



Le Sueur County, MN

Thursday, February 9, 2017

Regular session

Item 1

SWCD / Puffer Packet

Staff Contact: Kathy Brockway or Michelle Mettler

STAFF REPORT

GENERAL INFORMATION

APPLICANT: Le Sueur County Soil Water Conservation District (SWCD) **OWNER:** Charles & Lana Puffer

911 ADDRESS: 28895 141st Ave. New Prague MN 56071

PROJECT DESCRIPTION: Allow grading, excavating, and filling of approximately 137 cubic yards of material for a bank stabilization project.

ZONING DISTRICT PURPOSE: Recreational-Residential District, a District adjacent to Recreational Development (RD) and Natural Environment (NE) lakes, to preserve areas which have natural characteristics suitable for both passive and active recreational usage. Also, it is the intent of this District to manage areas suitable for residential development of varying types, including permanent and seasonal housing. Some non-residential uses with minimal impacts on residential uses may be allowed.

Flood Fringe (FF) District: The Flood Fringe District shall include those areas designated as floodway fringe, which shall include the areas shown on the Flood Insurance Rate Map, adopted in this Section as being within Zone AE but being located outside of the floodway. For lakes, wetlands and other basins (that do not have a floodway designated), the Flood Fringe District shall include those areas designated as Zone A and Zone AE on the Flood Insurance Rate Map panels adopted in this Section that are below the one percent (1%) annual chance flood elevation (100-year flood elevation) but above the ordinary high water level as defined in Minnesota Statutes, Section 103G.005, subdivision 14, as amended from time to time.

DEFINITIONS:

- **FLOOD FRINGE** - That portion of the flood plain outside the floodway. Flood fringe is synonymous with the term "floodway fringe" used in the Flood Insurance Study for Le Sueur County.
- **FLOOD PLAIN** - The beds proper and the areas adjoining a wetland, lake or watercourse which have been or hereafter may be covered by the regional flood.
- **STREAM, TRIBUTARY** - Other streams in the Protected (Public) Waters Inventory that do not have a specific classification.

ZONING ORDINANCE SECTIONS: Section 6, Section 13- Subdivision 5. (Pages 13.16-17-19), Section 18.

GOALS AND POLICIES:

Goal 2: Le Sueur County should adopt and enforce land use goals and policies that conserve and restore its natural resources, bring protections to the ecological systems of the natural environment, and prevent the premature development of natural resource areas.

Policy: Preserve shorelands on Natural Environment Lakes (NE) and Tributary Rivers as open space or wildlife areas.

Goal 3: Improve water quality in Le Sueur County.

Policy: The County will undertake actions to help protect groundwater as well as surface water features.

SITE INFORMATION

LOCATION: Lot 2, Tom Topka Unrecorded Plat, SW 1/4 Quarter, Section 1, Lanesburgh Township.

ZONING: Special Protection "SP" District - Flood Fringe "FF" Overlay Floodplain District

GENERAL SITE DESCRIPTION: Tributary stream, Sand Creek

ACCESS: Existing

EXISTING LAND USE WITHIN ¼ MILE:

North:	Residential	South:	Scattered Residential housing/Wooded/Stream
East:	Residential	West:	Ag Land/Residential

TOWNSHIP BOARD NOTIFICATION

The applicant contacted Karen Schoenecker, Lanesburgh Township on October 18, 2016.

NATURAL RESOURCES INFORMATION

SHORELAND: The proposal is located within the Shoreland District.

WETLANDS: According to the National Wetlands Inventory, Types 1-3 wetlands located in the quarter-quarter section where the project is proposed.

ATTACHMENTS

Application, Criteria Form, Narrative, Survey/Site Plans, Aerial Photo with contours, DNR Permit, Erosion Control Plan, Letter Joshua Mankowski, LSC Resource Specialist, Certificate of Insurance on file with the Department.

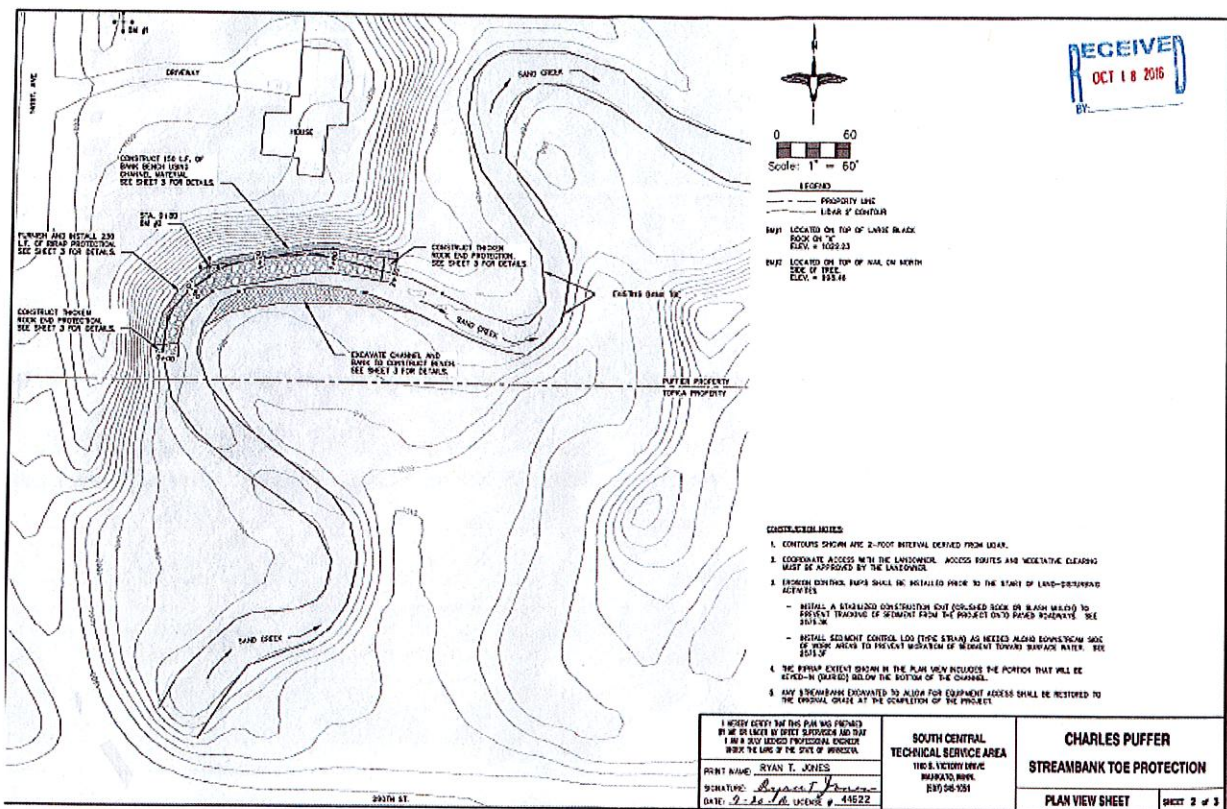
SITE PLAN/AERIAL PHOTO



AERIAL PHOTO WITH CONTOURS

Project Area





PLANNING AND ZONING COMMISSION FINDINGS

Based on the information submitted by the applicant, contained in this report, and as required by the Le Sueur County Zoning Ordinance, the following findings have been developed for this request:

(Please circle one for each item: *Agree, Disagree, Not Applicable.*)

1. *The conditional use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminishes and impairs property values within the immediate vicinity.*
2. *The establishment of the conditional use will not impede the normal and orderly development and improvement of surrounding vacant property for uses predominant in the area.*
3. *Adequate utilities, access roads, drainage and other facilities have been or are being provided.*
4. *Adequate measures have been or will be taken to provide sufficient off-street parking and loading space to serve the proposed use.*
5. *Adequate measures have been or will be taken to prevent and control offensive odor, fumes, dust, noise and vibration, so that none of these will constitute a nuisance, and to control lighted signs and other lights in such a manner that no disturbance to neighboring properties will result.*
6. *Is the Conditional Use Permit consistent with and supported by the statement of purposes, policies, goals and objectives in the Ordinance?*
7. *Is the Conditional Use Permit consistent with the Comprehensive Land Use Plan?*

Recommend (circle one) approval / denial / table / of Conditional Use Permit.

LE SUEUR COUNTY CONDITIONAL USE PERMIT CRITERIA

Permit # 17001

Name of Applicant: LE SUEUR COUNTY SWCD

Conditional Use Permit #: 17001

Name of Property Owner: CHARLES & LANA PUFFER

Conditional Use Permit Request: TO ALLOW GRADING, EXCAVATING, AND FILLING OF APPROXIMATELY 730 CUBIC YARDS OF MATERIAL IN SHORE IMPACT ZONE AND BLUFF FOR A BANK STABILIZATION PROJECT.

1. The conditional use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminishes and impairs property values within the immediate vicinity.

CR AG PT DR BB JD SO SK DK DRY TOTAL

1.											
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Explain

2. The establishment of the conditional use will not impede the normal and orderly development and improvement of surrounding vacant property for uses predominant in the area.

CR AG PT DR BB JD SO SK DK DRY TOTAL

2.											
----	--	--	--	--	--	--	--	--	--	--	--

Explain

3. Adequate utilities, access roads, drainage and other facilities have been or are being provided.

CR AG PT DR BB JD SO SK DK DRY TOTAL

3.											
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Explain

4. Adequate measures have been or will be taken to provide sufficient off-street parking and loading space to service the proposed use.

