McKusick Road Water Quality Improvement Project

A. Project Location

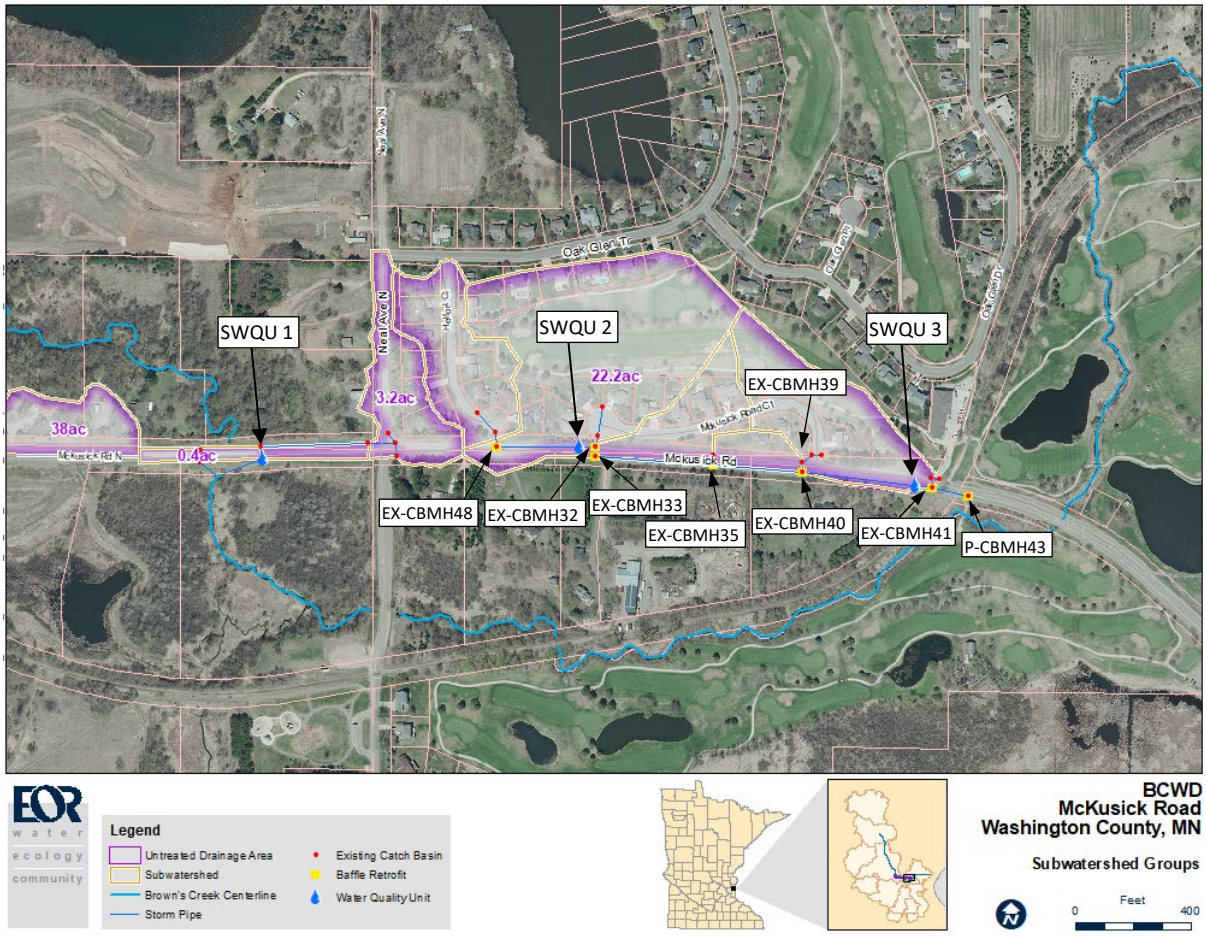


Figure 1. Location map for McKusick Road Water Quality Improvement Project.

Project Location	Immediate Waterbodies Impacted	BMP Performance		
		TSS Reduction (lbs/yr)	N Reduction (lbs/yr)	P Reduction (lbs/yr)
Located along McKusick Road, from west of Neal Avenue North to east of Oak Glen Drive in the City of Stillwater, MN (Figure 1).	Brown's Creek	3,535	NA	8.04

B. Description of Facility

I. General Site Description

Partners	Project Purpose	Drainage Size	Project Completed	Maintenance Requirement
BCWD, Washington County	Reduce pollutant loading from residential neighborhoods and county road runoff into Brown's Creek	25.5 acres	2018	Minimum of 25 years (until 2043)
Note 1: BCWD is responsible for maintenance. Washington County is the landowner.				
Note 2: Manufacturer's (ADS) suggested design life of 75 years is similar to HDPE pipe, provided maintenance is completed and chemicals received in the runoff / sediment do not adversely impact the pipe.				
Costs				
Total Project Cost: $408,738 (including design and construction)				
• Leveraged Clean Water Fund Grants: $274,250 (67%)				
• Local BCWD Tax Levy: $134,488				

II. Parts Inventory

Item #	MN/DOT SPEC. NO.	Item	Quantity	
1	2502.541	4" PERFORATED HDPE DRAINTILE W/ SILT SOCK	56	LF
2	2503.511	15" HDPE PIPE SEWER (FOR SWQU)	164	LF
3	2503.573	BAFFLE (MOMENTUM PRESERVER, 15" DISSAPATOR, CUSTOM)	1	EA
4	2503.573	BAFFLE (MOMENTUM PRESERVER, 15" DISSAPATOR, STANDARD)	2	EA
5	2503.573	BAFFLE (MOMENTUM PRESERVER, 18" TO 21" DISSAPATOR, STANDARD)	4	EA
6	2503.573	BAFFLE (MOMENTUM PRESERVER, 18" TO 21" SKIMMER, STANDARD)	1	EA
7	2503.573	CORE DRILL CONNECTION TO EXISTING STRUCTURE (15" HDPE, INSIDE DIAMETER)	3	EA
8	2053.573	12" PVC PIPE SEWER, ROAD & HIGHWAY, H-20 TRAFFIC LOAD (SWQU CLEANOUT)	6	EA
9	2503.573	STAINLESS STEEL WEIR PLATE (T304, 11 GAUGE)	2	EA
10	2506.501	24" HDPE (ACCESS RISER EXTENTION PIPE CONNECTED TO SWQU RISER STUB)	16	LF
11	2506.502	72" DIA. PRECAST CONCRETE MANHOLE, MNDOT PLATE 4020J (DESIGN 4020; 13-FEET DEEP)	1	EA
12	2506.502	84" DIA. PRECAST CONCRETE MANHOLE, MNDOT PLATE 4020J (DESIGN 4020; 8-FEET DEEP)	1	EA
13	2506.502	48" DIA. PRECAST CONCRETE MANHOLE, MNDOT PLATE 4005M (DESIGN F, TYPE A; 7-FEET DEEP)	1	EA
14	2506.502	48" DIA. PRECAST CONCRETE MANHOLE, MNDOT PLATE 4005M (DESIGN F, TYPE A; 12-FEET DEEP)	1	EA

15	2506.502	WATER QUALITY TANK 1 (ADS SWQU 6040WQB W/ HIGH FLOW BYPASS; 8-FEET DEEP)	1	EA
16	2506.502	WATER QUALITY TANK 2 (ADS SWQU 6040WQB W/ HIGH FLOW BYPASS; 15-FEET DEEP)	1	EA
17	2506.502	WATER QUALITY TANK 3 (ADS SWQU 6040WQB W/ HIGH FLOW BYPASS; 12-FEET DEEP)	1	EA
18	2506.516	CONCRETE, ACCESS RISER SWQU CASTING SUPPORT	6	EA
19	2506.516	CONCRETE, ACCESS RISER SWQU CONNECTION SUPPORT	6	EA

III. Stormwater Management Facilities

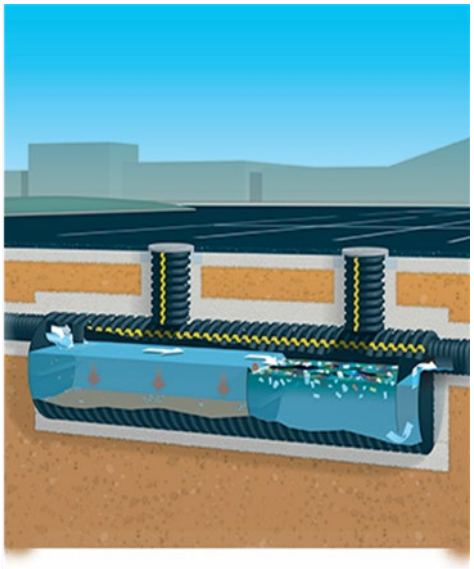


Figure 2. Underground SWQU

The drainage path of the project is as follows: paved driveway with curb & gutter, and catch basins direct site drainage into the three underground stormwater quality units (SWQU). The 5-foot diameter by 40-foot long underground storage tanks are designed to capture debris collected in runoff including trash, sediment, oils and other suspended solids. Higher flows bypass the tanks via the existing county road storm sewer (and ultimately discharge to Brown's Creek).

Best Management Practices (BMPs) included in this project are three underground ADS HDPE SWQU, and seven catch basins retrofitted with Preserver baffles.

ADS's underground retention/detention systems provide a solution to effectively manage and store stormwater runoff utilizing a series of pipes and fittings. As the stormwater moves through the system, sediment and debris will tend to settle out of the water and collect in the pretreatment chamber side before it is able to enter the retention/detention chamber. This will require regular inspection and cleaning in order for the system to perform as originally designed and extend the service life.

IV. Accessibility

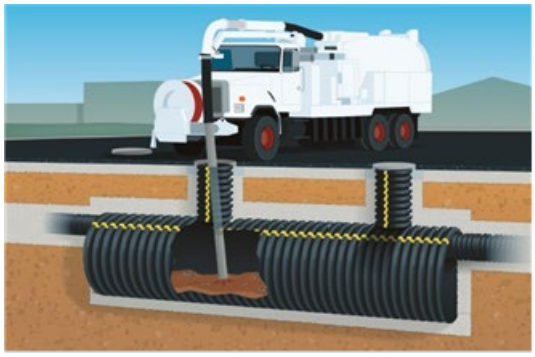


Figure 3. Maintenance of SWQU

To maintain the SWQUs and the catch basin manholes, the stormwater facilities can be accessed from McKusick Road. Manhole risers are installed on top of the SWQUs for removing debris, sediment, and trash.

Equipment typical of providing the maintenance is approximately 10 to 15 tons dry with a gross weight approaching 30-tons. It is anticipated this type of heavy equipment could remove acquired

sediment in one or two maintenance trips for each SWQU.

V. Start-Up and Operating Procedures

a. Process Description
Not Applicable for this project

b. Controls
Not Applicable for this project

c. Start – Up Procedures
Not Applicable for this project

d. Normal Operating Procedures
The following personnel can be contacted for normal operating procedure questions.

Contact Personnel		Contact Number	Organization
Primary	Karen Kill, Administrator	651-330-8220 x26	BCWD
Secondary	Derek Lash, P.E. Project Engineer	651-770-8448	Emmons & Olivier Resources, Inc.

e. Common Operating Problems
Maintaining the SWQUs and manholes retrofitted with baffles is important for the long-term functionality of the devices. Due to the trees in the area around the site, this system has a tendency to be plugged with leaves and sand. If left plugged, in larger storm events, water will bypass the system entirely and flow directly into Brown's Creek.

C. Maintenance and Inspection Requirements

I. Planning Maintenance and Inspections

Inspections are to occur three to four times per year between the months of April and November. Inspection summaries are to be completed by the BCWD, at the time of each visit. Buildup of debris can obstruct flow through the laterals or block the entranceway of the outlet pipe in a retention or detention system. This may result in failure of the system to operate as intended. A Vacuum Truck is necessary to clean out the SWQU's and catch basin sumps. Inspections will inform the BCWD of the sediment accumulation rate for each BMP though biennial (every other year) cleaning of the SWQU's and quarterly or biannual (two times per year) sump cleaning is anticipated.

a. Inspection Procedures

Item	Item Location	Parameter Measured	Inspection Frequency
EX-CBMH48	North side of McKusick Rd, east of Neal Ave, just south of Heifort Ct. cul-de-sac	Debris on grate cover, sediment buildup in basin	2 - 3 times per year
EX-CBMH32	North side of McKusick Rd, just south of McKusick Rd Ct cul-de-sac	Debris on grate cover, sediment buildup in basin	2 - 3 times per year

EX-CBMH33	South side of McKusick Rd, just west of entrance to Countryside Auto Repair	Debris on grate cover, sediment buildup in basin	2 - 3 times per year
EX-CBMH35	South side of McKusick Rd, between CB 3 and CB5	Debris on grate cover, sediment buildup in basin	2 - 3 times per year
EX-CBMH40	South side of McKusick Rd, just west of McKusick Rd Ct	Debris on grate cover, sediment buildup in basin	2 - 3 times per year
EX-CBMH41	South side of McKusick Rd, just west of Brown's Creek State Trail	Debris on grate cover, sediment buildup in basin	2 - 3 times per year
P-CBMH43	South side of McKusick Rd, just east of Brown's Creek State Trail	Debris on grate cover, sediment buildup in basin	2 - 3 times per year
SWQU 1 West Access Manhole	South side of McKusick Rd, east of Brown's Creek	Floating debris	3 – 4 times per year
SWQU 1 East Access Manhole	South side of McKusick Rd, east of Brown's Creek	Sediment depth	3 – 4 times per year
SWQU 2 West Access Manhole	North side of McKusick Rd, west of entrance to Countryside Auto Repair	Sediment depth	3 – 4 times per year
SWQU 2 East Access Manhole	North side of McKusick Rd, west of entrance to Countryside Auto Repair	Floating debris	3 – 4 times per year
SWQU 3 West Access Manhole	South side of McKusick Rd, just west of Brown's Creek State Trail	Sediment depth	3 – 4 times per year
SWQU 3 East Access Manhole	South side of McKusick Rd, just west of Brown's Creek State Trail	Floating debris	3 – 4 times per year

Inspections should include the following documentation (*Outlined in Section E, Record of Annual Inspection and Maintenance Program*) and measurements of the following BMP components:

1. *Document the presence of sediment, leaf litter, or other debris on the paved surface or covering the catch basin grates. Such conditions could inadvertently direct runoff over the curb, bypassing the SWQUs.*
2. *Document the presence of sediment, leaf litter, or other debris in the catch basin manholes. Such conditions could block runoff from entering the SWQU and inadvertently direct runoff to the high-flow bypass pipe.*
3. *Measure the depth of sediment and/or organic layer in the SWQU access manholes. The measurement should be recorded from the top of the access manhole rim to the sediment and/or organic layer. Initial measurements can be taken with a large stick or piece of string with a flat weight on the end. These measurements will allow for inspection measurements to being taken from outside of the system, eliminating the need for manned entrance.*

   During inspections, elevations of sediment height should be taken from each riser and cleanout. These elevations should be recorded on the Inspection and Maintenance log

sheet. Also during the inspection, personnel should be looking for blockages to inlet or outlet stubs. Inspection of the pre-treatment unit upstream of the system should be inspected at this time.

4. *Document the presence of sediment, leaf litter, or other debris in the manhole leaving the SWQUs. The presence of discharged material could indicate the SWQUs units are inadvertently discharging sediment and/or debris because the units are full and require clean-out.*

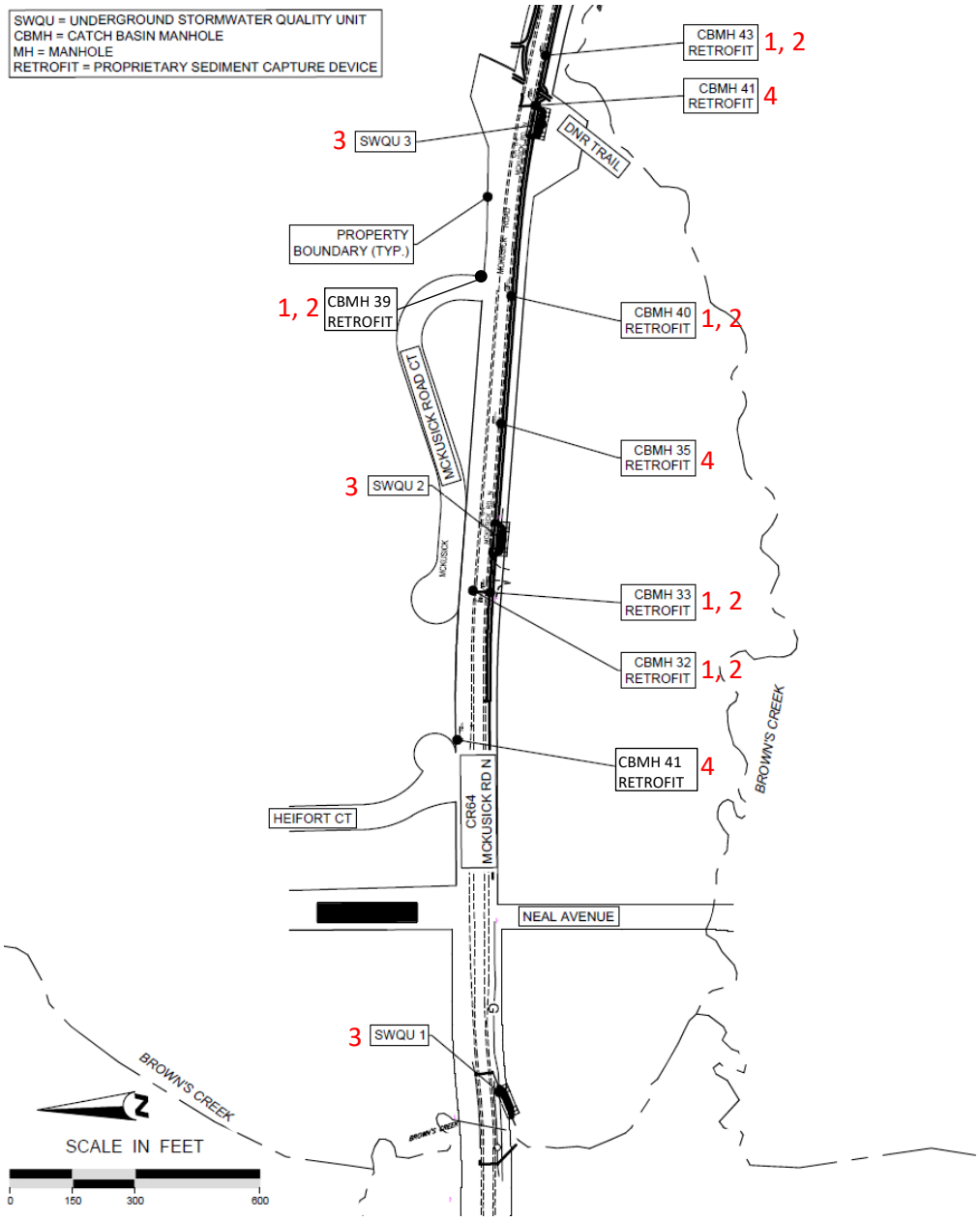


Figure 4. Inspection and Maintenance items locations.

McKusick Rd BMP Tank Depths

Tank / Riser	Rim Elev. [FT]	Bottom Elev. [FT]	Depth [FT] (from RIM)	Maintenance Depth [FT] (from RIM)
SWQU 1 - Riser 3 Sediment Chamber	871.08	863.93	7.15	**5.25** *(50% Storage Capacity)*
SWQU 1 - Riser 2 Oil Chamber	871.05	863.95	7.10	**6.10** *(25% Storage Capacity)*
SWQU 2 - Riser 7 Sediment Chamber	887.25	872.62	14.63	**12.73** *(50% Storage Capacity)*
SWQU 2 - Riser 8 Oil Chamber	887.30	872.70	14.60	**13.60** *(25% Storage Capacity)*
SWQU 3 - Riser 13 Sediment Chamber	865.31	853.96	11.35	**9.45** *(50% Storage Capacity)*
SWQU 3 - Riser 14 Oil Chamber	864.23	853.93	10.30	**9.30** *(25% Storage Capacity)*

McKusick Road Sump Catch Basins

Manhole Name	Rim Elev. [FT]	Bottom Elev. [FT]	Depth [FT] (from RIM)	Maintenance Depth [FT] (from RIM)
EX-CBMH32	888.53	879.16	9.37	8.37
EX-CBMH33	888.40	877.51	10.89	9.89
EX-CBMH39	884.31	876.47	7.84	6.84
EX-CBMH40	884.35	871.62	12.73	11.73
EX-CBMH48 (SWQU#1)	877.95	867.05	10.90	9.90
EX-CBMH35 (SWQU#2)	886.89	874.34	12.55	11.55
EX-CBMH41 (SWQU#3)	863.96	854.84	9.12	8.12
PR-CBMH43	861.77	853.87	7.90	5.90

b. Maintenance Procedures

Item	Corrective Action	Maintained by	Maintenance Frequency	Est. Annual Cost *(Based on 2024 Est.)*
EX-CBMH48	Clear with vacuum truck	Contracted party	As determined by inspections	$850($1,700)[1]
EX-CBMH32	Clear with vacuum truck	Contracted party	As determined by inspections	$850($1,700)[1]
EX-CBMH33	Clear with vacuum truck	Contracted party	As determined by inspections	$850($1,700)[1]
EX-CBMH35	Clear with vacuum truck	Contracted party	As determined by inspections	$850($1,700)[1]
EX-CBMH39	Clear with vacuum truck	Contracted party	As determined by inspections	$850($1,700)[1]

EX-CBMH40	Clear with vacuum truck	Contracted party	As determined by inspections	$850($1,700)[1]
EX-CBMH41	Clear with vacuum truck	Contracted party	As determined by inspections	$850($1,700)[1]
P-CBMH43	Clear with vacuum truck	Contracted party	As determined by inspections	$850($1,700)[1]
SWQU 1	Clear with vacuum truck	Contracted party	Minimum Biennial	$2,250 ($4,500)[1]
SWQU 2	Clear with vacuum truck	Contracted party	Minimum Biennial	$2,250 ($4,500)[1]
SWQU 3	Clear with vacuum truck	Contracted party	Minimum Biennial	$2,250 ($4,500)[1]
Annual inspections	Evaluation and Testing of 6 samples	BCWD	3-4 times per year	$1000
			Anticipated Total Yearly Cost:	**$14,550**
Note: Maintenance must be provided for a minimum of 25 years (until 2043).				
1. SWQU and manhole cleanings show an annual cost, as well as a biennial frequency cost. This cost includes sediment testing, removal, and disposal.				
2. Sediment sampling shows an annual cost, assuming a biennial frequency cost of $2,000/sample, which includes collection, drop-off, analysis, review and reporting.				

