

CONSTRUCTION PLAN

PRACTICE(S) 580 STREAMBANK & SHORELINE PROTECTION
LANDOWNER Van De Hey (David & Bruce)
SITE ADDRESS N9857 N. BIRCH ROAD TOMAHAWK, WI 54487
LANDOWNER PHONE NO. 920-428-0184 COUNTY Lincoln
TOWNSHIP BRADLEY T 35 N, R 07 E, Sec. 31
FIELD OFFICE Lincoln County TELEPHONE NO. 715-539-1087

DIGGERS HOTLINE

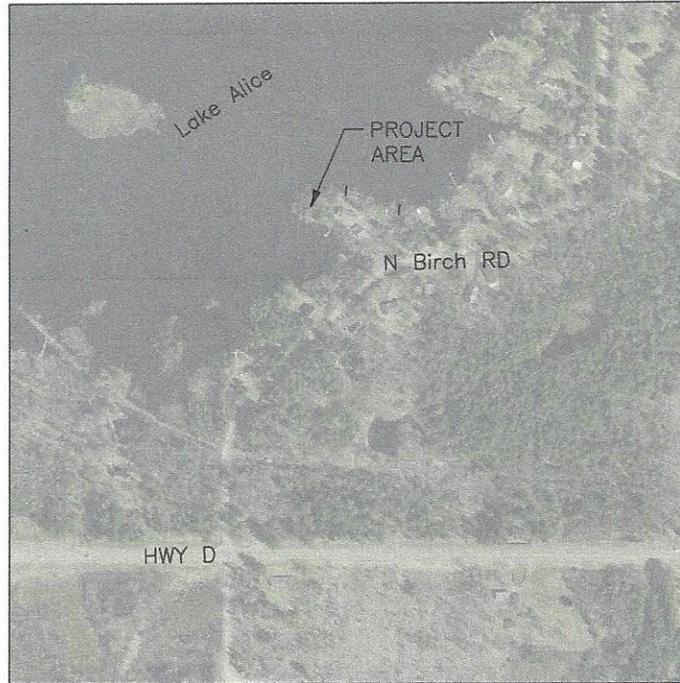
Call 3 Work Days
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811

Toll Free
1-800-242-8511

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1-800-542-2289

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www.diggershotline.com



Not to
Scale

LOCATION MAP

NOTICE TO LANDOWNERS AND EXCAVATORS

Any representation made by the USDA, Natural Resources Conservation Service, or the LINCOLN County LCD, as to the approximate location or nonexistence of above or under ground hazards does not relieve the owner of the property or the excavator that is hired to complete construction, from notifying Diggers Hotline of the pending construction. You will be liable for damages resulting from construction activities.
Call Diggers Hotline! Ticket Number _____

CONSTRUCTION DRAWINGS AND SPECIFICATIONS ACCEPTANCE

I have reviewed and understand the construction plans and specifications and agree to complete the work accordingly. Failure to meet these plans and specifications may jeopardize any continued NRCS technical assistance or program cost sharing applied for. I understand that it is my responsibility to secure all necessary permits and licenses, and to complete the work in accordance with all local, state, and federal laws. Modification of these construction plans or specifications must be approved by the NRCS before installation. I assume all responsibility for negotiations and contract agreements with the construction contractors.

Landowner Signature: _____ Date: _____

Designed by: _____ Date: _____

Checked by: Stacy D. Dehne Date: 4-3-20

Approved by: _____ Date: _____

The installed practices comply with applicable NRCS technical standards and specifications. The "redlined" construction plans (as-built drawings) reflect changes made during construction.

