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BARR

January 20, 2016

Attn: Claudia Smith
EPA Region 8
Air Program (8P-AR)
1595 Wynkoop Street
Denver, CO, 80202

Re: Response to EPA Completeness Review
U.S. Silica Parshall Transload Facility General Permit Coverage

Dear Ms. Smith:

Barr Engineering Co. (Barr) has reviewed the EPA's completeness review questions and appreciates your time to talk through these comments earlier this week. This correspondence provides additional information and clarification regarding threatened and endangered species determinations of effect, as well as areas surveyed as part of the Class III cultural resources inventory and Tribal Historic Preservation Officer (THPO) coordination.

The proposed Project will require a Nationwide Section 404 Permit from the U.S. Army Corps of Engineers (USACE) for unavoidable wetland impacts to jurisdictional wetlands. As part of the USACE's permit review process they dictated that they will communicate with the U.S. Fish and Wildlife Service (USFWS), State Historic Preservation Office (SHPO), and THPO directly. However, USACE also said that any information that could be provided to help the USACE facilitate these communications would be appreciated.

Threatened and Endangered Species Review

EPA Comment: Under Section 7(a)(2) of the Endangered Species Act (ESA), the EPA must ensure that any action authorized, funded, or carried out by the EPA is not likely to jeopardize the continued existence of a federally listed endangered species or threatened species or result in the destruction or adverse modification

of such species' designated critical habitat. If the EPA's action (i.e., permit issuance) may affect a federally listed species or designated critical habitat, Section 7(a)(2) of the ESA and relevant implementing regulations at 50 CFR Part 402 require consultation between the EPA (or another designated Federal lead agency) and the United States Fish and Wildlife Service (FWS). The permit application for the Parshall Transload Facility is subject to ESA requirements.

US Silica selected criterion A in its Request for Coverage to satisfy the ESA requirements. Information pertaining to the ESA is found in the US Silica's Request for Coverage. The supporting documentation includes a list of federally-listed species potentially occurring in the vicinity of the proposed project that was obtained through the FWS Information, Planning, and Conservation System (IPaC) online program on November 20, 2015. The ESA documentation indicates that both a desktop review and a field assessment of suitable habitat were conducted. Documentation of the field assessment such as the extent of the assessment, when it occurred and by whom was not provided. Greater detail on the results of the assessment needs to be provided to support the findings of no effect on federally listed species due to the lack of suitable habitat and high levels of existing human disturbance. We note that there is critical habitat for the piping plover just over 2 miles from the proposed project area.

Response: Barr obtained a list of federally-listed species potentially occurring in the vicinity of the proposed project through the USFWS Information Planning and Conservation System (IPaC) online program. In addition, field surveys for suitable habitat for these species were completed in August 2015, in conjunction with the field wetland delineation. A copy of the Wetland Delineation Report, which contains threatened and endangered species habitat survey methodology and findings is attached for your records. Results of the threatened and endangered species habitat survey were used to assess the Project's likely effect on each listed species. A threatened and endangered species review/determination of effect memo has been prepared for inclusion in the Section 404 permit application package to assist the USACE with USFWS Section 7 consultation. A copy of this memo is also attached for your records.

Cultural Resources Review

EPA Comment: The National Historic Preservation Act documentation is provided by the document, "A Class I and Class III Cultural Resource Inventory of the U.S. Silica Parshall Transload Facility, Mountrail and Ward Counties, North Dakota", SWCA Cultural Resource Report Number 15-517 prepared by SWCA Environmental Consultants and dated October 2, 2015. The Abstract indicates that the only federal agency potentially involved with the proposed project would be the U.S. Army Corps of Engineers through the Clean Water Act. The class III inventory focused on wetlands and potential waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers. Only two areas were inventoried for a total of 61.75 areas. However, U.S. Silica estimated that the proposed project area is approximately 330 acres.

While the cultural resource report was submitted to the State Historical Society of North Dakota, it does not appear that SWCA discussed the project with the Tribal Historic Preservation Officer (THPO) for the Three Affiliated Tribes. The EPA is concerned that the entire 330 acre project area was not inventoried and that the THPO was not consulted or provided a copy of the Cultural Resources Inventory. The entire project area should be inventoried and the THPO contacted. See Steps 2 and 3 of Appendix B – Historic Properties Screening Process on the Request for Coverage form. The contact information for the THPO for the Three Affiliated Tribes is:

Elgin Crows Breast, THPO
Mandan, Hidatsa & Arikara Nation
404 Frontage Road
New Town, ND 58763
Tel: 701.862.2474, Fax: 701.862.2490, Email: redhawk@mhanation.com

Response: Barr completed a scoping study for this proposed Project in March 2015. As part of that study, the potential for cultural resources to occur in the project area was assessed using publicly available information. The Final Environmental Impact Statement for the Thunder Butte Refinery[1], located immediately south of the proposed Project site was reviewed to gather an overview of cultural resources in the vicinity. According to this document, SHPO had no records of cultural resource investigations or known sites for the refinery site. For that immediately adjacent project, the THPO and SHPO both concurred there was a low potential for significant cultural resources in the area and recommended a determination of no historic properties affected.

The Class I literature review completed in August 2015 for this Project identified one cultural resource, a segment of historic railroad, in the study area. However, as noted in the October 2015 Class I and Class III Cultural Resource Inventory (submitted to the EPA as part of this air permit application package) recent addendum to SHPO policy indicates this railroad segment does not require recordation and a recommendation of No Historic Properties Affected was made.

Based on the Class I findings for this project and the cultural resources review completed for the Thunder Butte Refinery, the Project archaeologist recommended completing the Class III (pedestrian) survey in accordance with USACE guidelines. As part of their Section 404 permit review, the USACE requires field surveys for cultural resources within a 200-foot wide buffer surrounding potentially jurisdictional wetlands. As such, only those portions of the Project area were inventoried to Class III standards.

The October 2015 Class I and Class III Cultural Resource Inventory was included in the Section 404 permit application package to assist the USACE with SHPO Section 106 consultation and THPO coordination. This report was also informally submitted to SHPO as it was one of the first reports prepared following the SHPO policy addendum regarding railroads. However, that informal submittal does not substitute for formal, agency-to-agency consultation between the USACE and SHPO as part of the Section 106 process that the USACE will initiate once the wetland application is submitted.

[1] U.S. Department of the Interior Bureau of Indian Affairs Great Plains Regional Office and U.S. Environmental Protection Agency Region 8. August 2009. Final Environmental Impact Statement for the Mandan, Hidatsa, and Arikara Nation's Proposed Clean Fuels Refinery Project. Accessed March 2015. Available online at: http://nepis.epa.gov/Exe/ZyNET.exe/P100G7IR.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2006+Thru+2010&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C06thru10%5CTxt%5C00000033%5CP100G7IR.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree= 0&Image Quality=r75g8/r75g8/x150y150g16/i425&Display=p%7Cf&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL.

Please let us know if the EPA has additional questions or requires further information to complete its completeness review for the U.S. Silica Parshall Transload Facility General Permit Request for Coverage.

Sincerely,

Lori Stegink
Vice President

Cc: Deirdre Rothery, US EPA
Edmund Baker, MHA Nation
Tina Archer, U.S. Silica
Steve Hartman, U.S Silica
Mike Ruttle, U.S. Silica

Attachments:
Wetland Delineation Report
Threatened and Endangered Species Review Memo

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Memorandum

To: Garth Zimbelman, Regulatory Project Manager
From: Shanna Braun
Subject: Threatened and Endangered Species Review
Date: January 5, 2016
Project: US Silica Parshall Transload Facility

U.S. Silica (USS) is proposing construction of a new rail transload facility near Parshall, ND to transport silica sand from rail cars to trucks. Proposed construction of the transload facility includes installation of a new rail line parallel and adjacent to the existing Canadian Pacific's (CP's) railway and a new rail loop to be used for loading and unloading rail cars. The proposed project also includes construction of an offloading building to be used for sand sorting and storage. A paved parking area would be constructed to accommodate incoming and outgoing trucks as well as approximately 20 daily USS employees. The facility would be constructed on land owned by CP and under easement to USS. Both the new rail and loading facility would be located within an approximately 330 acre project area.

On behalf of US Silica, Barr Engineering performed a desktop threatened and endangered species review to determine the potential for adverse impacts to federally-listed species. The proposed project is located in an open area dominated by two habitat types: 1) herbaceous upland habitat comprised of grasses and forbs and 2) palustrine emergent wetlands containing grasses, forbs, and various hydrophytic vegetation. SWCA Environmental Consultants (SWCA) reviewed the USFWS county list of threatened and endangered species and at the time of the wetland delineation, confirmed via a random survey that no primary or secondary indications of listed species or suitable habitat were recorded.