CR AG PT DR BB JD SO SK DK DRY TOTAL

4.											
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Explain

5. Adequate measures have been or will be taken to prevent and control offensive odor, fumes, dust, noise and vibration, so that none of these will constitute a nuisance, and to control lighted signs and other lights in such a manner that no disturbance to neighboring properties will result.

CR AG PT DR BB JD SO SK DK DRY TOTAL

5.											
----	--	--	--	--	--	--	--	--	--	--	--

Explain

6. The conditional use is consistent with and supported by the statement of purposes, policies, goals and objectives in the Ordinance.

CR AG PT DR BB JD SO SK DK DRY TOTAL

6.											
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Explain

7. The conditional use is consistent with the Comprehensive Land Use Plan.

CR AG PT DR BB JD SO SK DK DRY TOTAL

--	--	--	--	--	--	--	--	--	--	--	--

Explain

If all answers are "YES" by a majority of the Planning Commission, the criteria for granting of the Conditional Use Permit request have been met. The Conditional Use Permit will meet the goals of safety, health and the general welfare of the public.

Date: _____ APPROVED _____ DENIED _____ PZ Chairperson _____

COUNTY BOARD MEETING DATE _____

Le Sueur County

RECEIVED
OCT 18 2016

Conditional Use Application-Grading, Excavating & Filling

Activities that involve topographic alterations in all districts shall conform to the standards in Section 18 of the Le Sueur County Zoning Ordinance. Activities within a shoreland district shall conform to the standards in Section 13 of the Le Sueur County Zoning Ordinance.

In addition any activities in any type wetland shall be evaluated in accordance with the Wetland Conservation Act (WCA) regulations, as administered by the Le Sueur County Soil & Water Conservation District (SWCD).

I. Applicant:

Name Le Sueur County SWCD
Mailing Address 181 W. Minnesota Street
City LeCenter State MN Zip 56057
Phone # 507-357-4879 Phone # _____

II. Landowner:

Name Charles W and Lana Puffer
Mailing Address 28895 141st Ave.
City New Prague State MN Zip 56071
Property Address same
City _____ State _____ Zip _____
Phone # _____ Phone # _____

III. Parcel Information:

Parcel Number 07.890.0020 Parcel Acreage 5.04
Attach Full Legal Description (**NOT** abbreviated description from tax statement)
Township Lanesburgh Section 1
Subdivision _____ Lot _____ Block _____

IV. Township Notification: Township must be notified of proposed use prior to application.

Lanesburgh Township notified on 10/18/16
(Township Name) (Date)

Board Member Karen Schmeidler regarding the proposed use.
(Name)

V. Quantities and Submittal Formats:

- One (1) reproducible 8.5" x 11" copy of the request and all other supporting documents.
- Twenty Three (23) copies must be submitted, if any documents are in color, an aerial, or larger than 8.5" x 11" in size.
- Electronic version of any supporting documents *if available*.
- Additional copies may be requested as deemed necessary by the Department.
- Application must be made in person** by the applicant and/or landowner no later than 12 P.M. on the date of application deadline.
- Appointment is necessary.**
- Applications will not be accepted by mail.**

VI. Fees: Must be paid at the time of application.

Conditional Use Permit \$ 750 After-The-Fact fee is doubled.
Filing Fee \$ 46

Additional Fees:

Special Meeting \$ 2,000
After-The-Fact Penalty \$ 1,500 OR 10% of improvement, whichever is greater

LeSueur SWCD

Project



VII. Type of Request: Grading, Excavating or Filling.

☐ Non-Shoreland
☐ Within Bluff Impact Zone
☐ Within Bluff
Cubic yards of material movement: _____
Cubic yards of material movement: _____
Cubic yards of material movement: _____
TOTAL cubic yards of material movement: _____

☒ Shoreland- Outside Shore Impact Zone
☒ Within Shore Impact Zone
☐ Within Bluff Impact Zone
☐ Within Bluff
Cubic yards of material movement: _____
Cubic yards of material movement: 137 cy
Cubic yards of material movement: _____
Cubic yards of material movement: 137 cy
TOTAL cubic yards of material movement: 137 cy

-mem

☐ Assurance security shall be required for projects that are >1500 cubic yards.

VIII. Description of Request:

a. A full description of request with detailed information including what operations are to occur and what general types of equipment may be used in the operation must be attached.

b. Complete the following in relationship to the proposed Conditional Use Permit.

1. ENVIRONMENTAL IMPACT: Project is intended to reduce streambank erosion and improve long-term bluff stability.
2. ADVERSE IMPACT ON SURROUNDING AREAS: None.
3. STORMWATER RUNOFF: No change
4. DOES ANY PART OF THE PROJECT EXTEND BELOW OHWL: Yes
5. WETLAND IMPACT: None
6. SLOPE STABILITY: Project will improve slope stability.
7. CERTIFICATE OF INSURANCE: Contractor shall be insured.
8. MEET ALL APPLICABLE COUNTY STATE & FEDERAL REGULATIONS:
(For example additional licensing and/or permitting) Yes

IX. Site Plan: Shall include but not limited to the following:

- Parcels < 5 AC = 2-foot contours depicting existing and proposed topography.
- Parcels 5-20 AC = 5-foot contours depicting existing and proposed topography.
- Parcels >20 AC = 10-foot contours depicting existing and proposed topography.
- Location of grading, excavating, and/or filling sites.
- Location of areas for obtaining fill or disposing of excavated materials.
- Tree inventory of all trees, indicating trees to be cut or removed.
(Caliper of 6 inches or greater measured 4.5 feet from ground level).

- | | | | |
|--------------------------------------|-----------|-----------------------|----------------------------|
| • North point | • Lake | • Existing Structures | • Septic system |
| • Setbacks | • River | • Proposed Structures | • Well |
| • Property Lines | • Wetland | • Lot Dimensions | • Access (size & location) |
| • Road Right-Of-Way | • Stream | • Ponds | • Easements |
| • Landscape, screening and buffering | | | • Drainage |

• Site plan & As-Built must be completed by a surveyor or professional engineer.



X. Restoration Plan: Shall include but not limited to the following:

- Areas of restoration shall include the application of a minimum of 4 inches of topsoil or similar material that will support plant growth. *(Must be included in cubic yards calculation of material.)*
- Reseeded areas indicated with type of vegetation. *(Shall meet minimum standards by the SWCD))*
- Tree replacement plan. *(Areas located within the Bluff Impact Zone, Bluff, Shoreland & Conservancy Distircts)*
 - Root zone of existing trees shall be preserved and protected during development.
 - Replace one tree for every tree that is removed.
 - Replacement trees shall have a minimum caliper of 2 inches at 4.5 feet from ground level.

XI. Attachments: Shall include but not limited to:

- ☒ a. **Description of Request**-See Part VIII for full details and requirements.
- ☒ b. **Site Plan**-See Part IX for full details and requirements.
- ☒ c. **Full Legal Description**-Not abbreviated description from tax statement.
- ☒ d. **Access approval**-Attach approval in writing from proper road authority.
- ☒ e. **Township Notification**-See Part IV for details and requirements.
- ☐ f. **Septic System Compliance Inspection**
- ☒ g. **Erosion Control Plan**-Attach completed and signed plan including map.
- ☒ h. **Restoration Plan**-See Part X for full details and requirements.
- ☒ i. **Approved Stormwater Pollution Prevention Plan**
-Must meet NPDES requirements and prepared by a licensed professional engineer.

XII. Procedure:

The Planning & Zoning Commission shall hold a public hearing on the proposed Conditional Use Permit at a scheduled Planning and Zoning Commission meeting.

The Planning and Zoning Commission is an advisory board to the County Board of Commissioners and will make a recommendation to the County Board.

The Department shall report the findings and recommendations of the Planning Commission to the County Board for final decision.

Action by the County Board shall be a majority vote of its members.

The Department shall notify the applicant and/or landowner in writing of the County Board decision.

A certified copy of the Conditional Use Permit shall be filed with the Le Sueur County Recorder by the Department.

XIII. Signatures:

I hereby certify with my signature that all data contained herein as well as all supporting data are true and correct to the best of my knowledge.


Applicant signature

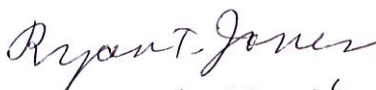
10-14-16
Date

I hereby certify with my signature that all data contained herein as well as all supporting data are true and correct to the best of my knowledge.