Construction Approved by: _____ Date: _____

Job Approval Class 1

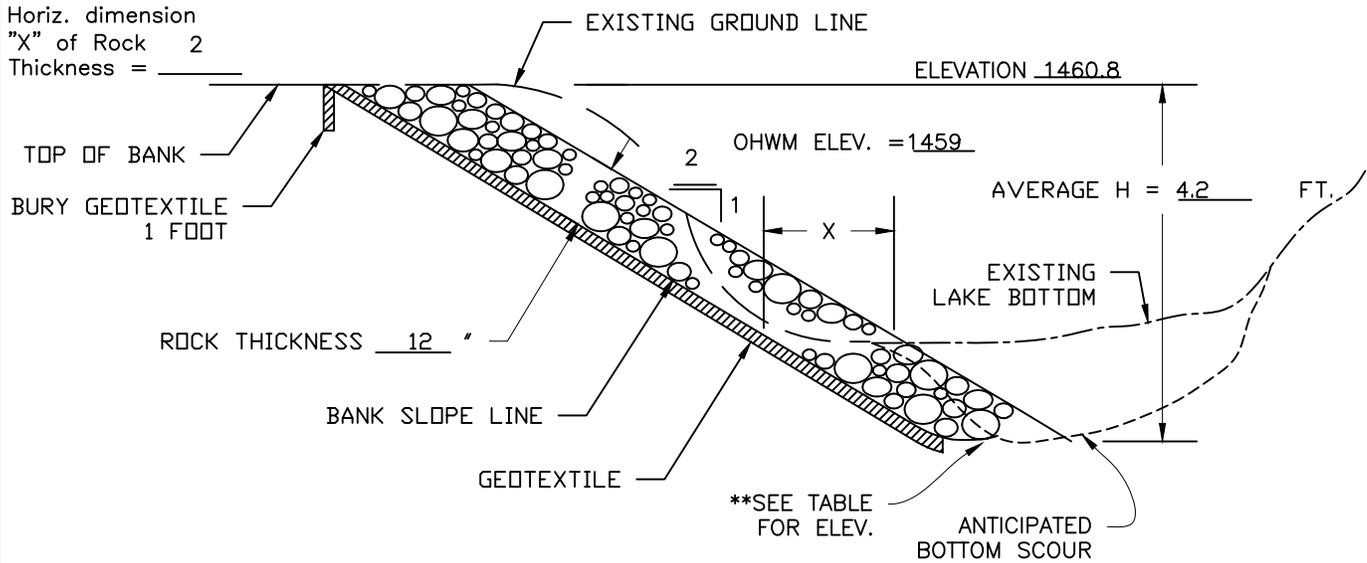
Sheet 1 of 9

CONSTRUCTION NOTES

All necessary permits shall be acquired before construction begins.

1. It is the landowner's and contractor's responsibility to notify the owners of any utility, such as buried cable or pipelines, that may be present in the construction area, before the start of construction so that they may locate and stake such utilities.
2. Lincoln County and DATCP offices must be contacted at least 3 days before the start of construction, to stake the project and review the plans with the foreman. No work will be performed prior to the contract and the operation and maintenance agreement being signed.
3. Follow Wisconsin Construction Specifications 2 (Excavation), 5 (Site Pollution Control) 7 (Mobilization & Demobilization), 9 (Rock riprap), 13 (Geotextiles) 710 Seeding establishment, and WI Biology Tech Note 1 attached for related aspects of the project.
4. Earthwork shall consist of removal of any garbage (i.e. bottles, glass, metals, etc) encountered.
5. Rock to be placed will have a d50 rock size of six (6) inch. The rock for the riprap will be placed on top of Class I non woven geotextile fabric. Rock and Geotextile shall meet WI Construction specs 9 and 13 attached to this plan.
6. The riprap shall not exceed a 1.5:1 slope on the face of the rock and extend no further than 8 feet waterward.
7. Rock riprap will be toed into the lake bed for the entire length of the rock placement. Taper ends to shore.
8. Vegetated planting shall be installed as shown on the plan along the entire frontage.
9. All heavy equipment used within the construction site shall be clean to prevent spread of invasive species and well maintained. All equipment lines and fittings shall be checked on a daily basis to ensure that they are in good working order. The contractor is responsible for all aspects of cleanup from accidental spills. Refer to WI Construction Spec. 5 (attached) for details on Construction Site Pollution Control.
10. If a significant archaeological or historical site is found, cease construction immediately and relocate, redesign, or delete the cost share practice, as needed, to prevent damage to the archaeological or historical site.
11. Immediately seed disturbed areas along the bank following construction activities.
12. Synthetic matting will be installed according to Manufacturer's recommendations.