*Buildup of debris can obstruct flow through the laterals or block the entranceway of the outlet pipe in a retention or detention system. This may result in ineffective operation or complete failure of the system. Additionally, surrounding areas may potentially run the risk of damage due to flooding or other similar issues. The (BCWD) will perform between three and four inspections from April through November. Inspection summaries shall be completed by the District, at the time of each visit.

The BMPs shall be maintained and repaired by the District.

Within 7 days:

1. *Sediment, leaf litter, or other debris collected on the paved surface or covering the two catch basin grates shall be removed so runoff can enter the SWQU. Material shall be removed when an obstruction obviously directs runoff over the curb, and/or when less than 50% of the catch basin grate surface is visible.*

Within 90 days:

2. *Sediment, leaf litter, or other debris collected in the two catch basin manholes shall be removed so runoff can enter the SWQU rather than spilling over the curb and into Brown's Creek. Material shall be removed when the pipes are found to have 25% or greater of the pipe inlet blocked.*

3. *Sediment, leaf litter, or other debris will be removed from the SWQU through a cleaning process by vacuum truck or other appropriate means when remaining storage in the SWQU is found to be 50% or less of its original capacity.*
4. *If sediment, leaf litter, or other debris has accumulated in the manhole leaving the SWQU, inspection of the SWQU should take place to determine if the SWQU storage has reached 50% of its original capacity and if a cleaning process should be planned.*
5. *Sediment, leaf litter, or other debris will be removed from the outlet pipe when accumulation is restricting flow through the pipes by 50% of the original capacity.*
6. *Any areas of erosion, scouring, or destabilization associated with any of the aforementioned BMP components shall be corrected*

Evaluating and testing sediment

The MPCA requires the responsible parties to sample sediment to determine concentrations of 17 carcinogenic PAHs, 10 noncarcinogenic PAHs, and the metals arsenic and copper. The samples should be collected to the planned depth of excavation or greater, in two-foot intervals; the total number of samples required is dependent on the size of the dredging area, which in this case is less than one acre: two samples.

The sampling results can be compared to the MPCA's Remediation Division soil reference values (SRVs), using the "Summary of Stormwater Pond Sediment Testing Results" spreadsheet found at http://www.pca.state.mn.us/sbiza7c, click on the "Permit" tab, under the "Additional Items" heading.

Sediment determined to have concentrations less than Residential SRVs for all contaminants can be disposed of as unregulated fill or reused in accordance with the MPCA's BMPs for Off-Site Use of Unregulated Fill available at: http://www.pca.state.mn.us/index.php/view-document.html?gid=13503

Sediment with one or more contaminant exceeding Residential SRVs but not exceeding Industrial SRVs requires special management and cannot be used as unregulated fill; this sediment can be disposed of in solid waste landfills. Landfills accepting mixed municipal solid waste nearest to Brown's Creek Watershed District are the Pine Bend Sanitary Landfill, located at 2495 East 117th Street in Inver Grove Heights and the Burnsville Sanitary Landfill, located at 2650 West Cliff Road in Burnsville. A full list of landfills that accept municipal solid waste can be found at https://www.pca.state.mn.us/sites/default/files/w-sw6-04.pdf.

System Cleaning

Before commencing with system cleaning, notify landowner.

When using water jet and a vacuum truck; the high pressure nozzle with rear facing jets is attached to a hose and drug downstream, washing sediment and debris downstream with it. The vacuum truck would then be located on the downstream end and remove the sediment and debris with its vacuum hose. It should be noted that multiple passes of the water jet may be needed to clean the run, dependent on the amount of soil loading.

II. Corrective Actions and Modifications

Corrective actions and modifications are driven based on the performance of the SWQU and (or) change in drainage land use.

III. In-house Versus Contracted Labor

BCWD does not own the necessary equipment to perform the maintenance of the SWQU and catch basin manhole sumps, and will therefore contract this labor.

IV. Sampling and Performance Monitoring

a. Sampling and Analysis

BCWD is responsible for coordination of sediment sample collection from the SWQUs, to be collected and analyzed before removing and disposing of sediment. If a sample is believed to be of a contaminant nature, further lab testing may be required. Consult the BCWD Administrator if samples appear to be of a contaminant nature.

b. Performance Monitoring

BCWD is responsible for coordination of routine monitoring of the SWQUs and the catch basins containing energy dissipation baffles. BCWD will conduct sediment depth measurements to determine the point at which maintenance on the system is necessary.

D. Maintenance Responsibilities and Agreements

BCWD is responsible and will complete regular maintenance to remove trapped sediment and debris. Sediments and debris on the catch basins will be cleared out by hand or shovel. BCWD is also responsible for securing a water jet and a vacuum truck to remove sediment in the system.

I. Manufacturer's Recommendations

Before the system is cleaned, the following considerations should be taken into account:

- *The system will be much easier to clean when there is little to no flow into the system and the system does not have any standing water. For this reason, system cleaning should be scheduled during a dry period or in the winter.*
- *Before cleaning begins, all outlet stubs should be blocked off. If this is not done, sediment loading could back up or plug downstream pipelines, adding to cleaning expenses. This is also done to prevent any of the debris or pollutants from washing into downstream waterways.*
- *When beginning the cleaning process, all upstream pipelines and pre-treatment units should be cleaned prior to starting on the retention or detention system.*
- *When cleaning the retention or detention system, it is best to start at the highest elevation of the system and work towards the lowest elevation.*
- *Stationing the vacuum truck above the downstream manifold and jetting the debris from the laterals to the downstream manifold, provides an effective capture point for the vacuum line.*

II. Safety

Before entering a retention or detention system, ensure all OSHA and local safety regulations are being followed. Only personnel with appropriate confined space permits and personal protective equipment should be allowed to enter the system.

E. Records and Reporting

Records and reporting should be submitted to and maintained by BCWD. The following information should be recorded during all inspection visits: Sediment depth and water levels in the pre-treatment tank, sediment and debris levels in the catch basins, and note any sediment or debris at the inlet and outlet (see inspection form).

Record of Annual Inspection and Maintenance Program:

Inspector Information					
Visit No.:					
Name:					
Date:					
Identifier Number	**Structure Description**	**Debris / Sediment**	**Depth to Sediment**	**Maint. Trigger (ft)**	**Notes**
1.	SWQU 1				
	West Access Manhole	Y / N		6.10	
	East Access Manhole	Y / N		5.25	
2.	SWQU 2				
	West Access Manhole	Y / N		12.73	
	East Access Manhole	Y / N		13.60	
3.	SWQU 3				
	East Access Manhole	Y / N		9.45	
	West Access Manhole	Y / N		9.30	
4.	Outlet Manhole	Y / N			
5.	Outlet Pipe	Y / N			
4.	EX-CBMH48	Y / N		9.90	
5.	EX-CBMH32	Y / N		8.37	
6.	EX-CBMH33	Y / N		9.89	
7.	EX-CBMH35	Y / N		11.55	
8.	EX-CBMH40	Y / N		11.73	
9.	EX-CBMH41	Y / N		8.12	
10.	P-CBMH43	Y / N		5.90	
Maintenance Description:					
Contractor / Maintenance Crew Information					
Date:					
Name:					
Phone:					
Address:					
Maintenance Description:					

F. Emergency Plan and Operating Procedures

I. Emergency Plan

Issues that would trigger the Emergency Operating Procedure consist of large oil or other contaminant spills that enter the SWQU. Always call 911 in a situation that presents a risk of immediate bodily harm to yourself or the surrounding community.

II. Emergency Operating Procedures

In the event of an operational emergency, please contact the following personnel for further assistance.

Contact Personnel		Contact Number	Organization
Primary	Karen Kill, Administrator	651-330-8220 x26	BCWD
Secondary	Derek Lash, P.E., Project Engineer	651-770-8448	Emmons & Olivier Resources, Inc.
Secondary	Andrew Giesen	651-430-4336	Washington County Public Works Department

G. Appendices

I. Construction Plan Set

II. Agreements

a. Cooperative Agreement – Washington County

b. Maintenance Agreement – Washington County

RECORD DRAWING
CONTRACTOR: NORTH VALLEY, INC.
SUB-CONTRACTOR: DRESEL CONTRACTING, INC.
CONSTRUCTION COMPLETION DATE: AUGUST 2018

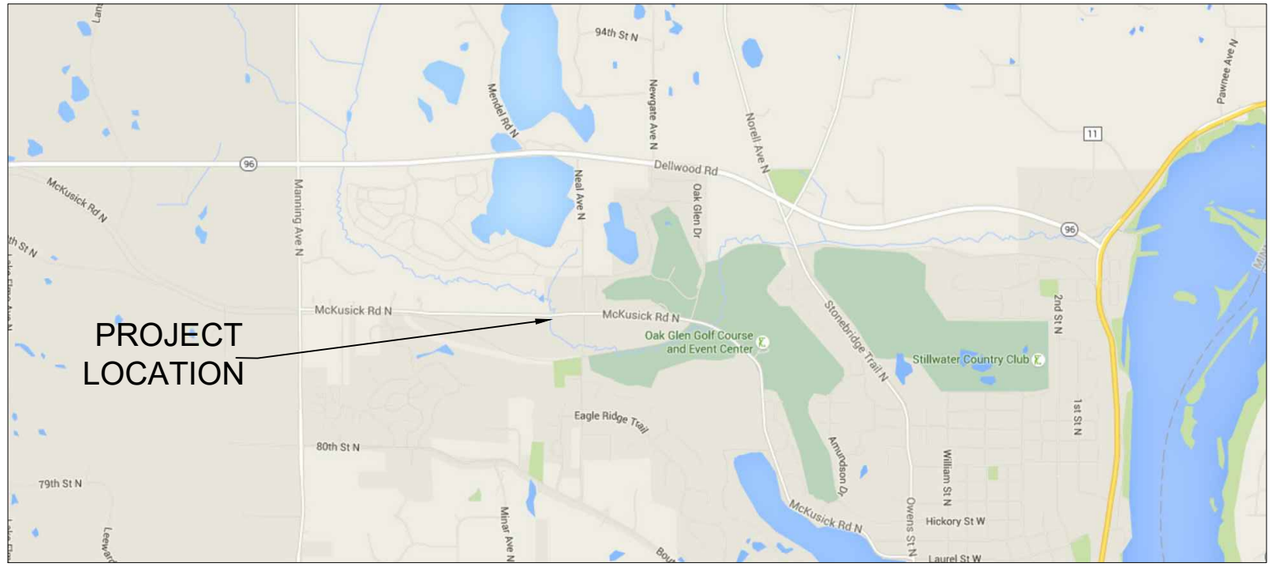
BROWN'S CREEK WATERSHED DISTRICT

MCKUSICK ROAD WATER QUALITY BMPS

STILLWATER, WASHINGTON CO., MN

LEGEND

FEATURE	EXISTING	PROPOSED
ROW		
BROWN'S CREEK		
OVERHEAD ELECTRICAL LINE	E-O	
TELECOMMUNICATION LINE	TV-U	
FIBER OPTIC LINES	FO	
GAS LINES	G	
BARBED WIRE FENCE		
GUARD RAIL		
SANITARY SEWER LINE		
STORM SEWER LINE		
CONSTRUCTION LIMITS		
EDGE OF ROAD		



Sheet List Table	
Sheet Number	Sheet Title
1	TITLE SHEET
2	STATIONING AND TABULATION
3	SEQ & NOTES
4	BMP LOCATION MAP
5	STORMWATER QUALITY UNIT 1
6	STORM SEWER PLAN AND PROFILE
7	STORMWATER QUALITY UNIT 2
8	STORMWATER QUALITY UNIT 3
9 TO 13	DETAILS 1-5
14	SITE RESTORATION PLAN

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING FIELD MANUAL FOR TEMPORARY CONTROL ZONE LAYOUTS.

GOPHER STATE ONE CALL

GOPHER STATE ONE-CALL

All Minnesota excavators, including homeowners and farmers, are responsible for notifying GSOC of their proposed excavations so facility operators with underground facilities near the excavation site can be informed of pending excavation.

GSOC reminds you that anyone excavating in Minnesota must have their own one-call ticket. If you are a sub-contractor and you are excavating, protect yourself and your company by obtaining your own one-call ticket. The general contractor's ticket does not apply to subcontractors.

You must contact GSOC to provide information necessary to complete a locate ticket at least two (2) business days (not including weekends and holidays) before excavating. You may contact GSOC up to 14 calendar days prior to beginning excavation to provide facility operators additional time to mark the area of proposed excavation.

Methods of Providing Information for Locate Requests
GSOC asks for your help when you are processing your locate requests during the busy digging season of April through October. If at all possible avoid using the telephone to contact GSOC between the peak calling hours of 7 am and 11 am, Monday and Tuesday. Please use our E-Ticket system to submit your tickets, which can be submitted 24/7.

Note: Emergency calls are exempt from this request and are always accepted.

GSOC offers excavators several convenient options for providing information to process locate tickets:

E-Ticket: www.gopherstateonecall.org/submit

Telephone: Locates~ (651) 454-0002 or 800-252-1166 OR Emergency Locates~ 866-640-3637
GSOC can be contacted between 6 am and 6 pm, Monday through Friday, April through October, and 7 am through 5 pm November through March to process excavation, meet and non-excavation locate requests. Emergency locate requests may be submitted 24 hours a day. Before contacting GSOC, make sure all excavation information is ready.

811
811 is another telephone number available to contact GSOC. With 811 being so close in numeric proximity to 911, you will first be instructed to make sure this is not an emergency for which 911 is applicable and that you are in fact tying to contact GSOC.
When your locate ticket is complete, you will be given a ticket number. Keep this ticket number to track which facility operators have responded to your one-call request.

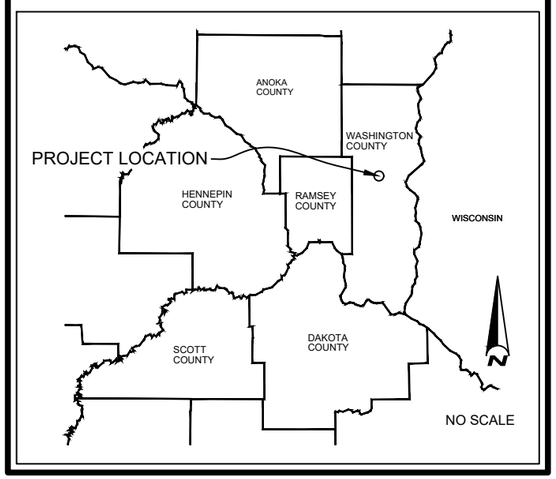
EXISTING UTILITIES

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF ASCE C-I 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

CONSTRUCTION NOTE

CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO MAINTAIN OPERATION OF EXISTING UTILITIES THROUGHOUT THE DURATION OF THE PROJECT. IN THE EVENT THAT AN INTERRUPTION OF SERVICE IS UNAVOIDABLE IN ORDER TO COMPLETE THE WORK, CONTRACTOR SHALL PROVIDE ADEQUATE NOTIFICATION TO ALL AFFECTED BUSINESSES A MINIMUM OF 3 WORKING DAYS IN ADVANCE OF ANY INTERRUPTION.

LOCATION MAP



CLIENT
BROWN'S CREEK WATERSHED DISTRICT
455 HAYWARD AVE N
OAKDALE, MN

ENGINEER
EMMONS & OLIVIER RESOURCES, INC.
651 HALE AVENUE NORTH
OAKDALE, MINNESOTA 55128-7534
TELEPHONE: (651) 770-8448
FAX: (651) 770-2552
eorinc.com

NO	DATE	BY	REVISION
6			
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DEREK R. LASH
DATE: MARCH 17, 2017 LICENSE # 45156

SUBMISSION DATE: 12-19-2016
DESIGN BY DRL DRAWN BY BR
EOR PROJECT NO. 00041-0299

Emmons & Olivier Resources, Inc.
651 Hale Avenue North
Oakdale, MN 55128
Tele: 651.770.8448
www.eorinc.com
water ecology community

BROWN'S CREEK WATERSHED DISTRICT
455 HAYWARD AVE N
STILLWATER MN,

MKUSICK ROAD WATER QUALITY BMPS
WATER QUALITY BMPS
STILLWATER, WASHINGTON COUNTY, MINNESOTA
STATE PROJECT NO. MN CITY PROJECT NO. ----

TITLE SHEET

SHEET 01 OF 14 SHEETS

STORM SEWER STRUCTURE SCHEDULE

STRUCT. NO.	LOCATION					DEPTH	CASTING ASSEMBLY	TOP OF CASTING	OUTLET ELEV.	STRUCTURE RETROFIT	REMARKS
	Easting	Northing	STATION	CONST. CL LT.	CONST. CL RT.						
EX-CBMH48	497023.0130'	218967.7341'	746+88.94		17.75	9.07	EXISTING; NO CHANGE	877.07	868.00		15" HDPE INSIDE DIAMETER CORE DRILL
CO-4	497028.9009	218937.7018	746+89.96		48.05	3.31	SOLID LOCKING; NYOPLAST DWG 7001-110-003	871.00	867.69		12" DIA. PVC CLEAN-OUT PIPE
RISER-3	497010.9879'	218937.7317'	746+80.01		47.17	2.12	CASTING 715; NEENAH R-1733 VENTED LID	871.00	868.88		24" DIA. HDPE RISER PIPE
RISER-2	496990.7379'	218937.7317'	746+48.85		44.64	2.12	CASTING 715; NEENAH R-1733 VENTED LID	871.00	868.88		24" DIA. HDPE RISER PIPE
CO-1A	496972.9045'	218937.7245'	746+45.94		45.38	4.30	SOLID LOCKING; NYOPLAST DWG 7001-110-003	871.50	867.20		12" DIA. PVC CLEAN-OUT PIPE
STMH-1	496969.6228'	218945.2400'	746+33.35		37.60	6.64	CASTING 715; NEENAH R-1733 VENTED LID	873.50	866.86		48" DIAMETER STRUCTURE
EX-CBMH45A	497391.7924'	219022.7230'	750+59.02		26.12	7.53	EXISTING; NO CHANGE	893.27	885.74		12" RCP INSIDE DIAMETER CORE DRILL
EX-CBMH35	498588.1108'	218948.2695'	762+57.45		15.31	10.42	EXISTING; NO CHANGE	886.75	876.33	STAINLESS STEEL WEIR	15" HDPE INSIDE DIAMETER CORE DRILL
CO-6	498586.0471'	218928.7362'	762+57.45		34.76	10.72	SOLID LOCKING; NYOPLAST DWG 7001-110-003	886.95	876.23		12" DIA. PVC CLEAN-OUT PIPE
RISER-7	498603.4637'	218927.4913'	762+74.91		34.68	9.47	CASTING 715; NEENAH R-1733 VENTED LID	886.95	877.48		24" DIA. HDPE RISER PIPE
RISER-8	498623.6539'	218925.9356'	762+94.89		34.69	9.47	CASTING 715; NEENAH R-1733 VENTED LID	886.95	877.48		24" DIA. HDPE RISER PIPE
CO-9	498635.5353'	218925.0201'	762+07.08		34.70	10.95	SOLID LOCKING; NYOPLAST DWG 7001-110-003	886.95	876.00		12" DIA. PVC CLEAN-OUT PIPE
CBMH-10	498637.0001'	218943.7278'	762+07.08		16.28	10.41	GRATE CASTING 814A; NEENAH R-3252-A	886.30	875.89		48" DIAMETER STRUCTURE
CBMH-11	499293.8223'	218876.8103'	769+44.19		18.62	7.04	GRATE CASTING 814A; NEENAH R-3252-A	865.36	858.32	STAINLESS STEEL WEIR	84" DIAMETER STRUCTURE
CO-12	499289.4242'	218851.8307'	769+44.2		35.74	8.37	SOLID LOCKING; NYOPLAST DWG 7001-110-003	866.19	857.82		12" DIA. PVC CLEAN-OUT PIPE
RISER-13	499306.9082'	218848.5055'	769+53.47		34.17	6.34	CASTING 715; NEENAH R-1733 VENTED LID	865.34	859.00		
RISER-14	499326.8017'	218844.7222'	769+83.99		36.27	5.58	CASTING 715; NEENAH R-1733 VENTED LID	864.58	859.00		
CO-15	499338.5504'	218842.5245'	769+98.45		36.44	6.65	SOLID LOCKING; NYOPLAST DWG 7001-110-003	864.10	857.45		12" DIA. PVC CLEAN-OUT PIPE
EX-CBMH41	499343.4821'	218869.5106'	770+19.51		12.94	7.12	EXISTING; NO CHANGE	863.96	856.84	DISSIPATOR (D21.4)	
EX-STMH31	497834.6798'	219010.7402'	754+51.70	12.2		4.88	EXISTING; NO CHANGE	898.81	893.93	~~DISSIPATOR (D15 CUSTOM)~~	NO SUMP IN MANHOLE TO EX-CBMH39
EX-CBMH32	498177.9534'	219013.4174'	758+33.41	21.08		7.37	EXISTING; NO CHANGE	888.53	881.16	DISSIPATOR (2 X D15)	
EX-CBMH33	498176.8814'	218977.0911'	758+48.10		15.26	8.89	EXISTING; NO CHANGE	888.40	879.51	DISSIPATOR (D18.48)	
EX-CBMH40	498895.0083'	218925.0197'	765+31.91		14.75	10.73	EXISTING; NO CHANGE	884.35	873.62	DISSIPATOR (D21.4)	
P-CBMH43	499470.4908'	218842.6090'	769+32.45		12.12	11.43	GRATE CASTING 814A; NEENAH R-3252-A	861.61	854.26	DISSIPATOR (D21.58; S21.56)	72" DIAMETER STRUCTURE, 4-FOOT SUMP

NOTE: SEE ALIGNMENT TABULATION PLAN FROM CP 17-36401 PLAN SET FOR STATION / ALIGNMENT INFORMATION.