Property Owner signature

10-14-16
Date

Application Prepared By
Ryan Jones
Engineer for Le Sueur SWCD


9-22-16

3

OFFICE USE ONLY

Request: GRADING, EXCAVATING & FILLING

☐ **Non-Shoreland**

- ☐ Within Bluff Impact Zone
☐ Within Bluff

Cubic yards of material movement: _____
 Cubic yards of material movement: _____
 Cubic yards of material movement: _____

TOTAL cubic yards of material movement: _____

☐ **Shoreland - Outside Shore Impact Zone**

- ☐ Within Shore Impact Zone
☐ Within Bluff Impact Zone
☐ Within Bluff

Cubic yards of material movement: _____
 Cubic yards of material movement: 137
 Cubic yards of material movement: _____
 Cubic yards of material movement: 137

TOTAL cubic yards of material movement: 137

Pre-App Date 1-9-17
 Meeting Date 7-9-17
 60 Day 3-10-17
 Zoning District RR/FF

Lake Classification ✓
 Lake Sand Creek
 FEMA Panel # 27079C0 093
 Flood Zone A

Feedlot 500' 1000' N NA
 Wetland Type 1-2 3-8 N
 Water courses Y N Sand Creek
 Bluff Y N

☒ Request Description

☒ Access Approval

☒ Septic

Comp Insp / Design

☒ Site Plan

☒ Erosion Control Plan

☒ Meeting

Reg / ATF / Spec

☒ Full Legal

☐

☒ Fee

\$ 7960

☒ Ordinance

☐ Other _____

☐ Penalty

\$ _____

☒ Application Complete

Michelle R. Mathis
 Planning & Zoning Department Signature

1-9-17
 Date

17 001
 Permit #

LE SUEUR COUNTY ENVIRONMENTAL SERVICES
88 SOUTH PARK AVE.
LE CENTER, MINNESOTA 56057-1600

Phone (507) 357-8540 (direct line)

Fax (507) 357-8541

Date: 01/26/2017

To: Le Sueur County Planning and Zoning Commission

From: Joshua Mankowski, Environmental Resources Specialist

Applicant:

Le Sueur County SWCD

Property owner:

Charles & Lana Puffer

Property:

07.890.0020

Description:

Application for a Conditional Use Permit to allow Grading, Excavating, and Filling of approximately 730 cubic yards of material in Shore Impact Zone and Bluff for a bank stabilization project.

Recommendation:

It would be my recommendation to approve the application. The project design and engineering has been done through the Le Sueur County SWCD and will address sever bluff degradation on the site. The project is fairly typical for bank stabilization work of this type.

Sincerely,



Joshua Mankowski
Le Sueur County
Environmental Resources Specialist

Charles and Lana Puffer
Conditional Use Application – Grading, Excavating and Filling
Le Sueur County, Minnesota



XI. Attachments

a. Description of Request

This project is proposed in conjunction with the Le Sueur County Soil and Water Conservation District (SWCD) to stabilize the toe of a streambank/bluff on the Charles and Lana Puffer property in Lanesburgh Township, east of New Prague. The project location is situated on an outside bend of Sand Creek. The toe of the slope has experienced significant erosion, causing erosion of the approximately 30-foot high bluff above. The bluff is directly south of the Charles and Lana Puffer home.

The purpose of the project is to armor a 230 linear foot section of the toe of slope with riprap in order to prevent further migration of the stream into the bank and further destabilization of the bluff. The project includes the following:

- Removing downed trees from the channel which are currently directing flow toward the bank and causing erosion,
- Armoring a portion of the existing streambank with riprap (Sta. 0+00 to Sta. 0+80),
- Creating a bank bench along a 150-foot section of the bluff (Sta. 0+80 to Sta. 2+30) nearest the Puffer home, in order to move the channel away from the existing toe-of-slope. The slope of this bench will be armored with riprap. The bank bench will be constructed using material obtained from the south streambank and the channel bottom. Channel dimensions will be maintained.
- Disturbed areas will be seeded and protected with erosion control blanket or mulch.

Constructing the bench will allow for a 2:1 slope between the riprap and the south side of the Puffer home.

Access to the project area will be determined by the Contractor. Possible routes include from the south through the Topka property or via the Sand Creek channel.

Equipment to be used for construction would likely be an excavator, front-end loader, and dump trucks.

b. Site Plan

See Sheet 2 of the Construction Plan, and the attached Site Location Map.



c. Full Legal Description

Le Sueur County – Lanesburgh Township

Sect-01 Twp-112 Range-023 TOM TOPKA UNREC PLAT Lot-002 5.04 AC (N1/2 OF SW 1/4 OF SW 1/4 OF SW 1/4)

d. Access Approval

Access will be temporary off 290th Street or 141st Avenue.

e. Township Notification – see CUP application sheet 1, part IV.

f. Septic System Compliance Inspection

g. Erosion Control Plan

See attached form, and Sheets 1 and 2 of the Construction Plan

Erosion control BMPs included in the Plans include:

- Stabilized Construction Exit
- Sediment Control Log, Type Straw
- Seeding with Native Grass Mix
- Erosion Control Blanket where slopes are steeper than 3:1
- Disk-anchored Mulch for flatter slopes.

h. Restoration Plan

See attached form, and Sheets 1 and 2 of the Construction Plan

The site will be restored by seeding disturbed areas and protecting with mulch or erosion control blanket.

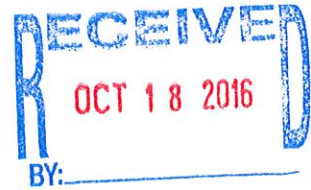
i. Approved Stormwater Pollution Prevention Plan

The project's footprint is less than one acre and does not require a NPDES Construction Stormwater Permit. However, erosion prevention and sediment control practices are incorporated into the plans and through the Erosion Control Plan required under part g above.

The project does require a permit from the Minnesota DNR. Any requirements of the DNR permit will be followed.



PROJECT MANUAL



STREAMBANK TOE PROTECTION

LOCATED ON:

Sand Creek
Section 1 – Lanesburgh Township
Le Sueur County, Minnesota

PREPARED FOR:

Charles Puffer
New Prague, Minnesota


AND THE

Le Sueur County
Soil and Water Conservation District

PREPARED BY:

South Central Technical Service Area
1160 South Victory Drive – Suite 3
Mankato, MN 56001

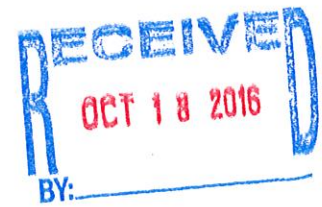
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.


Ryan T. Jones

Date: 9 - 20 - 16

Reg. No. 44622

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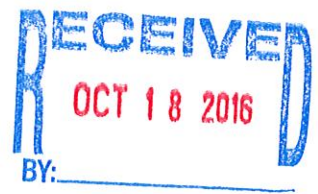
2575 Establishing Turf and Controlling Erosion

LIST OF MNDOT MATERIAL SPECIFICATIONS

3601 Riprap Material
3733 Geotextiles
3876 Seed
3882 Mulch Material
3885 Rolled Erosion Control Products
3897 Sediment Control Log

INDEX TO DRAWINGS

Sheet 1 Cover Sheet
Sheet 2 Plan View Sheet
Sheet 3 Detail Sheet



COOPERATOR'S REVIEW AND APPROVAL STATEMENT

I have reviewed the plans and specifications and agree to complete the work accordingly. Modification of these plans and specifications must be approved by the South Central Technical Service Area before installation. Failure to meet these plans and specifications may jeopardize my State or Federal cost-share funding.

I am responsible for clearly locating and marking all private utilities and tile lines within the work area. Failure to locate and mark private utilities and tile lines may increase my construction costs. I am responsible for securing all necessary permits and completing the work in accordance with all Local, State, and Federal Laws. I am responsible for all negotiations and agreements with the contractor(s). I will be available during construction to discuss potential modifications and conduct necessary negotiations with the contractor(s).

(Cooperator's Signature)

(Date)

CONTRACTOR'S REVIEW AND APPROVAL STATEMENT

I have reviewed the plans and specifications and agree to complete the work accordingly. Modification of these plans and specifications must be approved by the owner and the South Central Technical Service Area before installation. Failure to meet these plans and specifications may jeopardize the owner's State or Federal cost-share funding.

I understand that before the start of construction, the owners of all utilities must be notified. The excavator is responsible for giving this notice by calling the "Gopher State One Call" system at 1-800-252-1166 or contact www.gopherstateonecall.org at least 48 hours prior to any excavation.

(Contractor's Signature)

(Date)

OPERATION AND MAINTENANCE PLAN

STREAMBANK PROTECTION

Streambank Protection with riprap is designed for a minimum life expectancy of 25 years. Proper inspection and maintenance are necessary for successful operation of this erosion control practice. Listed below are recommended inspection and maintenance activities.

Periodic Inspection (Annually and after large storm events)

1. Inspect the riprap for excessive movement, dislodged rocks in the streambed, fractured rock, exposed geotextile, undermining of rock, or flanking.
2. Remove excessive debris from the riprap ie: logs or brush.
3. Maintain good grass sod on slope above rock riprap.

Damages listed above could threaten the performance of the Streambank protection. Contact the local SWCD office for technical assistance.

BID SCHEDULE



PROJECT: Streambank Toe Protection

OWNER: Charles Puffer
New Prague, MN

ENGINEER: Ryan Jones, P.E.
South Central Technical Service Area
1160 Victory Drive, Suite 3
Mankato, MN 56001
(507) 345-1051

PROJECT MANAGER: Mike Schultz
Le Sueur County SWCD
181 W. Minnesota St.
Le Center, MN 56057
(507) 357-4879

TERMS AND CONDITIONS:

A. GENERAL

1. This is a Unit Price Contract
2. Duplicate Bid Forms are provided herein. One set shall be completed in ink and returned to the owner. The second set may be retained by the bidder
3. Submit bid for all items. Failure to do so will preclude consideration of the bid. In case of error in the extension of prices, the unit price shall govern. In case of error in summation, the total corrected bid amounts shall govern.