 <p>United States Department of Agriculture</p> <p>Natural Resources Conservation Service</p>	<p>CONSTRUCTION NOTES</p> <p>CLIENT: <u> VAN DE HAY </u></p> <p>COUNTY: <u> Lincoln </u></p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black;">Designed</td> <td style="border-bottom: 1px solid black;">MRM</td> <td style="border-bottom: 1px solid black; text-align: right;">Date</td> <td style="border-bottom: 1px solid black;">02-2020</td> </tr> <tr> <td style="border-bottom: 1px solid black;">Drawn</td> <td style="border-bottom: 1px solid black;">MRM</td> <td style="border-bottom: 1px solid black; text-align: right;">Date</td> <td style="border-bottom: 1px solid black;">02-2020</td> </tr> <tr> <td style="border-bottom: 1px solid black;">Checked</td> <td style="border-bottom: 1px solid black;">_____</td> <td style="border-bottom: 1px solid black; text-align: right;">Date</td> <td style="border-bottom: 1px solid black;">08/14</td> </tr> <tr> <td style="border-bottom: 1px solid black;">Approved</td> <td style="border-bottom: 1px solid black;">_____</td> <td style="border-bottom: 1px solid black; text-align: right;">Date</td> <td style="border-bottom: 1px solid black;">_____</td> </tr> </table>	Designed	MRM	Date	02-2020	Drawn	MRM	Date	02-2020	Checked	_____	Date	08/14	Approved	_____	Date	_____	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-bottom: 1px solid black;">File Name</td> <td style="border-bottom: 1px solid black;"> </td> </tr> <tr> <td style="border-bottom: 1px solid black;">Date</td> <td style="border-bottom: 1px solid black;">08/14</td> </tr> <tr> <td style="border-bottom: 1px solid black;">Sheet</td> <td style="border-bottom: 1px solid black;">3 of 9</td> </tr> </table>	File Name		Date	08/14	Sheet	3 of 9
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	Checked	_____	Date	08/14																					
Approved	_____	Date	_____																						
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Date	08/14																								
Sheet	3 of 9																								



GRADATION OF ROCK

PERCENT PASSING BY WEIGHT	SIZE (INCHES)
100	12
60-85	9
25-50	6
5-20	3
0-5	1.2

TYPICAL CROSS SECTION

QUANTITY ESTIMATE *

BANK SLOPING FOR RIPRAP	_____	LIN. FT.
BANK SLOPING (SEEDING ONLY)	_____	LIN. FT.
ROCK FOR RIPRAP (WI CONST. SPEC. 9)	165	CU. YD.
GEOTEXTILE (WI CONST. SPEC. 13)		
CLASS <u>1</u> NONWOVEN	700	SQ. YD.
SEEDING		<u>DISTURBED AREAS</u>

* ESTIMATED TO THE NEAT LINES AND GRADE

NOTE:

1. DOUBLE THE ROCK THICKNESS FOR A DISTANCE OF 2 FEET AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE RIPRAP. BLEND THE ROCK SURFACE TO MATCH THE EXISTING STABLE BANK SURFACE.
2. TOE PROTECTION SHALL BE PROVIDED TO A MINIMUM DEPTH OF THE ANTICIPATED BOTTOM SCOUR, WHICH WILL BE BELOW THE EXISTING STREAM BOTTOM.

SITE _____

EXCAVATED TOE



STREAMBANK PROTECTION WITH GEOTEXTILE (FULL BANK HEIGHT)

