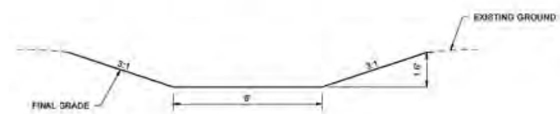
0 10 20 SCALE IN FEET

NOTE:
SEE SHEET D-05 FOR ROCK WALL DETAIL.



5 SECTION: CREEK STABILIZATION SOUTH (STA. 4+75) LOOKING DOWNSTREAM

0 10 20 SCALE IN FEET



6 SECTION: TYPICAL RIFFLE SECTION
NOT TO SCALE

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	ISSUED FOR BID

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SIGNATURE
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Scale	AS SHOWN
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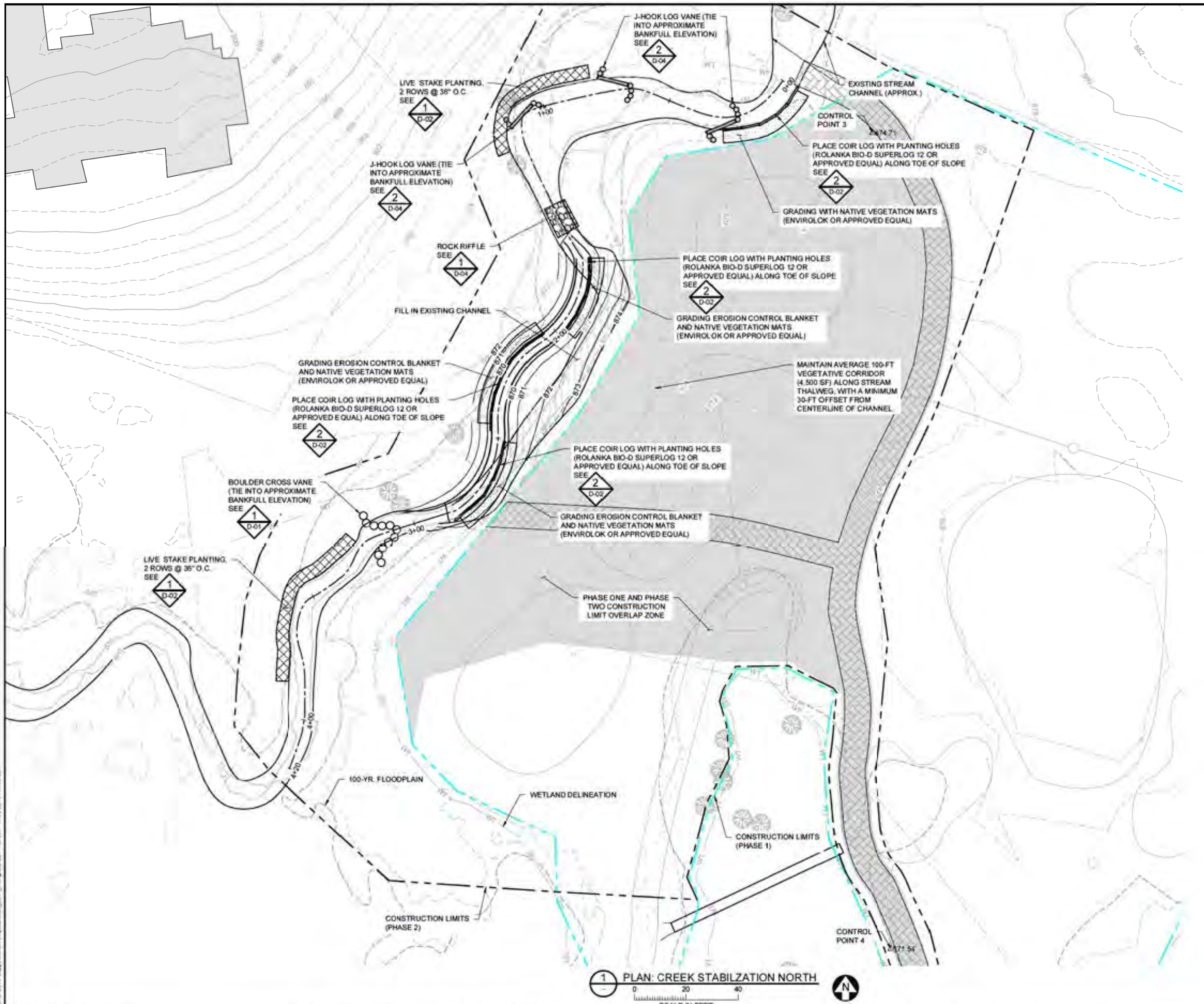
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

STREAM STABILIZATION SOUTH
PROFILE AND SECTIONS

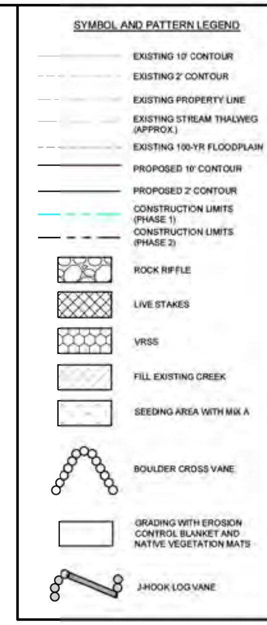
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-08
REV. No. 0



1 PLAN: CREEK STABILIZATION NORTH

0 20 40

SCALE IN FEET



NOTES:

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    -RIPRAP TOE PROTECTION INSTALLATION
    -VRSS INSTALLATION
    -BOULDER VANE INSTALLATION
13. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE TIMING OF ALL CONSTRUCTION ACTIVITIES TO MINIMIZE DELAYS AND ENSURE ALL WORK IS COMPLETED ACCORDING TO PLANS.

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
3	119806.1150'	465879.4807'	874.71'	VRS SPIKE 3
4	119491.9292'	465886.5323'	871.54'	VRS SPIKE 4

ISSUED FOR BID

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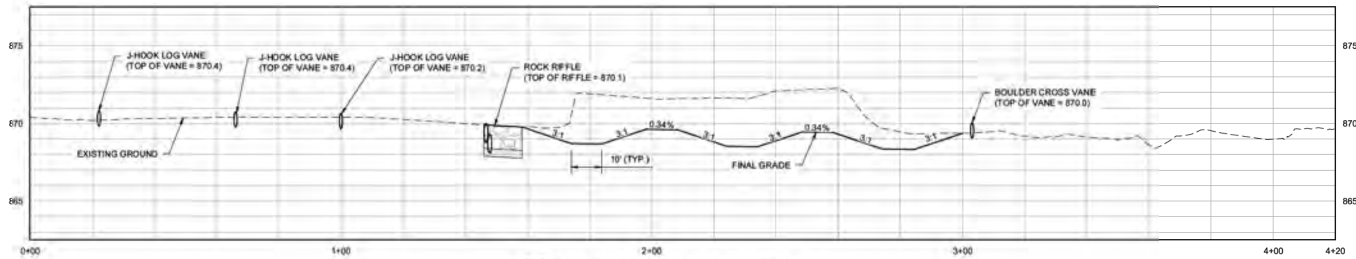
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

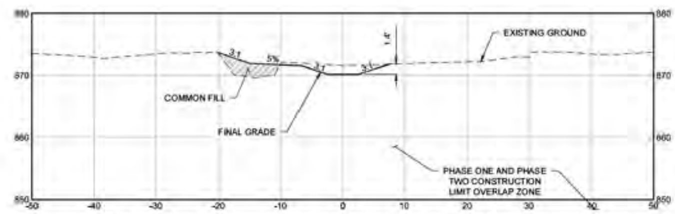
MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
STREAM STABILIZATION NORTH PLAN

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-09
REV. No. 0



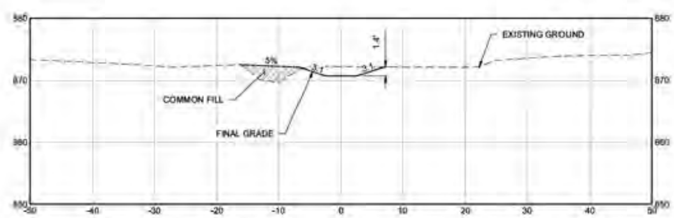
1 PROFILE: CREEK STABILIZATION NORTH

HORIZONTAL SCALE IN FEET (0, 20, 40) VERTICAL SCALE IN FEET (0, 4, 8)



2 SECTION: CREEK STABILIZATION NORTH (STA. 2+00) LOOKING DOWNSTREAM

SCALE IN FEET (0, 10, 20)



3 SECTION: CREEK STABILIZATION NORTH (STA. 2+50) LOOKING DOWNSTREAM

SCALE IN FEET (0, 10, 20)

4 SECTION: TYPICAL RIFFLE SECTION

NOT TO SCALE

ISSUED FOR BID

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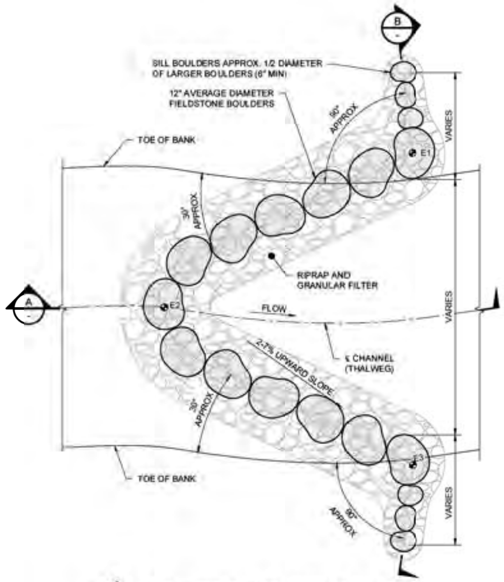
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

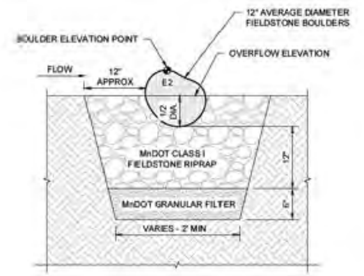
MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

STREAM STABILIZATION NORTH
PROFILE AND SECTIONS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-10
REV. No. 0



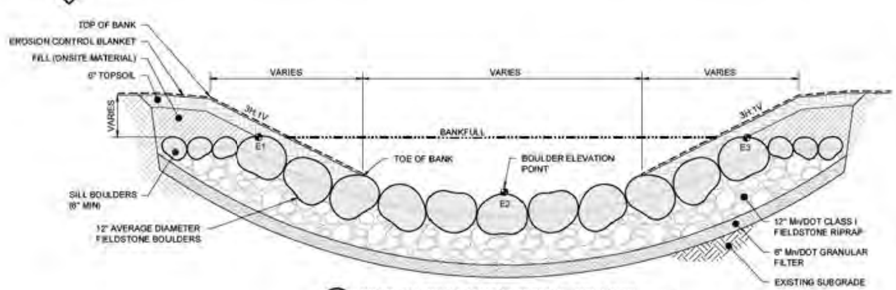
DETAIL: CROSS VANE - SINGLE BOULDER
NOT TO SCALE



SECTION: CROSS VANE - SINGLE BOULDER
NOT TO SCALE

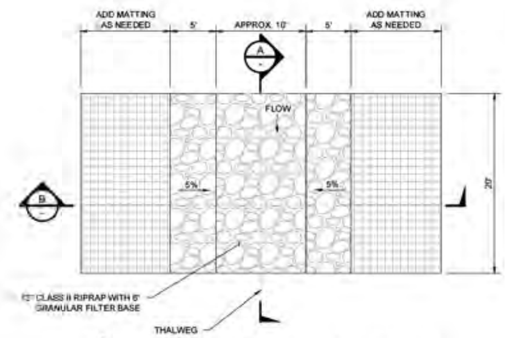
NOTES:

1. CROSS VANE LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND MAY BE MODIFIED IN THE FIELD BY THE ENGINEER.
2. FINAL BOULDER PLACEMENT TO BE APPROVED BY THE ENGINEER IN THE FIELD. CONTRACTOR MAY BE REQUIRED TO ADJUST BOULDER ELEVATIONS AND ROTATION.
3. THERE SHALL BE NO SIGNIFICANT GAPS BETWEEN BOULDERS. RIPRAP BEDDING SHALL BE PLACED ON THE UPSTREAM SIDE OF THE BOULDERS TO PLUG SMALL GAPS (MAY REQUIRE HAND PLACEMENT).
4. BOULDERS OF AN UNSUITABLE SHAPE MAY BE RE-LOCATED OR REJECTED.
5. INSTALL EROSION CONTROL BLANKET ON DISTURBED BANKS.

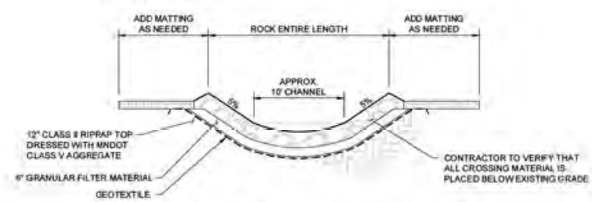


SECTION: CROSS VANE - SINGLE BOULDER
NOT TO SCALE

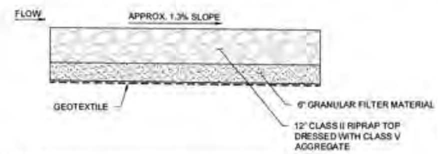
BOULDER VANES							
FEATURE LOCATION	E1 STATION	E1 ELEVATION	E2 STATION	E2 ELEVATION	E3 STATION	E3 ELEVATION	NOTES
NORTH STREAM	3+17	872.1	3+03	870.4	3+17	871.7	
SOUTH STREAM	6+94	866.5	6+77	864.0	6+94	866.4	



DETAIL: TEMPORARY CREEK CROSSING OPTION
NOT TO SCALE



SECTION: TEMPORARY CREEK CROSSING OPTION
NOT TO SCALE



SECTION: TEMPORARY CREEK CROSSING OPTION
NOT TO SCALE

NOTES:

1. NO DOLOMITE OR LIMESTONE SHALL BE ALLOWED FOR ANY IN-CHANNEL BOULDERS, RIPRAP OR AGGREGATE.
2. THE TEMPORARY CREEK CROSSING SHALL BE PLACED SUCH THAT THE FINISHED GRADE IS AT OR BELOW THE ORIGINAL CREEK GRADE. CONTRACTOR SHALL SURVEY CREEK CROSSING BEFORE AND AFTER PLACEMENT OF RIPRAP TO CONFIRM CORRECT PLACEMENT OF RIPRAP.

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
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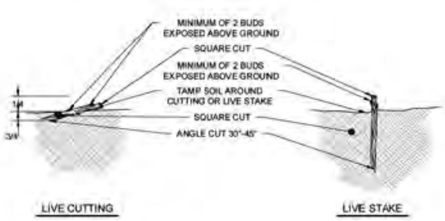
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
STABILIZATION DETAILS

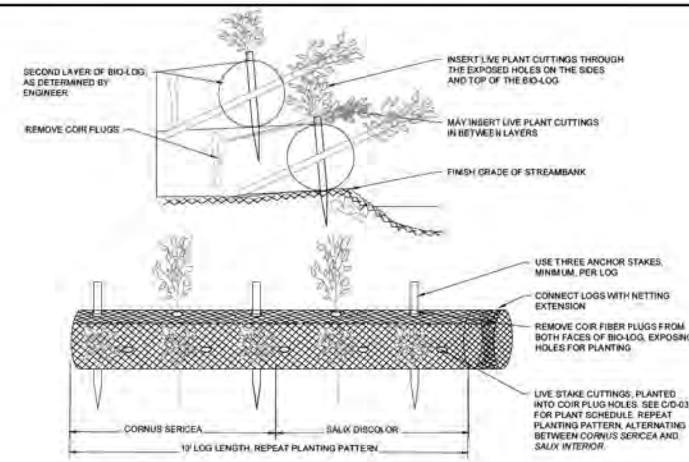
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. D-01
REV. No. 0



GENERAL NOTES

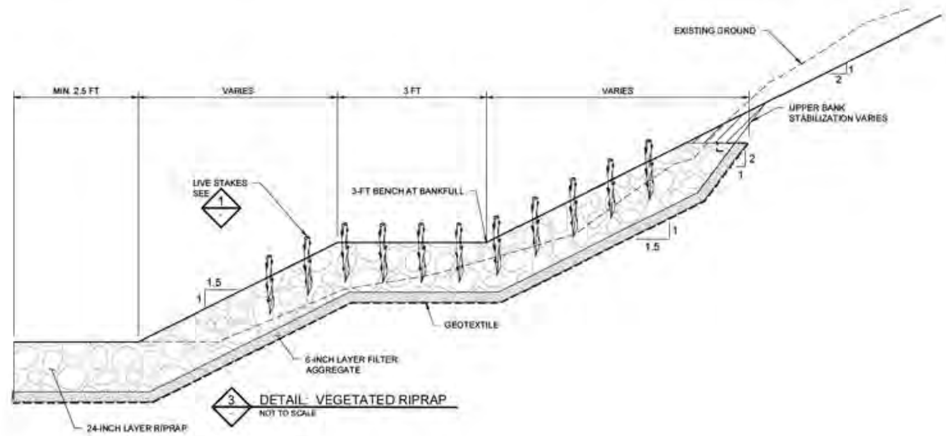
1. LIVE STAKE OR CUTTING PLANTED PERPENDICULAR TO GROUND SURFACE.
2. SEE SHEET D-03 FOR PLANT MATERIAL LIST FOR SPECIES LENGTH AND SPACING.
3. LIVE STAKES SHALL BE 3/4" DIAMETER MINIMUM. LIVE CUTTINGS SHALL BE 3/4" DIAMETER MINIMUM.

