APPENDIX I

CONSTRUCTION & ADMINISTRATION FORMS

date

DELIVERY

(name of contractor & address)

RE: **NOTICE-OF-AWARD –** Har892029C CREP Wetland Project

Dear *(name)*:

This is to notify you that the Division of Soil Conservation has determined _____ is the successful bidder for the Har892029C CREP Wetland Project. Award is being made for the base bid of $_____.

In accordance with Item #9 of the Instructions to Bidders, Document BB, you have fourteen (14) calendar days from the date of receipt of this notice to obtain the Performance Bond and execute the Contract. In addition, the Division must be provided with a Certificate of Insurance pursuant to the INSURANCE AND RELATED PROVISIONS of the General Conditions.

Please note that Iowa Code Section 91C.7, requires that all construction contractors awarded a contract to perform work for the state or an agency of the state must be registered with the Iowa Division of Labor. The Division of Soil Conservation cannot execute a contract with your firm unless you provide proof of this registration. Be sure to fill in the Division of Labor registration number blank on the Contract (*Document DD*).

Enclosed are four copies of the Contract and the Performance Bond document. Please complete, sign and return all four copies along with completed Performance Bond. In addition, we must have the Certificate of Insurance pursuant to the General Conditions and/or Special Conditions.

Congratulations on being the successful bidder. We look forward to working with your company on this project. If you have any questions, please contact Mike Bourland, Engineer, (515) 242-6130, or Shawn Richmond, (515) 281-7032.

Sincerely,

Jake Hansen, Chief
Water Resources Bureau
Division of Soil Conservation

/mjb
Enclosures
CC:

(Date)

DELIVERY

RE: **NOTICE-TO-PROCEED -** Har892029C CREP Wetland Project

Dear :

The Division of Soil Conservation has received the signed construction contract, the completed Performance Bond, and the Certificate of Insurance from _____. These documents were found to be in order and the Division executed this contract with _____ dated _____, 2015. Executed copies of the contract and performance bond are enclosed.

A Preconstruction Conference, as required in Item 12 of the Instructions to Bidders, *(Document BB*), must be scheduled with the Division and held prior to the initiation of any work on the site. This Preconstruction Conference must be held within ten (10) days of the receipt of this Notice-to-Proceed. No work may commence on site prior to the Preconstruction Conference.

In accordance with the Contract, (*Document DD*), _____ must commence work under this contract for the Har892029C CREP Wetland Project within fourteen (14) calendar days of the date of receipt of this notice. You have until_____, 2015, to complete all the awarded work.

If you have any questions, please contact Mike Bourland at 515-242-6130.

Sincerely,

Jake Hansent, Chief
Water Resources Bureau
Division of Soil Conservation

/mjb
Enclosures
CC:

APPLICATION AND CERTIFICATE FOR PAYMENT

DOCUMENT SS

PAGE 1 OF 2

TO DIVISION:

Iowa Division of Soil Conservation
Wallace State Office Building
Des Moines, IA 50319-0050

FROM CONTRACTOR:

PROJECT:

Bid No.

Project I.D.

Date:

Period To:

DISTRIBUTION TO:
DIVISION (2)
CONTRACTOR (1)
ENGINEER (1)

Summary of Approved Change Orders & Contract Amendments

Number	Addition	Deduction

		PAYMENT #1 LESS RETAINAGE	PAYMENT #2 LESS RETAINAGE	FINAL PAYMENT LESS RETAINAGE	RETAINAGE ONLY
Net change by Change Orders and Contract Amendments		DATE: / /	DATE: / /	DATE: / /	DATE: / /
1. ORIGINAL CONTRACT SUM:		$0.00	$0.00	$0.00	$0.00
2. Net Changes by Change Orders/Amendments (from table)					
3. Contract Sum to Date (Line 1+/-2)		$0.00	$0.00	$0.00	
4. Total Completed & Stored to Date (Column G on Continuation Sheet)		$0.00	$0.00	$0.00	
5. Retainage (5% of Line 4)		$0.00	$0.00	$0.00	
6. Total Earned Less Retainage (Line 4 less Line 5)		$0.00	$0.00	$0.00	
7. Previous Certificates For Payment (Line 6 from prior Certificate)			$0.00	$0.00	
8. Balance to Finish, Plus Retainage (Line 3 less Line 6)		$0.00	$0.00	$0.00	
9. Current Payment Due (Line 6 less Line 7)		$0.00	$0.00	$0.00	$0.00

The undersigned Contractor certifies that to the best of Contractor's knowledge, information, and belief, the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid to Contractor for which previous Certificates for Payment were issued and payments received from the Division and that current payment shown herein is now due.