A list of federally-listed species potentially occurring in the vicinity of the proposed project was obtained through the United States Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (IPaC) online program on November 20, 2015. Nine species listed as threatened, endangered, or candidate were identified in the official species listed generated through the IPaC request:

Common Name	Scientific Name	Federal Status
Least Tern	*Sterna antillarum*	Endangered
Whooping Crane	*Grus americana*	Endangered
Pallid Sturgeon	*Scaphirhynchus albus*	Endangered
Gray Wolf	*Canis lupus*	Endangered
Piping Plover	*Charadrius melodus*	Threatened
Sprague's Pipit	*Anthus spragueii*	Candidate
Red Knot	*Calidris canutus rufa*	Threatened
Dakota Skipper	*Hesperia dacotae*	Threatened
Northern long-eared bat	*Myotis septentrionalis*	Threatened

In North Dakota, the least tern utilizes sparsely vegetated sandbars on the Missouri and Yellowstone Rivers. The proposed project is located in a well-vegetated area, approximately 18 miles northeast of the Missouri River (Lake Sakakawea) and approximately 95 miles from the Yellowstone River. Based on the lack of suitable least tern habitat in or near the project area, the proposed project would have no effect on the least tern.

Preferred whooping crane habitat consists of shallow wetlands characterized by cattails, bulrushes, and sedges. They can also be found foraging in upland areas, especially during migration periods. The proposed project is located within a migration corridor in which 75% of all confirmed whooping crane sightings in North Dakota have been observed. The project area contains multiple small, shallow wetland areas and is located near cropland that may serve as suitable foraging habitat. Whooping cranes are sensitive to human disturbance and are anticipated to avoid the project area during construction. The proposed disturbance and changes in habitat will not appreciably reduce the amount of habitat in the surrounding area and therefore the project is expected to have no effect on the whooping crane.

The pallid sturgeon inhabits large rivers with high turbidity and natural flow. Preferred habitat has a diversity of depths and velocities formed by braided channels, sandbars, islands, sand flats, and gravel bars. In North Dakota, pallid sturgeon can be found in the Missouri River (including Lake Sakakawea) and lower Yellowstone River. The proposed project is located in upland and emergent wetland habitat, approximately 18 miles northeast of the Missouri River and approximately 95 miles from the Yellowstone River. In addition, there are no open, flowing waterbodies in the project area that would serve as a direct flow path to these rivers. Based on

the lack of suitable habitat in or near the project area, the proposed project will have no effect on the pallid sturgeon.

Though an infrequent visitor in North Dakota, the gray wolf occasionally traverses the state from neighboring Minnesota, Montana or Manitoba, Canada. Habitat for the gray wolf in North Dakota includes forested areas in the north central and northeastern portions of the state. Due to a lack of forested habitat and the distance from other known gray wolf populations, the proposed project will have no effect on the gray wolf.

In the Northern Great Plains region, piping plovers inhabit barren sand and gravel shores of rivers and lakes, avoiding areas of dense vegetation. Nearly all lakes used by piping plovers in North Dakota are alkaline in nature and are sparsely vegetated. They also use barren river sandbars. In North Dakota, this type of habitat is found on the Missouri River (including Lake Sakakawea) and the Yellowstone River. The nearest designated critical habitat for the piping plover is an alkaline lake approximately 2 miles northeast of the project area. However, the proposed project is located in well-vegetated habitat surrounded by human disturbances (roadway and railroad), approximately 18 miles northeast of the Missouri River and 95 miles from the Yellowstone River. Based on the lack of suitable habitat in or near the project area, the proposed project would have no effect on the piping plover.

The Sprague's pipit is endemic to northern Great Plains native short to mixed grass prairie. They are less abundant in areas of introduced grasses than areas of native prairie. Generally, the Sprague's pipit prefers well-drained native grasslands with high plant species richness and diversity. Large, contiguous patches of native prairie are preferred. They rarely occur in cultivated lands and are uncommon on non-native planted pasturelands. The proposed project is located in in a small patch of habitat containing non-native species as well as wetlands. Due to the lack of preferred Sprague's pipit habitat; the proposed project is not anticipated to impact the Sprague's pipit.

The red knot is a migratory shorebird that breeds in the Canadian Arctic and passes through North Dakota during spring and fall migration. During migration, red knots typically utilize exposed mudflats and open sparsely vegetated areas as temporary stopover sites to rest and forage. Such areas are likely present on the Missouri River. Additionally, red knots are thought to use inland saline lakes as stopover habitat. The proposed project is located approximately 18

miles from the Missouri River and no saline lakes are present in the immediate project vicinity. Due to the lack of suitable stopover habitat, the project will have no effect on the red knot.

The Dakota skipper is found in native prairie habitat containing a high diversity of wildflower and grasses. Two primary habitat types are known for this species: A) low, wet prairie dominated by bluestem, wood lily, harebell, and smooth camas and B) upland dry prairie ridges and hillsides dominated by bluestem grasses, needlegrass, pale purple coneflower and upright coneflowers and blanketflower. Habitat within the project area is not high-quality native prairie and is not characteristic of either identified habitat type and therefore the project will have no effect on the Dakota skipper.

The northern long-eared bat roosts in trees greater than 3 inches in diameter that have loose or peeling bark, cavities, or crevices. Both live and dead trees are used for roosting. During winter, the northern long-eared bat hibernates in caves and mines. There are no trees located within the project area and a review of available data and satellite imagery does not indicate the presence of any hibernacula in the project vicinity. Due to the absence of roosting and hibernating habitat, the project will have no effect on the northern long-eared bat.

In summary, the proposed project would have no effect on any of the federally listed species identified in the project vicinity.

SWCA®
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Wetland Delineation Report for the USS Parshall Transload Facility, Mountrail and Ward Counties, North Dakota

Prepared for

Barr Engineering

Prepared by

SWCA Environmental Consultants

October 2015

Wetland Delineation Report for the USS Parshall Transload Facility, Mountrail and Ward Counties, North Dakota

Prepared for:

Barr Engineering

Prepared by:

Matt Keller, Natural Resources Specialist

Reviewed by:

Jeff Towner, Natural Resources Lead

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SWCA Project No. 34017

October 23, 2015

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1.0 INTRODUCTION

SWCA Environmental Consultants (SWCA) conducted a wetland delineation and habitat evaluation for threatened and endangered species in order to identify exclusion and avoidance areas as specified in Section 404 of the Clean Water Act. The investigation was conducted for Barr Engineering for the proposed USS Parshall Transload Facility, located 3 miles northwest of Makoti, North Dakota.

SWCA conducted field surveys on August 25 and 27, 2015, to determine the potential presence and extent of wetlands and waterbodies, including jurisdictional waters of the U.S., commonly referred to as wetland and ordinary high water mark (OHWM) delineations. Maps of the survey area and natural resource features identified during the field surveys are provided in Appendix A. Habitat evaluations were conducted simultaneously to identify any suitable habitat for threatened or endangered species within the project right-of-way.

This report describes the methodology used by SWCA's biologists to complete each of the aforementioned surveys; presents the results of the surveys; and provides SWCA's general recommendations.

The preliminary jurisdictional determinations made in this report indicate the "likely jurisdictional status" of each wetland based on connectivity to navigable waters of the U.S. The U.S. Army Corps of Engineers (USACE) has full discretion in determining the jurisdictional status of each wetland discussed in this report.

1.1 REGULATORY BACKGROUND

1.1.1 Clean Water Act, Section 404

Section 404 of the Clean Water Act prohibits the discharge of fill material into waters of the U.S., including certain wetlands, also known as jurisdictional waters, without a permit from the USACE.

2.0 METHODS

2.1 SURVEY AREA

Overall, northwest North Dakota is characterized by a moderate to cool climate, with cold, dry winters and mild to warm summers. Mean annual precipitation for the area is 14 to 16 inches (Bryce et al. 1998).

The proposed project is located in the Great Plains (level I ecoregion), West-central Semi-arid Prairies (level II ecoregion), Northwestern Glaciated Plains (level III ecoregion), and the Glaciated Dark Brown Prairie (level IV ecoregion). The Northwestern Glaciated Plains ecoregion contains brown clay loam soils and gravelly areas that were primarily derived from glacial drift (U.S. Geological Survey [USGS] 2014). Figure 1 provides an overview of the general topography within the survey area.

Figure 1. Project area overview depicting general topography in the survey area (photograph taken August 25, 2015).

The inventoried area is on the USGS Wabek (1980) and Makoti (1980) quadrangle. The inventoried area is located in Section 13, Township (T) 152 North (N), Range (R) 88 West (W), Mountrail County, North Dakota, and Section 18, T152N, R87W, Ward County, North Dakota. Vicinity and site layout maps are provided in Appendix A.

