Permit Application Review

Permit No. 2023-146
Received complete: February 7, 2024

Applicant:	Scott Prosser; Kraus-Anderson Realty Company
Consultant:	Zach Regnier; Short Elliott Hendrickson (SEH), Inc.
Project:	Building Demolition and Parking Lot Improvements
Location:	50 9th Avenue South, Hopkins, MN
Applicable Rule(s):	4, 5, 11 and 12
Reviewer(s):	Azeemuddin Ahmed and Louise Heffernan; Barr Engineering Co.

General Background & Comment

The applicant proposes the demolition of an existing office building and disconnecting of existing utilities that serve the building, on the 1.37-acre site located at 50 9th Avenue South in Hopkins. Site improvements including the expansion of surface parking, landscaping, and a stormwater management facility are proposed. The proposed work will extend onto City of Hopkins right-of-way to replace sidewalk and for utility improvements.

The project site information includes the following:

- Total Site Area: 59,552 square feet (1.37 acres)
- Disturbed Area: 6,950 square feet (0.16 acres) (including area within City of Hopkins right-of-way)
- Existing Site Impervious Area: 57,052 square feet (1.31 acres)
- Proposed Site Impervious Area: 55,872 square feet (1.28 acres)
- 2.1% decrease in the site impervious area: -1,180 square feet
- 10% disturbance of onsite existing impervious surface: 5,955 square feet (0.14 acres)
- Regulated Impervious Area (onsite disturbed and net additional impervious area): 4,775 square feet (0.11 acres)

Exhibits Reviewed:

1. Permit Application received November 27, 2023. Email correspondence dated November 28, 2023, identifying eight review comments required to be addressed to complete the permit application. Email correspondence dated December 21, 2023, identifying eight review comments required to be addressed to complete the permit application. Email correspondence dated January 30, 2024, identifying five review comments required to be addressed to complete the permit application.
2. Plans dated October 12, 2023 (received November 27, 2023), revised January 16, 2024, and revised February 7, 2024, prepared by SEH.

3. Stormwater Management Report dated November 15, 2023 (received November 27, 2023), revised December 5, 2023, revised January 17, 2024, and revised February 7, 2024, prepared by SEH.
4. Soil Boring Log dated August 9, 2019 (received November 27, 2023), prepared by Braun Intertec Corporation.
5. Electronic HydroCAD modeling received December 7, 2023, revised January 24, 2024, prepared by SEH.
6. Electronic MIDS modeling received December 7, 2023, revised January 24, 2024, and revised February 7, 2024, prepared by SEH.
7. Signed Property Owner Authorization dated November 27, 2023.
8. NMCWD review comment responses dated February 7, 2024, prepared by SEH.

The application with the submittal items above is complete.

4.0 Stormwater Management

NMCWD's requirements for stormwater management apply to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 4.2.1a and b.

The NMCWD's Rule for Redevelopment, Rule 4.2.3, states, if the proposed activity will increase the total impervious surface on the site by 50 percent or more or will disturb 50 percent or more of the existing impervious surface on the site, the stormwater criteria will apply to the entire site. Otherwise, the criteria of section 4.3 will apply only to the disturbed areas, and replaced and net additional impervious surface on the project site. Since the proposed activities will decrease the total impervious surface of the site and will disturb 10% of the existing site impervious area, the district's stormwater management criteria will apply to the disturbed areas, and replaced and net additional impervious surface on the project site, including the 4,775 square feet (0.11 acres) of regulated impervious surface.

Stormwater management for compliance with subsection 4.3.1 criteria will be provided by a bioretention basin to provide rate control, volume retention and water quality management for the regulated area.

Rule 4.3.1b requires the 2-, 10-, and 100-year post development peak runoff rates be equal to or less than the existing discharge rates for the collection points where stormwater leaves the site. The proposed work results in a net decrease in impervious area on the site and therefore existing discharge rates are not exceeded in proposed conditions. Rule 4.3.1b is met.

A retention volume of 438 cubic feet is required from the 4,775 square feet (0.11 acres) of regulated impervious surface. Boring ST-1 prepared by Braun Intertec Corporation completed in 2019 identifies the soil below the bottom of the proposed bioretention basin as primarily poorly graded sand (SP) to the bottom of the boring, elevation 909.5 M.S.L. A design infiltration rate of 0.8 inches per hour has been used for the bioretention basin, conforming with infiltration rates identified in the Minnesota Stormwater Manual.

The table below summarizes the volume retention required and volume retention achieved. The proposed project is in conformance with subsection 4.3.1a.

Volume Retention Summary

Required Volume Retention (cubic feet)	Provided Volume Retention (cubic feet)	Maximum Infiltration Depth Allowable* (feet)	Provided Infiltration Depth (feet)
438	480	3.2	1.0

*Maximum inundation depth allowable for the bioretention basin to draw down within 48-hours based on a design infiltration rate of 0.8 inches/hour.

With a provided infiltration depth of 1.0 feet (3.2 feet allowable), the stormwater management facility draws down within the required 48-hours, complying with Rule 4.3.1a (ii).

Rule 4.5.4d (i) requires at least three feet of separation between the bottom of a stormwater management facility and groundwater. Per the soil boring log by Braun Intertec, groundwater was not encountered to the bottom of the boring (ST-1), elevation 909.5 M.S.L. The bottom of the bioretention basin is 921.7 M.S.L., providing a separation of 12.2 feet (to the elevation where groundwater was not encountered). Rule 4.5.4d (i) is met.

NMCWD's water quality criterion requires 60% annual removal efficiency for total phosphorus (TP) and 90% annual removal efficiency for total suspended solids (TSS) from the regulated site runoff. A MIDS model was used to evaluate the proposed bioretention basin annual removal efficiencies. The results of the MIDS modeling are summarized in the table below. The NMCWD engineer agrees with the modeling results and the project is in conformance with Rule 4.3.1c criteria.

Annual TSS and TP Removal Summary

Pollutant of Interest	Regulated Site Loading (lbs./year)	Required Load Removal (lbs./year)	Provided Load Reduction (lbs./year)
Total Suspended Solids (TSS)	37.2	33.5 (90%)	35.3 (95%)
Total Phosphorus (TP)	0.20	0.12 (60%)	0.19 (95%)

Rule 4.3.4 states that all new and reconstructed buildings must be constructed such that the low floor is at least two feet above the 100-year high-water elevation or one foot above the emergency overflow of a constructed facility. Additionally, Rule 4.3.4 states that all new and reconstructed buildings must be constructed such that no opening where surface flow can enter the structure is less than two feet above the 100-year high-water elevation of an adjacent facility. Rule 4.3.4 also states that a stormwater management facility must be constructed at an elevation that ensures no adjacent habitable building will be brought into noncompliance with a standard in subsection 4.3.4.