B. PAYMENT

1. All items shall be paid on the basis of actual quantities measured except those designated as plan quantities (P) on the Bid Schedule.
2. Pay Units shown on the Bid Schedule are abbreviated as follows: Cubic Yards, C.Y.; Cubic Feet, C.F.; Gallon, Gal.; Lineal Foot, L.F.; Lump Sum, L.S.; Pound, lbs.; Square Foot, S.F.; Square Yard, S.Y.; Staked Quantities, S.Q.; and Furnish and Install, F & I.
3. Mobilization shall consist of preparatory work and operations including, but not limited to, those necessary for: the movement of personnel, equipment, supplies and incidentals to the project site; the establishment of all Contractor offices or other facilities necessary for work on the project; and the cost of insurance and bonds necessary for the project. The amount bid for mobilization shall not exceed five (5) percent of the total bid price.
4. Unless indicated as a plan quantity (P) or noted otherwise, a quantity may be increased or decreased no more than 25 percent from the amount shown on the Bid Schedule, with no change in unit price. If a quantity changes more than 25 percent, the unit price for that item shall be renegotiated upon written request by the Engineer or the Contractor. Plan quantities (P) are based upon original design data, which includes surveys, design assumptions, drawings and calculations. Changes in the number of units of a plan quantity (P) item shall not be made unless authorized by the Engineer.
5. Work items not included in the Bid Schedule but required by the Construction Plans or Specifications shall be considered incidental to the project.

6. Work done contrary to instructions of the Engineer, and any work done beyond that which is specified or ordered, will be considered to be Unauthorized work and will not be paid for under the provisions of this bid. Unauthorized work shall be removed by and at the expense of the Contractor, upon receipt of a written order from the Engineer.
7. Payments requested by the Contractor, prior to completion and certification of the project, may be made, if authorized by the Engineer. If authorized, ten percent (10%) of the approved "partial" payment will be with held until project completion.

C. MEASUREMENT

1. Unless noted otherwise, earthfill/embankment materials shall be measured by volume in cubic yards. The basis of measure is by compacted volume (CV) and not excavated volume or loose volume. The Contractor shall apply his/her own compaction factor. Compacted volume shall be computed by the average end area method as determined by cross section measure of the materials.
2. Thicknesses or depths will be measured according to neat lines shown on the drawings or as altered to fit site conditions, and preconstruction surveys, as directed by the Engineer.
3. All items, which are measured by the linear foot, such as pipe culverts, guardrail, under drains, etc., will be measured parallel to the base or foundation upon which the structure is placed.
4. Materials, which are measured by the cubic yard vehicular measure, shall be hauled in approved vehicles and measured at the point of delivery. The vehicles may be of any size or type, provided the body is shaped such that its capacity and actual contents can be accurately measured. All vehicles shall be loaded to at least their struck capacity, as determined by the Engineer, with sufficient over-allowance being made for settlement during transit. Each load shall be leveled upon its arrival at the point of delivery, if so directed by the Engineer. No allowance will be made for material heaped above the struck capacity of the vehicle. Deductions will be made in 2 cubic yard increments on loads, which contain less than the struck capacity.
5. In computing quantities of materials that require overlapping, such as geotextile fabric, geomembrane, or reinforcement wire, the net area covered by the material, excluding overlaps, shall be measured for payment. The Contractor shall be responsible for additional quantities of material to account for overlapping requirements.
6. When mutually agreed upon in writing, materials may be measured in units other than the unit of measurement specified as the basis of payment, but the measured quantity shall be converted to the specified unit of measure for payment. Factors for conversion from one unit of measurement to another shall be as established by the Engineer and agreed to by the Contractor.
7. The term "lump sum", when used as a unit of measurement for payment, will mean complete payment for that item of work as shown on the drawings and described in the specifications and will be construed to include all necessary fittings and accessories.
8. When standard manufactured items are specified such as fencing, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section, dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in the cited specifications, manufacturing tolerances established by the industries involved will be accepted.

BID FORM
Charles Puffer
Streambank Toe Protection



Item No.	Item Description	Pay Unit	Estimated Quantity	Unit Price	Bid Amount
1	MOBILIZATION	L.S.	1		
2	ACCESS	L.S.	1		
3	REMOVE & DISPOSE OF TREES IN CHANNEL	L.S.	1		
4	EARTHWORK - CONSTRUCT BANK BENCH	C.Y.	330 (CV)(P)		
5	FURNISH & INSTALL GEOTEXTILE FABRIC, MNDOT TYPE IV	S.Y.	640		
6	FURNISH & INSTALL RIPRAP, MNDOT CLASS III	TONS	560		
7	SEDIMENT CONTROL LOG, TYPE STRAW	L.F.	300		
8	STABILIZED CONSTRUCTION EXIT	EACH	1		
9	SEEDING	ACRE	0.5		
10	MULCH, MNDOT TYPE 1	TONS	1		
11	EROSION CONTROL BLANKET, MNDOT CATEGORY 4N	S.Y.	500		

TOTAL BID PRICE (Total of all Bid Amounts): _____

The undersigned offers to furnish labor, materials and equipment necessary to complete the project in accordance with the project plans, specifications and bid schedule, at the unit prices and/or amount specified.

NAME: _____
SIGNATURE: _____
DATE: _____

Notes:

All sales tax paid by the contractor in securing product for this bid shall be included as part of the total bid price.

(P) Plan Quantity for which no direct measurement shall be made.

(CV) Compacted volume



LE SUEUR COUNTY ENVIRONMENTAL SERVICES
88 SOUTH PARK AVE.
LE CENTER, MINNESOTA 56057-1620
(507) 357-2251
FAX (507) 357-8541

Erosion and Sediment Control Plan

Goal: To control erosion and prevent sediment and other pollutants from entering the lakes, streams, wetlands, and storm drain systems during construction.

Property Owner: Charles and Lana Puffer PID: 07.890.0020
Mailing Address: 28895 141st Ave. New Prague, MN 56071
Property Address: as above
Phone: (952) 258-3348 Mobile/Cell: (952) 200 7970

Responsible party for Implementation/Inspection: _____
Address: _____
Phone: (____) _____ Mobile/Cell: (____) _____

Erosion & Sediment Control Measures

1. Maintain existing vegetation whenever possible and minimize the area of disturbance. Retain and protect trees to enhance future landscaping efforts and to reduce raindrop impact. (Vegetation is the best and most cost-effective erosion control practice).
2. Install all erosion and sediment control practices prior to any soil disturbing activities, when applicable.
3. Phase construction activities to minimize the areas disturbed at one time. This will also allow completed areas to be stabilized and re-vegetated before disturbing adjacent sites.
4. Maintain and protect all natural waterways. Retain at least a 20-foot wide strip of natural vegetation along all waterways to filter out sediment and other pollutants.
5. Minimize the use of impermeable surfaces such as roofs, driveways, parking lots and roads. The Environmental Resources staff must approve all storm water runoff plans.
6. Use rock rip-rap at both the outlet and inlet ends of culverts to prevent scour erosion.
7. Limit construction equipment to designated areas to control soil compaction.
8. Install silt fence on the down-slope perimeter of all disturbed areas according to the attached installation instructions. Sensitive areas such as wetlands, drainage swales and shoreland areas should also be protected with silt fence.
9. Install straw bale checks or rock check dams in areas of concentrated flow .
10. Cover any stockpiled topsoil with plastic or other impervious covering. Use stockpiled topsoil as earthen berms to serve as temporary sediment basins.

11. Mulch all disturbed areas at the rate of one 50-pound bale of straw per 500 square feet. On slopes 4:1 or steeper use the following erosion control blankets that have been pinned to the slope according to the manufacturer's instructions:

2:1 slopes or steeper	Straw/Coconut Blanket or High Velocity Wood Blanket
3:1 slopes or steeper	Wood or Straw Blanket with net on both sides
4:1 slopes or steeper	Wood or Straw Mulch blanket with net on one side
Flat areas	Straw Mulch w/disc anchoring

12. Seed all disturbed areas within seven days of final grading and temporary seed/mulch all areas that will be left inactive for more than seven days. Do not seed later than September 1st. Areas that need to be seeded after this date should be dormant seeded in late October or early November. See the attached instruction sheet for recommended mixtures and rates. The use of native plant materials, including trees and shrubs, is encouraged. Native species will provide good vegetative cover that is adapted to our soils and climate.
13. Apply fertilizer according to soil test recommendations.
14. Install water bars on access roads to prevent concentrated water from flowing down the road and eroding gravel.
15. Attach a site map showing the location of all erosion control practices, property lines, roads, lakes, watercourses, wetlands, on-site systems and building locations.

Note: To reduce mud transported onto paved roads, a rock construction entrance may be required. This will require a six-inch layer of 1-2 inch diameter washed rock a minimum of 50 feet in length.

Inspection and Maintenance

16. Inspect the construction site every 7 days and within 24 hours after every rain event to ensure the practices are working properly (i.e. silt fences, water bars).
17. Clean out the silt fences when they are 1/3 full of sediment or replace with functional silt fences within 24 hours.
18. Clean out sediment basins on a regular basis to maintain capacity.

