

WETLAND DELINEATION REPORT

IOWA ARMY AMMUNITIONS PLANT SITE MIDDLETOWN, DES MOINES COUNTY, IOWA

Prepared For:

Stanley Consultants 225 Iowa Avenue Muscatine, IA 52761

June 1, 2012

McConnell Environmental LLC 8608 W. Sunset Dr. Wonder Lake, IL 60097 Office (815) 728-7281 Fax (815) 728-7243

WETLAND DELINEATION REPORT

Project Name: Iowa Army Ammunition Plant Site

Project Client: Stanley Consultants

Project Number: 120029-Wet

Location: Flint River Township, Des Moines County, IA – S 30 & 31-T70N-R6E

Date of Site Delineation: May 23rd & 24th, 2012

Field Investigator: Coilin McConnell & Tom Mattingly

Certified Wetland Specialist:

Coilin McConnell

Introduction

The project area is approximately 300 acre area within the Army Ammunition Plant (Exhibit A), approximately wetland area is 3.7 acres. The wetland is located throughout the 300 acres. The project area is located within in the Mississippi River watershed. This site is a farm parcel with commercial and industrial areas surrounding it.

Coilin McConnell delineated the wetlands on this property on February 27, 2009, using the procedures outlined in the 1987 Corps of Engineers' Wetland Delineation Manual and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region. The entire site was inspected for hydric soils prior to field identification. Field inspection identified wetland vegetative species within the drainage channels and within the depressional wetland areas. The soil borings and hydrology indicators were utilized to verify the wetland and upland vegetative species. The hydric soils contained thick dark surface, depleted below dark surface, loamy gleyed surface, and dark surface. The hydrology indicators that were identified were high water table, saturation, water stained leaves, inundation visible on aerial, geomorphic positions, and FAC-Neutral Test.

Plot locations were collected per the Wetland Delineation Manual. The nine plot locations were picked to define the wetland boundaries throughout the property. The wetland locations showed hydric soils, as indicated on the Web Soil Survey map (Exhibit C). The vegetation was mostly Facultative Wetland species and Obligate because they were within depressional areas or within drainage channels.

A native vegetative quality rating was calculated for the wetland using the Floristic Quality Assessment (FQA) of Swink and Wilhelm as published in <u>Plants of the Chicago Region</u>, 1994. The native species is given a rating based on commonality. This rating determines the Floristic Quality Index (FQI) of that wetland. The FQI is broken into 3 categories: 1-19 indicates low quality, 20-35 indicates high quality, and 35 and above indicates "Natural Area" quality.

RESULTS

Two different types of wetland ecosystems were found. The first wetland ecosystem had the standard wetland characteristics. The two wetland areas had a depressional topography that holds water for months at a time. The other wetland ecosystem was a drainage channel ecosystems that has deep sides with flowing water traveling down during rain events. These channels are also deep enough and shaded so that they don't dry out during a typical summer weather pattern.

There were wetland like ecosystems in the road and railroad track drainage gullies. In my opinion these are not wetland areas. These areas if maintained would drain correctly and there would be no wetland species growing within the sediment of the field and gravel run-off. But since these areas have lacked maintenance, one views cattails and other opportunistic wetland species in the bottom flat areas.

The two standard wetland areas are mapped on the NWI Map (Exhibit E) as a freshwater emergent wetland and freshwater pond.

The plants that were identified within the drainage channel showed high quality species possibly because these channel has been around and has been left untouched for a long period of time. The wildlife habitat quality score is a 3.5 because of the biological highways for the animals to move through and hide in.

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LEGEND

PROJECT AREA



Location Map

Google Earth Des Moines County, Iowa

Old Hwy 34, Middletown

120029-Wet

Stanley Consutlants

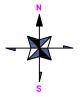


Exhibit A

MAP REVIEW

- United States Geologic Survey (USGS) Quadrangle Map (Exhibit B) shows the area as fairly flat. The eastern property does drain slowly to the southeast where there are storm culverts going underneath the roads and railroad tracks. Eventually, all water drains to the southwest into a creek system. The western portion drains into the drainage channels and then into the pond and continues further to the west.
- McHenry County soil survey (Exhibit E) shows eight soil types throughout the property: Colo Silty Clay Loam and Taintor Silty Clay Loam which is located in the drainage area of the creek and throughout the farm fields. These two soil types are hydric soil. Givin Silt Loam, Mahaska Silty Clay Loam, Nira Silty Clay Loam, and Hedrick Silt Loam are non-hydric soil. Urban Land and Orthents Loamy are soils that have been disturbed by manmade construction.
- The wetland delineation (Exhibit H) shows the wetland delineation lines throughout the 300 acres. The wetland lines were determined by the investigation plots and through the typical ecosystems that were found based off of the plot determinations.
- The Fish & Wildlife Service Map (Exhibit I) shows two mapped wetland areas. The freshwater pond in the southwest corner of the property and the freshwater emergent wetland area in the depressional area within the northeastern portion of the property.

USGS Quadrangle Map

USGS Quadrangle Map, Flint River TWN Des Moines County, Iowa

Old Hwy 34, Middletown

120029-Wet

Stanley Consutlants

LEGEND	MCCONNELL
PROJECT AREA	ENVIRONMENTAL
	S
	Exhibit B

Soil Map

Web Soil Survey Des Moines County, Iowa

Old Hwy 34, Middletown

120029-Wet

Stanley Consutlants

LEGEND

PROJECT AREA

279 - Taintor Silty Clay Loam

- Mahaska Silty
Clay Loam

280

- Urban Land 4000

5040 - Orthents, Loamy

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Exhibit C-1

Soil Map

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Web Soil Survey
Des Moines County, Iowa

Old Hwy 34, Middletown

120029-Wet

Stanley Consutlants

PROJECT AREA

75 — Givin Silt Loam 133B — Colo Silty Clay

Loam
279 — Taintor Silty
Clay Loam

280 — Mańaska Silty Clay Loam

571B — Hedrick Silt Loam

4000 - Urban Land

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Exhibit C-2



Soil Map

Web Soil Survey Des Moines County, Iowa

Old Hwy 34, Middletown

120029-Wet

Stanley Consutlants

PROJECT AREA

133B - Colo Silty Clay

Loam

279

Taintor Silty Clay Loam Mahaska Silty 280

Clay Loam Nira Silty Clay

570B Loam

571B Hedrick Silt Loam

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Exhibit C-3



Wetland Delineation

McConnell Environmental Des Moines County, Iowa

Old Hwy 34, Middletown

120029-Wet

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LEGEND

PROJECT AREA

Plot Number

Wetland Line

Transect Line

Transect No.

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Exhibit D-1



Wetland Delineation

McConnell Environmental Des Moines County, Iowa

Old Hwy 34, Middletown

120029-Wet

Stanley Consutlants

LEGEND

PROJECT AREA

Plot Number

Wetland Line

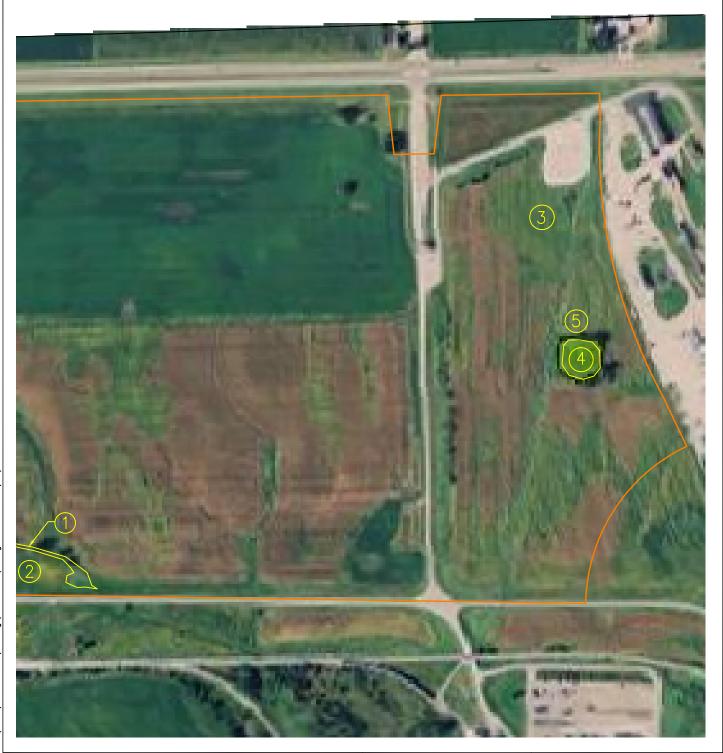
Transect Line

Transect No.

MCCONNELL ENVIRONMENTAL



Exhibit D-2



Wetland Delineation

McConnell Environmental Des Moines County, Iowa

Old Hwy 34, Middletown

120029-Wet

Stanley Consutlants

LEGEND

PROJECT AREA

Plot Number

Wetland Line

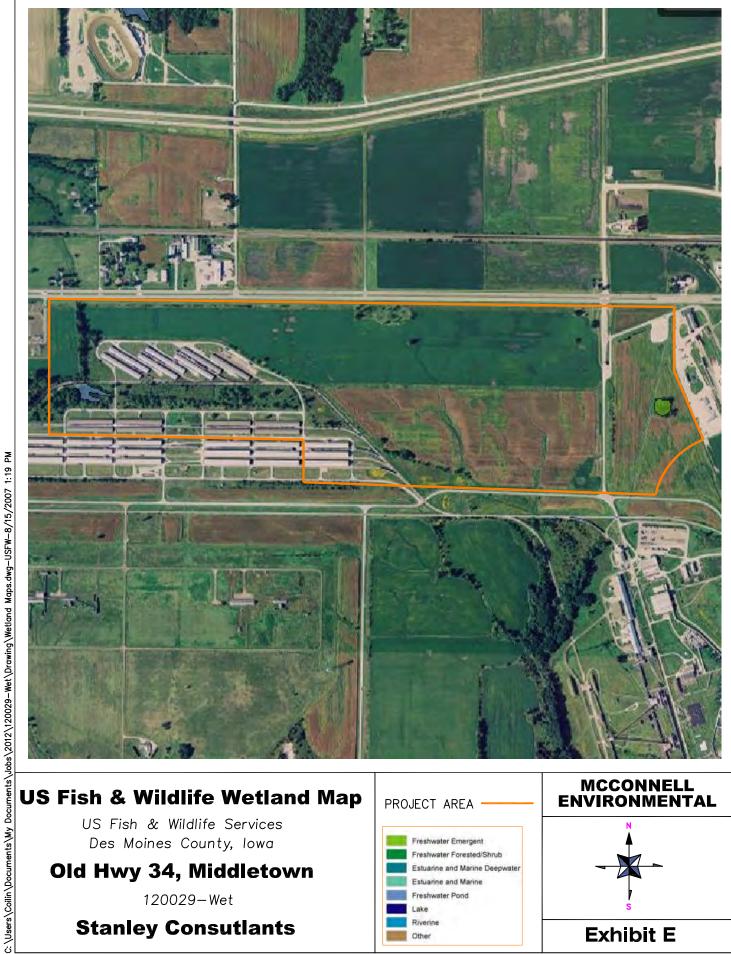
Transect Line

Transect No.

MCCONNELL ENVIRONMENTAL



Exhibit D-3



US Fish & Wildlife Wetland Map

US Fish & Wildlife Services Des Moines County, Iowa

Old Hwy 34, Middletown

120029-Wet

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PROJECT AREA Freshwater Emergent Freshwater Forested/Shrub Estuarine and Marine Deepwater Freshwater Pond Other

MCCONNELL ENVIRONMENTAL



Exhibit E

Location: Iowa Army Ammunitions Plant Site Date of Photographs: 5-23&24-12 Investigator: Coilin McConnell & Tom Mattingly



Photograph 1: This photo shows the drainage channel flowing southeast into a wetland area.



Photograph 2: This area is the upland area within the triangle of the intersection. This photo is facing southwest.



Photograph 3: This shows the depressional area within the farm field. There is corn started to coming up.



Photograph 4: This shows the depressional area within the wetland area.



Photograph 5: This shows the upland area surrounding the depressional wetland area within the farm field to the East.



Photograph 6: This shows the drainage channel system within the property. This is typical throughout the western portion of the property.



Photograph 7: This shows the typical upland ecosystem that is adjacent to the drainage channel system within the property.



Photograph 8: This shows the drainage channel system within the property. This is typical throughout the western portion of the property.



Photograph 9: This shows the upland area north of the pond in the southwest corner.



Photograph 10: This shows the pond ecosystem within the southwest corner of the property.



Photograph 11: This shows the western portion of the pond.



Photograph 12: This shows the drainage channel system running north/south within the western portion of the property.