The low floor and low opening elevation of the existing onsite building provided by the applicant is estimated from lidar data at 925.0 M.S.L., 2.1 feet above the 100-year high-water elevation of the bioretention basin (elevation 922.9 M.S.L.). Rule 4.3.4 is met.

In accordance with Rule 4.3.5, a post-project chloride management plan must be provided that will, 1) designate an individual authorized to implement the chloride-use plan and 2) designate a MPCA certified salt applicator engaged in the implementation of the chloride-use plan for the site.

Subsection 4.3.6 requires the submission of a maintenance plan. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity to assure that they continue to function as designed. The applicant must provide a receipt showing recordation of a maintenance declaration for the operation and maintenance of the onsite stormwater management facility.

In accordance with Rule 4.3.1a (i), where infiltration or filtration facilities, practices or systems are proposed, pre-treatment of runoff must be provided. Pretreatment will be provided by a rain guardian bunker, complying with Rule 4.3.1a (i).

5.0 Erosion and Sediment Control

The district's requirements for erosion and sediment control apply to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 5.2.1a and b.

The erosion control plan prepared by SEH includes installation of perimeter erosion control (bioroll), inlet protection, and a construction entrance.

The plans (erosion control note #9, sheet 7 of 8) by SEH identify a contact (Jeff Mauser; 612-723-1498) who will remain liable to the district for performance under the District's Erosion and Sediment Control Rule 5.0 from the time the permitted activities commence until vegetative cover is established, in accordance with subsection 5.4.1e. NMCWD must be notified if the responsible individual changes during the permit term.

11.0 Fees

Fees for the project are:

Rule 4: $750

Rule 5: $750

Total Fees: $1,500

12.0 Financial Assurances

Financial Assurances for the project are:

Rule 4: Stormwater Facility: 137 S.F. x $12/S.F. =..... $1,644

Rule 5: Perimeter Control: 72 L.F. x $2.50/L.F. =..... $180

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

Site Restoration: 0.16 acres x $2,500/acre =..... $400

Chloride Management $5,000

Contingency and Administration $976

Findings

1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
2. The proposed project will conform to Rule 4 with the fulfilment of the conditions identified below. The project conforms to Rule 5.
3. The proposed stormwater management facility will provide volume retention, rate control, and water quality management in accordance with subsections 4.3.1a-c criteria.
4. In accordance with NMCWD Rule 4.3.6, the applicant must provide a maintenance and inspection plan that identifies and protects the design, capacity, and functionality of the stormwater management facility, and record the plan in a declaration on the property title.

Recommendation

Approval, contingent upon:

Compliance with the General Provisions (attached).

Financial Assurance in the amount of $8,300; $3,300 for stormwater management, erosion control and site restoration, $5,000 for compliance with the chloride management requirements.

Per Rule 4.3.5, a receipt showing recordation of a maintenance declaration for the operation and maintenance of the stormwater management facility is required. A draft of the declaration must be approved by the district prior to recordation.

By accepting the permit, when issued, the applicant agrees to the following stipulations for closeout of the permit and release of the financial assurance after the project:

The work associated with the existing building demolition, parking lot expansion, and associated site improvements at 50 9th Avenue South under the terms of Permit #2023-146 must have an impervious surface area and configuration materially consistent with the approved plans. A design that differs materially from the approved plans will need to be the subject of a request for a permit modification or new permit, which will be subject to review for compliance with all applicable regulatory requirements.

Per Rule 4.5.6, an as-built drawing of the stormwater management facility conforming to the design specifications, based on relevant survey information (bottom of system, outlet, etc.), and including a stage volume relationship in tabular form for the stormwater management facility, as approved by the district, must be provided.

Submission of a plan for post-project management of Chloride use on the site. The plan must include 1) the designation of an individual authorized to implement the chloride use plan and 2) the designation of a Minnesota Pollution Control Agency certified salt applicator engaged in the implementation of the chloride-use plan for the site. The release of the $5,000 of the financial assurance required for the chloride-management plan requires that the chloride-management plan has been provided to and approved by the District's Administrator.

Per Rule 12.4.1b, demonstration and confirmation that the stormwater management facility has been constructed or installed and are functioning as designed and permitted. Verification, through daily observation logs and photographs, must be provided showing the stormwater

management facility used for volume retention have drawn down within 48 hours from the completion of two 1-inch (approximate) separate rainfall events.

EXISTING

- RIGHT OF WAY
- PERMANENT EASEMENT
- PROPERTY LINE
- HORIZONTAL CONTROL POINT
- BENCHMARK
- SURVEY MARKER
- SOIL BORING
- SANITARY SEWER AND MANHOLE
- FORCE MAIN AND LIFT STATION
- SANITARY SEWER SERVICE & CLEANOUT
- WATER MAIN, HYDRANT, VALVE AND MANHOLE
- WATER SERVICE AND CURB STOP BOX
- STORM SEWER, MANHOLE AND CATCH BASIN
- CULVERT AND APRON ENDWALL
- GAS MAIN, VALVE, VENT AND METER
- HANDHOLE
- BURIED FIBER OPTIC CABLE AND MANHOLE
- BURIED PHONE CABLE, PEDESTAL AND MANHOLE
- BURIED TV CABLE, PEDESTAL AND MANHOLE
- BURIED ELECTRIC CABLE, PEDESTAL, MANHOLE, TRANSFORMER AND METER
- OVERHEAD WIRE, POLE AND GUY WIRE
- LIGHT POLE
- TRAFFIC SIGNAL
- STREET NAME SIGN
- SIGN (NON STREET NAME)
- RAILROAD TRACKS
- DECIDUOUS AND CONIFEROUS TREE
- BUSH / SHRUB AND STUMP
- EDGE OF WOODED AREA
- WETLAND
- BUILDING
- FENCE (UNIDENTIFIED)
- BARBED WIRE FENCE
- CHAIN LINK FENCE
- ELECTRIC WIRE FENCE
- WOOD FENCE
- WOVEN WIRE FENCE
- PLATE BEAM GUARDRAIL
- CABLE GUARDRAIL
- POST / BOLLARD
- RETAINING WALL