I agree to install, inspect and maintain the above practices to accomplish the goal of preventing erosion.

Charles L. Loh

(Property Owner)

10-16-16

(Date)

(Person Responsible for Implementation)

(Date)

If you have any questions, please contact Environmental Services, at 507-357-8538.





Minnesota Department of Natural Resources
Division of Ecological & Water Resources
MNDNR PERMITTING AND REPORTING SYSTEM

MPARS
MNDNR PERMITTING AND REPORTING SYSTEM
www.mndnr.gov/mpars
REVISION 04132015 APP ID 7074

Public Waters Work Permit Application

Reference Number: 2016-2119

Date Submitted to DNR: November 14, 2016 at 2:49 PM

Application Reference Name: Puffer Sand Creek Bluff Stabilization

DNR Lead Hydrologist: Garry Bennett
Area: Hutchinson
Email: garry.bennett@state.mn.us
Phone: 320-234-2550 x230

DNR Region: Southern Region 4
Address: Minnesota Department of Natural Resources
20596 Highway 7
Hutchinson, MN 55350

Parties (Individuals and Organizations associated with the permit application)

Le Sueur County SWCD - Landowner or Government Unit

Address: 181 W Minnesota St, Le Center, MN 56057
Phone: 507-357-4879 x3

Michael Schultz - Contact (representing Le Sueur County SWCD)
(submitted application)

Address: 181 W Minnesota St, Le Center, MN 56057
Phone: 507-357-4879 x3
Email: mschultz@co.le-sueur.mn.us

Proposed Activity

Riprap (Other)

Location and Water Resources (within 50 meters)



Site Name: Riprap (Other) Site #1

(Riprap (Other))

Counties: Le Sueur

Watersheds: Lower Minnesota River

PLS: T112N-R23W-S1 SWSW

UTM: X:456821 Y:4930978

Water Resources: Stream/River: Sand Creek
(M-055-023) - Public Waters Watercourse



NOTICE: THIS IS NOT A PERMIT. All information provided on this application form is considered to be public information in accordance with the Minnesota Data Practices Act (Minnesota Statutes, Chapter 13).

PAGE 1

Project Overview

1	Please assign a reference/project name to this application.	Puffer Sand Creek Bluff Stabilization
2	What is the main type of work you are proposing to do?	Work in or near a lake, wetland, or river/stream (e.g., excavate, place fill, install a structure in a waterbody, modify a dam)
3	When is the anticipated start date for the project?	02/01/2017
4	When is the anticipated bid date for the project, if applicable? (optional)	12/14/2016
5	When is the expected completion date for the entire project?	03/31/2017
6	Briefly describe the overall project purpose and need.	The project site has been eroding a bluff that abuts to a rural home. The bluff has eroded 20-30' of the last 15 years. The project will rock line the toe of the bluff and reroute stream channel to the middle. The bluff will have some excavation to allow for the bluff to settle and vegetate.
7	Has any portion of the proposed work in wetlands or water areas already started?	No
8	Is this a transportation project sponsored by a government unit?	No
9	Will the project require any dewatering (the deliberate removal of water through the use of a pump, ditch, etc. to lower water levels to allow work to be accomplished)?	No
10	Has an Environmental Assessment Worksheet (EAW) or Environmental Impact Statement (EIS) been completed for the project, or will it be required?	No
11	Has the project gone through a Natural Heritage (endangered species) review?	No
12	Have you developed any mitigation plans for the portion(s) of the project that will impact public waters?	No
13	Describe TWO alternatives to the proposed project that were considered that would avoid or minimize impacts to public waters. One option may be "no build" or "do nothing".	We have look at stream bank Toe Wood Structure for this project, after much review with the Engineer and DNR Hydrologist it was decided that rock would better fit for the site. Option two would be do nothing, potential impacts would be that the bluff would eventually fail and the house could be damaged.
14	Why did you choose to pursue the option proposed in this application over these alternatives?	We chose the rock method because it was a better fit, more cost effective. More recent alternatives installed by our engineers have failed to 100 year + rain events.

Activity Detail

Activity: Riprap (Other)

How many different water sites will have this type of activity (i.e., the number of individual stream/river, ditch, lake, pond, pit, and/or wetland crossings or unique impact areas)? 1

Site Name: Riprap (Other) Site #1

1	Briefly describe the impact to the waterbodies at this particular site:	Some rip rap work will take place below the stream flow. Some of the bluff will be excavated.
2	Is the fill permanent or temporary?	Not applicable
3	Is the excavation permanent or temporary?	Not applicable

NOTICE: THIS IS NOT A PERMIT. All information provided on this application form is considered to be public information in accordance with the Minnesota Data Practices Act (Minnesota Statutes, Chapter 13).



Activity Detail (Continued)

4	Will you be removing any vegetation from an aquatic resource that is not already associated with excavation/filling?	No
5	Will work at this site result in the draining of any water resources?	No
6	Please upload <u>construction plans</u> showing existing and proposed conditions.	Puffer_Engineered_Plan.pdf
7	Please upload <u>photo(s)</u> of the project site.	PhotoGrid_1410548704220.jpg
8	Select the resource(s) below that describes the type of water bodies that could be impacted at this site.	stream/river
9	Counties	Le Sueur
10	Watersheds	Lower Minnesota River
11	PLS	T112N-R23W-S1 SWSW
12	UTMXY	X:456821 Y:4930978
13	Water resources	Stream/River: Sand Creek (M-055-023) - Public Waters Watercourse

 **Attachment(s):** Puffer_Engineered_Plan.pdf
PhotoGrid_1410548704220.jpg

Acknowledgment (By the party who submitted the permit application)

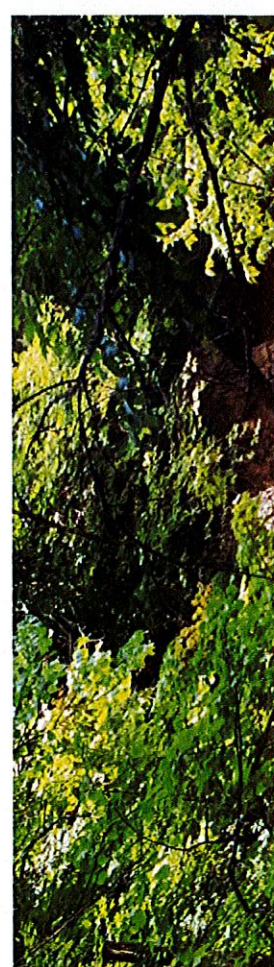
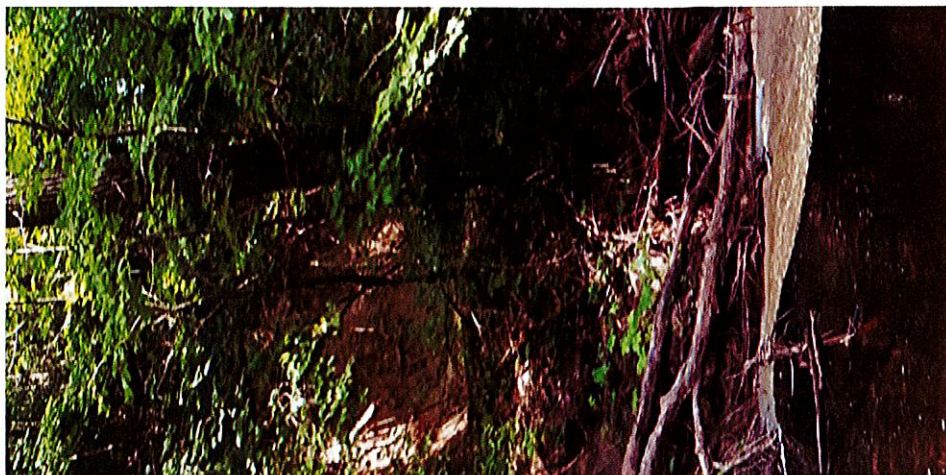
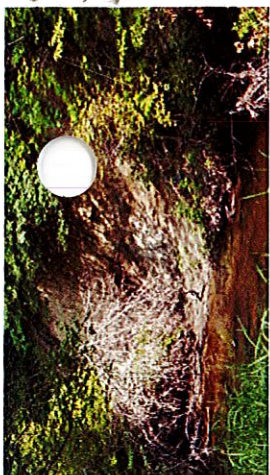
- ☒ I attest that:
- I own or control (by lease, license, or other permission) the land that I propose to alter, AND
 - There are no easements or other restrictions on the land that would prohibit the proposed activities from being authorized under a permit, AND
 - I possess the authority to undertake the work described, or I am acting as a duly authorized agent, AND
 - The information submitted and the statements made concerning this application are true and correct to the best of my knowledge.

PRINTED: 11/14/2016 at 2:49 PM



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PAGE 3



GENERAL NOTES:

THE OWNER IS RESPONSIBLE FOR OBTAINING LAND RIGHTS AND LOCAL, STATE, AND FEDERAL PERMITS OR OTHER PERMISSION NECESSARY TO PERFORM AND MAINTAIN THE PRACTICE.

*** THIS PROJECT REQUIRES A PERMIT FROM THE MINNESOTA DEPARTMENT OF NATURAL RESOURCES. THE CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF THE DNR PERMIT. ***

BEFORE START OF CONSTRUCTION, THE OWNER OF ANY UTILITIES INVOLVED MUST BE NOTIFIED. THE EXCAVATOR IS RESPONSIBLE FOR GIVING NOTICE BY CALLING "GOPHER STATE ONE-CALL" AT (800) 252-1166 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION.

THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO LOCATE ANY PRIVATE UTILITIES THAT MAY BE IN THE VICINITY OF THE PROJECT. THE SOUTH CENTRAL TECHNICAL SERVICE AREA MAKES NO REPRESENTATION OF THE EXISTENCE OR NON-EXISTENCE OF UTILITIES. THE ABSENCE OF UTILITIES ON DRAWINGS DOES NOT ASSURE THAT THERE ARE NO UTILITIES ON SITE.

A PRE-CONSTRUCTION CONFERENCE WITH THE OWNER, CONTRACTOR(S), SWCD REPRESENTATIVE, AND SOUTH CENTRAL TSA ENGINEER OR TECHNICIAN SHALL BE SCHEDULED ONE WEEK PRIOR TO START OF CONSTRUCTION. ANY WORK DONE BEFORE CONFERENCE WILL JEOPARDIZE PROJECT APPROVAL AND FUNDING.

CHANGES IN THE DRAWINGS OR SPECIFICATIONS MUST BE AUTHORIZED BY THE OWNER AND THE RESPONSIBLE ENGINEER.

RESTORATION NOTES:

SEEDBED PREPARATION

AREAS TO BE SEEDED SHALL HAVE A MINIMUM OF 3 INCHES OF TOPSOIL.

PREPARE THE SEEDBED SURFACE BY TILLING TO A DEPTH OF AT LEAST 3 INCHES ON ALL AREAS, EXCEPT FOR SLOPES STEEPER THAN 2:1 (H:V) OR AREAS INACCESSIBLE TO EQUIPMENT.

SEEDING

DISTURBED AREAS SHALL BE SEEDED WITH MINNESOTA STATE SEED MIX 33-261 (STORMWATER SOUTH/WEST MIX), APPLIED AT A RATE OF 35 LBS/ACRE.

SEE MNDOT STANDARD SPECIFICATION 2575 FOR ADDITIONAL SEEDING REQUIREMENTS.

EROSION PROTECTION

DISTURBED AREAS SHALL BE PROTECTED USING ONE OF THE FOLLOWING:

1. EROSION CONTROL BLANKET (MNDOT 3885, CATEGORY 4N)
- AREAS ALONG THE STREAMBANK AND SLOPES STEEPER THAN 3:1 (H:V)
2. MULCH (MNDOT 3882, TYPE 1)
- ALL OTHER AREAS (ACCESS ROUTES, STAGING AREAS, ETC).
- MULCH SHALL BE DISK-ANCHORED (INCIDENTAL).

SEE MNDOT STANDARD SPECIFICATION 2575.3C FOR MULCH INSTALLATION REQUIREMENTS, AND 2575.3G FOR EROSION CONTROL BLANKET INSTALLATION REQUIREMENTS.

ESTIMATED QUANTITIES						
ITEM	ITEM DESCRIPTION	QUAN.	UNIT	CONST. SPEC.	MATERIAL SPEC.	NOTES
1	MOBILIZATION	1	L.S.			
2	ACCESS	1	L.S.			(A)
3	REMOVE & DISPOSE OF TREES IN CHANNEL	1	L.S.			(B)
4	EARTHWORK - CONSTRUCT BANK BENCH	330	C.Y.			(CV)(P)
5	FURNISH AND INSTALL GEOTEXTILE FABRIC, MNDOT TYPE IV	640	S.Y.	SEE SHEET 2	3733	
6	FURNISH AND INSTALL RIPRAP, MNDOT CLASS III	560	TONS	SEE SHEET 2	3601	(C)
7	SEDIMENT CONTROL LOG, TYPE STRAW	300	L.F.	2575	3897	
8	STABILIZED CONSTRUCTION EXIT	1	EACH	2575		
9	SEEDING	0.5	ACRE	2575	3876	(D)
10	MULCH, MNDOT TYPE 1	1	TONS	2575	3882	
11	EROSION CONTROL BLANKET, MNDOT CATEGORY 4N	500	S.Y.	2575	3885	

NOTES:

- (A) INCLUDES ALL WORK NECESSARY TO ACCESS THE PROJECT AREA WITH CONSTRUCTION EQUIPMENT AND RESTORE THE AREA TO EXISTING LINES AND GRADES WHEN THE WORK IS COMPLETE.
- (B) DOWNED TREES SHALL BE REMOVED FROM THE SITE AND DISPOSED IN ACCORDANCE WITH APPLICABLE LAWS, OR AS OTHERWISE DIRECTED BY THE LANDOWNER.
- (C) EXCAVATION AND BANK SHAPING DURING RIPRAP PLACEMENT IS INCIDENTAL.
- (D) INCLUDES PREPARING THE SEED BED AND FURNISHING AND INSTALLING THE SPECIFIED SEED MIX.
- (P) PLAN QUANTITY FOR WHICH NO DIRECT MEASUREMENT SHALL BE MADE.
- (CV) COMPACTED VOLUME

THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" (2016 EDITION) APPLY FOR ALL MATERIALS AND CONSTRUCTION WORK. THESE SPECIFICATIONS ARE PART OF THIS PLAN.

THE FOLLOWING SPECIFICATIONS ARE REFERENCED IN THE PLAN:

CONSTRUCTION SPECIFICATIONS
2575 ESTABLISHING TURF AND CONTROLLING EROSION

MATERIAL SPECIFICATIONS
3601 RIPRAP MATERIAL
3733 GEOTEXTILES
3876 SEED
3882 MULCH MATERIAL
3885 ROLLED EROSION CONTROL PRODUCTS
3897 SEDIMENT CONTROL LOG

THESE SPECIFICATIONS ARE AVAILABLE ONLINE AT:

www.dot.state.mn.us/pre-letting/spec/2016/2016-spec-book.pdf

STREAMBANK TOE PROTECTION

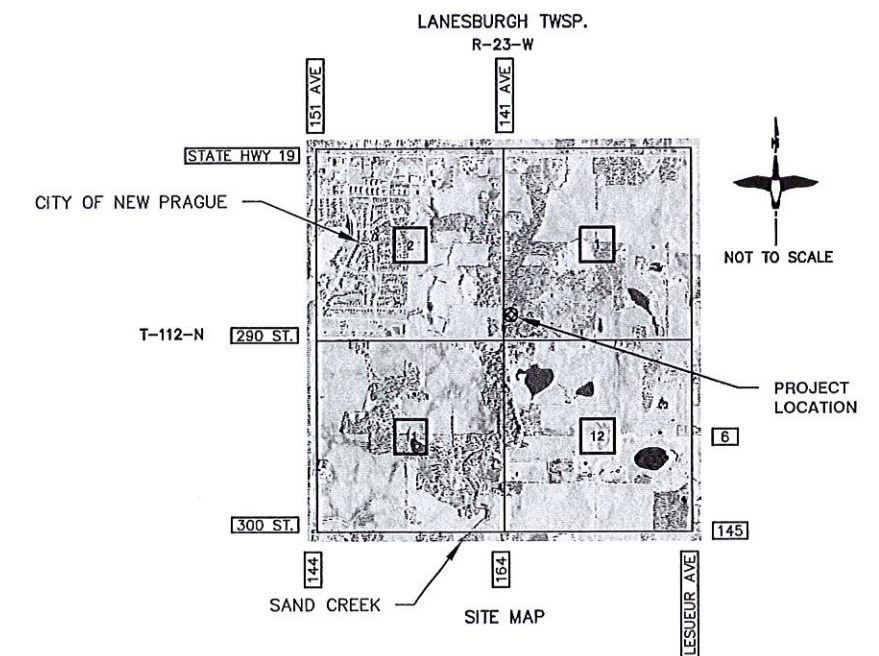
ON
SAND CREEK

PREPARED FOR BY:

CHARLES PUFFER

AND THE

**LE SUEUR COUNTY
SOIL & WATER
CONSERVATION DISTRICT**



SHEET INDEX

SHEET NO.	TITLE
1	COVER SHEET
2	PLAN VIEW SHEET
3	DETAIL SHEET

ENGINEERING DESIGN DATA
DRAINAGE AREA = 61.4 SQUARE MILES
Q₁₀ = 536 CFS
Q₅₀ = 951 CFS
Q₁₀₀ = 1,170 CFS

CONSTRUCTION CERTIFICATION STATEMENT

I HEREBY CERTIFY THAT A FINAL INSPECTION OF THIS PROJECT HAS BEEN PERFORMED AND THAT THE WORK COMPLETED IS IN ACCORDANCE WITH THE PLAN AND SPECIFICATIONS. ANY CHANGES TO THE PLANS AND SPECIFICATIONS ARE SO NOTED.

SIGNATURE: _____ DATE: _____

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.