1 DETAIL: LIVE CUTTINGS OR LIVE STAKES
NOT TO SCALE



NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

2 DETAIL: COIR LOG WITH PLANTING HOLES
NOT TO SCALE



3 DETAIL: VEGETATED RIPRAP
NOT TO SCALE

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	

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PRINTED NAME JESSICA OLSON
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

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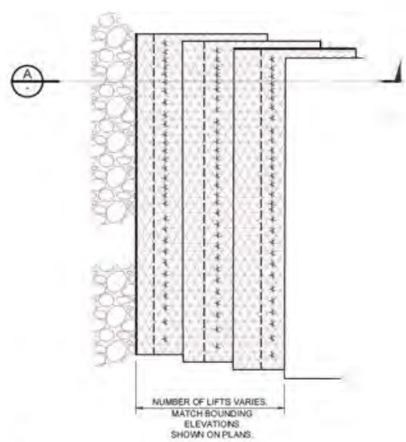
Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435
Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

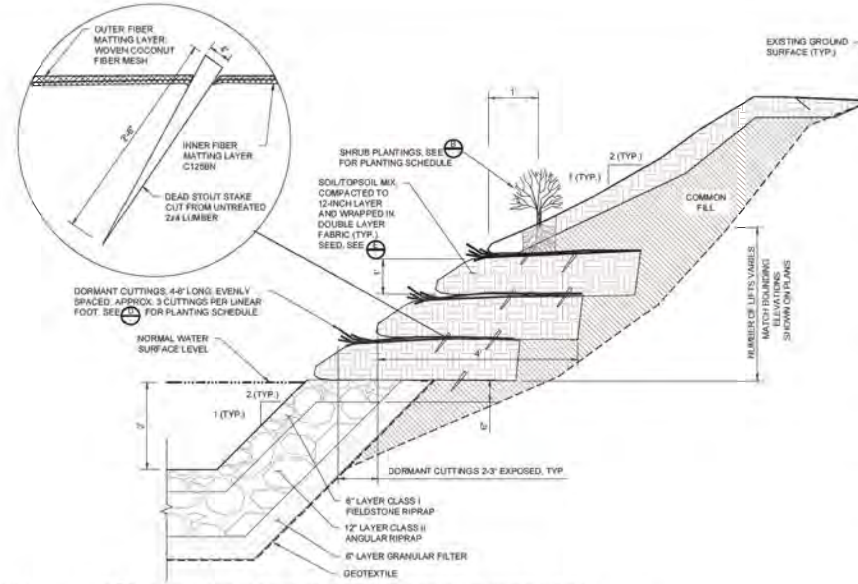
RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
STABILIZATION DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. D-02
REV. No. 0



1 D-03 DETAIL: LIVE PLANT VEGETATED REINFORCED SOIL SLOPE (V.R.S.S.)
NOT TO SCALE



A SECTION: LIVE PLANT VEGETATED REINFORCED SOIL SLOPE (V.R.S.S.)
NOT TO SCALE

Common Name	Scientific Name	Quantity	Spacing	Size
Lowbush Honeysuckle	Diervilla lonicera	28	4' O.C.	#2 POT
Steeplebush	Spiraea tomentosa	196	4' O.C.	#1 POT
White Snowberry	Symphoricarpos albus	28	4' O.C.	#2 POT

B PLANT SCHEDULE: SHRUBS
NOT TO SCALE

Common Name	Scientific Name	Quantity	Spacing
Red Osier Dogwood	Cornus sericea	149	Per Plan
Pussy Willow	Salix discolor	143	Per Plan
Sandbar Willow	Salix interior	58	Per Plan

C PLANT SCHEDULE: LIVE STAKES
NOT TO SCALE

Common Name	Scientific Name	Quantity	Spacing
Red Osier Dogwood	Cornus sericea	151	Per Plan
Pussy Willow	Salix discolor	77	Per Plan
Sandbar Willow	Salix interior	77	Per Plan

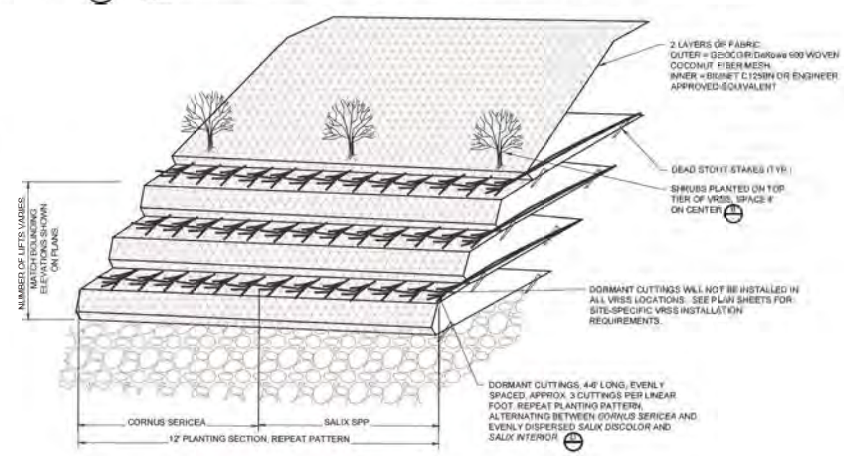
D PLANT SCHEDULE: DORMANT CUTTINGS (4-6')
NOT TO SCALE

Common Name	Scientific Name	PLS Rate (lb/ac)	% of Mix (by weight)
Canada Anemone	Anemone canadensis	0.50	1.9%
Canada Blue Joint Grass	Calamagrostis canadensis	4.00	15.5%
Riverbank Wild Rye	Elymus riparius	4.50	17.4%
Grass-Leaved Goldenrod	Euthamia graminifolia	0.04	0.2%
Fowl Manna Grass	Glyceria striata	6.00	23.2%
Rice Cut Grass	Leersia oryzoides	4.00	15.5%
Fowl Bluegrass	Poa palustris	5.50	21.3%
Wool Grass	Scirpus cyperinus	0.30	1.2%
Prairie Cordgrass	Spartina pectinata	1.00	3.9%
	Total	25.84	100%

E PLANT SCHEDULE: VRSS SEED MIX
NOT TO SCALE

NOTES:

1. THE ENGINEER MUST BE NOTIFIED AT LEAST 3 DAYS PRIOR TO ROOT WAD INSTALLATION AND MUST BE ON SITE DURING INSTALLATION.
2. SOAK DORMANT CUTTINGS FOR A MINIMUM OF 24 HOURS IN FLOWING WATER BEFORE PLANTING. SOAKING FOR 5-7 DAYS IS CONSIDERED IDEAL. THE DORMANT CUTTINGS SHOULD ONLY BE INSTALLED DURING THE DORMANT SEASON, AFTER LEAF DROP IN THE FALL AND BEFORE BUD BREAK IN THE SPRING. DORMANT CUTTINGS STORED IN COLD STORAGE WITH NO VISIBLE SIGN OF BUD BREAK MAY BE USED INTO LATE SPRING.
3. INSTALL RIPRAP AND GRANULAR FILTER AGGREGATE AS SPECIFIED IN SECTION 02375 AND AS SHOWN ON THE DRAWINGS.
4. EXCAVATE THE EXISTING STREAMBANK SLOPE SHOREWARD FROM AND LEVEL WITH THE TOP OF THE RIPRAP TO FORM A STABLE, UNDISTURBED SURFACE. A FLAT BENCH SHOULD BE CREATED FROM THE TOE OF THE STABLE CUT SLOPE TO THE TOE OF THE PROPOSED STREAM BANK RIPRAP.
5. DORMANT CUTTINGS ARE TO BE PLACED ON TOP OF THE RIPRAP EXCAVATED BENCH AT 3 BRANCHES PER LINEAR FOOT. THE BASAL END OF THE CUTTINGS SHOULD EXTEND AT LEAST 2 FOOT PAST THE BACK OF THE RIPRAP. NO MORE THAN 6 INCHES OF THE BUDDING END OF THE LIVE BRANCH SHOULD EXTEND PAST THE FRONT OF THE RIPRAP. COVER THE DORMANT CUTTINGS WITH TOPSOIL TO CREATE AN EVEN SURFACE FOR THE CONSTRUCTION OF THE FIRST SOIL LIFT.
6. LAY NATURAL FIBER MATTING ON BOTTOM OF THE BENCH, OVERLAPPING ADJACENT MATTING BY 1 FOOT. THE OUTER EXPOSED FIBER MATTING LAYER OF EACH SOIL LIFT SHALL BE GEOCOIR/DEKOWE 900 WOVEN COCONUT FIBER MESH, BIOD-MAT™ 90, OR AN ENGINEER APPROVED EQUIVALENT.
7. THE INNER LAYER OF EACH SOIL LIFT SHALL BE BIONET C125BN OR AN ENGINEER APPROVED EQUIVALENT. LAY THE INNER LAYER OF BIONET ON TOP OF NATURAL FIBER MATTING OF EACH SOIL LIFT. FABRIC SHOULD BE INSTALLED SMOOTH WITH NO UNNECESSARY FOLDS OR WRINKLES. STAKE THE SHOREWARD END OF THE FIBER MATTING IN PLACE WITH WOODEN STAKES SPACED EVERY THREE FEET AS SHOWN ON THE DRAWINGS.
8. THE FIRST 6 TO 8 INCHES OF THE BOTTOM SOIL LIFT SHALL BE FILLED WITH GRAVEL AND SAND MATERIAL EXCAVATED FROM THE STREAM BED. THE TOP 6 TO 8 INCHES ON THE FRONT OF SURFACE LAYER SHOULD BE COMPRISED OF TOPSOIL MIX AS SHOWN ON THE DRAWINGS.
9. THE TOPSOIL LAYER SHALL BE SEEDED WITH THE VRSS SEED MIX AT 0.7 POUNDS PER 1,000 SQUARE FEET OF LIFT SURFACE AREA AS SHOWN ON THE DRAWINGS.
10. FOLD THE FIBER MATTING OVER THE FILL MATERIAL AND STAKE IN PLACE SO THE FABRIC IS TAUT AND SMOOTH WITH NO UNNECESSARY FOLDS OR WRINKLES. BACKFILL BEHIND THE BOTTOM SOIL LIFT WITH GRANULAR FILTER MATERIAL TO MEET THE EXISTING SLOPE AS SHOWN ON THE DRAWINGS.



2 D-03 DETAIL: LIVE PLANT VEGETATED REINFORCED SOIL SLOPE (V.R.S.S.)
NOT TO SCALE

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RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
STABILIZATION DETAILS

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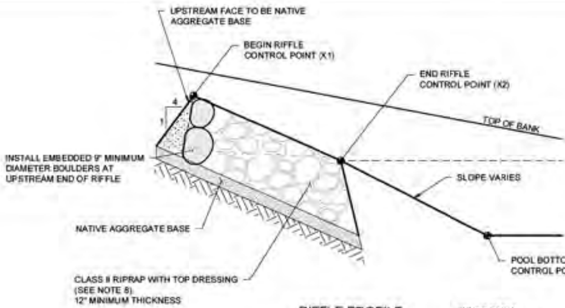
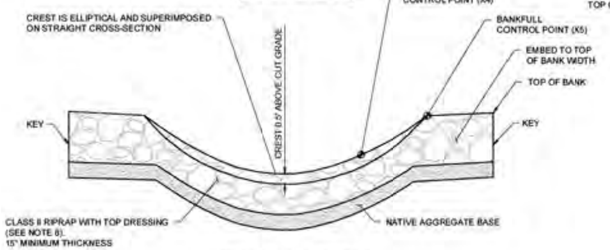
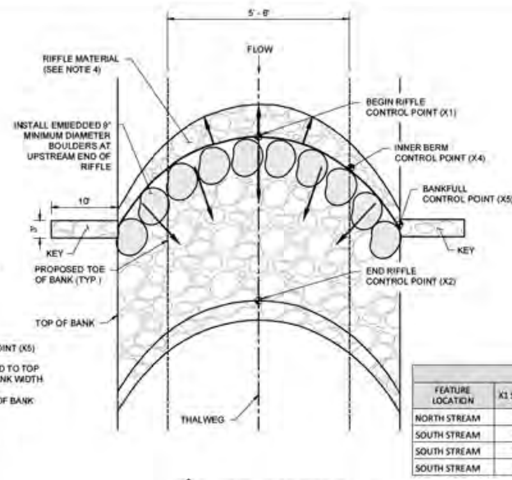
CLIENT PROJECT No.
DWG. No. D-03
REV. No. 0



RIFFLE PROFILE



RIFFLE CROSS SECTION



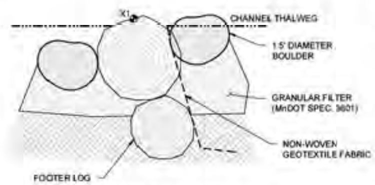
1 DETAIL: ROCK RIFFLE
NOT TO SCALE

NOTES:

1. ROCK RIFFLES SHALL BE INSTALLED WITHIN THE EXISTING RIVER CHANNEL AS SPECIFIED.
2. ELEVATION CONTROL POINTS SHALL BE DESIGNATED AT THE BEGINNING AND END OF RIFFLE POINTS TO ESTABLISH PART OF THE PROFILE OF THE CHANNEL. SURVEY OF CONTROL POINTS SHALL BE REQUIRED TO ESTABLISH ACCURATE RIFFLE INSTALLATION.
3. RIFFLE MATERIAL SHALL BE CLASS II RIPRAP FROM THE SITE AND/OR IMPORTED. INSTALLED WITH A MINIMUM THICKNESS OF 15".
4. THE FACE OF THE RIFFLE UPSTREAM OF THE BEGIN RIFFLE CONTROL POINT SHALL BE NATIVE AGGREGATE BASE. 9" MINIMUM DIAMETER BOULDERS EMBEDDED IN RIFFLE IMMEDIATELY DOWNSTREAM OF THE NATIVE AGGREGATE BASE.
5. THE PLACEMENT OF BACKFILL AND/OR RIFFLE MATERIAL SHALL BE DONE IN A MANNER TO CREATE A SMOOTH PROFILE, WITH NO ABRUPT 'JUMP' (TRANSITION) BETWEEN THE UPSTREAM POOL-GLIDE AND THE RIFFLE, AND LIKEWISE NO ABRUPT 'DROP' (TRANSITION) BETWEEN THE RIFFLE AND THE DOWNSTREAM RUN-POOL. A THALWEG SHALL BE FASHIONED WITHIN THE RIFFLE WIDTH SO THAT THE FINISHED CROSS SECTION OF THE RIFFLE MATERIAL MATCHES THE SHAPE AND DIMENSIONS SHOWN ON THE RIFFLE TYPICAL SECTION.
6. SEE THE ROCK RIFFLES TABLE FOR STATIONING AND ELEVATIONS.
7. SEE TYPICAL RIFFLE SECTION (D-04) FOR CHANNEL DIMENSIONS.
8. RIFFLE SURFACE TO BE TOP-DRESSED WITH 6" OF MnDOT CLASS I RIPRAP TO REDUCE VOID SPACE.

Rock Riffles

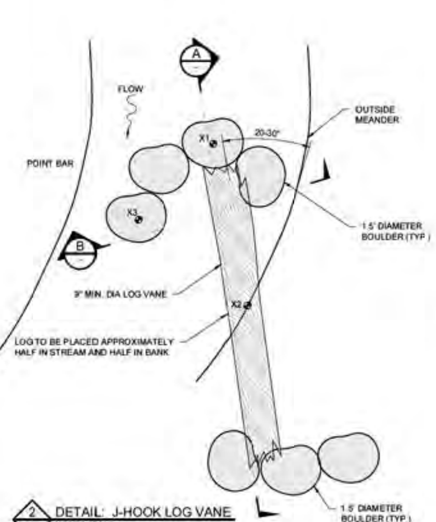
FEATURE LOCATION	X1 STATION	X1 ELEVATION	X2 STATION	X2 ELEVATION	X2 BANKFULL	X3 STATION	X3 ELEVATION	X4 STATION	X4 ELEVATION	X5 STATION	X5 BANKFULL	NOTES
NORTH STREAM	146	870.1	158	869.8	871.5	-	-	147	870.3	148	871.5	
SOUTH STREAM	245	865.5	257	865.2	867.1	-	-	246	865.7	247	867.1	
SOUTH STREAM	500	865.2	512	864.9	866.8	-	-	501	865.4	502	866.8	
SOUTH STREAM	562	865.0	574	864.7	866.6	-	-	563	865.2	564	866.6	



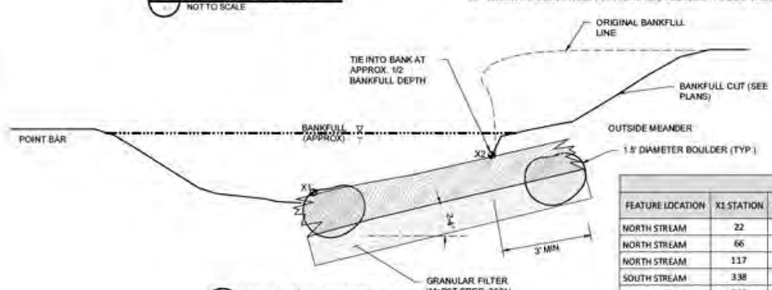
B SECTION: LOG VANE
NOT TO SCALE

GENERAL NOTES:

1. THE ENGINEER MUST BE NOTIFIED AT LEAST 3 DAYS PRIOR TO LOG VANE INSTALLATION AND MUST BE ON SITE DURING INSTALLATION.
2. TO THE EXTENT POSSIBLE, LOG VANES SHOULD BE CREATED FROM TREES THAT WILL BE REMOVED FROM THE SITES WITHIN THE PROJECT AREA.
3. EITHER DRIVE THE LOG VANE INTO THE BANK, OR EXCAVATE A TRENCH IN WHICH TO PLACE THE LOG VANE. IF THE LOG VANE IS DRIVEN INTO THE BANK, SHARPEN THE END OF THE LOG VANE TO A POINT.
4. THE LOG VANE MUST BE PLACED AT APPROXIMATELY A 20-30 DEGREE ANGLE, OR AS DIRECTED BY THE ENGINEER.
5. PLACE FOOTER LOG SLIGHTLY UPSTREAM AND UNDER MAIN LOG TO PROVIDE PROTECTION AGAINST SCOUR.
6. NON-WOVEN GEOTEXTILE FABRIC IS ATTACHED WITH ROOFING NAILS TO ENTIRE LENGTH OF LOG ON UPSTREAM SIDE AND EXTENDED OVER FOOTER LOG AND UNDER AGGREGATE BEDDING.
7. THE LOG VANE MUST BE PLACED IN THE BANK SO THAT AT LEAST 1/2 OF THE LOG VANE IS EMBEDDED INTO THE BANK.
8. LARGE BOULDERS ARE PLACED ON BOTH SIDES OF THE LOG VANE AT THE INTERFACE WITH THE BANK TO CREATE A CUT-OFF SILL.
9. LARGE BOULDERS ARE ALSO PLACED AT THE END OF THE LOG VANE IN THE CHANNEL AS DIRECTED BY THE ENGINEER.
10. PLACE GRANULAR FILTER AGGREGATE (MnDOT STANDARD SPECIFICATION 3601) AS BEDDING FOR BOULDERS IF NECESSARY.
11. MATCH EXISTING GRADE OR PLANNED GRADE AS APPROPRIATE WITH BACKFILL.
12. REVEGETATE AND STABILIZE WITH SEED AND MULCH AS SPECIFIED FOR EACH SITE AS SHOWN IN THE DRAWINGS AND DIRECTED BY THE ENGINEER.
13. EXCAVATE SCOUR HOLE IN STREAM BED ADJACENT TO LOG VANE AS DIRECTED BY THE ENGINEER.