Project/Site: lowa Army Ammunitions Plant Site		City:	Middletown	
Applicant: Stanley Consultants				State: Iowa Sampling Point: 1
Investigator(s): Coilin McConnell & Tom Mattingly				31 & 32-70-6
Landform (hillslope, terrace, etc.): Drainage Swale	_	cal relief (cor	icave, conve	· /
Slope (%): Lat: 40.82155 N	Long: <u>{</u>	91.23371 W		Datum:
Soil Map Unit Name: Mahaska Silty Clay Loam	0	V [7 N	NWI Classification:
Are climate/hydrologic conditions on the site typical for this time of your state of the site of your state of you		Yes L		
Are Vegetation \square , Soil \square , or Hydrology \square ignificantly dist				Circumstances" present? Yes 🔽 No 🗌
Are Vegetation, Soil, or Hydrologyaturally proble	matic? (If ne	eded, explair	any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling p	oint locatio	ns, transects	s, importan	t features, etc.
Hydrophytic Vegetation Present? Yes ☑ No □	Is the Sam	nled Δrea		
Hydric Soil Present? Yes ☑ No □	within a W			Yes ☑ No □
Wetland Hydrology Present? Yes ☑ No □	within a w	Cildila.		
Remarks:				
Drainage Ditch				
VECTATION Has a significant of plants				
VEGETATION - Use scientific names of plants.				T
T 0: 1 (D) 1 (D)	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: 3 (A)
2.				Total Nicolay of Developed
3.			-	Total Number of Dominant
4.				Species Across All Strata:3 (B)
5.	0	= Total Cov		Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15')		= Total Cov	EI	That Are OBL, FACW, or FAC: 100% (A/B)
1. Salix interior	10	Yes	FACW	That Are OBL, FACW, or FAC. 100% (A/B)
2.		103	TAOW	Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species 15 x 1 = 15
5.				FACW species 50 x 2 = 100
	10	= Total Cov	er	FAC species 0 x 3 = 0
Herb Stratum (Plot size: 5')				FACU species $10 \times 4 = 40$
1. Carex granularis	40	Yes	FACW	UPL species $0 \times 5 = 0$
2. Carex tribuloides	15	Yes	OBL	Column Totals: <u>75</u> (A) <u>155</u> (B)
3. Solidago altissima	5	No	FACU	
4. Asclepias syriaca	5	No	FACU	Prevalence Index = B/A = 2.07
5.				Hydrophytic Vegetation Indicators:
6.				
7.				1 - Rapid Test for Hydrophytic Vegetation
8.				2 - Dominance Test is >50%
9.				3 - Prevalence Index is ≤ 3.0'
10.		T.1.10		4 - Morphological Adaptations ¹
Was de Wiss Obselves (Blades' e. 200)	65	= Total Cov	er	(provide supporting data in Remarks or
Woody Vine Stratum (Plot size: 30')				on a separate sheet)
1.				Problematic Hydrophytic
2.				Vegetation ¹ (Explain)
3.				11. 35. 31. 31. 45. 45. 32. 31. 31. 31. 31. 31. 31.
4.			-	¹ Indicators of hydric soil and wetland hydrology
5.		Total Cov		must be present, unless disturbed or problematic.
	0	= Total Cov	EI	Hydrophytic Vegetation Present?
				Yes ☑ No □
Remarks: (Include photo numbers here or on a separate sheet.)				Ties :: NO ::
See photograph number 1.				
1				

Midwest Region - Version 2.0
Sampling Point: 1

Profile Descrip	otion: (Describe t	o the dep	th needed to do	cumen	t the indicat	or or confi	rm the absen	ce of ind	icators.)	
Depth	Matrix			Redox I	Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture		Remark	S
<u>0-13</u>	10yr 2/1	100	5yr 4/6	40	<u>C</u>	<u>PL</u>	CL			
<u>13-36</u>	Gley 1 2.5N/0	100	5yr 4/6	5	<u>C</u>	<u>M</u>	<u>C</u>			
¹ Type: C=Cond	entration, D=Deple	etion, RM=	Reduced Matrix	CS=C	overed or Co	ated Sand (Grains. ² Locat	ion: PL=F	ore Lining, M=Ma	trix
Hydric Soil Inc										natic Hydric Soils ³
Histosol (A	1)				Sandy Gleye	ed Matrix (S	4)		Coast Prairie Re	
☐ Histic Epip	edon (A2)				Sandy Redo		,		Dark Surface (S7	
☐ Black Histic					Stripped Ma				Iron-Manganese	Masses (F12)
☐ Hydrogen S	Sulfide (A4)				Loamy Muck	ky Mineral (F	⁼ 1)		Very Shallow Da	rk Surface (TF12)
☐ Stratified L	ayers (A5)				Loamy Gleye	ed Matrix (F	2)		Other (Explain in	Remarks)
☐ 2 cm Muck	(A10)				Depleted Ma	atrix (F3)				
✓ Depleted B	elow Dark Surface	(A11)			Redox Dark	Surface (F6	5)			
☐ Thick Dark	Surface (A12)				Depleted Da	ırk Surface (F7)		3Indicators of hyd	drophytic vegetation and
☐ Sandy Muc	ky Mineral (S1)				Redox Depre	essions (F8)			y must be present, unless
☐ 5 cm Muck	y Peat or Peat (S3)			·	` '			disturbed or prob	
	yer (if observed)	,						Hydric S	oil Present?	
Type:								-		
Depth (inch	nes):							Yes 🔽	No □	
Remarks:							•			
HYDROLOGY										
	ology Indicators:									
	ors (minimum of o	ne is requ	ired: check all the							mum of two required)
Surface wa	` '				Water-Stain		B9)	$\overline{\mathbf{A}}$		
High water					Aquatic Fau	` '		닏	Drainage Pattern	` ,
Saturation	` '				True Aquatio				Dry-Season Wat	, ,
☐ Water Mar	` '				Hydrogen St			20)	Crayfish Burrows	` ,
	Deposits (B2)						iving Roots (C		Sat. Visible on A	` ,
☐ Drift Depos	' '				Presence of				Stunted or Stress	` ,
☐ Algal Mat o	r Crust (B4)				Thin Muck S		n Tilled Soil (C	6) 🔽	Geomorphic Pos FAC-Neutral Tes	
	Visible on Aerial Ir	nogoni (D	7)		Gauge or W		۸.	¥	FAC-Neutral Tes	it (D3)
	egetated Concave				Other (Expla					
Field Observa	U	Juliace (D0)		Other (Expla	iii iii i teiliai	,	Watland	Hydrology Prese	ant?
Surface Water		Yes 🗌		lo 🗹	Depth (incl	has).		Wetland	riyarology r resc	, iii i
Water Table Pr		Yes 🗆		lo 🗹	Depth (incl	,		Yes ✓	No 🗆	
Saturation Pres		Yes 🗆		lo 🗹	Depth (incl			.03		
(includes capill		103 🗀	•		Boptii (iiioi	103).				
	rded Data (stream	dande m	onitoring well ae	rial pho	tos previous	inspections	s) if available:			
200000		gaage,	oogo, a.	a. pc	, p	оросисс	,, a. a			
Remarks:										
Drainage D	itch									

Midwest Region - Version 2.0

Project/Site: Iowa Army Ammunitions Plant Site		City: <u>I</u>	Middletown	
Applicant: Stanley Consultants				State: Iowa Sampling Point:2
Investigator(s): Coilin McConnell & Tom Mattingly				31 & 32-70-6
Landform (hillslope, terrace, etc.): Hillslope		ocal relief (cond	cave, conve	
Slope (%): 5 Lat: 40.82140 N Soil Map Unit Name: Mahaska Silty Clay Loam	Long: <u>s</u>	91.23379 W		Datum: NWI Classification:
Are climate/hydrologic conditions on the site typical for this time of y	oar?	Yes ☑	No	
Are Vegetation, Soil, or Hydrology				
				Circumstances" present? Yes V No
Are Vegetation \square , Soil \square , or Hydrology \square aturally proble	ematic? (If ne	eded, explain	any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling p	oint locatio	ns, transects	, importan	t features, etc.
Hydrophytic Vegetation Present? Yes No Vegetation Present?	Is the Sam	pled Area		
Hydric Soil Present? Yes V No	within a W			Yes No 🗸
Wetland Hydrology Present? Yes \(\subseteq \text{No } \subseteq \)				
Remarks:				·
VEGETATION - Use scientific names of plants.				
	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: 0 (A)
2.				<u> </u>
3.				Total Number of Dominant
4.				Species Across All Strata: 2 (B)
5.				<u> </u> !
0 15 (0) 1 05 (75) (75)	0	= Total Cove	r	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15')				That Are OBL, FACW, or FAC: 0% (A/B)
1. 2.				Prevalence Index worksheet:
<u> </u>				
3				Total % Cover of: Multiply by:
3.				Total % Cover of: Multiply by: OBI species 0 x 1 = 0
4.				OBL species 0 x 1 = 0
	0	= Total Cove	er	OBL species 0 x 1 = 0
4.	0	= Total Cove	er	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba	5	No	UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa	5 35	No Yes	UPL FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima	5	No	UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B)
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4.	5 35	No Yes	UPL FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5.	5 35	No Yes	UPL FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B)
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4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7.	5 35	No Yes	UPL FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05 Hydrophytic Vegetation Indicators: 1 1 - Rapid Test for Hydrophytic Vegetation
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4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8.	5 35	No Yes	UPL FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0'
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7.	5 35 60	No Yes Yes	UPL FACU FACU	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9.	5 35	No Yes	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8.	5 35 60	No Yes Yes	UPL FACU FACU	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2.	5 35 60	No Yes Yes	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05 Hydrophytic Vegetation Indicators: 1 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1.	5 35 60	No Yes Yes	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4.	5 35 60	No Yes Yes	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3.	5 35 60	No Yes Yes Total Cove	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4.	5 35 60	No Yes Yes	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4.	5 35 60	No Yes Yes Total Cove	UPL FACU FACU	OBL species
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4. 5.	5 35 60	No Yes Yes Total Cove	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 95 x 4 = 380 UPL species 5 x 5 = 25 Column Totals: 100 (A) 405 (B) Prevalence Index = B/A = 4.05 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4.	5 35 60	No Yes Yes Total Cove	UPL FACU FACU	OBL species
4. 5. Herb Stratum (Plot size: 5') 1. Lychnis alba 2. Poa compressa 3. Solidago altissima 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4. 5.	5 35 60	No Yes Yes Total Cove	UPL FACU FACU	OBL species

SOIL

Depth	on: (Describe to Matrix	o ine ae			i t tne indica t Features	OF OF CONTI	iiii tiie absen	ce or ind	เเตยเดเร.)	
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture		F	Remarks
0-7	10yr 2/1	100	5yr 4/6	75	C rype [1]	M	SICL			iomano
7-12	2.5y 6/3	70	7.5yr 6/8	30	CS	M	CL CL			
<u> </u>	2.5y 5/1	30	,. 5,0				<u> </u>			
12-28	10yr 6/2	100	10yr 5/8	75	CS	М	CL			
28-36	10yr 6/1	100	10yr 5/8	50	CS	M	CL			
	-				·		<u> </u>			
¹ Type: C=Concer	ntration, D=Deple	etion, RM	=Reduced Matrix	<u>, CS</u> =C	overed or Co	ated Sand	Grains. ² Locat	ion: PL=I	Pore Lining	, M=Matrix
Hydric Soil Indic										Problematic Hydric Soils ³
Histosol (A1)					Sandy Gleye	ed Matrix (S	(4)			airie Redox (A16)
☐ Histic Epiped	on (A2)				Sandy Redo		•		Dark Surf	ace (S7)
☐ Black Histic (A3)				Stripped Ma	trix (S6)			Iron-Mano	ganese Masses (F12)
☐ Hydrogen Su	Ifide (A4)				Loamy Muck				Very Sha	llow Dark Surface (TF12)
☐ Stratified Lay					Loamy Gley		⁻ 2)		Other (Ex	plain in Remarks)
2 cm Muck (A	,				Depleted Ma	atrix (F3)				
	ow Dark Surface	(A11)			Redox Dark	Surface (F6	6)			
☑ Thick Dark S	urface (A12)				Depleted Da	ark Surface	(F7)		3Indicator	s of hydrophytic vegetation and
Sandy Mucky					Redox Depr	essions (F8	3)			ydrology must be present, unless
	Peat or Peat (S3)								or problematic.
Restrictive Laye	r (if observed)							Hydric S	Soil Presen	nt?
Type:								_	-	. 🗖
Depth (inche: Remarks:	s):							Yes 🗹	<u>'</u>	lo 🗌
HYDROLOGY										
Wetland Hydrolo										
Primary Indicator		ne is requ	ired: check all th	at apply				Seconda		rs (minimum of two required)
Surface wate	` '			닏	Water-Stain		(B9)	Ä		Soil Cracks (B6)
High water ta					Aquatic Fau	` '			•	Patterns (B10)
Saturation (A				닏	True Aquation				•	on Water Table (C2)
☐ Water Marks				닏	Hydrogen Si		` '		•	Burrows (C8)
Sediment De				닏		•	Living Roots (C	,		le on Aerials (C9)
☐ Drift Deposits	` '			닏	Presence of		` '	📙		or Stressed Plants (D1)
Algal Mat or				닏			n Tilled Soil (C	6) 📙		hic Position (D2)
☐ Iron Deposits				╚	Thin Muck S				FAC-Neu	tral Test (D5)
_	sible on Aerial In	· , ,	,	╚	Gauge or W					
	etated Concave	Surface	(B8)		Other (Expla	ain in Remai				
Field Observation	_	, –	_	. 🗖	.			Wetland	Hydrolog	y Present?
Surface Water Pr		Yes 📙		Vo ☑	Depth (incl			.,	_	. 🖂
Water Table Pres		Yes 📙		Vo ☑	Depth (incl			Yes 📙	N	lo 🗸
Saturation Prese		Yes □	1	Vo ☑	Depth (incl	hes):				
(includes capillar							.) '(
Describe Record	ed Data (stream	gauge, n	nonitoring well, as	erial pho	itos, previous	sinspections	s), it available:			
Remarks:										
i iciliains.										
										Midwest Region - Version 2.0