By:_____ Date: _____
CONTRACTOR

In accordance with the Contact Documents, based on on-site observations and the data comprising this application, Engineer certifies to the Division that to the best of the Engineer's knowledge, information, and belief, the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and Contractor is entitled to payment of the AMOUNT CERTIFIED.

By:_____ Date: _____
ENGINEER'S CERTIFICATE FOR PAYMENT

AMOUNT CERTIFIED $_____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment, and acceptance of payment are without prejudice to any rights of Contracting Officer or Contractor under this Contract.

CONTINUATION SHEET FOR APPLICATION AND CERTIFICATE FOR PAYMENT

DOCUMENT SS

A	B	C	D	E	F	G	H	I
Item No.	Description of Work	Scheduled Value	Work Completed From Previous Application (D+E)	This Period	Materials Presently Stored Not in D or E	Total Completed & Stored (D+E+F)	% Complete (G/C)	Balance to Finish (C-G)
1		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
		$0.00	$0.00	$0.00		$0.00	0%	$0.00
TOTALS FOR PAYMENT #								$0.00

CHANGE ORDER REQUEST
CONSERVATION RESERVE ENHANCEMENT PROGRAM
DIVISION OF SOIL CONSERVATION
STATE OF IOWA

Change Order Request No. _____

Project ID (File) No.: _____ Date: _____

Name of Project: _____

Location of Project: _____

Name of Contractor: _____

Architect/Engineer: _____

Contract Plan and Detail Reference: _____

Change Order Request Drawing No. and Date: _____

Contract Specification Reference: _____

Description of Change: _____

BREAKDOWN OF CONTRACT COST:

Original Project Contract Amount:	$_____
Approved Change Orders No. _____ thru _____:	$_____
Pending Recommended Change Order Requests Nos. _____:	$_____
This Change Order Request:	$_____
Resulting Total Recommended Amount:	$_____

Reason for Contract Change: _____

_____

Change Requested by: _____

_____ _____
(Signature) (Date)

CONTRACTOR APPROVAL

_____ By: _____
(Company) (Signature)

_____ _____
(Address) (Date)

_____

_____

CREP COORDINATOR RECOMMENDATIONS

_____ Concur _____ Recommend Rejection (Attach Explanation)

CREP Coordinator: _____ _____
(Signature) (Date)

DIVISION OF SOIL CONSERVATION AUTHORIZATION

Change Order required due to:

_____

_____

Immediate authorization to proceed granted: _____ Yes _____ No

APPROVED:

_____
Director, Division of Soil Conservation
Division of Soil Conservation
Iowa Department of Agriculture
and Land Stewardship

_____
(Date)

DENIED:

_____
Director, Division of Soil Conservation
Division of Soil Conservation
Iowa Department of Agriculture
and Land Stewardship

_____
(Date)

END OF DOCUMENT HH

State of Iowa
DIVISION OF SOIL CONSERVATION
Iowa Department of Agriculture and Land Stewardship
Har892029C CREP Wetland Project Construction Contract Amendment

THIS AMENDMENT, made this _____ day of _____, 2015, by and between the State of Iowa, acting through:

Division of Soil Conservation
Iowa Department of Agriculture and Land Stewardship

hereinafter called the ***DIVISION***, and

_____
(Name of Company)

_____
(Address)

_____
(City, State, Zip)

hereinafter called the ***CONTRACTOR***.