CLIENT: _____
 COUNTY: Lincoln

Designed MRM Date 02/2020
 Drawn MRM Date 02/2020
 Checked _____
 Approved _____

File Name WI-404D-ET
 Date 11/2016
 Sheet 4 of 9



SYNTHETIC MATTING TO BE INSTALLED HERE



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Agriculture

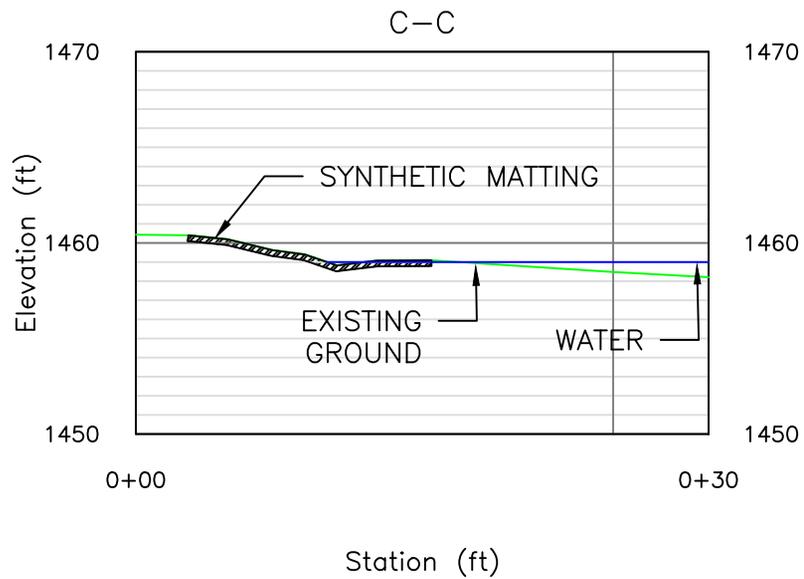
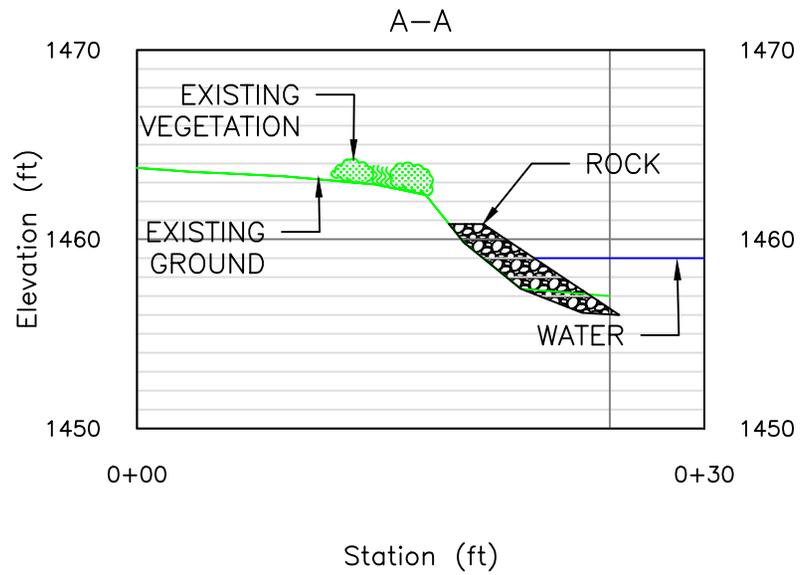
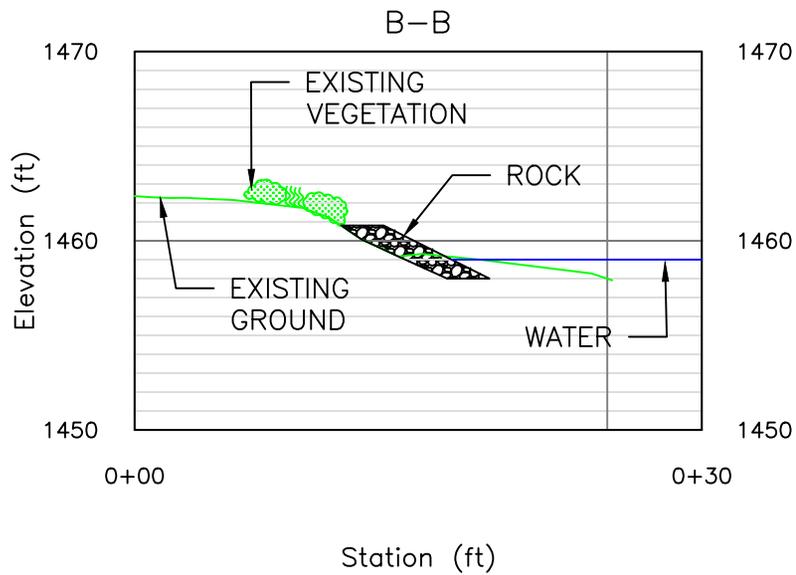
Natural Resources
Conservation Service