Project/Site: Iowa Army Ammunitions Plant Site		City: Middletowr	n Sampling Date: 5/23/2012
Applicant: Stanley Consultants			State: Iowa Sampling Point: 3
Investigator(s): Coilin McConnell & Tom Mattingly		ection, Township, Range:	
Landform (hillslope, terrace, etc.): Farm Field		cal relief (concave, conv	
Slope (%): Lat: Soil Map Unit Name: Taintor Silty Clay Loam	_ Long:_		Datum: NWI Classification:
Are climate/hydrologic conditions on the site typical for this time of year	ear?	Yes ☑ No	
Are Vegetation . , Soil . , or Hydrology			Circumstances" present? Yes □ No ☑
Are Vegetation ☑ , Soil □ , or Hydrology □ aturally proble			·
SUMMARY OF FINDINGS - Attach site map showing sampling p	•		,
	T TOCALIO	ins, transects, importar	it leatures, etc.
Hydrophytic Vegetation Present? Yes ☐ No ☑ Hydric Soil Present? Yes ☑ No ☐	Is the Sam		Yes □ No ☑
Wetland Hydrology Present? Yes □ No ☑	within a W	etland?	
Remarks:	 		
VEGETATION - Use scientific names of plants.			
	Absolute	Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')	% Cover	Species? Status	Number of Dominant Species
1.			That Are OBL, FACW, or FAC: 0 (A)
2.			<u> </u>
3.			Total Number of Dominant
4.			Species Across All Strata:1 (B)
5.	0	= Total Cover	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15')		- Total Gover	That Are OBL, FACW, or FAC: 0% (A/B)
1.			(\\
2.			Prevalence Index worksheet:
3.			Total % Cover of: Multiply by:
4.			OBL species 0 x 1 = 0
		- Total Cover	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0
4. 5.	0	= Total Cover	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0
4. 5. Herb Stratum (Plot size: <u>5'</u>)	-		OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0
4. 5. Herb Stratum (Plot size: <u>5'</u>) 1. Zea mays	0 50	= Total Cover Yes UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250
4. 5. Herb Stratum (Plot size: <u>5'</u>)	-		OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250
4. 5. Herb Stratum (Plot size: <u>5'</u>) 1. Zea mays 2. 3. 4.	-		OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A =
4. 5. Herb Stratum (Plot size: <u>5'</u>) 1. Zea mays 2. 3. 4. 5.	-		OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B)
4. 5. Herb Stratum (Plot size: <u>5'</u>) 1. Zea mays 2. 3. 4. 5. 6.	-		OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators:
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7.	-		OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators: 1 1 - Rapid Test for Hydrophytic Vegetation
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8.	-		OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators: 1 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9.	-		OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 0 x 5 = 0 Column Totals: 0 (A) 0 Prevalence Index = B/A = 0 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is 0 3.0'
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8.	-	Yes UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is $\leq 3.0^{\circ}$ 4 - Morphological Adaptations
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9.	50		OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 0 x 5 = 0 Column Totals: 0 (A) 0 Prevalence Index = B/A = 0 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is 0 3.0'
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9.	50	Yes UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9.	50	Yes UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1.	50	Yes UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4.	50	Yes UPL	OBL species
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3.	50	Yes UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4.	50	Yes UPL	OBL species
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4.	50	Yes UPL	OBL species
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4.	50	Yes UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4. 5.	50	Yes UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 UPL species 50 x 5 = 250 Column Totals: 50 (A) 250 (B) Prevalence Index = B/A = 5 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present?
4. 5. Herb Stratum (Plot size: 5') 1. Zea mays 2. 3. 4. 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1. 2. 3. 4. 5. Remarks: (Include photo numbers here or on a separate sheet.)	50	Yes UPL	OBL species

SOIL

	ion: (Describe to	the dep	th needed to d			or or confir	m the absen	ce of ind	icators.)	
Depth	Matrix		-	Redox	Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture		Rema	rks
<u>0-16</u>	10yr 2/1	100					<u>SIL</u>			
<u>16-25</u>	10yr 4/2	100		>5	<u>CS</u>	<u>M</u>	SIL		_	
<u>25-34</u>	10yr 5/4	100	10yr 5/8	25	<u>CS</u>	<u>M</u>	SIL			
					·					
	-		-						_	
	ntration, D=Deple	etion, RM	=Reduced Matri	ix, CS=C	overed or Co	ated Sand G	irains. ² Locat			
Hydric Soil Indi								Indic		ematic Hydric Soils ³
☐ Histosol (A1)					Sandy Gleye		.)	닏	Coast Prairie F	` ,
☐ Histic Epiped				닏	Sandy Redo				Dark Surface (
☐ Black Histic	,			닏	Stripped Mat	` '		닏		se Masses (F12)
Hydrogen Su	` '			닏	Loamy Muck			닏		Dark Surface (TF12)
Stratified Lay				님	Loamy Gleye		<u>2)</u>	Ш	Other (Explain	in Remarks)
2 cm Muck ((444)		님	Depleted Ma					
	ow Dark Surface	(A11)		님	Redox Dark	` '			3	
☐ Thick Dark S				님	Depleted Da	,	=7)			nydrophytic vegetation and
	y Mineral (S1)			Ш	Redox Depre	essions (F8)				ogy must be present, unless
☐ 5 cm Mucky Restrictive Laye	Peat or Peat (S3))						Uvdria C	disturbed or proceed or procedure or proceed or proceed or proceed or proceed or proceed or procedure or proceed or procedure o	oblematic.
Type:	ii (ii observed)							riyuric 3	on Fresent?	
Depth (inche	s):							Yes 🔽] No	
Remarks:								•		
HVDDOL OCV										
HYDROLOGY	agy Indicators									
Wetland Hydrol Primary Indicator	ogy indicators: s (minimum of or	ne is real	ired: check all t	hat annly	<i>'</i>)			Seconda	rv Indicators (m	inimum of two required)
☐ Surface water	1	.0 .0 .040			Water-Staine	ed Leaves (F			Surface Soil C	
☐ High water to	` '			Ē	Aquatic Fau		,		Drainage Patte	
☐ Saturation (A					True Aquatio	` ,	1)	Ħ		ater Table (C2)
☐ Water Marks	,			Ħ	Hydrogen St	,	,		Crayfish Burro	,
☐ Sediment De	` '			\Box	, ,	,	iving Roots (C		Sat. Visible on	
☐ Drift Deposit				一	Presence of					essed Plants (D1)
☐ Algal Mat or	` '						Tilled Soil (C	(6)	Geomorphic P	` ,
☐ Iron Deposits					Thin Muck S		`		FAC-Neutral T	` ,
☐ Inundation V	isible on Aerial In	nagery (E	57)		Gauge or W	ell Data (D9)	1			, ,
☐ Sparsely Veg	getated Concave	Surface	(B8)		Other (Expla	in in Remarl				
Field Observation								Wetland	Hydrology Pre	esent?
Surface Water P		Yes 🗌		No 🗹	Depth (inch				_	
Water Table Pre		Yes 🗌		No ☑	Depth (incl			Yes	No 🖸	<u> </u>
Saturation Prese		Yes \square		No 🗹	Depth (inch	nes):				
(includes capillar										
Describe Record	ed Data (stream	gauge, m	ionitoring well, a	aerial pho	itos, previous	inspections), if available:			
Remarks:										

Midwest Region - Version 2.0

Project/Site: Iowa Army Ammunitions Plant Site		City: 1	Middletown	Sampling Date: 5/23/2012
Applicant: Stanley Consultants		_		State: Iowa Sampling Point:4
Investigator(s): Coilin McConnell & Tom Mattingly				31 & 32-70-6
Landform (hillslope, terrace, etc.): Depressional Area			cave, conve	ex, none): concave
Slope (%): Lat:	_ Long: _			Datum:
Soil Map Unit Name: Mahaska Silty Clay Loam				NWI Classification:
Are climate/hydrologic conditions on the site typical for this time of y		Yes ⊻		
Are Vegetation \square , Soil \square , or Hydrology \square ignificantly dist				Circumstances" present? Yes 🔽 No 🗌
Are Vegetation, Soil, or Hydrologyaturally proble	matic? (If ne	eded, explain	any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling p	oint locatio	ns. transects.	importan	t features, etc.
Hydrophytic Vegetation Present? Yes ✓ No □	1		, p	
Hydric Soil Present? Yes ☑ No ☐	Is the Sam			Yes ☑ No □
Wetland Hydrology Present? Yes ☑ No ☐	within a W	etland?		
Remarks:				
VECETATION - Lice coinntific names of plants				
VEGETATION - Use scientific names of plants.				
	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Number of Dominant Species
1. Acer saccharinum	20	Yes	FACW	That Are OBL, FACW, or FAC: 4 (A)
2. Salix nigra	20	Yes	OBL	
3. Populus deltoides	40	Yes	FAC	Total Number of Dominant
4.				Species Across All Strata: 4 (B)
5.				
One line (Oher In Oher) are (Blades) and ED	80	= Total Cove	r	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15')				That Are OBL, FACW, or FAC: 100% (A/B)
1.				December of the december of the state of the
2.				Prevalence Index worksheet:
3. 4.				Total % Cover of: Multiply by: OBL species 20 x 1 = 20
5.				OBL species 20 x 1 = 20 FACW species 120 x 2 = 240
J.	0	= Total Cove	r	FAC species 40 x 3 = 120
Herb Stratum (Plot size: 5')		= Total Gove		FACU species 0 x 4 = 0
1. Phalaris arundinacea	100	Yes	FACW	UPL species $0 \times 5 = 0$
2.				Column Totals: 180 (A) 380 (B)
3.				(=)
4.				Prevalence Index = B/A = 2.11
5.				Hydrophytic Vegetation Indicators:
6.				
7.				1 - Rapid Test for Hydrophytic Vegetation
8.				2 - Dominance Test is >50%
9.				3 - Prevalence Index is ≤ 3.0'
10.				4 - Morphological Adaptations ¹
	100	= Total Cove	r	(provide supporting data in Remarks or
Woody Vine Stratum (Plot size: 30')				on a separate sheet)
1.				Problematic Hydrophytic
2.				Vegetation ¹ (Explain)
3.				<u> </u>
4.				¹ Indicators of hydric soil and wetland hydrology
5.				must be present, unless disturbed or problematic.
	0	= Total Cove	r	Hydrophytic Vegetation Present?
Demander (Inches on the members have been accessed as a constant of				Yes V No U
Remarks: (Include photo numbers here or on a separate sheet.)				
See photograph number 4.				

Profile Descript	tion: (Describe to	o the dep	oth needed to	documer	nt the indica	tor or confi	rm the absence	ce of indic	ators.)	
Depth	Matrix				Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture		Rema	rks
0-12	10yr 4/1	100	5yr 3/4	50	. 	PL -	SIL		-	
12-26	Gley 1 2.5N/0	100	7.5yr 4/6	>5	<u>C</u>	PL PL	SIL			
<u>26-36</u>	2.5y 7/2	100	10yr 5/8	50	<u>C</u>	<u>PL</u>	SICL			
4							2			
¹ Type: C=Conce	entration, D=Deple	etion, RM	=Reduced Mati	ix, CS=C	overed or Co	oated Sand (Grains. ² Locati			
Hydric Soil Indi	icators:			_				Indicat	tors for Probl	ematic Hydric Soils ³
☐ Histosol (A1)				Sandy Gley	ed Matrix (S	4)		Coast Prairie F	Redox (A16)
☐ Histic Epipe	don (A2)				Sandy Redo	ox (S5)			Dark Surface (S7)
☐ Black Histic	(A3)				Stripped Ma	trix (S6)			ron-Manganes	se Masses (F12)
☐ Hydrogen Si	ulfide (A4)				Loamy Muc	ky Mineral (F	⁻ 1)		Very Shallow D	Dark Surface (TF12)
Stratified La	yers (A5)				Loamy Gley	ed Matrix (F	2)		Other (Explain	in Remarks)
2 cm Muck ((A10)				Depleted Ma	atrix (F3)				
	low Dark Surface	(A11)			Redox Dark	Surface (F6	5)			
☐ Thick Dark S					Depleted Da	ark Surface (F7)	3	Indicators of h	ydrophytic vegetation and
	y Mineral (S1)				Redox Depr		,			ogy must be present, unless
	Peat or Peat (S3)			•	` '			disturbed or pr	
	er (if observed)	,							il Present?	
Type:	. , ,							,		
Depth (inche	es):							Yes ☑	No	
Remarks:	,						•			
HYDROLOGY										
	logy Indicators:		المادة ماد ماد	that annly	٨			Casandani	Indiantara (mi	inimum of two required)
	ors (minimum of o	ne is requ	urea: cneck all							inimum of two required)
Surface water	` '			$\overline{\mathbf{A}}$	Water-Stain		89)		Surface Soil C	
High water t				片	Aquatic Fau	` ,	4)		Orainage Patte	
Saturation (,			님	True Aquati				•	ater Table (C2)
☐ Water Marks	` '			님	Hydrogen S		,		Crayfish Burro	` ,
☐ Sediment Deposit☐ Drift Deposit				님		•	iving Roots (C		Sat. Visible on	
'	` '			님	Presence of					essed Plants (D1)
Algal Mat or				님			n Tilled Soil (Co		Geomorphic P	` ,
☐ Iron Deposit			3-7\	님	Thin Muck S	` ,	`	✓ F	FAC-Neutral T	est (D5)
_	/isible on Aerial Ir	0, 1	,	님	Gauge or W					
	getated Concave	Surface	(B8)		Other (Expla	ain in Remar				
Field Observati					5			Wetland H	lydrology Pre	sent?
Surface Water F		Yes 🗌		No 🗹	Depth (inc					
Water Table Pre		Yes 🗌		No 🗹	Depth (inc			Yes 🗹	No	
Saturation Prese		Yes 🗆		No 🗹	Depth (inc	hes):				
(includes capilla										
Describe Record	ded Data (stream	gauge, n	nonitoring well,	aerial pho	otos, previous	s inspections	s), if available:			
Remarks:										