SEE PLAN SHEET FOR AS-BUILT ELEVATIONS

UTILITY TABULATION

XCEL ENERGY ELECTRIC

STATION TO STATION	OFFSET	ITEM IN PLACE	REMARKS ADJUST	REMARKS RELOCATE	REMARKS LEAVE AS IS
750+56	41' RT	POWER POLE			X
750+56	46' LT	POWER POLE			X
750+56	41' RT TO 46' LT	POWER OVERHEAD			X
750+56 TO 764+33	41' RT	POWER OVERHEAD			X
758+32	34' RT	POWER POLE			X
760+28	31' RT	POWER POLE			X
764+33	31' RT	POWER POLE			X
764+33	31' RT TO 31' LT	BURIED POWER			X

XCEL ENERGY GAS

STATION TO STATION	OFFSET	ITEM IN PLACE	REMARKS ADJUST	REMARKS RELOCATE	REMARKS LEAVE AS IS
744+00 TO 745+89	31' RT	BURIED GAS			X
745+89 TO 747+21	31' RT	BURIED GAS	X		
747+21 TO 762+38	24' RT TO 31' RT	BURIED GAS			X
762+38 TO 763+27	31' RT	BURIED GAS	X		
763+27 TO 769+49	30' RT	BURIED GAS			X
769+49 TO 770+35	30' RT TO 24' RT	BURIED GAS	X		
770+35 TO 772+00	24' RT	BURIED GAS	X		

CENTURYLINK TELEPHONE

STATION TO STATION	OFFSET	ITEM IN PLACE	REMARKS ADJUST	REMARKS RELOCATE	REMARKS LEAVE AS IS
758+32	37' RT	TELEPHONE VAULT			X
758+32 TO 758+72	37' RT TO 66' RT	BURIED TELEPHONE			X
764+33	31' RT	TELEPHONE VAULT			X

COMCAST

STATION TO STATION	OFFSET	ITEM IN PLACE	REMARKS ADJUST	REMARKS RELOCATE	REMARKS LEAVE AS IS
756+72 TO 758+72	16' RT TO 66' RT	BURIED TELEVISION			X
758+32	30' RT	FIBER VAULT			X
757+91 TO 762+38	30' RT	BURIED FIBER			X
762+38 TO 763+27	33' RT	BURIED FIBER	X		
763+27 TO 769+49	32' RT	BURIED FIBER			X
768+00	32' RT	FIBER VAULT			X
769+49 TO 770+35	32' RT	BURIED FIBER	X		
770+35 TO 772+00	32' RT	BURIED FIBER			X

CITY OF STILLWATER

STATION TO STATION	OFFSET	ITEM IN PLACE	REMARKS ADJUST	REMARKS RELOCATE	REMARKS LEAVE AS IS
749+26	58'RT TO 61' LT	BURIED SEWER			X
749+26 TO 750+63	58'RT TO 147' RT	BURIED SEWER			X
754+91 TO 758+64	42' LT	BURIED SEWER			X

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STILLWATER, WASHINGTON COUNTY, MINNESOTA

STATE PROJECT NO. MN | CITY PROJECT NO. ---

STATIONING AND TABULATION

LINE ITEM	MN/DOT SPEC. NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES ESTIMATED	TOTAL QUANTITIES AS-BUILT
1	2021.501	MOBILIZATION	LS	1	1
2	2101.511	CLEARING AND GRUBBING	LS	1	1
3	2104.501	REMOVE CONCRETE CURB AND GUTTER	LF	146	229
4	2104.509	REMOVE CATCHBASIN MANHOLE	EA	1	1
5	2104.513	SAWING BITUMINOUS PAVEMENT	LF	338	0
6	2105.522	ROAD SECTION REPAIR -- SELECT GRANULAR BORROW (PLAN QUANTITY, 36" MNDOT 3149.B.2)	CY	182	243.4
7	2211.501	TRAIL SECTION REPAIR -- AGGREGATE BASE PLACED CLASS 5 (PLAN QUANTITY, 4", MNDOT 2211)	TON	35	34.2
8	2211.501	ROAD SECTION REPAIR -- AGGREGATE BASE PLACED CLASS 5 (PLAN QUANTITY, 6", MNDOT 2211)	TON	70	73
9	2502.541	4" PERFORATED HDPE DRAINTILE W/SILT SOCK	LF	146	56
10	2503.511	15" HDPE PIPE SEWER (FOR SWQU)	LF	171	163.5
~~11~~	~~2503.511~~	~~12" RCP PIPE SEWER~~	~~LF~~	~~69~~	0
12	2503.573	BAFFLE (MOMENTUM PRESERVER, 15" DISSIPATOR, CUSTOM)	EA	1	1
13	2503.573	BAFFLE (MOMENTUM PRESERVER, 15" DISSIPATOR, STANDARD)	EA	2	2
14	2503.573	BAFFLE (MOMENTUM PRESERVER, 18" TO 21" DISSIPATOR, STANDARD)	EA	1	1
15	2503.573	BAFFLE (MOMENTUM PRESERVER, 18" TO 21" DISSIPATOR, STANDARD)	EA	3	3
16	2503.573	BAFFLE (MOMENTUM PRESERVER, 18" TO 21" SKIMMER, STANDARD)	EA	1	1
17	2503.573	CORE DRILL CONNECTION TO EXISTING STRUCTURE (15" HDPE, INSIDE DIAMETER)	EA	3	3
~~18~~	~~2503.573~~	~~CORE DRILL CONNECTION TO EXISTING STRUCTURE (12" RCP, INSIDE DIAMETER)~~	~~EA~~	~~1~~	0
19	2503.573	12" PVC PIPE SEWER, ROAD & HIGHWAY, H-20 TRAFFIC LOAD (SWQU CLEANOUT -- NYLOPLAST, DWG NO. 7001-110-188-E-0)	EA	6	6
20	2503.573	STAINLESS STEEL WEIR PLATE (T304, 11 GAUGE)	EA	2	2
21	2506.501	CONSTRUCT DRAINAGE STRUCTURE, TYPE 24" HDPE (ACCESS RISER EXTENSION PIPE CONNECTED TO SWQU RISER STUB)	LF	28	15.5
22	2506.502	72" DIA. PRECAST CONCRETE MANHOLE, MNDOT PLATE 4020J (DESIGN 4020; 13-FEET DEEP)	EA	1	1
23	2506.502	84" DIA. PRECAST CONCRETE MANHOLE, MNDOT PLATE 4020J (DESIGN 4020; 8-FEET DEEP)	EA	1	1
24	2506.502	48" DIA. PRECAST CONCRETE MANHOLE, MNDOT PLATE 4005M (DESIGN F, TYPE A; 7-FEET DEEP)	EA	1	1
25	2506.502	48" DIA. PRECAST CONCRETE MANHOLE, MNDOT PLATE 4005M (DESIGN F, TYPE A; 12-FEET DEEP)	EA	1	1
26	2506.502	WATER QUALITY TANK, SWQU 1 (PRINSCO SWQU6040A; 8-FEET DEEP)	EA	1	1
27	2506.502	WATER QUALITY TANK, SWQU 2 (PRINSCO SWQU6040A; 15-FEET DEEP)	EA	1	1
28	2506.502	WATER QUALITY TANK, SWQU 3 (PRINSCO SWQU6040A; 12-FEET DEEP)	EA	1	1
29	2506.516	CONCRETE, ACCESS RISER SWQU CASTING SUPPORT	EA	6	6
30	2506.516	CONCRETE, ACCESS RISER SWQU CONNECTION SUPPORT	EA	6	6
31	2506.516	INSTALL FRAME & CASTING, 12" SOLID COVER ASSEMBLY (SWQU CLEANOUT -- NYLOPLAST, H-20 LOAD RATING, LOCKING DEVICE, DWG NO. 7001-110-003)	EA	6	6
32	2506.516	INSTALL FRAME & CASTING, MNDOT PLATE 4110F (CASTING 715; VENTED LID)	EA	7	7
33	2506.516	INSTALL FRAME & CASTING, MNDOT PLATE 4149C (GRATE CASTING 810)	EA	3	3
34	2531.501	CONCRETE CURB AND GUTTER, DESIGN 618	LF	146	234
35	2563.601	TRAFFIC CONTROL	LS	1	1
36	2573.530	STORM DRAIN INLET PROTECTION -- INSTALL, MAINTENANCE AND REMOVAL	EA	8	8
37	2573.533	SEDIMENT CONTROL LOG, TYPE WOOD FIBER -- INSTALL, MAINTENANCE AND REMOVAL	LF	500	454
38	2575.501	SEEDING	AC	0.55	0.38
39	2575.502	SEED, MNDOT MIXTURE 25-131 (LOW MAINTENANCE TURF) @ 220 LB / ACRE	LB	130	83.6
40	2575.523	EROSION CONTROL BLANKET, CATEGORY 0S (INCLUDES MAINTENANCE)	SY	1900	1625.1
41	2575.561	HYDRAULIC MATRIX, TYPE BONDED FIBER MATRIX	SY	1900	1857.9

GENERAL SITE WORK NOTES

1. VERIFY HORIZONTAL LOCATION AND ELEVATION WHERE A CONNECTION TO EXISTING PAVEMENT, STRUCTURE, PIPE OR OTHER SITE FEATURES IS TO BE MADE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM THE PLANS.
2. REFERENCE TO MN/DOT SPECIFICATIONS SHALL MEAN DIVISIONS II AND III OF THE 2016 SPECIFICATIONS FOR CONSTRUCTION.
3. SEE SITE RESTORATION FOR TURF RESTORATION REQUIREMENTS.
4. TOPOGRAPHIC SURVEY BY WASHINGTON CO.
5. ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MMUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, JANUARY 2014.
8. ALL CONSTRUCTION WORK SHALL BE COMPLETED DURING WORKING HOURS IN ACCORDANCE WITH COUNTY ORDINANCE.
9. PROPOSED WORK MUST BE IN COMPLIANCE WITH THE DISTRICT RULES AT ALL TIMES AND CONTRACTOR IS EXPECTED TO OBTAIN ANY REQUIRED PERMITS.
10. A PRECONSTRUCTION MEETING WILL BE REQUIRED WITH DISTRICT AND COUNTY STAFF PRIOR TO ANY MOBILIZATION OF CONSTRUCTION EQUIPMENT OR MATERIAL.

GENERAL UTILITY NOTES

1. CONTRACTOR SHALL CONTACT 'GOPHER STATE ONE CALL' WITHIN TWO WORKING DAYS PRIOR TO EXCAVATION/CONSTRUCTION FOR UTILITY LOCATIONS. TWIN CITIES METRO AREA: 651-454-0002 OR TOLL-FREE: 1-800-252-1166.
2. ALL UTILITY WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND PERMIT REQUIREMENTS.
3. CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING THE APPROPRIATE PERMITS.
4. UTILITY TRENCHES SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698.78 OR AASHTO T-99) FROM THE PIPE ZONE TO WITHIN THREE FEET OF THE GROUND SURFACE AND 100% STANDARD PROCTOR IN THE UPPER THREE FEET. COMPACTION IN GREEN SPACE AREAS SHALL BE AT LEAST 90% STANDARD PROCTOR OR AS DIRECTED BY THE ENGINEER.
5. FIELD ADJUST ALL CASTINGS TO MATCH FINAL GRADES.
6. CONTRACTOR SHALL NOTIFY THE ENGINEER 24 HOURS IN ADVANCE OF WORK ITEMS REQUIRING INSPECTION.
7. WE HEREIN NOTE THAT THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ASSESSING THE STABILITY OF AND EXECUTING UNDERGROUND UTILITY PROJECT EXCAVATIONS USING SAFE METHODS. CONTRACTOR IS ALSO RESPONSIBLE FOR NAMING THE "COMPETENT INDIVIDUAL" AS PER SUBPART P OF 29 CFR 1926.6 (FEDERAL REGISTER – OSHA).

SITE DEMOLITION & REMOVAL NOTES

1. ALL VEGETATION REMOVAL INCLUDING SOD, WINDFALL/DEADFALL, AND/OR BRUSH REMOVAL SHALL BE CONSIDERED AS SPECIFIED IN THE CONTRACT DOCUMENTS.
2. ALL REMOVED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
3. CONCRETE SAW CUTTING SHALL BE CONSIDERED INCIDENTAL TO REMOVAL OF CONCRETE CURB AND GUTTER.

STORM SEWER NOTES

1. STORM SEWER CONSTRUCTION IS IN ACCORDANCE WITH MNDOT 2501-2511 SPECIFICATIONS.
2. STORM SEWER SHALL BE AS SPECIFIED.
3. MANHOLES SHALL BE PRECAST REINFORCED CONCRETE IN ACCORDANCE WITH ASTM C478. CASTING SHALL BE AS SPECIFIED. MANHOLES SHALL HAVE A MINIMUM OF 2 AND A MAXIMUM OF 4 ADJUSTMENT RINGS.
4. CONNECTIONS TO MANHOLES SHALL USE NON-SHRINKABLE GROUT AND GROUT IN THE PIPE AND REFORM THE INVERT WHERE NECESSARY. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 24 HOURS IN ADVANCE OF WORK ITEMS REQUIRING INSPECTION.
5. PIPE LENGTHS ON THE PLAN ARE APPROXIMATE, AND FROM CENTER TO CENTER OF STRUCTURES.
6. STORM SEWER CASTINGS SHALL BE STAKED FOR LOCATION AT THE CENTER OF CASTING, WITH REFERENCE STAKES ON EACH SIDE OF THE STRUCTURE. THE CONTRACTOR WILL LOCATE THE MANHOLE OR CATCH BASIN STRUCTURE AS NECESSARY FROM THESE REFERENCE POINTS. PIPE ALIGNMENTS ARE STAKED TO CENTER OF CASTING – CONTRACTOR WILL ADJUST THE ALIGNMENT TO FIT THE ACTUAL STRUCTURES INSTALLED. TO BE STAKED BY THE CONTRACTOR.

GRADING & EROSION CONTROL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL CONTROL.
2. INSTALL PERIMETER EROSION CONTROL MEASURES AND PERFORM TREE CLEAN ROOT CUTTING (IF NECESSARY) BEFORE BEGINNING SITE GRADING ACTIVITIES. SOME EROSION CONTROL SUCH AS BALE CHECKS AND TEMPORARY SILT PONDS MAY BE INSTALLED AS GRADING OCCURS IN THE SPECIFIC AREA. MAINTAIN EROSION CONTROLS THROUGHOUT THE GRADING PROCESS AND REMOVE WHEN APPROVED BY THE ENGINEER.
3. CONTRACTOR TO ADHERE TO ALL PROJECT PERMIT REQUIREMENTS, INCLUDING THE REQUIREMENT TO MINIMIZE THE AREA DISTURBED BY GRADING AT ANY GIVEN TIME AND TO COMPLETE TURF RESTORATION WITHIN THE TIME REQUIRED BY THE PERMIT AFTER COMPLETION OF GRADING OF AN AREA.
4. ALL EXPOSED SOIL AREAS MUST BE STABILIZED WITHIN 7 DAYS, EXCEPT FOR CONNECTIONS WITHIN 200 FEET OF A WATER OF THE STATE OR ANY STORMWATER CONVEYANCE SYSTEM WHICH IS CONNECTED TO A WATER OF THE STATE MUST BE STABILIZED WITHIN 24 HOURS.
5. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PROJECT REQUIREMENTS AND PERMITS.
6. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES, INCLUDING THE REMOVAL OF ACCUMULATED SILT IN FRONT OF SILT FENCES OR FILTER LOGS DURING THE DURATION OF THE CONSTRUCTION.
7. MAINTAIN EXISTING EROSION CONTROL. RE-ESTABLISH ANY EXISTING EROSION CONTROL DISTURBED BY CONSTRUCTION.
8. CONTRACTOR SHALL PROVIDE ADDITIONAL TEMPORARY EROSION CONTROL MEASURES AS REQUIRED FOR CONSTRUCTION. INCIDENTAL TO THE CONTRACT, UNLESS SPECIFIED OTHERWISE.
9. ANY SEDIMENT IN PROPOSED STRUCTURES SHALL BE REMOVED BY THE CONTRACTOR. INCIDENTAL TO THE CONTRACT.
10. REMOVE ALL EROSION CONTROL MEASURES AFTER THE WORK HAS BEEN ACCEPTED BY THE ENGINEER.
11. THE CONTRACTOR SHALL REMOVE ALL SOILS AND SEDIMENT TRACKED ONTO EXISTING STREETS AND PAVED AREAS WITHIN 24 HOURS OF INCIDENT. INCIDENTAL TO THE CONTRACT.
12. IF BLOWING DUST BECOMES A NUISANCE, THE CONTRACTOR SHALL APPLY WATER FROM A TANK TRUCK TO ALL CONSTRUCTION AREAS. INCIDENTAL TO THE CONTRACT.
13. SWEEP ADJACENT STREETS IN ACCORDANCE WITH PROJECT REQUIREMENTS. INCIDENTAL TO THE CONTRACT.
14. INSPECT EROSION CONTROL DEVICES AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. IMMEDIATELY REPAIR FAILED OR FAILING EROSION CONTROL DEVICES.
15. SEDIMENT REMOVAL – SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, AND WHENEVER 1/2 OF THE BMP CAPACITY OR DEPTH IS REACHED.
16. ANY SEDIMENT REMAINING IN PLACE AFTER THE EROSION CONTROL DEVICE IS NO LONGER REQUIRED SHALL BE GRADED TO CONFORM WITH THE EXISTING GRADE, PREPARED, AND SEEDED WITH THE APPROPRIATE SEED MIX AS DIRECTED BY THE ENGINEER.
17. SUITABLE GRADING MATERIAL SHALL CONSIST OF ALL SOIL ENCOUNTERED ON THE SITE WITH EXCEPTION OF TOPSOIL, DEBRIS, ORGANIC MATERIAL AND OTHER UNSTABLE MATERIAL. STOCKPILE TOPSOIL AND GRANULAR FILL AT LOCATIONS DIRECTED BY CONTRACTOR.
18. EXISTING GRANULAR MATERIALS AND/OR TOPSOIL BORROW SHALL BE SEGREGATED AND STOCKPILED FOR REUSE ON-SITE.
19. CONTRACTOR SHALL STRIP, STOCKPILE AND RE-SPREAD EXISTING ON-SITE TOPSOIL TO PROVIDE A UNIFORM THICKNESS OF AT LEAST 6-INCHES ON ALL DISTURBED AREAS TO BE SODDED OR SEEDED, EXCEPT BIOFILTRATION BASIN AREAS.
20. SUBGRADE EXCAVATION SHALL BE BACKFILLED IMMEDIATELY AFTER EXCAVATION TO HELP OFFSET ANY STABILITY PROBLEMS DUE TO WATER SEEPAGE OR STEEP SLOPES. WHEN PLACING NEW SURFACE MATERIAL ADJACENT TO EXISTING PAVEMENT, THE EXCAVATION SHALL BE BACKFILLED PROMPTLY TO AVOID UNDERMINING OF THE EXISTING PAVEMENT.
21. GRADES SHOWN ARE FINISHED GRADES, CONTRACTOR SHALL ROUGH GRADE TO SUBGRADE ELEVATION, LEAVE SITE READY FOR SUBBASE.
22. COMPLETION OF SITE GRADING OPERATIONS SHALL RESULT IN ALL AREAS BEING GRADED TO 'PLAN SUBGRADE ELEVATION'.
23. FINAL GRADING TOLERANCES ARE ±0.1 FEET OF PLAN GRADES.
24. ALL EXCESS MATERIAL, BITUMINOUS SURFACING, CONCRETE ITEMS, ANY ABANDONED UTILITY ITEMS, AND OTHER UNSTABLE MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OFF THE CONSTRUCTION SITE.
25. SLOPES AT 3:1 OR STEEPER, AND/OR WHERE INDICATED ON THE PLANS SHALL BE SEEDED AND HAVE AN EROSION CONTROL BLANKET INSTALLED AS SPECIFIED.
26. IF DEWATERING TECHNIQUES ARE UTILIZED DURING CONSTRUCTION, THE DEWATERING CONTRACTOR MUST UTILIZE MEANS TO PROTECT ANY NEARBY ABOVE AND BELOW GRADE STRUCTURES. EXISTING STRUCTURES MUST BE MONITORED FOR SETTLEMENT DURING ALL DEWATERING ACTIVITIES. THE CONTRACTOR SHOULD HAVE A CONTINGENCY PLAN IN PLACE IS MOVEMENT IS DETECTED.

