

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2020-061

Location:

Considered at Board of Managers Meeting: March 2, 2022

Received complete: October 7, 2020 (RPBCWD extended the application-review period by 60 days on November 25, 2020 and the RPBCWD approved the applicant's requests for second, third and fourth extensions, extending the review period until April 17, 2022)

Applicant: Post Development, LLC., Barry Post **Consultant:** Civil Methods, Inc., Kent Brander, PE

Project: Purgatory Creek 2nd Addition: The project is a 3.07 acre, 7-lot single family residential

development that will disturb 2.95 acres. Stormwater management will be provided by

two rain gardens and two detention/rock infiltration trenches to provide volume

control, water quality, and rate control. 12420 Sunnybrook Road, 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 March 2, 2022 meeting of the managers:
Resolved that the application for Permit 2020-061 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 2021-060 to the applicant on behalf of RPBCWD.
Upon roll call vote, the resolutions were adopted,

Applicable Rule Conformance Summary

Rule	ls	sue	Conforms to RBPCWD Rules?	Comments
С	Erosion Control P	lan	See Comment.	See rule-specific permit conditions C1 -C2 to name of individual responsible for onsite erosion control and ensuring overland sheet flow from BMP 1
J	Stormwater	Rate	Yes	
	Management	Volume	See Comment	See rule-specific permit conditions J1 related to consistent representation of the bottom of BMP#2 and stipulation 4 related to verifying the infiltration capacity of the soils and that the volume control capacity

Rule	ls	sue	Conforms to RBPCWD Rules?	Comments
				is calculated using the measured infiltration rate as well as adequate groundwater separation
		Water Quality	Yes	
		Low Floor Elev.	See Comment	See rule-specific permit condition J2 related to confirm the BMP placement maintains adequate freeboard to existing, adjacent habitable structures
		Maintenance	See Comment	See rule-specific permit condition J3 related to recordation of stormwater facility maintenance declaration.
		Chloride Management	Yes	
		Wetland Protection	Yes	
L	Permit Fee Depos	it	Yes	\$3,000 received September 24, 2020
M	Financial Assuran	ces	See Comment	The financial assurance is calculated at \$60,462

Background

The proposed construction includes subdividing an existing single-family home property into a 7 lot subdivision along with associated roadway and municipal infrastructure. Stormwater management will be provided by two rain gardens and two detention/rock infiltration trenches to provide volume control, water quality, and rate control. Relevant project site information is provided below.

	Area
Total Site Area (acres)	3.07
Existing Site Impervious (acres)	0.03
Post Construction Site Impervious (acres)	1.04
New (Increase) in Site Impervious Area (acres)	1.01
Disturbed impervious surface (acres)	0.03
Total Disturbed Area (acres)	2.95

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

- 1. Permit Application received September 22, 2020. Application was received complete on October 7, 2020 (RPBCWD extended the application-review period by 60 days on November 25, 2020 and the RPBCWD approved the applicant's requests for second, third and fourth extensions, extending the review period to April 17, 2022)
- 2. Stormwater Management narrative dated September 15, 2020 by James R Hill
- 3. Stormwater Management narrative dated October 15, 2021 by Civil Methods, Inc. (revised January 26, 2022, February 18, 2022)

- 4. Project plan set (12 sheets) by James R Hill dated September 22, 2020
- 5. Project plan set (6 sheets) by Civil Methods, Inc. dated October 15, 2021 (revised 7 sheets January 26, 2022, February 18, 2022)
- 6. Purgatory Creek Estates- 2nd Addition Drainage Narrative by James R Hill dated July 15, 2015 but received on January 5, 2021
- 7. Purgatory Creek Estates- 2nd Addition Plan sheets 1–9 by James R Hill dated September 2, 2013 but received on January 5, 2021
- 8. Geotechnical Evaluation Report dated June 12, 2015, prepared by ITCO ALLIED Engineering Co
- 9. Subsurface Soil Investigation by Interstate Geotechnical Engineering dated May 3, 2021
- 10. 60-day permit review timeline extension request via email dated November 25, 2020
- 11. 90-day permit review timeline extension request via email dated January 21, 2021
- 12. 180-day permit review timeline extension request via email dated April 22, 2021
- 13. Second 180-day permit review timeline extension request via email dated October 3, 2021
- 14. 12420 Sunnybrook Rd Eden Prairie -Infiltration Test Results received September 24, 2021
- 15. Report of Geotechnical Exploration by American Engineering Testing, Inc. dated May 14, 2021
- 16. Electronic HydroCAD models received on September 23, 2020 (revised October 15, 2021, January 26, 2022)
- 17. Electronic P8 water quality models received on October 7, 2020
- 18. Response to review comments received January 26, 2022
- 19. Response to review comments received February 18, 2022
- 20. Opinion of Probable Costs for stormwater received on January 26, 2022

Rule Specific Permit Conditions

Rule C: Erosion Prevention and Sediment Control

Because the project will involve 2.95 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 Civil Methods, Inc. 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 overflow from the northern rain garden (BMP#1) should be modified to ensure any discharge from the facility leave the site via overland sheet flow rather than concentrated flow.
- C2. 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 2.95 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 is a redevelopment that will disturb more than 50% of the existing impervious surface on the parcel and will increase imperviousness of the parcel by more than 50 percent (Rule J, Subsection 2.3).

