
Le Sueur County, MN

Tuesday, October 21, 2014

Board Meeting

Item 5

10:30 AM Kathy Brockway (5 minutes)

Request for Action - 1 CUP application

Staff Contact: Kathy Brockway - Environmental and P & Z Director

LE SUEUR COUNTY PLANNING AND ZONING COMMISSION
October 21, 2014

TO: LE SUEUR COUNTY BOARD OF COMMISSIONERS

FROM: LE SUEUR COUNTY PLANNING AND ZONING COMMISSION

SUBJECT: "REQUEST FOR ACTION"

The Planning Commission recommends your action on the following item:

ITEM #1: LE SUEUR COUNTY SOIL & WATER CONSERVATION DISTRICT, (APPLICANT); CRAIG & COLLEEN HANSON, ST PETER, MN (OWNER): Request that the County grant a Conditional Use Permit to allow grading, excavating and filling of approximately 359 cubic yards of material within the bluff for the construction of a ravine stabilization project in a Conservancy "C" District. Property is located in Lots 28 & 46, Re-Plat Auditor's Subdivision, Section 22, Kasota Township.

Based on the information submitted by the applicant, as required by the Le Sueur County Zoning Ordinance, the Planning Commission developed the following findings for this request:

Therefore, the Planning Commission recommends approval of the application as written.

ACTION: ITEM #1: _____

DATE: _____

COUNTY ADMINISTRATOR'S SIGNATURE: _____

FINDINGS OF FACT

WHEREAS, LE SUEUR COUNTY SOIL & WATER CONSERVATION DISTRICT, (APPLICANT); CRAIG & COLLEEN HANSON, ST PETER, MN (OWNER has applied for a Conditional Use Permit to allow grading, excavating and filling of approximately 359 cubic yards of material within the bluff for the construction of a ravine stabilization project in a Conservancy "C" District. Property is located in Lots 28 & 46, Re-Plat Auditor's Subdivision, Section 22, Kasota Township.

WHEREAS, the Le Sueur County Planning and Zoning Commission held on public hearing on **October 09, 2014,** in order to hear public testimony from the applicants as well as interested parties pertaining to and as provided by the Zoning Ordinance of Le Sueur County.

WHEREAS, the Le Sueur County Planning and Zoning Commission, acting as an advisory board to the Le Sueur County Board of Commissioners recommends approval of the application due to the following findings:

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 are being provided.**
4. **Adequate measures 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.**

WHEREAS, On October 21, 2014, at their regularly scheduled meeting, the Le Sueur County Board of Commissioners approved the Conditional Use Permit application as requested by the **LE SUEUR COUNTY SOIL & WATER CONSERVATION DISTRICT, CRAIG & COLLEEN HANSON.**

NOW, THEREFORE, IT IS HEREBY RESOLVED, the following Findings of Fact were adopted at the October 21, 2014, Le Sueur County Board meeting in order to protect the public health, safety and general welfare of the citizens of Le Sueur County.

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 are being provided.**
4. **Adequate measures 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.**

BE IT FURTHER RESOLVED, by the Le Sueur County Board of Commissioners that based on the above Findings of Fact, a Conditional Use Permit to allow grading, excavating and filling of approximately 359 cubic yards of material within the bluff for the construction of a ravine stabilization project in a Conservancy "C" District. Property is located in Lots 28 & 46, Re-Plat Auditor's Subdivision, Section 22, Kasota Township.

ATTEST:

Steve Rohlffing, Chairman, Le Sueur County Board of Commissioners.

Darrell Pettis, Le Sueur County Administrator

DATE: _____

LE SUEUR COUNTY PLANNING AND ZONING COMMISSION
88 SOUTH PARK AVE.
LE CENTER, MINNESOTA 56057
October 09, 2014

MEMBERS PRESENT: Don Reak, Jeanne Doheny, Don Rynda, Chuck Retka, Shirley Katzenmeyer, Doug Krenik, Al Gehrke, Pam Tietz

MEMBERS ABSENT: Betty Bruzek, Steve Olson

OTHERS PRESENT: Kathy Brockway, Commissioner Connolly

The meeting was called to order at 7:00 PM by Chairperson, Jeanne Doheny.

ITEM #1: LE SUEUR COUNTY SOIL & WATER CONSERVATION DISTRICT, (APPLICANT); CRAIG & COLLEEN HANSON, ST PETER, MN (OWNER): Request that the County grant a Conditional Use Permit to allow grading, excavating and filling of approximately 359 cubic yards of material within the bluff for the construction of a ravine stabilization project in a Conservancy "C" District. Property is located in Lots 28 & 46, Re-Plat Auditor's Subdivision, Section 22, Kasota Township.

Kathy Brockway presented power point presentation. Ryan Jones, SWCD Engineer and MikeSchultz, SWCD Representative were present for application.

TOWNSHIP: Notified through the application process. DNR: N/A LETTERS: N/A

PUBLIC COMMENT: none

Discussion was held regarding: construction of check dams, 8 check dams will be placed at various upstream locations within the channel, minimal tree removal, maintenance, time frame for project completion, similar projects constructed in Le Sueur County, erosion control.

Findings by majority roll call vote:

- 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 are being provided.*
- 4. Adequate measures 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.*

Motion was made by Chuck Retka to approve the application as written. Seconded by Don Reak. Motion approved. Motion carried.

Motion was made by Doug Krenik to approve the minutes from the September 11, 2014 meeting by Seconded by Al Gehrke. Motion approved. Motion carried.

Motion to adjourn meeting by Don Reak. Seconded by Chuck Retka. Motion approved. Motion carried.

Meeting Adjourned.

Respectfully submitted,
Shirley Katzenmeyer
By Kathy Brockway

*Tape of meeting is on file in the
Le Sueur County Environmental Services Office*

STAFF REPORT

GENERAL INFORMATION

APPLICANT: SOIL WATER CONSERVATION DISTRICT (SWCD)

OWNER: CRAIG & COLLEEN HANSON

911 ADDRESS: 33401 STATE HIGHWAY 99, ST. PETER MN 56082

PROJECT DESCRIPTION: Request that the County grant a Conditional Use Permit to allow grading, excavating and filling of approximately 359 cubic yards of material within the bluff for the construction of a ravine stabilization project.

ZONING ORDINANCE SECTIONS: Sections 7 & 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: The County should continue its preservation of significant bluff areas and river valleys through its use of a Conservancy Zone.

SITE INFORMATION

LOCATION: Property is located in Lots 28 & 46, Re-Plat Auditor's Subdivision, Section 22, Kasota Township.

ZONING: Conservancy "C" District

GENERAL SITE DESCRIPTION: Bluff

ACCESS: N/A

EXISTING LAND USE WITHIN ¼ MILE:

North: Wooded/Highway 99/Scattered Residential/Bluff
East: Wooded/Bluff

South: Wooded/Bluff
West: Wooded/Bluff

BACKGROUND INFORMATION

See narrative.

TOWNSHIP BOARD NOTIFICATION

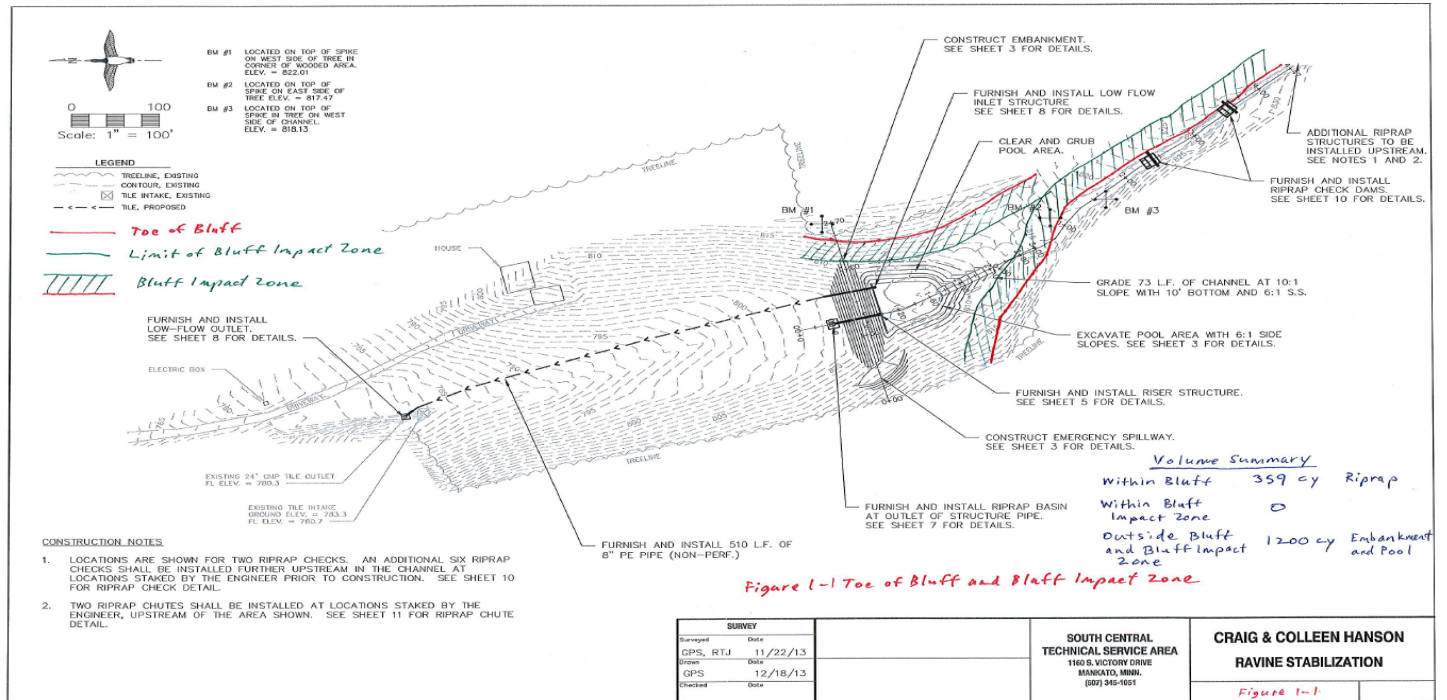
Applicant contacted Daren Barfknecht of the Kasota Township Board on August 19, 2014.

NATURAL RESOURCES INFORMATION

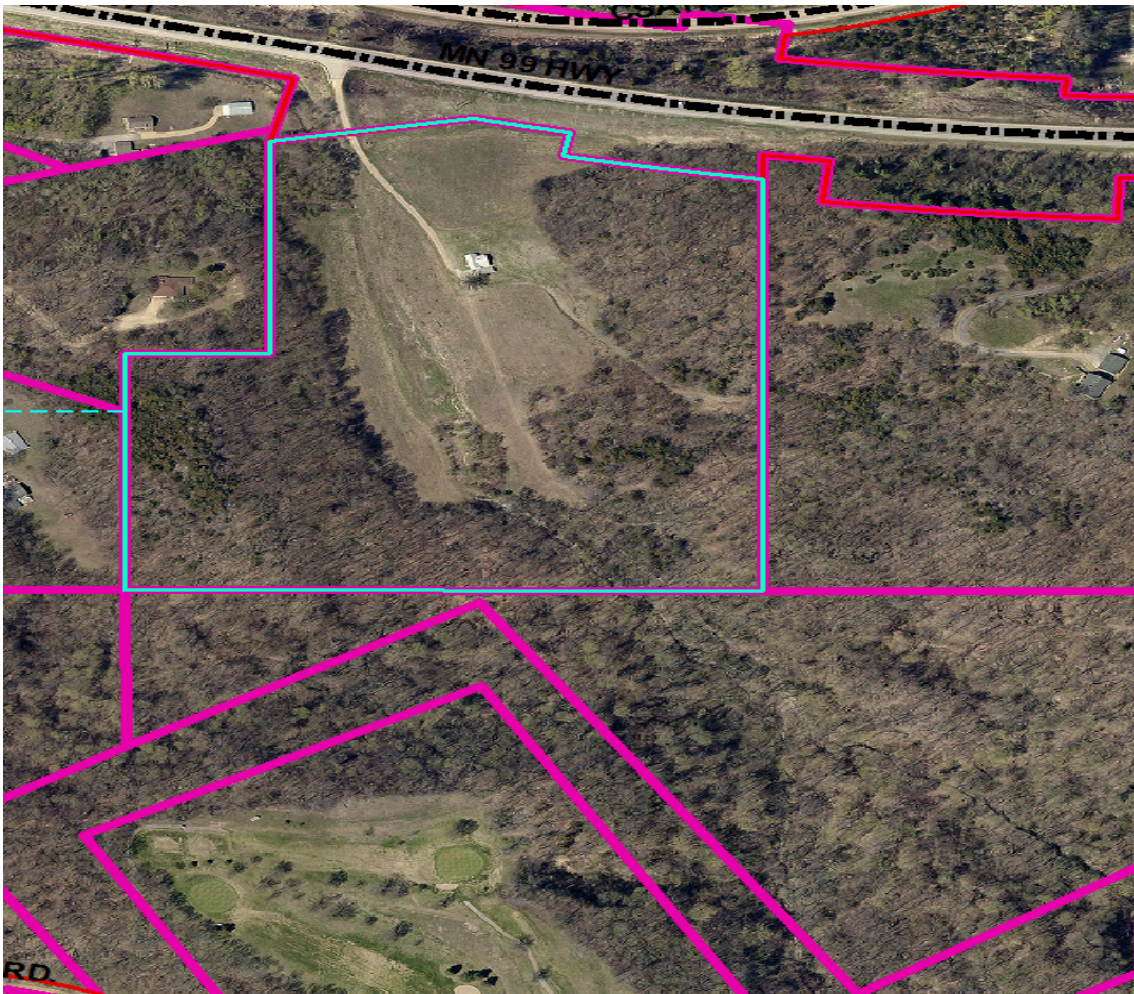
SHORELAND: The proposal is not located within the Shoreland District.

WETLANDS: According to the National Wetlands Inventory, No wetlands located in the quarter-quarter section where the project is proposed.

SITE PLAN



AERIAL PHOTO



ATTACHMENTS

Narrative, Ravine Stabilization Plans, Aerial Photos

PLANNING AND ZONING COMMISSION CONSIDERATIONS

The Planning Commission and staff shall consider possible adverse effects of the proposed conditional use and what additional requirements may be necessary to reduce such adverse effects. Its judgment shall be based upon the following factors to include, but not limited to:

1. Relationship to County plans.
2. The geographical area involved.
3. Whether such use will negatively affect surrounding properties in the area in which it is proposed.
4. The character of the surrounding area.
5. The demonstrated need for such use.
6. Whether the proposed use would cause odors, dust, flies, vermin, smoke, gas, noise, or vibration or would impose hazards to life or property in the neighborhood.
7. Whether such use would inherently lead to or encourage disturbing influences in the neighborhood.
8. Whether stored equipment or materials would be screened and whether there would be continuous operation within the visible range of surrounding residences.
9. Abatement of Environmental Hazards as regulated in this Ordinance
10. Other factors impacting the public health, safety and welfare.