2 DETAIL: J-HOOK LOG VANE
NOT TO SCALE



A SECTION: LOG VANE
NOT TO SCALE

J-Hook Log Vanes

FEATURE LOCATION	X1 STATION	X1 ELEVATION	X1 BANKFULL	X2 STATION	X2 ELEVATION	X2 BANKFULL	X3 STATION	X3 ELEVATION	NOTES
NORTH STREAM	22	870.4	871.8	28	871.1	871.8	24	870.6	
NORTH STREAM	66	870.4	871.8	78	871.1	871.8	68	870.6	
NORTH STREAM	117	870.2	871.6	129	870.9	871.6	119	870.4	
SOUTH STREAM	338	865.5	867.1	346	866.3	867.1	340	865.7	
SOUTH STREAM	393	865.5	867.1	404	866.3	867.1	395	865.7	
SOUTH STREAM	416	865.4	867.0	427	866.2	867.0	418	865.6	
SOUTH STREAM	615	864.9	866.5	623	865.7	866.5	617	865.1	
SOUTH STREAM	784	864.7	866.3	792	865.5	866.3	786	864.9	

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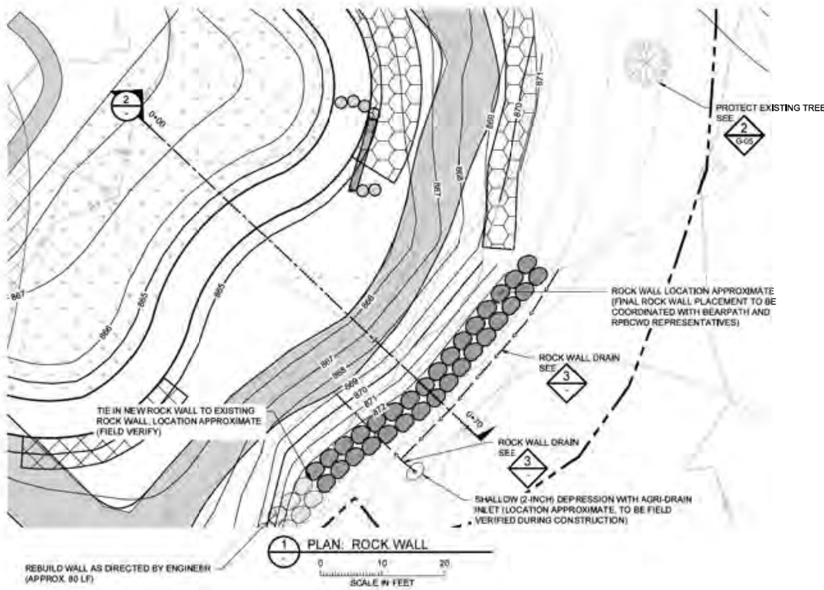
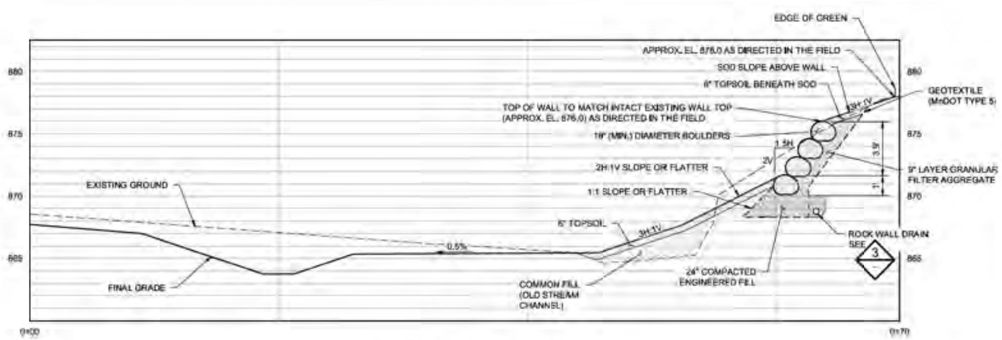
RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
STABILIZATION DETAILS

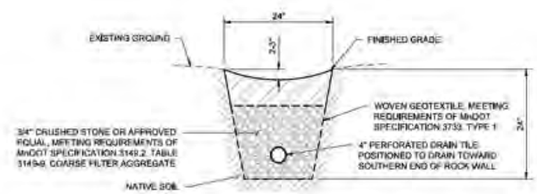
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. D-04
REV. No. 0



1 PLAN: ROCK WALL



2 SECTION: ROCK WALL



NOTE:
CRUSHED LIMESTONE IS NOT ALLOWED.

3 DETAIL: ROCK WALL DRAIN
NOT TO SCALE

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RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
ROCK WALL DETAILS

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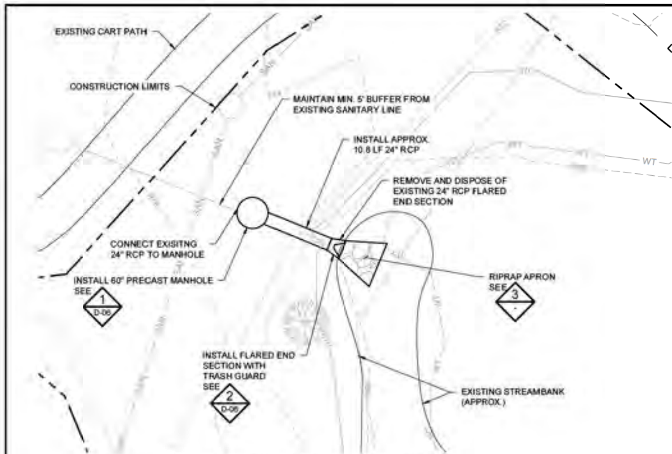
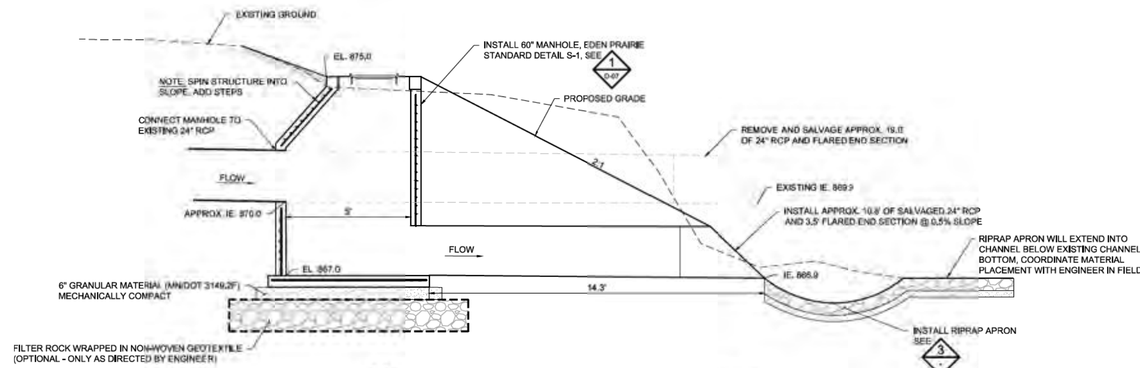
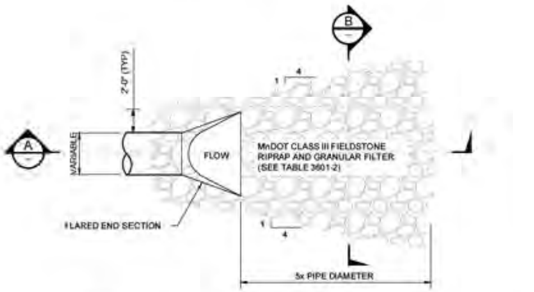
DWG. No. D-05
REV. No. 0

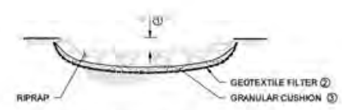


1 PLAN: STORM SEWER OUTFALL IMPROVEMENTS

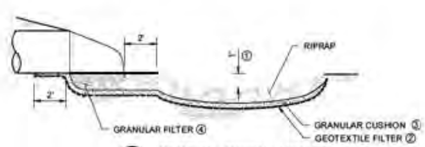


2 PROFILE: STORM SEWER OUTFALL IMPROVEMENTS (STA. 403+22)
NOT TO SCALE





B SECTION: RIPRAP APRON
NOT TO SCALE



A SECTION: RIPRAP APRON
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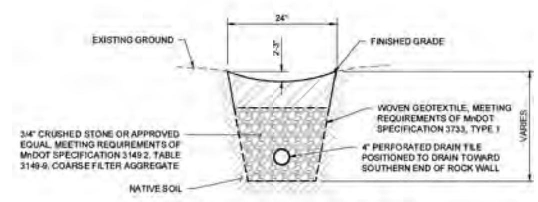

4 DETAIL: DRAIN TILE BEDDING
NOT TO SCALE

NOTES:

REQUIREMENTS FOR GEOTEXTILE TYPE, RIPRAP SIZE AND THICKNESS SHALL BE DESIGNATED IN THE PLANS.

PIPE SIZES LARGER THAN THOSE SHOWN REQUIRE A SPECIAL DESIGN.

① FOR PIPES GREATER THAN OR EQUAL TO 30", USE 1.6'.

② GEOTEXTILE FILTER, SPEC. 3733, SHALL COVER THE BOTTOM AND SIDES OF THE AREA EXCAVATED FOR THE RIPRAP.

③ GRANULAR FILTER, SPEC. 3601, USED AS A CUSHION LAYER. PLACE FILTER PER SPEC. 2511. THE CUSHION LAYER IS INCIDENTAL.

④ GRANULAR FILTER OR RIPRAP, SPEC. 3601, TO EXTEND UNDER ENTIRE OPEN PORTION OF PIPE APRON. DEPTH OF MATERIAL UNDER APRON SHALL MATCH RIPRAP DEPTH. WHEN USING RIPRAP, INCREASE RIPRAP QUANTITY ACCORDINGLY AND PLACE A 3" LAYER OF 1.5" CRUSHED ROCK UNDER THE APRON TO AID IN GRADING FOR APRON PLACEMENT. CRUSHED ROCK IS INCIDENTAL.

3 DETAIL: RIPRAP APRON
NOT TO SCALE

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CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

OUTLET IMPROVEMENT DETAILS

BARR PROJECT No. 23/27-0053.14
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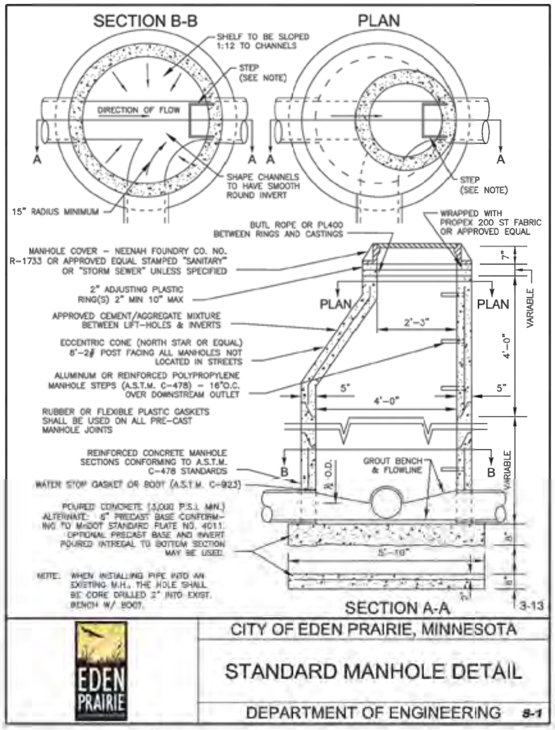
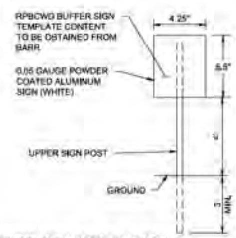
DWG. No. D-06
REV. No. 0



1 DETAIL: STANDARD MANHOLE
NOT TO SCALE

NOTES:

1. SIGNS TO BE INSTALLED AT LOCATIONS ON SHEET C-04.
2. SIGNS TO BE ADDED TO EXISTING POSTS. RELOCATE EXISTING SIGN ON POSTS AS NECESSARY TO FIT BOTH SIGNS.
3. CONTRACTOR TO OBTAIN SIGN DESIGN FROM ENGINEER PRIOR TO MAKING SIGNS.
4. BOLTS SHALL BE TAMPER PROOF.
5. POSTS SHALL BE PAINTED GREEN, 3 LB/FT



2 DETAIL: BUFFER SIGN INSTALLATION
NOT TO SCALE

NOTES:

1. BUFFER MAKER TO BE IDENTIFIED WITH A DURABLE MARKER OR CAP BEARING INFORMATION SHOWN ON DETAIL WITH A MINIMUM DIAMETER OF 3 INCHES.
2. BUFFER MARKER TO BE COMPOSED OF A DURABLE MATERIAL.
3. BUFFER MARKER TO DETECTABLE WITH CONVENTIONAL INSTRUMENTS FOR FINDING FERROUS OR MAGNETIC OBJECTS.
4. BUFFER MARKER TO BE INSTALLED FLUSH TO THE GROUND SURFACE.
5. BUFFER MARKER TO BE MOUNTED TO A BURIED PIECE OF REBAR WITH A MINIMUM LENGTH OF 18 INCHES AND A MINIMUM DIAMETER OF 1/2 INCH (#4 REBAR IS ACCEPTABLE).