The applicant proposes construction of two rain gardens and two detention/rock infiltration trenches to provide volume control, water quality, and rate control. Pretreatment of runoff will be provided by sump catch basins.

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		ischarge fs)	10-\ Dischar	ear ge (cfs)	100- Dischar		_	Snowmelt (cfs)
	Ex	Prop	Ex	Prop	Ех	Prop	Ex	Prop
Northeast	0.2	0.1	0.7	0.2	2.4	2.4	0.2	0.2
South	0.9	0.5	3.5	3.3	11.9	11.0	1.2	1.1

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 4,164 cubic feet is required from the 1.04 acres of impervious area for volume retention. The Applicant proposes two rain gardens and two detention/rock infiltration trenches to provide volume abstraction. Pretreatment is provided a sump catch basins (Rule J, Subsection 3.1.b.1).

Ten soil borings were collected on the site and show surface soils at the proposed stormwater facilities are sandy loam, sand, and clay loam. Three infiltration tests conducted at the proposed bottom of the detention/infiltration trenches measured an infiltration rate of 0.4 inches per hour (in/hr). The subsurface investigation information summarized below shows that additional informatin is need to

confirm groundwater is at least 3 feet below the bottom of the proposed stormwater management facilities (Rule J, Subsection 3.1.b.2.a).

Groundwater Separation Analysis

Proposed BMP	Nearest Subsurface Investigation	Boring is within footprint?	Groundwater Elevation (feet)	BMP Bottom Elevation (feet)	Separation (feet)
Rain Garden (BMP #1)	8	No	No groundwater observed at boring bottom (approx. el 833.5)	842	Needs confirmation
Detention/Rock Infiltration Trench (BMP #2)	1	Yes	827.5	830.5	3.0
Detention/Rock Infiltration Trench (BMP #3)	1 a	Yes	No groundwater observed at boring bottom (approx. el 823.5)	823.0	Needs confirmation
Rain Garden (BMP #4)	4	Yes	814	825.7	11.7

The engineer concurs with the applicant's design infiltration rates of 0.4 inches per hour for the site soil based on the measured infiltration rate. Based on the design infiltration rate, the engineer concurs that the stormwater management facilities will draw down within 48 hours (Rule J, subsection 3.1b.3).

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	4,164	1.1	4,176

While an infiltration rate of 0.4 in/hr was measured at the proposed detention/rock infiltration trenches, no infiltration or hydraulic conductivity testing results were provided at the two proposed rain garden as required by Rule J, Subsection 3.1.b.ii.c. The applicant must submit documentation verifying the infiltration capacity of the soils at the rain gardens (BMP #1 and #4) and that the volume control capacity is calculated using the measured infiltration rate prior to project close-out. Also, additional soil investigation is needed to confirm adequate separation to groundwater below the southern detention/rock infiltration trench (BMP#3) and northern rain garden (BMP#1). If infiltration capacity is less than needed to conform with the volume abstraction requirement in subsection 3.1b or 3 feet of separation to groundwater is not verified, 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). To conform to the RPBCWD Rule J, Subsection 3.1b the following revision is needed:

J1. The stormwater narrative indicated the bottom of the northern detention/rock infiltration trench was raised to elevation 830.5 feet in response to comments and to provide 3 feet of separation to the groundwater, which is confirmed by the cross section on sheet C04. However, plan sheet C01 indicates the bottom of the facility remained at elevation 828.8 feet. The applicant must provide an updated grading plan demonstrating 3 feet of separation to groundwater.

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 stormwater management facilities proposed by the applicant provide 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, as long as the condition of approval above is met.

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 building as well as the 100-year flood elevation of the proposed subsurface stormwater management system is summarized below. Because the low floor elevations of the existing structures are more than one foot above the proposed 100-year flood elevation of the proposed stormwater management facility, the proposed project is in conformance with Rule J, Subsection 3.6a.

Structure	Applicant Computed 100-Yr Flood Elevation	Low Floor Elevation	Freeboard (ft)
Lot 1	828.4	830.4	2
Lot 2	828.4	830.4	2
Lot 3	834.3	836.3	2
Lot 4	834.3	836.3	2
Lot 6	843.8	845.8	2
Lot 7	843.8	845.8	2

To conform to the RPBCWD Rule J, Subsection 3.6.b related to the requirements for siting of the stormwater management facilities the following revisions are needed:

J2. Permit applicant must provide information demonstrating the low floor of the existing habitable structures on the adjacent lots to the east will not be brought into noncompliance with the low floor criteria. If separation proves noncompliant with the low floor requirement in subsection 3.6b, design modifications to achieve compliance with RPBCWD requirements will need to be submitted.

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. To conform to the RPBCWD Rule J the following revisions are needed:

J3. Permit applicant must provide a 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 stormwater management facilities and all pretreatment features. In addition, the exhibit must show a cross section of the proposed stormwater management facilities with elevations listed. A 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. 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 a downstream stormwater pond and is not tributary to any wetland, the proposed project does not trigger analysis under Rule J, subsection 3.10.

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. 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 September 24, 2020. The applicant must replenish the

permit fee deposit to the original amount due before the permit will be issued. Subsequently, if the costs of review, administration, inspections and closeout-related or other regulatory activities exceed the fee deposit amount, the applicant will be required to replenish the deposit to the original amount or such lesser amount as the RPBCWD administrator deems sufficient within 30 days of receiving notice that such deposit is due. The administrator will close out the relevant application or permit and revoke prior approvals, if any, if the permit-fee deposit is not timely replenished.