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.
A D NA
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. **A D NA**
3. The adequate utilities, access roads, drainage and other facilities have been or are being provided. **A D NA**
4. The adequate measures have been or will be taken to provide sufficient off-street parking and loading space to serve the proposed use. **A D NA**
5. The 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. **A D NA**

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

Craig Hanson Ravine Stabilization Project is to construct a multiphase project. A sediment catch basin will be excavated with an embankment installed within the field boundary. Secondly phase of the project will install 8 riprap check dams upstream to stabilize cutting in the ravine channel. The project will use existing trails and minimal clearing and grubbing will occur. A contractor will do the work, heavy equipment will be used for the installation of the sediment catch basin, while the check dams will be installed with a small backhoe to minimize additional impacts. The project has been identified MN DOT to reduce soil from the ravine that settles along MN DOT highway Right of Way. MN DOT completes annual maintenance on the sediment in the ROW and this project will minimize future maintenance and road delays.

Michael Schultz | District Technician

ADDITIONAL INFORMATION

CRAIG AND COLLEEN HANSON – RAVINE STABILIZATION PROJECT

AUGUST 18, 2014

VIII – DESCRIPTION OF REQUEST

The proposed project on the Craig and Colleen Hanson property in Kasota Township is intended to stabilize an eroding ravine. The project involves the following:

- Installation of eight riprap checks within the eroded ravine channel. These riprap checks are designed to remove sediment from stormwater, and reduce the slope of the channel and thus the velocity of the runoff.
- Installation of two riprap chutes within the eroded ravine channel. The riprap chutes are designed to control erosion in two locations where there is significant grade change in the channel. Using riprap to control the grade change helps to keep the channel from eating back farther up into the ravine.
- Construction of a sediment basin at the end of the ravine channel. The basin will provide additional treatment of stormwater discharging from the ravine channel. The basin is equipped with a low-flow outlet (8-inch pipe) as well as a 30-inch diameter metal intake structure. Outlets from the basin are protected with riprap.
- Total disturbance is estimated at less than one acre.

Construction operations are summarized below:

- Access will be via the existing driveway off of T.H. 99.
- Construction equipment will likely include an excavator or mini-excavator, tandem dump trucks, compactor, front-end loader, and a dozer.
- Locations for riprap checks will be determined in the field by the engineer and the contractor, with input from the owner, based on ease of access for equipment.
- A minor amount of clearing will be required to access some of the riprap check locations. Removal of dead trees will be necessary.
- Scrub trees and shrubs will be removed from the site of the proposed sediment basin pool prior to construction.
- Topsoil will be salvaged and replaced on top of the proposed sediment basin embankment.
- It is anticipated that clay fill material for the sediment basin will need to be brought from off-site.
- Disturbed areas will be seeded and mulched after construction is complete.

X – RESTORATION

The plans call for 6-inches of topsoil on the embankment and disturbed areas.

The plans include seeding and mulching of disturbed areas.

CONSTRUCTION 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.

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 HELD ONE WEEK PRIOR TO START OF CONSTRUCTION. ANY WORK DONE BEFORE CONFERENCE WILL JEOPARDIZE PROJECT APPROVAL AND FUNDING.

MINNESOTA SPECIFICATIONS FOR CONSERVATION PRACTICES APPLY FOR ALL MATERIALS AND CONSTRUCTION WORK. THESE SPECIFICATIONS ARE PART OF THIS PLAN.

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

RESTORATION NOTES:

TOP-DRESS THE PROPOSED EMBANKMENT WITH A MINIMUM OF 6 INCHES OF TOPSOIL.

AREAS TO BE SEEDED SHALL BE FERTILIZED WITH 80 LBS/ACRE EACH OF NITROGEN (N), PHOSPHORUS (P2O5) AND POTASH (K2O). FERTILIZER SHALL BE SPREAD AND INCORPORATED PRIOR TO SEEDING.

THE EMBANKMENT AND VEGETATED AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED WITH THE SEED MIX LISTED BELOW, APPLIED AT A TOTAL RATE OF 23 LBS/ACRE. A NURSE CROP OF OATS (SPRING PLANTINGS) OR WINTER WHEAT (SUMMER/FALL PLANTINGS) SHALL ALSO BE SEEDED AT A RATE OF 1 BUSHEL/ACRE.

SEEDING MIXTURE	LBS/ACRE	SEEDS/FT ² @ 1 LB./ACRE
SMOOTH BROME	20	3.1
PERENNIAL RYEGRASS	3	6.3
NURSE CROP	SEE NOTE ABOVE	

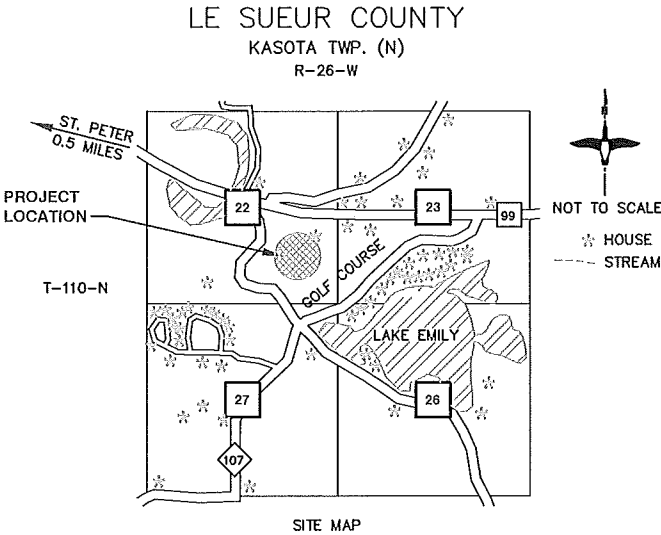
ALL DISTURBED AREAS SHALL BE PROTECTED WITH STRAW MULCH APPLIED AT A RATE OF 1.5 TO 2 TONS PER ACRE, DISK-ANCHORED.

SEE THE SPECIFICATIONS FOR ADDITIONAL SEEDING INFORMATION.

ESTIMATED QUANTITIES					
ITEM	ITEM DESCRIPTION	QUAN.	UNIT	CONST. SPEC.	MATERIAL SPEC.
1	MOBILIZATION	1	L.S.		
2	CLEARING AND GRUBBING (see construction drawing sheet 2 for details.)	4	HRS	MN-02	
3	SALVAGING & SPREADING TOPSOIL, Includes: (approx. 240 c.y. for embankment)	1	L.S.	MN-26	
4	CLAY BORROW, Includes: (class 'C' compaction specification)	600	C.Y. (CV)	MN-21 MN-23	
5	EXCAVATION - GRADING SPILLWAY	1	EACH	MN-21	
6	FURNISH & INSTALL 30" DIA. CMP RISER STRUCTURE. (see sheet 5 for details)	1	EACH	MN-51	MN-551
7	FURNISH & INSTALL ANTI-VORTEX BAFFLE. (see sheet 5 for details)	1	EACH	MN-51	MN-551
8	FURNISH & INSTALL 21" DIA. CORRUGATED METAL PIPE Includes: (21" dia. connecting bands) (see sheet 4 for details)	50	L.F.	MN-51	MN-551
9	FURNISH & INSTALL ANTI-SEEP DIAPHRAGM. (see sheet 6 for details)	1	EACH	MN-51	MN-551
10	INSTALL RIPRAP BASIN (see sheet 7 for details)	1	L.S.	SEE SHEET 7	SEE SHEET 7
11	FURNISH & INSTALL LOW FLOW INLET, Includes: (riser structure and dual-wall pipe) (see sheet 8 for details)	1	L.S.	SEE SHEET 8	SEE SHEET 8
12	FURNISH & INSTALL FENCE TRASH SKIMMER. (see sheet 9 for details)	1	L.S.	SEE SHEET 9	SEE SHEET 9
13	FURNISH & INSTALL 8" PE NON-PERF. PIPE (see sheet 2 for details)	510	L.F.	MN-44	MN-548
14	FURNISH & INSTALL LOW FLOW PIPE OUTLET, Includes: (corrugated metal pipe, concrete collar, install geotextile, install riprap) (see sheet 2 for details)	1	L.S.	SEE SHEET 8	SEE SHEET 8
15	EXCAVATION - BASIN AREA (see sheet 2 for details)	600	C.Y.	MN-21	
16	FURNISH RIPRAP (MNDOT CLASS I)	20	TONS	MN-61	MN-523
17	FURNISH RIPRAP (MNDOT CLASS III)	483	TONS	MN-61	MN-523
18	FURNISH AND INSTALL GEOTEXTILE FABRIC (NONWOVEN-CLASS I) (see sheets 10 and 11 for details)	769	S.Y.	MN-95	MN-592
19	INSTALL RIPRAP CHUTE (see sheet 11 for details)	2	EACH	MN-61	MN-523
20	INSTALL RIPRAP CHECK DAM (see sheet 10 for details)	8	EACH	MN-61	MN-523
21	FERTILIZE AND SEED	1.0	ACRE	MN-06	
22	MULCH	1.0	ACRE	MN-06	

NOTE: (CV) = COMPACTED VOLUME

CRAIG & COLLEEN HANSON
RAVINE STABILIZATION
KASOTA TOWNSHIP (N)
LE SUEUR COUNTY



SHEET INDEX

SHEET NO.	TITLE
1	COVER SHEET
2	PLAN VIEW
3	EMBANKMENT PROFILE
4	CMP PIPE PROFILE
5	PREFABRICATED CMP RISER
6	ANTI-SEEP DIAPHRAGM DETAILS
7	RIPRAP BASIN DETAILS
8	LOW FLOW INLET/OUTLET DETAILS
9	FENCE TRASH SKIMMER DETAILS
10	RIPRAP CHECK DAM DETAILS
11	RIPRAP CHUTE DETAILS

ENGINEERING JOB CLASS IV
WATERSHED AREA = 88.1 AC.

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: 7/31/14 LICENSE # 44622

SURVEY

Surveyed	Date
GPS, RTJ	11/22/13
Drawn	Date
GPS	12/18/13
Checked	Date

DESIGN

Designed	Date
RTJ	2/14
Drawn	Date
GPS	2/20/14
Checked	Date
RTJ	6/13/14

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

CRAIG & COLLEEN HANSON
RAVINE STABILIZATION

COVER SHEET

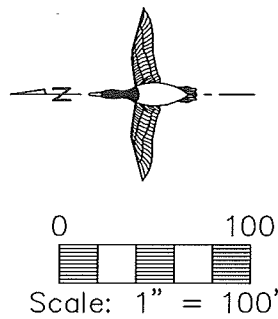
Sec. 22 T. 110 N. R. 26 W.

County: LESUEUR

Township: KASOTA NORTH

Near: ST. PETER

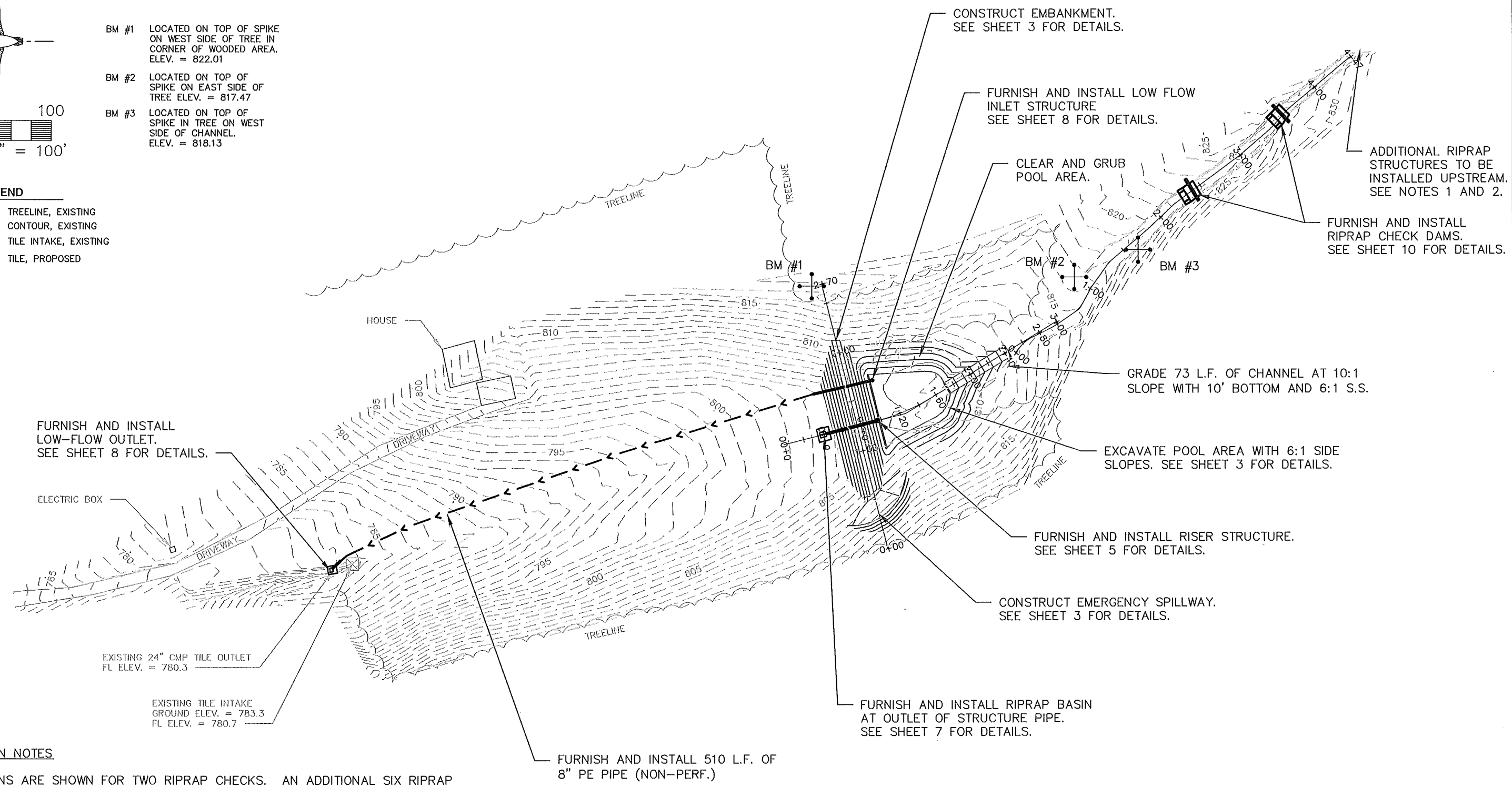
SHEET 1 of 11



- BM #1 LOCATED ON TOP OF SPIKE ON WEST SIDE OF TREE IN CORNER OF WOODED AREA. ELEV. = 822.01
- BM #2 LOCATED ON TOP OF SPIKE ON EAST SIDE OF TREE ELEV. = 817.47
- BM #3 LOCATED ON TOP OF SPIKE IN TREE ON WEST SIDE OF CHANNEL. ELEV. = 818.13