WITNESSETH: That the ***DIVISION*** and the ***CONTRACTOR*** mutually agree to amend the agreement made _____, 2015 for the Har892029C CREP Wetland Project as described below:

Description of Amendment(s):

Contract Plan Sheet(s) and/or
Detail Reference(s): _____

Contract Construction Specification
Reference(s): _____

Amendment No. ____
Drawing No. and Date: _____

Reason for Revision of
Contract Completion Date: _____

_____

_____

_____

_____

_____

_____

Original Contract Completion Date: _____

Current Contract Completion Date: _____

Revised Contract Completion Date, This Amendment: _____

BREAKDOWN OF AMENDMENT CONTRACT COST BY BID ITEM:

_____

_____

_____

_____

_____

Original Project Contract Amount:	$_____
Approved Change Orders No. _____ thru _____:	$_____
Approved Amendments No. _____ thru _____:	$_____
This Amendment:	$_____
Resulting Total Amended Contract Amount:	$_____

IN WITNESS WHEREOF, the parties hereto have executed this Amendment, in the day and year first above mentioned.

FOR THE DIVISION

Michael L. Naig, Deputy Secretary
Iowa Department of Agriculture and Land Stewardship

(Date)

FOR THE CONTRACTOR

(Company Representative)

(Date)

(Name of Company)

(Address of Company)

(City, State, Zip Code)

Seal if by a corporation

CONSENT FROM SURETY:

BY:
(Surety Representative)

(Name of Surety)

(Date)

END OF DOCUMENT II

IOWA
Department of Revenue
www.state.ia.us/tax

Designated Exempt Entity
Iowa Construction Sales Tax Exemption Certificate

This document may be completed by a designated exempt entity and given to their contractor and/or subcontractor along with an authorization letter. *Seller:* Keep this certificate in your files. *Contractor/Exempt Entity:* Keep a copy of this certificate for your records. **Do not send this to the Department of Revenue**

Designated Exempt Entity		
Division of Soil Conservation **Iowa Department of Agriculture and Land Stewardship**		
Address 1 **502 East 9th Street**		
Address 2		
City **Des Moines**	State **IA**	Zip Code **50319**
Construction Project Name **Har892029C CREP Wetland Project**		
Construction Project Number (if used) **Job No. 15-04**		

General Contractor or Subcontractor Name		
Sample		
Address 1 **123 Construction Ave**		
Address 2		
City **Diggerville**	State **IA**	Zip Code **55555**

Description of contract/subcontract (please print/type clearly)

Construction of wetland using a steel sheet pile weir and an earthen embankment.

The named contractor may purchase building materials used in the contract, exempt from sales tax. This exemption does NOT apply to materials, equipment and supplies consumed by the contractor or subcontractor.

Designated Exempt Entity Authorized Agent ._____ Date: _____

Authorization Letter From Division of Soil Conservation - Agriculture and Land Stewardship

Pursuant to Iowa Code Sections: 422.42 (16) & (17), and 422.47 (5), you are authorized to purchase construction materials tax free for the contract specified above.

The exemption certificate (or a copy of the certificate) may be provided to the suppliers of your construction materials and will authorize them to sell you the materials exempt from Iowa sales tax and any applicable local option sales tax and school infrastructure local option sales tax. Complete information on qualifying materials can be found at www.state.ia.us/tax, the Department of Revenue (IDR) website.

It is your responsibility to have records identifying the materials purchased and verifying they were used on this contract. Any materials purchased tax-free and not used on the construction project are subject to sales and applicable local option taxes. Should this occur, the tax must be paid directly by you to IDR in the same calendar quarter the project is completed. E-mail the department at: idrf@idrf.state.ia.us if you have questions on this requirement.

Contractors should be aware that use of the certificate to claim exemption from tax for items not used on this project or that do not qualify for exemption could result in civil or criminal penalties.

31-013 (12/10/02)

END OF DOCUMENT QQ

APPENDIX II

SOIL REPORT

Construction Materials Testing

November 17, 2014

Bolton & Menk, Inc.
Attn: Mr. Jim Leiding, P.E.
2730 Ford Street
Ames, Iowa 50010

RE: Hardin County CREP
Geotechnical Investigation

Dear Mr. Leiding,

On November 7, 2014, CMT was on-site at the above referenced project to conduct soil borings. The borings were done to establish a soil profile for the proposed CREP site. Five borings were conducted for the project, to depths of 10 to 20 feet below existing grades. Refer to the attached boring logs and profile for a complete description of the soil profile.