L1. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued.

Rule M: Financial Assurance:

	Unit	Unit Cost	# of Units	Total
Rules C: Silt fence:	LF	\$2.50	1600	\$4,000
Inlet protection	EA	\$100	7	\$700
Rock Entrance	EA	\$250	1	\$250
Restoration	Ac	\$2,500	2.95	\$7,375
Rules J: Stormwater Management Underground infiltration system: 125% of engineer's opinion of cost (\$34,112)	EA	125% OPC	1	\$42,640
Contingency (10%)		10%		\$5,497
Total Financial Assurance				\$60,462

Applicable General Requirements:

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

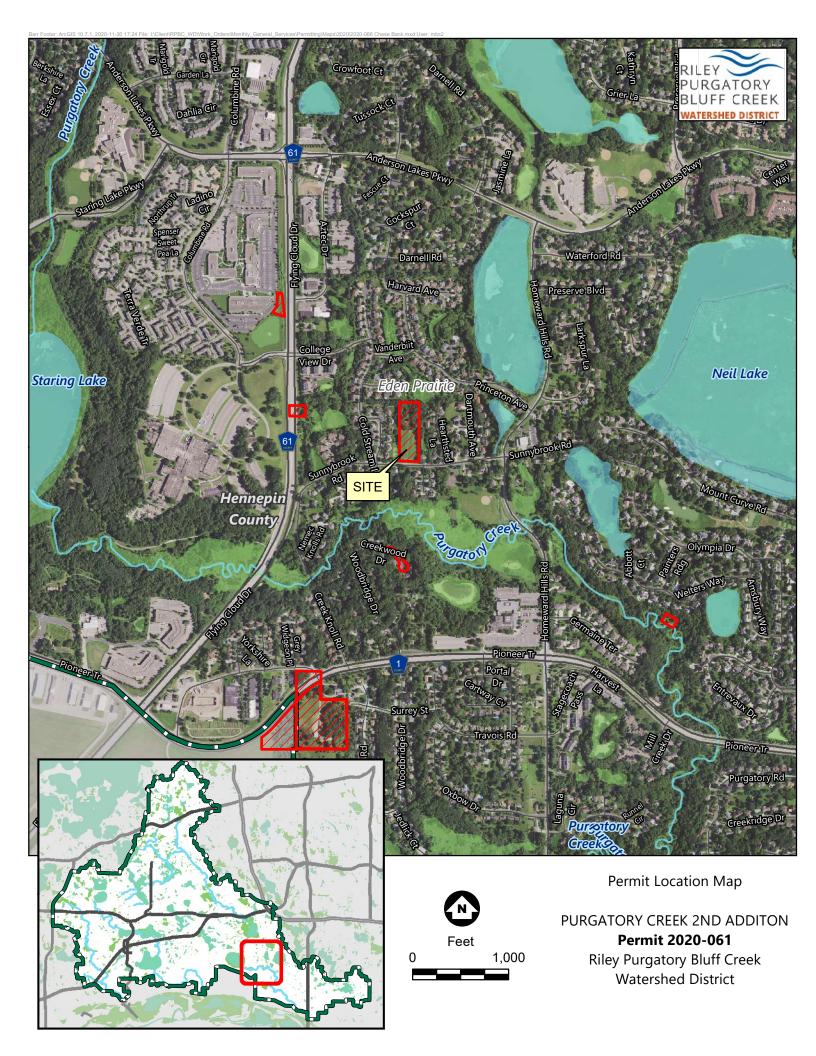
Approval, contingent upon:

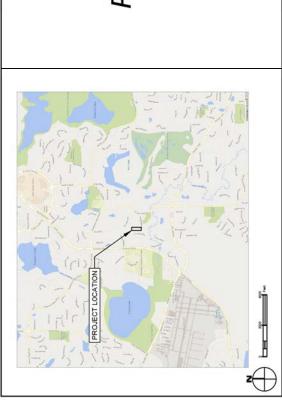
- 1. Financial Assurance in the amount of \$60,462.
- 2. Permit applicant must provide the name and contact information of the general contractor responsible for erosion and sediment control at the site. RPBCWD must be notified if the responsible party changes during the permit term.
- 3. Receipt of updated plans showing the following:
 - a. Revisions to the overflow from the northern rain garden (BMP#1) ensure any discharge from BMP#1 leaving the site via overland sheet flow rather than concentrated flow.
 - b. Revisions to the grading plan to show the bottom of the northern detention/rock infiltration trench raised to elevation 830.5 feet for consistency with the response to comments the cross section on sheet CO4.
- 4. Receipt of information demonstrating the low floor of the existing habitable structures on the adjacent lots to the east will not be brought into noncompliance with the low floor criteria.
- 5. Receipt in recordation a maintenance declaration for the stormwater management facilities. A draft must be approved by the District prior to recordation.
- 6. The applicant must replenish the permit fee deposit to the original amount due before the permit will be issued.

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

1. Continued compliance with General Requirements

- 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, the 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.
- 3. Providing the following additional close-out materials:
 - Documentation that constructed stormwater management 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. Per Rule J, Subsection 3.1.b measured infiltration capacity of the soils at the bottom of the rain gardens 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 at the rain gardens (BMP #1 and #4) prior to project close-out. Also, additional soil investigation is needed to confirm adequate separation to groundwater below the southern detention/rock infiltration trench (BMP#3) and northern rain garden (BMP#1). If infiltration capacity is less than needed to conform with the volume abstraction requirement in subsection 3.1b or 3 feet of separation to groundwater is not verified, 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).