LEGEND

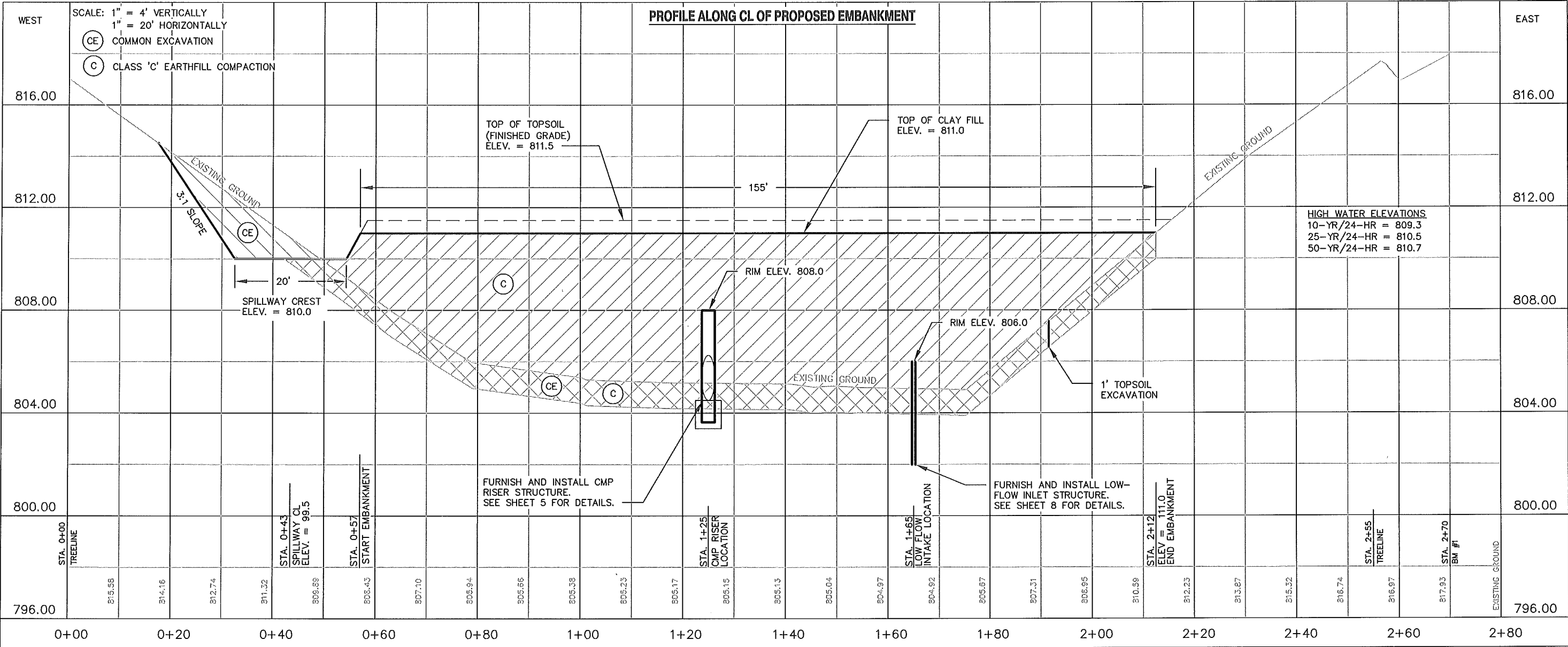
- TREELINE, EXISTING
- CONTOUR, EXISTING
- ⊠ TILE INTAKE, EXISTING
- - - - - TILE, PROPOSED



CONSTRUCTION NOTES

1. LOCATIONS ARE SHOWN FOR TWO RIPRAP CHECKS. AN ADDITIONAL SIX RIPRAP CHECKS SHALL BE INSTALLED FURTHER UPSTREAM IN THE CHANNEL AT LOCATIONS STAKED BY THE ENGINEER PRIOR TO CONSTRUCTION. SEE SHEET 10 FOR RIPRAP CHECK DETAIL.
2. TWO RIPRAP CHUTES SHALL BE INSTALLED AT LOCATIONS STAKED BY THE ENGINEER, UPSTREAM OF THE AREA SHOWN. SEE SHEET 11 FOR RIPRAP CHUTE DETAIL.

SURVEY		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.	SOUTH CENTRAL TECHNICAL SERVICE AREA 1160 S. VICTORY DRIVE MANKATO, MINN. (507) 345-1051	CRAIG & COLLEEN HANSON RAVINE STABILIZATION	
Surveyed	Date				
GPS, RTJ	11/22/13				
Drawn	Date				
GPS	12/18/13	PRINT NAME: RYAN T. JONES		PLAN VIEW SHEET	
Checked	Date	SIGNATURE: <i>Ryan T. Jones</i>			
		DATE: 7/31/14 LICENSE # 44622			
				SHEET 2 of 11	



CONSTRUCTION NOTES:

(CE) COMMON EXCAVATION

(C) CLASS 'C' EARTHFILL COMPACTION FOR DIVERSION
THE MAXIMUM THICKNESS OF A LAYER OF FILL BEFORE COMPACTION SHALL BE:
- 9 INCHES IF COMPACTED WITH 3 PASSES OF A 200 psi TAMPING ROLLER,
OR
- 6 INCHES IF COMPACTED WITH A RUBBER TIRE HAULING AND SPREADING EQUIPMENT "LOADED"

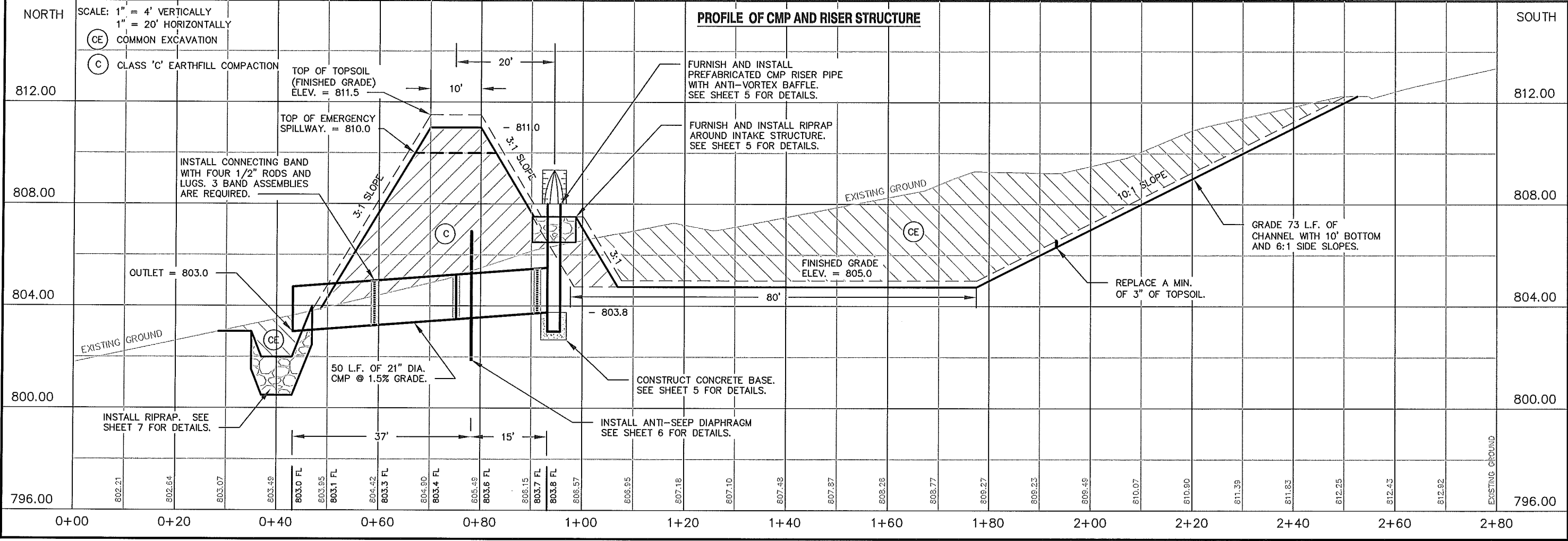
EVERY POINT ON THE SURFACE IS TRAVERSED BY AT LEAST ONE TREAD TRACK.

ALL EQUIPMENT SHALL TRAVEL IN A DIRECTION PARALLEL TO THE MAIN AXIS OF THE EARTHFILL.

CLAY BORROW MATERIAL

IT IS ANTICIPATED THAT THE SOIL MATERIALS ON-SITE ARE NOT SUITABLE FOR CONSTRUCTING THE EMBANKMENT. IN THIS CASE, SUITABLE CLAY BORROW SHALL BE HAULED IN FROM OFF-SITE. CLAY MATERIAL SHALL BE APPROVED BY THE ENGINEER.

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: <i>Ryan T. Jones</i> DATE: 7/31/14 LICENSE # 44622	SOUTH CENTRAL TECHNICAL SERVICE AREA 1160 S. VICTORY DRIVE MANKATO, MINN. (507) 345-1051	CRAIG & COLLEEN HANSON	
		RAVINE STABILIZATION	
		EMBANKMENT PROFILE	SHEET 3 of 11



CONSTRUCTION NOTES:

- EARTHFILL PLACED WITHIN 2 FT OF THE PIPE STRUCTURE SHALL BE PLACED IN 4 INCH LAYERS, AND EACH LAYER COMPACTED BY A MANUALLY DIRECTED POWER TAMPER.
- CORRUGATED METAL PIPE SECTIONS SHALL BE JOINED TOGETHER USING ROD & LOG STYLE CONNECTING BANDS, WITH KNIFE GRADE ASPHALT SEALER PLACED BETWEEN THE CONNECTING BAND AND THE PIPE.

HORIZONTAL CORR. METAL PIPE ITEMS				
SIZE	UNIT	ITEM DESCRIPTION	UNIT	QTY.
21"	DIA.	HELICAL CORR. GALV. METAL PIPE W/ GASKETED LOCK SEAM (16 GAGE)	LN. FT.	50
		21" DIA. GALV. METAL ROD & LUG CONNECTING BAND (16 GAGE)	EACH	3
		RODS (FOR 21" DIA. PIPE)	EACH	12
		LUGS (FOR 21" DIA. PIPE)	EACH	12
		NUTS (FOR 21" DIA. PIPE)	EACH	24
		KNIFE GRADE ASPHALT SEALER	GAL	3

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*

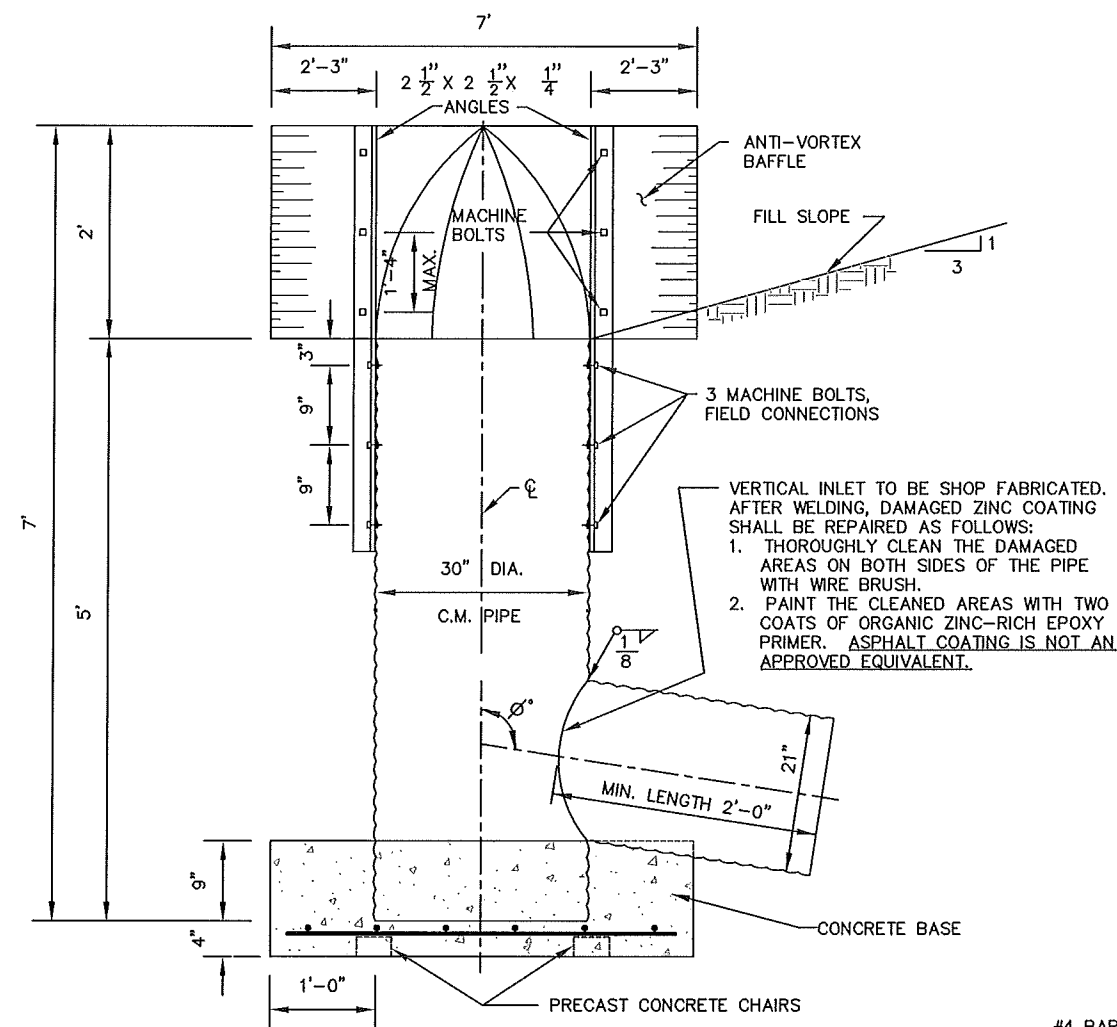
DATE: 7/31/14 LICENSE # 44622

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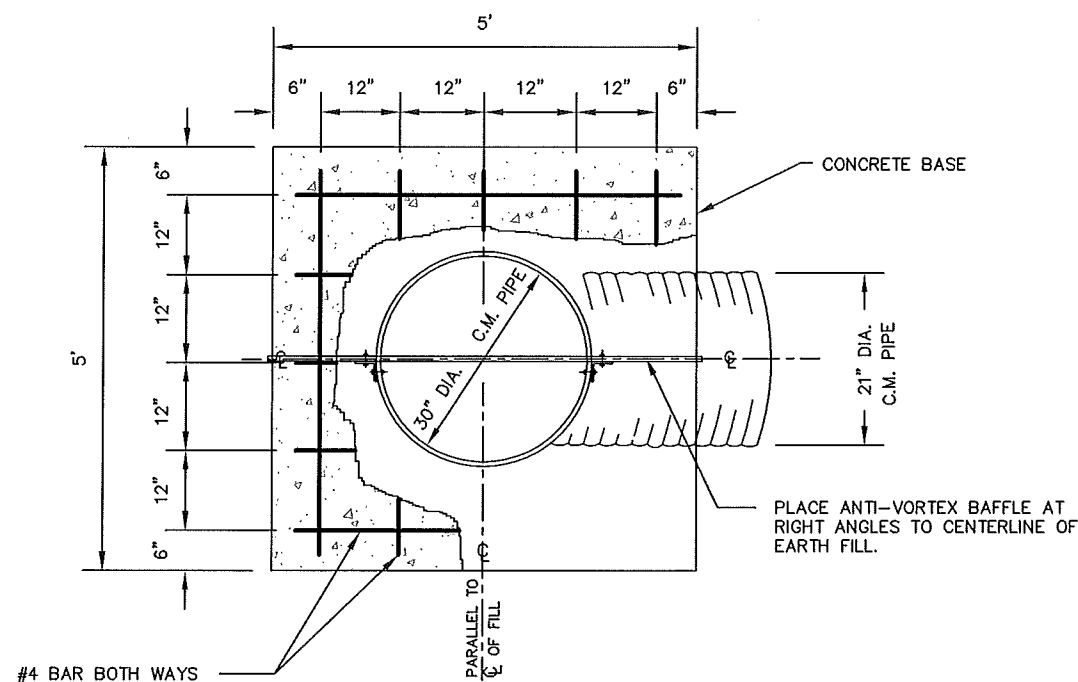
CRAIG & COLLEEN HANSON
RAVINE STABILIZATION