Midwest Region - Version 2.0

Project/Site: lowa Army Ammunitions Plant Site		City:	Middletown		Sampling Date		
Applicant: Stanley Consultants				state: Iowa	Sampling Point: 5		
Investigator(s): Coilin McConnell & Tom Mattingly				31 & 32-70-6			
Landform (hillslope, terrace, etc.): Depressional Area		ocal relief (con	cave, conve	ex, none):			
Slope (%): Lat: 40.82389 N	Long:_	91.22551 W			Datum		
Soil Map Unit Name: Mahaska Silty Clay Loam	_		ı		IWI Classification		
Are climate/hydrologic conditions on the site typical for this time of		Yes	J No	(if no, ex	kplain in Remarks	3.)	
Are Vegetation $_{oxdot}$, Soil $_{oxdot}$, or Hydrology $_{oxdot}$ ignificantly dis				Circumstances" pre	esent? Yes	✓ No □	
Are Vegetation \square , Soil \square , or Hydrology \square aturally probl	ematic? (If ne	eeded, explain	any answe	rs in Remarks.)			
SUMMARY OF FINDINGS - Attach site map showing sampling	point locatio	ns, transects	s, importan	t features, etc.			
Hydrophytic Vegetation Present? Yes ☐ No ☑	Is the Sam	nled Area					
Hydric Soil Present? Yes ☐ No ☑	within a W	•		Yes	No 🗸		
Wetland Hydrology Present? Yes No 🗹	within a v	retianu:					
Remarks:							
VEGETATION - Use scientific names of plants.							
	Absolute	Dominant	Indicator	Dominance Test			
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Number of Domina	ant Species		
1. Morus alba	60	Yes	FAC	That Are OBL, FA	CW, or FAC:	2 (A)	
2.				1		``	
3.				Total Number of D)ominant		
4.				Species Across Al		5 (B)	
5.						(-/	
<u>. </u>	60	= Total Cove	er	Percent of Domina	ant Species		
Sapling/Shrub Stratum (Plot size: 15')		- rotar cove	5.	That Are OBL, FA		40% (A/B)	
1. Lonicera tatarica	20	Yes	FACU	I THAT AND OBE, I A	011, 011710.	<u>+070</u> (70B)	
2.			17100	Prevalence Index	worksheet:		
3.				Total % Cove		w.	
<u>. </u>				OBL species	0 x 1 =	0	
5 .				FACW species	45 x 2 =	90	
J.	20	= Total Cove	or.	FAC species	60 x 3 =	180	
Herb Stratum (Plot size: 5')		= Total Cove	5 1	FACU species	75 x 4 =	300	
1. Phalaris arundinacea	45	Yes	FACW	UPL species	0 x 5 =	0	
2. Solidago altissima	25	Yes	FACU	Column Totals:	180 (A)		
<u> </u>				Column Totals:	180 (A)	<u>570</u> (B)	
3. Arctium minus	5	No No	FACU		I I	0.47	
4. Galium aparine	25	Yes	FACU		ce Index = B/A =	3.17	
5.				Hydrophytic Veg	etation indicato	rs:	
6.				1			
7.					d Test for Hydrop	, ,	
8.					inance Test is >5		
9.					alence Index is \leq		
10.				4 - Morp	hological Adapta	tions ¹	
	100	= Total Cove	er	(provi	de supporting da	ta in Remarks or	
Woody Vine Stratum (Plot size: 30')				on a s	separate sheet)		
1.				Problem	atic Hydrophytic		
2.				Vegetati	ion¹ (Explain)		
3.	-			1	()		
4.				¹ Indicators of hydr	ic soil and wetlar	nd hydrology	
4. 5.	<u> </u>			must be present, i			
∪.	0	= Total Cove	or	Hydrophytic Veg			
		= TOTAL COVE	7 1	i iyuropiiyuc veg	cialion rieselli	•	
				Yes □	No 🗹		
Remarks: (Include photo numbers here or on a separate sheet.)					. 		
See photograph number 5.							
oco photograph humber o.							

SOIL

Depth	•		oth needed to d				iiii tiic abscii	00 01 1110	iloators.)	
	Matrix				Features					
	olor (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture		Remarks	
)yr 3/2	100	7.5.50	40			SIL		<u> </u>	
)yr 5/3	100 100	7.5yr5/8	10 40		PL PL	SIL			
<u>26-36</u> <u>10</u>)yr 8/2	100	7.5yr 4/6	40	<u> </u>	<u>PL</u>	SICL		<u> </u>	
									-	
<u> </u>							-		_	
¹ Type: C=Concentrat	tion, D=Deple	etion, RM	=Reduced Matrix	k, CS=C	overed or Co	ated Sand	Grains. ² Loca	tion: PL=	Pore Lining, M=Matrix	
Hydric Soil Indicato									cators for Problematic Hydric Soils	3
Histosol (A1)					Sandy Gleye	ed Matrix (S	4)		Coast Prairie Redox (A16)	
☐ Histic Epipedon ((A2)				Sandy Redo	x (S5)			Dark Surface (S7)	
☐ Black Histic (A3)					Stripped Ma	` ,			Iron-Manganese Masses (F12)	
Hydrogen Sulfide					Loamy Much				Very Shallow Dark Surface (TF12)	
☐ Stratified Layers	` '				Loamy Gley		2)		Other (Explain in Remarks)	
2 cm Muck (A10)					Depleted Ma					
Depleted Below		(A11)			Redox Dark	,	,		3	
Thick Dark Surfa	` '				Depleted Da				³ Indicators of hydrophytic vegetatio	
Sandy Mucky Min	` '			Ш	Redox Depr	essions (F8)		wetland hydrology must be present	, uniess
☐ 5 cm Mucky Pea)						ا مادامادا	disturbed or problematic. Soil Present?	
Restrictive Layer (if Type:	observea)							Hyaric 3	Soil Present?	
Depth (inches):								Yes	No ✓	
Remarks:								163		
Tiomanio.										
HADDOLOCA										
HYDROLOGY										
Wetland Hydrology										
Primary Indicators (m	ninimum of or	ne is requ	uired: check all th						ary Indicators (minimum of two require	ed)
Primary Indicators (m Surface water (A	ninimum of or (1)	ne is requ	uired: check all th		Water-Stain				Surface Soil Cracks (B6)	ed)
Primary Indicators (m Surface water (A High water table	ninimum of or (1)	ne is requ	uired: check all th		Water-Stain Aquatic Fau	na (B13)	,		Surface Soil Cracks (B6) Drainage Patterns (B10)	ed)
Primary Indicators (m Surface water (A High water table Saturation (A3)	ninimum of or (1) (A2)	ne is requ	uired: check all th		Water-Stain Aquatic Fau True Aquatic	na (B13) Plants (B1	4)		Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2)	ed)
Primary Indicators (n Surface water (A High water table Saturation (A3) Water Marks (B1	ninimum of or (1) (A2)	ne is requ	uired: check all th		Water-Stain Aquatic Fau True Aquatic Hydrogen Si	na (B13) Plants (B1 ulfide Odor	4) (C1)		Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8)	ed)
Primary Indicators (n Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos	ninimum of or (A2)) its (B2)	ne is requ	uired: check all th		Water-Stain Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos	na (B13) c Plants (B1 ulfide Odor spheres on	4) (C1) Living Roots (0	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9)	ed)
Primary Indicators (n Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B)	ninimum of or (A2)) its (B2) 3)	ne is requ	uired: check all th		Water-Stain Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of	na (B13) Plants (B1 ulfide Odor pheres on Reduced Ir	4) (C1) Living Roots (0 on (C4)	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1)	ed)
Primary Indicators (n Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B: Algal Mat or Crus	ninimum of or (A2)) its (B2) 3) st (B4)	ne is requ	uired: check all th		Water-Stain Aquatic Fau True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i	4) (C1) Living Roots (0 on (C4) n Tilled Soil (C	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)	ed)
Primary Indicators (n Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B: Algal Mat or Crus Iron Deposits (B:	ninimum of or (A2)) its (B2) 3) st (B4) 5)				Water-Stain Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i urface (C7)	4) (C1) Living Roots (on (C4) n Tilled Soil (C	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1)	ed)
Primary Indicators (n Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B: Algal Mat or Crus Iron Deposits (B: Inundation Visible	ninimum of or (A2)) its (B2) 3) st (B4) 5) e on Aerial In	nagery (E	37)		Water-Stain Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or W	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i surface (C7) ell Data (D9	4) (C1) Living Roots (Con (C4) n Tilled Soil (C	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)	ed)
Primary Indicators (n Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B: Algal Mat or Crus Iron Deposits (B: Inundation Visible Sparsely Vegetat	ninimum of or (A2)) its (B2) 3) st (B4) 5) e on Aerial Inted Concave	nagery (E	37)		Water-Stain Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i surface (C7) ell Data (D9	4) (C1) Living Roots (Con (C4) n Tilled Soil (C	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ed)
Primary Indicators (m Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B) Algal Mat or Crus Iron Deposits (B) Inundation Visible Sparsely Vegetat Field Observations:	ninimum of or (A2)) its (B2) 3) st (B4) 5) e on Aerial Inted Concave	nagery (E Surface	37) (B8)		Water-Stain Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or W Other (Expla	na (B13) c Plants (B1 ulfide Odor cpheres on Reduced Ir Reduction i urface (C7) ell Data (D8 tin in Rema	4) (C1) Living Roots (Con (C4) n Tilled Soil (C	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2)	ed)
Primary Indicators (n Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B: Algal Mat or Crus Iron Deposits (B: Inundation Visible Sparsely Vegetat	ninimum of or (A2)) its (B2) 3) st (B4) 5) e on Aerial Inted Concave ent?	nagery (E Surface	37) (B8)	No 🖾	Water-Stain Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or W Other (Expla	na (B13) c Plants (B1 ulfide Odor cpheres on Reduced Ir Reduction i urface (C7) ell Data (D8 tin in Rema	4) (C1) Living Roots (Con (C4) n Tilled Soil (C	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ed)
Primary Indicators (m Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B3 Iron Deposits (B3 Inundation Visibl Sparsely Vegetat Field Observations: Surface Water Present	ninimum of or (A2)) its (B2) 3) st (B4) 5) e on Aerial Inted Concave ent?	nagery (E Surface	37) (B8)		Water-Stain Aquatic Fau True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or Wi Other (Explain Depth (inclined)	na (B13) c Plants (B1 ulfide Odor cpheres on Reduced Ir Reduction i urface (C7) ell Data (D9 tin in Rema nes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (C	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ed)
Primary Indicators (m Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B) Algal Mat or Crus Iron Deposits (B) Inundation Visible Sparsely Vegetat Field Observations: Surface Water Prese	ninimum of or (A2)) its (B2) 3) st (B4) 5) e on Aerial Inted Concave ent? ?	nagery (E Surface Yes Yes Yes	37) (B8)	No S	Water-Stain Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or W Other (Expla	na (B13) c Plants (B1 ulfide Odor cpheres on Reduced Ir Reduction i urface (C7) ell Data (D9 tin in Rema nes):	4) (C1) Living Roots (Gon (C4) n Tilled Soil (C	C3)	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ed)
Primary Indicators (m Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B) Algal Mat or Crus Iron Deposits (B) Inundation Visible Sparsely Vegeta Field Observations: Surface Water Present Saturation Present?	ninimum of or (1) (A2)) (B2) its (B2) 3) st (B4) 5) e on Aerial Inted Concave : : : : : : : : : : : : : : : : : : :	nagery (E Surface Yes	37) (B8)		Water-Staine Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or W Other (Explain Depth (incl Depth (incl	na (B13) c Plants (B1 ulfide Odor cpheres on Reduced Ir Reduction i urface (C7) ell Data (D9 in in Rema nes): nes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (CO) rks)	C3) C6) C7	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ed)
Primary Indicators (m Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Deposit (B: Algal Mat or Crus Iron Deposits (B: Inundation Visible Sparsely Vegetat Field Observations: Surface Water Preset Water Table Present Saturation Present? (includes capillary frii	ninimum of or (1) (A2)) (B2) its (B2) 3) st (B4) 5) e on Aerial Inted Concave : : : : : : : : : : : : : : : : : : :	nagery (E Surface Yes	37) (B8)		Water-Staine Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or W Other (Explain Depth (incl Depth (incl	na (B13) c Plants (B1 ulfide Odor cpheres on Reduced Ir Reduction i urface (C7) ell Data (D9 in in Rema nes): nes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (CO) rks)	C3) C6) C7	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ed)
Primary Indicators (m Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Deposit (B: Algal Mat or Crus Iron Deposits (B: Inundation Visible Sparsely Vegetat Field Observations: Surface Water Preset Water Table Present Saturation Present? (includes capillary frii	ninimum of or (1) (A2)) (B2) its (B2) 3) st (B4) 5) e on Aerial Inted Concave : : : : : : : : : : : : : : : : : : :	nagery (E Surface Yes	37) (B8)		Water-Staine Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or W Other (Explain Depth (incl Depth (incl	na (B13) c Plants (B1 ulfide Odor cpheres on Reduced Ir Reduction i urface (C7) ell Data (D9 in in Rema nes): nes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (CO) rks)	C3) C6) C7	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ed)
Primary Indicators (m Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Deposits (B: Algal Mat or Crus Iron Deposits (B: Inundation Visibil Sparsely Vegeta: Field Observations: Surface Water Prese Water Table Present Saturation Present? (includes capillary friid Describe Recorded I	ninimum of or (1) (A2)) (B2) its (B2) 3) st (B4) 5) e on Aerial Inted Concave : : : : : : : : : : : : : : : : : : :	nagery (E Surface Yes	37) (B8)		Water-Staine Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or W Other (Explain Depth (incl Depth (incl	na (B13) c Plants (B1 ulfide Odor cpheres on Reduced Ir Reduction i urface (C7) ell Data (D9 in in Rema nes): nes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (CO) rks)	C3) C6) C7	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ed)
Primary Indicators (m Surface water (A High water table Saturation (A3) Water Marks (B1 Sediment Deposit (B: Algal Mat or Crus Iron Deposits (B: Inundation Visible Sparsely Vegetat Field Observations: Surface Water Preset Water Table Present Saturation Present? (includes capillary frii	ninimum of or (1) (A2)) (B2) its (B2) 3) st (B4) 5) e on Aerial Inted Concave : : : : : : : : : : : : : : : : : : :	nagery (E Surface Yes	37) (B8)		Water-Staine Aquatic Fau True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or W Other (Explain Depth (incl Depth (incl	na (B13) c Plants (B1 ulfide Odor cpheres on Reduced Ir Reduction i urface (C7) ell Data (D9 in in Rema nes): nes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (CO) rks)	C3) C6) C7	Surface Soil Cracks (B6) Drainage Patterns (B10) Dry-Season Water Table (C2) Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) FAC-Neutral Test (D5)	ed)
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Midwest Region - Version 2.0