PRELIMINARY PLANS FOR

PURGATORY CREEK ESTATES 2ND ADDITION

EDEN PRAIRIE, MN

FEBRUARY 2022

г тте	NOTES	
PROJECT TITLE	INDEX	
VICINITY MAP	CONTACTS	

GRADING & DRAINAGE **EROSION CONTROL** TITLE SHEET DETAILS SWPPP SHEET INDEX C04-C06 C02 C01 C03 101

> City of Eden Prairie 8080 Mitchell Road Eden Prairie, MN 55344 Attn: Patrick Sejkora, PE Ph: (952) 949-8360 psejkora@edenprairie.org WATERSHED DISTRICT:

> > postdevelopment12420@gmail.com

OWNER:
Post Development, LLC
12420 Sunnybrook Road
Eden Prairie, MN 55347
Alth. Barry Post
Pht. (612) 865-1687

Original Survey Completed By:

SURVEY:

James R. Hill, Inc. 2999 CR 42 W Ste 100 Burnsville, MN 55306-5904 Ph. (952) 890-6044 jdavis@jrhinc.com

CITY / TOWNSHIP:

THE EXISTING UTILITY INFORMATION SHOWN IN THIS PLAN HAS BEEN SURVEYED BY OTHERS; THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY 811 OR GOPHER STATE ONE CALL (1,800.252,1166).

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS
UTILITY CUALITY LEVEL T. THIS UTILITY QUALITY LEVEL WAS
DETERMINED ACCORDING TO THE GUIDELINES OF CIASCE
38-02. ENTILED "STANDARD GUIDELINES FOR THE
COLLECTION AND DEPICTION OF EXISTING SUBSURFACE
UTILITY DATA."

PLAN REFERENCES:
1. MINNESOTA DEPT. OF TRANSPORTATION - STANDARD SPECIFICATIONS FOR CONSTRUCTION, LATEST

EDITION.
CITY ENGINEERS ASSOCIATION OF MINNESOTA
STANDARD SPECIFICATIONS, LATEST EDITION.
UNREINFORCED CONCRETE PER ACI 330R-08 AND ACI

WATERSHED ENGINEERING CONSULTANT
Barr Engineering Co.
4300 MarkelPointe Drive
Minneapolis, MN 55435

Attn: Scott Sobiech, CFM, PE Ph: (952) 832-2755

CIVIL:
Civil Methods, Inc.
Civil Methods, Inc.
PO Box 28038
St. Paul, MN 55128
Attn: Kent Brander, PE
Pt. 782.210.5713
kent.brander@civilmethods.com

ssobiech@barr.com

Chanhassen, MN 55317 Attn: Terry Jeffery, Administrator Ph: (952) 607-6512 tjeffery@rpbcwd.org Riley-Purgatory-Bluff Creek WD 18681 Lake Drive East

330.1-03.

CIVIL METHODS, INC.