2.2 PRE-FIELD REVIEW

Prior to conducting field surveys, SWCA reviewed applicable National Wetlands Inventory (NWI) data as well as preliminary National Weather Service climatic data.

2.3 WETLANDS

NWI mapping for the region indicates the presence of wetlands in the project area (U.S. Fish and Wildlife Service [USFWS] 2015). SWCA biologists conducted wetland delineations in the survey area based on the principles and guidelines provided in the *Corps of Engineers Wetlands Determination Manual* (Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Determination Manual: Great Plains Region Version 2.0* (Supplement) (USACE 2010). According to the Manual, an area is a wetland if three specific wetland indicators—hydrophytic vegetation, wetland hydrology, and hydric soils—are present, with certain exceptions. All wetlands and waterbodies geographically referenced in the survey area during field survey are depicted on the site layout maps in Appendix A. Wetland delineation data forms are provided in Appendix B.

2.3.1 Hydrophytic Vegetation

Biologists recorded all plants in the vegetative community of the survey area based on the respective stratum in which each species is located. The Supplement defines a tree as a woody-stemmed plant with a trunk diameter at breast height of equal to or greater than 3 inches, regardless of height. The sapling and shrub stratum is composed of woody-stemmed plants with a trunk diameter at breast height of less than 3 inches, regardless of height. The herbaceous stratum includes all non-woody-stemmed plants regardless of height. Finally, the woody vine stratum includes all woody-stemmed vines, regardless of diameter.

SWCA recorded the binomial scientific name and percent cover of all plants within a 30-foot radius for the tree stratum, a 15-foot radius for the sapling/shrub stratum, a 5-foot radius for the herbaceous stratum, and a 30-foot radius for the woody vine stratum. SWCA biologists noted each plant species' respective USFWS indicator status (i.e., upland [UPL], facultative upland [FACU], facultative [FAC], facultative wetland [FACW], and obligate [OBL]). Vegetation communities met the hydrophytic vegetation criterion for wetlands if greater than 50% of dominant species had an indicator status of FAC, FACW, and OBL.

2.3.2 Wetland Hydrology

A wetland was determined to contain wetland hydrology if at least one primary indicator or at least two secondary indicators of wetland hydrology were present, as defined by the Manual and Supplement. Common hydrologic indicators include the presence of surface water, high water table, soil saturation, water marks on trees or other objects, sediment deposits, water-stained leaves, and oxidized rhizospheres on living roots.

2.3.3 Hydric Soil

Biologists recorded detailed notes regarding soil profiles including the hue, value, and chroma (i.e., color) of the soil (using Munsell Soil Color Charts); the depth and extent of that soil color within the entire soil profile; the concentration of any redoximorphic concentrations or depletions; and the texture of the soil at each depth where a color change was observed. Soil pits were excavated to a minimum depth of 20 inches at each data point. Common hydric soil indicators of the Northern Great Plains subregion include the presence of hydrogen sulfide gas in the soil pit, redox depressions, redox dark surfaces, and depleted matrix.

2.4 THREATENED AND ENDANGERED SPECIES

Prior to conducting field surveys, SWCA reviewed information obtained from the USFWS list of threatened and endangered species by North Dakota county (USFWS 2014a) regarding the presence of threatened or endangered species that may occur within the survey area. This document does not represent a comprehensive survey, but rather acknowledges the past and/or current presence of listed species. The lack of discovery of threatened or endangered species does not signify their non-existence within the area, but only that no primary or secondary indications of these species were recorded. SWCA completed a random survey for all listed species and suitable habitat.

A line-of-sight binocular survey for raptor species was also conducted for a distance of approximately 0.5 mile. SWCA biologists noted all wildlife observed during the field survey. Wildlife sightings can involve primary observations (i.e., actual sighting of an animal) or secondary observations (i.e., observation of scat, tracks, or fur deposits).

2.5 WATERBODIES

Waterbodies (i.e., ponds, creeks, streams, rivers) in the survey area were identified by the presence of an OHWM. Common identifiable indicators of an OHWM include open water or evidence of a clear, natural line visible on the bank; shelving; changes in soil characteristics; the destruction of terrestrial vegetation; the presence of litter and debris; and watermarks on structures that are inundated during normal high water conditions. The OHWM typically represents the potential limits of the USACE jurisdiction. Please note that the USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies.

SWCA classified streams as perennial, intermittent, or ephemeral based on field observations. During a typical year, a perennial stream contains flowing water year-round, and the water table is located above the streambed. Groundwater is the primary water source for stream flow, while precipitation runoff is supplemental. Biologists classified streams that showed significant flow during the field survey. Additionally, USGS topographic maps were used as reference.

An intermittent stream has flowing water for only portions of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

2.6 MAPPING

The boundaries of each wetland and waterbody were geographically recorded using a Trimble GeoXT global positioning system (GPS) unit. The aforementioned GPS unit is capable of recording geographic data with sub-meter accuracy. SWCA used Universal Transverse Mercator Zone 13 North as the projected coordinate system and North American Datum 1983 as the datum. Esri ArcGIS 10.0 software was used to analyze recorded features, calculate areas, and generate the maps provided in Appendix A. Please note that all data collected using the GPS unit and displayed on the attached maps are for review purposes only and do not represent a professional civil survey.

3.0 RESULTS

3.1 VEGETATION

During the field survey, SWCA biologists identified two general types of vegetative communities in the survey area: herbaceous upland and palustrine emergent (PEM) wetland. PEM wetlands are characterized by the presence of herbaceous hydrophytic or submergent aquatic macrophytes. Photographs of the survey area are provided in Appendix C.

Vegetation communities met the hydrophytic vegetation criterion for wetlands if greater than 50% of dominant species had an indicator status of FAC, FACW, or OBL. The upland communities failed to meet at least one of the three assessed wetland criteria.

3.1.1 Herbaceous Upland

The herbaceous upland community consists of areas dominated by non-woody vegetation such as grasses and forbs. Vegetation in the project area consisted of native and non-native grasses and forbs, including field sow thistle (*Sonchus arvensis*), white heath aster (*Symphyotrichum ericoides*), Canada thistle (*Cirsium arvense*), smooth brome (*Bromus inermis*), white clover (*Trifolium repens*), and intermediate quackgrass (*Thinopyrum intermedium*).

3.1.2 Hydrophytic Vegetation

Aquatic vegetation species confirmed during the survey included cascade reedgrass (*Calamagrostis tweedyi*), freshwater cordgrass (*Spartina pectinata*), American sloughgrass (*Beckmannia syzigachne*), foxtail barley (*Hordeum jubatum*), western dock (*Rumex occidentalis*), broadleaf cattail (*Typha latifolia*), creeping spikerush (*Eleocharis fallax*), stinging nettle (*Urtica dioica*), and water smartweed (*Persicaria amphibian*).

3.2 HYDROLOGY

Wetland communities observed during the determination effort displayed at least one primary or two secondary indicators of wetland hydrology, as defined by the Manual and Supplement. Upland communities either failed to display hydrologic indicators or failed to meet the hydrophytic vegetation and hydric soils criterion, as defined by the Manual and Supplement. Common indicators of wetland hydrology observed during field surveys include Saturation (A3), Drainage Patterns (B10), Geomorphic Position (D2), and FAC-Neutral Test (D5).

According to National Weather Service preliminary climatological data for Williston, North Dakota, located approximately 100 miles northwest of the project area, 4.27 inches of precipitation were recorded from June 1 through August 27, 2015 (Table 1). This amount is 2.07 inches below normal for this time period.

Table 1. Monthly Recorded Rainfall at the National Weather Service Station in Williston, North Dakota

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
June 2015	1.90	2.52	-0.62
July 2015	1.55	2.54	-0.99
August 1–27, 2015	0.82	1.28	-0.46
Total	**4.27**	**6.34**	**-2.07**

Source: National Oceanic and Atmospheric Administration 2014.

3.3 WETLANDS

During the field survey, SWCA recorded 16 seasonal PEM wetlands (WET1–WET16) totaling approximately 14.54 acres in the survey area (Table 2). Photographs of the wetlands are provided in Appendix C.