CMP PIPE PROFILE

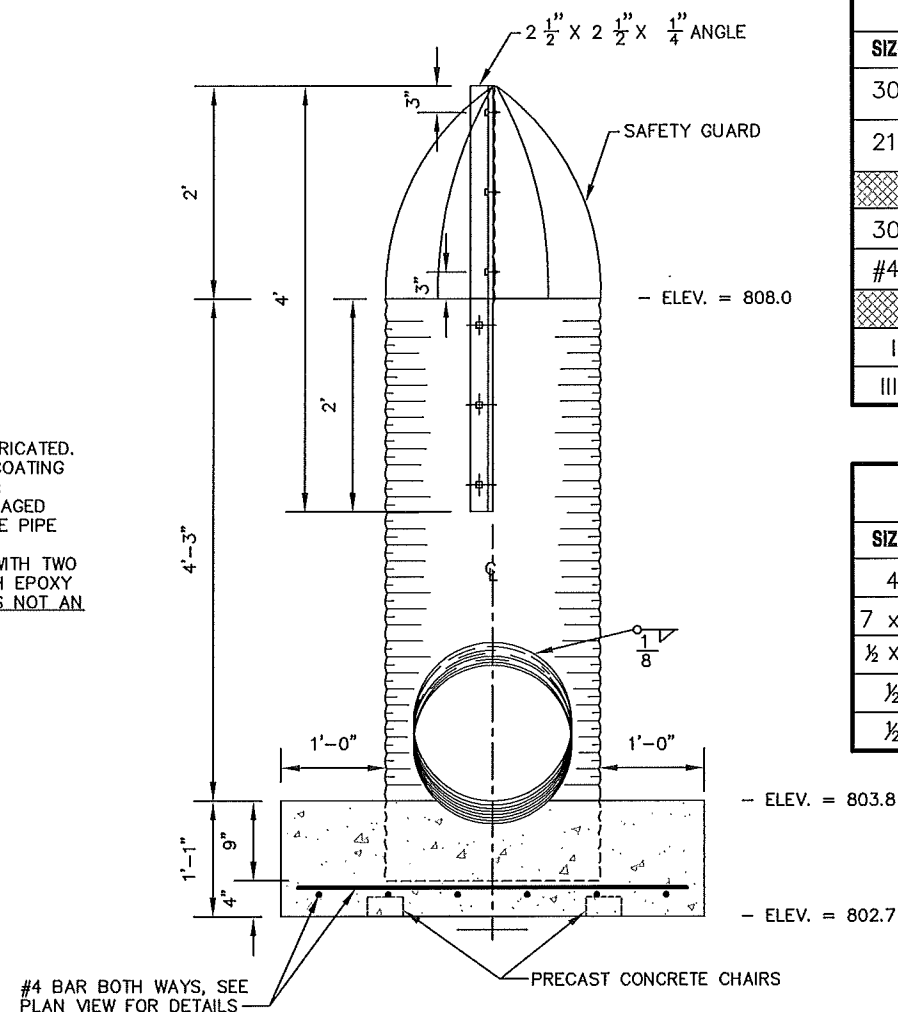
SHEET 4 of 11



CMP RISER PROFILE VIEW
NOT TO SCALE



CMP RISER PLAN VIEW
NOT TO SCALE



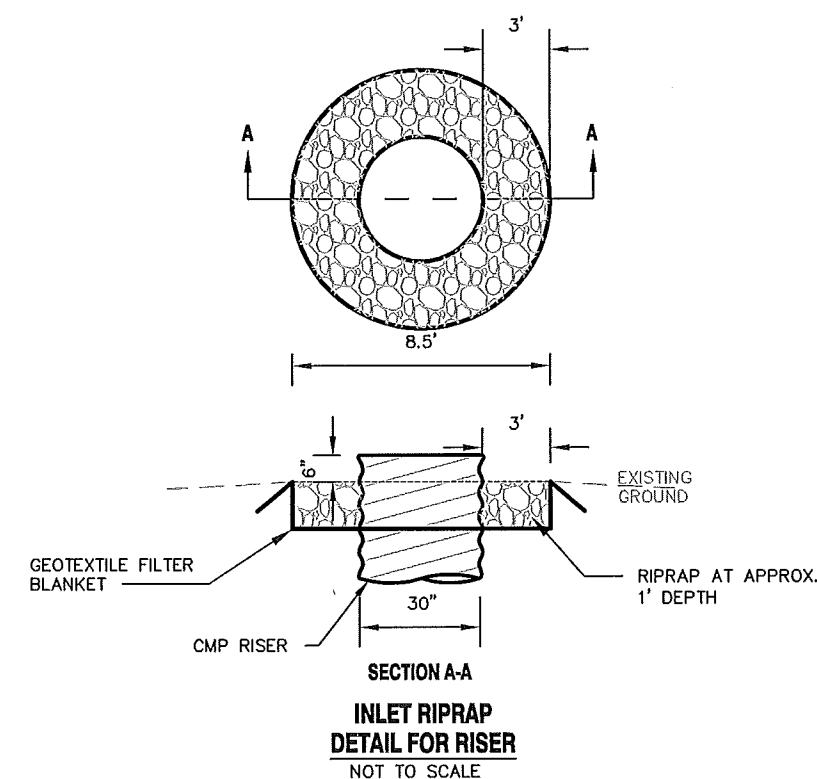
CMP RISER SIDE VIEW
NOT TO SCALE

CONSTRUCTION NOTES:

1. CORRUGATED METAL PIPE SHALL BE ANNULAR CORRUGATIONS WITH CLOSE RIVETED CAULKED SEAM CONSTRUCTION.
2. ALL HOLES FOR BOLTS SHALL BE 9/16" DIA.
3. PRECAST CONCRETE CHAIRS SHALL BE USED TO SUPPORT THE REINFORCING STEEL BARS. PRECAST CONCRETE CHAIRS SHALL BE MANUFACTURED OF 3000 PSI CONCRETE AND SHALL BE TIE WIRES SECURELY ANCHORED IN THE CHAIR OF A V-SHAPED GROOVE AT LEAST 3/4 INCH IN DEPTH MOLDED INTO THE UPPER SURFACE TO RECEIVE THE STEEL BAR AT THE POINT OF SUPPORT. PRECAST CONCRETE CHAIRS SHALL BE MOIST AT THE TIME CONCRETE IS PLACED.
4. LENGTH OF REINFORCING STEEL BARS IS 4'-6".
5. RIPRAP SHALL MEET THE REQUIREMENTS OF MNDOT SPEC. 3601.

CMP RISER ITEMS					
SIZE	UNIT	ITEM DESCRIPTION	QTY.	UNIT	
30"	DIA.	ANNULAR CMP-CLOSED RIVETED CAULK SEAM GALV. METAL PIPE	5	LN. FT.	.064 (16 GAGE)
21"	DIA.	ANNULAR CMP-CLOSED RIVETED CAULK SEAM GALV. METAL STUB	2	LN. FT.	.064 (16 GAGE)
		Ø° DEGREES-ANGLE	90.9	DEGREES	
30"	DIA.	SAFETY GUARD - 3/4" ROD GALV.	1	EACH	
#4		REINFORCING STEEL BARS, (45 L.F.)	30	LBS	
		VOLUME OF CONCRETE	1.1	C.Y.	
I	TYPE	NON-WOVEN GEOTEXTILE	16	SQ.YDS.	
III	CLASS	RIPRAP (2 C.Y.)	2.8	TONS	

CMP ANTI-VORTEX PLATE ITEMS					
SIZE	UNIT	ITEM DESCRIPTION	QTY.	UNIT	
4	L.F.	2 1/2" X 2 1/2" X 1/4" ANGLES, GALV.	2	EACH	
7 x 2	FT.	CORRUGATED METAL SHEETS, GALV.	1	EACH	.064 (16 GAGE)
1/2 x 1 1/4	INCH	STEEL CADMIUM PLATED MACHINE BOLTS	12	EACH	
1/2	INCH	STEEL SPLIT LOCK WASHERS	12	EACH	
1/2	INCH	STEEL CADMIUM PLATED NUTS	12	EACH	



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SIGNATURE: *Ryan T. Jones*

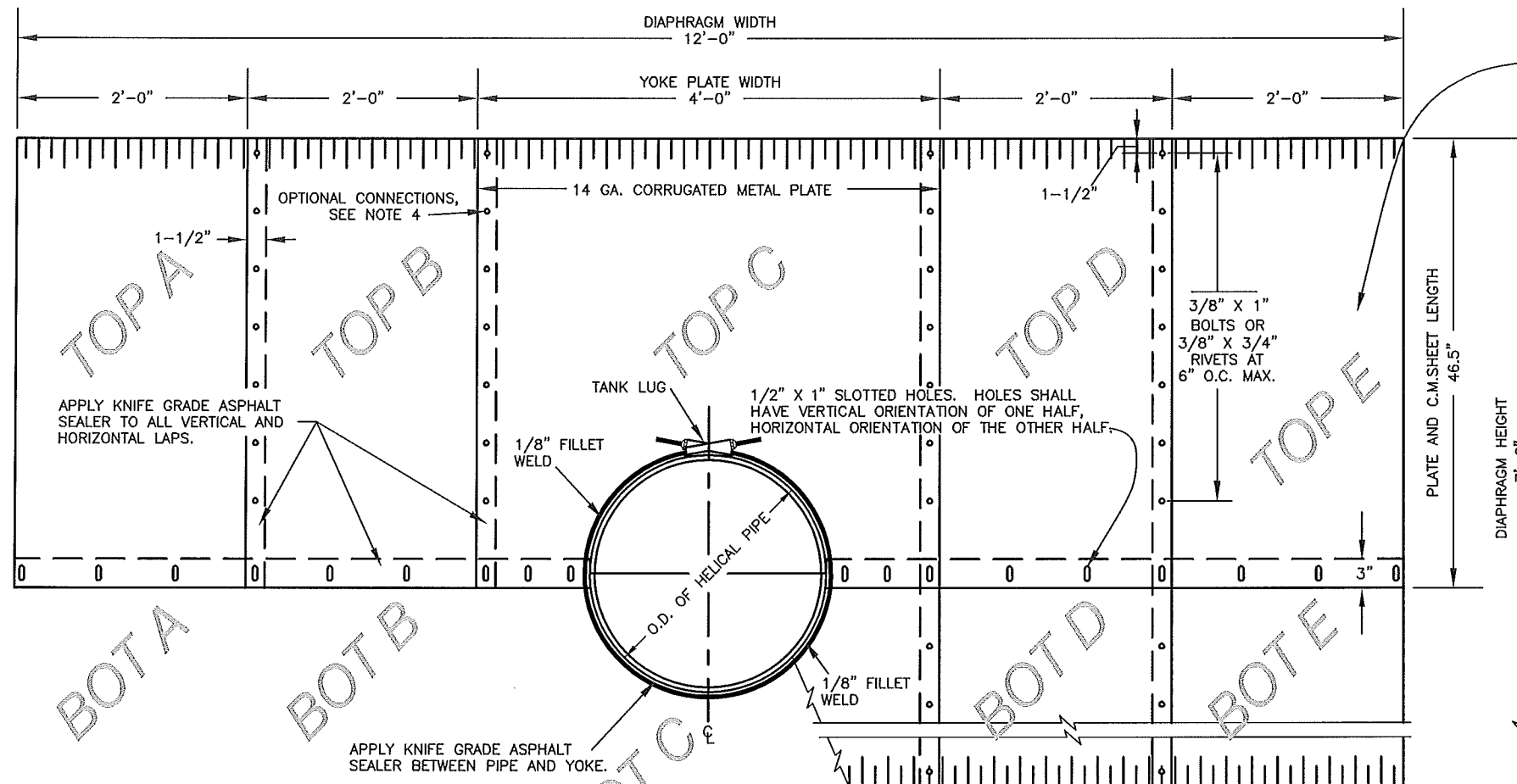
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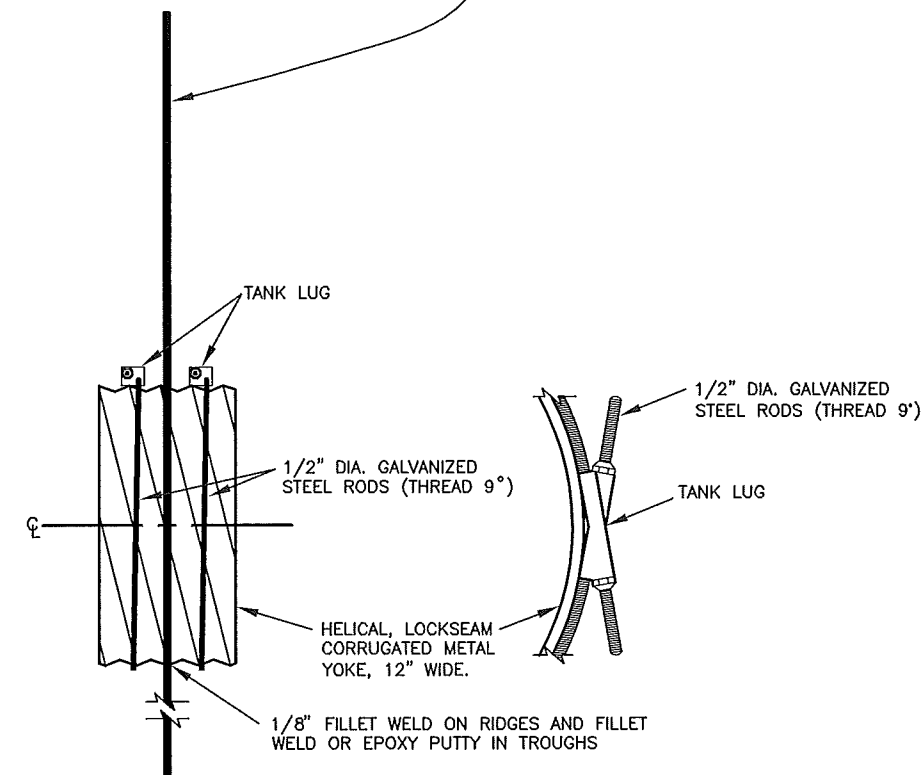
CRAIG & COLLEEN HANSON
RAVINE STABILIZATION