PROPOSED

- STREET CENTERLINE
- RIGHT-OF-WAY
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- CONSTRUCTION LIMITS
- SANITARY SEWER, BULKHEAD AND MANHOLE
- FORCE MAIN
- SANITARY SERVICE AND CLEANOUT
- WATER MAIN, TEE, HYDRANT, BULKHEAD AND VALVE
- WATER VALVE MANHOLE, REDUCER, BEND AND CROSS
- WATER SERVICE AND CURB STOP BOX
- STORM SEWER, MANHOLE AND CATCH BASIN
- CULVERT AND APRON ENDWALL
- DRAIN TILE
- DITCH / SWALE
- RIPRAP
- STREET NAME SIGN
- SIGN (NON STREET NAME)
- RETAINING WALL

EROSION CONTROL

- EXISTING AND PROPOSED DRAINAGE DIRECTIONAL FLOW ARROW
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- STORM DRAIN INLET PROTECTION
- SILT FENCE
- SEDIMENT CONTROL LOG
- CULVERT PROTECTION
- FLOTATION SILT CURTAIN
- EROSION CONTROL BLANKET

KARAU BUILDING DEMOLITION

CONSTRUCTION PLANS FOR

KARAU BUILDING DEMOLITION

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

THE CONTRACTOR SHALL CALL THE GOPHER STATE ONE CALL SYSTEM AT 811 BEFORE COMMENCING EXCAVATION.

Know what's **below.** **Call** before you dig.

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN EXCEPT AS MODIFIED BY THE SPECIFICATIONS FOR THIS PROJECT.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

INDEX

THIS PLAN CONTAINS 8 SHEETS.

PROJECT LOCATION

KARAU BUILDING DEMOLITION

SEH
PHONE: 715.246.9906
156 HIGH STREET, SUITE 300
NEW RICHMOND, WI 54017
www.sehinc.com

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

Signature ZACH REGNIER, PE

Date: 2/7/2024 Lic. No. 61592

FILE NO. OSBOR 151431

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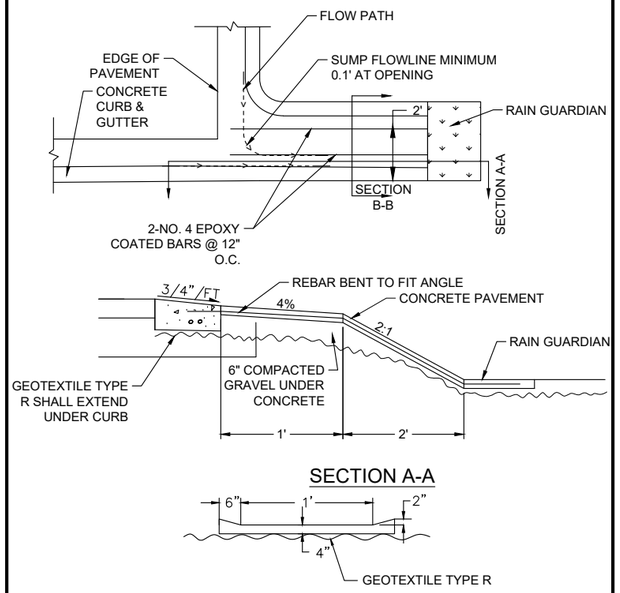
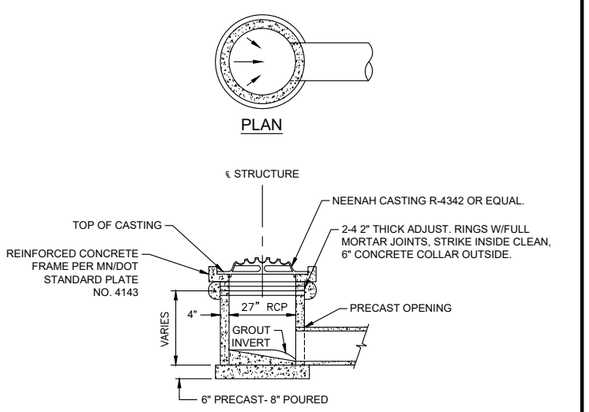


CONCRETE FLUME

NTS



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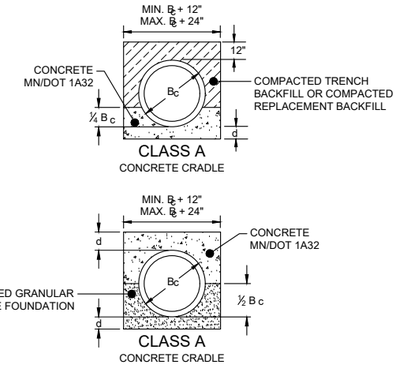
TYPE H CATCH BASIN (YARD DRAIN)

Revised: Oct. 2011
SEH Plate No. STM-06



DEPTH OF BEDDING MATERIAL BELOW PIPE	
B_C	d
16" & SMALLER	3"
16" TO 60"	B_C/4
66" & LARGER	15"

LEGEND
B_C = OUTSIDE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE

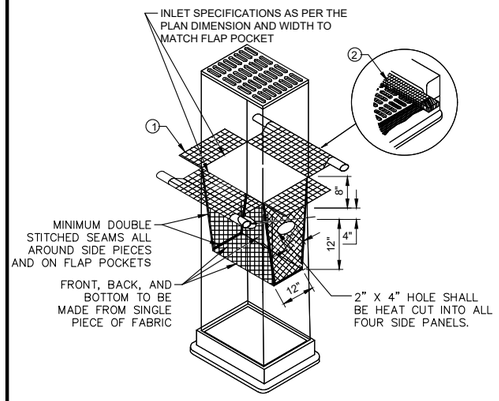
NOTES:

1. ADD REINFORCEMENT PER SPECIAL DESIGN REQUIERMENTS FOR CLASS A BEDDING.
2. SPECIAL DESIGN REQUIRED FOR CONCRETE ENCASEMENT CLASS A BEDDING.
3. IN ROCK TRENCHES MIN. d IS 6" BELOW PIPE BELL AND MIN. TRENCH WIDTH IS 36".
4. USE REPLACEMENT BACKFILL IN AREAS SPECIFIED ON PLANS AND SPEC.