The soils consisted of a mixture of lean clays, silts and poorly graded sands. In boring no. 3, highly weathered limestone was encountered near a depth of 8.5 feet below existing grades. Groundwater levels were observed to be near 3 to 6 feet below existing grades. These groundwater levels could fluctuate with seasonal changes and should be re-evaluated as the project is constructed.

The soils encountered lacked a sufficient amount of cohesion for driving sheet piling. The limestone layer in Boring No. 3 could also hinder sheet piling installation. Based on the soil data, it is recommended that a resistance factor of 0.2 to 0.3 tons/foot be utilized for pile driving installation.

Please feel free to call should you have questions or if I may be of further assistance.

Sincerely,

Sybil K. Ferrier, P.E.
Principal Engineer

MT/sf

1610 East Madison Ave. • Des Moines, Iowa 50313
(515) 263-0794 • Fax (515) 263-0851
www.cmt-iowa.com

CONSTRUCTION MATERIALS TESTING

Project Hardin County CREP

Client Bolton & Menk, Inc

Boring # 1

Surface Elev. 1045.70 ft

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description *	USCS	Water Level
0								Very dark brown lean clay, trace sand and organics, moist TOPSOIL	CL	
								Brown fine sand, very moist Groundwater noted near 3 ft during drilling operations	SP	▽
4										
	1	CS		29.7				Gray fine sand with trace gravel after 5 ft		
8										
	2	CS		10.9				GRANULAR ALLUVIUM		
12										
	3	CS		11.8						
16										
								Gray sandy lean clay, very moist	CL	
20	4	CS		23.4		1,000**		COHESIVE ALLUVIUM		
								End of Boring **Estimated using calibrated penetrometer		
24										

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

1610 E Madison Ave. • Des Moines, Iowa 50313
(515) 263-0794 • Fax (515) 263-0851

CONSTRUCTION MATERIALS TESTING

Project **Hardin County CREP**

Client **Bolton & Menk, Inc**

Boring # **2**

Surface Elev. **1047.50 ft**

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description *	USCS	Water Level
0								Very dark brown lean clay, trace sand and organics, moist TOPSOIL	CL	
								Dark brown very silty clay, moist COHESIVE ALLUVIUM	CL-ML	
4										
	1	CS		15.3		1,500**		Gravel seam near 5 ft Groundwater noted near 6 ft during drilling operations		▽
8								Gray sandy lean clay, moist to very moist Silt/fine sand seam near 9 to 10 ft	CL	
	2	CS		24.9		500**				
12								COHESIVE ALLUVIUM		
	3	CS		22.3		1,500**				
16										
20	4	CS		21.0		1,500**				
								End of Boring **Estimated using calibrated penetrometer		
24										

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

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(515) 263-0794 • Fax (515) 263-0851

CONSTRUCTION MATERIALS TESTING

Project **Hardin County CREP**

Client **Bolton & Menk, Inc**

Boring # **3**

Surface Elev. **1049.00 ft**

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description *	USCS	Water Level
0								Very dark brown lean clay, trace sand and organics, moist TOPSOIL	CL	
								Brown lean clay, moist COHESIVE ALLUVIUM	CL	
4								Silt seam near 4 to 5 ft Groundwater noted near 4 ft during drilling operations		▽
	1	CS		20.3		500**		Light brown silty sand, moist GRANULAR ALLUVIUM	SM	
8								Highly weathered limestone		
								End of Boring, Auger Refusal **Estimated using calibrated penetrometer		
12										
16										
20										
24										

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

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(515) 263-0794 • Fax (515) 263-0851

CONSTRUCTION MATERIALS TESTING

Project Hardin County CREP

Client Bolton & Menk, Inc

Boring # 4

Surface Elev. 1050.30 ft

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description *	USCS	Water Level
0								Very dark brown lean clay, trace sand and organics, moist TOPSOIL	CL	
								Ligth brown silt, moist With clay seams after 3.5 ft Groundwater noted near 4 ft during drilling operations COHESIVE ALLUVIUM	ML	
4	1	CS		26.4		500**				
								Brown fine sand, with silt, moist GRANULAR ALLUVIUM	SP-SM	
8	2	CS		25.6		500**				
12								End of Boring **Estimated using calibrated penetrometer		
16										
20										
24										

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

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(515) 263-0794 • Fax (515) 263-0851