NO	DATE	BY	REVISION
6			
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3	02-17-2017	DRL	95% SUBMITTAL
2	01-13-2017	BR	90% SUBMITTAL
1	12-19-2016	BR	60% SUBMITTAL

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DEREK R. LASH
DATE: MARCH 17, 2017 LICENSE # 45156

SUBMISSION DATE: 12-19-2016
DESIGN BY DRL DRAWN BY BR
EOR PROJECT NO. 00041-0299

EOR water ecology community
Emmons & Olivier Resources, Inc.
651 Hale Avenue North
Oakdale, MN 55128
Tele: 651.770.8448
www.eorinc.com

BROWN'S CREEK WATERSHED DISTRICT
455 HAYWARD AVE N
STILLWATER MN,

MKUSICK ROAD WATER QUALITY BMPS
WATER QUALITY BMPS
STILLWATER, WASHINGTON COUNTY, MINNESOTA

STATE PROJECT NO. MN | CITY PROJECT NO. ----

SEQ & NOTES

Plot Date: 04/29/2019
Drawing name: X:\clients_wd\041_BCWD\0318_mckusick_rd_bmp_const_srvces\09_gims_projectname\dwg\41-299_As-Built.dwg
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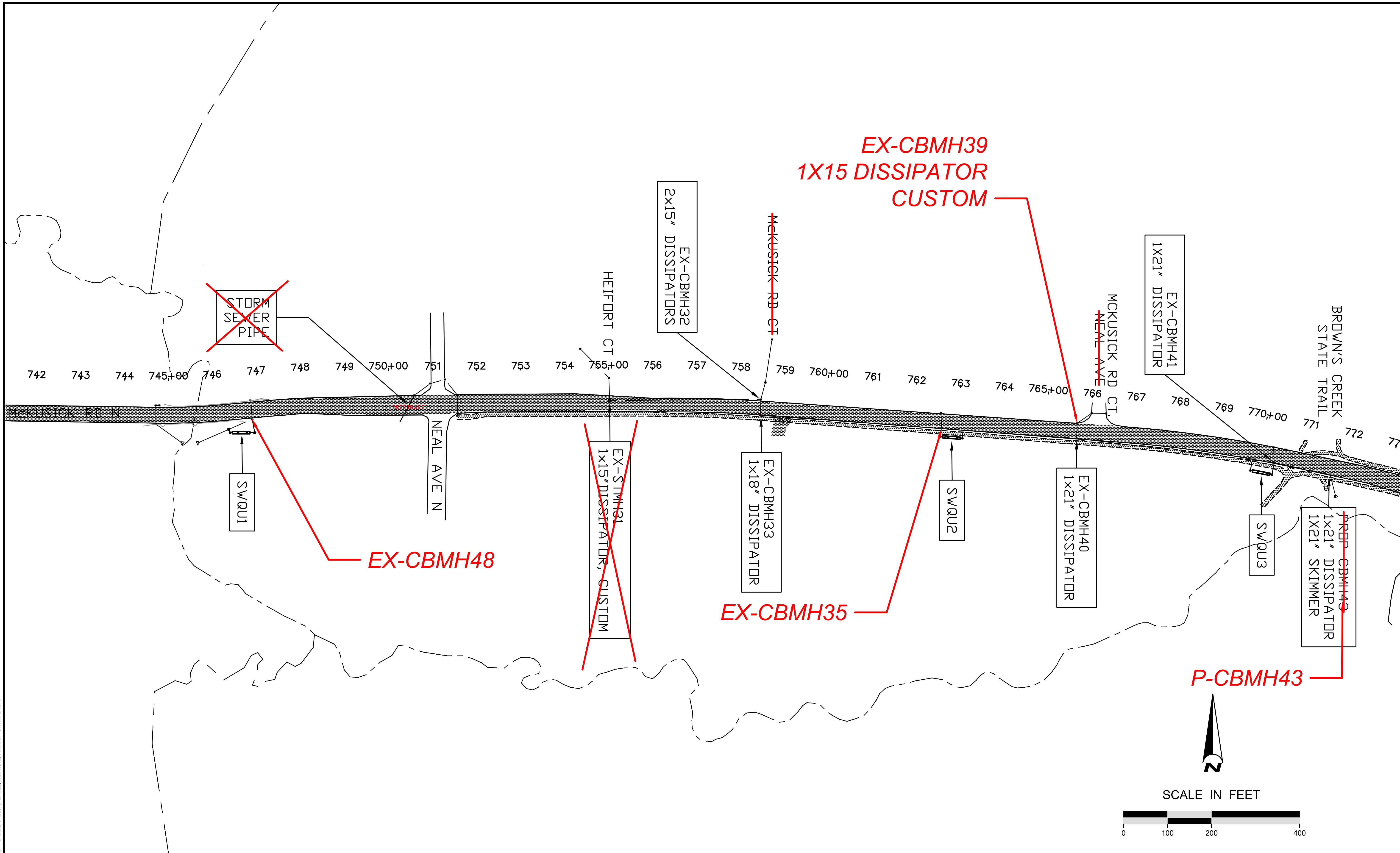

NO	DATE	BY	REVISION
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5	07-19-2018	BR	RECORD DRAWING
4	03-17-2017	DRL	100% SUBMITTAL
3	02-17-2017	DRL	95% SUBMITTAL
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STATE PROJECT NO. MN | CITY PROJECT NO. ----

BMP LOCATION MAP

SHEET 04 OF 14 SHEETS

Plot Date: 04/29/2019
Drawing name: X:\clients_wd\041_BCWD\0318_mckusick_rd_bmp_const_srvces\09_gims_projectname\dwg\41-299_As-Built.dwg
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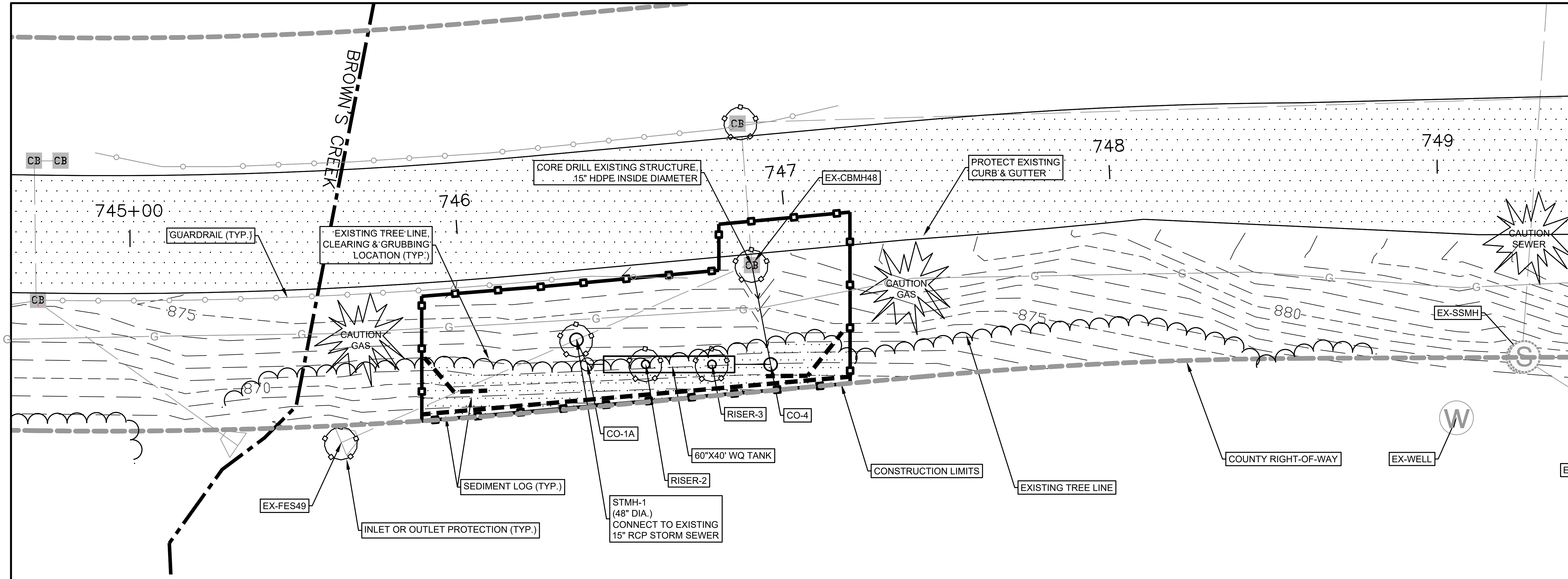

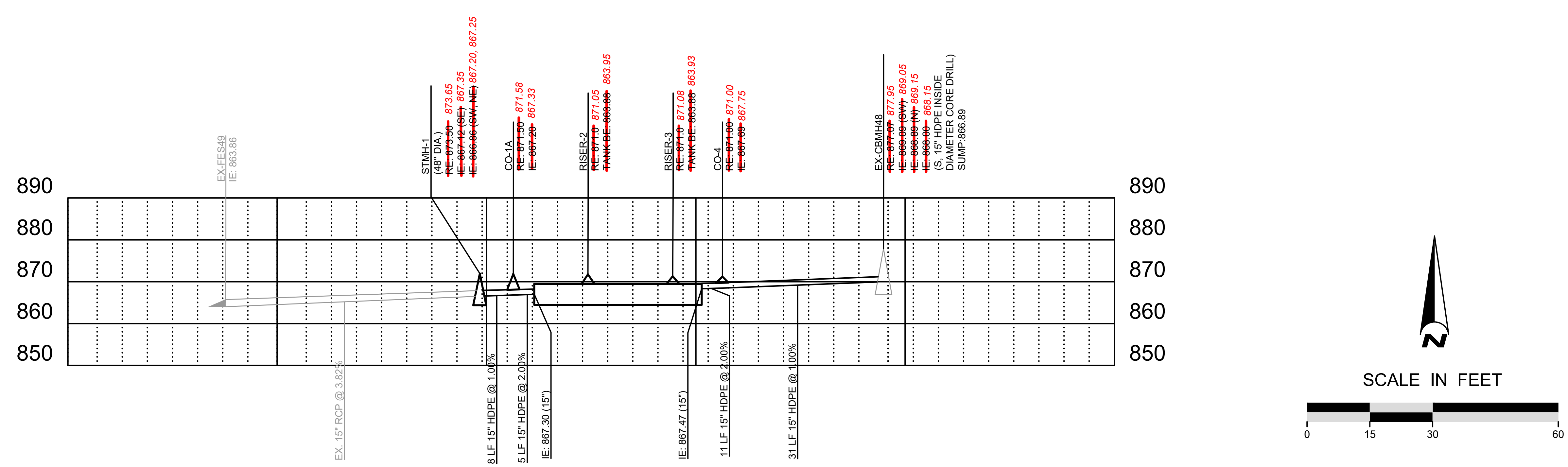

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SUBMISSION DATE: 12-19-2016
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DRAWN BY BR
EOR PROJECT NO. 00041-0299

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STATE PROJECT NO. MN
CITY PROJECT NO. ----

STORMWATER QUALITY UNIT 1

SHEET 05 OF 14 SHEETS

CORE DRILL EXISTING STRUCTURE, 12" RCP INSIDE DIAMETER

PROVIDE BULKHEAD AT END OF PIPE (INCIDENTAL) SEE DETAIL 01 OF 13

SAWCUT FULL DEPTH 100 LF AND REMOVE BITUMINOUS PAVEMENT

EX-CBMH45A

PROTECT EXISTING CURB & GUTTER

REMOVE AND REPLACE 46 LF B618 CONCRETE CURB & GUTTER

CAUTION ELECTRIC

CAUTION SEWER

CAUTION GAS

CAUTION ELECTRIC

CAUTION ELECTRIC

EX-SSMH

CONSTRUCTION LIMITS

PROVIDE BULKHEAD AT END OF PIPE (INCIDENTAL) SEE DETAIL 01 OF 13

COUNTY RIGHT-OF-WAY

EX-WELL

EX-WELL

STING TREE LINE

748 749 750+00 751 752

CB CB CB CB

SG

G G G G G

E-O E-O E-O E-O E-O E-O

880 885 890

NOT BUILT

END OF PIPE (BULKHEAD W/TRACER WIRE AND UTILITY MARKER TO SURFACE) IE: 885.05

EX-CBMH45A RE: 893.27 IE: 887.64 (W,E) IE: 885.74 (S, 12" RCP INSIDE DIAMETER CORE DRILL, BULKHEAD) SUMP: 885.24

910 900 890 880 870

69 LF 12" RCP @ 1.00%

NOT BUILT

SCALE IN FEET

0 15 30 60

NO	DATE	BY	REVISION
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MINNESOTA

STATE PROJECT NO. MN CITY PROJECT NO. ----

STORM SEWER PLAN AND PROFILE

SHEET 06 OF 14 SHEETS

Plot Date: 04/09/2019
Drawing name: X:\clients_wr\041_BCWD\0318_mckusick_rd_bmp_const_srvces\09_plms_projectname\dwg\41-299_As-Built.dwg
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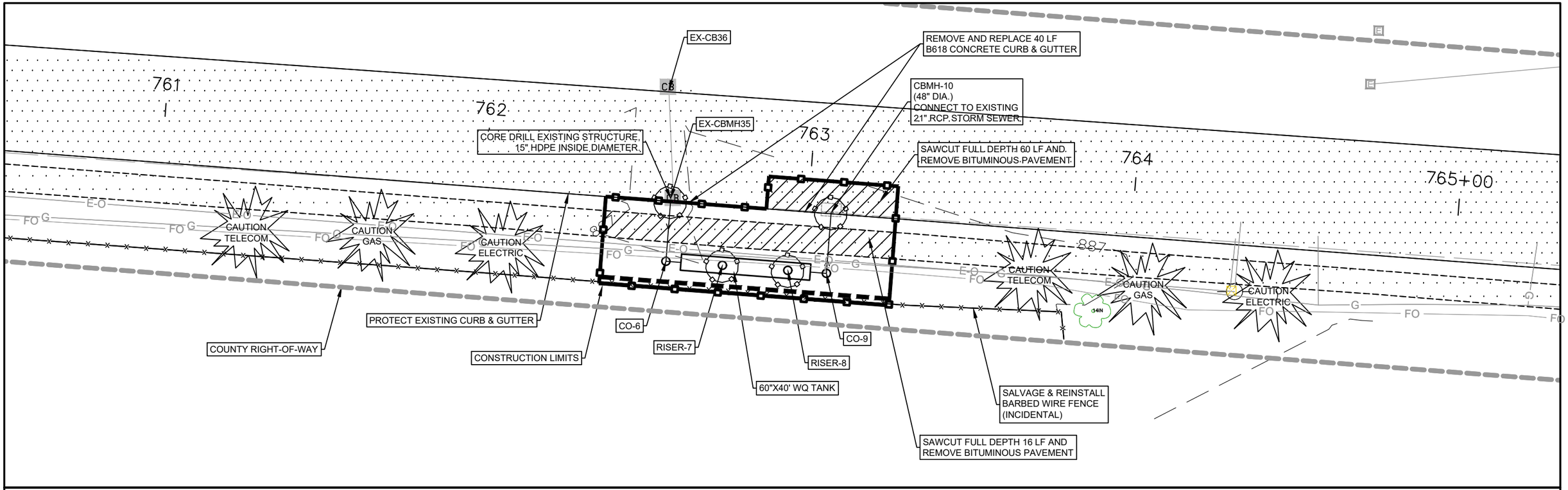

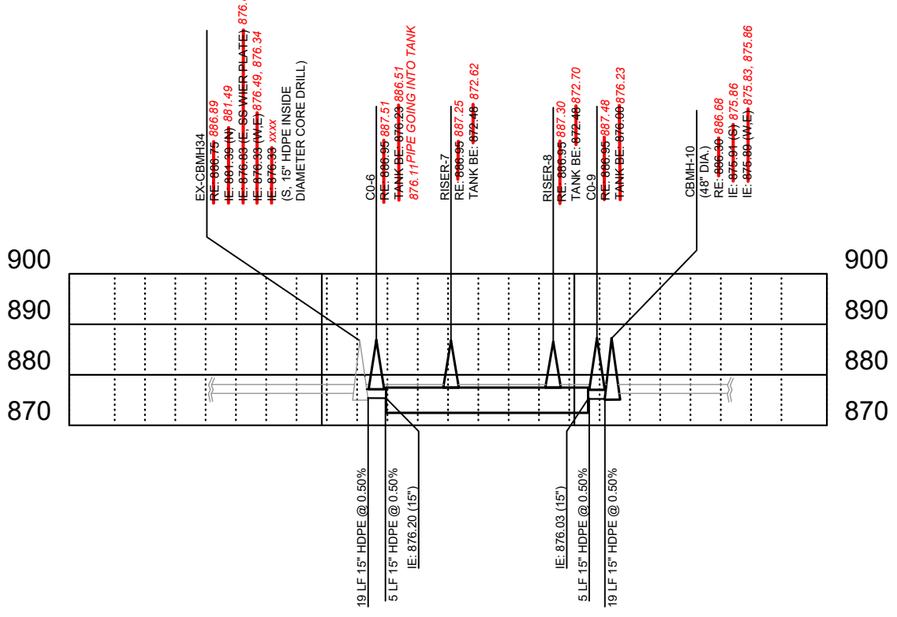

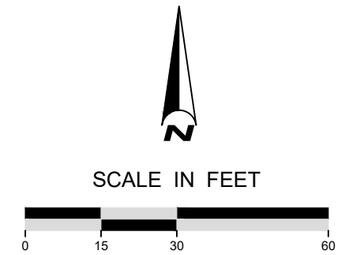

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STATE PROJECT NO. MN CITY PROJECT NO. ----

STORMWATER QUALITY UNIT 2

SHEET 07 OF 14 SHEETS

Plot Date: 04/29/2019
Drawing name: X:\clients_wd\041_BCWD\0318_mckusick_rd_bmp_const_srvces\09_grms_projectname\dwg\41-299_As-Built.dwg
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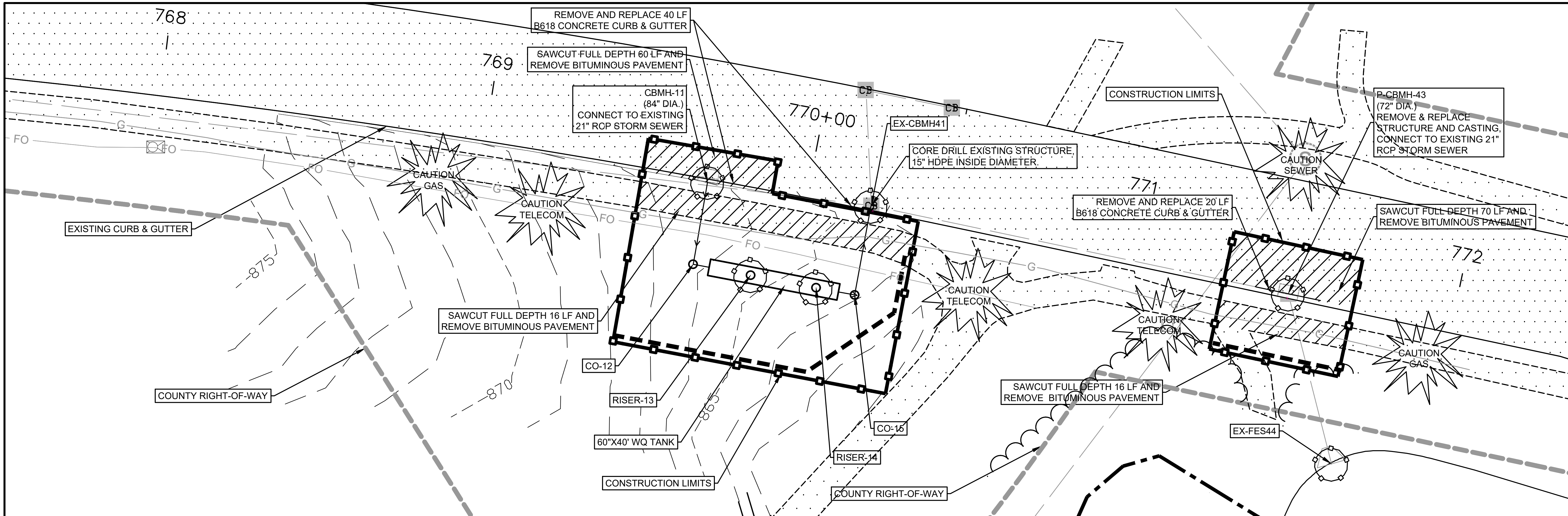

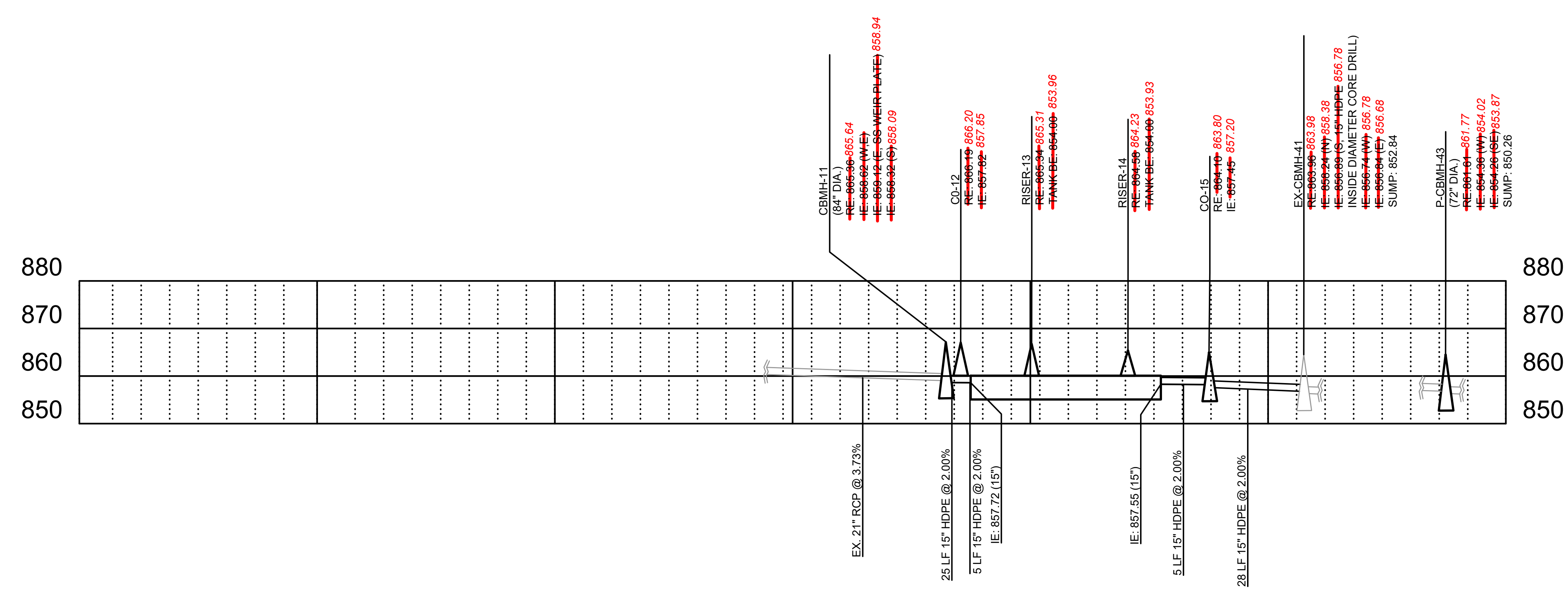

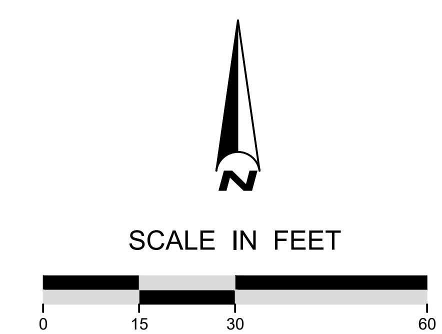

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NO	DATE	BY	REVISION
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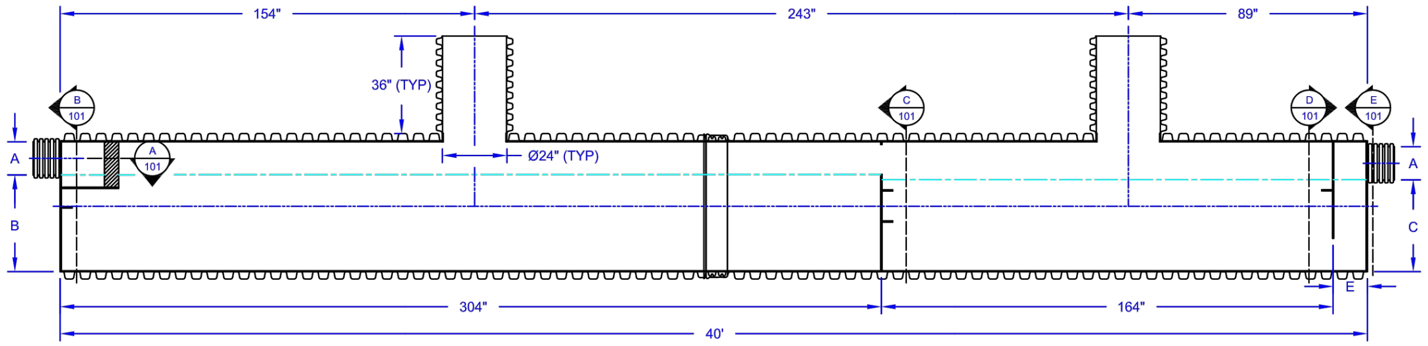
STILLWATER, WASHINGTON COUNTY, MINNESOTA