NTS

CLASS A TRENCH BEDDING FOR REINFORCED CONCRETE PIPE

Revised: Oct. 2011
SEH Plate No. STM-22



① FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

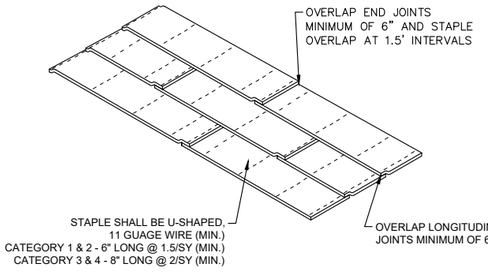
② FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 IN. X 4 IN. OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE ROCK SOCK AND WOOD 2 IN. x 4 IN.

INSTALLATION NOTES:
DO NOT INSTALL PROTECTION IN INLETS SHALLOWER THAN 30 IN., MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE BETWEEN THE INLET WALLS AND THE BAG MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES OF 3 INCHES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH CLEARANCE.

NTS

FILTER BAG INSERT

Revised: Oct. 2011
SEH Plate No. ERO-28



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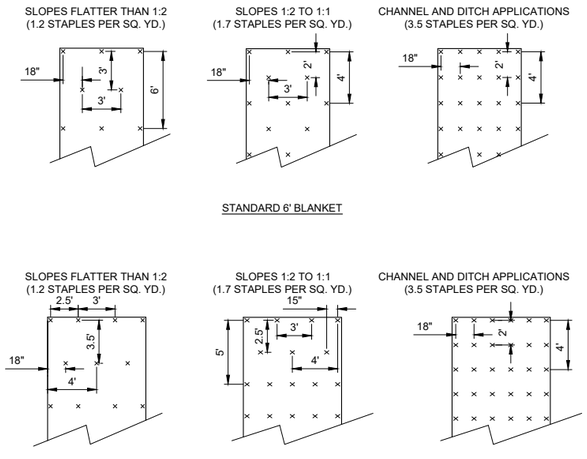
BLANKET STAPLING PATTERN (PLATE 1 OF 2)

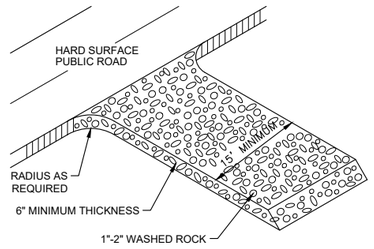
Revised: Oct. 2011
SEH Plate No. ERO-12



NTS

BLANKET STAPLING PATTERN (PLATE 2 OF 2)

Revised: Oct. 2011
SEH Plate No. ERO-12



NOTE:
TO PREVENT TRACKING OF MUD ONTO PAVED ROADS, INSTALL ADDITIONAL ROCK OR REMOVE AND REPLACE THE PAD AS REQUIRED

NTS

ROCK CONSTRUCTION ENTRANCE

Revised: Oct. 2011
SEH Plate No. ERO-35

DRAWN BY: SFA
DESIGNER: ZTR
CHECKED BY: EDH
DESIGN TEAM

NO.	BY	DATE	REVISIONS

SEH
PHONE: 715.246.9906
156 HIGH STREET, SUITE 300
NEW RICHMOND, WI 54017
www.sehinc.com

I HEREBY CERTIFY THAT THIS PLAN 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.

Date: 2/7/2024 ZACH REGNIER, PE Lic. No. 61592

KARAU BUILDING DEMOLITION

DETAILS

FILE NO. OSBOR 151431

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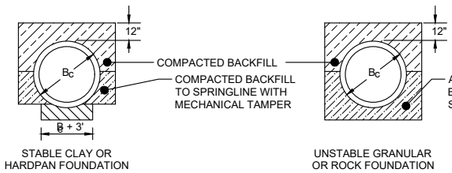
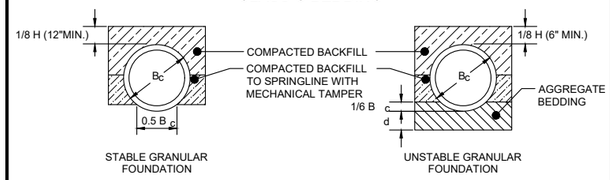
CLASS B BEDDING



CLASS C BEDDING



NOTES:

1. AGGREGATE BEDDING AND SAND ARE NOT SEPARATE PAY ITEMS UNLESS THEY ARE INCLUDED AS INDIVIDUAL QUANTITIES IN THE PROPOSAL.

LEGEND

B_c = OUTSIDE DIAMETER
H = BACKFILL COVER OVER TOP OF PIPE
D = INSIDE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE
A_s = AREA OF TRAVERSE STEEL IN THE CRADLE OR ARCH EXPRESSED AS A PERCENTAGE OF AREA OF CONCRETE AT INVERT OR CROWN.

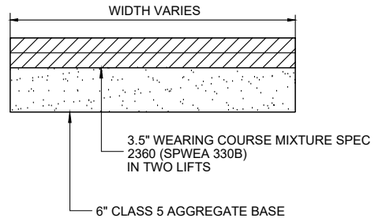
DEPTH OF BEDDING MATERIAL BELOW PIPE	
D	d MIN.
27" & SMALLER	3"
30" TO 60"	4"
66" & LARGER	6"

NTS

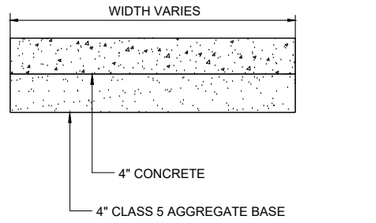
SEH

TRENCH BEDDING FOR CIRCULAR PIPE

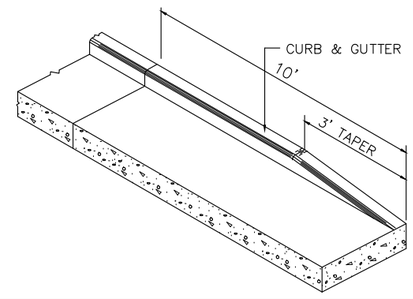
Revised: Mar. 2015
SEH Plate No. STM-23



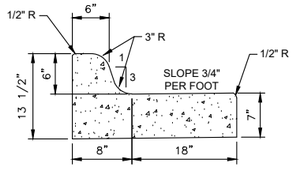
BITUMINOUS PARKING



CONCRETE SIDEWALK

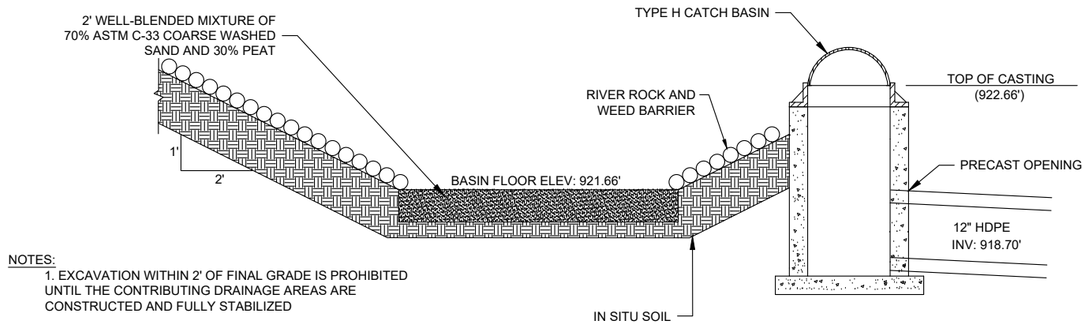


CURB TAPER



B618

NTS



NOTES:

1. EXCAVATION WITHIN 2' OF FINAL GRADE IS PROHIBITED UNTIL THE CONTRIBUTING DRAINAGE AREAS ARE CONSTRUCTED AND FULLY STABILIZED

2. RIGOROUS SEDIMENT AND EROSION CONTROLS MUST BE USED TO DIVERT SEDIMENT LADEN RUNOFF AWAY FROM THE SYSTEM

3. CONSTRUCTION MUST OCCUR IN DRY SOIL CONDITIONS. EXCAVATION, SOIL PLACEMENT, AND RAPID STABILIZATION OF PERIMETER SLOPES MUST BE ACCOMPLISHED PRIOR TO THE NEXT PRECIPITATION EVENT

4. EXCAVATION SHALL BE PERFORMED BY AN EXCAVATOR WITH A TOOTHED BUCKET. USE EXCAVATOR BUCKET TO PLACE MATERIALS. CONSTRUCTION EQUIPMENT IS NOT ALLOWED IN THE BASIN

5. PLANT BASIN BOTTOM WITH A NATIVE OR PRAIRIE GRASS SEED MIX AND STABILIZE WITH CATEGORY 2 EROSION CONTROL MAT WITH NATURAL NETTING AND A LOOSE WEAVE

BIORETENTION BASIN AND OUTLET STRUCTURE

SEH

CURB AND GUTTER

Revised: Oct. 2011
SEH Plate No. STR-19

DRAWN BY: SFA
DESIGNER: ZTR
CHECKED BY: EDH
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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Date: 2/7/2024 ZACH REGNIER, PE Lic. No. 61592

KARAU BUILDING DEMOLITION

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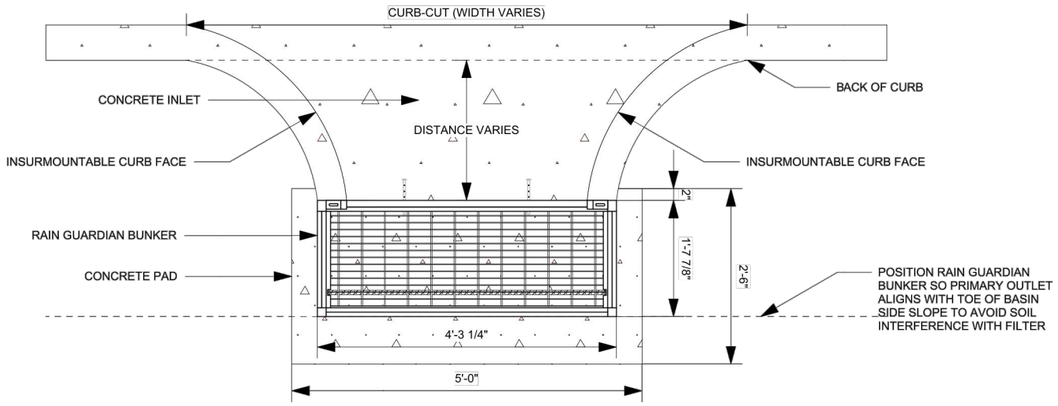
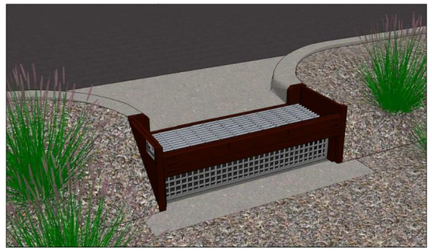
PLAN VIEW



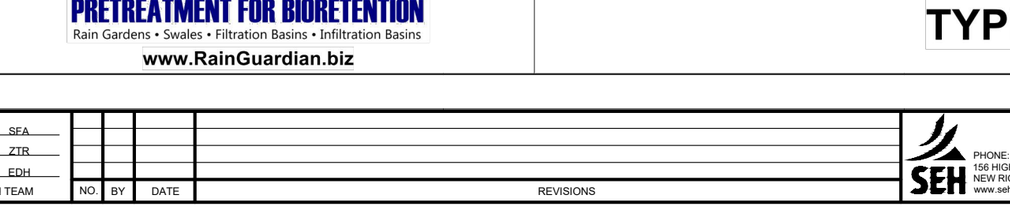
PLAN VIEW NOTES

1. INLET WIDTH AND DISTANCE BETWEEN BACK OF CURB AND RAIN GUARDIAN BUNKER MAY VARY WITH SITE CONDITIONS. INSTALLATION FLUSH WITH THE BACK OF THE CURB CAN ALSO BE COMPLETED WITH THE RAIN GUARDIAN BUNKER.
2. CONCRETE PAD EXTENDS BEYOND THE FILTER WALL OF THE RAIN GUARDIAN BUNKER TO SERVE AS A SPLASH DISSIPATOR.

3D VIEWS



ELEVATION VIEW



ELEVATION VIEW NOTES

1. THE TOP OF THE CLASS 5 BASE (COMPACTED TO 95% STANDARD PROCTOR) IS PRECISELY 1' 4" BELOW THE GUTTERLINE ELEVATION.
2. THE TOP OF THE CONCRETE PAD IS PRECISELY 1' BELOW THE GUTTERLINE.

SPECIFICATIONS

1. CHAMBER CONSTRUCTED OF RECYCLED PLASTIC LUMBER (95%+) MANUFACTURED AND DESIGNED TO ASTM C1028, D6108, D6109, D6111, D6117, AND D6341 (54 LBS).
2. TOP GALVANIZED METAL GRATE (35 LBS, 1" THICK) - 316 LB CONCENTRATED LOAD OR 158 LB/SQ-FT UNIFORM LOAD.