PREFABRICATED CMP RISER

SHEET 5 of 11



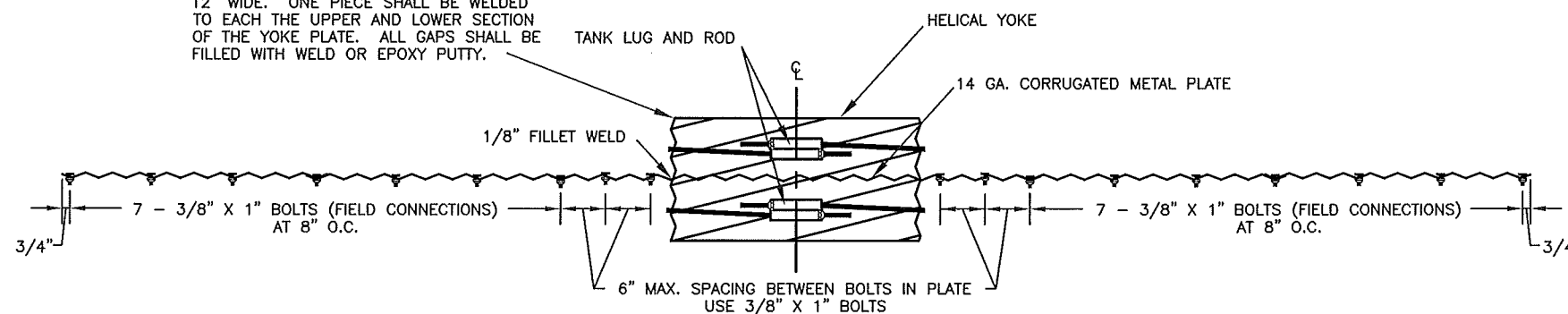
FRONT VIEW
NOT TO SCALE



SIDE VIEW
NOT TO SCALE

DETAIL OF TANK LUG
NOT TO SCALE

YOKE SHALL BE FABRICATED FROM 2 PIECES OF HELICAL LOCKSEAM CORRUGATED PIPE, 12" WIDE. ONE PIECE SHALL BE WELDED TO EACH THE UPPER AND LOWER SECTION OF THE YOKE PLATE. ALL GAPS SHALL BE FILLED WITH WELD OR EPOXY PUTTY.



PLAN VIEW
NOT TO SCALE

TABLE OF DIMENSIONS FOR ONE DIAPHRAGM

PIPE DIAMETER (IN.)		21
DIAPHRAGM SIZE	HEIGHT (FT.-IN.)	7'-6"
	WIDTH (FT.-IN.)	12'
YOKE PLATE	NO. REQUIRED	2
	LENGTH (IN.)	46.5"
	WIDTH (IN.)	48"
CORRUGATED METAL SHEETS	NO. REQUIRED	8
	LENGTH (IN.)	46.5"
	GAGE	16

BILL OF MATERIALS

ITEM DESCRIPTION	UNIT	QTY.
12' X 7'-6" ANTI-SEEP DIAPHRAGM FOR HELICAL CORR. METAL PIPE	EACH	1
RODS	EACH	2
LUGS	EACH	2
NUTS	EACH	4
KNIFE GRADE ASPHALT SEALER	GAL	1

CONSTRUCTION NOTES:

- SEE PROFILE VIEW FOR:
A: LOCATIONS
- ALL NUTS, BOLTS, RIVETS, AND WASHERS SHALL BE GALVANIZED, CADMIUM PLATED, OR STAINLESS STEEL.
- YOKE WELDS AND THE ASSEMBLY OF CORRUGATED SHEETS (WHEN REQUIRED) SHALL BE SHOP FABRICATED.
- CONNECTION OF CORRUGATED SHEETS WITH YOKE PLATE MAY BE EITHER SHOP FABRICATED USING 3/8" X 3/4" RIVETS ON 6" CENTERS OR FIELD BOLTED USING 3/8" X 1" BOLTS ON 6" CENTERS.
- AFTER WELDING, DAMAGED ZINC COATING SHALL BE REPAIRED AS FOLLOWS:
A: THOROUGHLY CLEAN THE DAMAGED AREAS ON BOTH SIDES OF THE DAMAGED METAL WITH A WIRE BRUSH.
B: PAINT THE CLEANED AREAS WITH TWO COATS OF ZINC OXIDE-ZINC DUST PAINT.
- LABEL EACH METAL PLATE FOR PROPER FIELD ASSEMBLY.
- APPLY KNIFE GRADE ASPHALT SEALER BETWEEN PIPE AND YOKE AND BETWEEN PLATES.

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PRINT NAME: RYAN T. JONES

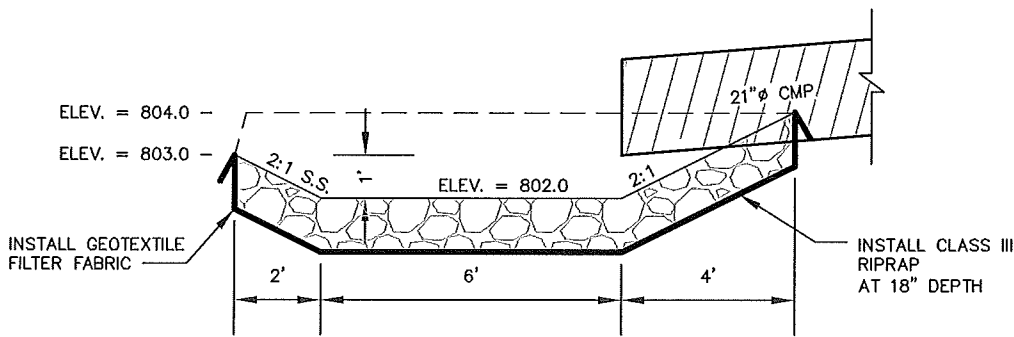
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RAVINE STABILIZATION

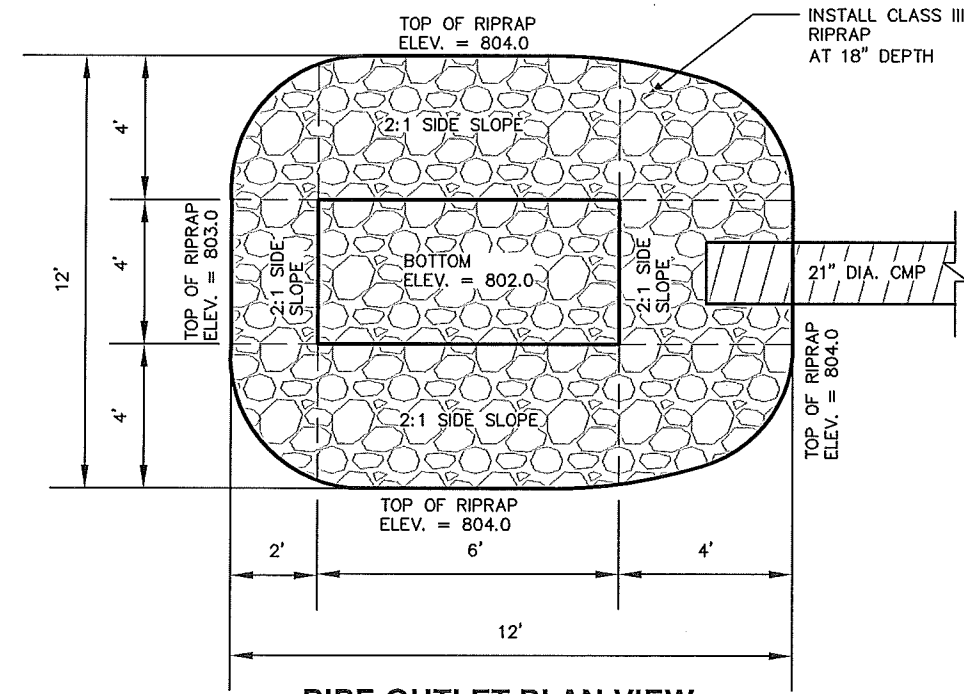
ANTI-SEEP DIAPHRAGM DETAILS SHEET 6 of 11

21" DIA. CMP OUTLET



PIPE OUTLET SIDE VIEW

NOT TO SCALE



PIPE OUTLET PLAN VIEW

NOT TO SCALE

RIPRAP QUANTITIES			
CLASS	ITEM DESCRIPTION	UNIT	QTY.
III	RIPRAP (8 c.y.)	TONS	11
I	NON-WOVEN GEOTEXTILE, (8 oz.)	SQ.YDS.	25

RIPRAP GRADATION TABLE		
RIPRAP DIAMETER (INCHES)	APPROX. % OF TOTAL SIZE SMALLER THAN GIVEN SIZE	
	CLASS II	CLASS III
18		100
12	100	75
9	75	50
6	50	
3		10
2	10	

CONSTRUCTION NOTES:

MATERIALS:

1. GEOTEXTILE FABRIC SHALL BE NON-WOVEN, TYPE I MEETING THE REQUIREMENTS OF MINNESOTA NRCS MATERIAL SPECIFICATION 592.
2. RIPRAP SHALL BE CLASS III PER THE REQUIREMENTS OF MNDOT STANDARD SPECIFICATION 3601.
3. RIPRAP SHALL BE FREE FROM DIRT, CLAY, SAND, ROCK FINES AND OTHER MATERIAL NOT MEETING THE REQUIRED GRADATION LIMITS.

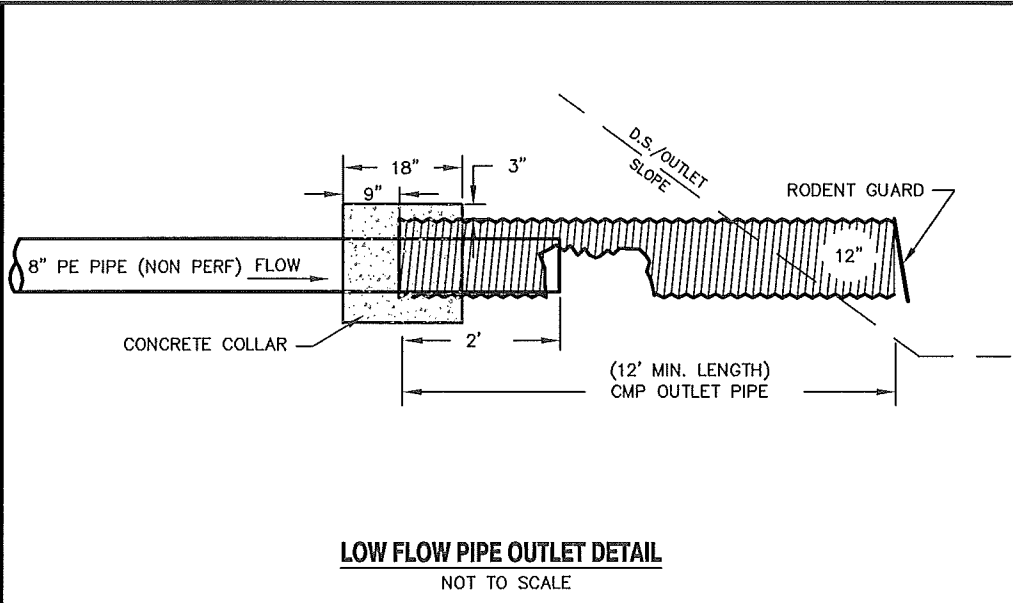
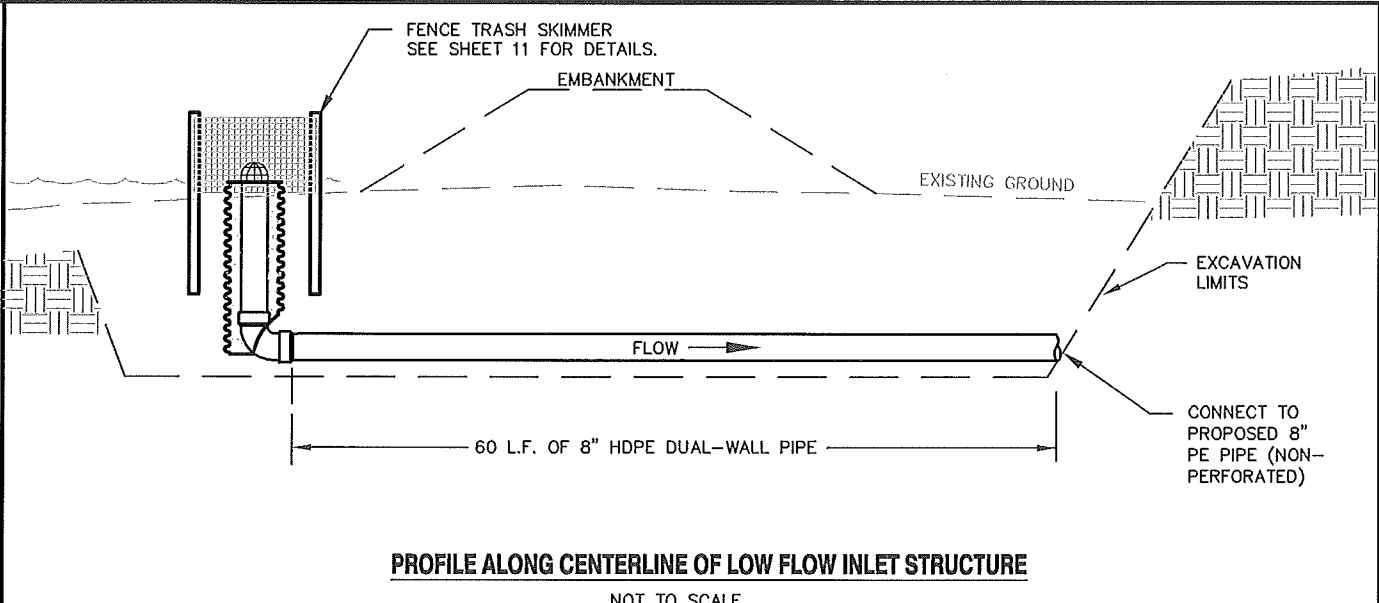
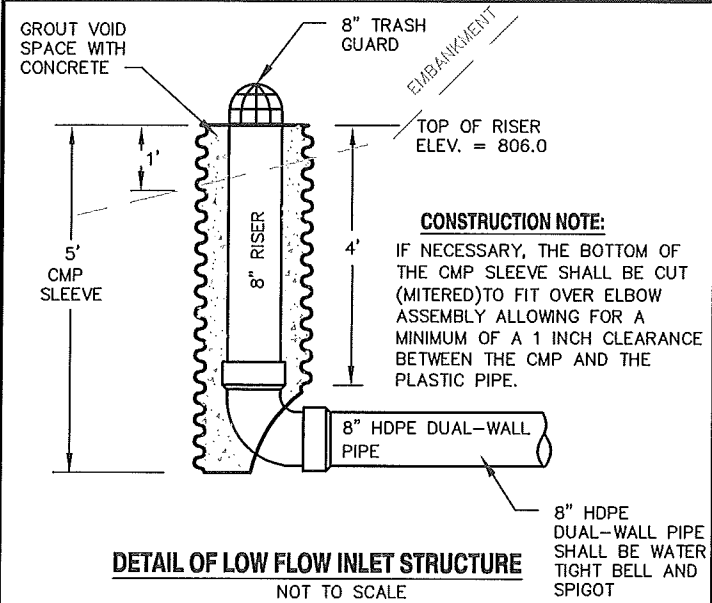
FOUNDATION PREPARATION AND GEOTEXTILE INSTALLATION:

1. THE SURFACE ON WHICH THE GEOTEXTILE IS TO BE PLACED SHALL BE GRADED TO THE NEAT LINES AND GRADES AS SHOWN ON THE DRAWINGS. IT SHALL BE REASONABLY SMOOTH AND FREE OF LOOSE ROCK AND CLODS, HOLES, DEPRESSIONS, PROJECTIONS, MUDDY CONDITIONS, AND STANDING OR FLOWING WATER.
2. *** GEOTEXTILE FABRIC SHALL NOT BE PLACED UNTIL THE FOUNDATION PREPARATION IS COMPLETED AND THE SUBGRADE SURFACE HAS BEEN INSPECTED AND APPROVED. ***
3. THE GEOTEXTILE FABRIC SHALL BE LOOSELY LAID, WITHOUT STRETCHING, TO CONFORM TO UNDERLYING SURFACE IRREGULARITIES. THE GEOTEXTILE FABRIC MAY BE FOLDED AND OVERLAPPED TO ALLOW PROPER PLACEMENT.
4. SECTIONS OF GEOTEXTILE SHALL BE JOINED BY OVERLAPPING A MINIMUM OF 18 INCHES. SECURING PINS MAY BE USED BUT ARE NOT REQUIRED.