CONSTRUCTION MATERIALS TESTING

Project **Hardin County CREP**

Client **Bolton & Menk, Inc**

Boring # **5**

Surface Elev. **1052.18 ft**

Depth Ft.	Sample #	Method	SPT bpf	Moisture %	Dry Density pcf	Unconfined Compressive Strength	Cross Section	Material Description *	USCS	Water Level
0								Very dark brown lean clay, trace sand and organics, moist TOPSOIL Groundwater noted near 3 ft during drilling operations	CL	
4	1	CS		16.0		500**		Very dark gray silty fine sand, trace clay, moist COHESIVE ALLUVIUM	SP-SM	
8	2	CS		23.5		1,000**		Gray sandy lean clay, moist COHESIVE ALLUVIUM	CL	
12								End of Boring **Estimated using calibrated penetrometer		
16										
20										
24										

* The stratification lines represent approximate boundary lines between material types -- the transition may be gradual.

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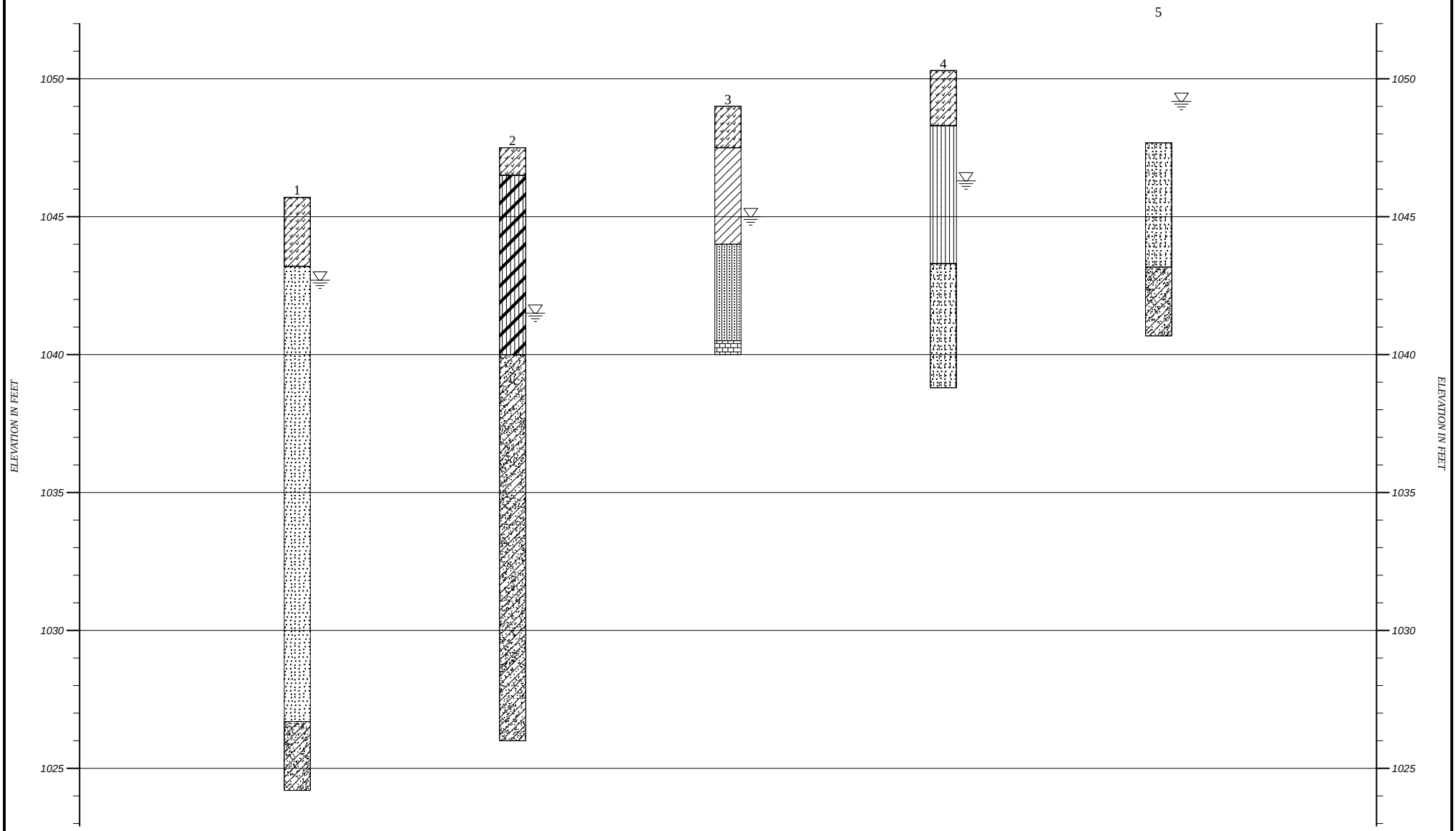
(515) 263-0794 • Fax (515) 263-0851