Table 2. Palustrine Emergent Wetland Acreage in the Survey Area

Feature ID	Associated Sampling Point	Sample Point Location		Total Size (acres)
		Latitude	Longitude	
WET1*	DP1W	47.980236	-101.869784	4.82
	DP2U	47.980216	-101.869853	
WET2*	DP3W	47.980453	-101.872302	0.24
	DP4U	47.980478	-101.877231	
WET3*	DP5W	47.978863	-101.872831	0.06
	DP6U	47.978887	-101.872791	
WET4*	DP10W	47.979448	-101.877225	5.56
	DP11U	47.979468	-101.877122	
WET5*	DP14W	47.979282	-101.882101	1.09
	DP15U	47.979236	-101.882162	
WET6*	DP18W	47.980712	-101.980712	0.01
	DP19U	47.980682	-101.882004	
WET7*	DP20W	47.981786	-101.88228	0.25
	DP21U	47.981735	-101.882253	
WET8*	DP22W	47.981729	-101.896399	0.21
	DP23U	47.981702	-101.876405	
WET9*	DP24W	47.982353	-101.876032	0.28
	DP25U	47.982320	-101.876060	
WET10*	DP26W	47.983249	-101.876038	0.33
	DP27U	47.983289	-101.876047	
WET11*	DP28W	47.983649	-101.875973	0.13
	DP29U	47.983628	-101.875913	

Feature ID	Associated Sampling Point	Sample Point Location		Total Size (acres)
		Latitude	Longitude	
WET12*	DP30W	47.984325	-101.878045	0.18
	DP31U	47.984295	-101878049	
WET13*	DP32W	47.985557	-101.881681	0.85
	DP33U	47.985517	-101.881611	
WET14*	DP34W	47.984304	-101.881637	0.25
	DP35U	47.984326	-101.881665	
WET15*	DP37W	47.983015	-101.877842	0.10
	DP38U	47.982990	-101.877900	
WET16*	DP40W	47.981986	-101.874762	0.18
	DP41U	47.982022	-101.874708	
Total				**14.54**

* National Wetlands Inventory (NWI) wetland

3.3.1 Wetland 1

Wetland 1, associated with DP1W and DP2U, is a seasonal depression wetland in the northern extent of the survey area. Photographs of Wetland 1 are provided in Appendix C. Based on the delineation, 4.82 acres of this PEM wetland fall within the survey boundary. The wetland is likely jurisdictional due to connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 1 included reed canarygrass (*Phalaris arundinacea*) (FAC) and water smartweed (OBL). According to the Natural Resources Conservation Service (NRCS 2014), the soil map units in this area are Hamerly loam, 0% to 3% slopes, and Parnell silty clay loam, 0% to 1% slopes. Hydric soil indicators recorded at Wetland 1 during the survey included depleted below dark surface (A11) and redox depressions (F8). Soil samples were loamy sand. Primary indicators of wetland hydrology observed at Wetland 1 were salt crust (B11), water-stained leaves (B9), and oxidized rhizospheres on living roots (C3). The secondary wetland hydrology indicator observed in the field was geomorphic position (D2).

3.3.2 Wetland 2

Wetland 2, associated with DP3W and DP4U, is a seasonal depression wetland in the central extent of the survey area. Photographs of Wetland 2 are provided in Appendix C. Based on the delineation, 0.24 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 2 included cascade reedgrass (FAC), Canada thistle (FACU), foxtail barley (FACW), western dock (OBL), broadleaf cattail (OBL), and water smartweed (OBL). According to the NRCS (2014), the soil map unit in this area is Williams-Bowbells loams, 3% to 6% slopes. The hydric soil indicator recorded at Wetland 2 during the survey was redox depressions (F8). Soil samples were clay loam and loamy sand. The primary indicator of

wetland hydrology observed at Wetland 2 was water stained leaves (B9). The secondary wetland hydrology indicator observed in the field was geomorphic position (D2).

3.3.3 Wetland 3

Wetland 3, associated with DP5W and DP6U, is a seasonal depression wetland in the southern extent of the survey area. Photographs of Wetland 3 are provided in Appendix C. Based on the delineation, 0.06 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 3 included reed canarygrass (FACW) and western dock (OBL). According to the NRCS (2014), the soil map unit in this area is Williams-Bowbells loams, 3% to 6% slopes. The hydric soil indicator recorded at Wetland 3 during the survey was redox depressions (F8). Soil samples were loam and clay loam. The primary indicator of wetland hydrology observed at Wetland 3 was water stained leaves (B9). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and FAC-Neutral test (D5).

3.3.4 Wetland 4

Wetland 4, associated with DP10W and DP11U, is a permanent depression wetland in the central extent of the survey area. Photographs of Wetland 4 are provided in Appendix C. Based on the delineation, 5.56 acres of this PEM wetland fall within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 4 included cascade reedgrass (FAC), freshwater cordgrass (FACW), and broadleaf cattail (OBL). According to the NRCS (2014), the soil map unit in this area is Tonka silt loam, 0% to 1% slopes. Hydric soil indicators recorded at Wetland 4 during the survey included black histic (A3), thick dark surface (A12), and sandy mucky mineral (S1). Soil samples were clay loam. Primary indicators of wetland hydrology observed at Wetland 4 were inundation visible on aerial imagery (B7) and saturation (A3). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.3.5 Wetland 5

Wetland 5, associated with DP14W and DP15U, is a seasonal depression wetland in the western extent of the survey area. Photographs of Wetland 5 are provided in Appendix C. Based on the delineation, 1.09 acres of this PEM wetland fall within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 5 included creeping spikerush (OBL), water smartweed (OBL), American sloughgrass (OBL), western dock (OBL), and broadleaf cattail (OBL). According to the NRCS (2014), the soil map unit in this area is Tonka silt loam, 0% to 1% slopes. Hydric soil indicators recorded at Wetland 5 during the survey included depleted below dark surface

(A11) and redox depressions (F8). Soil samples were silty clay loam. Primary indicators of wetland hydrology observed at Wetland 5 were inundation visible on aerial imagery (B7) and oxidized rhizospheres on living roots (C3). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.3.6 Wetland 6

Wetland 6, associated with DP18W and DP19U, is a seasonal depression wetland in the western extent of the survey area. Photographs of Wetland 6 are provided in Appendix C. Based on the delineation, 0.01 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 6 included field sow thistle (FAC), Canada thistle (FACU), and broadleaf cattail (OBL). According to the NRCS (2014), the soil map unit in this area is Tonka silt loam, 0% to 1% slopes. The hydric soil indicator recorded at Wetland 6 during the survey was redox depressions (F8). Soil samples were silty clay loam. No primary indicators of wetland hydrology were observed at Wetland 6. Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and FAC-Neutral test (D5).

3.3.7 Wetland 7

Wetland 7, associated with DP20W and DP21U, is a seasonal depression wetland in the western extent of the survey area. Photographs of Wetland 7 are provided in Appendix C. Based on the delineation, 0.25 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 7 included water smartweed (OBL), reed canarygrass (FACW), freshwater cordgrass (FACW), and broadleaf cattail (OBL). According to the NRCS (2014), the soil map unit in this area is Hamerly-Tonka complex, 0% to 3% slopes. The hydric soil indicator recorded at Wetland 7 during the survey was redox depressions (F8). Soil samples were silty loam. The primary indicator of wetland hydrology observed at Wetland 7 was inundation visible on aerial imagery (B7). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2), saturation visible on aerial imagery (C9) and FAC-Neutral test (D5).

3.3.8 Wetland 8

Wetland 8, associated with DP22W and DP23U, is a seasonal depression wetland in the central extent of the survey area. Photographs of Wetland 8 are provided in Appendix C. Based on the delineation, 0.21 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 8 included reed canarygrass (FACW), Canada thistle (FACU), field sow thistle (FAC), western dock (OBL), and broadleaf cattail (OBL). According to the NRCS (2014), the soil map units in this area are Hamerly-Tonka complex, 0% to 3% slopes, and

Williams-Bowbells loams, 3% to 6% slopes. The hydric soil indicator recorded at Wetland 8 during the survey was redox depressions (F8). Soil samples were silty loam and silty clay. The primary indicator of wetland hydrology observed at Wetland 8 was inundation visible on aerial imagery (B7). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.3.9 Wetland 9

Wetland 9, associated with DP24W and DP25U, is a seasonal depression wetland in the northern extent of the survey area. Photographs of Wetland 9 are provided in Appendix C. Based on the delineation, 0.28 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 9 included water smartweed (OBL), reed canarygrass (FACW), freshwater cordgrass (FACW), broadleaf cattail (OBL), and American sloughgrass (OBL). According to the NRCS (2014), the soil map unit in this area is Hamerly-Tonka complex, 0% to 3% slopes. The hydric soil indicator recorded at Wetland 9 during the survey was redox depressions (F8). Soil samples were silty loam. The primary indicator of wetland hydrology observed at Wetland 9 was inundation visible on aerial imagery (B7). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.3.10 Wetland 10