STATE PROJECT NO. MN CITY PROJECT NO. ----

STORMWATER QUALITY UNIT 3

SHEET 08 OF 14 SHEETS

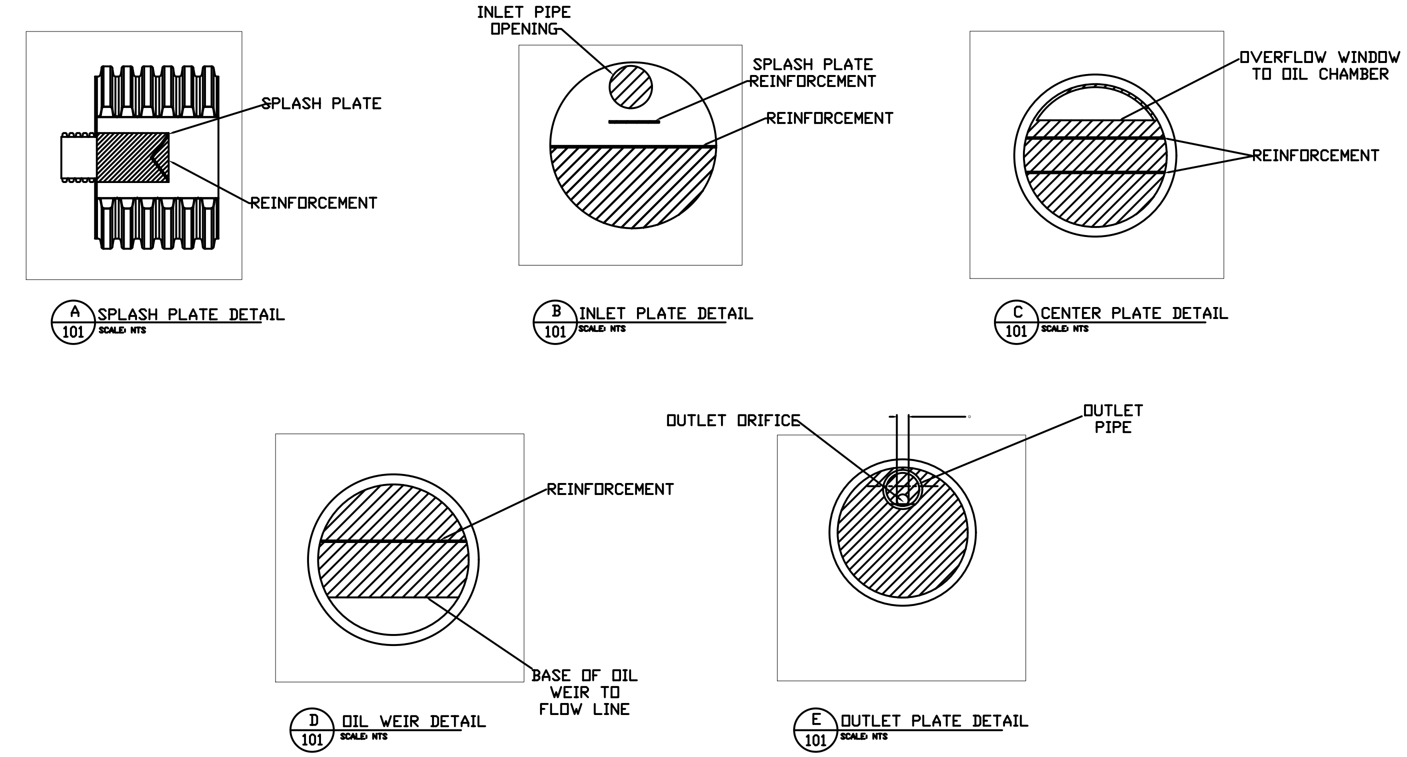


Prinsco Product Number	SWQU Dia.	Sediment Chamber Storage Volume ft^3	Oil Chamber Storage Volume ft^3	Total Storage Volume ft^3	Inlet /Outlet Stub Diameter (A) in.	SWQU Inlet Invert (B) in. Nominal	SWQU Outlet Orifice Invert (C) in. Nominal	Max Treated Flow Rate @ 140 Sieve Size (CFS)	Max Treated Flow Rate @ 200 Sieve Size (CFS)	Outlet Orifice Dia (D) in.
WQU3640A	36"	152	82	234	10	25.50	23.50	3.21	-	9.6
WQU3640B	36"	152	82	234	10	25.50	23.50	-	1.6	6.8
WQU4240A	42"	196.1	105.8	301.9	12	29.75	27.75	3.74	-	10
WQU4240B	42"	196.1	105.8	301.9	12	29.75	27.75	-	1.86	7.1
WQU4840A	48"	256.1	132.2	388.3	12	35.88	33.88	4.88	-	11.4
WQU4840B	48"	256.1	132.2	388.3	12	35.88	33.88	-	2.44	8.1
WQU6040A	60"	364.6	196.7	561.3	15	44.63	42.63	6.28	-	12.3
→ WQU6040B	60"	364.6	196.7	561.3	15	44.63	42.63	-	3.14	8.7

PRINSCO ENGINEERED WITH INTEGRITY
1717 16TH ST. NE 3RD FLOOR WILLMAR, MN 56201

SWQU 40FT PRODUCT DETAIL
DRAWN BY: RWM
DATE: 01/05/2011
SCALE: NTS
SHEET: 1 OF 2
DRAWING NUMBER: D-4-101

01/09 STORMWATER QUALITY UNIT PROFILE
*NO SCALE

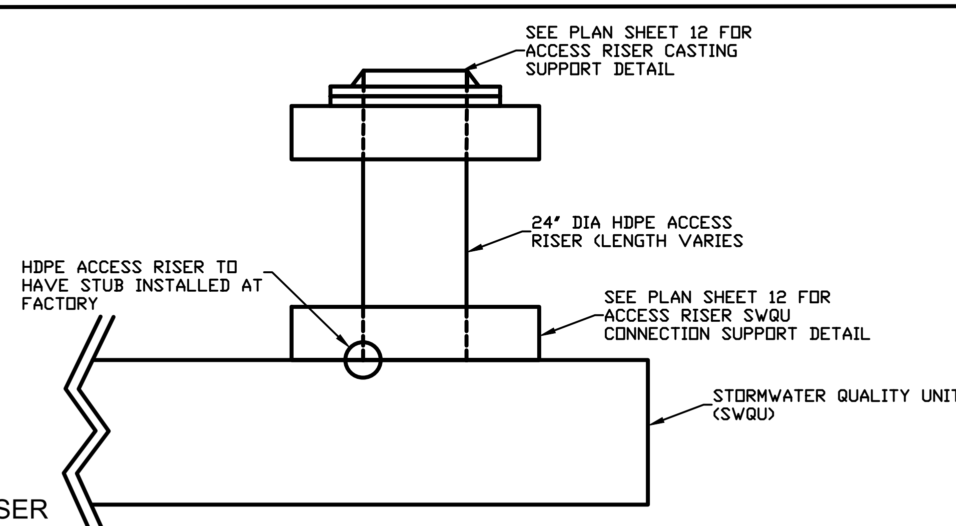


NOTES:
•SWQU SHOWN IS PRINSCO'S STANDARD SWQU. CUSTOM UNITS ARE AVAILABLE, PLEASE CONTACT YOUR PRINSCO SALES REPRESENTATIVE FOR MORE INFORMATION.

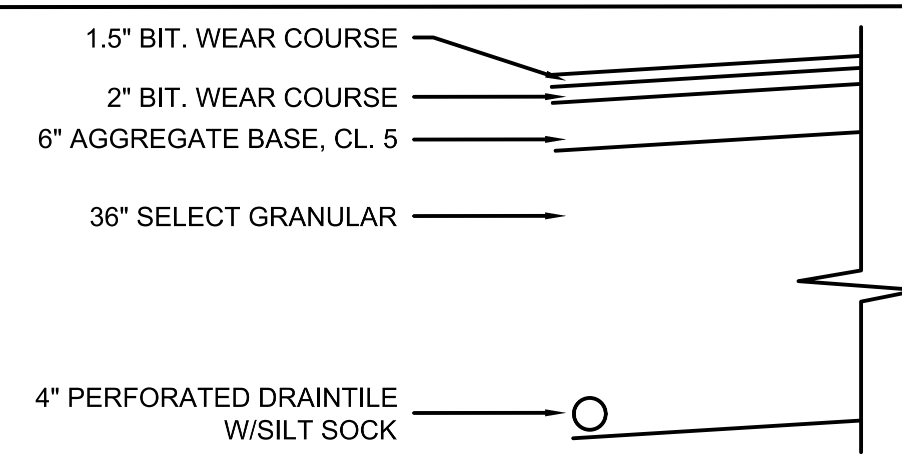
PRINSCO ENGINEERED WITH INTEGRITY
1717 16TH ST. NE 3RD FLOOR WILLMAR, MN 56201

SWQU 40FT PRODUCT DETAIL
DRAWN BY: RWM
DATE: 01/05/2011
SCALE: NTS
SHEET: 2 OF 2
DRAWING NUMBER: D-4-101

02/09 STORMWATER QUALITY UNIT CROSS-SECTION
*NO SCALE



03/09 STORMWATER QUALITY UNIT RISER
*NO SCALE



04/09 TYPICAL STREET SECTION (STA. 742+10 TO 836+10)
*FROM 10/15/92 SIGNED PLAN SET FOR CTY PROJ 91-6402, NO SCALE

NOTE: SEE SPECIAL PROVISIONS

Plot Date: 04/29/2019
Drawing name: X:\clients_wd\041_BCWD\0318_mckusick_rd_bmp_const_srvces\09_gims_projectname\dwg\41-299_As-Built.dwg
Xrefs:, 36401-plan-Default2, 41-299_P-BASE2, 41-299_X-BASE2, cr64-topo2, Preserver Generic Details

NO	DATE	BY	REVISION
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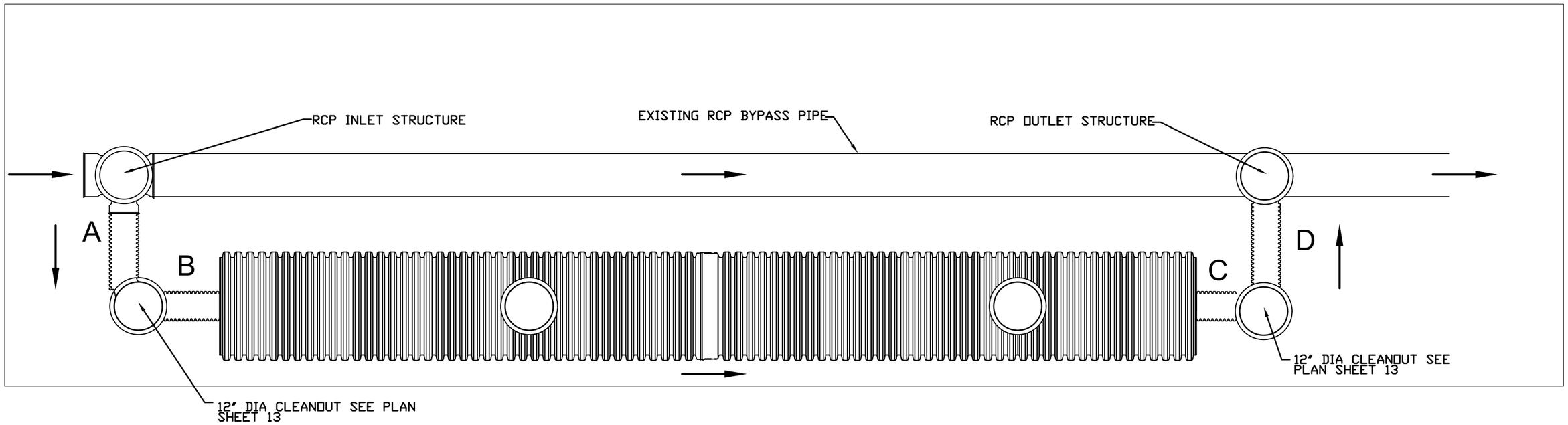
STATE PROJECT NO. MN | CITY PROJECT NO. ----

DETAILS 1



15 HDPE INLET/OUTLET SCHEDULE

SWQU	A	B	C	D
1	31'	11'	5'	8'
2	19'	5'	5'	19'
3	25'	5'	5'	28'

01/10 STORMWATER QUALITY UNIT
*NO SCALE

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STATE PROJECT NO. MN | CITY PROJECT NO. ----

DETAILS 2

SHEET 10 OF 14 SHEETS

Plot Date: 04/20/2019
Drawing name: X:\clients_vol\041_BCWD\0318_mckusick_rd_bmp_const_srvcs\09_gims_projectname\dwg\d41-299_As-Built.dwg
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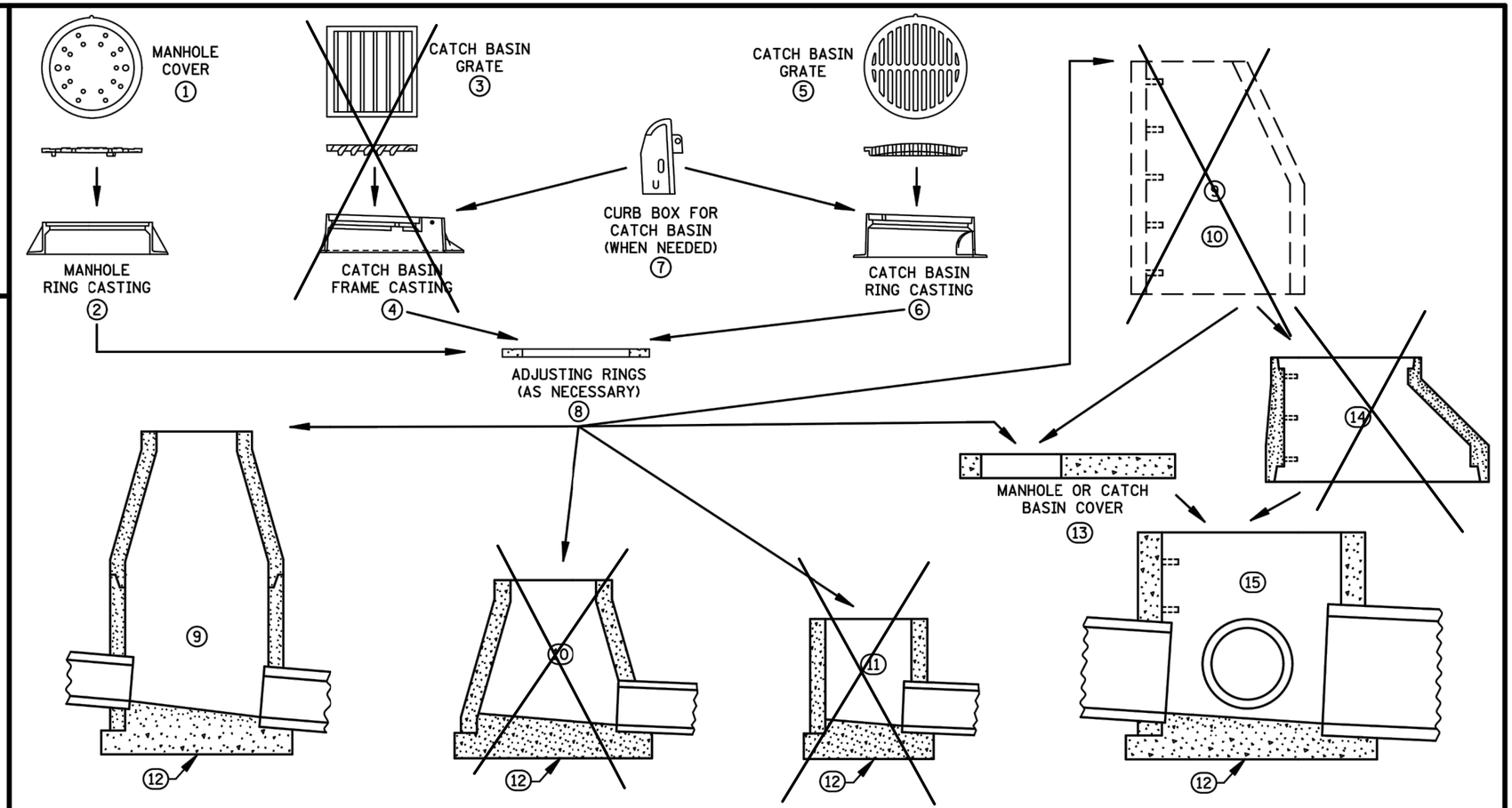
REFERENCE DATE: 11/19/2012

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

DRAINAGE STRUCTURES AND CASTINGS

STRUCTURE AND CASTING COMBINATIONS

1 OF 4



① CASTING NO. 715
PLATE NO. 4110
~~CASTING NO. 716~~
~~PLATE NO. 4110~~

② CASTING NO. 700-4
THRU NO. 700-10
PLATE NO. 4101

③ ~~CASTING NO. 811~~
~~PLATE NO. 4151~~
~~CASTING NO. 814A~~
~~PLATE NO. 4152~~
~~CASTING NO. 815~~
~~PLATE NO. 4153~~
~~CASTING NO. 816~~
~~PLATE NO. 4154~~

④ ~~CASTING NO. 802A~~
~~PLATE NO. 4129~~
~~CASTING NO. 805~~
~~PLATE NO. 4132~~
~~CASTING NO. 806~~
~~PLATE NO. 4125~~
~~ONLY WITH CURB BOX~~

⑤ ~~CASTING NO. 720~~
~~PLATE NO. 4140~~
~~CASTING NO. 721~~
~~PLATE NO. 4140~~
CASTING NO. 810
PLATE NO. 4149

⑥ CASTING NO. 801
PLATE NO. 4126
~~CASTING NO. 700-4~~
~~THRU NO. 700-10~~
~~PLATE NO. 4101~~
~~CASTING NO. 731~~
~~PLATE NO. 4143~~

⑦ CASTING NO. 821B
PLATE NO. 4161
~~CASTING NO. 822~~
~~PLATE NO. 4161~~
~~CASTING NO. 823A~~
~~PLATE NO. 4160~~
~~CASTING NO. 824~~
~~PLATE NO. 4133~~
~~CASTING NO. 825~~
~~PLATE NO. 4134~~
~~CASTING NO. 831A~~
~~PLATE NO. 4161~~
~~CASTING NO. 833A~~
~~PLATE NO. 4160~~

⑧ PLATE NO. 4010

⑨ ~~DESIGN A~~
~~PLATE NO. 4000~~
DESIGN F
PLATE NO. 4005

⑩ ~~DESIGN C~~
~~PLATE NO. 4002~~
~~DESIGN G~~
~~PLATE NO. 4006~~

⑪ ~~DESIGN H~~
~~PLATE NO. 4006~~
~~DESIGN N~~
~~PLATE NO. 4003~~

⑫ ~~PRECAST BASE~~
~~PLATE NO. 4011~~

⑬ MANHOLE OR CATCH BASIN COVER
~~PLATE NO. 4022~~
PLATE NO. 4020

⑭ ~~DESIGN D~~
~~PLATE NO. 4018~~

⑮ DESIGN 4020
PLATE NO. 4020

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DETAILS 3

SHEET 11 OF 14 SHEETS

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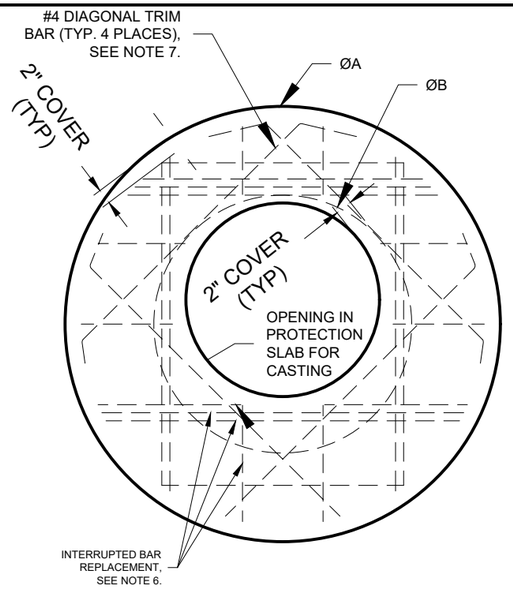
Drawing name: X:\clients_wd\041_BCWD\0318_mckusick_rd_bmp_const_srvces\09_gims_projectname\dwg\41-299_As-Built.dwg
Xrefs: 36401-plan-Default2, 41-299_P-BASE2, 41-299_X-BASE2, cr64-topo2, Preserver Generic Details