INSTALLATION NOTES

1. INSTALL THE CONCRETE PAD WITH A 1' 10" OFFSET FROM THE BACK OF THE CURB TO ACCOMMODATE THE CONCRETE INLET. THIS DISTANCE MAY VARY BASED ON SITE CONDITIONS, BUT CONSIDERATIONS SHOULD INCLUDE SLOPE OF THE INLET AND BASIN SIDE SLOPES ADJACENT TO THE RAIN GUARDIAN BUNKER. POSITION RAIN GUARDIAN BUNKER SO PRIMARY OUTLET ALIGNS WITH TOE OF BASIN SIDE SLOPE TO AVOID SOIL INTERFERENCE WITH REMOVABLE FILTER WALL. THE CONCRETE PAD SHOULD BE REINFORCED WITH REBAR.
2. EXCAVATE 1' 10" BELOW THE GUTTERLINE ELEVATION (I.E. THE BIORETENTION OVERFLOW ELEVATION) TO ACCOMMODATE THE 1' PONDING DEPTH, 6" CLASS 5 AGGREGATE, AND 4" CONCRETE PAD TO WHICH THE RAIN GUARDIAN BUNKER WILL BE SECURED. THEREFORE, THE TOP OF THE FINISHED CONCRETE PAD IS PRECISELY 1' BELOW THE GUTTERLINE ELEVATION. THE TOP OF THE RAIN GUARDIAN BUNKER METAL GRATE WILL BE 10-1/2" ABOVE THE TOP OF THE CONCRETE PAD AND 1-1/2" BELOW THE GUTTERLINE ELEVATION TO ACCOMMODATE A SLOPED INLET FROM THE GUTTER TO THE RAIN GUARDIAN BUNKER.
3. THE RAIN GUARDIAN BUNKER SHOULD BE POSITIONED 2" FROM THE EDGE OF THE CONCRETE PAD CLOSEST TO THE BACK OF THE CURB. THEREFORE, THE RAIN GUARDIAN BUNKER WILL BE 2' FROM THE BACK OF THE CURB.
4. USING THE PILOT HOLE IN EACH OF THE FOUR CORNER POSTS, PREDRILL 5/32" HOLES INTO THE CONCRETE PAD WITH A 4-1/2" MASONRY BIT AND HAMMER DRILL.
5. SECURE RAIN GUARDIAN BUNKER TO CONCRETE PAD WITH FOUR 3/16" X 2-3/4" MASONRY SCREWS (PROVIDED).
6. INSTALL FRAMING FOR INLET BETWEEN RAIN GUARDIAN BUNKER AND BACK OF CURB. TOP ELEVATIONS OF THE FRAMING SHOULD MATCH THE TOP OF THE CURB ON THE STREET SIDE AND THE TOP OF THE RAIN GUARDIAN BUNKER ON THE BIORETENTION SIDE.
7. WHEN POURING THE CONCRETE INLET, ENSURE THE CARRIAGE BOLTS ON THE RAIN GUARDIAN BUNKER ARE SURROUNDED BY AT LEAST 2" OF CONCRETE ON ALL SIDES.
8. SIDE CURBS OF THE POURED INLET MUST HAVE AN INSURMOUNTABLE PROFILE TO PREVENT WATER FLOW FROM OVERTOPPING THE DOWNSTREAM SIDE OF THE INLET.
9. WRAP CABLE THROUGH TOP METAL GRATE AND SECURE WITH PROVIDED CLAMP. ENSURE SUFFICIENT SLACK EXISTS IN CABLE TO ALLOW FOR GRATE REMOVAL AND PLACEMENT IN CONCRETE INLET DURING CLEANING. REMOVABLE FILTER WALL SHOULD BE INSTALLED WITH FILTER FABRIC FACING THE RAIN GUARDIAN BUNKER INLET.

RAIN GUARDIAN
U.S. PATENT NOS. 8,501,016 AND 8,858,804
PRETREATMENT FOR BIORETENTION
Rain Gardens • Swales • Filtration Basins • Infiltration Basins
www.RainGuardian.biz

RAIN GUARDIAN BUNKER
PRETREATMENT CHAMBER
BIORETENTION PONDING DEPTH: 1'
TYPICAL DETAIL

REVISION HISTORY

REV	BY	DATE	DESCRIPTION
A	MDH	02/22/2022	BUNKER - 1'
SCALE		VARIABLE	
U.S. PATENT NOS.		8,501,016 AND 8,858,804	

DEVELOPED/MANUFACTURED BY:
ANOKA CONSERVATION DISTRICT

DRAWN BY: SFA
DESIGNER: ZTR
CHECKED BY: EDH
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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www.sehinc.com

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Date: 2/7/2024 ZACH REGNIER, PE Lic. No. 61592

KARAU BUILDING DEMOLITION

DETAILS

FILE NO. OSBOR 151431

4 / 8

REMOVAL NOTES:
ALL UTILITIES ARE TO BE CAPPED WITHIN THE RIGHT-OF-WAY, OUTSIDE OF THE BITUMINOUS SURFACE AND CURB OF 1ST STREET S AND 9TH AVENUE S. EXCAVATION OF ANY KIND THAT AFFECTS THE BITUMINOUS OR THE CURB IS NOT PERMITTED.

N

10 0 10 20
scale 5 feet

EXISTING PARKING TO REMAIN

HENNEPIN COUNTY PROPERTY LINE (TYP)

REMOVE BOLLARDS AND COORDINATE ELECTRICAL EQUIPMENT REMOVAL

120 LF - REMOVE EXISTING PARTIAL PAVEMENT MARKINGS

162 LF - SAW CUT

EXISTING BUILDILNG DEMOLITION TO BE COORDINATED BY OTHERS

DISCONNECT AND ABANDONMENT OF OTHER UTILITIES (GAS, ELECTRIC, COMMUNICATIONS, ETC.) TO BE COORDINATED BY OTHERS

REMOVE TREE

SALVAGE AND REINSTALL SIGN

DISCONNECT EX SAN SERVICE AND CAP UNDER SIDEWALK
14 LF - REMOVE EX SAN SERVICE PIPE

PROTECT EXISTING SIGN

PROTECT EXISTING STREET LIGHT

REMOVE CONCRETE FLUME

DISCONNECT EX WATER SERVICE AND CAP UNDER SIDEWALK
5 LF - REMOVE EX WATER SERVICE PIPE

EX SAN MH
RIM: 923.22'
INV: 912.41' (FIELD VERIFY)