P.O. Box 28038 St. Paul, MN 55128 o:763.210.5713 | www.dvilmethods.com

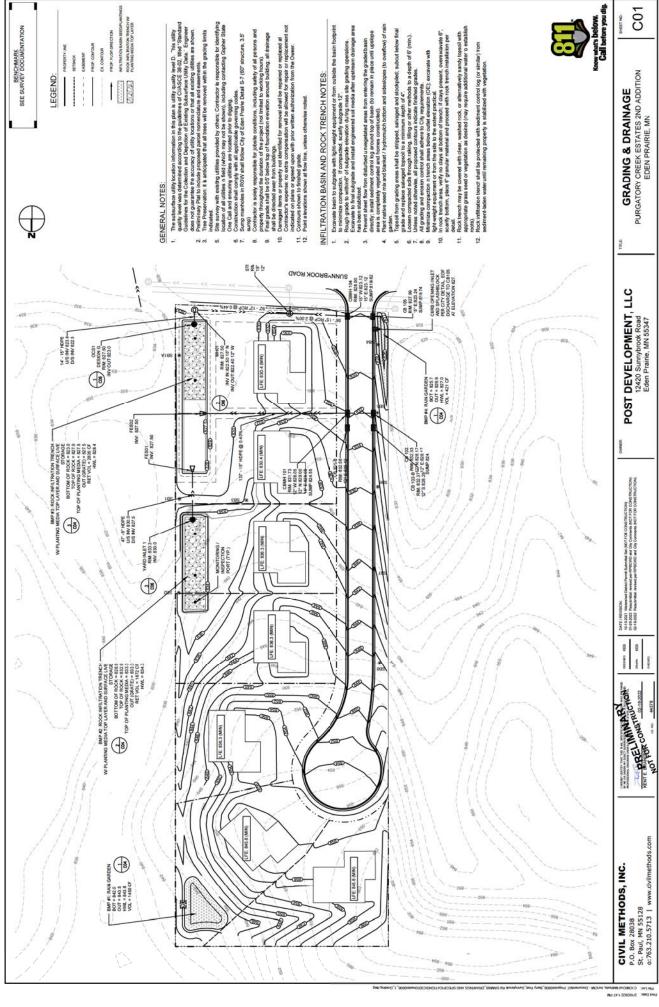
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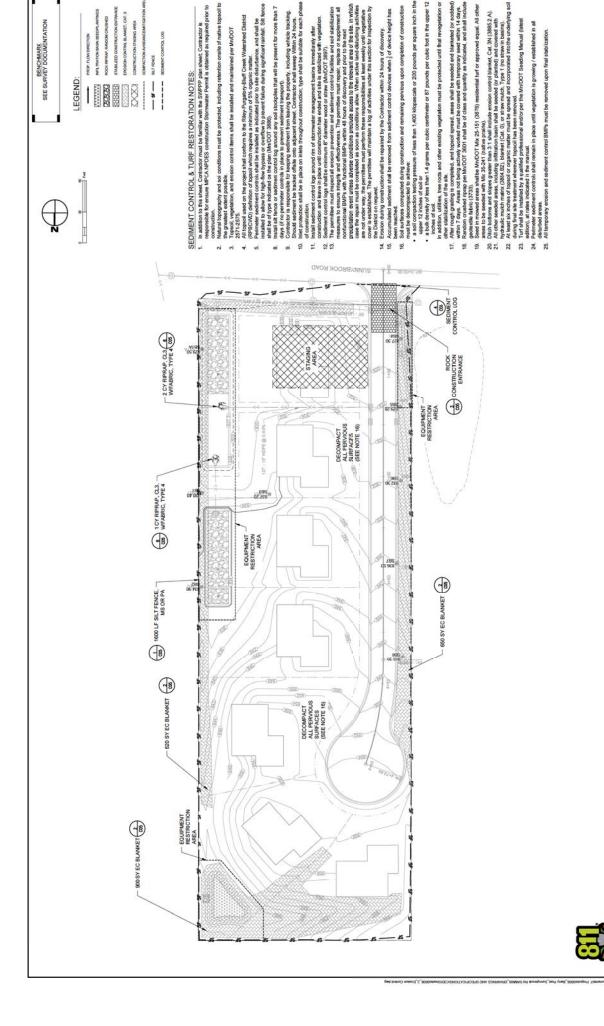
POST DEVELOPMENT, LLC 12420 Sunnybrock Road Eden Prairie, MN 55347

PURGATORY CREEK ESTATES 2ND ADDITION EDEN PRAIRIE, MN TITLE SHEET

T01

Know what's below. Call before you dis.





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POST DEVELOPMENT, LLC 12420 Sunnybrook Road Eden Prairie, MN 55347

EROSION & SEDIMENT CONTROL PURGATORY CREEK ESTATES 2ND ADDITION EDEN PRAIRIE, MN

C02

P.O. Box 28038 St. Paul, MN 55128 o:763.210.5713 | www.dvllmethods.com CIVIL METHODS, INC.

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SITE AND CONSTRUCTION DESCRIPTION

This project includes site grading for a new residential subdivision in the City of Eden Prairia, Hennepin County, MN (Lat 44.835368, Long. +83.434797).

The ste work will include disturbance of all 2.9 of the 2.9 acres for the construction of a 20' wide readway and out-de-de-act, as well as the work and secondaries (89 applied), and the proportion of 20' of manifest will be accessed and included on either and approximately should be 500 of 10' of 11' will be in 10', and it is included to the act. All areas will be stablished and related as included for the plans. Riprap will be installed at all storm sewer and culvert pipe outlets.

The existing site is a large residential percel primarily consisting of open space. No groundwater or soil contamination is anticipated (16.15).

The Contractor shall sign the MPCA NPDES Construction Stormwater Permit application as "Operator" and be solely responsible for meeting the erosion and sediment control requirements of the permit.

Disturbed Area: 2.9 acres

0.03 acres 0.94 acres 0.91 acres Post-Construction Impervious Area

water Treament Required (if >1.0 acre): REQUIRED BY LGU, NOT REQUIRED BY MPCA

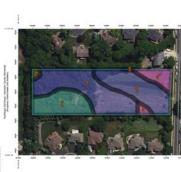
PERMANENT STORMWATER MANAGEMENT:

Permanent stormwater management is required by the Ribey-Pupatory Bladf Coxek Watershed District and the City of Eden Permanent stormwater management is required by the Ribey-Pupatory Bladf Coxek Watershed District and the City of Eden Permanent in the City of the Permanent is a second to the City of the City of the Permanent Permanent Permanent Second elaphent of militaries a WOV of 1.1 from the sile imprevious area. Distribuging rases from the sile have been maintained

Seasonal high water table (SHVIT) developes have been approximated with not bodying indicating modified soils. A minimum of 3'd desparation is provided (as required) from bottom of infinition to SHVIT elevation, exhibitable billian as used, 50% as it the lass as vanished one both natural variations as well as historical borrow and if logenitions. Hairnal soils appear to primarily image from the years he has the sample with the sample of the s

The majority of the site currently durins south to the elipsont roakway. A small portion of the property durins east to the resighboring property. Within 1 this, the projects lead elicitarysis to hashapery Creek, which is impaired to eastable the and aquatic resighboring property. Within 1 this, the projects lead elicitarysis purposed, which is impaired or the seatable the additional residencies and effects by the States' impaired Viviene. List. The attornmenter controllers partnered for the sets will meet the additional to the controllers and the seatable seatable. equirements for discharge to impared waters

SOILS MAP



DOWNSTREAM SURFACE WATERS AND WETLANDS

EROSION & SEDIMENT CONTROL

- The contractor shall use phased construction whenever practical to minimize disturbed area at any one time.