Strata symbols

- Topsoil
- Poorly graded sand
- Sandy lean clay
- Silty clay
- Lean clay
- Silty sand
- Limestone
- Silt
- Poorly graded sand with silt

CONSTRUCTION MATERIALS TESTING GENERALIZED SOIL PROFILE		
HORIZONTAL SCALE: VERTICAL SCALE: 1"=5'	DRAWN BY/APPROVED BY	DATE DRAWN 11/17/2014
Hardin County CREP		
PROJECT NO.		FIGURE NUMBER

WETLAND POOL DEPTH (FT)	ELEV (FT)	INCREMENTAL AREA (FT^2)	CUMULATIVE VOLUME (FT^3)	CUMULATIVE VOLUME (AC-FT)
0	1041.50	45		
1	1042.50	412	229	0.01
2	1043.50	1745	1079	0.03
3	1044.50	3890	2818	0.09
4	1045.50	9468	6679	0.25
5	1046.50	25424	17446	0.65
6	1047.50	62737	44081	1.66
7	1048.50	121682	92210	3.78
8	1049.50	193882	157782	7.40
9	1050.50	279957	236920	12.84
10	1051.50	362183	321070	20.21
11	1052.50	451136	406660	29.54
12	1053.50	547243	499190	41.00
13	1054.50	660849	604046	54.87
14	1555.50	739973	700411	70.95

PRELIMINARY PERMANENT EASEMENT BOUNDARY
NORMAL WATER LEVEL
DEEP POOL (> 3-FT DEPTH)
POOL EXPANSION AREA
100-YEAR STORM MAXIMUM BOUNCE
EXISTING ROAD RIGHT-OF-WAY
EXISTING TILE (APPROXIMATE)
PROPOSED TILE
FENCE
PRIMARY SHEET PILE SPILLWAY