RIPRAP INSTALLATION:

1. RIPRAP SHALL NOT BE PUSHED ONTO OR ROLLED OVER THE GEOTEXTILE FABRIC.
2. RIPRAP SHALL NOT BE DROPPED MORE THAN 3 FEET ONTO THE GEOTEXTILE FABRIC.
3. RIPRAP SHALL BE PLACED IN A MANNER THAT ENSURES THE MATERIAL IS REASONABLY HOMOGENEOUS, WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT WITH EACH OTHER, AND THE SMALLER ROCKS AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. SOME HAND PLACEMENT MAY BE REQUIRED TO PROVIDE A NEAT AND UNIFORM SURFACE.
4. HAND PLACEMENT OF RIPRAP MAY BE NECESSARY IN CERTAIN AREAS TO AVOID DAMAGE TO PROPOSED OR EXISTING PIPES.

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		<p>RIPRAP BASIN DETAILS</p>
		<p>SHEET 7 of 11</p>



CONSTRUCTION SPECIFICATIONS (LOW FLOW INLET)

DESCRIPTION

The work shall include all labor, materials, and equipment required to assemble the pipe sections, excavate and prepare the bed for the pipe, and place and compact the backfill to the lines and grades shown on the drawings.

MATERIALS (GENERAL)

All materials must be handled and stored in a careful and workmanlike manner. All pipes and fittings must be of the length, size and type specified. All materials with physical imperfections or that are damaged, lost, broken or deemed unsuitable due to the Contractor's method of installation, handling, or negligence must be replaced at the Contractor's expense.

MATERIALS ("DUAL-WALL" HDPE PIPE)

Unless otherwise specified, the High Density Polyethylene Pipe (HDPE) shall have a smooth interior and annular exterior corrugations. Manning's "n" value for the pipe shall not exceed 0.012.

For pipe sizes 6- to 10-inch, the pipe shall meet the requirements of AASHTO M252 Type S. Pipe and fitting material shall be high-density polyethylene meeting the requirements of ASTM D3350 minimum Cell Classification 324420C. Fabricated fittings shall be welded on the interior and exterior at all junctions. Welds shall be done as recommended by the manufacturer. When required, coupling bands of the appropriate size and type for each section of pipe for sizes 10 inch and smaller. Gasketed couplers shall be provided for each pipe junction and fitting and must meet the requirements of ASTM F477. The gaskets shall be those recommended by the manufacturer for use with the coupler, fittings, and pipe to provide watertightness to the joint.

MATERIALS - SINGLE-WALL POLYETHYLENE (PE) PIPE

Corrugated polyethylene (PE) pipe and fittings, as appropriate for the type and size specified, shall meet the requirements of ASTM-F-667 for 8-24 inch diameter pipe and fittings. Joints shall be minimized to the extent practical. When required and unless otherwise shown on the drawing, coupling bands of the appropriate size and type are to be provided at each pipe joint. The hardware for fastening the coupling bands to the connecting pipes shall be fabricated to permit sufficient tightening to provide the required joint tensile strength and, if required, water-tightness, without failure of the fastening.

MATERIALS (CORRUGATED METAL PIPE)

All corrugated steel pipe (CMP) shall be metallic zinc-coated unless otherwise specified. The pipe shall conform to the requirements of ASTM-A-760, A 762, A-885, for the specified type, class, and fabrication of pipe and coating.

MATERIALS (TRASH RACK)

Unless otherwise specified, trash racks shall be of the "beehive type" with bar spacings at the base of the trash rack no smaller than 2.0" and with a bar diameter of no less than 1/4". Trash racks to be constructed of steel and finished in accordance with the manufacturers specifications.

HANDLING THE PIPE

The Contractor shall furnish all equipment necessary to transport and place the pipe without damaging it. When handling and placing pipe materials, measures shall be taken to prevent impact blows, abrasion damage, and gouging or cutting (by equipment or other site materials). All special handling requirements of the manufacturer shall be strictly observed. Special care shall be taken to avoid impact when the pipe must be handled at temperatures of 40° F or less. To avoid exposure to ultraviolet radiation, the pipe shall be covered with an opaque material when stored outdoors for a period of fifteen days or longer.

INSTALLATION AND ASSEMBLY OF PIPE

The trench or excavation for the placement of the conduit shall be constructed to the elevations and grades shown or as staked. Trench shields, shoring and bracing, or other methods necessary to safeguard the workers and the work shall be furnished, placed, and subsequently removed by the Contractor.

Unless otherwise specified, no filter or envelope is required. The bottom of the trench shall be shaped to form a semicircular groove in its center. The conduit shall be firmly and uniformly bedded throughout its entire length to the specified elevation and grade. The minimum trench width at the top of the conduit should be adequate to permit installation and provide bedding conditions suitable to support the load on the conduit.

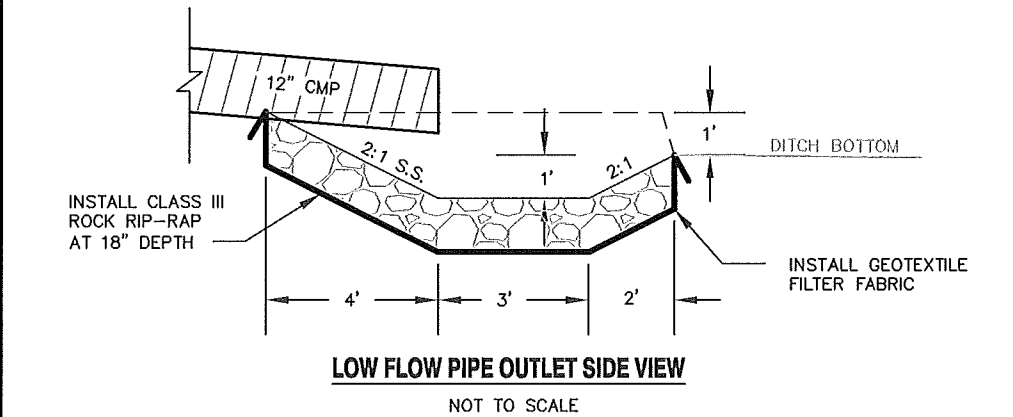
Unless otherwise specified, the pipe shall be assembled and installed in accordance with the manufacturer's recommendations. The pipe shall be laid to the elevations and grades shown on the drawings or as staked.

Unless otherwise specified, excavation and subsequent installation of conduit sections shall begin at the outlet end and progress upstream. Bell and spigot pipe, shall be installed with the bell end upstream. Bell-holes shall be made in the bedding under bells to prevent the pipe from being supported by the fittings. All field cut pipe ends shall have all burrs removed prior to assembling the joints. All pipelines shall be free of foreign material and joints shall be made in accordance with the recommendation of the pipe manufacturer.

BACKFILLING

The initial backfill shall be manually compacted around the pipe and to a depth of 2 feet over the pipe to provide adequate lateral support to the pipe. The initial backfill material shall be selected friable soil free from rocks or stones larger than 1 inch in diameter and earth clods greater than 2 inches in diameter. The moisture content of the backfill material shall be maintained within the limits required to: a) allow the soil to form a ball that does not readily separate when kneaded in the hand; b) prevent adherence of the fill material to the equipment treads or tracks; c) prevent rutting by equipment, and; d) ensure that blending of the soil results in a reasonably homogenous mass. Compaction shall be by hand tamping or manually directed power tampers. The initial backfill shall be placed in layers no thicker than 4 inches and compacted to a density greater than or equal to that of the surrounding undisturbed soil. Special care shall be taken to obtain compaction under the lower half of the pipe. The pipe shall be loaded sufficiently during backfilling around the sides to prevent it from being lifted from the bedding or subgrade.

Final backfill material shall be free of large rocks, frozen soil, and other debris larger than 4 inches in diameter. The material shall be placed and spread in approximately uniform layers with a maximum thickness of 9 inches in such a manner that there will be no unfilled spaces in the backfill and the backfill will be level with the natural ground or the design grade. Rolling equipment shall not be used to compact the final backfill until at least a 2-foot depth of cover has been placed over the pipe. The use of compaction equipment or methods that produce horizontal or vertical earth pressures which may cause excessive displacements or which may damage the installed pipe will nor be permitted. Place backfill to the lines and grades shown on the plans or as staked.

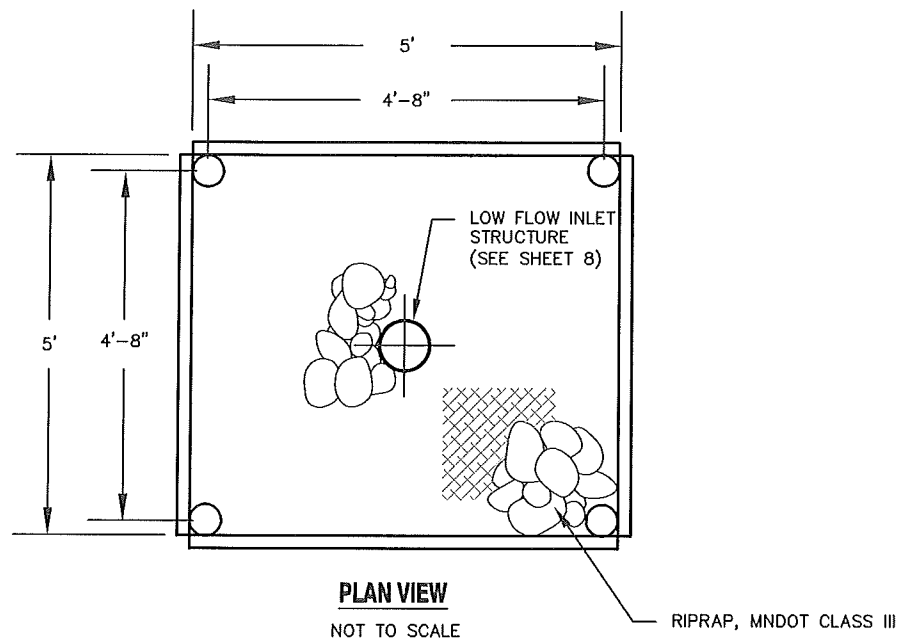


SIZE	UNIT	LOW FLOW INLET ITEM DESCRIPTION	UNIT	QTY.
8"	DIA. INCHES	HEIGHT OF RISER PIPE	LIN. FT.	4
8	DIA. INCHES	HDPE DUAL-WALL PIPE LENGTH (water tight bell and spigot)	LIN. FT.	60
8	DIA. INCHES	90 DEG. ELBOW (water tight)	EACH	1
8	DIA. INCHES	BEEHIVE TYPE TRASH GUARD	EACH	1
15	DIA. INCHES	CMP RISER SLEEVE LENGTH (5 ft. min., Annular CMP - 16 ga.)	LIN. FT.	5
		GROUTED RISER STRUCTURE (4.5 cu.ft.)	EACH	1
LOW FLOW PIPE OUTLET ITEM DESCRIPTION				
12	DIA. INCHES	CMP OUTLET PIPE (16 ga. Annular or Helical)	LIN. FT.	12
		CONCRETE COLLAR AT OUTLET JOINT (2.5 cu.ft. each)	EACH	1
		HINGED TYPE RODENT GUARD FOR CMP OUTLET PIPE	EACH	1
III	CLASS	RIPRAP AT OUTLET PIPE (4 c.y.)	TONS	5.6
I	CLASS	NON-WOVEN GEOTEXTILE (8 OZ.)	S.Y.	13

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

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PRINT NAME: RYAN T. JONES			
SIGNATURE: <i>Ryan T. Jones</i> DATE: 7/31/14 LICENSE # 44622			
LOW FLOW INLET & OUTLET		SHEET 8 of 11	

FENCE TRASH SKIMMER



CONSTRUCTION SPECIFICATIONS (FENCE TRASH SKIMMER):

DESCRIPTION

THE WORK SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO ASSEMBLE THE FENCE TRASH SKIMMER AS SPECIFIED.

MATERIALS (GENERAL)

ALL MATERIALS TO BE PROVIDED BY THE CONTRACTOR AND ARE SUBJECT TO APPROVAL BY THE PROJECT TECHNICIAN UPON DELIVERY TO THE SITE.

ALL WOOD CONSTRUCTION MATERIALS SHALL BE PRESSURE TREATED LUMBER.

ALL FENCE MATERIALS AND FASTENERS SHALL BE CORROSION RESISTANT.

MATERIALS (RIPRAP & GEOTEXTILE)

RIPRAP SHALL BE DURABLE FIELD STONE (ROUND) OR QUARRY STONE (ANGULAR CRUSHED BEDROCK), IN ACCORDANCE WITH MN/DOT SPECIFICATION 3601.

RIPRAP SHALL BE PLACED WITHIN THE FENCED AREA TO A MINIMUM DEPTH OF 12 INCHES.