Project/Site: <u>lowa Army Ammunition</u>	s Plant Site			City:	Middletown		Sampling Date	e: <u>5/24/2012</u>
Applicant: Stanley Consultants					S	Sampling Point: 6		
Investigator(s): Coilin McConnell &						31 & 32-70-6		
Landform (hillslope, terrace, etc.):	Bottom of Dra	ainage Channe		ocal relief (con	cave, conve	ex, none):		
	40.82361 N		Long:_	91.24049 W			Datum	
Soil Map Unit Name: Mahaska Silty Cla		. 11.2 . 12	0		1		VWI Classification	
Are climate/hydrologic conditions on th				Yes _∠		`	xplain in Remarks	·
Are Vegetation \square , Soil \square , or Hy	drology앀	ignificantly dis	sturbed?	Aı	e "Normal	Circumstances" pre	esent? Yes	☐ No ⊡
Are Vegetation \Box , Soil \Box , or Hy	ydrology	aturally probl	ematic? (If ne	eded, explain	any answe	rs in Remarks.)		
SUMMARY OF FINDINGS - Attach si								
Hydrophytic Vegetation Present?	Yes 🗸	No \square	•		, p			
Hydric Soil Present?	Yes ☑	No 🗆	Is the San	•		Yes ✓	No 🗆	
Wetland Hydrology Present?	Yes ☑	No 🗆	within a W	/etland?				
Remarks:								
Drainage channel								
· • · · · · · · · · · · · · · · · · ·								
VEGETATION - Use scientific names	of plants.							
			Alexa III	D	Leafrantin	In		
Tree Otrestore (Diet : 200)			Absolute	Dominant	Indicator	Dominance Test		
Tree Stratum (Plot size: 30')			% Cover	Species?	Status	Number of Domin		4 (4)
1. Thuja occidentalis			60	Yes	FACW	That Are OBL, FA	CW, or FAC:	4 (A)
2.						Takal Niverala av. af F	Danetin and	
3.						Total Number of D		4 (D)
4. 5.						Species Across A	ii Siraia.	4 (B)
3.			60	= Total Cove	Nr.	Percent of Domina	ant Chaoine	
Sapling/Shrub Stratum (Plot size: 15')				= Total Cove	7 1	That Are OBL, FA		100% (A/B)
1. Cornus obliqua			35	Yes	FACW	That Ale Obl., I A	OW, OITAG.	100 /6 (A/D)
2.				100	171011	Prevalence Index	x worksheet:	
3.						Total % Cov		ov:
4.						OBL species	55 x 1 =	55
5.						FACW species	140 x 2 =	280
			35	= Total Cove	er	FAC species	0 x 3 =	0
Herb Stratum (Plot size: 5')						FACU species	0 x 4 =	0
1. Carex convoluta			45	Yes	FACW	UPL species	0 x 5 =	0
2. Carex crus corvi			55	Yes	OBL	Column Totals:	195 (A)	335 (B)
3.								
4.							ce Index = B/A =	
5.						Hydrophytic Veg	etation Indicato	rs:
6.								
7.						 '	id Test for Hydror	, .
8.							ninance Test is >5	
9.							/alence Index is <	_
10.							ohological Adapta	
March March Charles (Plate) a con			100	= Total Cove	er		ride supporting da	ita in Remarks
Woody Vine Stratum (Plot size: 30')							separate sheet)	
1.							natic Hydrophytic	
2.						vegetat	tion ¹ (Explain)	
3.						lladiacters (1)	الد احدد الموماء	عطام والمعادد
4.						Indicators of hyd		
5.				Total Carre		must be present,		
			0	= Total Cove	71	Hydrophytic Veg	etation Present	•
						Yes ☑	No 🗆	
Remarks: (Include photo numbers here	e or on a senar	rate sheet)				· · · · · · · · · · · · · · · · · · ·		
See photograph number 6.	. 51 511 a 55pai	2.0 0.1001.)						

SOIL

		o the dep	th needed to			or or comi	m the absen	ce of ind	icators.)		
Depth	Matrix				Features						
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture			Remar	rks
0-13	10yr 5/2	100	7.5yr 4/6	>5	<u>C</u>	<u>M</u>	CI				
13-28	7.5yr 7/6	100	7.5yr 8/2		<u>C</u> C	<u>M</u>	SIL				
<u>28-36</u>	7.5yr 6/6	100	7.5yr 4/6	>5	<u></u>	<u>M</u>	<u>SCL</u>				
			-								
							-				
	ntration, D=Deple	etion, RM	=Reduced Matr	ix, CS=C	Covered or Co	ated Sand (Grains. ² Locat				
Hydric Soil Indi				_							ematic Hydric Soils ³
☐ Histosol (A1)	,						1)				Redox (A16)
Histic Epipe				닏	Sandy Redo				Dark Sur		
☐ Black Histic (A3) ☐ Stripped Matrix							-4.	님			e Masses (F12)
☐ Hydrogen St				님	Loamy Muck			님			Park Surface (TF12)
☐ Stratified Lay ☐ 2 cm Muck (H	Loamy Gleye Depleted Ma		۷)	Ш	Other (E.	хріаін	in Remarks)
	low Dark Surface	(A11)		H	Redox Dark		.)				
_	Surface (A12)	(\(\Lambda\)\)		H	Depleted Da	,	,		3Indicato	rc of h	ydrophytic vegetation and
	y Mineral (S1)			H	Redox Depre						ogy must be present, unless
	Peat or Peat (S3)	١			nedox Depit	essions (Fo	1			•	oblematic.
Restrictive Laye)						Hydric S	Soil Prese		DDICITIALIC.
Type:	o. (oboo. rou)							,	JOIN 1 1000		
Depth (inche	es):							Yes 🗹	·]	No [
Remarks:	,										
HYDROLOGY											
	ogy Indicators:										
Wetland Hydrol Primary Indicato	rs (minimum of or	ne is requ	ired: check all t	hat appl				Seconda			nimum of two required)
Wetland Hydrol Primary Indicato Surface wate	rs (minimum of or er (A1)	ne is requ	iired: check all t	hat appl	Water-Staine				Surface	Soil Cr	acks (B6)
Wetland Hydrol Primary Indicato Surface wate High water to	rs (minimum of or er (A1) able (A2)	ne is requ	nired: check all t	hat appl	Water-Staine Aquatic Faur	na (B13)	 B9)	Seconda	Surface S Drainage	Soil Cr Patte	racks (B6) rns (B10)
Wetland Hydrol Primary Indicato Surface wate High water to Saturation (A	rs (minimum of or er (A1) able (A2) A3)	ne is requ	iired: check all t	hat appl	Water-Staine Aquatic Faur True Aquatic	na (B13) c Plants (B1	B9) 4)	 	Surface S Drainage Dry-Seas	Soil Cr Patte son Wa	racks (B6) rns (B10) ater Table (C2)
Wetland Hydrol Primary Indicato Surface wate High water to Saturation (A Water Marks	rs (minimum of or er (A1) able (A2) A3) s (B1)	ne is requ	ired: check all (hat appl	Water-Staine Aquatic Faur True Aquatic Hydrogen St	na (B13) Plants (B1) ulfide Odor (B 9) 4) C1)		Surface Surfac	Soil Cr Patte son Wa Burrov	racks (B6) rns (B10) ater Table (C2) ws (C8)
Wetland Hydrol Primary Indicato Surface wate High water to Saturation (A Water Marks Sediment De	rs (minimum of or er (A1) able (A2) A3) s (B1) eposits (B2)	ne is requ	ired: check all (hat appl	Water-Staine Aquatic Faur True Aquatic Hydrogen St Oxid. Rhizos	na (B13) c Plants (B1 ulfide Odor (spheres on I	B 9) 4) C1) Living Roots (0	C3)	Surface S Drainage Dry-Seas Crayfish Sat. Visik	Soil Cr Patte son Wa Burrov ble on	racks (B6) rns (B10) ater Table (C2) ws (C8) Aerials (C9)
Wetland Hydrol Primary Indicato Surface wate High water to Saturation (A Water Marks Sediment De Drift Deposit	rs (minimum of or er (A1) able (A2) A3) s (B1) eposits (B2) s (B3)	ne is requ	ired: check all (hat appl	Water-Staine Aquatic Faur True Aquatic Hydrogen St Oxid. Rhizos Presence of	na (B13) c Plants (B1 ulfide Odor (spheres on I Reduced In	B9) 4) C1) Living Roots (Con (C4)	C3)	Surface S Drainage Dry-Seas Crayfish Sat. Visil Stunted	Soil Cr Patterson Wa Burrov ble on a	racks (B6) rns (B10) ater Table (C2) ws (C8) Aerials (C9) ssed Plants (D1)
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Wetland Hydrol Primary Indicato Surface wate High water to Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposit	rs (minimum of orer (A1) able (A2) A3) s (B1) eposits (B2) s (B3) Crust (B4) s (B5)			hat appl	Water-Staine Aquatic Faur True Aquatic Hydrogen Su Oxid. Rhizos Presence of Recent Iron Thin Muck S	na (B13) c Plants (B1 ulfide Odor (spheres on I Reduced In Reduction in surface (C7)	B9) 4) C1) Living Roots (Con (C4) Tilled Soil (C	C3)	Surface S Drainage Dry-Seas Crayfish Sat. Visil Stunted	Soil Cr Patter Son Wa Burrov ole on a or Stre	racks (B6) rns (B10) ater Table (C2) ws (C8) Aerials (C9) essed Plants (D1) osition (D2)
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Wetland Hydrol Primary Indicato Surface wate High water ta Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposit Inundation V Sparsely Ve Field Observati Surface Water P Water Table Pre Saturation Prese (includes capillar	rs (minimum of orer (A1) able (A2) A3) s (B1) eposits (B2) s (B3) Crust (B4) s (B5) fisible on Aerial In getated Concave ons: rresent? ent? ry fringe)	nagery (B Surface (Yes Yes Yes Yes	:7) (B8)	No	Water-Staine Aquatic Faur True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or Wo Other (Expla	na (B13) c Plants (B1 c Plants	B9) 4) C1) Living Roots (Con (C4) Tilled Soil (C		Surface Drainage Dry-Seas Crayfish Sat. Visit Stunted Geomory FAC-Neu	Soil Cr Patter Son Wa Burrov ble on a or Stre bhic Po utral Te	racks (B6) rns (B10) ater Table (C2) ws (C8) Aerials (C9) assed Plants (D1) astion (D2) est (D5) sent?
Wetland Hydrol Primary Indicato Surface wate High water ta Saturation (A Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposit Inundation V Sparsely Vet Field Observati Surface Water P Water Table Pre Saturation Prese (includes capillar Describe Record	rs (minimum of orer (A1) able (A2) A3) s (B1) eposits (B2) s (B3) Crust (B4) s (B5) fisible on Aerial In getated Concave ons: rresent? ent? ry fringe)	nagery (B Surface (Yes Yes Yes Yes	:7) (B8)	No	Water-Staine Aquatic Faur True Aquatic Hydrogen St Oxid. Rhizos Presence of Recent Iron Thin Muck S Gauge or Wo Other (Expla	na (B13) c Plants (B1 c Plants	B9) 4) C1) Living Roots (Con (C4) Tilled Soil (C		Surface Drainage Dry-Seas Crayfish Sat. Visit Stunted Geomory FAC-Neu	Soil Cr Patter Son Wa Burrov ble on a or Stre bhic Po utral Te	racks (B6) rns (B10) ater Table (C2) ws (C8) Aerials (C9) assed Plants (D1) astion (D2) est (D5) sent?
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Midwest Region - Version 2.0