PHOTO

CLIENT: VAN DE HAY
COUNTY: Lincoln

	Date
Designed <u> MRM </u>	<u> 10-2019 </u>
Drawn <u> MRM </u>	<u> 10-2019 </u>
Checked <u> </u>	
Approved <u> </u>	

File Name	<u> WI-002 </u>
Date	<u> 08/14 </u>
Sheet	<u> 6 </u> of <u> 9 </u>



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Conservation Service**

SECTION VIEW

CLIENT: VAN DE HEY
COUNTY: Lincoln

File Name	WI-007	Date	08/14
Designed	MRM	10-2019	
Drawn	MRM	10-2019	
Checked			
Approved			

SEEDING DATES

NORTH

TIME PERIOD	DATES			TYPE OF SEEDING
Spring	May 1	through	June 15	Permanent
Summer	June 16	through	see WI-710 ss pg 2	Temporary *
Late Summer	July 15	through	August 10	Permanent
Fall	August 11	through	see WI-710 ss pg 2	Temporary *
Late Fall	November 1	through	Snow Cover	Dormant
Winter	Snow Cover	through	April 30	Not Allowed

MATERIALS

If no soil test is available, apply a minimum of 150 pounds of 20-10-10 fertilizer per acre. This is equivalent to 30 pounds nitrogen (N), 15 pounds phosphate (P205), and 15 pounds potash (K2O) per acre. Apply two tons of 80-89 lime or equivalent.

* Seed a temporary cover crop of _____ at #N/A #/ac (#N/A bu/ac)
 A permanent seeding shall be completed during the next acceptable time period following a temporary seeding.

MINIMUM PURE LIVE SEED (PLS) ¹ RATE PER ACRE AND TOTAL POUNDS OF SEED NEEDED

SEEDING MIX (DESIGN)	6	LOCATION: ACRES:	1 0.50
SPECIES	RATE	POUNDS	
Smooth Bromegrass	7.0	3.5	
Timothy	2.0	1.0	
Creeping Red Fescue	1.0	0.5	
Kentucky Bluegrass	1.0	0.5	
Perennial Ryegrass	3.0	1.5	
Red Clover	3.0	1.5	
**	#N/A	#N/A	

SEEDING MIX (A-S-BUILT)	LOCATION ACRES	
SPECIES	RATE	POUNDS

¹ PLS lbs. = [total % Germination / 100 * % Purity / 100] * Net Weight (lbs.)
 ** Companion Crop

ADDITIONAL SEED PERCENT: _____ %
 Mulching Required: No

Total % Germination may also be termed Total % Viable Seed on a tag. If a tag only shows % Germination, the user must include percentage of the seed that germinated during the lab test (% Germination) **plus** the percentage of hard and/or dormant seed. Hard seed and dormant seed are seeds that are still capable of germinating and producing a plant but did not germinate under the conditions of the test in the lab.

Additional native seeds may be required by permitting agencies. These addition are allowed.
 Seed mixture shall meet all requirements of the WI weed laws.
 Species identified as restricted or prohibited by law shall not be planted.
 Certified seed shall be used, and the seeding rates will be based on pure live seed.
 For dormant seedings, increase the seeds per square foot by 15%.

SEEDBED PREPARATION

Seedbed preparation shall immediately follow construction activities.
 Prepare a fine, firm seedbed to a minimum depth of three inches. A seedbed is considered firm when a footprint penetrates 1/4 to 1/2 inch deep.



SEEDING DISTURBED AREAS ESTABLISHMENT

CLIENT: VAN DE HAY
 COUNTY: Lincoln

Designed MRM Date 02-2020
 Drawn MRM Date 02-2020
 Checked _____
 Approved _____

File Name WI-710
 Date 08/14
 Sheet 8 of 9

SEEDING

Inoculate legumes with the specific inoculum for the species in accordance with the manufacturer's recommendations. When using a hydroseeder, five times the recommended rate of inoculant shall be added to the hydroseeder. Inoculant shall not be mixed with liquid fertilizer.

Seed may be broadcast or drilled as appropriate to the site.
Seed, fertilize, and lime as soon as possible after construction.
Seeding perpendicular to direction of flow is required to limit erosion.

Seed grasses and legumes no more than 1/4 inch deep.