PRINT NAME: RYAN T. JONES

SIGNATURE: *Ryan T. Jones*
DATE: 9-20-16 LICENSE # 44622

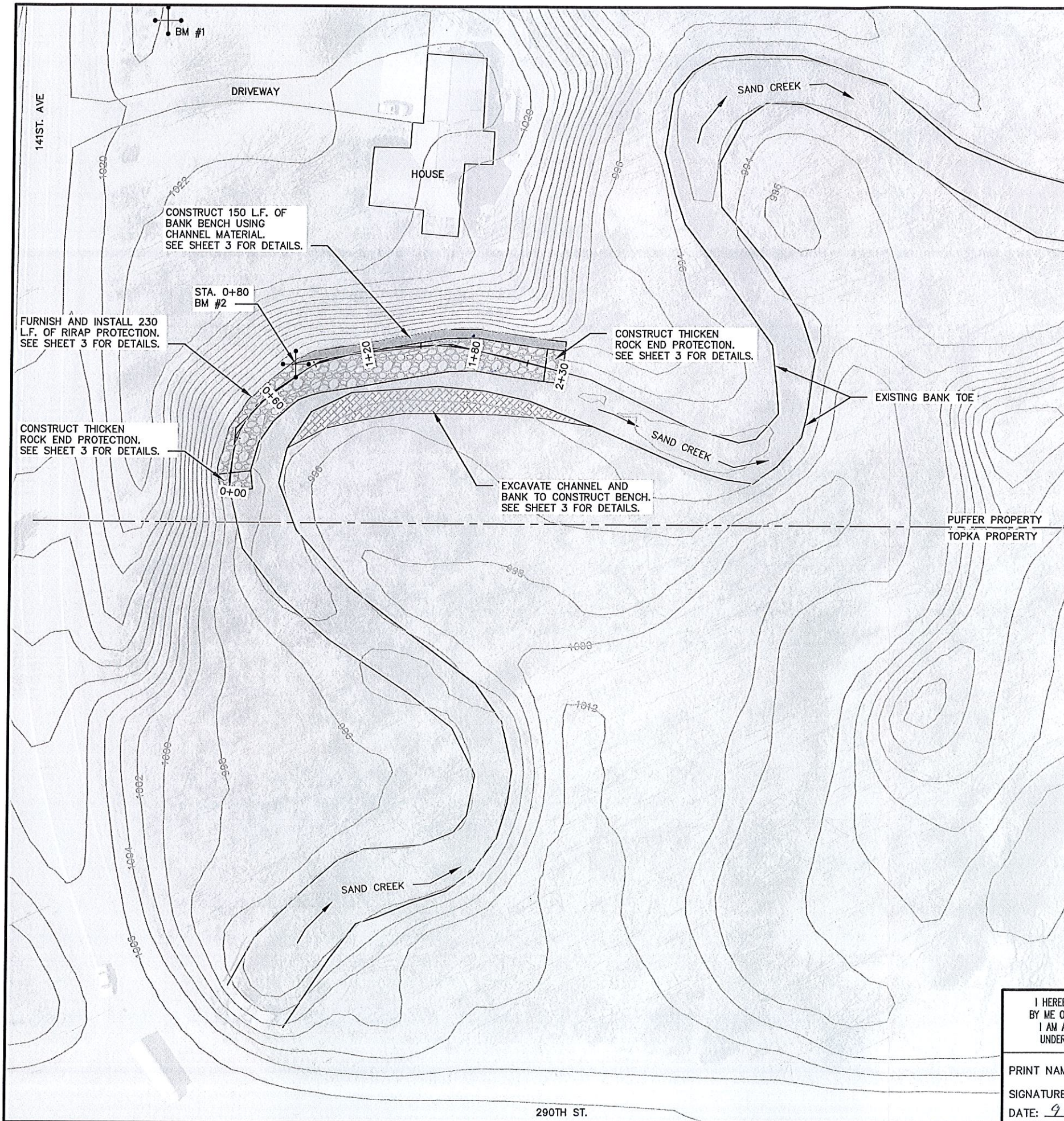
SURVEY		DESIGN		COORDINATES	
Surveyed	Date	Designed	Date	UNITS	US SURVEY FEET
GPS, RTJ, ZLB	4/18/16	RTJ	8/16	COORDINATE SYSTEM	UTM 15 NORTH
Drawn	Date	Drawn	Date	DATUM	NAD1983 (CONUS)
GPS	5/16	GPS	9/16	GEIOD	GEIOD12A (CONUS)
Checked	Date	Checked	Date		
		RTJ	9/19/16		

**SOUTH CENTRAL
TECHNICAL SERVICE AREA**
1160 S. VICTORY DRIVE
MANKATO, MINN.
(507) 345-1051

CHARLES PUFFER
STREAMBANK TOE PROTECTION

COVER SHEET

Sec. 1	T. 112 N.	R. 23 W.
County: LE SUEUR		
Township: LANESBURGH		
Near: NEW PRAGUE		SHEET 1 of 3



0 60
Scale: 1" = 60'

LEGEND

--- PROPERTY LINE
--- LIDAR 2' CONTOUR

BM#1 LOCATED ON TOP OF LARGE BLACK ROCK ON 'X' ELEV. = 1022.23
BM#2 LOCATED ON TOP OF NAIL ON NORTH SIDE OF TREE. ELEV. = 998.46

RECEIVED
OCT 18 2016
BY: _____

CONSTRUCTION NOTES:

1. CONTOURS SHOWN ARE 2-FOOT INTERVAL DERIVED FROM LIDAR.
2. COORDINATE ACCESS WITH THE LANDOWNER. ACCESS ROUTES AND VEGETATIVE CLEARING MUST BE APPROVED BY THE LANDOWNER.
3. EROSION CONTROL BMPs SHALL BE INSTALLED PRIOR TO THE START OF LAND-DISTURBING ACTIVITIES.
 - INSTALL A STABILIZED CONSTRUCTION EXIT (CRUSHED ROCK OR SLASH MULCH) TO PREVENT TRACKING OF SEDIMENT FROM THE PROJECT ONTO PAVED ROADWAYS. SEE 2575.3K
 - INSTALL SEDIMENT CONTROL LOG (TYPE STRAW) AS NEEDED ALONG DOWNSTREAM SIDE OF WORK AREAS TO PREVENT MIGRATION OF SEDIMENT TOWARD SURFACE WATER. SEE 2575.3F
4. THE RIPRAP EXTENT SHOWN IN THE PLAN VIEW INCLUDES THE PORTION THAT WILL BE KEYED-IN (BURIED) BELOW THE BOTTOM OF THE CHANNEL.
5. ANY STREAMBANK EXCAVATED TO ALLOW FOR EQUIPMENT ACCESS SHALL BE RESTORED TO THE ORIGINAL GRADE AT THE COMPLETION OF THE PROJECT.

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.