Project/Site: Iowa Army Ammunitions Plant Site		City:	Middletown				
Applicant: Stanley Consultants				State: Iowa Sampling Point: 7			
Investigator(s): Coilin McConnell & Tom Mattingly	Section, Township, Range: 31 & 32-70-6 Local relief (concave, convex, none):						
Landform (hillslope, terrace, etc.): Terrace			cave, conv				
Slope (%): Lat: 40.82405 N	Long:_	91.24718 W		Datum:			
Soil Map Unit Name: Taintor Silty Clay Loam		V [/	1 N	NWI Classification:			
Are climate/hydrologic conditions on the site typical for this time of		Yes ⊻		` ' ' '			
Are Vegetation, Soil, or Hydrologylignificantly dis				Circumstances" present? Yes 🗸 No 🗌	<u> </u>		
Are Vegetation, Soil, or Hydrologyaturally prob	lematic? (If ne	eded, explain	any answe	ers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map showing sampling	point location	ns, transects	s, importan	t features, etc.			
Hydrophytic Vegetation Present? Yes ☐ No ☑	Is the Sam	npled Area		<u>_</u>			
Hydric Soil Present? Yes ☑ No ☐	within a W			Yes No 🗸			
Wetland Hydrology Present? Yes No							
Remarks:							
VEGETATION - Use scientific names of plants.							
	Absolute	Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Number of Dominant Species			
1. Quercus alba	10	Yes	FACU	That Are OBL, FACW, or FAC: 0 (A)			
2.				(, ,			
3.				Total Number of Dominant			
4.				Species Across All Strata: 2 (B)			
5.] · · · ·			
	10	= Total Cove	er	Percent of Dominant Species			
Sapling/Shrub Stratum (Plot size: 15')				That Are OBL, FACW, or FAC: 0% (A/B)			
1.		<u> </u>					
2.				Prevalence Index worksheet:			
				Total % Cover of: Multiply by:			
3.							
4.				OBL species 0 x 1 = 0			
				OBL species 0 x 1 = 0 FACW species 0 x 2 = 0			
4. 5.	0	= Total Cove	ər	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0			
4. 5. Herb Stratum (Plot size: <u>5'</u>)				OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca	15	No	UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300 UPL species 35 x 5 = 175			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa	15 45	No Yes	UPL FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima	15 45 20	No Yes No	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300 UPL species 35 x 5 = 175 Column Totals: 110 (A) 475 (B)			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota	15 45	No Yes	UPL FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300 UPL species 35 x 5 = 175 Column Totals: 110 (A) 475 (B) Prevalence Index = B/A =			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota 5.	15 45 20	No Yes No	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300 UPL species 35 x 5 = 175 Column Totals: 110 (A) 475 (B)			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota 5. 6.	15 45 20	No Yes No	UPL FACU FACU	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota 5. 6. 7.	15 45 20	No Yes No	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300 UPL species 35 x 5 = 175 Column Totals: 110 (A) 475 (B) Prevalence Index = B/A = 4.32 Hydrophytic Vegetation Indicators: 1 1 - Rapid Test for Hydrophytic Vegetation	n		
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota 5. 6. 7.	15 45 20	No Yes No	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300 UPL species 35 x 5 = 175 Column Totals: 110 (A) 475 (B) Prevalence Index = B/A = 4.32 Hydrophytic Vegetation Indicators: 1 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50%	n		
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota 5. 6. 7. 8. 9.	15 45 20	No Yes No	UPL FACU FACU	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 OUPL species 0 x 5 = 0 FACU species 0 X 6 = 0 FACU species 0 X 7 = 0 FACU species 0 X 7 = 0 FACU species 0 X 8 = 0 FACU species 0 X 9 = 0 FACU species 0 FACU species 0 X 9 = 0 FACU species 0 X 9 = 0 FACU species 0 X 9 = 0 FACU species 0 FACU species 0 X 9 = 0 FACU species 0 X 9 = 0 FACU species 0 FACU species 0 FACU sp	ņ		
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota 5. 6. 7.	15 45 20 20	No Yes No No	UPL FACU FACU UPL	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota 5. 6. 7. 8. 9.	15 45 20	No Yes No	UPL FACU FACU UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 0 x 4 = 0 OPL species 0 x 5 = 0 FACU species 0 X 6 = 0 FACU species 0 X 6 = 0 FACU species 0 X 7 = 0 FACU species 0 X 8 = 0 FACU species 0 X 8 = 0 FACU species 0 X 9 = 0 FACU species 0 X 9 = 0 FACU species 0 X 9 = 0 FACU species 0 X 1 = 0 FACU species 0 X 2 = 0 FACU species 0 X 3 = 0 FACU species 0 X 4 =			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota 5. 6. 7. 8. 9.	15 45 20 20	No Yes No No	UPL FACU FACU UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300 UPL species 35 x 5 = 175 Column Totals: 110 (A) 475 (B) Prevalence Index = B/A = 4.32 Hydrophytic Vegetation Indicators: 1 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks on a separate sheet)			
4. 5. Herb Stratum (Plot size: 5') 1. Asclepias syriaca 2. Poa compressa 3. Solidago altissima 4. Daucus carota 5. 6. 7. 8. 9. 10. Woody Vine Stratum (Plot size: 30') 1.	15 45 20 20	No Yes No No	UPL FACU FACU UPL	OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 75 x 4 = 300 UPL species 35 x 5 = 175 Column Totals: 110 (A) 475 (B) Prevalence Index = B/A = 4.32 Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetatio 2 - Dominance Test is >50% 3 - Prevalence Index is ≤ 3.0' 4 - Morphological Adaptations¹ (provide supporting data in Remarks on a separate sheet) Problematic Hydrophytic			
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SOIL

Profile Descrip	tion: (Describe to	the dep	th needed to d	ocumen	t the indicat	or or confi	rm the absen	ce of ind	icators.)			
Depth	Matrix			Redox	Features		-					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture		Rema	arks		
<u>0-18</u>	10yr 2/1	100					<u>SIL</u>					
<u>18-24</u>	10yr 4/1	100	10yr 8/6	20	<u>D</u>	<u>PL</u>	<u>CL</u>		_			
<u>24-30</u>	10yr 5/1	100		>5	<u>C</u>	<u>M</u>	<u>CL</u>					
<u>30-36</u>	10yr 5/2	100	10yr 5/8	40	<u>C</u>	<u>PL</u>	CL		_			
							· <u></u>					
¹ Type: C=Conce	entration, D=Deple	etion, RM	=Reduced Matrix	, CS=C	overed or Co	ated Sand	Grains. ² Locat					
Hydric Soil Indi	cators:							Indic	ators for Prob	lematic Hydric Soils ³		
☐ Histosol (A1)				Sandy Gleye	d Matrix (S	4)		Coast Prairie			
☐ Histic Epipedon (A2) ☐ Sandy Redox (S5)								☐ Dark Surface (S7)				
								☐ Iron-Manganese Masses (F12)				
☐ Hydrogen S	ulfide (A4)				Loamy Muck	y Mineral (F1)		Very Shallow	Dark Surface (TF12)		
☐ Stratified La	yers (A5)				Loamy Gleye	ed Matrix (F	2)		Other (Explain	n in Remarks)		
2 cm Muck ((A10)				Depleted Ma	trix (F3)						
	low Dark Surface	(A11)			Redox Dark	Surface (F	6)					
	Surface (A12)				Depleted Da	rk Surface	(F7)		³ Indicators of	hydrophytic vegetation and		
☐ Sandy Muck	y Mineral (S1)				Redox Depre	essions (F8)		wetland hydro	logy must be present, unless		
5 cm Mucky	Peat or Peat (S3))							disturbed or p			
Restrictive Lay								Hydric S	oil Present?			
Type:												
Depth (inche Remarks:	es):							Yes ✓	No			
HYDROLOGY												
Wetland Hydro		ao io rogi	irad: abaak all th	at apply	۸			Cocondo	n, Indicatora (m	ninimum of two required)		
Surface wat	rs (minimum of or	ie is requ	illed. Check all ti) Water-Staine	nd Loovoe /		Seconda	Surface Soil C	ninimum of two required)		
☐ High water t	` '				Aquatic Faur		D9)		Drainage Patt			
Saturation (True Aquatio	` '	4)	H		Vater Table (C2)		
☐ Water Mark	,			片	Hydrogen St	,	,	H	Crayfish Burro	` ,		
Sediment D	` '			H	, ,		Living Roots (0	C3) 🗒	Sat. Visible or	` ,		
Drift Deposit					Presence of), <u> </u>		essed Plants (D1)		
☐ Algal Mat or	` '						n Tilled Soil (C	(6)	Geomorphic F	` ,		
Iron Deposit					Thin Muck S		,		FAC-Neutral 7			
	/isible on Aerial In	nagery (F	37)		Gauge or W					(20)		
	getated Concave			П	Other (Expla							
Field Observati			,		` '		,	Wetland	Hydrology Pre	esent?		
Surface Water F	resent?	Yes		No 🗹	Depth (inch	nes):						
Water Table Pre	sent?	Yes 🗌		No 🗹	Depth (inch	nes):		Yes 🗌	No [✓		
Saturation Prese	ent?	Yes \square		No 🗹	Depth (inch							
(includes capilla	ry fringe)											
Describe Record	ded Data (stream	gauge, m	nonitoring well, a	erial pho	tos, previous	inspection	s), if available:					
Remarks:												
nemarks.												

Midwest Region - Version 2.0

Project/Site: Iowa Army Ammunitions Plant Site Applicant: Stanley Consultants		City:	Middletown	Sampling Date: 5/24/2012 State: Iowa Sampling Point: 8
Investigator(s): Coilin McConnell & Tom Mattingly	So	oction Townsh		31 & 32-70-6
Landform (hillslope, terrace, etc.): Terrace		cal relief (con		
Slope (%): Lat: 40.82424 N		91.24801 W	oave, conve	Datum:
Soil Map Unit Name: Taintor Silty Clay Loam	_ Long	31.24001 W		NWI Classification:
Are climate/hydrologic conditions on the site typical for this time of ye	ear?	Yes 🗸] No	
Are Vegetation, Soil, or Hydrology				Circumstances" present? Yes ☑ No ☐
				•
Are Vegetation \square , Soil \square , or Hydrology \square aturally proble	ematic? (If ne	eded, explain	any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling p	oint locatio	ns, transects	, importan	t features, etc.
Hydrophytic Vegetation Present? Yes No				
Hydric Soil Present? Yes □ No ☑	Is the Sam			Yes □ No ☑
Wetland Hydrology Present? Yes □ No ☑	within a W	etland?		
Remarks:	4			
VEGETATION The selection of shorts				
VEGETATION - Use scientific names of plants.				
	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 30')	% Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: 0 (A)
2.				<u> </u>
3.				Total Number of Dominant
4.				Species Across All Strata: 2 (B)
5.				1 · ` · _ !
	0	= Total Cove	er	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 15')				That Are OBL, FACW, or FAC: 0% (A/B)
1.				
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species <u>0</u> x 1 = <u>0</u>
5.				FACW species <u>0</u> x 2 = <u>0</u>
	0	= Total Cove	er	FAC species 0 x 3 = 0
Herb Stratum (Plot size: 5')	_			FACU species 30 x 4 = 120
1. Asclepias syriaca	5	<u>No</u>	UPL	UPL species <u>70</u> x 5 = <u>350</u>
2. Bromus tectorum	60	Yes	UPL	Column Totals: <u>100</u> (A) <u>470</u> (B)
3. Solidago altissima	30	Yes	FACU	· · · · · · · · · · · · · · · · · · ·
4. Polytaenia nuttallii	5	<u>No</u>	UPL	Prevalence Index = B/A = 4.7
5.				Hydrophytic Vegetation Indicators:
6. 7.				1 - Rapid Test for Hydrophytic Vegetation
8.				2 - Dominance Test is >50%
9.				3 - Prevalence Index is ≤ 3.0'
10.				4 - Morphological Adaptations ¹
10.	100	= Total Cove	ar	(provide supporting data in Remarks or
Woody Vine Stratum (Plot size: 30')	100	= 10ta100v6	51	on a separate sheet)
1.				Problematic Hydrophytic
2.				Vegetation ¹ (Explain)
3.				- Togotation (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology
5.				must be present, unless disturbed or problematic.
<u></u>	0	= Total Cove	er	Hydrophytic Vegetation Present?
				'Janopin', no rogetation ricositi
				Yes □ No ☑
Remarks: (Include photo numbers here or on a separate sheet.)				<u> </u>
See photograph number 9.				
				· ·