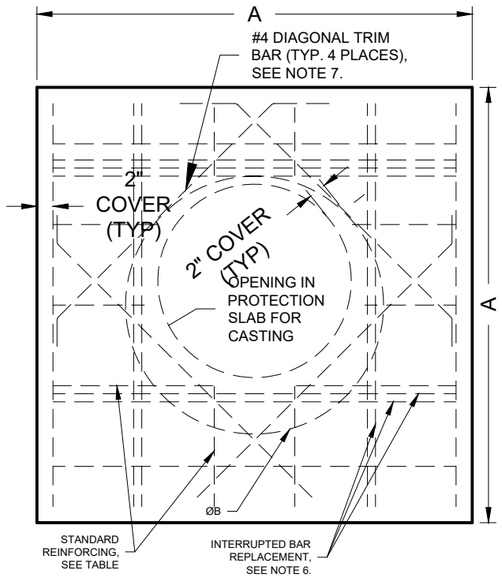
REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	Ø 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	Ø 5' 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	Ø 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	Ø 6' 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100

** ASSUMED SOIL BEARING CAPACITY

01/12 REINFORCEMENT STEEL TABLE
NO SCALE



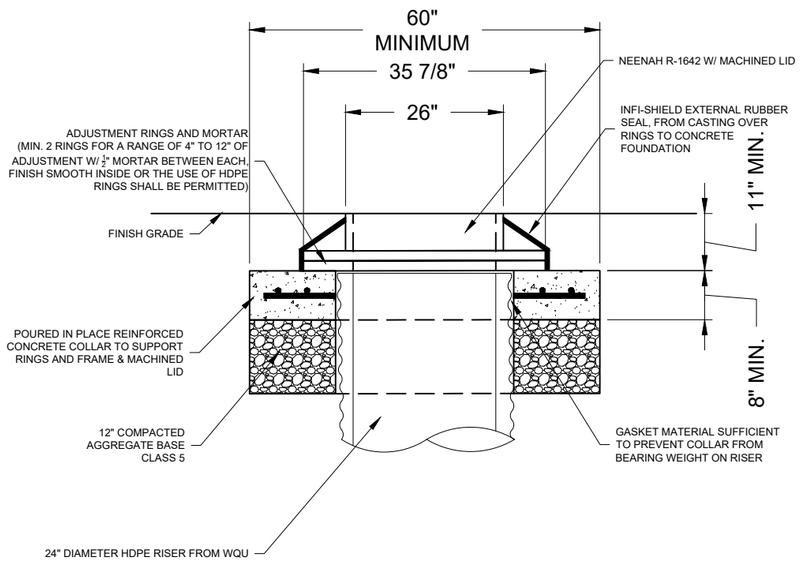
ROUND OPTION PLAN VIEW



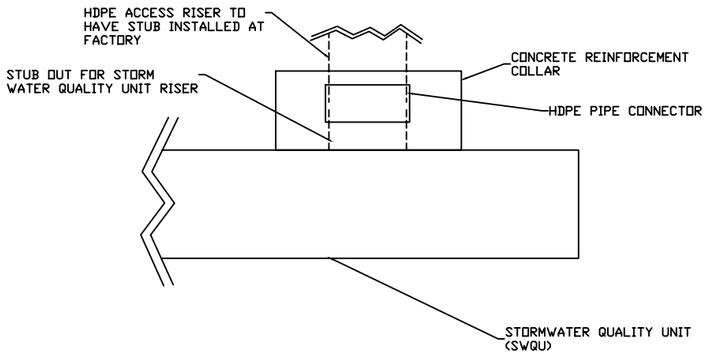
SQUARE OPTION PLAN VIEW

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
2. DESIGN LOAD H20 MINIMUM.
3. EARTH COVER 11" MINIMUM.
4. CONCRETE STRENGTH = 3,500 PSI MINIMUM.
5. REINFORCING STEEL = ASTM A615, GRADE 50.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENING EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. AT THE DISCRETION OF THE ENGINEER, THE CONTRACTOR MAY INSTALL A PRECAST COLLAR IN PLACE OF PIP.



03/12 ACCESS RISER CASTING SUPPORT DETAIL (TYP.)
NO SCALE



04/12 ACCESS RISER SWQU CONNECTION SUPPORT
NO SCALE

NO	DATE	BY	REVISION
6			
5	07-19-2018	BR	RECORD DRAWING
4	03-17-2017	DRL	100% SUBMITTAL
3	02-17-2017	DRL	95% SUBMITTAL
2	01-13-2017	BR	90% SUBMITTAL
1	12-19-2016	BR	60% 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.

DEREK R. LASH
DATE: MARCH 17, 2017 LICENSE # 45156

SUBMISSION DATE: 12-19-2016
DESIGN BY DRL DRAWN BY BR
EOR PROJECT NO. 00041-0299

Emmons & Olivier Resources, Inc.
651 Hale Avenue North
Oakdale, MN 55128
Tele: 651.770.8448
www.eorinc.com
water ecology community

BROWN'S CREEK WATERSHED DISTRICT
455 HAYWARD AVE N
STILLWATER MN,

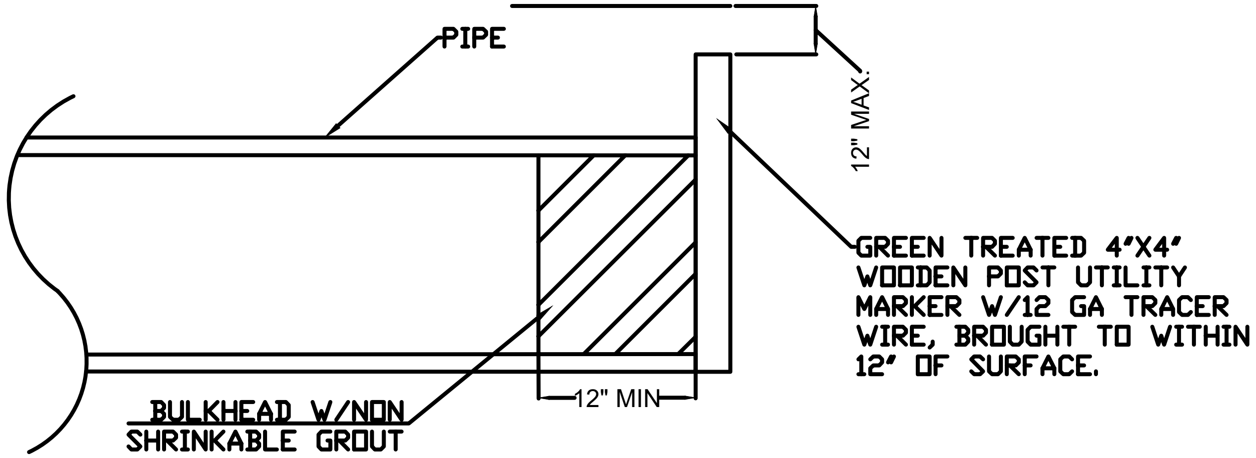
MKUSICK ROAD WATER QUALITY BMPS
WATER QUALITY BMPS
STILLWATER, WASHINGTON COUNTY, MINNESOTA

STATE PROJECT NO. MN | CITY PROJECT NO. ----

DETAILS 4

SHEET 12 OF 14 SHEETS

Plot Date: 04/29/2019
Drawing name: X:\clients_wd\041_BCWD\0318_mckusick_rd_bmp_const_srvces\09_gims_projectname\dwg\41-299_As-Built.dwg
Xrefs: 38401-plan-Default2, 41-299_P-BASE2, 41-299_X-BASE2, cr644opo2, Preserver Generic Details

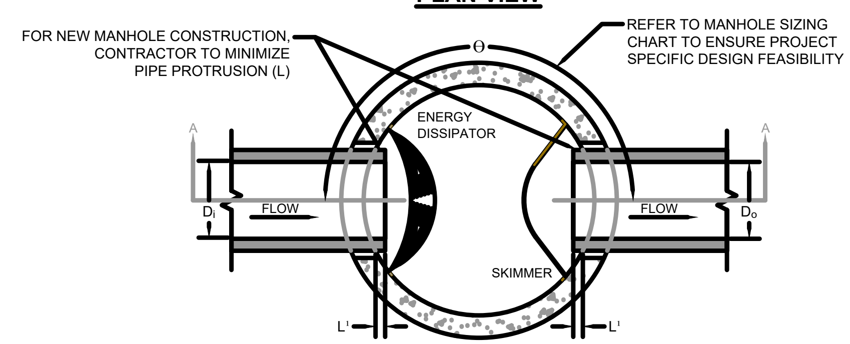


01 / 13 PLUG PIPE END TYP.
*NO SCALE

NOTE: SEE SPECIAL PROVISIONS

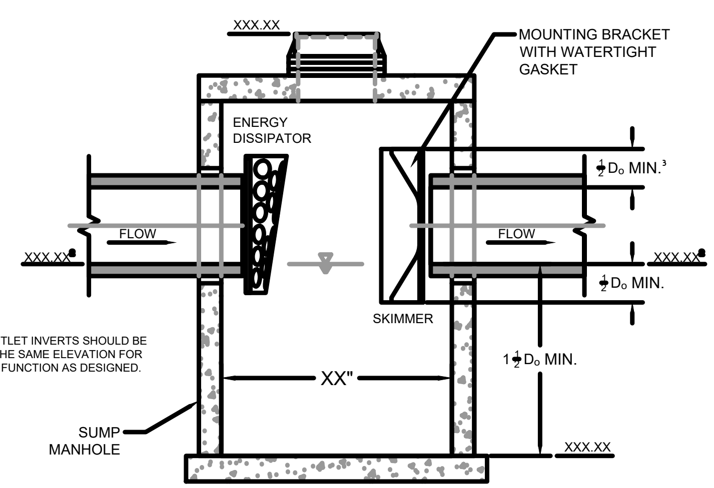
NOTE:
SEE PLAN SHEET 2 TABLE FOR PIPE INVERT ELEVATIONS (TYP.)

PLAN VIEW



NOTE 1: STOCK COMPONENTS ARE DESIGNED TO ACCOMMODATE A 6" CONCRETE PIPE PROTRUSION (L, MEASURED AT SIDE OF PIPE). FOR CUSTOM DESIGNS, AND/OR PROJECT SPECIFIC DETAILS, CONTACT MOMENTUM.

CROSS SECTION AA

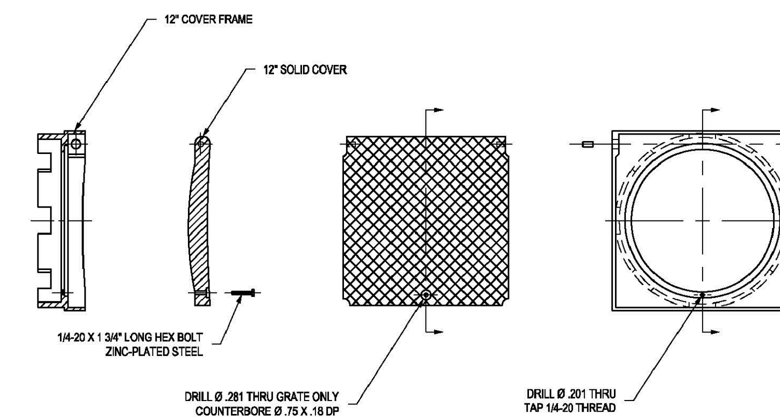


NOTE 2: INLET AND OUTLET INVERTS SHOULD BE AT APPROXIMATELY THE SAME ELEVATION FOR THE PRESERVER™ TO FUNCTION AS DESIGNED.

NOTE 3: STOCK SKIMMERS HAVE A FREEBOARD DEPTH OF $\frac{1}{2}D_o$. FOR GREATER FREEBOARD DEPTHS, DESIGNERS CAN UPSIZE THE SKIMMER, OR USE A CUSTOMIZED SKIMMER. FOR CUSTOM DESIGNS, AND/OR PROJECT SPECIFIC DETAILS, CONTACT MOMENTUM.

02 / 13 TYPICAL BAFFLE DESIGN
*NO SCALE

1299CGCL

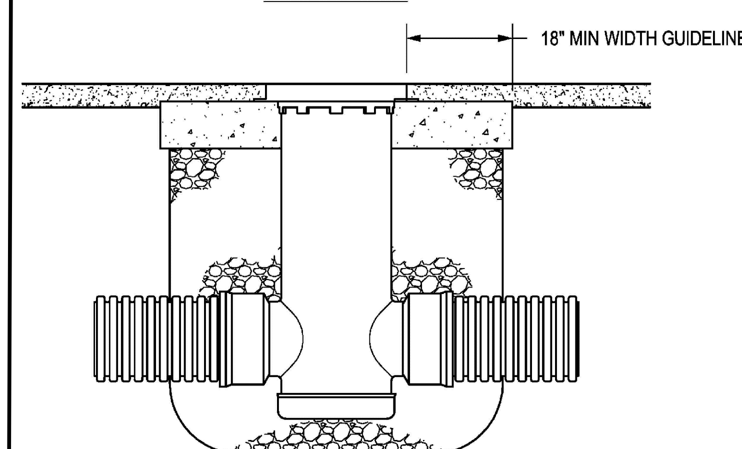


NOTE: LOCATION OF LOCKING DEVICE MAY VARY

THIS PRINT DISCLOSES SUBJECT MATTER IN WHICH NYLOPLAST HAS PROPRIETARY RIGHTS. THE RECEIPT OR POSSESSION OF THIS PRINT DOES NOT CONFER, TRANSFER, OR LICENSE THE USE OF THE DESIGN OR TECHNICAL INFORMATION SHOWN HEREIN REPRODUCTION OF THIS PRINT OR ANY INFORMATION CONTAINED HEREIN, OR MANUFACTURE OF ANY ARTICLE HEREFROM, FOR THE DISCLOSURE TO OTHERS IS FORBIDDEN, EXCEPT BY SPECIFIC WRITTEN PERMISSION FROM NYLOPLAST. ©2007 NYLOPLAST	DRAWN BY AWA DATE 7-5-00	MATERIAL	Nyloplast 3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
	APPD BY CJA DATE 7-5-00	PROJECT NO./NAME	TITLE 12 IN SOLID LOCKING COVER ASSEMBLY
	DWG SIZE A	SCALE 1:8 SHEET 1 OF 1	DWG NO. 7001-110-033 REV B

03 / 13 12" SOLID LOCKING COVER
*NO SCALE

ROAD & HIGHWAY



STRUCTURE SIZE	H-20 GRATE OPTIONS				
→ 12"	N/A	STANDARD	SOLID	2X2 R&H	N/A
15"	N/A	STANDARD	SOLID	2X2 R&H	N/A
18"	N/A	STANDARD	SOLID	2X2 R&H	2X3 R&H
24"	N/A	STANDARD	SOLID	2X2 R&H	2X3 R&H
30"	PEDESTRIAN	STANDARD	SOLID	2X2 R&H	2X3 R&H

1 - THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.
2 - TRAFFIC LOADS: CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, & OTHER APPLICABLE DESIGN FACTORS.

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	REVISED BY NMH DATE 03-14-16	PROJECT NO./NAME	TITLE DRAIN BASIN, INLINE DRAIN, & ROAD & HIGHWAY (H-20 TRAFFIC LOAD) ASPHALT INSTALLATION DETAIL
	DWG SIZE A	SCALE 1:30 SHEET 1 OF 1	DWG NO. 7001-110-188 REV E

04 / 13 12" DIA CLEANOUT
*NO SCALE

Plot Date: 04/29/2019
Drawing name: X:\clients_wd\041_BCWD\0318_mckusick_rd_bmp_const_srvces\09_gims_projectname\dwg\41-299_As-Built.dwg
Xrefs:, 36401-plan-Default2, 41-299_P-BASE2, 41-299_X-BASE2, cr64-topo2, Preserver Generic Details

NO	DATE	BY	REVISION
6			
5	07-19-2018	BR	RECORD DRAWING
4	03-17-2017	DRL	100% SUBMITTAL
3	02-17-2017	DRL	95% SUBMITTAL
2	01-13-2017	BR	90% SUBMITTAL
1	12-19-2016	BR	60% SUBMITTAL

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DEREK R. LASH
DATE: MARCH 17, 2017 LICENSE # 45156

SUBMISSION DATE: 12-19-2016
DESIGN BY DRL DRAWN BY BR
EOR PROJECT NO. 00041-0299

Emmons & Olivier Resources, Inc.
water ecology community
651 Hale Avenue North
Oakdale, MN 55128
Tele: 651.770.8448
www.eorinc.com

BROWN'S CREEK WATERSHED DISTRICT
455 HAYWARD AVE N
STILLWATER MN,

MKUSICK ROAD WATER QUALITY BMPS
WATER QUALITY BMPS
STILLWATER, WASHINGTON COUNTY, MINNESOTA

STATE PROJECT NO. MN | CITY PROJECT NO. ----

DETAILS 5

SWQU 1

CLEARING AND GRUBBING	LS	1
SEEDING	AC	0.20
EROSION CONTROL BLANKET, CATEGORY 0S (INCLUDES MAINTENANCE)	SY	1000
HYDRAULIC MATRIX, TYPE BONDED FIBER MATRIX	SY	100

ST PIPE

NOT BUILT

REMOVE & REPLACE CONCRETE CURB AND GUTTER	LF	46
SAWING BITUMINOUS PAVEMENT	LF	100
ROAD SECTION REPAIR -- SELECT GRANULAR BORROW (PLAN QUANTITY, 36" MNDOT 3149.B.2)	CY	60
ROAD SECTION REPAIR -- AGGREGATE BASE PLACED CLASS 5 (PLAN QUANTITY, 6", MNDOT 2211)	TON	33
SEEDING	AC	0.10
EROSION CONTROL BLANKET, CATEGORY 0S (INCLUDES MAINTENANCE)	SY	500
HYDRAULIC MATRIX, TYPE BONDED FIBER MATRIX	SY	500

SWQU 2

REMOVE & REPLACE CONCRETE CURB AND GUTTER	LF	40
SAWING BITUMINOUS PAVEMENT	LF	76
ROAD SECTION REPAIR -- SELECT GRANULAR BORROW (PLAN QUANTITY, 36" MNDOT 3149.B.2)	CY	7
TRAIL SECTION REPAIR -- AGGREGATE BASE PLACED CLASS 5 (PLAN QUANTITY, 4", MNDOT 2211)	TON	8
ROAD SECTION REPAIR -- AGGREGATE BASE PLACED CLASS 5 (PLAN QUANTITY, 6", MNDOT 2211)	TON	5
SEEDING	AC	0.10
HYDRAULIC MATRIX, TYPE BONDED FIBER MATRIX	SY	500

SWQU 3

REMOVE & REPLACE CONCRETE CURB AND GUTTER	LF	60
REMOVE CATCHBASIN MANHOLE	EA	1
SAWING BITUMINOUS PAVEMENT	LF	162
ROAD SECTION REPAIR -- SELECT GRANULAR BORROW (PLAN QUANTITY, 36" MNDOT 3149.B.2)	CY	115
TRAIL SECTION REPAIR -- AGGREGATE BASE PLACED CLASS 5 (PLAN QUANTITY, 4", MNDOT 2211)	TON	27
ROAD SECTION REPAIR -- AGGREGATE BASE PLACED CLASS 5 (PLAN QUANTITY, 6", MNDOT 2211)	TON	32
SEEDING	AC	0.15
EROSION CONTROL BLANKET, CATEGORY 0S (INCLUDES MAINTENANCE)	SY	400
HYDRAULIC MATRIX, TYPE BONDED FIBER MATRIX	SY	800

SCALE IN FEET

0 15 30 60

NO	DATE	BY	REVISION
6			
5	07-19-2018	BR	RECORD DRAWING
4	03-17-2017	DRL	100% SUBMITTAL
3	02-17-2017	DRL	95% SUBMITTAL
2	01-13-2017	BR	90% SUBMITTAL
1	12-19-2016	BR	60% SUBMITTAL

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DEREK R. LASH
DATE: MARCH 17, 2017 LICENSE # 45156

SUBMISSION DATE: 12-19-2016

DESIGN BY DRL DRAWN BY BR

EOR PROJECT NO. 00041-0299

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BROWN'S CREEK WATERSHED DISTRICT
455 HAYWARD AVE N
STILLWATER MN,

MKUSICK ROAD WATER QUALITY BMPS
WATER QUALITY BMPS
STILLWATER, WASHINGTON COUNTY, MINNESOTA

STATE PROJECT NO. MN CITY PROJECT NO. ----

SITE RESTORATION PLAN

SHEET 14 OF 14 SHEETS

COOPERATIVE AGREEMENT BETWEEN THE BROWN'S CREEK WATERSHED DISTRICT AND WASHINGTON COUNTY FOR CONSTRUCTION COST OF COUNTY ROAD 64

WASHINGTON COUNTY	
CONTRACT NO.	10606
DEPT.	PUBLIC WORKS
DIVISION	TRANSPORTATION
TERM	SIGNATURE - END OF PROJECT

THIS AGREEMENT, by and between Washington County, a political subdivision of the State of Minnesota, hereinafter referred to as the "County," and the Brown's Creek Watershed District, a special-purpose unit of government, hereinafter referred to as the "BCWD," provides for the integration of water-quality improvement practices into the County's planned upgrade of County Road 64 (McKusick Road North).