GEOTEXTILE FABRIC SHALL BE PLACED BENEATH THE STRUCTURE AND SHALL BE SECURED BY EMBEDDING A MINIMUM OF ONE FOOT INTO THE SURROUNDING SOIL. GEOTEXTILE FABRIC SHALL BE NON-WOVEN, TYPE I PER THE REQUIREMENTS OF MINNESOTA NRCS SPECIFICATION 592. HANDLING AND INSTALLATION SHALL FOLLOW THE RECOMMENDATIONS OF THE MANUFACTURER.

INSTALLATION AND ASSEMBLY

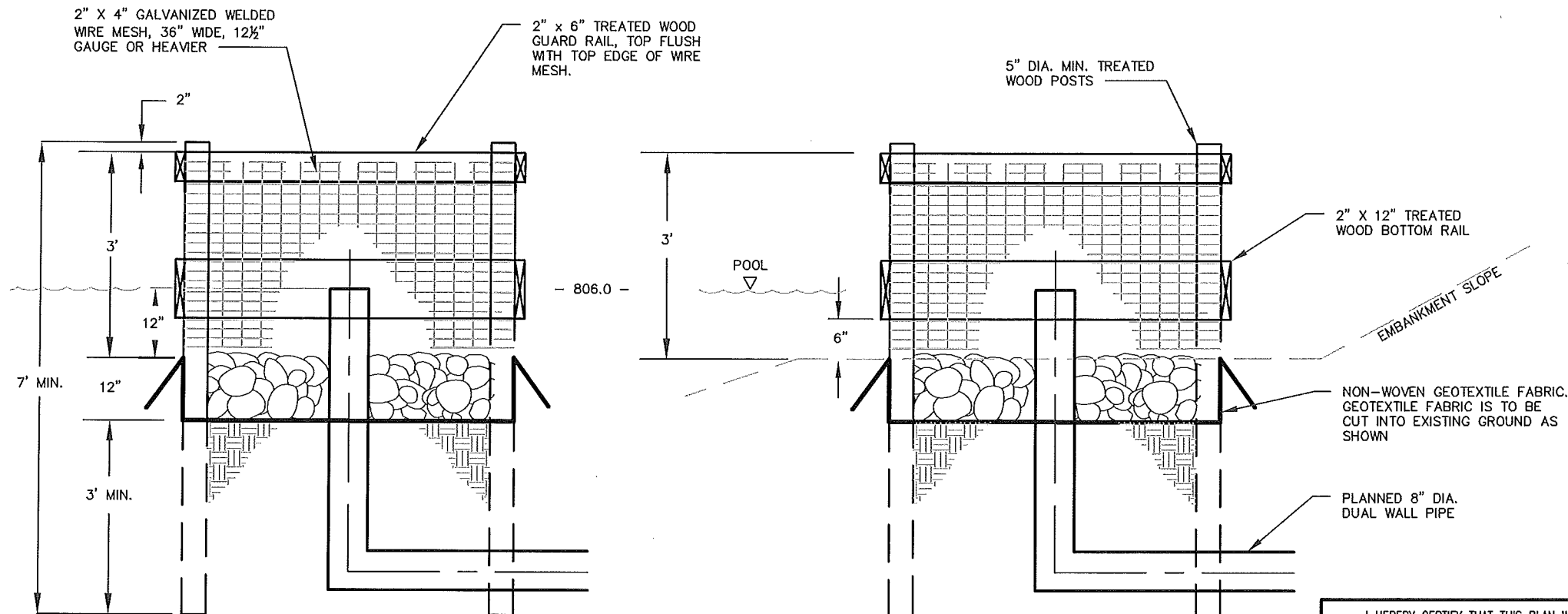
THE LOW FLOW PIPE INLET SHALL BE CENTERED WITHIN THE STRUCTURE.

CORNER POSTS SHALL BE BURIED A MINIMUM DEPTH OF 3 FEET BELOW THE GROUND SURFACE. POST HOLES SHALL BE BACKFILLED AND COMPACTED WITH CLEAN COMPATIBLE MATERIAL.

THE WIRE FENCE SHALL BE FASTENED A MINIMUM OF SIX TIMES PER POST WITH GALVANIZED U-SHAPED STAPLES AND SHALL BE EVENLY PLACED IN A VERTICAL DIRECTION AROUND THE OUTSIDE OF THE POSTS UNLESS OTHERWISE DIRECTED BY THE PROJECT TECHNICIAN.

EACH GUARD RAIL SHALL BE ATTACHED TO EACH POST AND SHALL BE CUT FLUSH TO THE ADJACENT GUARD RAIL TO PROVIDE ADEQUATE RAILING SURFACE.

THE WIRE MESH SHALL EXTEND AND BE FLUSH WITH SURFACE OF FINISHED GRADE.



BILL OF MATERIALS

ITEM DESCRIPTION	QTY. EACH	UNIT
7' TREATED WOOD CORNER POSTS (Minimum 5" Diameter)	4	EACH
2" x 6" TREATED WOOD RAILS	20	LIN. FT.
2" x 12" TREATED BOTTOM RAILS/SKIMMER	20	LIN. FT.
2" x 4" WELDED MESH WIRE, 36" WIDE, 12 Ga. minimum	24	LIN. FT.
GEOTEXTILE, NON-WOVEN TYPE 1	9	SQ. YDS.
RIPRAP, CLASS III	1	CUBIC YDS.
16D GALVANIZED OR CADMIUM COATED NAILS	1	LUMP SUM
STAPLES, 9 Ga., GALVANIZED U-SHAPED	1	LUMP SUM

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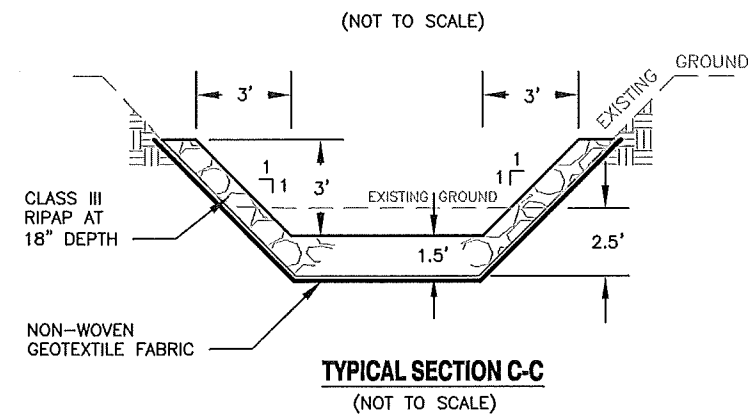
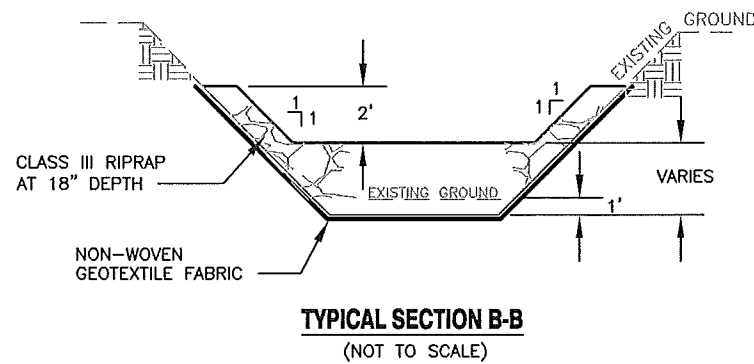
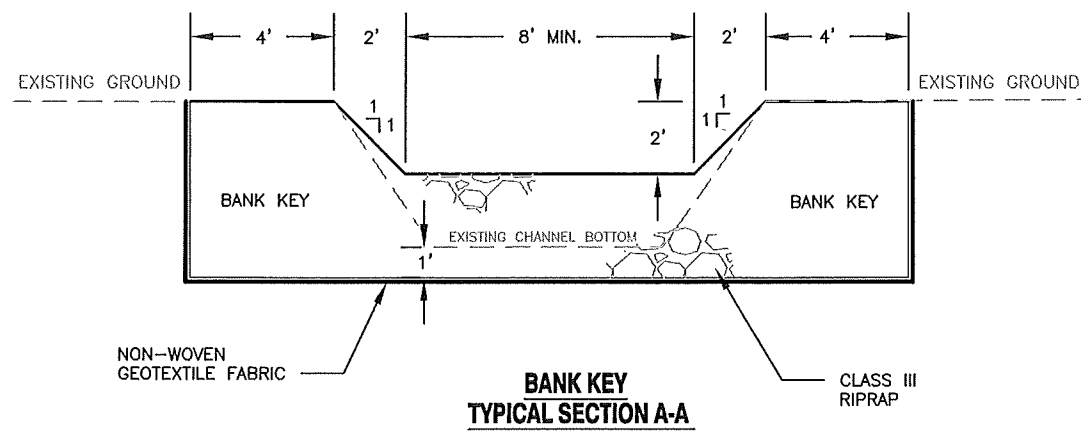
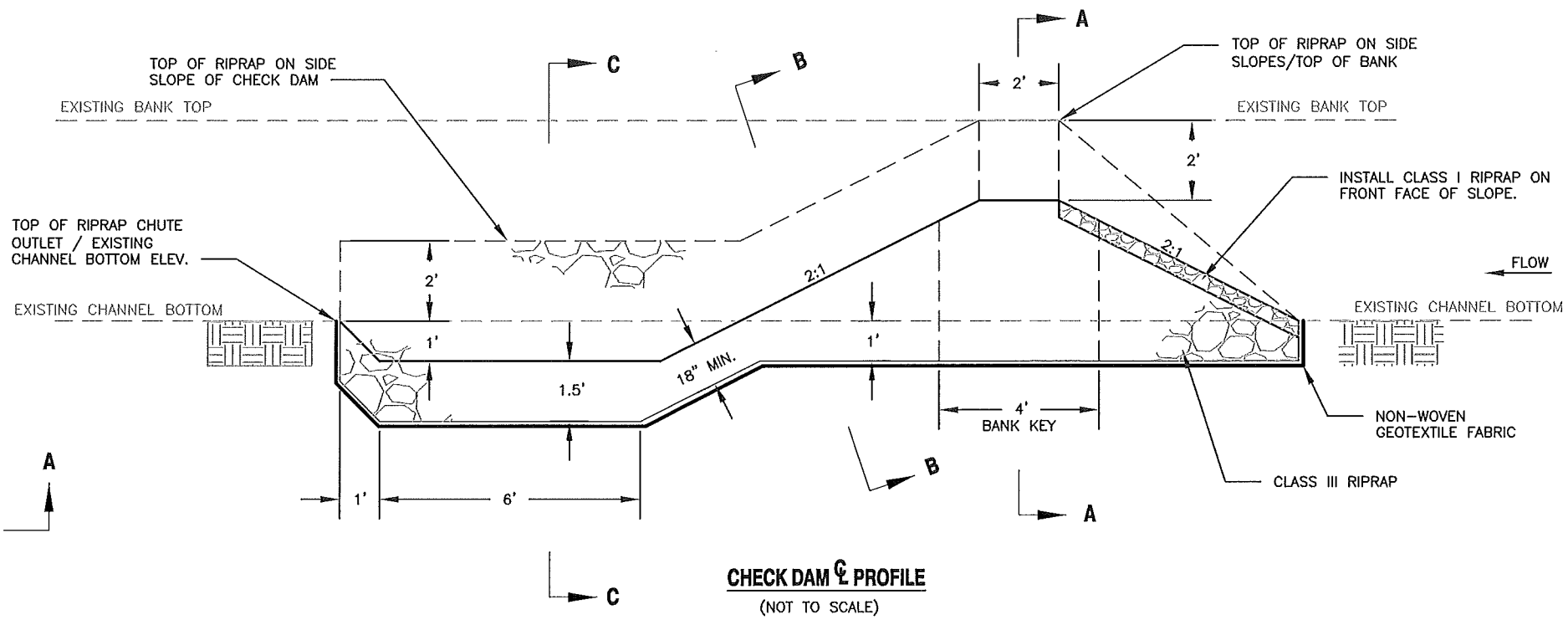
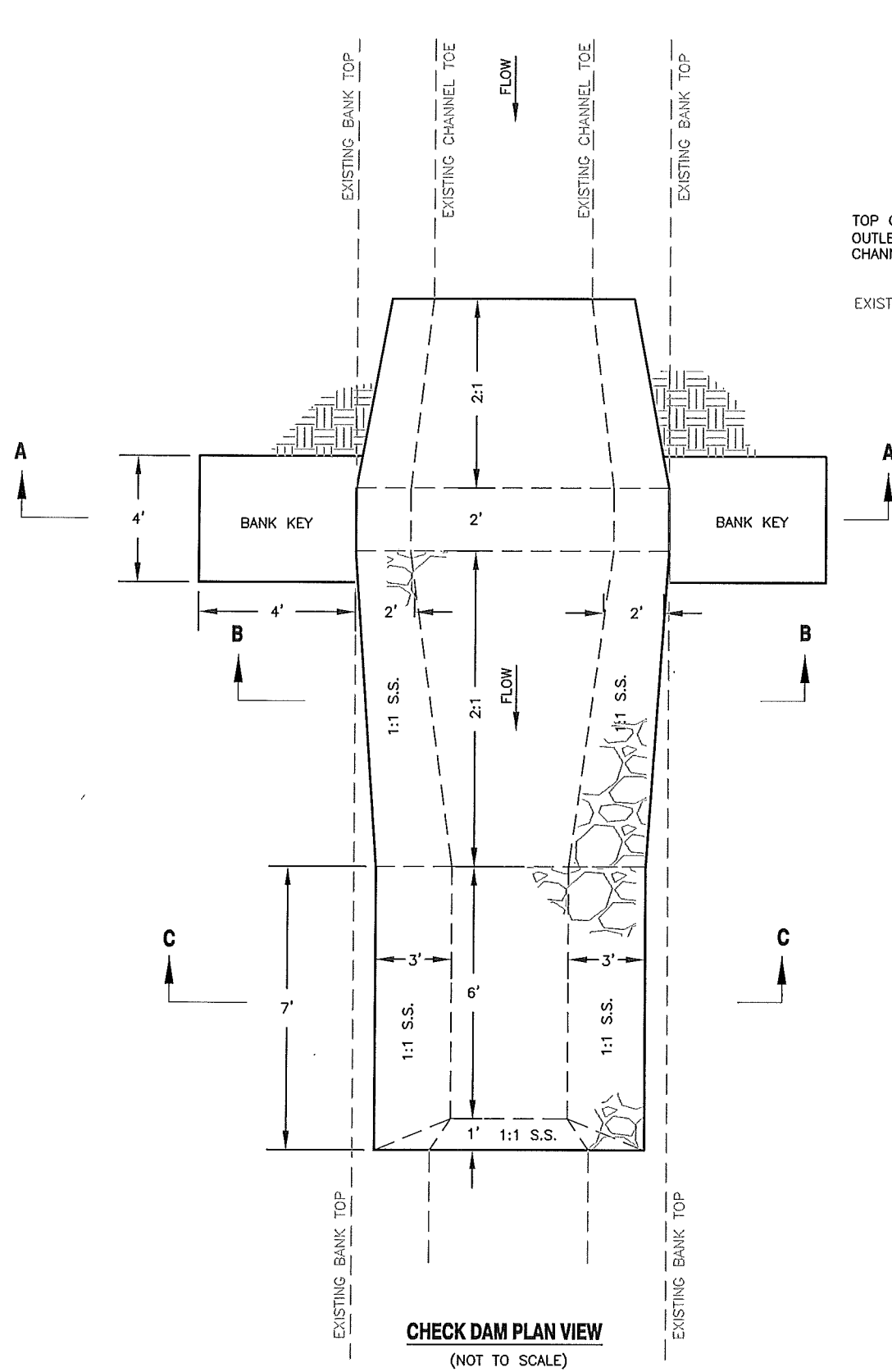
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MANKATO, MINN.
(507) 345-1051

CRAIG & COLLEEN HANSON
RAVINE STABILIZATION

FENCE TRASH SKIMMER DETAILS SHEET 9 of 11



CONSTRUCTION NOTES:

1. A TOTAL OF 8 RIPRAP CHECKS SHALL BE INSTALLED. LOCATIONS WILL BE STAKED BY THE ENGINEER PRIOR TO CONSTRUCTION.
2. RIPRAP CHECK LOCATIONS MAY BE ADJUSTED AS NECESSARY IN ORDER TO MINIMIZE DISTURBANCE TO TREES OR OTHERWISE IMPROVE ACCESS FOR CONSTRUCTION EQUIPMENT. COORDINATE WITH THE ENGINEER OR TECHNICIAN.
3. RIPRAP SHALL MEET THE REQUIREMENTS OF MNDOT SPECIFICATION 3601.
4. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF MN NRCS SPEC. 592.
5. RIPRAP QUANTITIES ARE ESTIMATED. MORE OR LESS TONNAGE MAY BE REQUIRED. COORDINATE WITH THE ENGINEER AS TO DELIVERY OF MATERIAL TO THE SITE.
6. LINES AND GRADES SHOWN MAY NEED TO BE ALTERED/WARPED IN SOME LOCATIONS TO CONFORM TO THE CHANNEL.