Wetland 10, associated with DP26W and DP27U, is a seasonal depression wetland in the northern extent of the survey area. Photographs of Wetland 10 are provided in Appendix C. Based on the delineation, 0.33 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 10 included broadleaf cattail (OBL), foxtail barley (FACW), western dock (OBL), and stinging nettle (FAC). According to the NRCS (2014), the soil map unit in this area is Hamerly-Tonka complex, 0% to 3% slopes. The hydric soil indicator recorded at Wetland 10 during the survey was redox depressions (F8). Soil samples were loam. The primary indicator of wetland hydrology observed at Wetland 10 was inundation visible on aerial imagery (B7). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.3.11 Wetland 11

Wetland 11, associated with DP28W and DP29U, is a seasonal depression wetland in the northern extent of the survey area. Photographs of Wetland 11 are provided in Appendix C. Based on the delineation, 0.13 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 11 included reed canarygrass (FACW), broadleaf cattail (OBL), field sow thistle (FAC), and white heath aster (FACU). According to the NRCS (2014), the soil map unit in this area is Hamerly-Tonka complex, 0% to 3% slopes. The hydric soil indicator recorded at Wetland 11 during the survey was redox depressions (F8). Soil samples were clay and clay loam. The primary indicator of wetland hydrology observed at Wetland 11 was inundation visible on aerial imagery (B7). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.3.12 Wetland 12

Wetland 12, associated with DP30W and DP31U, is a seasonal depression wetland in the northern extent of the survey area. Photographs of Wetland 12 are provided in Appendix C. Based on the delineation, 0.18 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 12 included reed canarygrass (FACW), broadleaf cattail (OBL), and water smartweed (OBL). According to the NRCS (2014), the soil map units in this area are Williams-Bowbells loams, 0% to 3% slopes, and Williams-Zahl-Zahill complex, 6% to 9% slopes. The hydric soil indicator recorded at Wetland 12 during the survey was redox depressions (F8). Soil samples were clay loam and sandy clay loam. The primary indicator of wetland hydrology observed at Wetland 12 was inundation visible on aerial imagery (B7). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.3.13 Wetland 13

Wetland 13, associated with DP32W and DP33U, is a seasonal depression wetland in the northwest corner of the survey area. Photographs of Wetland 13 are provided in Appendix C. Based on the delineation, 0.85 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 13 included broadleaf cattail (OBL), reed canarygrass (FACW), and Baltic rush (*Juncus baliticus*) (FACW). According to the NRCS (2014), the soil map unit in this area is Tonka silt loam, 0% to 1% slopes. The hydric soil indicator recorded at Wetland 13 during the survey was redox depressions (F8). Soil samples were loam. Primary indicators of wetland hydrology observed at Wetland 13 were inundation visible on aerial imagery (B7) and algal mat or crust (B4). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2), saturation visible on aerial imagery (C9), and sparsely vegetated concave surface (B8).

3.3.14 Wetland 14

Wetland 14, associated with DP34W and DP35U, is a seasonal depression wetland in the northwestern extent of the survey area. Photographs of Wetland 14 are provided in Appendix C. Based on the delineation, 0.25 acre of this PEM wetland falls within the survey boundary.

The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 14 included broadleaf cattail (OBL). According to the NRCS (2014), the soil map unit in this area is Hamerly-Tonka complex, 0% to 3% slopes. The hydric soil indicator recorded at Wetland 14 during the survey was redox depressions (F8). Soil samples were loam. The primary indicator of wetland hydrology observed at Wetland 14 was inundation visible on aerial imagery (B7). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.3.15 Wetland 15

Wetland 15, associated with DP37W and DP38U, is a seasonal depression wetland in the northern extent of the survey area. Photographs of Wetland 15 are provided in Appendix C. Based on the delineation, 0.10 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 15 included broadleaf cattail (OBL), reed canarygrass (FACW), western dock (OBL), and field sow thistle (FAC). According to the NRCS (2014), the soil map unit in this area is Williams-Bowbells loams, 0% to 3% slopes. The hydric soil indicator recorded at Wetland 15 during the survey was redox depressions (F8). Soil samples were loam. No primary indicators of wetland hydrology were observed at Wetland 15. Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.3.16 Wetland 16

Wetland 16, associated with DP40W and DP41U, is a seasonal depression wetland in the central extent of the survey area. Photographs of Wetland 16 are provided in Appendix C. Based on the delineation, 0.18 acre of this PEM wetland falls within the survey boundary. The wetland is likely non-jurisdictional due to lack of connectivity to navigable waters of the U.S.; however, the USACE has the final authority to determine if the wetland is jurisdictional.

Vegetation in Wetland 16 included reed canarygrass (FACW), Canada thistle (FACU), and field sow thistle (FAC). According to the NRCS (2014), the soil map unit in this area is Williams-Bowbells loams, 3% to 6% slopes. The hydric soil indicator recorded at Wetland 16 during the survey was redox depressions (F8). Soil samples were loam and silty clay loam. The primary indicator of wetland hydrology observed at Wetland 16 was inundation visible on aerial imagery (B7). Secondary wetland hydrology indicators observed in the field were geomorphic position (D2) and saturation visible on aerial imagery (C9).

3.4 WATERBODIES

According to the USGS topographic maps, no waterbodies are in the survey area. Biologists did not observe a stream with an OHWM in the survey area (see maps in Appendix A).

3.5 SOILS

Eight soil types are present in the survey area, based on NRCS mapping (NRCS 2014). The survey area analyzed for soils covers the project area (Table 3). The soil component descriptions below Table 3 represent all soil series found in the survey area (NRCS 2014).

Table 3. Natural Resources Conservation Service-Derived Soil Series in the Survey Area

Soil Types	Map Unit Symbol	Slopes (%)	Acres within the Survey Area	Percent within Map Unit
Hamerly-Tonka complex	C272A	0–3	18.07	8.57
Hamerly loam	C270A	0–3	8.54	4.04
Tonka silt loam	C2A	0–1	17.91	8.48
Williams-Bowbells loams	C210A	0–3	10.81	5.11
Williams-Bowbells loams	C210B	3–6	93.84	44.46
Williams-Zahl-Zahill complex	C132C	6–9	54.88	26.00
Zahl-Williams loams	C135D	9–15	4.67	2.21
Parnell silty clay loam	C3A	0–1	2.37	1.13
Total			**211.09**	**100.00**

Source: Natural Resources Conservation Service 2014

3.5.1 Hamerly

The Hamerly series consists of very deep, somewhat poorly drained soils that formed in calcareous loamy till. Permeability is moderate in the upper horizons and moderate or moderately slow in the lower horizons. These soils are on flats on lake plains, on convex slopes surrounding shallow depressions, and on slight rises on till plains. They have slopes ranging from 0 to 3 percent. The mean annual precipitation found throughout the spatial extent of this soil type is 19 inches and the mean annual air temperature is 42 degrees Fahrenheit (°F). Cultivated areas are used for growing small grains, flax, hay, and pasture. Native vegetation is green needlegrass (*Nasella viridula*), little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), and western wheatgrass (*Pascopyrum smithii*) (NRCS 2014).

3.5.2 Tonka

The Tonka series consists of very deep, poorly drained, slowly permeable soils that formed in local alluvium over till or glaciolacustrine deposits. These soils are in closed basins and depressions on till and glacial lake plains and have slopes of 0 to 1 percent. The mean annual precipitation found throughout the spatial extent of this soil type is 20 inches and mean annual air temperature is 42°F. These soils are used for small grains, hay, and pasture. Native vegetation is tall grasses, sedges (*Carex* spp.), and rushes (*Juncus* spp.) (NRCS 2014).

3.5.3 Williams

The Williams series consists of very deep, slowly permeable, well-drained soils found on glacial till plains and moraines with slopes at approximately 0 to 35 percent. The mean annual

precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 42°F. This soil type is largely used for cultivation. Native vegetation species common to this soil type include western wheatgrass, needle and thread (*Hesperostipa comata*), blue grama (*Bouteloua gracilis*), and green needlegrass (NRCS 2014).

3.5.4 Bowbells

The Bowbells series consists of very deep, well- and moderately well-drained soils found on glacial till plains and moraines. Permeability is moderate in the upper portions and moderately slow to slow in the substratum. Slopes range from approximately 0 to 9 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 42°F. This soil type is used for cultivation of small grains. Native vegetation species historically common to this soil type includes western wheatgrass, green needlegrass, and big bluestem (NRCS 2014).

3.5.5 Zahl

The Zahl series consists of very deep, slowly permeable, well-drained soils found on glacial till plains, moraines, and valley side slopes at approximately 1 to 60 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 40°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass, little bluestem, and needle and thread (NRCS 2014).