3 DETAIL: FLUSH MOUNT BUFFER MARKERS
NOT TO SCALE

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	SAB2	JCO	06/25/2021	

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PRINTED NAME: JESSICA OLSON
SIGNATURE:
DATE: 06/25/2021 LICENSE #: 47100

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, PERMITTING
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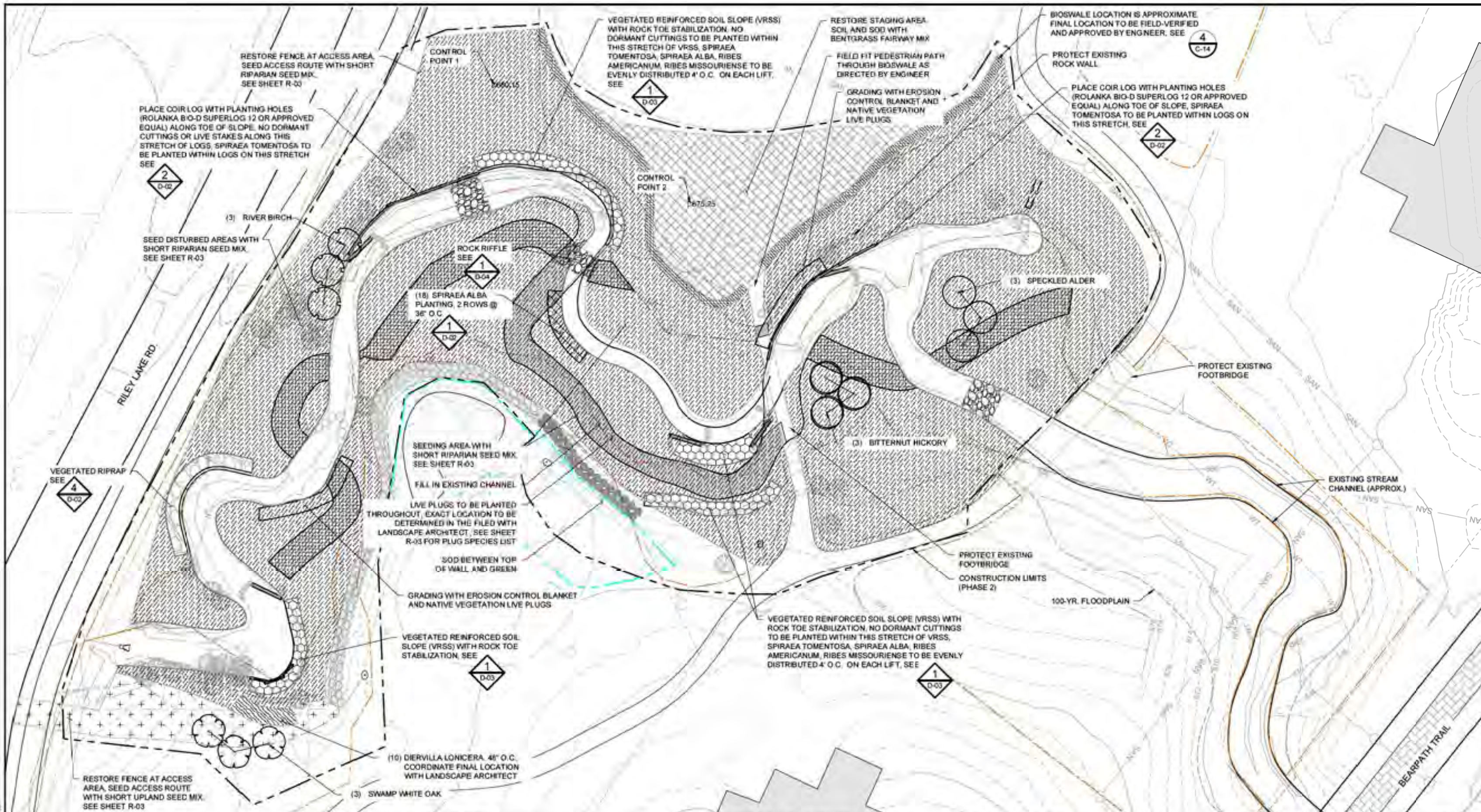
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
OUTLET IMPROVEMENT DETAILS

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. D-07
REV. No. 0



SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- EXISTING STREAM THALWEG (APPROX.)
- EXISTING 100-YR FLOODPLAIN
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- ROCK RIFFLE
- LIVE STAKES
- VRSS
- SEEDING AREA WITH SHORT RIPARIAN SEED MIX, SEE SHEET R-03
- GRADING WITH EROSION CONTROL BLANKET AND NATIVE VEGETATION LIVE PLUGS
- SEEDING AREA WITH BIO-SWALE SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SORT UPLAND SEED MIX, SEE SHEET R-03
- SOD AREA WITH BENTGRASS MIX, OWNER TO SPECIFY SOD MIX
- BOULDER CROSS VANE
- J-HOOK LOG VANE

1 PLAN: CREEK RESTORATION_SOUTH

0 20 40
SCALE IN FEET

CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	117922.4829'	465761.5527'	875.23'	VRS SPIKE 1
2	117850.1325'	465717.6763'	880.15'	VRS SPIKE 2

GENERAL LANDSCAPE NOTES:

1. PLANTING SHALL CONFORM TO MNDOT SPEC 2571, PLANT INSTALLATION AND ESTABLISHMENT, EXCEPT AS INDICATED OTHERWISE IN THE PLANTING SHEETS.
2. INFORM THE LANDSCAPE ARCHITECT OF PLANTING TWO DAYS PRIOR TO PLANT DELIVERY.
3. CONTRACTOR SHALL COORDINATE LAYOUT OF ALL PLANTS WITH DIRECTION OF LANDSCAPE ARCHITECT IN THE FIELD.
4. CONFIRM ALL QUANTITIES, SHAPES AND LOCATIONS OF VRSS, BIOLOGS, AND ALL SEEDING AND PLANTING AREAS; ADJUST QUANTITIES AS REQUIRED TO CONFORM TO THE SITE CONDITIONS. CONFIRM ANY ADJUSTMENTS WITH THE LANDSCAPE ARCHITECT.
5. LOCATE ALL UTILITIES. NOTIFY THE LANDSCAPE ARCHITECT OF ANY CONFLICTS WITH PLANT INSTALLATION.
6. LONG-TERM STORAGE OF MATERIALS OR SUPPLIES ON-SITE WILL NOT BE ALLOWED. ANY PLANT STOCK NOT PLANTED ON DAY OF DELIVERY SHALL BE HEELED IN AND WATERED UNTIL INSTALLATION. PLANTS NOT MAINTAINED IN THIS MANNER WILL BE REJECTED.
7. THE PLAN TAKES PRECEDENCE OVER THE PLANT SCHEDULE IF DISCREPANCIES EXIST. ADVISE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.

PROTECTIONS:

8. THE CONTRACTOR SHALL AVOID DAMAGING EXISTING TREES. DO NOT STORE OR DRIVE HEAVY MATERIALS OVER TREE ROOTS. DO NOT DAMAGE TREE BARK OR BRANCHES.
9. THE CONTRACTOR SHALL KEEP PAVEMENTS, FIXTURES AND BUILDINGS CLEAN AND UNSTAINED. ANY DAMAGE TO EXISTING FACILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE PROJECT SITE SHALL BE KEPT CLEAR OF CONSTRUCTION WASTES AND DEBRIS.
10. PROVIDE SILT FENCE IF NECESSARY TO PROTECT STREET FROM EROSION.

SEEDING:

11. ANY EXOTIC INVASIVE PLANTS AND WEEDS WITHIN THE SEEDING AREAS SHALL BE SPRAYED WITH HERBICIDE 14 DAYS PRIOR TO SEEDING OR AS PER MANUFACTURE'S RECOMMENDATION. SIGNAGE INDICATING THE USE OF HERBICIDES MUST BE POSTED ON SITE.
12. ALL HERBICIDE APPLICATION SHALL BE APPLIED BY A LICENSED APPLICATOR WITHIN THE STATE OF MINNESOTA.
13. SEED IN ACCORDANCE WITH THE SPECIFICATIONS. SEEDING IS TO TAKE PLACE IMMEDIATELY FOLLOWING FINAL GRADING AND SOIL PLACEMENT TO PREVENT EROSION AND COMPACTION.
14. COVER CROP IS TO BE SEEDED WITHIN ALL AREAS.
15. AFTER SEEDING, TYPE 6 MULCH MATERIAL SHALL BE DISC-ANCHORED OVER ENTIRE SEEDING AREA IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATION 3882.
16. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. IN THE CASE OF ANY DISCREPANCIES BETWEEN THIS DETAIL, PLANS, OR SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN.

MAINTENANCE AND CARE:

17. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PORTION OF THE WORK IS IN PLACE. PLANT MATERIAL SHALL BE PROTECTED AND MAINTAINED UNTIL THE INSTALLATION OF PLANTINGS IS COMPLETE, INSPECTION HAS BEEN MADE AND PLANTING IS ACCEPTED EXCLUSIVE OF THE GUARANTEE.
18. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, MULCHING, REMOVAL OF DEAD MATERIAL PRIOR TO GROWING SEASON, RE-SETTING PLANTS AND PROPER GRADE, AND KEEPING PLANTS IN A PLUMB POSITION.
19. WATERING: MAINTAIN A WATERING SCHEDULE WHICH WILL THOROUGHLY WATER ALL PLANTS ONCE A WEEK. IN EXTREMELY HOT, DRY WEATHER, WATER MORE OFTEN AS REQUIRED BY INDICATIONS OF HEAT STRESS SUCH AS WILTING LEAVES. CHECK MOISTURE UNDER MULCH PRIOR TO WATERING TO DETERMINE NEED. CONTRACTOR SHALL MAKE THE NECESSARY ARRANGEMENTS FOR WATER.
16. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. IN THE CASE OF ANY DISCREPANCIES BETWEEN THIS DETAIL, PLANS, OR SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN.

SOIL LOOSENING & AMENDMENT REQUIREMENTS:

17. SOIL LOOSENING APPLIES TO ALL DISTURBED SOILS TO BE RE-VEGETATED, INCLUDING SEEDING/SODDING/LANDSCAPE AREAS (NOT INCLUDING AREAS UNDER EXISTING TREE DRIP-LINES OR WITHIN 5-FEET OF BUILDING/PAVEMENT FOUNDATIONS), TO RESTORE SOIL PERMEABILITY.
18. SOIL REMEDIATION MUST BE IMPLEMENTED PRIOR TO ANY INSTALLATION OF IRRIGATION SYSTEM COMPONENTS, TREES, SHRUBS, SOD AND/OR SEED. NO WHEELED EQUIPMENT SHALL BE USED ON LOOSENED SOIL - WIDE TRACK EQUIPMENT ONLY.
19. SOIL LOOSENING MUST PRESERVE EXISTING TREES. NO LOOSENING SHALL OCCUR WITHIN DRIP LINE OF ANY EXISTING TREE.
20. ALL DISTURBED AREAS TO BE RE-VEGETATED SHALL HAVE 12-INCH MINIMUM DEPTH OF SOIL LOOSENING (E.G. SOIL RIPPING,6-INCH MAX. TOOTH SPACING).
21. LOOSENED SOILS SHALL HAVE A MAXIMUM OF 200 PSI IN TOP 12 INCHES.
22. CONTRACTOR TO TEST EXISTING TOPSOIL PRIOR TO PLANTING (MINIMUM 3 TESTS AT LEAST 500 FEET APART). IF EXISTING TOP 6" OF SOIL DOES NOT HAVE AT LEAST 5% SOIL ORGANIC CONTENT CONTRACTOR IS TO AMEND WITH MNDOT 3890 GRADE 2 COMPOST TO MEET REQUIREMENT. IMPLEMENTATION DOCUMENTATION SHALL BE PROVIDED TO ENGINEER TO VERIFY EXISTING ORGANIC CONTENT IN SOIL AND PROPOSED AMENDMENTS.

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BHD	SAB2	JCO	06/25/2021	ISSUED FOR BID

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PRINTED NAME: JESSICA OLSON
SIGNATURE:
DATE: 06/25/2021 LICENSE #: 43102

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CLIENT	07/15/20	09/05/20	—	03/11/21	—	—	—
BID	—	—	—	—	06/25/21	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	—	—	03/12/21	—	—	—	—

DATE RELEASED

BARR
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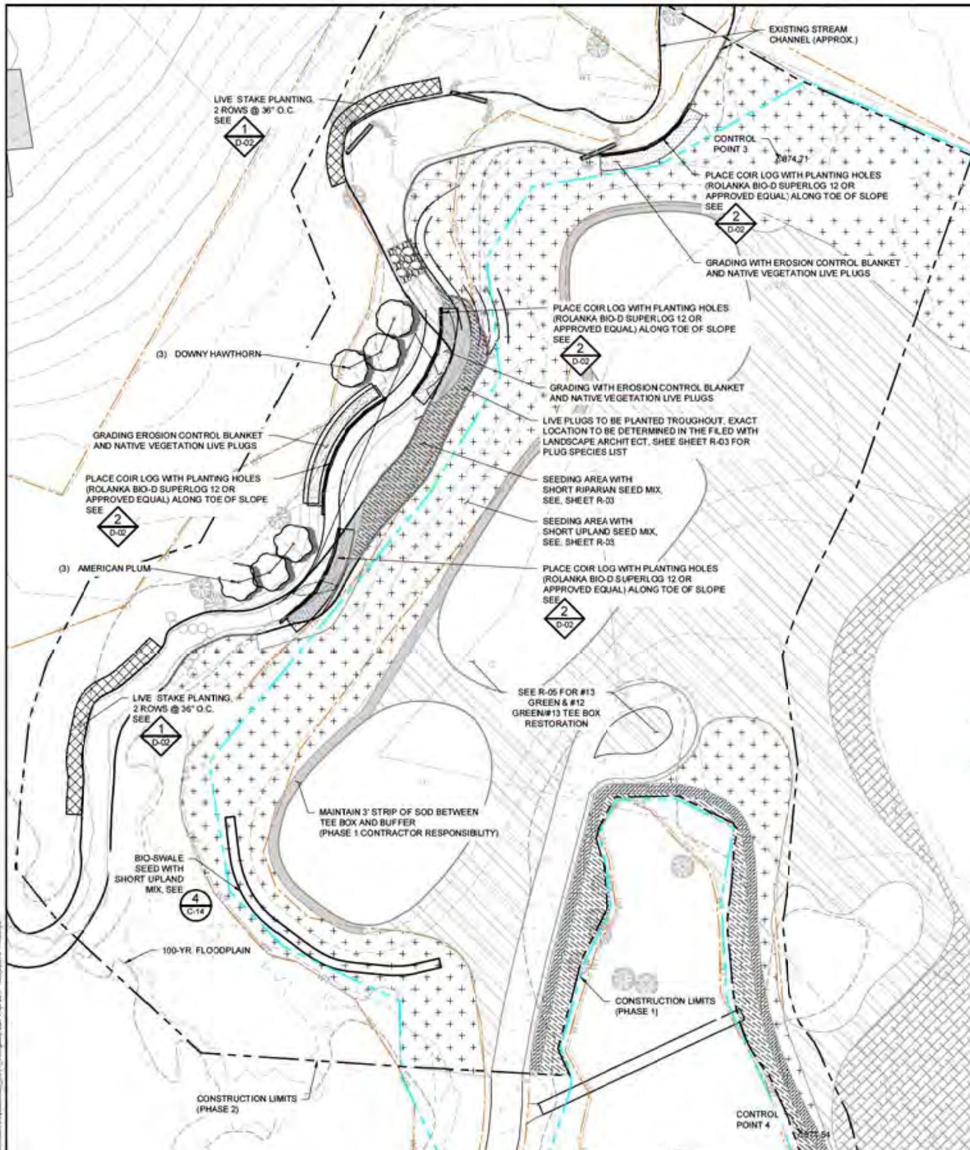
Scale	AS SHOWN
Date	06/25/2021
Drawn	BHD
Checked	SAB2
Designed	BARR
Approved	JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

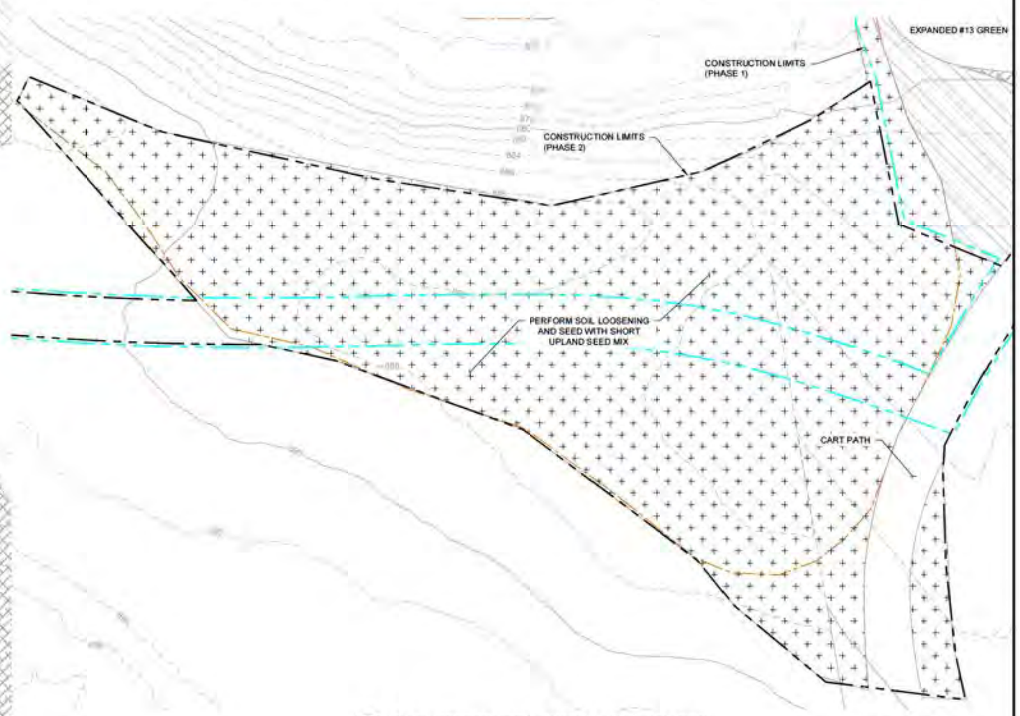
RESTORATION PLAN
SOUTH

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. R-01 REV. No. 0



1 PLAN: CREEK RESTORATION NORTH

0 20 40 SCALE IN FEET



2 PLAN: RESTORATION (PHASE 2 LAYDOWN AREA)

0 30 60 SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- EXISTING STREAM THALWEG (APPROX.)
- EXISTING 100-YR FLOODPLAIN
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- ROCK RIFFLE
- LIVE STAKES
- VRSS
- SOD
- SEEDING AREA WITH SHORT RIPARIAN SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SORT UPLAND SEED MIX, SEE SHEET R-03
- SOD AREA WITH KENTUCKY BLUEGRASS MIX, OWNER TO SPECIFY SOD MIX
- GRADING WITH EROSION CONTROL BLANKET AND NATIVE VEGETATION LIVE PLUGS
- SEEDING AREA WITH BIO-SWALE SEED MIX, SEE SHEET R-03
- SOD AREA WITH BENTGRASS MIX, OWNER TO SPECIFY SOD MIX
- J-HOOK LOG VANE
- BOULDER CROSS VANE

CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
3	119806.1150'	465579.4807'	874.71'	VRS SPIKE 3
4	119491.9292'	465586.5323'	871.54'	VRS SPIKE 4

NOTES:

1. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE TIMING OF ALL CONSTRUCTION ACTIVITIES TO MINIMIZE DELAYS AND ENSURE ALL WORK IS COMPLETED ACCORDING TO PLANS.
2. NATIVE VEGETATION PLANTS TO BE COMPLETED BY PHASE 2 CONTRACTOR, THE TIMING OF WHICH MUST BE COORDINATED WITH PHASE 1 CONTRACTOR.
3. PHASE 2 CONTRACTOR RESPONSIBLE FOR BIOSWALE AND NATIVE VEGETATION RESTORATION WITHIN PHASE 2 CONSTRUCTION LIMITS AND AREAS THAT OVERLAP WITH PHASE 1 LIMITS. ALL OTHER RESTORATION WITHIN OVERLAP AREAS IS THE RESPONSIBILITY OF THE PHASE 1 CONTRACTOR.