SOIL

Profile Descrip	otion: (Describe t	o the de	oth needed to d	locume	nt the indicat	or or confir	m the absen	ce of ind	icators.)	
Depth	Matrix				Features					
(inches)	Color (moist)	%	Color (moist)	%	Type [1]	Loc [2]	Texture		Remark	S
<u>0-15</u>	10yr 3/2	100					<u>SIL</u>		<u>Rocky</u>	
_									_	
			-						<u> </u>	
	•		•				-		_	
							-		-	
¹ Type: C=Cond	entration, D=Deple	etion, RM	=Reduced Matr	x, CS=C	Covered or Co	ated Sand G	arains. ² Locat	tion: PL=F	Pore Lining, M=Ma	ıtrix
Hydric Soil Inc										matic Hydric Soils ³
Histosol (A	1)				Sandy Gleye	ed Matrix (S4	!)		Coast Prairie Re	
☐ Histic Epip	edon (A2)				Sandy Redo	x (S5)			Dark Surface (S	7)
☐ Black Histic (A3)					Stripped Mat	trix (S6)		Iron-Manganese		
☐ Hydrogen S						Loamy Mucky Mineral (F1)				
Stratified L				닏	Loamy Gleyed Matrix (F2)					Remarks)
2 cm Muck	` '	(844)		님	Depleted Ma					
_	elow Dark Surface	e (A11)		님	Redox Dark	•	,		3	
	Surface (A12)			님	Depleted Da	,	F7)			drophytic vegetation and
	ky Mineral (S1)	١			Redox Depre	essions (F8)				gy must be present, unless
	y Peat or Peat (S3 yer (if observed))						Hydric S	disturbed or prob ioil Present?	Diematic.
Type: Grav								liyunc 3	on Fresent:	
Depth (inch								Yes 🗆] No ☑	
Remarks:	•									
HYDROLOGY										
	ology Indicators:		المحاد ماد ما ا	اممد ممما				Casanda	m. Indiantara (min	impum of two vocuived)
Surface wa	ors (minimum of o	ne is req	urea: cneck all t	nat appi	y) Water-Staine	ad Laguage (F		Seconda	Surface Soil Cra	imum of two required)
☐ High water	` '			H	Aquatic Fau	,	59)		Drainage Patterr	
Saturation				H	True Aquatio	` '	1)	H	Dry-Season Wat	
☐ Water Mar	` '				Hydrogen Si	,	,		Crayfish Burrows	
☐ Sediment [Deposits (B2)				Oxid. Rhizos	pheres on L	iving Roots (0	C3)	Sat. Visible on A	erials (C9)
☐ Drift Depos	its (B3)				Presence of	Reduced Iro	on (C4)		Stunted or Stres	sed Plants (D1)
	r Crust (B4)						Tilled Soil (C	(6)	Geomorphic Pos	
☐ Iron Depos	` '				Thin Muck S	` ,			FAC-Neutral Tes	st (D5)
	Visible on Aerial Ir			닏	Gauge or W					
Sparsely V	egetated Concave	Surrace	(B8)		Other (Expla	ıın ın Remarı	KS)	Watland	Hydrology Prese	n+2
Surface Water		Yes		No ☑	Depth (incl	noc).		welland	nyarology Presi	ent?
Water Table Pr		Yes 🗌		No ☑	Depth (incl	,		Yes □	No 🗹	
Saturation Pres		Yes 🗆		No ☑	Depth (incl			.03		
(includes capill					2 op (o.	.00/.				
	ded Data (stream	gauge, r	nonitoring well, a	erial ph	otos, previous	inspections), if available:	L		
Remarks:										
nemarks.										

Midwest Region - Version 2.0

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: lowa Army Ammunitions Plant Site Applicant: Stanley Consultants Investigator(s): Coilin McConnell & Tom Mattingly Landform (hillslope, terrace, etc.): Pond Edge Slope (%): Lat: 40.82405 N Soil Map Unit Name: Taintor Silty Clay Loam Are climate/hydrologic conditions on the site typical for this time of years Vegetation , soil , or Hydrology Jignificantly dist Are Vegetation , Soil , or Hydrology Jaturally problets SUMMARY OF FINDINGS - Attach site map showing sampling p	Lo _ Long: _ ear? urbed? ematic? (If ne	ction, Townsh cal relief (cond 91.24813 W Yes Ar eded, explain	ip, Range: cave, conve No e "Normal (any answe	Datum: NWI Classification: (if no, explain in Remarks.) Circumstances" present? Yes ✓ No [rs in Remarks.)	
Hydrophytic Vegetation Present? Yes	Is the Sam within a W			Yes No	
VEGETATION - Use scientific names of plants.					
Tree Stratum (Plot size: 30') 1. 2. 3. 4.	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 2 (B)	
5. Sapling/Shrub Stratum (Plot size: 15') 1.	0	= Total Cove	r	Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B	I)
2. 3.				Prevalence Index worksheet: Total % Cover of: Multiply by:	
4.				OBL species 40 x 1 = 40	-
5.				FACW species 15 x 2 = 30	
	0	= Total Cove	r	FAC species 0 x 3 = 0	
Herb Stratum (Plot size: <u>5'</u>)	_	NI.	ODI	FACU species $0 \times 4 = 0$	
1. Alisma triviale	<u>5</u> 10	No No	OBL	UPL species $0 \times 5 = 0$ Column Totals: $55 \times (A) \times 70 \times (B)$	
Carex crus corvi Phalaris arundinacea	15	No Yes	OBL FACW	Column Totals: <u>55</u> (A) <u>70</u> (B)	
4. Wolffia columbiana	25	Yes	OBL	Prevalence Index = B/A = 1.27	
5.		100	OBL	Hydrophytic Vegetation Indicators:	
6.					
7.				1 - Rapid Test for Hydrophytic Vegetati	ion
8.				2 - Dominance Test is >50%	
9.				3 - Prevalence Index is ≤ 3.0'	
10.				4 - Morphological Adaptations ¹	
Woody Vine Stratum (Plot size: 30') 1.	55	= Total Cove	r	(provide supporting data in Remarks on a separate sheet) Problematic Hydrophytic	or or
2.				Vegetation ¹ (Explain)	
3.				1	
4.				¹ Indicators of hydric soil and wetland hydrology	
5.				must be present, unless disturbed or problematic).
	0	= Total Cove	r	Hydrophytic Vegetation Present?	
				Yes ☑ No □	
Remarks: (Include photo numbers here or on a separate sheet.) See photograph number 10.					

SOIL

Depth	tion: (Describe to Matrix	the depth n	eeded to d		t the indica t Features	tor or confi		ice oi	indic	cators.)	
(inches)	Color (moist)	% Cc	olor (moist)	%	Type [1]	Loc [2]	Texture			Remarks	
0-7		70	(,,,	.) 60 [.]		<u>CL</u>			<u></u>	
	Gley 1 5G7/1		yr 4/6	30	C	PL					
7-22			5yr 5/8	5	D	PL	CL			-	
		10	yr 8/4	>5	C	PL					
22-31	10yr 4/1	100 10		>5	C	PL	CL				
		10	yr 5/3	<u>15</u>	D	PL					
¹ Type: C=Conce	entration, D=Deplet	ion, RM=Red	duced Matri	c, CS=Co	overed or Co	ated Sand	Grains. ² Loca	tion: P	L=Pc	ore Lining, M=Matrix	
Hvdric Soil Indi				,						tors for Problematic Hydric	Soils ³
Histosol (A1					Sandy Gleye	ed Matrix (S	4)			Coast Prairie Redox (A16)	
☐ Histic Epipe	,				Sandy Redo		-,			Dark Surface (S7)	
☐ Black Histic					Stripped Ma	` '				Iron-Manganese Masses (F1)	2)
☐ Hydrogen S	` '				Loamy Muck	` '	=1)		_	Very Shallow Dark Surface (1	
Stratified La					Loamy Gley			ř		Other (Explain in Remarks)	,
2 cm Muck (Depleted Ma		_,			other (Explain in Hernand)	
	elow Dark Surface (A11)			Redox Dark		3)				
_	Surface (A12)	, , , , ,			Depleted Da	,	,		;	³ Indicators of hydrophytic veg	otation and
	` ,										
_ ′	ky Mineral (S1)			Ш	Redox Depr	essions (Fa)			wetland hydrology must be pr	esent, unies
	Peat or Peat (S3)							I Is called		disturbed or problematic.	
	er (if observed)							Hyari	IC 50	il Present?	
Type:								V		N- 🗆	
Depth (inche Remarks:	es):							Yes	✓	No 📙	
LIVEROLOGY											
HYDROLOGY Wetland Hydro	logy Indicators:										
•	ors (minimum of one	e is required	: check all th	at apply)			Seco	ndarv	y Indicators (minimum of two	required)
☐ Surface wat		3 .0 .0qu0u			Water-Stain	ad Laguage	RO)			Surface Soil Cracks (B6)	
☐ High water t	` '									Carrage Con Cracke (BC)	
✓ Saturation (A				1./1	Aquatic Fau		D9)			Drainage Patterns (R10)	
	,				Aquatic Fau	na (B13)	,			Drainage Patterns (B10)	١
_ `	c (R1)			✓	True Aquation	na (B13) c Plants (B1	4)			Dry-Season Water Table (C2)
☐ Water Mark				✓ □	True Aquation Hydrogen S	na (B13) c Plants (B1 ulfide Odor	4) (C1)			Dry-Season Water Table (C2 Crayfish Burrows (C8))
☐ Water Marks ☐ Sediment De	eposits (B2)				True Aquation Hydrogen Solonid. Rhizos	na (B13) c Plants (B1 ulfide Odor spheres on	4) (C1) Living Roots (0	C3)		Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9)	
Water Marks Sediment De Drift Deposit	eposits (B2) its (B3)				True Aquation Hydrogen Solid. Rhizos Presence of	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir	4) (C1) Living Roots (0 on (C4)	C3)		Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I	
Water Marks Sediment Do Drift Deposit Algal Mat or	eposits (B2) its (B3) Crust (B4)				True Aquation Hydrogen Solo Oxid. Rhizos Presence of Recent Iron	na (B13) c Plants (B1 ulfide Odor spheres on Reduced In Reduction i	4) (C1) Living Roots (0 on (C4) n Tilled Soil (C	C3) C6)		Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2)	
☐ Water Marks ☐ Sediment D ☐ Drift Deposis ☐ Algal Mat or ☐ Iron Deposit	eposits (B2) tts (B3) Crust (B4) ts (B5)	ogony (P7)			True Aquation Hydrogen Sommer Coxid. Rhizos Presence of Recent Iron Thin Muck S	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7)	4) (C1) Living Roots (0 on (C4) n Tilled Soil (C	C3) C6)		Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I	
Water Mark Sediment Deposit Drift Deposit Algal Mat or Iron Deposit Inundation \	eposits (B2) tts (B3) · Crust (B4) ts (B5) Visible on Aerial Ima				True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or W	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) 'ell Data (D9	4) (C1) Living Roots (Con (C4) n Tilled Soil (C	C3) C6)		Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve	eposits (B2) its (B3) r Crust (B4) ts (B5) Visible on Aerial Imagetated Concave S				True Aquation Hydrogen Sommer Coxid. Rhizos Presence of Recent Iron Thin Muck S	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) 'ell Data (D9	4) (C1) Living Roots (Con (C4) n Tilled Soil (C	C3) C6)		Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2) FAC-Neutral Test (D5)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve Field Observati	reposits (B2) its (B3) r Crust (B4) its (B5) Visible on Aerial Imagetated Concave Sions:	Surface (B8)			True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or Wi Other (Explain	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) fell Data (D8 ain in Rema	4) (C1) Living Roots (Con (C4) n Tilled Soil (C	C3) C6)		Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve Field Observati Surface Water F	eposits (B2) its (B3) Crust (B4) its (B5) Visible on Aerial Imagetated Concave Sions: Present?	Surface (B8) Yes		No []	True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or William Other (Explain Depth (inc.)	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) fell Data (DS ain in Rema	4) (C1) Living Roots (Con (C4) n Tilled Soil (CO) rks)	C3) C6) Wetla	and h	Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2) FAC-Neutral Test (D5)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve Field Observati Surface Water F Water Table Pre	reposits (B2) its (B3) Crust (B4) its (B5) Visible on Aerial Imagetated Concave Sions: Present?	Surface (B8) Yes □ Yes ☑		No D	True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or Will Other (Explain Depth (incident)	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) fell Data (DS ain in Rema hes): hes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (Con (Cks))	C3) C6)	and h	Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2) FAC-Neutral Test (D5)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve Field Observati Surface Water F Water Table Prese Saturation Prese	reposits (B2) its (B3) Crust (B4) its (B5) Visible on Aerial Imagetated Concave Sions: Present? ent?	Surface (B8) Yes		No []	True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or William Other (Explain Depth (inc.)	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) fell Data (DS ain in Rema hes): hes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (CO) rks)	C3) C6) Wetla	and h	Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2) FAC-Neutral Test (D5)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve Field Observati Surface Water F Water Table Prese (includes capilla	reposits (B2) its (B3) c Crust (B4) its (B5) Visible on Aerial Imagetated Concave Sions: Present? ent? ent? ury fringe)	Surface (B8) Yes □ Yes ☑ Yes ☑			True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or William Other (Explain Depth (incident)	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) fell Data (DS ain in Rema hes): hes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (Con (C4) rks)	C3) C6) Wetla	and h	Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2) FAC-Neutral Test (D5)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve Field Observati Surface Water F Water Table Prese (includes capilla	reposits (B2) its (B3) Crust (B4) its (B5) Visible on Aerial Imagetated Concave Sions: Present? ent?	Surface (B8) Yes □ Yes ☑ Yes ☑			True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or William Other (Explain Depth (incident)	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) fell Data (DS ain in Rema hes): hes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (Con (C4) rks)	C3) C6) Wetla	and h	Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2) FAC-Neutral Test (D5)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve Field Observati Surface Water F Water Table Prese Saturation Prese (includes capilla	reposits (B2) its (B3) c Crust (B4) its (B5) Visible on Aerial Imagetated Concave Sions: Present? ent? ent? ury fringe)	Surface (B8) Yes □ Yes ☑ Yes ☑			True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or William Other (Explain Depth (incident)	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) fell Data (DS ain in Rema hes): hes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (Con (C4) rks)	C3) C6) Wetla	and h	Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2) FAC-Neutral Test (D5)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve Field Observati Surface Water F Water Table Prese (includes capilla	reposits (B2) its (B3) c Crust (B4) its (B5) Visible on Aerial Imagetated Concave Sions: Present? ent? ent? ury fringe)	Surface (B8) Yes □ Yes ☑ Yes ☑			True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or William Other (Explain Depth (incident)	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) fell Data (DS ain in Rema hes): hes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (Con (C4) rks)	C3) C6) Wetla	and h	Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2) FAC-Neutral Test (D5)	
Water Mark Sediment Do Drift Deposit Algal Mat or Iron Deposit Inundation \ Sparsely Ve Field Observati Surface Water F Water Table Prese (includes capilla Describe Record	reposits (B2) its (B3) c Crust (B4) its (B5) Visible on Aerial Imagetated Concave Sions: Present? ent? ent? ury fringe)	Surface (B8) Yes □ Yes ☑ Yes ☑			True Aquatic Hydrogen Si Oxid. Rhizos Presence of Recent Iron Thin Muck Si Gauge or William Other (Explain Depth (incident)	na (B13) c Plants (B1 ulfide Odor spheres on Reduced Ir Reduction i Surface (C7) fell Data (DS ain in Rema hes): hes):	4) (C1) Living Roots (Con (C4) n Tilled Soil (Con (C4) rks)	C3) C6) Wetla	and h	Dry-Season Water Table (C2 Crayfish Burrows (C8) Sat. Visible on Aerials (C9) Stunted or Stressed Plants (I Geomorphic Position (D2) FAC-Neutral Test (D5)	
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Midwest Region - Version 2.0