3.5.6 Zahill

The Zahill series consists of very deep, well-drained soils that formed in till and are found on till plains, hills, moraines, and escarpments. Slopes are 0 to 65 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 13 inches and mean annual air temperature is approximately 42°F. This soil type is used in mainly range and dryland crops. Native vegetation species common to this soil type include western wheatgrass, needle and thread, green needlegrass, little bluestem, prairie sandreed (*Calamovilfa longifolia*), bluebunch wheatgrass (*Pseudoroegneria spicata*), prairie junegrass (*Koeleria macrantha*), blue grama, sedges, and other forbs (NRCS 2014).

3.5.7 Parnell

The Parnell series consists of very deep, very poorly and poorly drained soils that formed in water-sorted sediments from glacial drift in depressions, swales, and drainageways on glacial moraines. These soils have slow permeability. Slopes range from 0 to 3 percent. The mean annual precipitation found throughout the spatial extent of this soil type is about 20 inches and mean annual air temperature is about 41°F. Most undrained areas are in native vegetation with some areas used for pasture or hay land. Drained areas are typically used to grow corn (*Zea mays*), soybeans (*Glycine max*), and small grain. Native vegetation is mostly marsh grasses, reeds, and sedges (NRCS 2014).

3.6 THREATENED AND ENDANGERED SPECIES OCCURRENCE AND HABITAT

Several wildlife species that may exist or have been known to exist in Mountrail and Ward Counties are listed as threatened or endangered under the Endangered Species Act (16 United States Code 1531 et seq.) (ESA). According to the USFWS, listed species in Mountrail and Ward Counties, North Dakota, include the gray wolf (*Canis lupus*), whooping crane (*Grus americana*), piping plover (*Charadrius melodus*) and its Designated Critical Habitat, Dakota skipper (*Hesperia dacotae*), rufa red knot (*Calidris canutus*), and northern long-eared bat (*Myotis septentrionalis*), as well as a federal candidate species, the Sprague's pipit (*Anthus spragueii*). Additionally, the pallid sturgeon (*Scaphirhynchus albus*) and interior least tern (*Sterna antillarum*) are only listed in Mountrail County. A life history and biological review of the inhabitance of the species within the project area are described in detail within the following sections.

SWCA conducted a threatened and endangered species survey concurrently with the wetland delineations. Biologists did not observe any primary (i.e., actual sighting) or secondary (i.e., tracks, scat, feathers, fur) indicators of the presence of threatened or endangered species. However, a lack of observations does not mean that some or all of the threatened or endangered species known to occur in Mountrail and Ward Counties may not use areas in the vicinity that possess habitat components necessary to support those species.

If there is a federal nexus to the project, that is if there is any federal funding, or if any federal permits or licenses are required, a more formal effects analysis for federally listed species would be required.

3.6.1 Gray Wolf

Federal Status: Endangered

The gray wolf, listed as endangered in the United States in 1978, was believed extirpated from North Dakota in the 1920s and 1930s, with only sporadic reports from the 1930s to present (Licht and Huffman 1996; USFWS 1978). The presence of wolves in most of North Dakota consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts 1994; Licht and Huffman 1996). Most documented gray wolf sightings within western North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). The Turtle Mountain region of north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population, located approximately 17 miles (28 kilometers [km]) from the northeast corner of North Dakota.

The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2013a). Due to a lack of forested habitat and distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and the vulnerability of the latter to being shot in open habitats (Licht and Huffman 1996), the re-establishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation may further act as a barrier

against wolf recolonization in western North Dakota. Due to a lack of recent sightings and the habitat fragmentation within the area, the gray wolf is not expected to be within the project area.

3.6.2 Whooping Crane

Federal Status: Endangered

The whooping crane was listed as endangered in 1970 in the United States by the USFWS and in 1978 in Canada. Historically, population declines were caused by shooting of individuals and destruction of nesting habitat in the prairies from agricultural development. Current threats to the species include habitat destruction, especially suitable wetland habitats that support breeding and nesting as well as feeding and roosting during their fall and spring migration (Canadian Wildlife Service and USFWS 2007).

The July 2010 total wild population was estimated at 383 (USFWS 2013b). Only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, exists and nests in Wood Buffalo National Park and adjacent areas in Canada, where approximately 83% of the wild nesting sites occur (Canadian Wildlife Service and USFWS 2007; USFWS 2013b). McKenzie County, including the project area, is within the primary migratory flyway of whooping cranes.

Whooping cranes probe the soil subsurface with their bills for foods on the soil or vegetation substrate (Canadian Wildlife Service and USFWS 2007). Whooping cranes are omnivores, and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers. The majority of time spent during migration is spent feeding in harvested grain fields (Canadian Wildlife Service and USFWS 2007). Studies indicate that whooping cranes use a variety of habitats during migration, in addition to cultivated croplands, and generally roost in small palustrine (marshy) wetlands within 0.6 mile (1 km) of suitable feeding areas (Howe 1987, 1989). Whooping cranes have been recorded in riverine habitats during their migration, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and USFWS 2007:18). In these cases, they roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

Suitable whooping crane foraging habitat (i.e., cultivated cropland and wetlands >0.04 hectare) were not observed within the survey area. The project area is located within the delineated 80% migration corridor for the whooping crane. The nearest verified sighting occurred approximately 2.88 miles east of the proposed project (unpublished data, M. Tacha, USFWS). The surface disturbance and changes to vegetation due to the project are unlikely to adversely affect whooping cranes. However, to minimize potential impacts to whooping cranes, it is recommended construction crews notify the USFWS if a whooping crane is sighted within 1 mile of the construction area.

3.6.3 Interior Least Tern

Federal Status: Endangered

The interior population of the least tern is listed as endangered by the USFWS (1985a). This bird is the smallest member of the gull and tern family, measuring approximately 9 inches long. Terns remain near flowing water, where they feed by hovering over and diving into standing or flowing water to catch small fish (USFWS 2013c).

The interior population of least terns breeds in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems, where they nest in small colonies. From late April to August, terns nest in a shallow hole scraped in an open sandy area, gravel patch, or exposed flat and bare sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. The adults continue to care for chicks after they hatch. Least terns in North Dakota often will be found sharing sandbars with the piping plover, a threatened species (USFWS 2013c).

Census data indicate that more than 8,000 least terns comprise the interior population. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea (USFWS 1990a, 2013c). Approximately 100 pairs breed in North Dakota (USFWS 2013c). Details of their migration are unknown, but their winter range is reported to include the Gulf of Mexico and Caribbean Islands (USFWS 1990a, 2013c).

Loss of suitable breeding and nesting habitat for terns has resulted from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande river systems. River and reservoir changes have led to reduced sandbar formation and other shoreline habitats for breeding, resulting in population declines. In addition, other human shoreline disturbances affect the species (USFWS 1990a). Critical habitat has not been designated for the species (USFWS 2013c). Current conservation strategies include identification and avoidance of known nesting areas, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 2013c).

Suitable shoreline habitat on Lake Sakakawea for breeding and nesting terns occurs 18.2 miles west of the project location. Terns may visit wetlands and waterbodies off the lake that contain forage fish. The wetlands within the survey area are not generally suitable for foraging least tern due to the distance to their nesting habitat on Lake Sakakawea. Adverse effects from construction, operation, and reclamation of the project area are not expected.

3.6.4 Pallid Sturgeon

Federal Status: Endangered

The pallid sturgeon was listed as endangered in 1990 in the United States by the USFWS (1990b). The primary factor leading to the decline of this species is the alteration of habitat through river channelization, creation of impoundments, and alteration of flow regimes (USFWS 1990b). These alterations within the Missouri River have blocked movements to spawning, feeding, and rearing areas; destroyed spawning habitat; altered flow conditions, which can delay spawning cues; and reduced food sources by lowering productivity (USFWS 2007). The fundamental elements of pallid sturgeon habitat are defined as the bottom of swift

waters of large, turbid, free-flowing rivers with braided channels; dynamic flow patterns; flooding of terrestrial habitats; and extensive microhabitat diversity (USFWS 1990b).

Pallid sturgeon populations occur in the Missouri River below Fort Peck Dam to the headwaters of Lake Sakakawea and the lower Yellowstone River up the confluence of the Tongue River, Montana (USFWS 2007). This population consists of approximately 136 wild adult pallid sturgeon (USFWS 2007). Hatchery-reared sturgeon have also been stocked since 1998. The pallid sturgeon has been found to use the 15.5 miles (25 km) of riverine habitat that would be inundated by Lake Sakakawea at full pool (Bramblett 1996 per USFWS 2007a). Larval pallid sturgeon have also been found to drift into Lake Sakakawea. Although the majority of pallid sturgeon are found in the headwaters of Lake Sakakawea, the North Dakota Game and Fish Department has caught and released pallid sturgeon in nets set in 80 to 90 feet of water between the New Town and Van Hook areas. Based on this information, pallid sturgeon could be found throughout Lake Sakakawea (personal communication, email from Steve Krentz, Pallid Sturgeon Project Lead, USFWS, to SWCA, September 3, 2010).