Consider seeding at a lower rate and making 2 passes to ensure more uniform distribution.

TEMPORARY SEEDING OPTIONS

Select one of the following species for temporary cover if:

- 1) The required seeds or plant stock are not available or the normal permanent seeding period for the species has passed
 - Forage Sorghum - 1/2 bushel per acre (May 15-July 15)
 - Sorghum - Sudangrass Hybrid - 1 bushel per acre (May 15-July 15)
 - Sudangrass - 1 bushel per acre (May 15-July 15)
 - Winter Wheat - 2 bushels per acre (Aug 1-Oct 1)
 - Winter Cereal Rye - 2 bushels per acre (Aug 1-Oct 15)
 - Oats - 2 bushels per acre (Apr 1-Sept 1)
 - Annual Ryegrass - 20 Pounds per acre (Apr 1-Sept 1)

- 2) Triazine herbicide carryover will not allow establishment of permanent cover immediately.
 - Forage Sorghum - 1/2 Bushel per acre (May 15-July 15)
 - Sorghum - Sudangrass Hybrid - 1 Bushel per acre (May 15-July 15)
 - Sudangrass - 1 Bushel per acre (May 15-July 15)

Mulching not required

DORMANT SEEDING

Seed is broadcast and incorporated, no-tilled, or drilled into the seedbed .
Seedbed preparations and conditions are similar to conventional seeding.

MULCHING Mulching not required



SEEDING DISTURBED AREAS ESTABLISHMENT

CLIENT: VAN DE HAY
 COUNTY: Lincoln

Designed	MRM	Date	02-2020
Drawn	MRM	Date	02-2020
Checked	_____		
Approved	_____		

File Name	WI-710
Date	08/14
Sheet	9 of 9

Operation and Maintenance Plan
Streambank Protection (Riprap)

Cooperator: VAN DE HEY

Date: February 2020

By: Mitchell McCarthy

Title: Conservation Program Manager

Project Location: N9857 N. BIRCH ROAD TOMAHAWK, WI 54487

The owner or sponsor of this project is responsible for the rock riprap shoreline protection. It must be recognized that any project needs to be properly operated and maintained including periodic inspection. The following guidelines have been prepared for the operation and maintenance of this protection measure.

1. Inspect the project regularly, especially following strong winds and spring break-up of the ice, for erosion or displacement of rock. Repair damage immediately by replacing any dislodged rock, removing debris, and filling and/or reseeding as necessary. Be especially careful to cover all exposed filter material (granular or geotextile).
2. Check for sloughing, erosion, or damage to vegetative cover. Damaged areas shall be graded, shaped, and re-vegetated as soon as possible.
3. Equipment used on the shoreline (for dock removal, boat launching, yard maintenance, etc.) must be kept away from the project to avoid damage to the project and the soil it is protecting.
4. Maintain vegetated areas in adequate cover to reduce the potential for erosive velocities of water moving on bare soils – particularly on the slope toward the lake.
5. Maintain and water installed plants.
6. Vegetation Removal
 - a) Weeding: weeds may be pulled for the first 3 years to promote native plants.
 - b) Trees and shrubs: remove dead or windblown trees only if they pose a safety hazard, otherwise they provide habitat for fish and wildlife
 - c) Exotic/invasive species control: control exotic plants and monitor annually.
7. Eliminate access or foot traffic over the planting area to the shoreline slope with the exception of a designated pathway area.
8. Protect against deer and other animals browsing in the “no-mow” zone and planted area with the use of fencing and/or landscape products available to spray on plants to deter them (such as red pepper spray).
- 9.. Notify County within two weeks if issues arise.

I have read the guidelines for the maintenance of the lakeshore stabilization project and agree to follow the guidelines for 10 years.

Cooperator's signature: _____ Date: _____

I have discussed the maintenance guidelines with the above cooperator.