PRINT NAME: RYAN T. JONES

SIGNATURE: *Ryan T. Jones*

DATE: 9-20-16 LICENSE # 44622

**SOUTH CENTRAL
TECHNICAL SERVICE AREA**

1160 S. VICTORY DRIVE
MANKATO, MINN.
(507) 345-1051

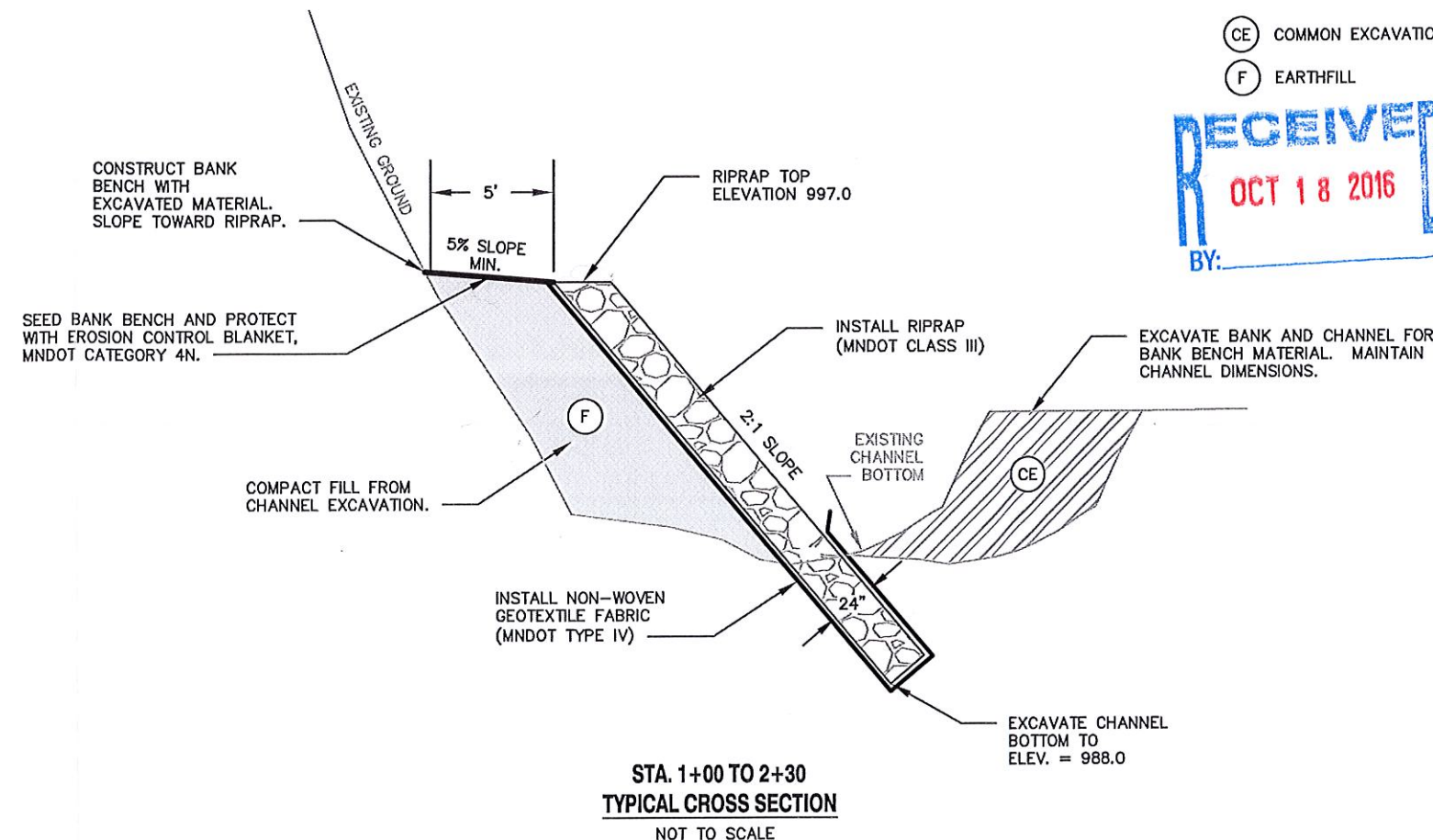
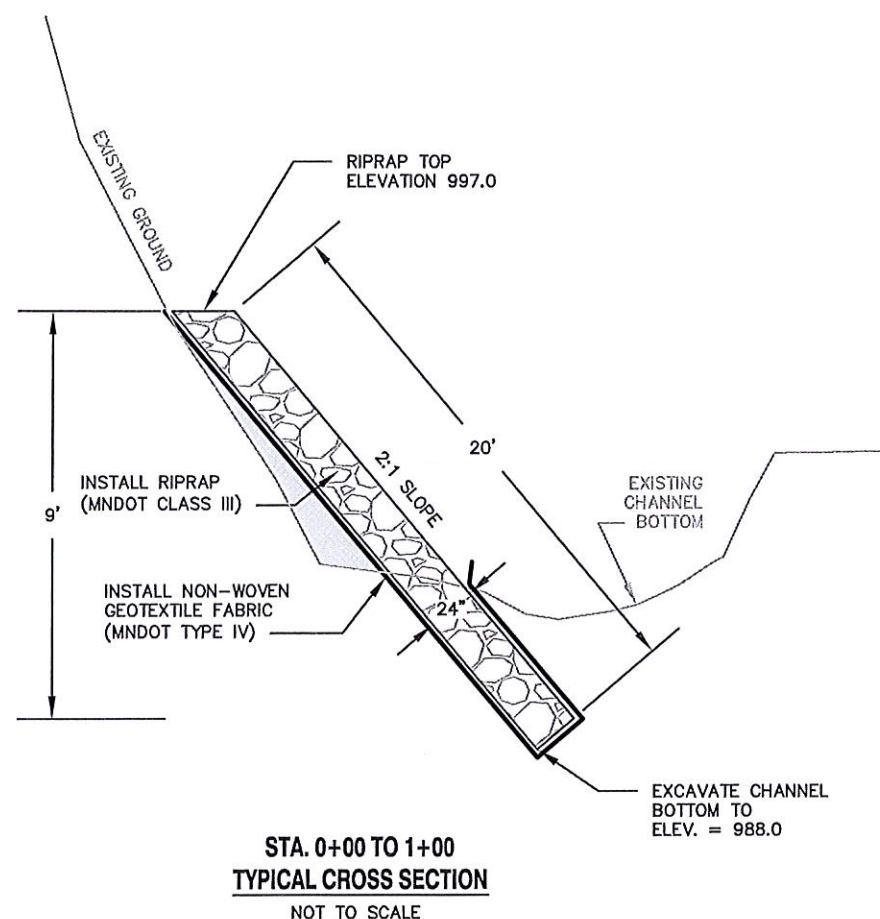
**CHARLES PUFFER
STREAMBANK TOE PROTECTION**

PLAN VIEW SHEET

SHEET 2 of 3

CE COMMON EXCAVATION
F EARTHFILL

RECEIVED
OCT 18 2016
BY: _____



RIPRAP INSTALLATION NOTES:

MATERIAL SPECIFICATIONS

RIPRAP

- RIPRAP SHALL CONFORM TO THE REQUIREMENTS OF MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION 3601, CLASS III.
- THE RIPRAP SHALL BE FREE FROM DIRT, CLAY, SAND, ROCK FINES, AND OTHER MATERIAL NOT MEETING THE REQUIRED GRADATION LIMITS.
- THE PLACED RIPRAP SHALL CONTAIN LESS THAN 10 PERCENT OF UNDESIRABLE MATERIALS BY MASS. UNDESIRABLE MATERIALS ARE DEFINED AS:
 - INDIVIDUAL PIECES OF STONE WITH DEFECTS THAT ARE VISUALLY DIFFERENTIATED FROM ACCEPTABLE PIECES, OR
 - STONE THAT IS SLABBY OR ELONGATED (HAVING WIDTH OR THICKNESS LESS THAN 30 PERCENT OF THE LENGTH).

GEOTEXTILE FABRIC

- GEOTEXTILE FABRIC SHALL BE NON-WOVEN, MEETING THE REQUIREMENTS OF MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION 3733, TYPE IV.

CONSTRUCTION

GEOTEXTILE AND RIPRAP SHALL NOT BE PLACED UNTIL THE SUBGRADE SURFACE HAS BEEN INSPECTED/APPROVED BY THE TECHNICIAN.

THE SURFACE ON WHICH THE GEOTEXTILE IS TO BE PLACED SHALL BE GRADED AS SHOWN ON THE DRAWINGS. IT SHALL BE REASONABLY SMOOTH AND FREE OF LOOSE ROCK, CLODS, HOLES, DEPRESSIONS, AND PROJECTIONS.

THE GEOTEXTILE SHALL BE LOOSELY LAID, MINIMUM FOLDING, IN SUCH A MANNER THAT IT CONFORMS TO THE SURFACE IRREGULARITIES WHEN RIPRAP IS PLACED ON OR AGAINST IT. THE GEOTEXTILE MAY BE FOLDED AND OVERLAPPED TO PERMIT PROPER PLACEMENT IN DESIGNATED AREAS.

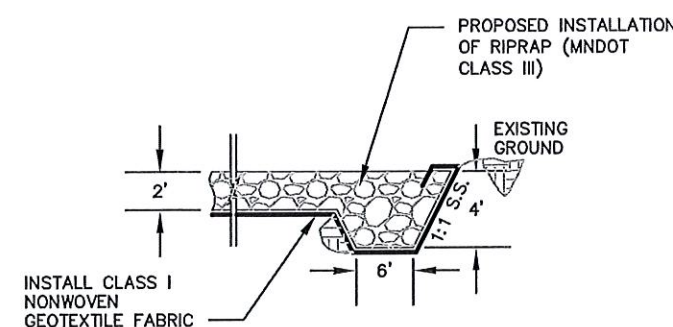
THE GEOTEXTILE SHALL BE JOINED BY OVERLAPPING IN A SHINGLE LIKE MANNER A MINIMUM OF 18 INCHES AND SECURED AGAINST THE UNDERLYING FOUNDATION MATERIAL.

SECURING PINS ARE ACCEPTABLE BUT NOT REQUIRED. THE GEOTEXTILE CAN BE ANCHORED BY SMALL, ROUND "BASEBALL SIZED" ROCKS OR OTHER EQUIVALENT METHODS THAT HOLD THE GEOTEXTILE IN PLACE.

RIPRAP SHALL NOT BE PUSHED OR ROLLED OVER THE GEOTEXTILE.

RIPRAP SHALL BE INSTALLED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID SERIOUS DISPLACEMENT OF THE UNDERLYING FABRIC MATERIAL. THE RIPRAP SHALL BE DELIVERED AND PLACED IN A MANNER THAT ENSURES THE MATERIAL IS REASONABLY HOMOGENEOUS, WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALLER ROCKS AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. SOME HAND PLACING MAY BE REQUIRED TO PROVIDE A NEAT AND UNIFORM SURFACE.

RIPRAP SHALL NOT BE DROPPED MORE THAN 3 FEET ONTO GEOTEXTILE.



TYPICAL TOP VIEW FOR 'THICKEN' ROCK END PROTECTION

RIPRAP GRADATION TABLE

ROCK DIAMETER (INCHES)	APPROX % OF TOTAL SIZE SMALLER THAN GIVEN SIZE
	CLASS III (MnDOT 3601)
18	100
12	75
9	50
6	
3	10
2	

NOTE: RIPRAP REVETMENT FOLLOWS THE NATURAL MEANDER OF THE CHANNEL (CENTERLINE STATIONING FOLLOWS TOE OF EXISTING BANK).

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.

PRINT NAME: RYAN T. JONES

SIGNATURE: *Ryan T. Jones*

DATE: 9-20-16 LICENSE # 44622

SOUTH CENTRAL
TECHNICAL SERVICE AREA

1160 S. VICTORY DRIVE
MANKATO, MINN.
(507) 345-1051

CHARLES PUFFER
STREAM BANK TOE PROTECTION

DETAIL SHEET

SHEET 3 of 3