Desktop analysis concluded that suitable pallid sturgeon habitat is not present in the project area. The survey area does not occur within the same watershed (hydrologic unit code 12) as Lake Sakakawea, and due to the approximate 18.2-mile distance from Lake Sakakawea, activities associated with the proposed project are not anticipated to adversely affect water quality and subsequently the pallid sturgeon.

3.6.5 Piping Plover

Federal Status: Threatened

The piping plover is a small shorebird that breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. Piping plover populations were federally listed as threatened and endangered in 1985, with the Northern Great Plains and Atlantic Coast populations listed as threatened and the Great Lakes population listed as endangered (USFWS 1985b).

Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands, and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2002, 2012). The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird. Piping plovers nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2012). The birds fly south by mid to late August to areas along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988, 2012).

Suitable shoreline habitat for breeding and nesting plovers does not occur within the project area and Lake Sakakawea is approximately 18.2 miles west from the proposed project area. The wetlands within the survey area are generally unsuitable for the piping plover. Activities associated with the construction, production, or reclamation of the proposed project area are not anticipated to adversely affect habitat for the piping plover.

3.6.6 Piping Plover Designated Critical Habitat

The USFWS has designated critical habitat for the Great Lakes and Northern Great Plains populations of piping plover (USFWS 2002). Designated critical habitat for the piping plover includes 183,422 acres and 1,207.5 river miles of habitat including the shoreline of Lake Sakakawea in Mountrail and McKenzie Counties, North Dakota (USFWS 2002).

The proposed project would not modify, alter, disturb, or affect the designated critical habitat for the piping plover.

3.6.7 Dakota Skipper

Federal Status: Threatened

The Dakota skipper is a small butterfly with a 1-inch wingspan. The male wing ranges from a tawny orange to brown and the female wing is darker brown with tawny orange spots and faint white spots (USFWS 2011a). The Dakota skipper was found to be warranted for protection under the ESA, was precluded for higher-priority species in 1995, and was the subject of a proposed rule for listing as threatened under the ESA. On October 24, 2014, the USFWS determined a threatened species status for the Dakota skipper, and the final rule became effective November 24, 2014 (79 *Federal Register* 63672). The primary causes for decline in Dakota skipper populations include the loss or fragmentation of high-quality native prairie habitat due to overgrazing, conversion to agriculture, invasion by non-native plants, urbanization, and disruption of natural prairie fire cycles.

Dakota skipper dispersal is limited due to a short adult life span of 3 weeks (Dana 1991) and one annual flight per year. The Dakota skipper may disperse an average 0.6 mile (1 km) to an area that contains sufficient vegetative diversity and emigrants. Unless a site is within about 0.6 mile of an area that generates a sufficient number of emigrants, the species' extirpation from a site is likely permanent. Adult skippers were encountered in McKenzie County, North Dakota Units 11 and 12 during surveys in July 2014 (Royer et al. 2014).

Two habitat types have been described for Dakota skipper in North Dakota. 'Type A' habitat is low, wet-mesic prairie with little topographic relief occurring in near-shore glacial lake deposits (Royer and Marrone 1992). Three plant species dominate Type A habitat and include wood lily (*Lilium philadelphicum*), bluebell bellflower (*Campanula rotundifolia*), and mountain deathcamas (*Zigadenus elegans*) (McCabe 1981). 'Type B' habitat of the Dakota skipper occurs on rolling terrain over gravelly glacial moraine deposits and is dominated by big bluestem, little bluestem, and needlegrasses (*Stipa* spp.), and may include bluebell bellflower and wood lily (USFWS 2014b). Additionally, Type B habitat supports extensive stands of purple coneflower (*Echinacea angustifolia*), upright prairie coneflower (*Ratibida columnifera*), and common gaillardia (*Gaillardia artistata*) (USFWS 2014c).

A detailed vegetation survey specific to Dakota skipper habitat was conducted following the referenced protocol on July 16 and 17, 2015. The vegetation type in the project area was mixed-grass prairie, consisting of both native and non-native species. Dominant species observed within the project area included Kentucky bluegrass (*Poa pratensis*), crested wheatgrass (*Agropyron cristatum*), western wheatgrass, prairie junegrass, prairie sagewort (*Artemisia frigida*), and buffalograss (*Bouteloua dactyloides*).

Other species documented included little bluestem, needle and thread grass, green needlegrass, upright prairie coneflower, stiff sunflower (*Helianthus pauciflorus*), broom snakeweed (*Gutierrezia sarothrae*), silverleaf scurfpea (*Pediomelum argophyllum*), smooth brome, velvety goldenrod (*Solidago mollis*), northern bedstraw (*Gallium boreale*), alfalfa (*Medico sativa*), purple prairie clover (*Dalea purpurea*), common yarrow (*Achillea millefolium*), prickly pear (*Opuntia* spp.), tarragon (*Artemisia dracunculus*), purple coneflower, wavyleaf thistle (*Cirsium undulatum*), and American licorice (*Glycyrrhiza lepidota*).

Due to the lack of high-quality diverse native grasslands featuring the plant species necessary for the life requirements of larval and adult Dakota skippers, the project area does not contain suitable habitat for the Dakota skipper. The project area does not meet the vegetation requirement for either larvae habitat or adult foraging habitat.

3.6.8 Rufa Red Knot

Federal Status: Threatened

The rufa red knot is a medium-sized shorebird approximately 9 to 11 inches tall with breeding plumage consisting of red around the face and a prominent stripe above the eye, breast, and upper belly and non-breeding plumage of dusky gray and white (Bureau of Indian Affairs 2014). The USFWS published a proposal to list the rufa red knot as threatened under the ESA in the *Federal Register* in September 2013 (78 *Federal Register* 60023). On December 11, 2014, the USFWS determined a threatened species status for the rufa red knot, and the final rule became effective on January 12, 2015 (79 *Federal Register* 73705).

The primary reasons for decline of this species are reduced food supplies in Delaware Bay due to commercial harvest of horseshoe crabs and areas of range loss due to rising sea levels, shorelines projects, and development (USFWS 2013d). The rufa red knot breeds in the Canadian Arctic and migrates 19,000 miles to winter on the U.S. Gulf Coast and in South America. The species generally occurs along the ocean coasts during migration, but a small number have been reported across the interior United States.

Suitable habitat along Lake Sakakawea is approximately 18.2 miles west from the nearest point of the project area. Activities associated with the construction or long-term use of the proposed project area are not anticipated to adversely affect suitable stopover habitat for the rufa red knot. The recorded wetlands for the proposed project likely would be considered unsuitable stopover habitat as the rufa red knot prefers sandy, gravel, or cobble beaches; tidal mudflats; salt marshes; shallow coastal impoundments; and lagoons for its migration habitat. Additionally, the recorded wetlands likely do not support the typical food source preferred by

the rufa red knot, which includes softer invertebrate prey: small fish, worms, invertebrates, and insects (USWFS 2013d). There is a low likelihood of occurrence of the rufa red knot in the project area, and the likelihood of any adverse effects due to disturbance from construction activities is extremely low.

3.6.9 Northern Long-eared Bat

Federal Status: Threatened

On May 4, 2015, the USFWS listed the northern-long eared bat as threatened under the ESA (79 *Federal Register* 63672). USFWS also issued an interim rule pursuant to Section 4(d) of the ESA in conjunction with the final rule to list the species as threatened, which also took effect on May 4, 2015. For areas of the country not affected by whitenose syndrome (i.e., areas outside the 150-mile white-nose syndrome buffer zone), including all of North Dakota, the interim 4(d) rule exempts incidental take from certain activities. This medium-sized bat ranges across the eastern and north-central United States and all of the Canadian provinces (USFWS 2013e). Throughout most of this species' range, populations are patchily distributed. They emerge at dusk to fly through the understory of forested hillsides and ridges, feeding on moths, flies, leafhoppers, caddisflies, and beetles.

Most records of northern long-eared bats are from winter hibernacula surveys, with more than 780 hibernacula identified within the United States. No known hibernacula are located in North Dakota, due either to a lack of suitable hibernacula present or to a lack of survey efforts (USFWS 2013e). This bat species occupies a wide range of rocky and forested habitats. Suitable winter habitat contains large caves and mines (USFWS 2013f). Summer day roosts include abandoned buildings, bridges, hollow trees, stumps, under loose bark, and rock fissures (Jones and Choate 1978).