 Contacts buffer shall be preserved with under were an appears to contractor. If not flessible, reductant (double) perimeter sections control control by 50 are required. Special Whenes require 100 buffer.

 All exposed soil areas must be stabilized as soon as possible to limit soil enoision but in no case later than 7_days, after the
 - The following shall be installed within 24 hours of connection to surface water or property edge: uction activity in that portion of the site has temporarily or permanently ceased.
- 4.1 Engogia dissipation (stans) at all cuttlet agrees are set within 200 of property boundary or connection to surface water?
 4.2 Stabilization of temperary or permanent disinges senales within 200 of property boundary or connection to surface water?
 (e.g., atom senser intel, dishappe senale, etc.)
 5. A vehicle standing Bull must be resident and the elementary of caccoway of of their broting, post, also much, with a face or of other broting.
 5. The property of societies must be seep within a face or other broting and other particular senal much, was fare proposable to control endinent delan water from its even gate. All mobilized sediment that has that becomes a face or other proposable to control endinent adders water from its even gate. All mobilized sediment that has the first endinent control operations of an on additional cost to the owner.
 8. Any first becomes built be contradict or a sediment control practices, additional cost to the site, etc., shall be the responsibility of the Contractor.

- - Inters shall be protected from sediment at all times, with appropriate protection installed for each phase of development.
 Interston of fraction bearings ablance becaused to find place will confidence area has been fully stabilized, in operate or processed to have performed to extend the processed for the place of the beater (16.4).
 When receiveding to within 3" of final grade of infittation / filtration system, areas shall be staked to ensure vehicles and
- equipment do not compact the soil.

 13. Adjocent close must be interested and begat dear of sediment, roads to be swept within 24 hours of tracked sediment discon
 13. Adjocent empourp Billia may be required to ratios the potential for sediment transport during construction. If deemed
 necessary by onlike present Empires or former state the controlled immediately for approval or guidnens, it is waitable.
 Otherwise best Johanners shall be used to provide rapid stabilization or sediment controls as mocessary to minimize potential.

CONSTRUCTION IMPLEMENTATION SCHEDULE & PHASING

- install perimeter sit fence / sediment logs, and construction entrance as shown prior to site disturbance
 - Complete soil stripping and rough grading of site. Install stormwater best management practices (BMPs) and outlet re

 - Install utilities, pavement, and curbing as indicated
- Complete site restoration and final stabilization measures (remove temporary Replace topsoil and establish vege
- vegetation is established). Submit Notice of Termination (NOT) to MPCA within 30 days

DEWATERING & DAGIN DRAINING

- Dewatering water, if necessary, must be discharged to a temporary or permanent sediment basin when feasible, if not feasible, appropriate BMPs must be used to prevent sediment-laden water from discharging downstream.
- outlet. Discharge must not cause nuisance or erosive conditions to downstream properties or receiving channels. Excessive inundation of downstream wetlands is
 - not permitted (if applicable). If filters with backwash water are used, all backwash water must be hauled offsite for disposal, returned to the beginning of the realment process, or incorporated into the site in a manner not causing erosion

EROSION & SEDIMENT CONTROL QUANTITIES

ITEM	QUANTITY
SILT FENCE (OR SEDIMENT CONTROL LOG)	30000
EROSION CONTROL BLANKET, CAT 3	2160 SY
SEED/MULCH	1,000 SY
ROCK CONSTRUCTION ENTRANCE	130 SY
RIPRAP RANDOM CRUSHED	404

- The contractor must routinely inspect the construction site cnce every 7 days during construction, and within 24 hrs of receiving move than ½ of rain in 24 hrs. Rainfall amounts must be measured by a properly installed rain gage onsite, or from a weather reporting system with site specific radar rainfall summaries (11,11).
- Allinspections and rainfalls > ½" must be recorded and retained onsite with the SWPPP. Inspections shall include: date/time name of individual, date & amount of rainfall, findings, corrective actions, observed discharge/location/description, any propo
- 4. Sill fence (or related perimeter control device) must be maintained when accumulated sediment reaches \(\frac{1}{2} \) the height of the inspections may be suspended when work is stopped due to frozen conditions. The Contractor's inspector must inspections within 24 hours after runoff occurs at the site orprior to resuming construction, whichever device, or if device becomes ineffective (by the end of the next business day following discovery).
- Permanent and temporary sediment basins, if applicable, shall be drained and cleaned when sediment depth reaches ½ of original storage volume; complete within 72 hrs of discovery. Must be cleaned prior to project completion.
- stabilize within 7 Inspect downstream ditch / drainage system for signs of ercsion or sediment buildup during each inspection Non-functional BMPs must be repaired or replaced by the end of the next business day following discovery
 - days. Inspect vehicle exit locations and adjacent streets, remove sediment from surfaces within 1 day.

POLLUTION PREVENTION

- Allsoid was in generated at the site must be disposed of in accordance with all applicable federal and state regulations. All hazardous materials must be properly stored/contained to prevent spills or leaks; materials must be properly dispose pe applicable regulations, including Minn. Rute Ch. 7045. Frestricted access storage areas must be provided to prevent
- codiming any hazardous materials must be collected and properly disposed of Defined area must be delineated with codiming any hazardous materials in negrine observed all aloned on allow. The property of the codimination of th 3. Vehicle or equipment washing must be confined to a defined area (minimum of 100' from pond or drainage ditch); ruxoff
- polutant discharge, or protected by similar means to minimize potential contact with stormwater.