EX SAN MH
RIM: 923.24'
INV: 914.64' (FIELD VERIFY)

9TH AVE SOUTH

1ST ST SOUTH

EX 8" SAN SEW

EX 8" WM

REMOVE BITUMINOUS PAVEMENT - 160 SY

REMOVE CONCRETE SIDEWALK - 180 SY

REMOVE CONCRETE CURB/CURB AND GUTTER - 28 LF

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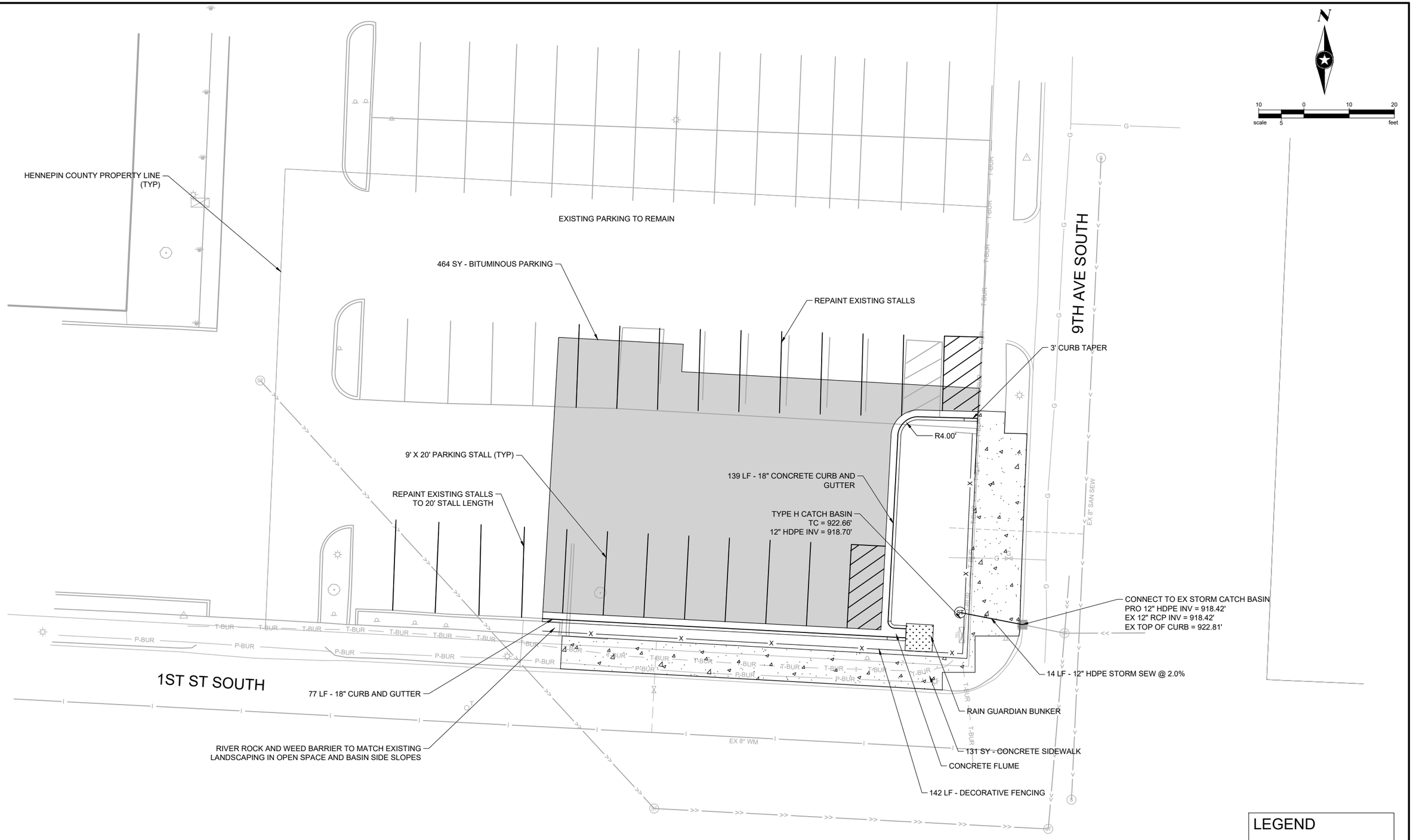
KARAU BUILDING DEMOLITION

REMOVALS PLAN

FILE NO. OSBOR 151431

5/8



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Date: 2/7/2024

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Lic. No. 61592

KARAU BUILDING DEMOLITION

PROPOSED SITE PLAN

FILE NO.
OSBOR 151431

6
8

EROSION CONTROL NOTES:

1. PLACE BIOROLLS DOWN GRADIENT OF SITE AND UP GRADIENT OF THE INFILTRATION AREA BEFORE ANY LAND DISTURBING ACTIVITIES BEGIN. THEY MUST BE LEFT IN PLACE UNTIL THE SITE IS STABILIZED.

2. IF SEDIMENT IS TRACKED OUTSIDE OF THE PARKING LOT, A ROCK CONSTRUCTION ENTRANCE MUST BE CONSTRUCTED.

3. ANY SEDIMENT TRACKED ONTO CITY STREETS MUST BE REMOVED WITHIN 24 HOURS.

4. ALL CONSTRUCTION SITE WASTE (LITTER, SANITARY WASTE, BUILDING DEBRIS, CONCRETE WASH, ETC) MUST BE PROPERLY MANAGED AND DISPOSED OF SO THEY WILL NOT HAVE AN EFFECT ON WATER QUALITY.