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BHD	SAB2	JCO	06/25/2021	ISSUED FOR BID

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PRINTED NAME: JESSICA OLSON
SIGNATURE:
DATE: 06/25/2021 LICENSE #: 43102

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, PERMITTING — A B C D 0 1 2 — DATE RELEASED

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Scale	AS SHOWN
Date	06/25/2021
Drawn	BHD
Checked	SAB2
Designed	BARR
Approved	JCO

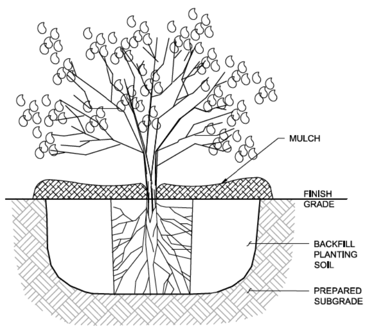
RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN

RESTORATION PLAN
NORTH

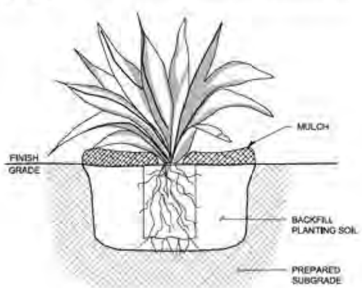
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. R-02
REV. No. 0

NOTES:
1. PREPARE PLANTING SOIL PER PLAN AND AS SPECIFIED.
2. PROVIDE AND INSTALL PLANTS PER PLANTING SCHEDULE.
3. DIG PLANT HOLES 18" MIN. LARGER THAN ROOT MASS, ALL SIDES.
4. SET SHRUB ON LIGHTLY FIRMED BACKFILL SOIL AT THE SAME DEPTH GROWN IN THE NURSERY.
5. BACKFILL WITH PLANTING SOIL. FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AND ENSURE NO AIR GAPS IN SOIL REMAIN.
6. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF PLANTING.
7. APPLY MULCH OVER SOIL SURFACE (SOIL PREPARED AS PER PLAN).
8. NO MULCH SHALL BE ALLOWED TO BE IN CONTACT WITH PLANT.
9. NOTIFY OWNER FOR ALL INSPECTIONS FOR PLANTING AND REPLACEMENTS, AS SPECIFIED.

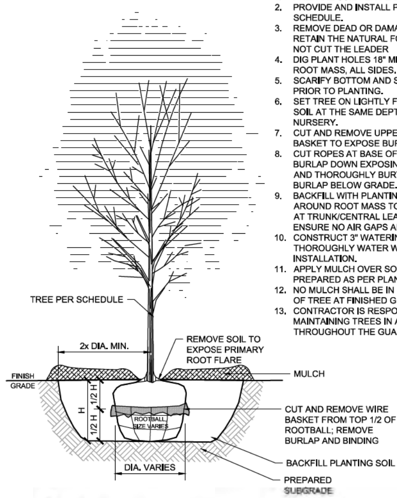


1 R-03 DETAIL: SHRUB PLANTING
NOT TO SCALE

NOTES:
1. PREPARE PLANTING SOIL PER PLAN AND AS SPECIFIED.
2. PROVIDE AND INSTALL PLANTS PER PLANTING SCHEDULE.
3. DIG PLANTING HOLES 18" MIN. LARGER THAN ROOT MASS, ALL SIDES.
4. SET PERENNIAL OR GRASS ON LIGHTLY FIRMED BACKFILL SOIL AT THE SAME DEPTH GROWN IN THE NURSERY.
5. BACKFILL WITH PLANTING SOIL. FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AND ENSURE NO AIR GAPS IN SOIL REMAIN.
6. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF PLANTING.
7. APPLY MULCH OVER SOIL SURFACE (SOIL PREPARED AS PER PLAN).
8. NO MULCH SHALL BE ALLOWED TO BE IN CONTACT WITH PLANT.
9. NOTIFY OWNER FOR ALL INSPECTIONS FOR PLANTING AND REPLACEMENTS, AS SPECIFIED.



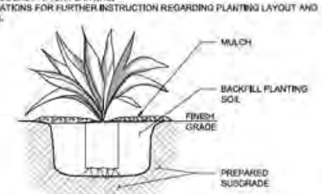
2 R-03 DETAIL: PERENNIAL PLANTING
NOT TO SCALE



NOTES:
1. PREPARE SOIL PER PLAN AND AS SPECIFIED.
2. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
3. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF PLANT. DO NOT CUT THE LEADER.
4. DIG PLANT HOLES 18" MIN. LARGER THAN ROOT MASS, ALL SIDES.
5. SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING.
6. SET TREE ON LIGHTLY FIRMED BACKFILL SOIL AT THE SAME DEPTH GROWN IN THE NURSERY.
7. CUT AND REMOVE UPPER 1/2 OF WIRE BASKET TO EXPOSE BURLAP.
8. CUT ROPES AT BASE OF TRUNK. PULL BURLAP DOWN EXPOSING 1/2 OF ROOTBALL AND THOROUGHLY BURY ROPES AND BURLAP BELOW GRADE.
9. BACKFILL WITH PLANTING SOIL. FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AT TRUNK/CENTRAL LEADER. WATER TO ENSURE NO AIR GAPS AROUND ROOT MASS.
10. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF INSTALLATION.
11. APPLY MULCH OVER SOIL SURFACE (SOIL PREPARED AS PER PLAN).
12. NO MULCH SHALL BE IN CONTACT WITH BASE OF TREE AT FINISHED GRADE.
13. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TREES IN A PLUMB POSITION THROUGHOUT THE GUARANTEE PERIOD.

3 R-03 DETAIL: TREE PLANTING
NOT TO SCALE

NOTES:
1. EXCAVATE HOLE 3 TIMES WIDTH OF ROOTBALL.
2. BREAK BOTTOM OF ROOTBALL TO LOOSEN ROOTS.
3. PLANT THROUGH MULCH AND EROSION CONTROL BLANKET, ALIGNING TOP OF ROOTBALL EVEN WITH SOIL FINISH GRADE. FIRM SOIL TO ENSURE GOOD CONTACT WITH ROOTS.
4. WATER THOROUGHLY AFTER PLANTING.
5. SEE SPECIFICATIONS FOR FURTHER INSTRUCTION REGARDING PLANTING LAYOUT AND PROCEDURES.



4 R-03 DETAIL: HERBACEOUS PLUG PLANTING
NOT TO SCALE

Middle Riley Creek Short Upland Mix

Common Name	Scientific Name	PLS Rate (lb/ac)	% of Mix (by weight)
Sideoats Grama	*Bouteloua curtipendula*	3.0	6.1%
Blue Grama	*Bouteloua gracilis*	2.50	5.1%
Purple Love Grass	*Eragrostis spectabilis*	0.03	0.1%
June Grass	*Koeleria macrantha*	0.25	0.5%
Fowl Bluegrass	*Poa palustris*	0.01	0.0%
Little Bluestem	*Schizachyrium scoparium*	4.00	8.1%
Prairie Dropseed	*Sporobolus heterolepis*	0.50	1.0%
	Grasses Subtotal	**10.59**	**21%**
Porcupine Sedge	*Carex hystericina*	0.24	0.5%
Long-beaked Sedge	*Carex sprengelii*	0.18	0.4%
Brown Fox Sedge	*Carex vulpinoidea*	0.24	0.5%
	Sedges & Rushes Subtotal	**0.66**	**1%**
Canada Anemone	*Anemone canadensis*	0.08	0.2%
Columbine	*Aquilegia canadensis*	0.06	0.1%
Butterfly Milkweed	*Asclepias tuberosa*	0.06	0.1%
Whorled Milkweed	*Asclepias verticillata*	0.02	0.0%
Partridge Pea	*Chamaecrista fasciculata*	1.50	3.0%
Purple Prairie Clover	*Dalea purpureum*	0.06	0.1%
Narrow-leaved Coneflower	*Echinacea angustifolia*	0.08	0.2%
Prairie Blazing Star	*Liatris pycnostachya*	0.02	0.0%
Wild Lupine	*Lupinus perennis*	0.30	0.6%
Spotted Bee Balm	*Monarda punctata*	0.01	0.0%
Large-flowered Beardtongue	*Penstemon grandiflorus*	0.06	0.1%
Black-Eyed Susan	*Rudbeckia hirta*	0.11	0.2%
Aromatic aster	*Symphyotrichum oblongifolium*	0.06	0.1%
Goat's Rue	*Tephrosia virginiana*	0.50	1.0%
Prairie Spiderwort	*Tradescantia bracteata*	0.03	0.1%
Golden Alexander	*Zizia aurea*	0.20	0.4%
	Forbs Subtotal	**3.15**	**6%**
Oats	*Avena sativa*	35	70.9%
	Cover Crop Subtotal	**35**	**70.9%**
	Total	**49.40**	**100%**

Bioswale Seed Mix

Common Name	Scientific Name	PLS Rate (lb/ac)	% of Mix (by weight)
Blue Grama	*Bouteloua gracilis*	2.50	6.0%
Ivory Sedge	*Carex eburnea*	0.50	1.2%
Long-Styled Wood Sedge	*Carex rosea*	1.25	3.0%
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
	Subtotal	**6.66**	**16%**
Oats	[illegible]	35	[illegible]
	Cover Crop Subtotal	**35.00**	**84%**
	Total	**41.66**	**100%**

Middle Riley Creek Short Riparian Mix

Common Name	Scientific Name	PLS Rate (lb/ac)	% of Mix (by weight)
Blue Joint Grass	*Calamagrostis canadensis*	0.02	0.0%
Virginia Wild Rye	*Elymus riparius*	0.50	1.2%
Rattlesnake Grass	*Glyceria canadensis*	0.12	0.3%
Fowl Manna Grass	*Glyceria striata*	0.25	0.6%
Rice Cut Grass	*Leersia oryzoides*	0.16	0.3%
Switchgrass	*Panicum virgatum*	0.15	0.3%
Fowl Bluegrass	*Poa palustris*	2.50	5.8%
Prairie Cordgrass	*Spartina pectinata*	1.00	2.3%
Purpletop	*Tridens flavus*	0.24	0.6%
	Grasses Subtotal	**4.94**	**11.2%**
Bristly Sedge	*Carex comosa*	0.18	0.4%
Porcupine Sedge	*Carex hystericina*	0.08	0.2%
Awl-Fruited Sedge	*Carex stipata*	0.17	0.4%
Woolgrass	*Scirpus cyperinus*	0.10	0.2%
	Sedges & Rushes Subtotal	**0.54**	**1.2%**
Canada Anemone	*Anemone canadensis*	0.14	0.3%
Poke Milkweed	*Asclepias exaltata*	0.24	0.6%
Swamp Milkweed	*Asclepias incarnata*	0.24	0.6%
Common Beggarticks	*Bidens frondosa*	0.06	0.1%
Narrow-Leaved Coneflower	*Echinacea angustifolia*	0.16	0.4%
Blue Flag Iris	*Iris versicolor*	1.00	2.3%
Meadow Blazing Star	*Liatris ligulistylis*	0.04	0.1%
Prairie Blazing Star	*Liatris pycnostachya*	0.04	0.1%
Great Blue Lobelia	*Lobelia siphilitica*	0.03	0.1%
Monkey Flower	*Mimulus ringens*	0.04	0.1%
Wild Bergamot	*Monarda fistulosa*	0.06	0.1%
Virginia mountain mint	*Pycnanthemum virginianum*	0.12	0.3%
Willow Aster	*Symphyotrichum praealtum*	0.16	0.4%
Golden Alexanders	*Zizia aurea*	0.42	1.0%
	Forbs Subtotal	**2.75**	**6.4%**
Oats	*Avena sativa*	35	81.0%
	Cover Crop Subtotal	**35**	**81.0%**
	Total	**43.23**	**100%**

Perennial Plugs

Common Name	Scientific Name	Quantity	Spacing	Size
Sweet Flag	*Acorus americanus*	43	Field Fit	Plug
Butterfly Milkweed	*Asclepias tuberosa*	36	Field Fit	Plug
Swamp Milkweed	*Asclepias incarnata*	48	Field Fit	Plug
Wild White Indigo	*Baptisia alba*	24	Field Fit	Plug
Porcupine Sedge	*Carex hystericina*	120	Field Fit	Plug
Lake Sedge	*Carex lacustris*	120	Field Fit	Plug
Pennsylvania Sedge	*Carex pensylvanica*	120	Field Fit	Plug
Sprengel's Sedge	*Carex sprengelii*	60	Field Fit	Plug
Common Fox Sedge	*Carex stipata*	200	Field Fit	Plug
Fox Sedge	*Carex vulpinoidea*	120	Field Fit	Plug
Turtlehead	*Chelone glabra*	82	Field Fit	Plug
Prairie Coreopsis	*Coreopsis palmata*	36	Field Fit	Plug
Sneezeweed	*Helenium autumnale*	24	Field Fit	Plug
Blue Flag Iris	*Iris versicolor*	172	Field Fit	Plug
Meadow Blazing Star	*Liatris ligulistylis*	36	Field Fit	Plug
Dotted Blazing Star	*Liatris punctata*	24	Field Fit	Plug
Cardinal Flower	*Lobelia cardinalis*	48	Field Fit	Plug
Great Blue Lobelia	*Lobelia siphilitica*	84	Field Fit	Plug
Wild Lupine	*Lupinus perennis*	60	Field Fit	Plug
Spotted Bee Balm	*Monarda punctata*	24	Field Fit	Plug
Foxglove Beardtongue	*Penstemon digitalis*	48	Field Fit	Plug
Wild Blue Phlox	*Phlox divaricata*	48	Field Fit	Plug
Mountain Mint	*Pycnanthemum virginianum*	42	Field Fit	Plug
Little Bluestem	*Schizachyrium scoparium*	300	Field Fit	Plug
Giant Bur-reed	*Sparganium eurycarpum*	24	Field Fit	Plug
Cord Grass	*Spartina pectinata*	60	Field Fit	Plug
Aromatic Aster	*Symphyotrichum oblongifolium*	36	Field Fit	Plug
Ohio Spiderwort	*Tradescantia ohiensis*	48	Field Fit	Plug
	Total	2098		

Trees

Common Name	Scientific Name	Quantity	Spacing	Size
Speckled Alder	*Alnus rugosa*	3	Per Plan	#10 Pot
River Birch	*Betula nigra*	4	Per Plan	#15 Pot
Bitternut Hickory	*Carya cordiformis*	1	Per Plan	#10 Pot
Downy Hawthorn	*Crataegus mollis*	3	Per Plan	#10 Pot
American Plum	*Prunus americana*	3	Per Plan	#15 Pot
Swamp White Oak	*Quercus bicolor*	3	Per Plan	#10 Pot

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BHD	SAB2	JCO	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: JESSICA OLSON
SIGNATURE: ____
DATE: 06/25/2021 LICENSE #: 43192

CLIENT / BID / CONSTRUCTION / PERMITTING
RELEASED TO/FOR: A B C D 0 1 2
DATE RELEASED

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

Scale: AS SHOWN | Date: 06/25/2021 | Drawn: BHD | Checked: SAB2 | Designed: BARR | Approved: JCO

RILEY PURGATORY BLUFF CREEK WD
CHANHASSEN, MN

MIDDLE RILEY CREEK STABILIZATION (PHASE 2)
EDEN PRAIRIE, MN
RESTORATION DETAILS

BARR PROJECT No. 23/70-0053.29
CLIENT PROJECT No.
DWG. No. R-03
REV. No. 0

EROSION & SEDIMENT CONTROL NOTES:

1. INSTALL PERIMETER EROSION CONTROL AT THE LOCATIONS SHOWN ON THE PLANS PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBANCE OR CONSTRUCTION ACTIVITIES.
2. BEFORE BEGINNING CONSTRUCTION, INSTALL A TEMPORARY ROCK CONSTRUCTION ENTRANCE AT EACH POINT WHERE VEHICLES EXIT THE CONSTRUCTION SITE.
3. 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.
4. 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.
5. NATURAL TOPOGRAPHY AND SOIL CONDITIONS MUST BE PROTECTED, INCLUDING RETENTION ONSITE OF NATIVE TOPSOIL TO THE GREATEST EXTENT POSSIBLE.
6. ADDITIONAL MEASURES, SUCH AS HYDRAULIC MULCHING AND OTHER PRACTICES AS SPECIFIED BY THE DISTRICT MUST BE USED ON SLOPES OF 3:1 (H:V) OR STEEPER TO PROVIDE ADEQUATE STABILIZATION.
7. FINAL SITE STABILIZATION MEASURES MUST SPECIFY THAT AT LEAST SIX INCHES OF TOPSOIL WITH A MINIMUM OF 5% ORGANIC MATTER BE SPREAD AND INCORPORATED INTO THE UNDERLYING SOIL DURING FINAL SITE TREATMENT WHEREVER TOPSOIL HAS BEEN REMOVED.
8. CONSTRUCTION SITE WASTE SUCH AS DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, LITTER AND SANITARY WASTE MUST BE PROPERLY MANAGED.
9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS MUST BE MAINTAINED UNTIL COMPLETION OF CONSTRUCTION AND VEGETATION IS ESTABLISHED SUFFICIENTLY TO ENSURE STABILITY OF THE SITE, AS DETERMINED BY THE DISTRICT.
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12. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 7 CALENDAR DAYS AFTER LAND-DISTURBING WORK HAS TEMPORARILY OR PERMANENTLY CEASED ON A PROPERTY THAT DRAINS TO AN IMPAIRED WATER, WITHIN 14 DAYS ELSEWHERE.
13. THE PERMITTEE MUST, AT A MINIMUM, INSPECT, MAINTAIN AND REPAIR ALL DISTURBED SURFACES AND ALL EROSION AND SEDIMENT CONTROL FACILITIES AND SOIL STABILIZATION MEASURES EVERY DAY WORK IS PERFORMED ON THE SITE AND AT LEAST WEEKLY UNTIL LAND-DISTURBING ACTIVITY HAS CEASED. THEREAFTER, THE PERMITTEE MUST PERFORM THESE RESPONSIBILITIES AT LEAST WEEKLY UNTIL VEGETATIVE COVER IS ESTABLISHED. THE PERMITTEE WILL MAINTAIN A LOG OF ACTIVITIES UNDER THIS SECTION FOR INSPECTION BY THE DISTRICT ON REQUEST.
14. 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.
15. FLOW IN RILEY CREEK WILL BE PASSED AROUND THE ACTIVE WORK AREA. CONTRACTOR IS RESPONSIBLE FOR CONTROL OF WATER TO MANAGE WATER FLOW AND LEVELS AS NECESSARY. REFER TO SPECIFICATIONS.
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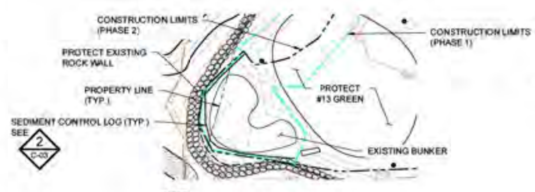
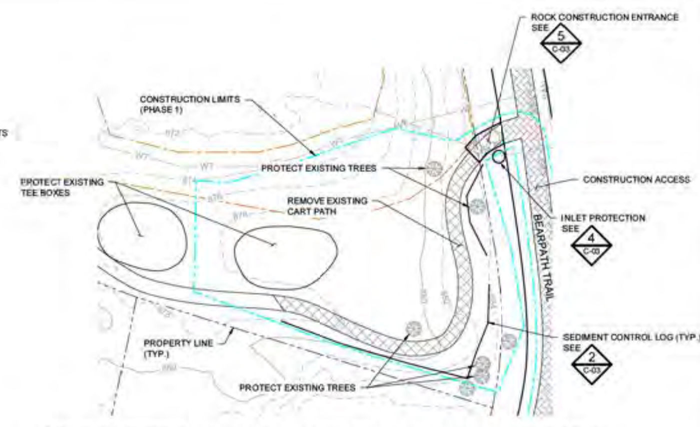
17. ACTIVITIES MUST BE CONDUCTED SO AS TO MINIMIZE THE POTENTIAL TRANSFER OF AQUATIC INVASIVE SPECIES (E.G., ZEBRA MUSSELS, EURASIAN WATERMILFOIL, ETC.) TO THE MAXIMUM EXTENT POSSIBLE.



NOTE:
CONTRACTOR TO COORDINATE WITH OWNERS REPRESENTATIVE TO ALLOW ACCESS TO REBUILD BUNKER.

1 PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#16 GREEN)

0 30 60 SCALE IN FEET

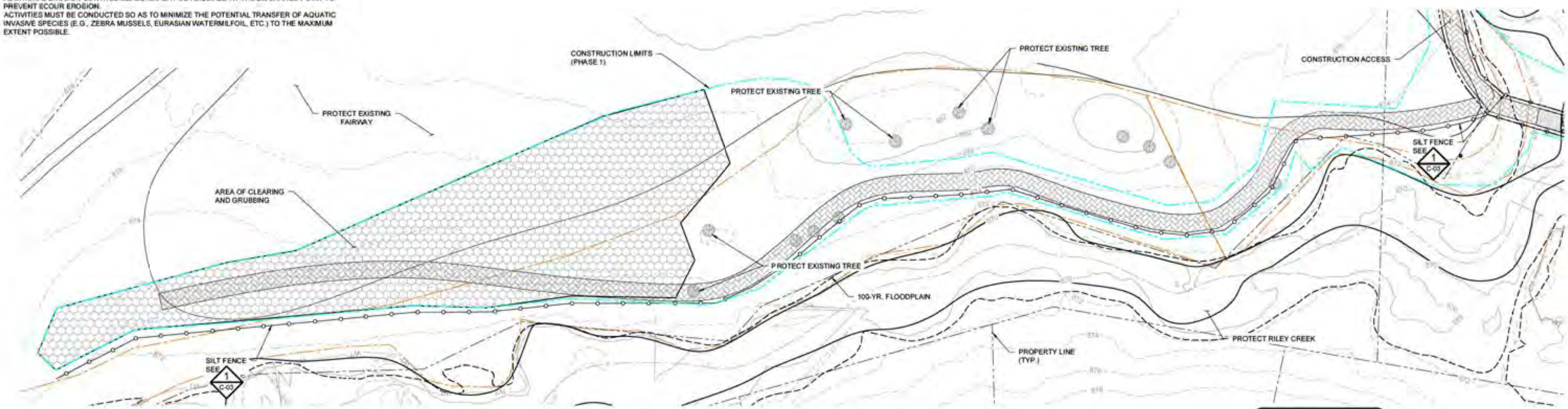


2 PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#12 TEE BOX)

0 30 60 SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WETLAND DELINEATION
- EXISTING PROPERTY LINE
- EXISTING 100-YR FLOODPLAIN
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- SILT FENCE
- SEDIMENT CONTROL LOGS
- CONSTRUCTION ACCESS ROUTE
- TEMPORARY CREEK CROSSING
- EXISTING TREE



2 PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#12 FAIRWAY)

0 30 60 SCALE IN FEET

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	EPF	JCO	BJL	06/25/2021	ISSUED FOR BID

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

PRINTED NAME: BRAD LINDAMAN
SIGNATURE: [signature]
DATE: 06/25/2021 LICENSE #: 43102

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT	—	03/11/21	—	—	—	—	—
BID	—	—	—	06/25/21	—	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	03/12/21	—	—	—	—	—	—
	DATE RELEASED						

BARR
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www.barr.com

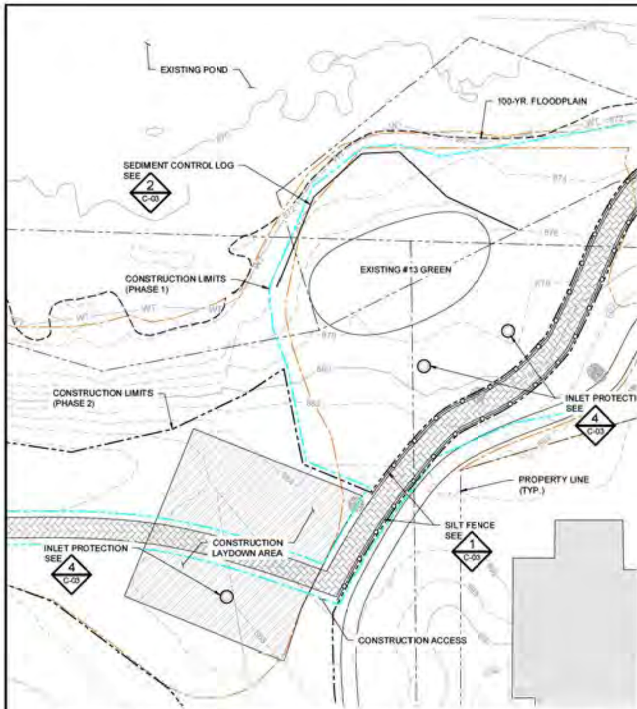
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	BJL
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

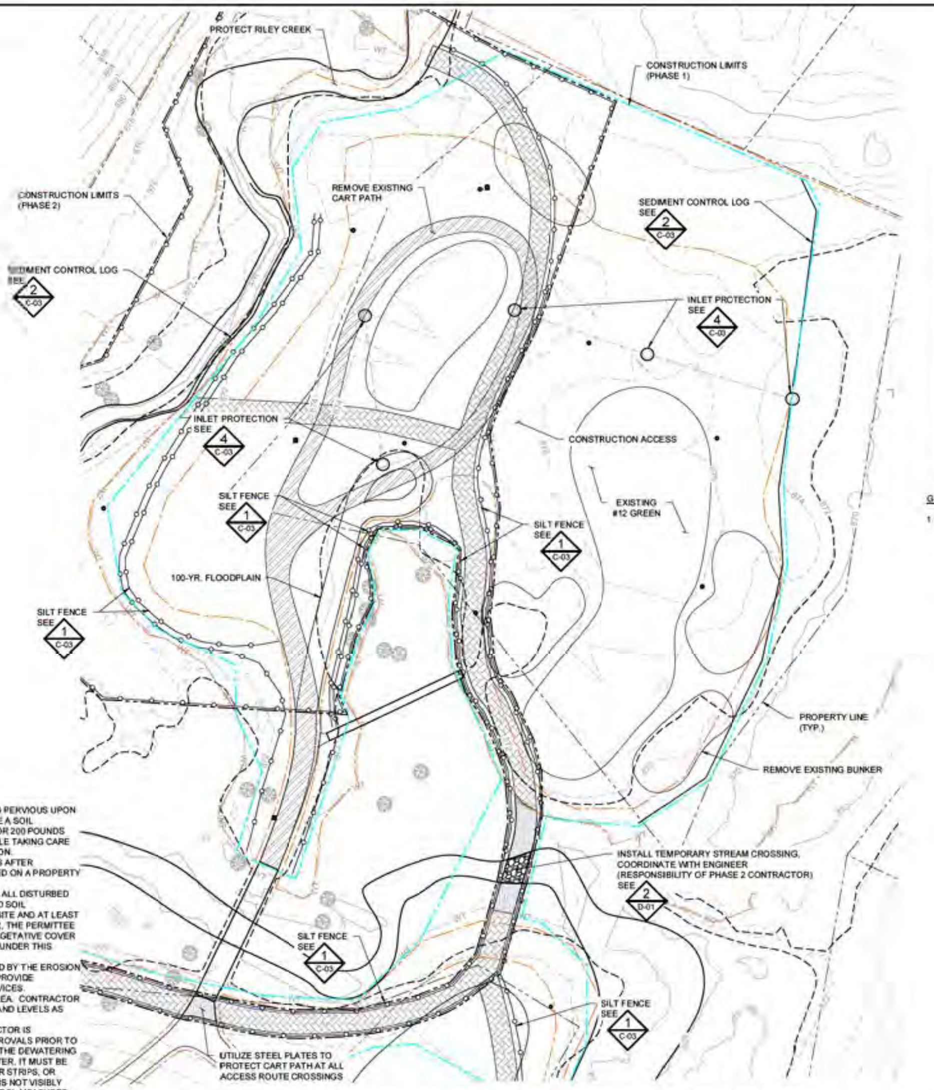
EXISTING CONDITIONS, REMOVALS & EROSION CONTROL PLAN
#16 GREEN, #12 TEE BOX & #12 FAIRWAY

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-11
REV. No. 0



1 PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#13 GREEN)

0 30 60 SCALE IN FEET



2 PLAN: EXISTING CONDITONS, REMOVALS AND EROSION CONTROL (#12 GREEN & #13 TEE BOX)

0 30 60 SCALE IN FEET

GENERAL NOTES:

1. PHASE 1 AND PHASE 2 CONTRACTORS SHALL COORDINATE SITE ACCESS AND WORK TIMING.

EROSION & SEDIMENT CONTROL NOTES:

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ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
0	EPF	JCO	BJL	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: BRAD LINDAMAN
SIGNATURE: [signature]
DATE: 06/25/2021 LICENSE # 43102

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, PERMITTING — A B C 0 1 2 3 — DATE RELEASED

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

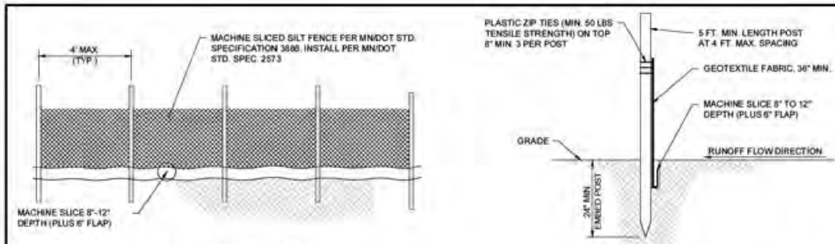
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	JCO
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

EXISTING CONDITIONS, REMOVALS & EROSION CONTROL PLAN
#13 GREEN & #12 GREEN/#13 TEE BOX

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-12 REV. No. 0



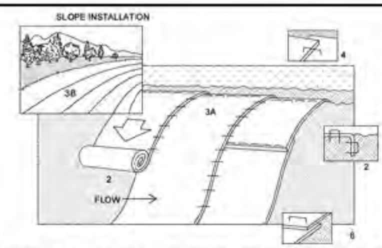
DOWNSTREAM VIEW

SECTION VIEW

NOTES:

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

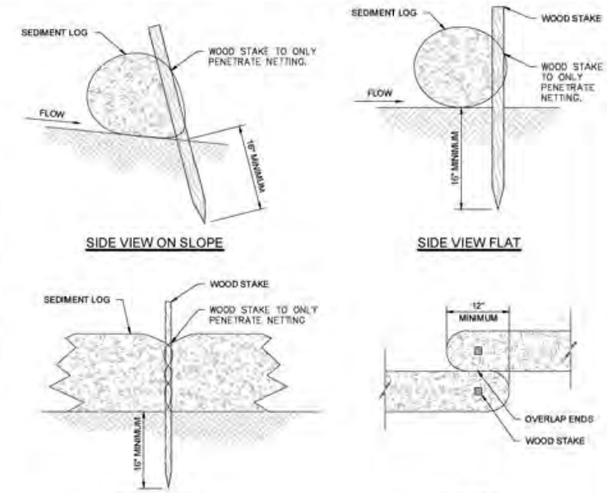
1 / - DETAIL: SILT FENCE - MACHINE SLICED
NOT TO SCALE



NOTES:

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

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



SIDE VIEW ON SLOPE

SIDE VIEW FLAT

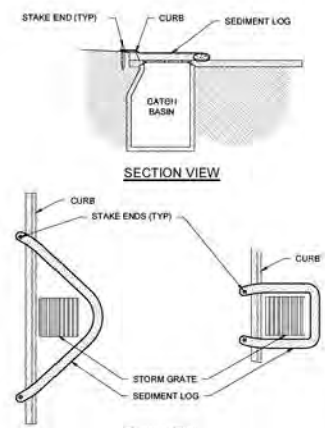
FRONT VIEW

TOP VIEW

NOTES:

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

3 / - DETAIL: SEDIMENT CONTROL LOG
NOT TO SCALE



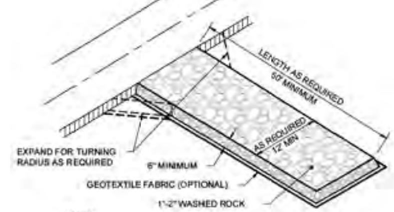
SECTION VIEW

PLAN VIEW

NOTES:

1. INLET PROTECTION SHALL BE INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED OR IMMEDIATELY FOLLOWING CATCHBASIN INSTALLATION, AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. MATERIALS SHALL BE SUFFICIENT TO ALLOW FLOW WHILE BLOCKING SEDIMENT. NO HOLES OR GAPS SHALL BE PRESENT IN/UNDER SEDIMENT LOG.
3. INLET PROTECTION SHALL BE CLEANED AS REQUIRED.
4. MATERIALS AND ANY ACCUMULATED SEDIMENT SHALL BE REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

4 / - DETAIL: INLET PROTECTION - SEDIMENT LOG
NOT TO SCALE



NOTES:

1. MAINTAIN ENTRANCE THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACE AS REQUIRED TO PREVENT TRACKING OFFSITE.
2. REMOVE ENTRANCE IN CONJUNCTION WITH FINAL GRADING AND SITE STABILIZATION.