 5. Concrete and other weshout waste must be effectively contained solid and liquid washout waste must not contact ground and must be disposed of properly in compliance with MPCA rules. A sign must be installed at washout area requiring personnel to utilize the proper facilities for disposal of concrete and other
- The contract is solely responsible for monitoring it pollution and examining the contract may not expend the contract the solely responsible for monitoring it pollution and could control measures are incidental to the contract. The engineer may require additional dust control reseaures to be implemented, as necessary.

 Adequate inexponsy restroom facilities shall be seprent content in a stable and secure location offining construction operations.

FINAL STABILIZATION

- The Contractor must ensure final site stabilization meets the Permit requirements, and submit the NOT within 30 days. Ferst stabilization includes unitima personal variables cover of at least 70% of the expected final growth density one the entire pervices suffice area, or other equivalent cover to prevent ord incacken. Altemporary symbetic and structural BMPs must be removed as part of final stabilization.

RECORD RETENTION

- The SMPPP, all revisions to it, and inspection & maintenance records are the responsibility of the Contractor and mast remain at the site burning construction to it. The materials may be kept in a ladd office, ontall we wisely, or "SWPPP Maibox". The intering occurrent stands by provided by Contractor as sufficied below and required. The SWPPP is project governer, in specification to the contractor as sufficient contractors as agreements, and standarder maintenance agreements, and standarder maintenance agreements, and standarder in setting definition management code of majority of the standard for 3 years after admitted of permit NOT. Contractor shall provide Owner or Engineer codes of majority of maintaining by prior to final payment.

TRAINING REQUIREMENTS

- The permittees must comply with the training requirements as outlined in Section 21 of the Permit. The Contractor shall have a
 - trained individual performing BMP installations and inspections, as required. Training table (below) to be completed prior to construction, as appropriate.

RESPONSIBLE PARTIES & TRAINING SUMMARY

	COMPANY	CONTACT	PHONE	DATE	COURSE / ENTITY	CONTENT
OWNER				2	¥	ž
SWPPP PREPARER:	CML METHODS, INC.	KENT BRANDER, PE	763.210.5713	1242022	UNIV. OF MN.	DESIGN OF CONSTRUCTION SAMPRES
GENERAL CONTRACTOR / NSPECTOR:						
CONTROL INSTALLER:						
PERMANENT BMP				***	NA	MA

CIVIL METHODS, INC.

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SERVE BANKOT CONSTITUTION OF SERVER CONSTITUT

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DATE / REVISION:

0.9.15.501 Whenheld Electe Permit Submitted Set (NOT FOL CORS) TRUCTIONS

16.15.5021 Whenheld Elected Permit Settlement Set (Settlement Settlement)

16.15.5021 Resultminist revised per PSPICAVIC and City Community (NOT FOR CORS) TRUCTIONS

(0.9.15.5022 Resultminist revised per PSPICAVIC and City Community (NOT FOR CORS) TRUCTIONS 8 8

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PURGATORY CREEK ESTATES 2ND ADDITION EDEN PRAIRIE, MN SWPPP

C03

RAIN GARDEN PLANT LIST:

				Bloom
Common Name	Height	Height Location	Color	Time
Wildflowers			200000000000000000000000000000000000000	
Black-Eyed Susan	1.0-3.0	Side	Yellow	Jun-Aug
Yellow/Greenhd Coneflower	3.0 - 8.0	Bot	Yellow	Jul-Sept
Sneezeweed	2.0-5.0	Bot	Yellow	Aug-Oct
Ironweed	3.0 - 6.0	Bot	Purple	Jul-Sept
Marsh Milkweed	3.0 - 5.0	Bot	Pink/white	Jun-Aug
Joe-Pye Weed	4.0-6.0	Bot	Purple	Jul-Sept
Ox-eye Sunflower	2.0-4.0	Bot	Yellow	Jun-Sept
Blue Flag Iris	2.0-3.0	Bot	Blue	May-Jul
Great Blue Lobelia	1.0-2.5	Bot/Side	Blue	Aug-Sept
Smooth Phlox	2.0-3.0	Bot/Side	Pink/Purp	May-Jun
Autumn Joy Sedum	1.5 - 2.0	Side	Pink	Aug-Oct
Compass Plant	5.0 - 8.0	Bot	Yellow	Jul-Sept
Culver's Root	3.0 - 5.0	Bot	White	Jul-Aug
Prairie Blazingstar	2.0-4.0	Bot/side	purple	Jul-Aug

NATIVE SED MIX AS SPECIFIED, INSTALL EROSION CONTROL BLANKET, CAT 0 (3885)

DEPTH TO OVERFLOW VARIES

MAX.

SEE PLAN-

REPLACE TOPSOIL (6"MIN), SOD OR SEED & MULCH IN GRADED AREAS OUTSIDE PLANTING ZONE

BASIN VEGETATION: INSTALL WET-TOLERANT RAIN GARDEN WATTRE SEED BM., OR FOR FASTER ESTABLISHMENT PLUCS (SIZE 2") SPACED PER SUPPLIER INSTRUCTIONS.