Conservationist's signature: _____ Date: _____



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Agriculture

Natural Resources
Conservation Service

**OPERATIONS & MAINTENANCE
PLAN**

CLIENT: VAN DE HAY
COUNTY: Lincoln

Designed	MRM	Date	02-2020
Drawn	MRM	Date	02-2020
Checked	_____		
Approved	_____		

File Name
Date
08/14
Sheet 1 of 1

Construction Quality Assurance Plan Streambank Protection

(page 1 of 2)

LANDOWNER: VAN DE HEY

LOCATION OF PRACTICE OR PLAN ID: N9857 N. BIRCH ROAD TOMAHAWK, WI 54487

INSPECTOR: Lincoln County or DATCP Staff APPROVER: _____ Date: _____

ENGINEERING JOB CLASS: I

Initial and date items as completed. Date all additional documentation and keep in construction file.

PRE-CONSTRUCTION

- Verify that the landowner or contractor notified all utilities prior to construction. Document DIGGERS HOTLINE Ticket Number

- Obtain copies of PERMITS, or documentation that they aren't needed.
- Inspect EROSION CONTROL PRACTICES (silt fence, etc.) Document proper installation with photographs or diary notation.

MATERIALS

- ROCK RIPRAP MATERIAL. Verify that the material meets the soundness requirements in Wisconsin Construction Specification 9; obtain a document for the case file or record observations in writing. Verify the gradation using the Wisconsin Engineering Spreadsheets and Wisconsin Construction Specification 9 and the Wisconsin Supplement to the USDA Engineering Field Handbook Chapter 17. Print the spreadsheet for documentation.
- GEOTEXTILE MATERIALS. Verify that the material meets the requirements in Wisconsin Construction Specification 13, Table 2, geotextile. Attach a copy of the manufacturer's material specifications. Record observations in the job diary and take photographs of the material tag.
- SEED. Document species, quantities of pure live seed, and date seeded. Verify that it meets requirements of WI-710 drawing. Place seed tag in construction documentation file.

CONSTRUCTION

- STAKE the location of the Shoreline protection at each end.



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QUALITY ASSURANCE PLAN

CLIENT: VAN DE HAY

COUNTY: Lincoln

	Date
Designed <u>MRM</u>	<u>02-2020</u>
Drawn <u>MRM</u>	<u>02-2020</u>
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Date
08/14

Sheet 1 of 2

Construction Quality Assurance Plan Streambank Protection

(page 2 of 2)

- OBSERVE that topsoil stripping and stockpiling is accomplished according to plans / Wisconsin Construction Specification 2. Document the observation in the job diary.
- Verify that EXCAVATED MATERIALS are used / disposed of according to sections 2 and 3 of Wisconsin Construction Specification 2. Document the observation in the job diary.
- STAKE STREAM BANK. STAKE the location and sub-grades of the slope. Record the staking notes in the engineering field book.
- SURVEY CROSS-SECTIONS of completed streambank excavation PRIOR TO RIP RAP placement. Minimum is one cross-section for each 300'. Verify:
 ----- Slopes -Planned slopes are NOT to exceed 1.5:1
 ----- Final Length -Planned length is 420'
- OBSERVE THE GEOTEXTILE PLACEMENT. Verify correct overlap and anchorage per plans and Wisconsin Construction Specification 13. Obtain photographs and record observations in the job diary.
- OBSERVE THE ROCK RIPRAP PLACEMENT. Verify that geotextile material is not damaged or displaced during riprap placement. Note height of rock drop onto geotextile. Obtain photographs and record observations in the job diary.

FINAL INSPECTION

- SURVEY FINAL CROSS-SECTIONS of completed stream bank AFTER RIPRAP placement. Minimum is one cross-section for each 300'. Verify:
 ----- Slopes -Planned slopes are 1.5:1
 ----- Riprap thickness -Compare with sub-grade survey. Planned riprap thickness is 12"
 ----- Final Length -Planned length 1.5:1
- Verify that all disturbed areas not to be cropped are SEEDED, FERTILIZED, LIMED AND MULCHED. Document seeding date.

Document installed quantities (payment units) of the practices.

Document all of the above with photographs, data in engineering field book and job diary.

I have reviewed this plan and understand my responsibilities in the quality assurance needed for my project.

Landowner's Signature: _____ Date: _____



QUALITY ASSURANCE PLAN

CLIENT: VAN DE HAY
 COUNTY: Lincoln

	Date	
Designed	<u>MRM</u>	<u>02/2020</u>
Drawn	<u>MRM</u>	<u>02/2020</u>
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Date
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Sheet 2 of 2