5 / - DETAIL: CONSTRUCTION ENTRANCE - ROCK
NOT TO SCALE

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION
0	EPF	JCO	BJL	06/25/2021	ISSUED FOR BID

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME: BRAD LINDAMAN
SIGNATURE:
DATE: 06/25/2021 LICENSE #: 43102

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, PERMITTING — A B C 0 1 2 3 — DATE RELEASED

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

Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	JCO
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN
EROSION CONTROL DETAILS

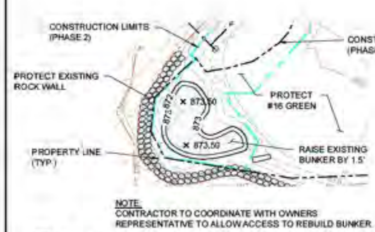
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-13
REV. No. 0

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
2. ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
3. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
4. CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE FINAL CONSTRUCTION LIMITS TO BE COORDINATED WITH THE OWNER AND STAKED IN THE FIELD.
5. CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
6. TREES TO BE CLEARED WILL BE MARKED IN THE FIELD BY ENGINEER. ALL TREES >= 6" DIAMETER NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
7. TREES IDENTIFIED BY ENGINEER FOR ADDITIONAL PROTECTION AGAINST ROOT COMPACTION, DAMAGE AND DISFIGUREMENTS IN ACCORDANCE WITH MnDOT Spec. 2572. PROTECTION OF TREES NOT IDENTIFIED TO BE REMOVED SHALL BE INCIDENTAL.
8. TREE SURVEY COMPLETED 05/04/2020. "SIGNIFICANT TREES" MEET THE DEFINITION REQUIREMENTS.
9. CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE THE TRANSFER OF AQUATIC AND TERRESTRIAL INVASIVE SPECIES TO THE MAXIMUM EXTENT POSSIBLE.
10. SOIL SURFACES COMPACTED DURING CONSTRUCTION MUST BE DECOMPACTED TO A SOIL COMPACTING PRESSURE OF LESS THAN 1400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 1 INCH OF SOIL.
11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
12. CONTRACTOR SHALL CONTACT ENGINEER AT LEAST 24 HOURS PRIOR TO CONSTRUCTION OF CRITICAL DESIGN ITEMS TO ALLOW FOR CONSTRUCTION OBSERVATION. CRITICAL DESIGN ITEMS INCLUDE:
   - RIPRAP TOE PROTECTION INSTALLATION
   - VRSS INSTALLATION
   - BOULDER VANE INSTALLATION

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- PROPOSED GOLF COURSE
- PROPOSED SAND BUNKER
- PLANTING AREA
- BENT GRASS SEEDING AREA



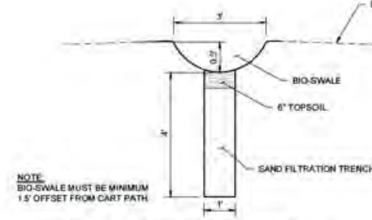
NOTE:
CONTRACTOR TO COORDINATE WITH OWNERS REPRESENTATIVE TO ALLOW ACCESS TO REBUILD BUNKER.

1 PLAN: PROPOSED CONDITIONS AND GRADING (#16 GREEN)

0 30 60 SCALE IN FEET

2 PLAN: PROPOSED CONDITIONS AND GRADING (#12 TEE BOX)

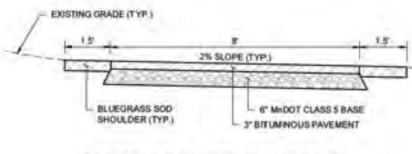
0 30 60 SCALE IN FEET



NOTE:
BIO-SWALE MUST BE MINIMUM 1.5' OFFSET FROM CART PATH

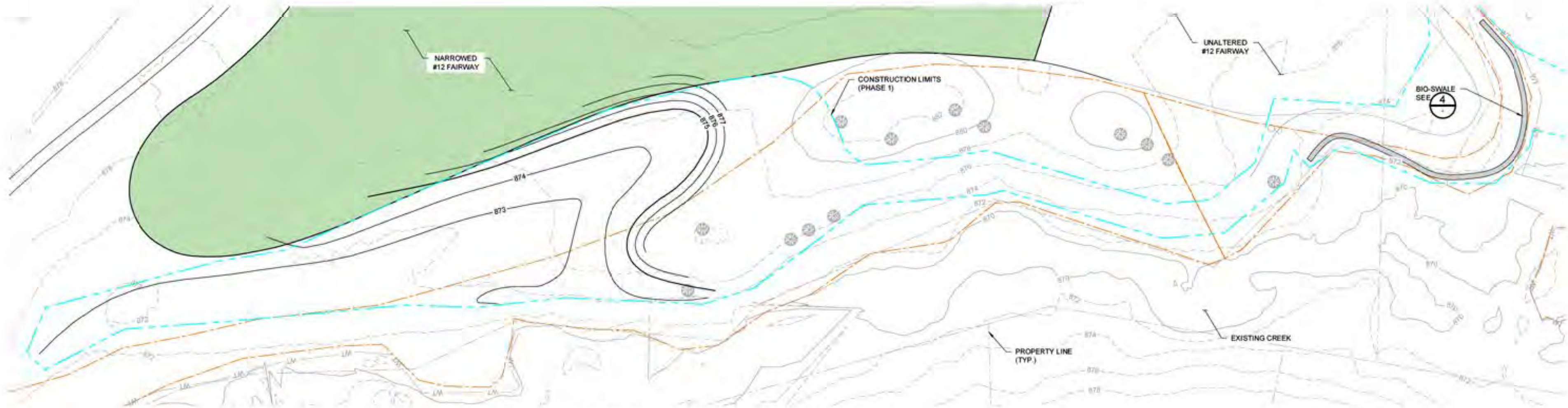
4 SECTION: BIO-SWALE

0 1 2 3 4 SCALE IN FEET



5 SECTION: BITUMINOUS CART PATH

0 1 2 3 4 SCALE IN FEET



NOTE:
THIS EXCAVATION AREA TO COMPENSATE FOR FILL IN #13 TEE BOX AND #12 GREEN.

3 PLAN: PROPOSED CONDITIONS AND GRADING (#12 FAIRWAY)

0 30 60 SCALE IN FEET

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BHD	JCO	BJL	06/25/2021	ISSUED FOR BID

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

PRINTED NAME: BRAD LINDAMAN
SIGNATURE: [signature]
DATE: 06/25/2021 LICENSE #: 43102

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT	—	05/11/21	—	—	—	—	—
BID	—	—	—	06/25/21	—	—	—
CONSTRUCTION	—	—	—	—	—	—	—
PERMITTING	03/12/21	—	—	—	—	—	—

DATE RELEASED

BARR
Corporate Headquarters: Minneapolis, Minnesota
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www.barr.com

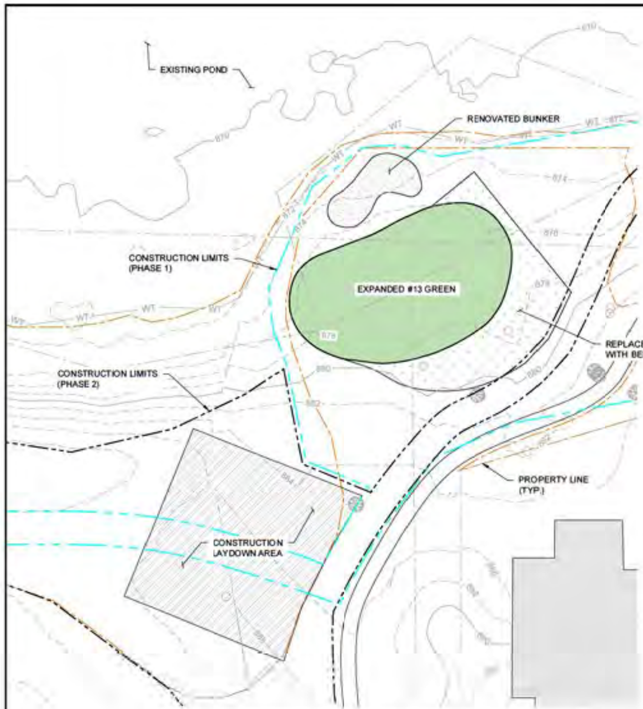
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	JCO
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

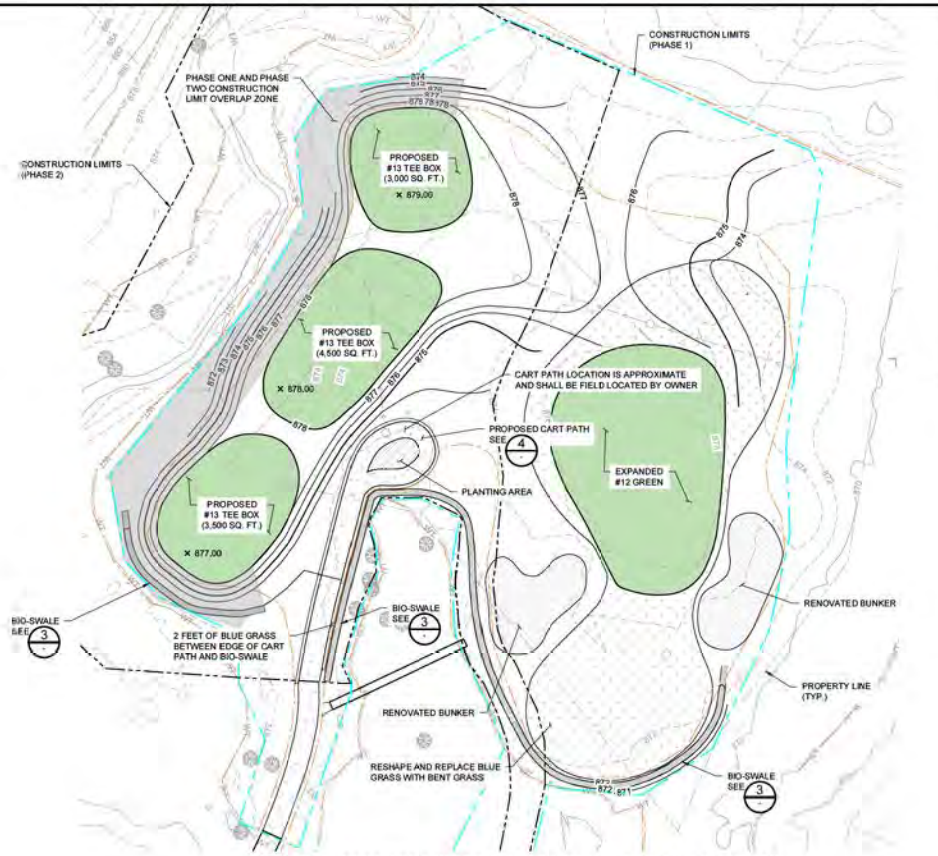
PROPOSED CONDITIONS AND GRADING PLAN
#16 GREEN, #12 TEE BOX & #12 FAIRWAY

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-14
REV. No. 0



1 PLAN: PROPOSED CONDITIONS AND GRADING (#13 GREEN)

0 30 60 SCALE IN FEET



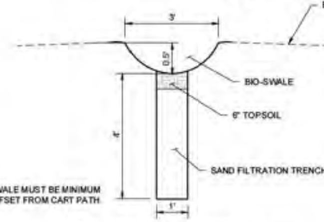
2 PLAN: PROPOSED CONDITIONS AND GRADING (#12 GREEN & #13 TEE BOX)

0 30 60 SCALE IN FEET

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- PROPOSED GOLF COURSE
- PROPOSED SAND BUNKER
- PLANTING AREA
- BENT GRASS SEEDING AREA

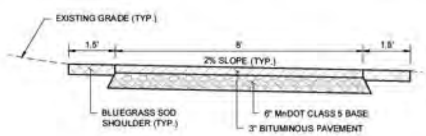
ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR



NOTE:
BIO-SWALE MUST BE MINIMUM 1.5' OFFSET FROM CART PATH.

3 SECTION: BIO-SWALE

0 1 2 3 4 SCALE IN FEET



4 SECTION: BITUMINOUS CART PATH

0 1 2 3 4 SCALE IN FEET

ISSUED FOR BID

NOTES:

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11. SEE SHEET R-01 FOR PLANTING SCHEDULE AND SITE RESTORATION DETAILS.
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   - RIPRAP TOE PROTECTION INSTALLATION
   - VRSS INSTALLATION
   - BOULDER VANE INSTALLATION

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BHD	JCO	BJL	06/25/2021	ISSUED FOR BID

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PRINTED NAME: BRAD LINDAMAN
SIGNATURE: [signature]
DATE: 06/25/2021 LICENSE #: 43102

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT		05/11/21					
BID				06/25/21			
CONSTRUCTION							
PERMITTING	03/13/21						

DATE RELEASED

BARR
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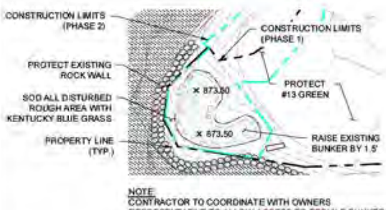
Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	JCO
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

PROPOSED CONDITIONS AND GRADING PLAN
#13 GREEN & #12 GREEN/#13 TEE BOX

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. C-15
REV. No. 0



NOTE:
CONTRACTOR TO COORDINATE WITH OWNERS REPRESENTATIVE TO ALLOW ACCESS TO REBUILD BUNKER.

1 PLAN: RESTORATION (#16 GREEN)

0 30 60 SCALE IN FEET

2 PLAN: RESTORATION (#12 TEE BOX)

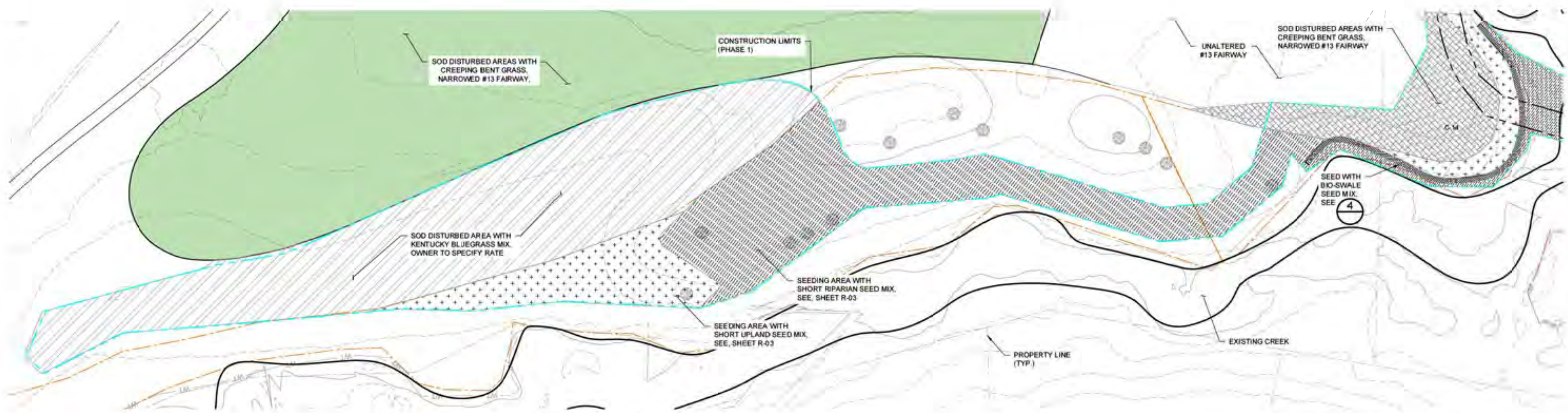
0 30 60 SCALE IN FEET

NOTES:

1. SEE SHEET R-01 FOR SITE RESTORATION DETAILS.
2. SEE SHEET R-03 FOR PLANTING SCHEDULE.
3. SEE SHEET C-14 FOR GENERAL CONSTRUCTION NOTES.
4. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- PROPOSED GOLF COURSE
- PROPOSED SAND BUNKER
- SEEDING AREA WITH BIO-SWALE SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SHORT RIPARIAN SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SHORT UPLAND SEED MIX, SEE SHEET R-03
- SOD AREA WITH KENTUCKY BLUEGRASS MIX, OWNER TO SPECIFY SOD MIX
- SOD AREA WITH BENTGRASS MIX, OWNER TO SPECIFY SOD MIX



3 PLAN: RESTORATION (#12 FAIRWAY)

0 30 60 SCALE IN FEET

ALL WORK ON THIS SHEET BY BEARPATH CONTRACTOR

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BHD	JCO	BJL	06/25/2021	ISSUED FOR BID

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PRINTED NAME: BRAD LINDAMAN
SIGNATURE: [signature]
DATE: 06/25/2021 LICENSE #: 43102

RELEASED TO/FOR: CLIENT 03/11/21; BID 06/25/21; CONSTRUCTION; PERMITTING 03/12/21
A B C 0 1 2 3 — DATE RELEASED

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

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www.barr.com

Scale	AS SHOWN
Date	06/25/2021
Drawn	BHD
Checked	JCO
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

RESTORATION PLAN
#16 GREEN, #12 TEE BOX & #12 FAIRWAY

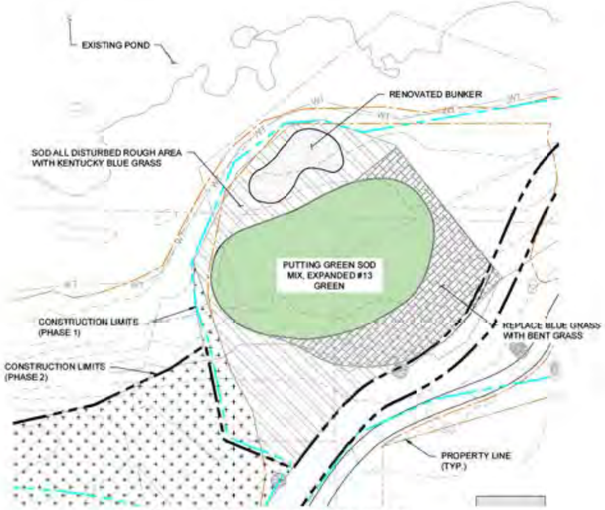
BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. R-04
REV. No. 0

SYMBOL AND PATTERN LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING PROPERTY LINE
- CONSTRUCTION LIMITS (PHASE 1)
- CONSTRUCTION LIMITS (PHASE 2)
- PROPOSED BUFFER
- PROPOSED GOLF COURSE
- PROPOSED SAND BUNKER
- SEEDING AREA WITH BIO-SWALE SEED MIX SEE SHEET R-03
- SEEDING AREA WITH SHORT RIPARIAN SEED MIX, SEE SHEET R-03
- SEEDING AREA WITH SHORT UPLAND SEED MIX, SEE SHEET R-03
- SOD AREA WITH KENTUCKY BLUEGRASS MIX, OWNER TO SPECIFY SOD MIX
- SOD AREA WITH BENTGRASS MIX, OWNER TO SPECIFY SOD MIX