BILL OF MATERIALS

SIZE	UNIT	ITEM DESCRIPTION	UNIT	QTY. EACH	QTY. = 8 TOTAL
I	CLASS	FURNISH & INSTALL NON-WOVEN GEOTEXTILE FABRIC	SQ. YDS.	70	560
III	CLASS	FURNISH & INSTALL RIPRAP (35 C.Y.)	TONS	49	392
I	CLASS	FURNISH & INSTALL RIPRAP (1.8 C.Y.)	TONS	2.5	20

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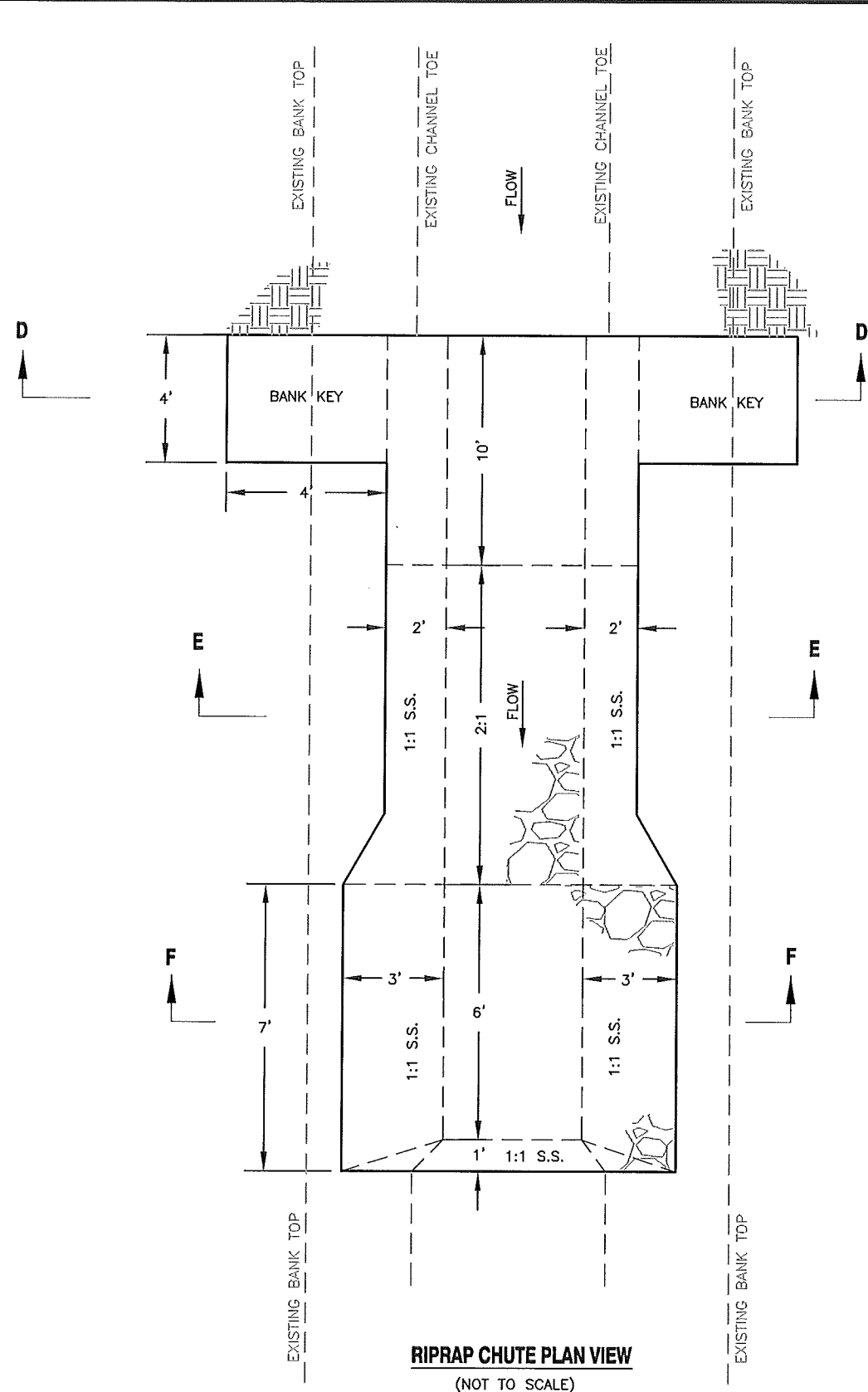
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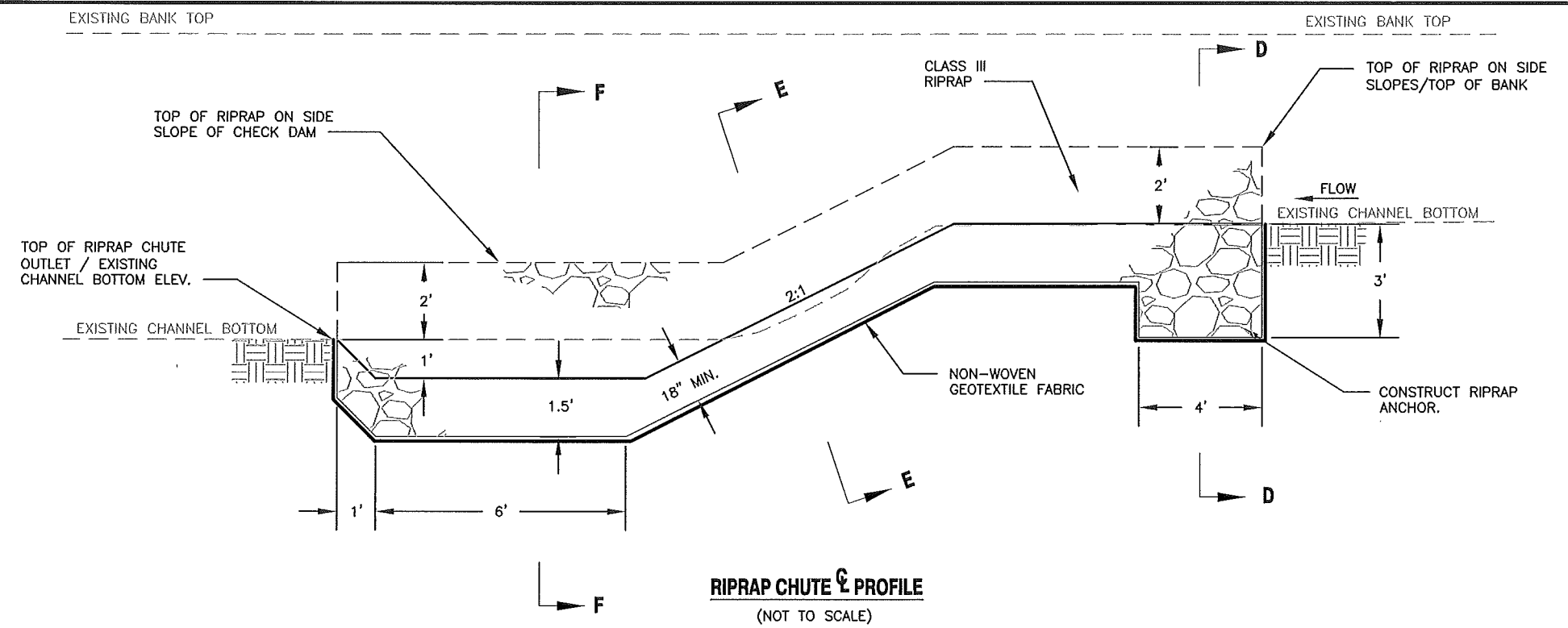
CRAIG & COLLEEN HANSON

RAVINE STABILIZATION

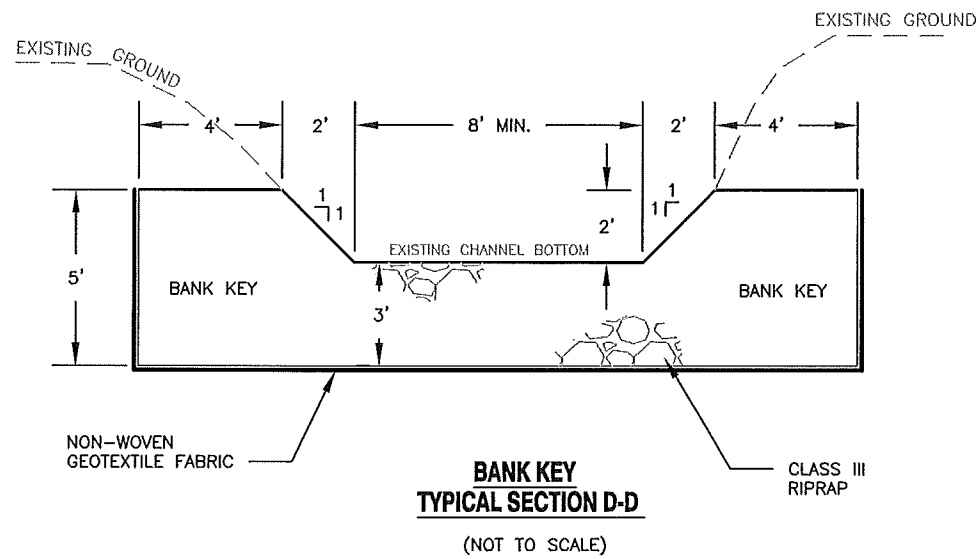
RIPRAP CHECK DAM DETAILS SHEET 10 of 11



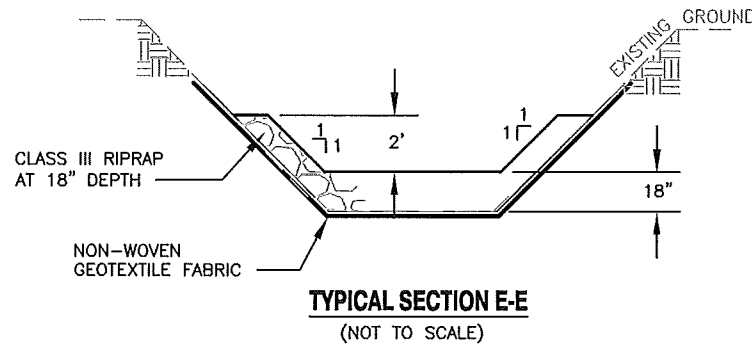
RIPRAP CHUTE PLAN VIEW
(NOT TO SCALE)



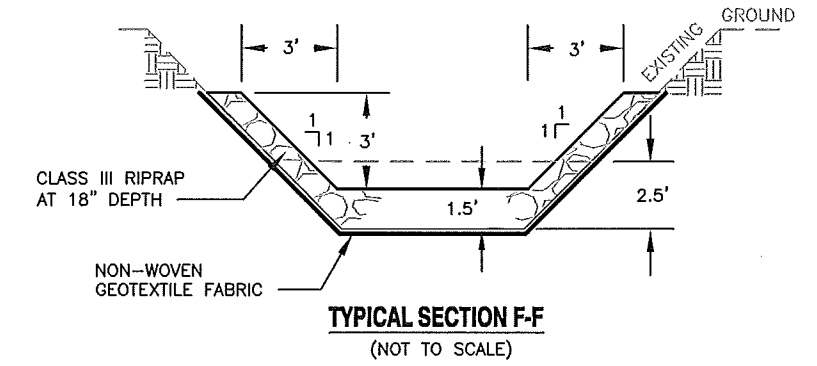
RIPRAP CHUTE & PROFILE
(NOT TO SCALE)



BANK KEY TYPICAL SECTION D-D
(NOT TO SCALE)



TYPICAL SECTION E-E
(NOT TO SCALE)



TYPICAL SECTION F-F
(NOT TO SCALE)

CONSTRUCTION NOTES:

1. A TOTAL OF 2 RIPRAP CHUTES SHALL BE INSTALLED. LOCATIONS WILL BE STAKED BY THE ENGINEER PRIOR TO CONSTRUCTION.
2. RIPRAP SHALL MEET THE REQUIREMENTS OF MNDOT SPECIFICATION 3601.
3. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF MN NRCS SPEC. 592.
4. RIPRAP QUANTITIES ARE ESTIMATED. MORE OR LESS TONNAGE MAY BE REQUIRED. COORDINATE WITH THE ENGINEER AS TO DELIVERY OF MATERIAL TO THE SITE.
5. LINES AND GRADES SHOWN MAY NEED TO BE ALTERED/WARPED IN SOME LOCATIONS TO CONFORM TO THE CHANNEL.

BILL OF MATERIALS

SIZE	UNIT	ITEM DESCRIPTION	UNIT	QTY. EACH	QTY. = 2 TOTAL
I	CLASS	FURNISH & INSTALL NON-WOVEN GEOTEXTILE FABRIC	SQ. YDS.	70	140
III	CLASS	FURNISH & INSTALL RIPRAP (25 C.Y.)	TONS	35	70

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: 7/31/14 LICENSE # 44622

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

CRAIG & COLLEEN HANSON
RAVINE STABILIZATION

RIPRAP CHUTE DETAILS

SHEET 11 of 11