5. ALL BMPS MUST BE MAINTAINED UNTIL PERMANENT STABILIZATION IS ACHIEVED.

6. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN 14 DAYS OF COMPLETION OF LAND ALTERATION

7. DO NOT PARK EQUIPMENT OR STORE MATERIALS IN THE INFILTRATION AREA.

8. THE SITE MUST BE INSPECTED AFTER EVERY WORK DAY, AND AT LEAST WEEKLY, TO ENSURE ALL EROSION AND SEDIMENT CONTROL FACILITIES ARE FUNCTIONING

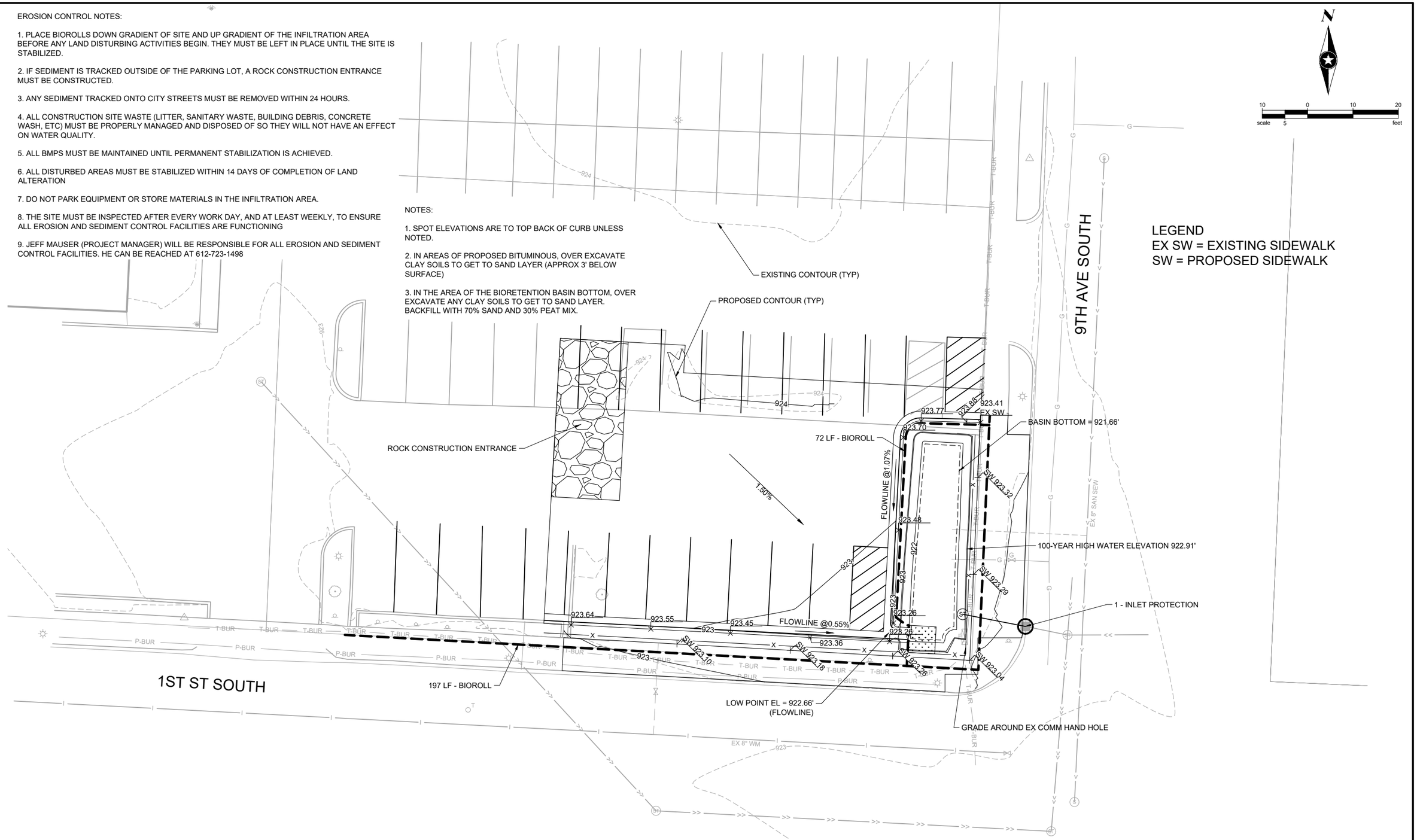
9. JEFF MAUSER (PROJECT MANAGER) WILL BE RESPONSIBLE FOR ALL EROSION AND SEDIMENT CONTROL FACILITIES. HE CAN BE REACHED AT 612-723-1498

NOTES:

1. SPOT ELEVATIONS ARE TO TOP BACK OF CURB UNLESS NOTED.

2. IN AREAS OF PROPOSED BITUMINOUS, OVER EXCAVATE CLAY SOILS TO GET TO SAND LAYER (APPROX 3' BELOW SURFACE)

3. IN THE AREA OF THE BIORETENTION BASIN BOTTOM, OVER EXCAVATE ANY CLAY SOILS TO GET TO SAND LAYER. BACKFILL WITH 70% SAND AND 30% PEAT MIX.



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KARAU BUILDING DEMOLITION

GRADING AND EROSION CONTROL PLAN

FILE NO. OSBOR 151431

7/8

BRAUN INTERTEC
The Science You Build On.

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B1908231
Geotechnical Evaluation
Karau Building Stormwater
50 9th Avenue South
Hopkins , Minnesota

BORING: **ST-1**
LOCATION: See attached sketch
NORTHING: EASTING:
DRILLER: M. Barber LOGGED BY: R. Fritz START DATE: 08/09/19 END DATE: 08/09/19
SURFACE ELEVATION: RIG: GP-3 METHOD: 3 1/4" HSA SURFACING: Bituminous WEATHER:

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
0.8		PAVEMENT, 4 inches of bituminous over 6 inches of aggregate base		4-3-0 (3) 4"			
3.0		FILL: LEAN CLAY (CL), trace Gravel, brown, moist		5-5-6 (11) 12"			
		POORLY GRADED SAND (SP), fine to medium-grained Sand, brown, moist, stiff to very stiff (GLACIAL OUTWASH)		6-6-10 (16) 18"			
				21-15-10 (25) 18"			
				17-12-6 (18) 18"			
				10-9-9 (18) 16"			
14.0		END OF BORING					Water not observed while drilling.
		Boring immediately backfilled					

B1908231 Braun Intertec Corporation ST-1 page 1 of 1

DRAFT

BASIN DEPTH = 12"

MINNESOTA STORMWATER MANUAL DESIGN INFILTRATION RATE FOR SP SOILS IS 0.8"/HR X 48 HOUR = 38.4" MAX DEPTH

REDEVELOPED IMPERVIOUS
REQUIRED TREATMENT CALCS
4841 SF X (1.1"/12") = 444 CF

TREATMENT VOLUME = AREA BELOW OUTLET (922.66) = 480 CF

480 CF (DESIGN VOLUME) > 444 CF (REQUIRED VOLUME)

ST-1

9TH AVE SOUTH

1ST ST SOUTH

EX 8" WM

EX 8" SAN SEW

924

923

N

10 0 10 20
scale 5 feet

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KARAU BUILDING DEMOLITION

STORMWATER CALCULATIONS

FILE NO. OSBOR 151431

8 / 8