THE OBSERVED SPECIES LIST

The following species list, prepared by McConnell Environmental, follows the nomenclature given by Swink and Wilhelm, <u>Plants of the Chicago Region</u>, <u>1994</u>. Each species is classified by its: common name, indicator, physiognomy, wetness (W), and coefficient of conservatism (C). The C value is given to each plant depending on what type of species (0 = weedy, 10 = conservative). The wetness coefficient is given to each species by the location of where the species grows (-5 = wet, +5 = dry) corresponding to the National Wetland Category (OBL = Obligate Wetland, FAC = Facultative Species, UPL = Upland).

The floristic quality data states: the native species, total species, native mean of C, mean of C for total species, Floristic Quality Index (FQI), FQI for total species, native mean of wetness coefficient (W), W for total species, and the National Wetland Category based off of the wetness coefficient.

Date: 5-23-12

Investigator: Coilin McConnell & Tom Mattingly

Transect Line

Plot 1

FLORISTIC QUALITY DATA

- 5 Native Species5 Total Species
- 2 Native Mean C
- 2 w/ adventive
- 4.0 Native FQI
- 4.0 w/ adventive
- -1 Native Mean W
- -1 w/ adventive

Fac- AVERAGE

<u>C</u>	<u>w</u>	<u>Indicator</u>	Scientific Name	<u>Physiognomy</u>
1	-3	Facw	Salix interior	Native Shrub
4	-3	Facw	Carex granularis	Perennial Native Grass Like
3	-5	Obl	Carex tribuloides	Perennial Native Grass Like
1	3	Facu	Solidago altissima	Perennial Native Forb
0	3	Facu	Asclepias syriaca	Perennial Native Forb

Date: 5-23-12

Investigator: Coilin McConnell & Tom Mattingly

Transect Line

Plot 2

FLORISTIC QUALITY DATA

Native Species Total Species 3 1 Native Mean C 0 w/ adventive 1.0 Native FQI 0.6 w/ adventive Native Mean W 11 4 w/ adventive Facu-

AVERAGE

<u>C</u>	<u>W</u>	<u>Indicator</u>	Scientific Name	<u>Physiognomy</u>
1	3	Facu	Solidago altissima	Perennial Native Forb
0	5	Upl	Lychnis alba	Introduced Forb
0	3	Facu	Poa compressa	Perennial Introduced Grass

Date: 5-23-12

Investigator: Coilin McConnell & Tom Mattingly

Transect Line

Plot 4

FLORISTIC QUALITY DATA

- 4 Native Species
- 4 Total Species
- 2 Native Mean C
- 2 w/ adventive
- 3.0 Native FQI
- 3.0 w/ adventive
- -3 Native Mean W
- -3 w/ adventive

Facw- AVERAGE

<u>C</u>	<u>w</u>	<u>Indicator</u>	Scientific Name	<u>Physiognomy</u>
0	-3	Facw	Acer saccharinum	Native Tree
4	-5	Obl	Salix nigra	Native Tree
2	0	Fac	Populus deltoides	Native Tree
0	-3	Facw	Phalaris arundinacea	Perennial Native Grass

Date: 5-23-12

Investigator: Coilin McConnell & Tom Mattingly

Transect Line

Plot 5

FLORISTIC QUALITY DATA

2 Native Species
5 Total Species
1 Native Mean C
0 w/ adventive
1.4 Native FQI
0.9 w/ adventive
6 Native Mean W

2 w/ adventive

Facu+ AVERAGE

<u>C</u>	<u>W</u>	<u>Indicator</u>	Scientific Name	<u>Physiognomy</u>
0	0	Fac	Morus alba	Introduced Tree
0	3	Facu	Lonicera tatarica	Introduced Shrub
1	3	Facu	Solidago altissima	Perennial Native Forb
0	3	Facu	Arctium minus	Biannual Introduced Forb
1	3	Facu	Galium aparine	Annual Native Forb

Date: 5-24-12

Investigator: Coilin McConnell & Tom Mattingly

Transect Line

Plot 6

FLORISTIC QUALITY DATA

4 Native Species4 Total Species9 Native Mean C

9 w/ adventive

18.0 Native FQI

18.0 w/ adventive

-4 Native Mean W

-4 w/ adventive

Facw+ AVERAGE

<u>C</u>	<u>W</u>	<u>Indicator</u>	Scientific Name	<u>Physiognomy</u>
10	-3	Facw	Thuja occidentalis	Native Tree
6	-3	Facw	Cornus obliqua	Native Shrub
10	-3	Facw	Carex conjunta	Perennial Native Grass Like
10	-5	Obl	Carex crus corvi	Perennial Native Grass Like

Date: 5-24-12

Investigator: Coilin McConnell & Tom Mattingly

Transect Line

Plot 7

FLORISTIC QUALITY DATA

- Native SpeciesTotal SpeciesNative Mean C
- 1 w/ adventive
- 4.0 Native FQI
- 3.1 w/ adventive
- 6 Native Mean W
- 3 w/ adventive

Facu AVERAGE

<u>C</u>	<u>w</u>	<u>Indicator</u>	Scientific Name	<u>Physiognomy</u>
5	3	Facu	Quercus alba	Native Tree
0	3	Facu	Asclepias syriaca	Perennial Native Forb
1	5	Upl	Daucus carota	Perennial Introduced Forb
0	3	Facu	Poa compressa	Perennial Introduced Grass
1	3	Facu	Solidago altissima	Perennial Native Forb

Date: 5-24-12

Investigator: Coilin McConnell & Tom Mattingly

Transect Line

Plot 8

FLORISTIC QUALITY DATA

3 Native Species
4 Total Species
5 Native Mean C
4 w/ adventive
9.2 Native FQI
8.0 w/ adventive

5 Native Mean W4 w/ adventive

Facu+ AVERAGE

<u>W</u>	<u>Indicator</u>	Scientific Name	<u>Physiognomy</u>
5	Upl	Bromus tectorum	Perennial Introduced Grass
3	Facu	Asclepias syriaca	Perennial Native Forb
5	Upl	Polytaenia nuttallii	Perennial Native Forb
3	Facu	Solidago altissima	Perennial Native Forb
	5 3	5 Upl 3 Facu 5 Upl	5 Upl Bromus tectorum 3 Facu Asclepias syriaca 5 Upl Polytaenia nuttallii

Date: 5-24-12

Investigator: Coilin McConnell & Tom Mattingly

Transect Line

Plot 9

FLORISTIC QUALITY DATA

3	Native Species
4	Total Species
7	Native Mean C
5	w/ adventive
12.1	Native FQI
10.5	w/ adventive
-5	Native Mean W
-5	w/ adventive
Obl	AVERAGE

<u>C</u>	<u>W</u>	<u>Indicator</u>	Scientific Name	<u>Physiognomy</u>
4	-5	Obl	Alisma triviale	Perennial Introduced Grass
10	-5	Obl	Carex crus corvi	Perennial Native Grass Like
0	-4	Facw+	Phalaris arundinacea	Perennial Native Grass
7	-5	Obl	Wolffia columbiana	Perennial Native Floating Forb

WILDLIFE HABITAT QUALITY

Wildlife habitat Quality as determined using the Michigan Department of Natural Resources (MIDNR) wildlife habitat evaluation method (MRWQ).

A. Utilization by Wildlife

Wildlife	Score	
Significant	3	
Evident	2	
Low	1	
Occasional	0.5	
Non-Existent	0	Sub-Total Score – 0.5

B. Interspersion of Vegetative Cover

Interspersion	Score	
High	3	
Medium	2	
Low	1	Sub-Total Score – 1

C. Vegetative Cover to Open Water

Cover	Score	
> 95% Cover	0.5	
76%-95% Cover, Peripheral	1.5	
76%-95% Cover, Various	2.5	
26%-75% Cover, Peripheral	2.0	
26%-75% Cover, Patches	3.0	
5%-25% Cover, Peripheral	1.0	
< 5% Cover	0.5	Sub-Total Score – 2.0

Total Score (A+B+C) = 3.5

METHODS

1987 USACE Wetland Delineation Manual.

Prior to the visit, a preliminary site evaluation is performed using aerial photography and natural resource mapping. Potential wetland areas identified by these resources are evaluated in the field to determine if they meet the requirements for a wetland based on the USACE parameters of vegetation, hydrology and soils. In general, positive indication of each of the three parameters must be demonstrated to classify an area as wetland. Each of these parameters is discussed below.

- Vegetation To be considered a wetland, more than 50% of the dominant plant species must be hydrophytic (water tolerant). The U.S. Fish Wildlife Service (USFWS) has prepared a regional list of plants occurring in wetlands which assigns the plant species different indicators. Wetland plants fall into three indicator classes based on differing tolerances to water level and soil saturation. These indicators are obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC). Dominant plant species are recorded at sample points within investigated areas.
- **Hydrology** The hydrology criterion for a wetland is met when inundation or saturation occurs for more than 5% of the growing season. Soil is considered to be saturated when a pit dug to a depth of 16 inches accumulates standing water within a major part of the root zone or with in 12 inches of the ground surface. Both primary and secondary indicators of wetland hydrology (see USACE data forms) are investigated in the field. Seasonal factors are considered when evaluating hydrology.
- Soils To be considered a hydric soil, sufficient saturation, flooding or ponding must occur during the growing season to develop anaerobic (lacking oxygen) conditions which favor growth, reproduction and persistence of hydrophytic vegetation. Field indicators of hydric soils include but are not limited to presence of a gleyed or low chroma soil colors, presence of sulfidic odor, and the presence of redoximorphic features. Field indicators are usually examined in the top 18 inches of the soil. Soil colors are determined using *Munsell Soil Color Charts*. The most current edition of the *Field Indicators of Hydric Soils in the United States* may be used for supplemental identification of hydric soils.

Areas meeting these three criteria are staked in the field for surveying purposes. Boundaries are demarcated in the field with pink flagged pin stakes labeled "WETLAND DELINEATION." Staked boundaries are mapped on an aerial photograph included in this report. Approximate offsite wetland boundaries are identified on the aerial photograph and were determined using available aerial photographs, wetlands maps and field observation.

Farmed Wetland Determinations.

A March 25, 2005 Joint Guidance Agreement between USACE and Natural resources Conservation Service (NRCS) states that the USACE shall assume responsibility for determining farmed wetland areas for all projects processed under the Clean Water Act, which includes all developments that propose to convert cropland into another use.

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- "Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual," Midwest Region, September 2008