WITNESSETH:

WHEREAS BCWD has authority under Minnesota Statutes chapters 103B and 103D to design and implement projects to improve water quality and protect water resources within the Brown's Creek watershed;

WHEREAS, the County desires to improve the road surface and safety of County Road 64, which is owned and operated by the County, in an area tributary to Brown's Creek (as depicted in Exhibit A, attached to and incorporated into this agreement as a term hereof); and

WHEREAS, the BCWD desires to reduce thermal and pollutant loading in runoff from County Road 64 into Brown's Creek and has developed conceptual plans for retrofitting existing catch basins in the roadway with baffles and installing proprietary settling devices to capture sediment and reduce pollutant loading, along with construction of associated stormwater conveyances and the design of the infrastructure and connections to facilitate possible future addition of best management practices designed to reduce the temperature of runoff to Brown's Creek (altogether, the Project); and

WHEREAS the County's improvement of County Road 64 (hereinafter referred to as the "Road Improvements") and the Project (together referred to hereinafter as "the Work") will be constructed entirely within the County Road 64 right-of-way owned and operated by the County; and

WHEREAS the County has assigned project number CP 17-36401 to the Road Improvements; and

WHEREAS on October 12, 2016, the BCWD Board of Managers ordered the Project in accordance with Minnesota Statutes section 103B.251;

WHEREAS, the BCWD has applied for a state Clean Water Legacy grant for the Project; and

WHEREAS, the County desires to use local fund to fund this transportation improvement; and

WHEREAS, the County and the BCWD desire to have the construction of the Road Improvements and the Project under one contract to be let by the County; and

WHEREAS, a cooperative effort between the BCWD and County is the appropriate method to facilitate the construction of the Work; and

WHEREAS, this Agreement is made pursuant to statutory authority contained in Minnesota Statutes section 471.59.

NOW THEREFORE, IT IS HEREBY MUTUALLY AGREED AS FOLLOWS:

A. PURPOSE

The purpose of this agreement is set forth in the above recitals, which are incorporated into this agreement as terms hereof. The County and BCWD enter this agreement to document their understanding as to the scope of Project and affirm their commitments as to responsibility for tasks to be undertaken, establish procedures for performing these tasks and fulfilling responsibilities, and facilitate communication and cooperation to ensure successful completion of the Work.

B. PLANS AND SPECIFICATION PREPARATION

1. The County shall be responsible for the preparation of the necessary plans and specifications for the Road Improvements, including but not limited to compliance with all applicable standards and policies and obtaining all approvals required for the Road Improvements. The County will prepare plans, drawings and bid specifications necessary for the solicitation of bids for construction of the Road Improvements in accordance with applicable public-procurement law.

2. The BCWD shall be responsible for the design of plans and specifications for the Project, including but not limited to, compliance with all applicable standards and policies and obtaining all approvals required that are not otherwise required for the Road Improvements. By January 20, 2017, BCWD will provide to the County for review and approval 90 percent complete plans and specifications for the Project, along with such further drawings and specifications as may be necessary to ensure the proper integration of the Project into the bid documents for the Road Improvements. BCWD also will provide to the County the information necessary for the parties to ensure that thermal-reduction best management practices may be constructed in the future.

3. The County will have 7 days from the receipt of the plans, specifications and information specified in paragraph B.2 to review and- approve the plans and specifications for the Project.

C. ADVERTISEMENT AND AWARD OF CONTRACT

1. After plans and specifications for the Project have been approved by the County, construction bidding documents necessary for the Work have been prepared, and all permits and approvals obtained, the County shall advertise for construction bids and at the sole discretion of the County award the contract to the lowest responsible bidder. Within 7 days of receipt of the bid abstract, BCWD will direct that the County either contract for the construction of the Project or remove the plans and specifications and bid-form items for the Project from the contract for construction.

2. If BCWD elects to direct that the County contract for the construction of the Project, the contract for construction will:

   a. Require the contractor to indemnify, defend and hold harmless BCWD, its managers, administrator 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 the County;

   b. The County will require that the contractor name BCWD as an additional insured for general liability and provide a certificate showing same prior to construction;

   c. Require the contractor to extend all warranties applicable to elements of the Project to BCWD.

D. **CONSTRUCTION ADMINISTRATION, OBSERVATION, AND TESTING**

1. The County shall be responsible for the construction administration, inspection, and for the observation and testing for all construction items. BCWD will receive from the County timely notice of and may attend and participate in pre-construction and construction meetings for the Work. BCWD may observe construction of the Project. BCWD may not direct the contractor. The County engineer overseeing the Work may incorporate change orders, work orders or supplemental agreements as necessary and appropriate to adjust construction of the Project as may be reasonably requested by BCWD.

2. The County will provide as-built survey data of the Project to BCWD within 90 days of certification the completion of construction of the Project.

E. **COST PARTICIPATION ITEMS AND ESTIMATED COSTS**

The County has prepared a projection for the Work's construction cost, an Engineer's Estimate and Cost Splits are hereto attached as Exhibit B, which is incorporated herein as a term of the agreement.

1. Construction

Construction costs include the cost to construct the Work. The County has prepared a projection cost and cost splits hereto attached as Exhibit B. The total project cost for construction is estimated to be $1,704,32.30 as indicated in Exhibit B. The BCWD shall pay to the County its share of the total cost as shown in Exhibit B and summarized in Table 1. After the County has awarded the construction contract, Exhibit B will be updated to reflect the actual contractor's unit prices.

Actual construction and construction engineering costs shall be determined at the conclusion of the Work and will be based on the contractor's unit prices and the quantities constructed.

Table 1
BCWD Cost Summary

ITEM	COST
Estimated Construction	$312,157.50
County's Contribution to the Project	$(20,000.00)
TOTAL ESTIMATED COST	**$292,157.50**

2. The costs attributable to the BCWD and payable to the County in section E. are merely estimated costs. Actual construction costs will be based on the contractor's unit prices and quantities, and a reconciliation of actual costs to the estimated costs will be made pursuant to section F.3 of this agreement. Actual costs associated with construction shall be determined at the end of the Work.

F. **PAYMENT**

1. After the County has awarded the construction contract, Exhibit B will be updated to reflect the actual contractor's unit prices and will submit a copy of the revised summary to the BCWD. Upon receipt of the revised summary, the BCWD shall pay to the Treasurer of Washington County an amount equal to 10 percent of the BCWD's estimated construction cost of the Work, less the $20,000 contribution from the County to Project costs described in section E. herein.

2. During construction the County shall submit to the BCWD an estimated cost of the partial work performed by the Contractor and costs for construction engineering. Upon receipt of this estimated cost, the BCWD shall pay to the County its share of the cost of the partial work performed as determined in Section E. of this agreement.
3. Upon substantial completion of the work the County shall prepare a final cost participation summary which will be based upon the contract unit prices and the actual units of work performed and shall submit a copy of this summary to BCWD. The County shall add to the BCWD's final construction costs construction contract amendments, any necessary adjustments for liquidated damages, and deduct BCWD funds previously advanced for the Work by the BCWD. If the amount of the total of the payments made by the BCWD pursuant to Section E. is less than the actual cost to the BCWD of its portion of the Work, the BCWD agrees to pay the difference between the estimated amount paid by the BCWD and the actual cost of the BCWD's portion of the Work.
4. In the event that the BCWD paid more in advance than the actual cost of the BCWD's portion of the Work, the County shall refund without interest the amount to the BCWD.
5. The BCWD shall pay 100 percent of an invoice amount within 35 days of receipt.

G. CONTRACT CHANGES

1. Any modifications or additions to the final approved plans and/or specifications of the BCWD's portion of the Work shall be made part of the construction contract through a written amendment to the construction contract, but only after concurrence in writing by the BCWD administrator, which will be timely provided, and the cost for such changes shall be apportioned as set forth in Section E. of this Agreement.
2. Any utility or facility which is subsequently modified or added to the final approved plans and/or specifications shall become part of the construction contract and shall be paid for as summarized in Section E. of this Agreement.

H. LIQUIDATED DAMAGES

Any liquidated damages assessed the contractor in connection with the work performed on the Work shall be shared by the BCWD and the County in the following proportion: The respective total share of construction work to the total construction cost without any deduction for liquidated damages.

I. CONDITIONS

1. The BCWD shall not assess or otherwise recover any portion of its cost for the Project through levy on County-owned property.
2. The exercise of regulatory authority by the BCWD Board of Managers and, as delegated, BCWD staff may not be and is not modified in any way by this agreement. As described in section B.2 herein, BCWD is responsible for obtaining regulatory approvals for the Project, but BCWD otherwise makes no representation or warranty by entering this agreement as to regulatory approvals required for the Work, and BCWD does not warrant that conduct of the Work otherwise will comply with any regulatory requirements.

J. CIVIL RIGHTS AND NON-DISCRIMINATION

The provisions of Minn. Stat. 181.59 and of any applicable ordinance relating to civil rights or discrimination shall be considered part of this Agreement as if fully set further herein, and shall be part of any Agreement entered into by the parties with any contractor, subcontractor, or material supplier.

K. WORKERS COMPENSATION

It is hereby understood and agreed that any and all employees of the BCWD and all other persons employed by the BCWD in the performance of construction and/or construction engineering work or services required or provided for under this agreement shall not be considered employees of the County and that any and all claims that may arise under the Worker's Compensation Act of the State of Minnesota on behalf of said employees while so engaged and any and all claims made by any third parties as a consequence of any act or omission on the part of said BCWD employees while so engaged on any of the construction and/or construction engineering work or services to be rendered herein shall in no way be the obligation or responsibility of the County.

L. INDEMNIFICATION

1. The BCWD agrees that it will defend, indemnify and hold harmless the County against any and all liability, loss, damages, costs and expenses which the County may hereafter sustain, incur or be required to pay by reason of any negligent act by the BCWD, its agents, officers or employees during the performance of this agreement.
2. The County agrees that it will defend, indemnify and hold harmless the BCWD against any and all liability, loss, damages, costs and expenses which the BCWD may hereafter sustain, incur or be required to pay by reason of any negligent act by the County, its agents, officers or employees during the performance of this agreement.
3. To the fullest extent permitted by law, actions by the parties to this Agreement are intended to be and shall be construed as a "cooperative activity" and it is the intent of the parties that they shall be deemed a "single governmental unit" for the purposes of liability, as set forth in Minnesota Statutes, Section 471.59, subd. 1a(b). The parties to this Agreement are not liable for the acts or omissions of another party to this Agreement except to the extent they have agreed in writing to be responsible for the acts or omissions of the other parties as provided for in Section 471.59, subd. 1a.
4. Each party's liability shall be governed by the provisions of Minnesota Statutes, Chapter 466 and other applicable law. The parties agree that liability under this Agreement is controlled by Minnesota Statute 471.59, subdivision 1a and that the total liability for the parties shall not exceed the limits on governmental liability for a single unit of government as specified in 466.04, subdivision 1(a).

M. DATA PRIVACY

All data collected, created, received, maintained, or disseminated, or used for any purposes in the course of this Agreement is governed by the Minnesota Government Data Practices Act, Minnesota Statutes section 13.01, et seq. and all other applicable state statutes and state rules adopted to implement the Act, as well as applicable state statutes and federal regulations on data privacy.

N. NOTICE; COORDINATION

The parties designate the following authorized representatives, each to serve as the liaison to the other party for purposes of coordinating inspection and construction oversight for the Project and coordination of the Project with the Road Improvements as provided in this agreement. Any written communication required under this agreement will be addressed to the other party as follows, except that either party may change its address for notice by so notifying the other party in writing:

To Washington County:

Andrew Giesen
Washington County Public Works Department
11660 Myeron Rd North
Stillwater, MN 55082

To BCWD:

Administrator
Brown's Creek Watershed District
455 Hayward Ave N
Oakdale, MN 55128

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

COUNTY OF WASHINGTON

By _____ 3-28-17
Chair Date
County Board of Commissioners

By _____ 3-28-17
Molly O'Rourke Date
County Administrator

Approved as to form:

By _____ 3/24/17
Asst. County Attorney Date

BROWN'S CREEK WATERSHED DISTRCIT

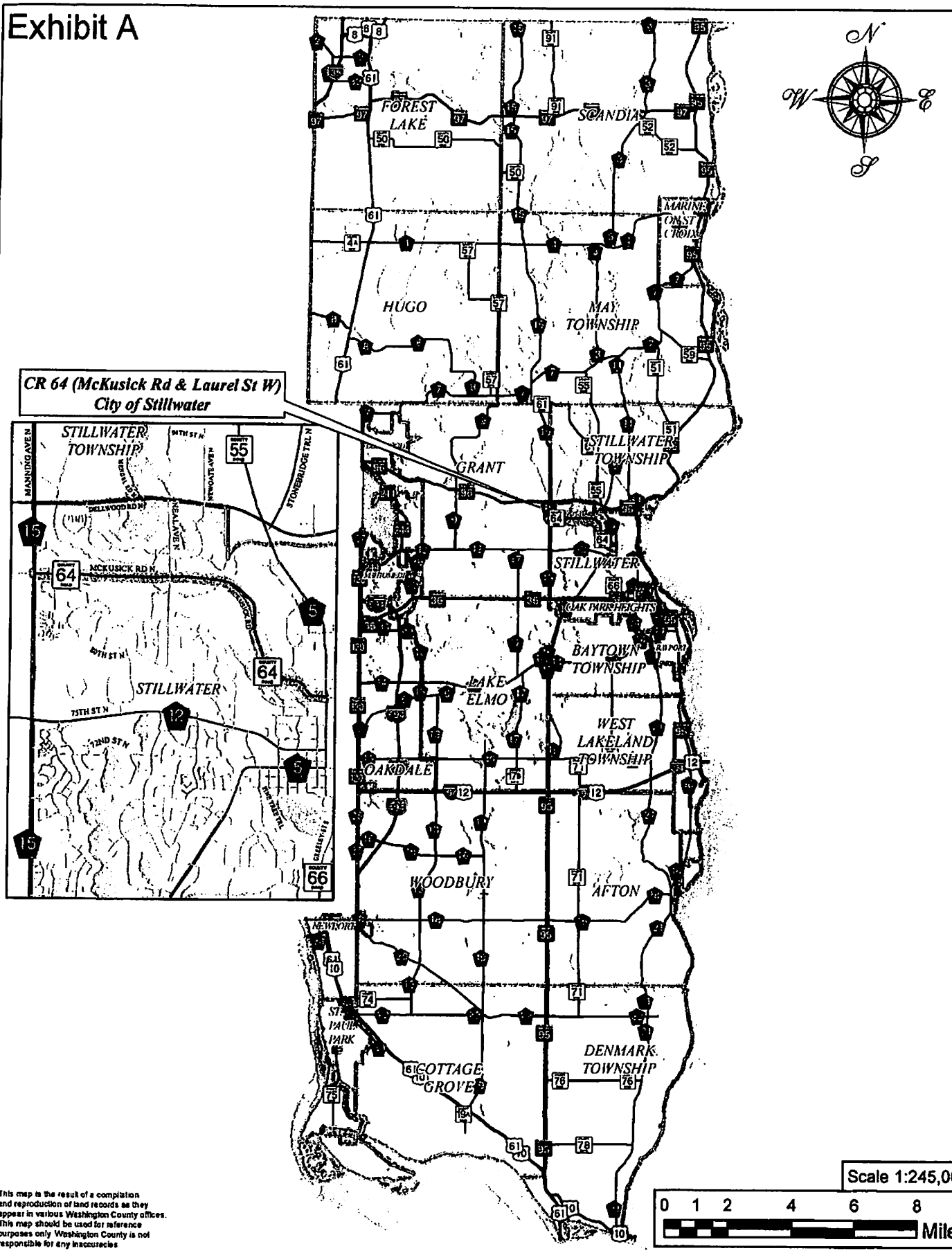
By _____ 1/11/17
Craig F. Leiser
Board President Date

By _____ 1/11/17
BCWD Administrator Date

Approved as to form and execution:

By _____ January 11, 2017
BCWD Attorney Date

Exhibit A

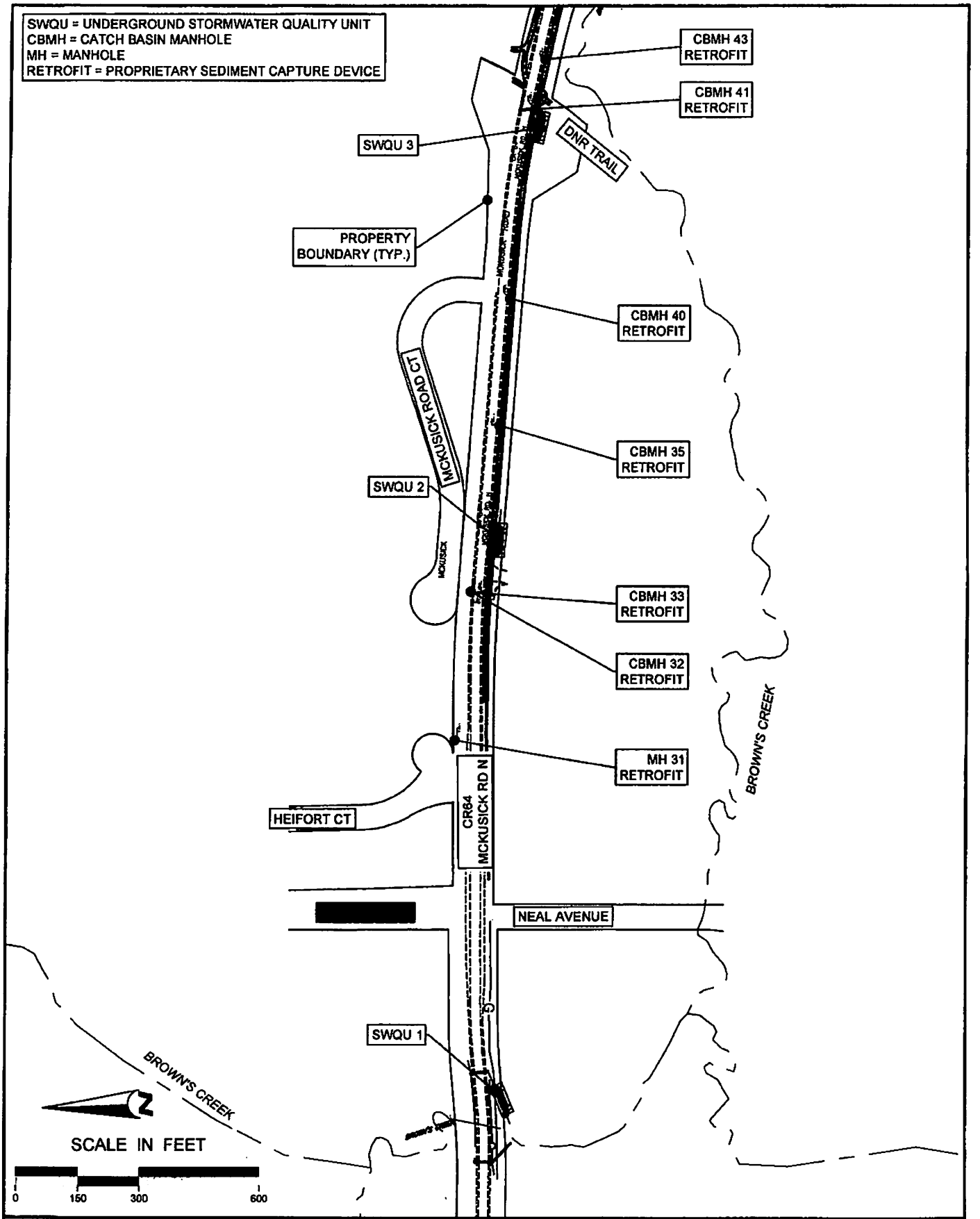


This map is the result of a compilation and reproduction of land records as they appear in various Washington County offices. This map should be used for reference purposes only. Washington County is not responsible for any inaccuracies

Washington County

CR 64 (McKusick Rd & Laurel St W) - Stillwater

From CSAH 15 (Manning Ave) to CSAH 5 (Owens St)



SUBMISSION DATE: 12-07-2015 DESIGN BY DRL DRAWN BY BR EOR PROJECT NO. 00041-0299	Emmons & Olivier Resources, Inc. 651 Hale Avenue North Oakdale, MN 55128 Tele: 651.770.8448 www.eorinc.com	BROWN'S CREEK WATERSHED DISTRICT 455 HAYWARD AVE N OAKDALE, MN 55128	MCKUSICK ROAD WATER QUALITY BMPS STILLWATER, MN	EXHIBIT A SHEET 01 OF 01 SHEETS