 1.0-2.0
 Bot/side

 2.0-4.0
 Bot

 1.0-2.0
 Bot/side

 1.0-3.0
 Bot

 1.0-2.5
 Bot/side

 1.0-2.0
 Bot

 2.0-6.0
 Bot
 Grasses Karl Foerster's Feather Reed Nodding Sedge Palm Sedge Tussock Sedge Fox Sedge Soft Rush big bluestem

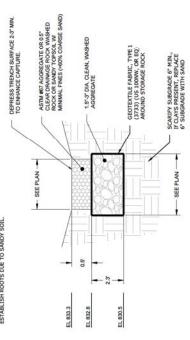
TILL SUBGRADE TO DEPTH OF 6" (MIN)

1) BMP #1: RAIN GARDEN

SCARIFY 12" NATIVE TOPSOIL

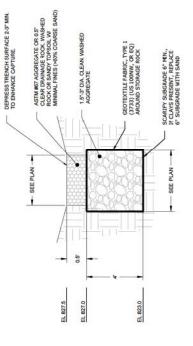
NOTE: This is a partial list; other wet-tolerant, full-sun, native plants may be suitable.

NOTE: USE 6" SANDY (60% MIN) TOPSOIL FOR GRASS THENCH, OR ROCK FOR ROCK SURRACE OR PLANTING BED. VEGETATION MAY NEED FREQUENT WATERING TO ESTABLISH ROOTS UPE TO SANDY SOIL.



2) BMP #2: UNDERGROUND INFILTRATION CHAMBER

NOTE: USE 6" SANDY (60% MIN) TOPSOIL FOR GRASS TRENCY, OR ROCK SURFACE OR PLANTING BED. VEGETATION MAY NEED FREQUENT WATERING TO ESTABLISH ROOTS DUE TO SANDY SOIL.



(3) BMP #3: UNDERGROUND INFILTRATION CHAMBER

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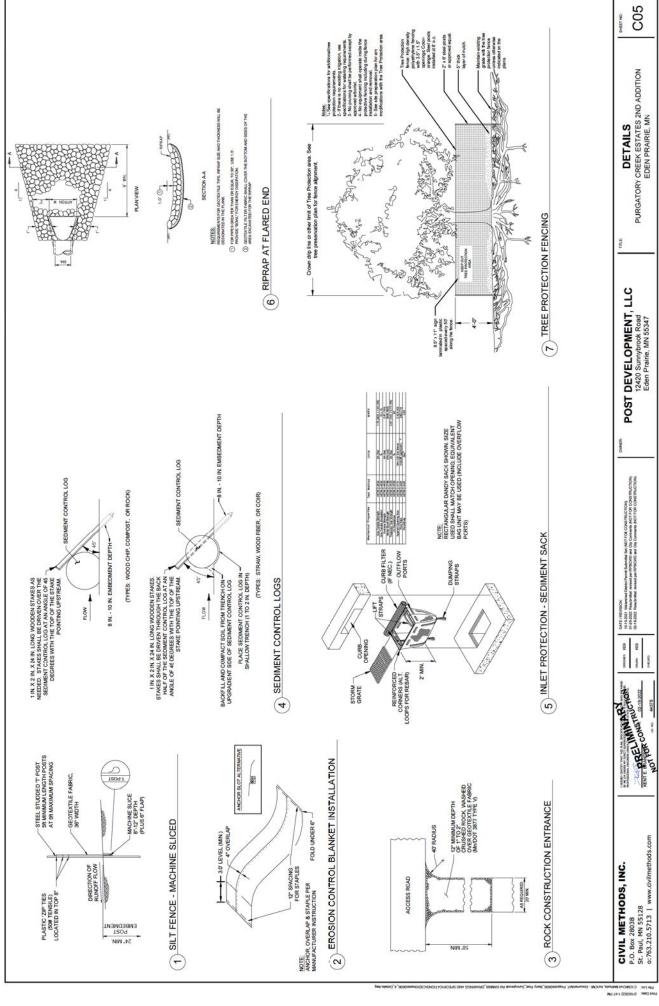
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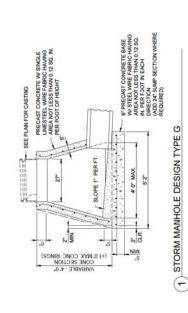
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	DATE / REVISION 10-15-2021 Was	02-18-2002 Res
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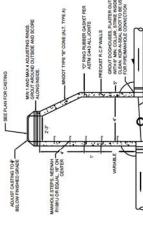
PURGATORY CREEK ESTATES 2ND ADDITION EDEN PRAIRIE, MN DETAILS







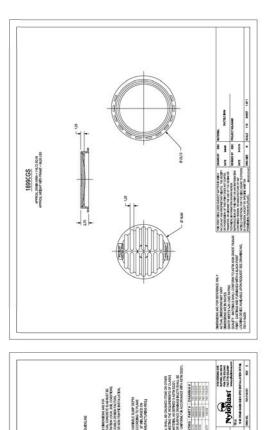
NYLOPLAST 18" DRAIN BASIN: 2818AG __ X



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(3) MANUFACTURER DETAIL - NYLOPLAST DRAIN BASIN AND GRATE (18" SHOWN; OTHER SIZES AVAILABLE)

CIVIL METHODS, INC.

2 STORM SEWER MANHOLE, DESIGN F

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PURGATORY CREEK ESTATES 2ND ADDITION EDEN PRAIRIE, MN DETAILS

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