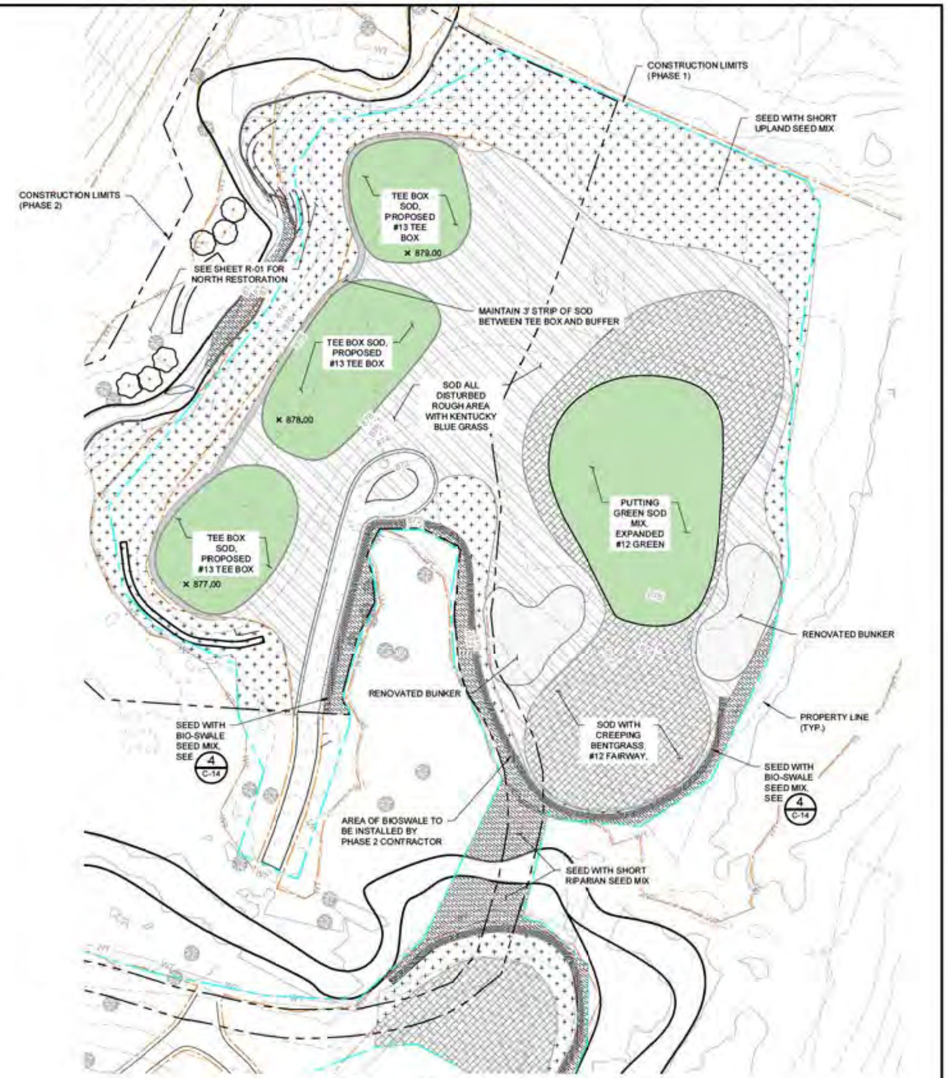
NOTES:

1. SEE SHEET R-01 FOR SITE RESTORATION DETAILS.
2. SEE SHEET R-03 FOR PLANTING SCHEDULE.
3. SEE SHEET C-14 FOR GENERAL CONSTRUCTION NOTES.
4. ALL AREAS DISTURBED WITHIN THE BUFFER MUST BE RESTORED WITH NATIVE VEGETATION.
5. PHASE 2 CONTRACTOR RESPONSIBLE FOR BIOSWALE AND NATIVE VEGETATION RESTORATION WITHIN PHASE 2 CONSTRUCTION LIMITS AND AREAS THAT OVERLAP WITH PHASE 1 LIMITS. ALL OTHER RESTORATION WITHIN OVERLAP AREAS IS THE RESPONSIBILITY OF THE PHASE 1 CONTRACTOR.



1 PLAN: RESTORATION (#13 GREEN)

0 30 60 SCALE IN FEET



2 PLAN: RESTORATION (#12 GREEN & #13 TEE BOX)

0 30 60 SCALE IN FEET

ISSUED FOR BID

NO	BY	CHK	APP	DATE	REVISION DESCRIPTION
0	BHD	JCO	BJL	06/25/2021	ISSUED FOR BID

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PRINTED NAME BRAD LINDAMAN
SIGNATURE
DATE 06/25/2021 LICENSE # 43102

RELEASED TO/FOR: CLIENT, BID, CONSTRUCTION, PERMITTING — A B C 0 1 2 3 — DATE RELEASED

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

Scale	AS SHOWN
Date	06/25/2021
Drawn	EPF
Checked	JCO
Designed	BARR
Approved	BJL

BEARPATH GOLF & COUNTRY CLUB
CHANHASSEN, MN

BEARPATH GOLF COURSE RENOVATION (PHASE 1)
EDEN PRAIRIE, MN

RESTORATION PLAN
#13 GREEN & #12 GREEN/#13 TEE BOX

BARR PROJECT No. 23/27-0053.14
CLIENT PROJECT No.
DWG. No. R-05
REV. No. 0

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engineering and environmental consultants

BARR

Memorandum

To: Riley-Purgatory-Bluff Creek Watershed District Board of Managers
From: Heather Hlavaty and Scott Sobiech, Barr Engineering
Subject: Pioneer Trail Wetland Restoration Project – Recommendation to Award Project
Date: July 29, 2021
Project: 23/27-0053.14 030
c: Terry Jeffery – RPBCWD Interim Administrator

Recommended Board Action

It is recommended that the RPBCWD Board of Managers:

1) Award the project to Sunram Construction, Inc. at the bid price of **$295,098.00**.

2) Authorize the President or interim administrator to sign the Notice of Award, execute the contracts, and sign the Notice to Proceed at the appropriate points in the contracting process.

3) Authorize the interim administrator to execute change orders within 10% of the contract amount.

4) Authorize Barr Engineering to revise the construction drawings as needed on a time and expense should RPBCWD be unable to secure the necessary property rights to fully remove the small portion of retaining wall on adjacent property.

The Pioneer Trail wetland restoration project is located within the Bluff Creek watershed, on the north side of Pioneer Trail just east of CSAH 101 in Chanhassen, Minnesota. The site receives drainage from a 98-acre watershed consisting of primarily low- and single family detached residential, undeveloped and agricultural land, and open-space/park areas. Within the 7.32-acre site, is a wetland that is comprised of fresh wet meadow, wet-mesic prairie, and shallow marsh. All three of these community types are rated as having low vegetative diversity and integrity. The site is currently dominated by invasive species. Reed canary grass is the primary species covering a large portion of the eastern section of the project site in the wet meadow and wet mesic prairie communities. Invasive cattail is dominant in portions of the shallow marsh community. Kentucky bluegrass, dandelion, pigweed, burdock, curly dock, common plantain, thistle, and creeping charley are abundant in the upland areas along the south, west, and northern edges of the site. Non-native invasive Amur maple is also present in the northern and southeastern edges of the site.

The proposed project includes blocking the existing draintile, replacement of the surface outlet, grading within an existing wetland to increase floodplain storage, and restoration of land surrounding and within an existing wetland with native and diverse wetland and upland vegetation. The proposed project does not change drainage patterns in the watershed and decreases the total impervious area within the site from 0.08 to 0.01 acres. The work includes excavation within the delineated wetland but will not result in

the placement of fill within the wetland. A very small portion of the work show on the construction drawings includes removal of a small section of retaining wall and associated site grading that extends onto adjacent, private property. Interim Administrator Jeffery plans to work with the private property owner to convey the necessary property rights to RPBCWD. If the necessary property rights are unable to be secured, that portion of the work would need to be eliminated from the construction documents.

The RPBCWD Board of Managers ordered the Pioneer Trail wetland restoration project at the April 2020 regular meeting for the design and preparation of construction documents for the recommended project from the feasibility study. The RPBCWD Board of Managers authorized bidding at their June 2021 meeting. Following the Board's authorization, the project was bid in July 2021. An advertisement for bid was circulated in local publications and on Quest Construction Data Network (CDN). Bids were opened on July 28, 2021 at a virtual bid opening. Four bids were received and are listed below in Table 1.

Table 1. Summary of Bids Received for the Pioneer Trail Wetland Restoration Project

Bidder	Total Base Bid Entered on the Bid Form
Sunram Construction, Inc.	$295,098.00
G.F. Jedlicki, Inc.	$297,061.00
Minnesota Native Landscapes, Inc.	$297,131.00
Urban Companies	$391,735.00
[1]Engineer's opinion of probable cost was $468,000.	

After verifying the bid price, Sunram Construction, Inc. is the lowest bidder. As required in the instruction to bidders, the Engineer notified Sunram to submit its bid security in hard-copy wet-signature form.

It is recommended that the RPBCWD Board of Managers:

- Award the project to Sunram Construction, Inc. at the bid price of $295,098.00.
- We also recommend authorizing the President or interim administrator to sign the Notice of Award, execute the contracts, and sign the Notice to Proceed at the appropriate points in the contracting process.
- We also recommend authorizing the interim administrator to execute change orders within 10% of the contract amount.

If the Board of Managers decides to award the project the following would be completed:

- An Authorized Representative signs the Notice of Award to be sent to the successful bidder
- Successful bidder provides the following information:
    - Fully-executed Notice of Award
    - Three fully-executed counterparts of the Form of Agreement

  - Performance and Payment Bond
  - Certificate of Insurance and all other insurance documentation identified in the Contract Documents
- Barr Engineering will coordinate with the successful bidder regarding the construction schedule
- Notice to Proceed is issued in August
- Construction begins within 10 days of Notice to Proceed with work being substantially completed by May 15, 2022.

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engineering and environmental consultants

BARR

Memorandum

To: Riley-Purgatory-Bluff Creek Watershed District Board of Managers
From: Heather Hlavaty and Scott Sobiech, Barr Engineering
Subject: Rice Marsh Lake Water Quality Treatment Project – Recommendation to Award Project
Date: July 30, 2021
Project: 23/27-0053.14 028
c: Terry Jeffery – RPBCWD Interim Administrator

Recommended Board Action

It is recommended that the RPBCWD Board of Managers:

1) Award the project to Meyer Contracting, Inc. at the bid price of **$593,384.30**.

2) Authorize the President or interim administrator to sign the Notice of Award, execute the contracts, and sign the Notice to Proceed at the appropriate points in the contracting process.

3) Authorize the interim administrator to execute change orders within 10% of the contract amount.

The Rice Marsh Lake water quality improvement project is located within the Riley Creek watershed, on the north side of Rice Marsh Lake, just south of Dakota Lane in Chanhassen, Minnesota. The site receives drainage from a 232-acre watershed consisting of primarily low- and medium-density residential, commercial, and open-space/park areas with some undeveloped, institutional, and high-density residential areas. Discharge enters the 0.64-acre site though an existing storm sewer flowing directly into the constructed pond before reaching Rice Marsh Lake. Water quality data collected by the RPBCWD from 2016 through 2018 reveals high levels of TSS, TP, and TDP discharging to the existing pond within the riparian wetland to Rice Marsh Lake through from the existing storm sewer.

The design of the proposed system includes, but is not limited to: removal and replacement of existing storm catch basin manholes; clearing and grubbing; installation of low-flow weir and bypass storm sewer, manholes and pre-fabricated stormwater filtration treatment system, and inline slide gate; construction of filtration rain garden; bituminous trail replacement; erosion and sediment control; soil rehabilitation, site restoration with native and pollinator plantings; and maintaining/establishing buffer for Rice Marsh Lake.

The RPBCWD Board of Managers ordered the Rice Marsh Lake water quality improvement project at the January 2021 regular meeting for the design and preparation of construction documents for the recommended project from the feasibility study. The RPBCWD Board of Managers authorized bidding at their July 2021 meeting. Following the Board's authorization, the project was bid in July 2021. An advertisement for bid was circulated in local publications and on Quest Construction Data Network (CDN).

Bids were opened on July 29, 2021 at a virtual bid opening. Three bids were received and are listed below in Table 1.

Table 1. Summary of Bids Received for the Rice Marsh Lake Water Quality Treatment Project

Bidder	Total Base Bid Entered on the Bid Form
Meyer Contracting, Inc.	$593,384.30
G.F. Jedlicki, Inc.	$744,400.00
Lametti and Sons, Inc.	$786,306.00

[1]Engineer's opinion of probable cost was $525,000.

After verifying the bid price, Meyer Contracting, Inc. is the lowest bidder. As required in the instruction to bidders, the Engineer notified Meyer to submit its bid security in hard-copy wet-signature form.

It is recommended that the RPBCWD Board of Managers:

- Award the project to Meyer Contracting, Inc. at the bid price of $593,384.30.
- We also recommend authorizing the President or interim administrator to sign the Notice of Award, execute the contracts, and sign the Notice to Proceed at the appropriate points in the contracting process.
- We also recommend authorizing the interim administrator to execute change orders within 10% of the contract amount.

If the Board of Managers decides to award the project, the following would be completed:

- An Authorized Representative signs the Notice of Award to be sent to the successful bidder
- Successful bidder provides the following information:
    - Fully-executed Notice of Award
    - Three fully-executed counterparts of the Form of Agreement
    - Performance and Payment Bond
    - Certificate of Insurance and all other insurance documentation identified in the Contract Documents
- Barr Engineering will coordinate with the successful bidder regarding the construction schedule
- Notice to Proceed is issued in August
- Construction begins within 10 days of Notice to Proceed with work being substantially completed by June 1, 2022.

RILEY PURGATORY BLUFF CREEK
WATERSHED DISTRICT

18681 Lake Drive East
Chanhassen, MN 55317
952-607-6512
www.rpbcwd.org

MEMORANDUM

TO: Board of Managers

FROM: Terry Jeffery, Interim District Administrator

DATE: July 29, 2021

RE: Recommendation for Professional Services

Staff is recommending the following consultants be engaged for services and is requesting the Board of Managers to direct legal counsel to draft a contract as applicable and direct Interim Administrator Jeffery to sign the contracts.

Services	*Firm*
Accounting Services	Redpath
Auditing Services	Abdo Eick and Meyers LLP
Banking and Investment Services	PMA4M
IT Managed Services	Imagine IT
Legal Services	Smith Partners PLLP

MEMORANDUM

DATE: August 3, 2021

TO: Managers and Administrator
Riley Purgatory Bluff Creek Watershed District (RPBCWD)

FROM: Larry A. Koch, manager RPBCWD

RE: COVID-19

COVID-19, especially the Delta variant, poses a significant and continuing threat to the health and safety of public including vaccinated individual, be they managers, staff, invitee etc. as has been amply demonstrated by scientific evidence, COVID-19 poses a special threat to those who would not been vaccinated. Besides the threat to a person's health, employees stricken with COVID-19 cost the District in terms of lost work time, disability benefits and health insurance. Several vaccines for COVID-19 are readily available to all individuals in the state of Minnesota. In is much as watershed districts are created by the Minnesota legislature for the purpose of making decisions regarding protection of our water bodies based upon science, it would be contrary to that purpose to allow any employee eligible to be vaccinated for COVID-19 to be employed by the District and not be vaccinated. In addition, the recent surge in COVID-19 cases for the Delta variant, as prompted government agencies to not only continue, but to reinstate and revise their recommendations to protect the public from the Delta variant, including but not limited to the use of masks, social distance and personal hygiene.

Therefore, I moved the adoption of the following resolution: BE IT RESOLVED

1. That as the District president has determined that COVID-19 continues to poses a serious public health emergency, the managers shall continue to hold their meetings virtually using available interactive technology until further notice;

2. That District staff are hereby directed to

    2.1 comply with all laws and regulations pertaining to Covid-19 including but not limited to those established by Minnesota OSHA,

    2.2 implement all applicable recommendations of the Center for Disease Control (CDC) and the Minnesota Department of Health, pertaining to COVID-19 whichever are the most protective of managers, staff, and invitees, including but not limited to all recommendations pertaining to the wearing of masks, social distancing and hygiene.

3. That all employees who have not been fully vaccinated against COVID-19 shall be given one day paid leave for each inoculation acquired after the date hereof for such employee to be fully vaccinated against COVID-19.

4. That, except as and to the extent prohibited by law, any employee eligible to be vaccinated against COVID-19 who does not provide proof to the District administrator on or before August, 21, 2021 that they are fully vaccinated, shall be terminated effective August 21, 2021, unless submitted to the district's administrator, a written statement from a licensed physician, to the effect that the physical condition of the employee makes vaccination against COVID-19 substantially more dangerous to the employee's health than if they would contract COVID-19, in which case, such employee shall be required to work from home or in the field in which case the employee shall comply with all recommendations and requirements of the CDC and MNOSHA so as to prevent their infection by or spread of COVID-19, unless the District administrator directs all employees to wear masks and imposes such other restrictions or requirements as needed to comply with the recommendations and requirements of the CDC and MNOSHA.

5. That, except as and to the extent prohibited by law, no person shall be hired as an employee or allowed in the District's facilities unless they provide satisfactory proof that they have been fully vaccinated against COVID-19 or any other communicable disease determined by the District's administrator to pose a significant threat to the health and safety of the District's staff, invitees or others with whom the employee may come in contact with in the performance of their duties as a District employee.