EXHIBIT B

STATEMENT OF ESTIMATED QUANTITIES						COST ESTIMATE			
ITEM NO.	DESCRIPTION	UNITS	TOTAL ESTIMATED QUANTITIES	CP 17-36401	BCWD QUANTITIES	ESTIMATED UNIT COST	CP 17-36401	BCWD COST	TOTAL COST
2021.501	MOBILIZATION	LUMP SUM	1	0.817	0.183	$ 85,000.00	$ 69,445.00	$ 15,555.00	$ 85,000.00
2104.501	REMOVE CURB & GUTTER	LIN FT	125	45	80	$ 18.75	$ 843.75	$ 1,500.00	$ 2,343.75
2104.501	REMOVE GUARDRAIL - PLATE BEAM	LIN FT	646	646		$ 5.00	$ 3,230.00	$ -	$ 3,230.00
2104.503	REMOVE CONCRETE WALK	SQ FT	86	86		$ 2.00	$ 172.00	$ -	$ 172.00
2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	58221	58221		$ 1.50	$ 87,331.50	$ -	$ 87,331.50
2104.507	REMOVE AGGREGATE	CU YD	1567	1567		$ 13.00	$ 20,371.00	$ -	$ 20,371.00
2104.509	REMOVE CONCRETE APRON	EACH	1	1		$ 250.00	$ 250.00	$ -	$ 250.00
2104.509	REMOVE SIGN TYPE C	EACH	50	50		$ 35.00	$ 1,750.00	$ -	$ 1,750.00
2104.509	REMOVE SIGN TYPE D	EACH	5	5		$ 80.00	$ 400.00	$ -	$ 400.00
2104.509	REMOVE ECCENTRIC LOADER BCT	EACH	5	5		$ 360.00	$ 1,800.00	$ -	$ 1,800.00
2104.511	SAWING CONCRETE PAVEMENT	LIN FT	91	11	80	$ 6.25	$ 68.75	$ 500.00	$ 568.75
2104.513	SAWING BITUMINOUS PAVEMENT	LIN FT	60	60		$ 10.00	$ 600.00	$ -	$ 600.00
2104.523	SALVAGE SIGN TYPE C	EACH	10	10		$ 35.00	$ 350.00	$ -	$ 350.00
2104.523	SALVAGE SIGN TYPE D	EACH	5	5		$ 35.00	$ 175.00	$ -	$ 175.00
2105.501	COMMON EXCAVATION (EV)	CU YD	800		800	$ 20.00	$ -	$ 16,000.00	$ 16,000.00
2118.501	AGGREGATE SURFACING CLASS 2 (LIME ROCK)	TON	5	5		$ 35.00	$ 175.00	$ -	$ 175.00
2118.501	AGGREGATE SURFACING CLASS 5	TON	6	6		$ 30.00	$ 180.00	$ -	$ 180.00
2215.501	FULL DEPTH RECLAMATION	SQ YD	5396	5396		$ 1.50	$ 8,094.00	$ -	$ 8,094.00
2221.501	SHOULDER BASE AGGREGATE CLASS 1 MOD	TON	263	263		$ 20.00	$ 5,260.00	$ -	$ 5,260.00
2231.501	BITUMINOUS PATCHING MIXTURE	TON	100	100		$ 20.00	$ 2,000.00	$ -	$ 2,000.00
2232.501	MILL BITUMINOUS SURFACE	SQ YD	97	97		$ 2.00	$ 194.00	$ -	$ 194.00
2232.501	MILL BITUMINOUS SURFACE (1.5")	SQ YD	1000	1000		$ 2.00	$ 2,000.00	$ -	$ 2,000.00
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	4988	4988		$ 2.00	$ 9,976.00	$ -	$ 9,976.00
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C)	TON	11424	11424		$ 60.00	$ 685,440.00	$ -	$ 685,440.00
2360.501	TYPE SP 12.5 NON-WEARING COURSE MIXTURE (3,C)	TON	4650	4650		$ 56.00	$ 260,400.00	$ -	$ 260,400.00
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (2,B)	TON	1553	1553		$ 60.00	$ 93,180.00	$ -	$ 93,180.00
2501.602	CLEAN PIPE CULVERT	EACH	5	5		$ 30.00	$ 150.00	$ -	$ 150.00
2503.511	12" HDPE PIPE SEWER (FOR WQU)	LIN FT	280		280	$ 50.00	$ -	$ 14,000.00	$ 14,000.00
2503.511	12" HDPE PIPE SEWER (FOR FUTURE ROCK CRIB)	LIN FT	90		90	$ 50.00	$ -	$ 4,500.00	$ 4,500.00
2503.511	12" HDPE PIPE SEWER, RISER PIPE (FOR WQU)	LIN FT	50		50	$ 50.00	$ -	$ 2,500.00	$ 2,500.00
2506.502	SAFL OR MOMENTUM BAFFLE & SKIMMER	EACH	7		7	$ 6,500.00	$ -	$ 45,500.00	$ 45,500.00
2506.502	48" DIA. PRECAST CONCRETE MANHOLE	EACH	7		7	$ 4,000.00	$ -	$ 28,000.00	$ 28,000.00
2506.502	48" DIA. PRECAST CONCRETE MANHOLE (FOR FUTURE ROCK CRIB STUB)	EACH	1		1	$ 4,000.00	$ -	$ 4,000.00	$ 4,000.00
2506.502	WATER QUALITY TANK (PRINSCO WQU 6040)	EACH	3		3	$ 42,000.00	$ -	$ 126,000.00	$ 126,000.00
2506.502	CONSTRUCT DRAINAGE STRUCTURE, TYPE 24" HDPE	EACH	6		6	$ 2,000.00	$ -	$ 12,000.00	$ 12,000.00
2506.503	CORE DRILL CONNECTION TO EXISTING STRUCTURE FOR WQU (12" I.D.)	EACH	2		2	$ 1,000.00	$ -	$ 2,000.00	$ 2,000.00
2506.503	CORE DRILL CONNECTION TO EXISTING STRUCTURE FOR FUTURE ROCK CRIB (12" I.D.)	EACH	2		2	$ 1,000.00	$ -	$ 2,000.00	$ 2,000.00
2506.516	CONCRETE, REINFORCED COLLAR (RISER MANHOLE CAP)	EACH	6		6	$ 1,000.00	$ -	$ 6,000.00	$ 6,000.00
2506.516	CONCRETE, REINFORCED COLLAR (AT RISER CONNECTION TO TANK)	EACH	6		6	$ 1,000.00	$ -	$ 6,000.00	$ 6,000.00
2506.516	INSTALL FRAME & CASTING, 12" NYLOPLAST STORM SEWER (SOLID LID)	EACH	5		5	$ 400.00	$ -	$ 2,000.00	$ 2,000.00
2506.516	INSTALL FRAME 7 CASTING, NEEHAH R-1733 STORM SEWER	EACH	13		13	$ 625.00	$ -	$ 8,125.00	$ 8,125.00

EXHIBIT B

STATEMENT OF ESTIMATED QUANTITIES					
ITEM NO.	DESCRIPTION	UNITS	TOTAL ESTIMATED QUANTITIES	CP 17-36401	BCWD QUANTITIES
2511.501	RANDOM RIPRAP CLASS II	CU YD	15	15	
2521.501	6" CONCRETE WALK	SQ FT	249	249	
2531.501	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	180	100	80
2531.618	TRUNCATED DOMES (RADIAL)	SQ FT	53	53	
2540.602	MAIL BOX SUPPORT	EACH	23	23	
2554.501	TRAFFIC BARRIER DESIGN B8338	LIN FT	629	629	
2554.523	END TREATMENT - TANGENT TERMINAL	EACH	4	4	
2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	1	
2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.817	0.183
2563.610	FLAG PERSON	HOUR	300	300	
2564.531	SIGN PANEL TYPE C	SQ FT	250	250	
2564.531	SIGN PANEL TYPE D	SQ FT	50	50	
2564.536	INSTALL SIGN PANEL TYPE C	EACH	10	10	
2564.536	INSTALL SIGN PANEL TYPE D	EACH	5	5	
2573.530	STORM DRAIN INLET PROTECTION	EACH	6		6
2573.533	SEDIMENT CONTROL LOG. TYPE WOOD FIBER	LIN FT	450		450
2574.508	FERTILIZER TYPE 3	POUND	362	362	
2574.525	COMMON TOPSOIL BORROW	CU YD	300	300	
2575.501	SEEDING	ACRE	1.3	1	0.3
2575.502	SEED MIXTURE 25-121	POUND	64	61	3
2575.523	EROSION CONTROL BLANKETS CATEGORY 3 N	SQ YD	1726	5000	726
2575.561	HYDRAULIC MATRIX, TYPE BONDED FIBER MATRIX	SQ YD	1452		1452
2575.570	RAPID STABLIZATION METHOD 3	MGAL	3.0	3.0	
2580.603	INTERIM PAVEMENT MARKING	LIN FT	1756	1756	
2582.501	PAVT MSSG PREF TAPE GR IN	SQ FT	180	180	
2582.502	6" SOLID LINE PAINT-GR IN	LIN FT	28507	28507	
2582.502	6" BROKEN LINE PAINT-GR IN	LIN FT	30	30	
2582.502	4" SOLID LINE PAINT-GR IN	LIN FT	3685	3685	
2582.502	4" BROKEN LINE PAINT-GR IN	LIN FT	1683	1683	
2582.502	4" DBLE SOLID LINE PAINT-GR IN	LIN FT	4770	4770	
2582.503	CROSSWALK MARKING-POLY PREFORM-GR IN	SQ FT	159	159	

COST ESTIMATE			
ESTIMATED UNIT COST	CP 17-36401	BCWD COST	TOTAL COST
$ 110.00	$ 1,650.00	$ -	$ 1,650.00
$ 9.00	$ 2,241.00	$ -	$ 2,241.00
$ 38.00	$ 3,800.00	$ 3,040.00	$ 6,840.00
$ 25.00	$ 1,325.00	$ -	$ 1,325.00
$ 150.00	$ 3,450.00	$ -	$ 3,450.00
$ 12.50	$ 7,862.50	$ -	$ 7,862.50
$ 2,500.00	$ 10,000.00	$ -	$ 10,000.00
$ 5,000.00	$ 5,000.00	$ -	$ 5,000.00
$ 15,000.00	$ 12,255.00	$ 2,745.00	$ 15,000.00
$ 70.00	$ 21,000.00	$ -	$ 21,000.00
$ 40.00	$ 10,000.00	$ -	$ 10,000.00
$ 50.00	$ 2,500.00	$ -	$ 2,500.00
$ 150.00	$ 1,500.00	$ -	$ 1,500.00
$ 200.00	$ 1,000.00	$ -	$ 1,000.00
$ 265.00	$ -	$ 1,590.00	$ 1,590.00
$ 4.25	$ -	$ 1,912.50	$ 1,912.50
$ 2.00	$ 724.00	$ -	$ 724.00
$ 25.00	$ 7,500.00	$ -	$ 7,500.00
$ 4,000.00	$ 4,000.00	$ 1,200.00	$ 5,200.00
$ 15.00	$ 915.00	$ 45.00	$ 960.00
$ 4.00	$ 20,000.00	$ 2,904.00	$ 6,904.00
$ 1.75	$ -	$ 2,541.00	$ 2,541.00
$ 500.00	$ 1,500.00	$ -	$ 1,500.00
$ 0.35	$ 614.60	$ -	$ 614.60
$ 25.00	$ 4,500.00	$ -	$ 4,500.00
$ 0.70	$ 19,954.90	$ -	$ 19,954.90
$ 0.80	$ 24.00	$ -	$ 24.00
$ 0.60	$ 2,211.00	$ -	$ 2,211.00
$ 0.60	$ 1,009.80	$ -	$ 1,009.80
$ 0.80	$ 3,816.00	$ -	$ 3,816.00
$ 25.00	$ 3,975.00	$ -	$ 3,975.00
TOTALS:	$ 1,408,163.80	$ 312,157.50	$ 1,704,321.30

WASHINGTON COUNTY PUBLIC WORKS DEPARTMENT MAINTENANCE AGREEMENT BETWEEN WASHINGTON COUNTY AND THE BROWN'S CREEK WATERSHED DISTRICT FOR MAINTENANCE OF STORM WATER FACILITIES ON COUNTY ROAD 64

WASHINGTON COUNTY	
CONTRACT NO.	10605
DEPT.	Public Work
DIVISION	Transportation
TERM	Perpetual

THIS AGREEMENT, by and between Washington County, a political subdivision of the State of Minnesota, hereinafter referred to as the "County" and the Brown's Creek Watershed District, a special-purpose unit of government, hereinafter referred to as the "BCWD".

WITNESSETH:

WHEREAS BCWD has authority under Minnesota Statutes chapters 103B and 103D to design and implement projects to improve water quality and protect water resources within the Brown's Creek watershed;

WHEREAS, the County desires to improve the road surface and safety of County Road 64, which is owned and operated by the County, in an area tributary to Brown's Creek (as depicted in Exhibit A, attached to and incorporated into this agreement as a term hereof); and

WHEREAS, the BCWD desires to reduce thermal and pollutant loading in runoff from County Road 64 into Brown's Creek and has developed conceptual plans for retrofitting existing catch basins in the roadway with baffles and installing proprietary settling devices to capture sediment and reduce pollutant loading, along with construction of associated stormwater conveyances and the design of the infrastructure and connections to facilitate possible future addition of best management practices designed to reduce the temperature of runoff to Brown's Creek (altogether, "the Project"); and

WHEREAS the County's improvement of County Road 64 (hereinafter referred to as the "Road Improvements") and the Project (together referred to hereinafter as "the Work") will be constructed entirely within the County Road 64 right-of-way owned and operated by the County; and

WHEREAS, concurrent with the execution of this maintenance agreement, the County and BCWD will enter into a cooperative agreement for the construction of the Road Improvements and the Project under one contract to be let by the County; and

WHEREAS, a cooperative effort between the County and BCWD is the appropriate method to facilitate the maintenance of items to be constructed as part of the Project.

WHEREAS, this Agreement is made pursuant to statutory authority contained in Minnesota Statute 471.59.

NOW THEREFORE, IT IS AGREED AS FOLLOWS:

A. PURPOSE

The purpose of this agreement is set forth in the above recitals, which are incorporated herein as terms of this agreement. This agreement is effective when fully executed and will remain effective for 25 years thereafter. Thereafter, this agreement will automatically renew for successive five-year periods unless terminated by either party by written notice to the other at least 90 days in advance of the renewal date.

B. MAINTENANCE/OWNERSHIP

1. Upon completion of the Project, the BCWD shall maintain the following, if constructed as part of the Project:
    a. Water quality tanks. BCWD will be responsible for all maintenance of water quality tanks, including the design and cost of minor and major rehabilitation of the water quality tanks.
    b. Water quality tank inlet(s) and outlet(s). BCWD will be responsible for all maintenance of water quality tank inlets and outlets, including the design and cost of minor and major rehabilitation of the inlets and outlets of water quality tanks.
    c. Manhole structural pollution control devices (energy dissipator/baffles).
    d. Rock cribs, piping, and junctions for rock cribs.

2. Upon completion of the Project, the County shall own and maintain all constructed elements of the Project, including:
    a. Multi-purpose trails
    b. Storm sewer facilities, except that BCWD will maintain (but not own) water quality tanks, water quality tank outlet(s) and inlets, manhole structural pollution control devices (energy dissipator/baffles), rock cribs and piping for rock cribs, as provided for in paragraph B1 of this agreement.
    c. All pavement markings
    d. Signing
    e. Boulevards
    f. Guardrails
    g. Roadway

3. All maintenance required to be performed by this agreement by the Parties shall be performed in a manner which shall be at the sole discretion of the party so obligated.

4. The BCWD and the County will follow work zone traffic control procedures required in the Minnesota Manual of Uniform Traffic Control Devises for all maintenance activities.

5. The BCWD will obtain all regulatory approvals required for maintenance activities BCWD is obligated to perform under this agreement, and will notify the County at 651-430-4300 at least 24 hours in advance of any maintenance actives requiring a lane closure or permit to complete work within the County right-of-way.

C. ACCESS RIGHT

The County hereby grants BCWD, its contractors, agents and assigns all necessary rights to access and use the County Road 64 right-of-way to fulfill its obligations under and the purposes of this agreement and the agreement entered into by the parties for purposes of construction of the Project, incorporated in executed form by reference. The rights granted herein will be ongoing, and this agreement may not be amended to vacate BCWD's access and use rights for 25 years from the date construction of the Project is substantially complete for the intended purposes. The County's authorization hereunder is nonexclusive, except that BCWD, on reasonable notice to and in compliance with all necessary regulatory approvals from the County, may temporarily restrict or preclude use of the right-of-way to ensure safety while maintenance activities are under way. The County will forbear from any activity that interferes with BCWD's ability to exercise its rights or meet its obligations under this agreement.

D. CIVIL RIGHTS AND NON-DISCRIMINATION

The provisions of Minn. Stat. 181.59 and of any applicable ordinance relating to civil rights and discrimination shall be considered part of this Agreement as if fully set further herein, and shall

be part of any Agreement entered into by the parties with any contractor, subcontractor, or material suppliers.

E. WORKERS COMPENSATION

It is hereby understood and agreed that any and all employees of the County and all other persons employed by the County in the performance of construction and/or construction engineering work or services required or provided for under this agreement shall not be considered employees of the BWCD and that any and all claims that may or might arise under the Worker's Compensation Act of the State of Minnesota on behalf of said employees while so engaged and any and all claims made by any third parties as a consequence of any act or omission on the part of said County employees while so engaged on any of the construction and/or construction engineering work or services to be rendered herein shall in no way be the obligation or responsibility of the BWCD.

F. INDEMNIFICATION

1. The BWCD agrees that it will defend, indemnify and hold harmless the County against any and all liability, loss, damages, costs and expenses which the County may hereafter sustain, incur or be required to pay by reason of any negligent act by the BWCD, its agents, officers or employees during the performance of this agreement.
2. The County agrees that it will defend, indemnify and hold harmless the BWCD against any and all liability, loss, damages, costs and expenses which the BWCD may hereafter sustain, incur or be required to pay by reason of any negligent act by the County, its agents, officers or employees during the performance of this agreement.
3. To the fullest extent permitted by law, actions by the parties to this Agreement are intended to be and shall be construed as a "cooperative activity" and it is the intent of the parties that they shall be deemed a "single governmental unit" for the purposes of liability, as set forth in Minnesota Statutes, Section 471.59, subd. 1a(b). The parties to this Agreement are not liable for the acts or omissions of another party to this Agreement except to the extent they have agreed in writing to be responsible for the acts or omissions of the other parties as provided for in Section 471.59, subd. 1a.
4. Each party's liability shall be governed by the provisions of Minnesota Statutes, Chapter 466 and other applicable law. The parties agree that liability under this Agreement is controlled by Minnesota Statute 471.59, subdivision 1a and that the total liability for the parties shall not exceed the limits on governmental liability for a single unit of government as specified in 466.04, subdivision 1(a).

G. DATA PRIVACY

All data collected, created, received, maintained, or disseminated, or used for any purposes in the course of this Agreement is governed by the Minnesota Government Data Practices Act, Minnesota Statutes 1984, Section 13.01, et seq. or any other applicable state statutes and state rules adopted to implement the Act, as well as state statutes and federal regulations on data privacy.

H. CONDITIONS

The BWCD shall not assess or otherwise recover any portion of its cost for this project through levy on County-owned property.

IN TESTIMONY WHEREOF the parties have duly executed this agreement by their duly authorized officers.

COUNTY OF WASHINGTON

By [signature] 3-28-17
Chair — Date
County Board of Commissioners

By [signature] 3-28-17
Molly O'Rourke — Date
County Administrator

Approved as to form:

By ______________________
Asst. County Attorney — Date

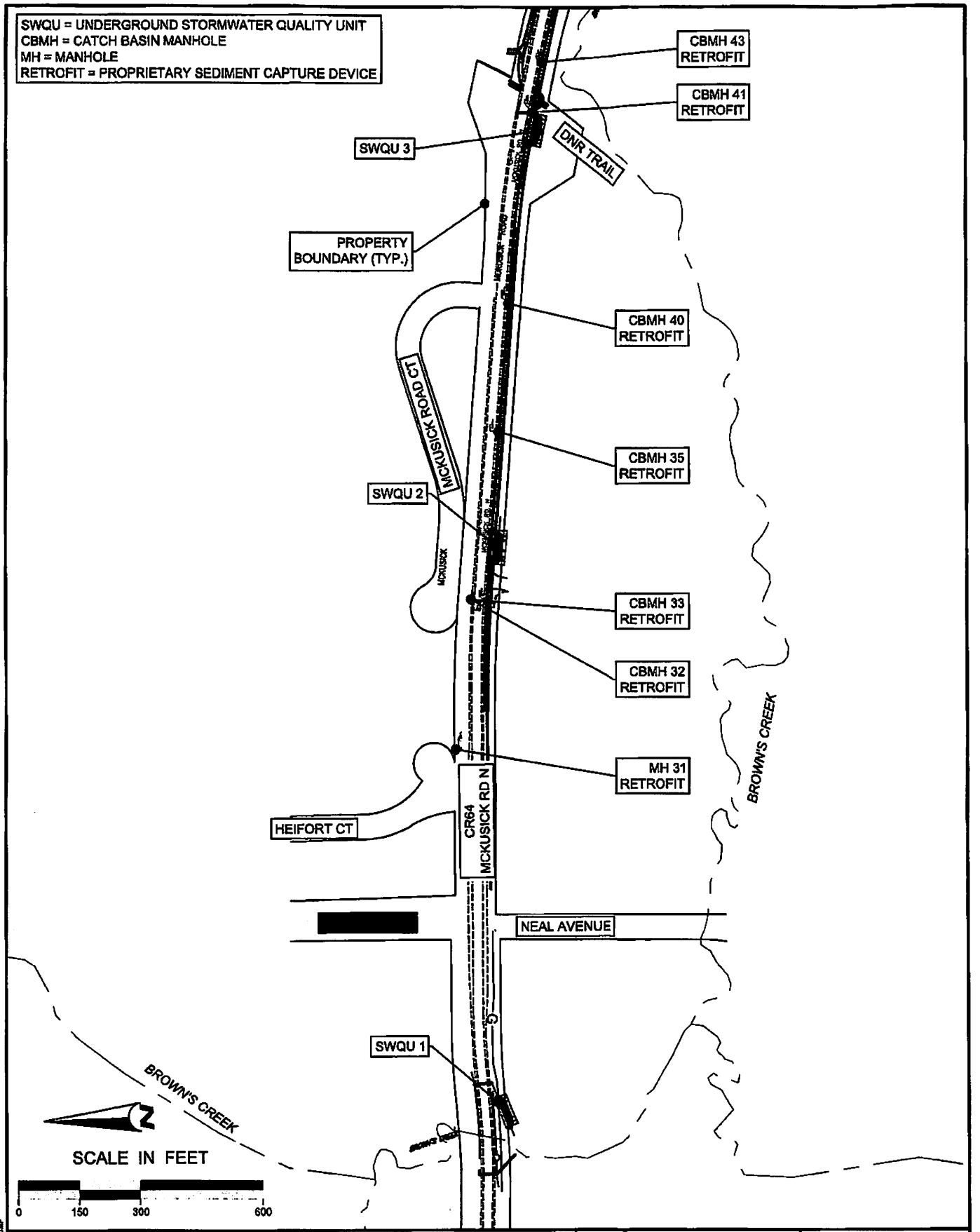
BROWN'S CREEK WATERSHED DISTRCIT

By [signature] 1/11/17
Board President — Date

By [signature] 1/11/17
BCWD Administrator — Date

Approved as to form and execution:

By [signature] January 11, 2017
BCWD Attorney — Date



SUBMISSION DATE: 12-07-2016 DESIGN BY: DRL DRAWN BY: BR EOR PROJECT NO. 00041-0299	Emmons & Olivier Resources, Inc. 651 Hale Avenue North Oakdale, MN 55128 Tele: 651.770.8448 www.eorinc.com	BROWN'S CREEK WATERSHED DISTRICT 455 HAYWARD AVE N OAKDALE, MN 55128	MCKUSICK ROAD WATER QUALITY BMPS STILLWATER, MN	EXHIBIT A SHEET 01 OF 01 SHEETS