OWNER TALKED TO PROPERTY OWNER TO NORTH AND WAS TOLD NO TILE CROSS THE ROAD

145th ST

FLOW FROM CULVERT RUNS EAST IN ROAD DITCH

2X2 CONC CULVERT INV=1048.91

CULVERT FLOWS WEST IN ROAD DITCH

TEST PIT BORROW
0-1' BLACK
1' + GRAVEL

NO TILE HERE, NONE CROSS THE ROAD TO THE NORTH

NO TILE HERE, NONE CROSS THE ROAD TO THE NORTH

NO TILE HERE, NONE CROSS THE ROAD TO THE NORTH

TEST PIT #3
0-1.5' BLACK
1.5-5' CLAYEY SAND
5' + GRAVEL

Bore #5
10' depth

Bore #4
10' depth

Bore #3
10' depth

Bore #2
20' depth

Bore #1
20' depth

POTENTIAL SUBMERGED BE

90-LF 18" DIA RCP DRAWDOWN PIPE

42" DRAWDOWN STRUCTURE

SHEET PILE WEIR

TEST PIT #2
0-1.5' BLACK
1.5-7' GRAVEL
7' + BLUE CLAY

FILL OLD CHANNEL

RIPRAP

STILLING BASIN

TEST PIT #1
0-3' BLACK
3-5' BROWN TAN CLAY
5.5'-6' WET GRAVEL
6-8' SANDY BLUE CLAY
LIMESTONE SHELF

6" VCP TILE
TOP=1043.72
TOP TO INV=0.56
INV=1043.16

6" TILE @ 0.18%

NWL MAINTAINED EAST OF N AVE
100-YEAR MAXIMUM WATER MAINTAINED INSIDE CHANNEL

BOTTOM OF BOX CULVERT ELEV = 1051.4

N AVE

6" PE TILE CAN BE ABANDONED

ABANDONDED TILE NOT WORKING, RE-ROUTED TO SOUTHEAST

APPROX. TILE OUTLET
1052.00

6" PVC TILE
TOP=1047.39
TOP TO INV=0.51
INV=1046.88

RELAY TILE OUTLET
350 LF 10" DUAL WALL
@ 0.10%

6" TILE @ 1.53%

6" PE TILE
TOP=1051.58
TOP TO INV=0.54
INV=1051.04

NO TILE FOUND

6" VCP TILE + 4' PROBE
TOP=1047.67
TOP TO INV=0.56
INV=1047.11

TILE DAYLIGHT DITCH OR SHALLOW GRADING FOR TILE DAYLIGHT

AUXILIARY SPILLWAY

APPROX. TILE OUTLET
1052.00

12" TILE - DAYLIGHT TO BORROW AREA

PERMANENT EASEMENT

100-YEAR HIGH WATER LEVEL

RELAY TILE OUTLET AND MAINFOLD
300 LF 12" DUAL WALL
@ 0.10%

WILL HAVE TO PLAN ON NEW MANIFOLD TILE AND LAY NEW TILE SOUTH OUTSIDE OF EASEMENT, OWNER WAS NOT SURE OF HOW MANY, BUT IT WAS TOO WET TO DIG IN THAT AREA

4" PE TILES

PROPERTY OWNER SAID NOT DECENT CLAY ON SITE, HAS SOME IN AREA TO SOUTH OR THEY HAVE A PIT A PIT ABOUT 3 MI AWAY

DESIGN CRITERIA	VALUE	UNIT	REQUIREMENT
WATERSHED AREA	916	ACRES	Greater than 500 acres
POOL NORMAL WATER LEVEL (NWL) ELEV	1051.00	FT	
DESIGNED WETLAND POOL AREA (@ NWL)	7.3	ACRES	
PERCENT POOL AREA TO WATERSHED AREA	0.8	%	Range 0.5% to 2% of watershed area.
MAXIMUM POOL DEPTH	9.5	FT	
AVERAGE POOL DEPTH	2.2	FT	
DEEP WATER AREA (DEPTH > 3 FT)	2.0	ACRES	
PERCENT DEEP WATER TO POOL AREA	27.5	%	Less than 25%.
POOL STORAGE VOLUME AT NWL	24.4	ACRE-FT	
BERM ELEVATION	1055.50	FT	
MAXIMUM BERM HEIGHT	14.0	FT	
AVERAGE BERM HEIGHT	5.2	FT	
BERM LENGTH	1540	FT	
PRIMARY WEIR ELEVATION	1051.00	FT	
PRIMARY WEIR WIDTH	46	FT	
AUXILIARY SPILLWAY ELEVATION	NA	FT	
AUXILIARY SPILLWAY WIDTH	NA	FT	
AREA OF BUFFER	24.0	ACRES	
RATIO BUFFER AREA TO NWL POOL AREA	2.3		Less than 4. (1.2 Buffer/NWL if expanded)
25-YEAR STORM HWL IN POOL	1053.47	FT	
25-YEAR PEAK INFLOW	777	CFS	
25-YEAR PEAK OUTFLOW	663	CFS	
100-YEAR STORM HWL IN POOL	1054.14	FT	
100-YEAR PEAK INFLOW	1149	CFS	
100-YEAR PEAK OUTFLOW	992	CFS	

HORIZ. SCALE 0 60 120 FEET

Boring Locations

H:\IDALS\A11107146 - Hardin County 29-89-20\C3D\HAR892029CBSE1.dwg 6/9/14 3:23 pm

DESIGNED JPR
DRAWN JPR
CHECKED NTG

BOLTON & MENK, INC.
Consulting Engineers & Surveyors
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN MAPLEWOOD, MN
BAXTER, MN ROCHESTER, MN AMES, IA SPENCER, IA

REV	BY	DATE

HARDIN COUNTY, IOWA
IOWA DEPARTMENT OF AGRICULTURE
PROPOSED WETLAND
CREP PROJECT NO. HAR892029C

SHEET 1