Northern long-eared bats are not known to occur in the project area, although species-specific surveys have not been conducted. Suitable winter habitat or suitable summer day roosts for northern long-eared bats does not occur within the project area. The likelihood of any adverse effects due to disturbance from construction activities is extremely low.

3.6.10 Sprague's Pipit

Federal Status: Candidate

Sprague's pipit is a small passerine, 10 to 15 centimeters long, endemic to the Northern Great Plains (USFWS 2011b). Sprague's pipit requires large tracts of unplowed native prairie habitat throughout its life cycle. Because native grasslands are disturbance-dependent, Sprague's pipit prefers grassland habitats that are regularly disturbed. The frequency of disturbance required for habitat maintenance depends on how quickly grasses grow to an intermediate height (4 to 12 inches) following a disturbance event.

In North Dakota, Sprague's pipit has been found in areas of moderate grazing. Sprague's pipits are sensitive to patch size and avoid edges between grasslands and other habitat features (USFWS 2011b). They may avoid non-grassland features including roads, trails, oil wells, croplands, woody vegetation, and wetlands. The Sprague's pipit is reported to stay up to 350 meters away from anthropogenic features such as roads, oil wells, and wind turbines (USFWS

2011b). The USFWS has estimated that each new oil well and associated road in North Dakota results in potential impacts to approximately 51 acres of pipit habitat due to avoidance and habitat fragmentation (USFWS 2011b). Because of increasing habitat fragmentation, especially by energy development, throughout the Sprague's pipit range and the loss of native prairie habitat, Sprague's pipit was listed as a Candidate Species under the ESA in 2010 (USFWS 2011b).

In North Dakota, Sprague's pipit breeds throughout the state except for the easternmost counties. During the breeding season the birds prefer large patches of well-drained, open native grassland with a minimum size of 358.3 acres (range = 170 to 776 acres). They have not been observed in areas smaller than 71.6 acres on their breeding grounds (USFWS 2011b).

Native prairie habitat with grasses of intermediate height does not occur within the project area. The proposed project is unlikely to directly affect habitat due to lack of adequate patch sizes required by the Sprague's pipit for breeding grounds in the immediate project area, but may indirectly contribute to reduced use of any nearby suitable grassland habitat patches within 350 meters of the proposed project.

3.7 MIGRATORY BIRDS, EAGLES, AND OTHER WILDLIFE

3.7.1 Migratory Birds

Status: Not listed, protected under the Migratory Bird Treaty Act

Suitable habitat for migratory birds exists in the entire survey area. Specifically, grassland nesting birds have the potential to occur and nest in the survey area, especially during the migratory bird breeding season between February 1 and July 15. If construction is conducted outside of the migratory bird nesting season (generally between February 1 and July 15), violations of the Migratory Bird Treaty Act are not likely to occur.

3.7.2 Bald Eagle

Federal Status: Delisted under the ESA in 2007; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

The bald eagle (*Haliaeetus leucocephalus*) feeds on fish and carrion and typically roosts in large trees near a water source. Bald eagle nesting habitat is typically any mature stands of conifer or cottonwood trees in association with rivers, streams, reservoirs, lakes, or any significant body of water. Bald eagles are usually observed along the Missouri River and Yellowstone River, but are also found in other locations across the state. Bald eagles may occur within or near the survey area; however, no bald eagles, nests, or nesting habitat were observed during the field surveys.

3.7.3 Golden Eagle

Federal Status: Unlisted under the ESA; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

The golden eagle (*Aquila chrysaetos*) prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs which provide suitable nesting habitat. Golden eagles may occur within or near the survey area; however, no golden eagles, nests, or nesting habitat were observed during the field surveys.

4.0 CONCLUSIONS AND RECOMMENDATIONS

1. No threatened or endangered species or their associated habitats were observed during the field surveys. Listed threatened and endangered species which occur in Mountrail and Ward Counties are not likely to be detrimentally impacted by construction activities.
2. SWCA biologists recorded approximately 14.54 acres of wetlands within the approximately 211.00-acre inventoried area.
3. One wetland is likely jurisdictional because of its connection with East Fork Shell Creek which is connected to Parshall Bay, Lake Sakakawea.
4. Portions of the 14.54 acres of PEM wetland *may* be temporarily or permanently impacted by future construction activities.
5. The USACE makes any final determination on the jurisdiction of a waterbody. If dredged or fill material is to be placed, including the side-casting of excavated material, a USACE permit under Section 404 of the Clean Water Act may be needed. SWCA recommends requesting an official Jurisdictional Determination be completed by the USACE.

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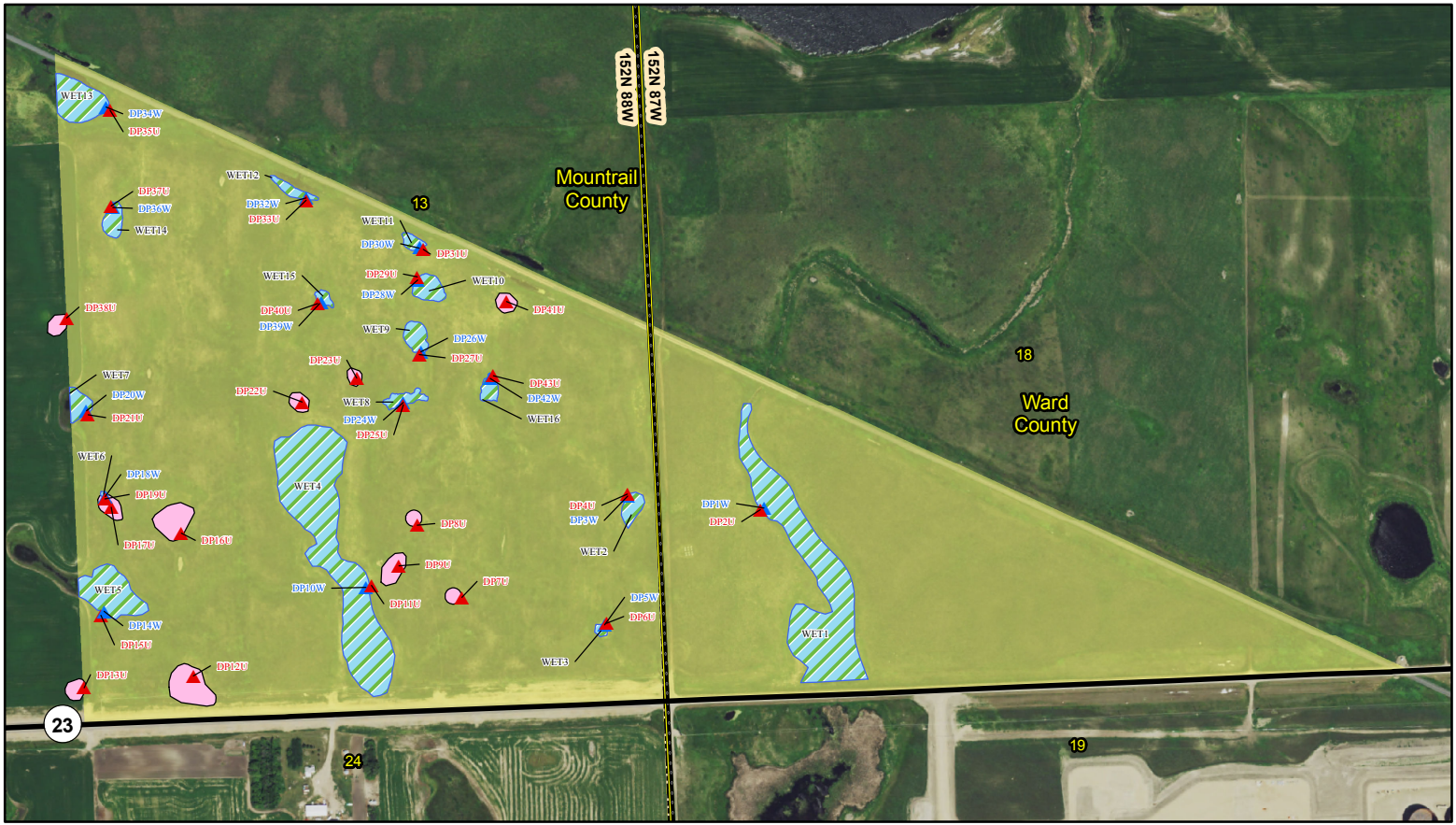
APPENDIX A
Vicinity and Site Layout Maps



USS Parshall Transload Station

- Wetland Data Point
- Upland Data Point
- State Highway
- NWI Wetland
- Field Verified Wetland
- Survey Area
- County Boundary
- Township/Range Boundary
- Section Boundary

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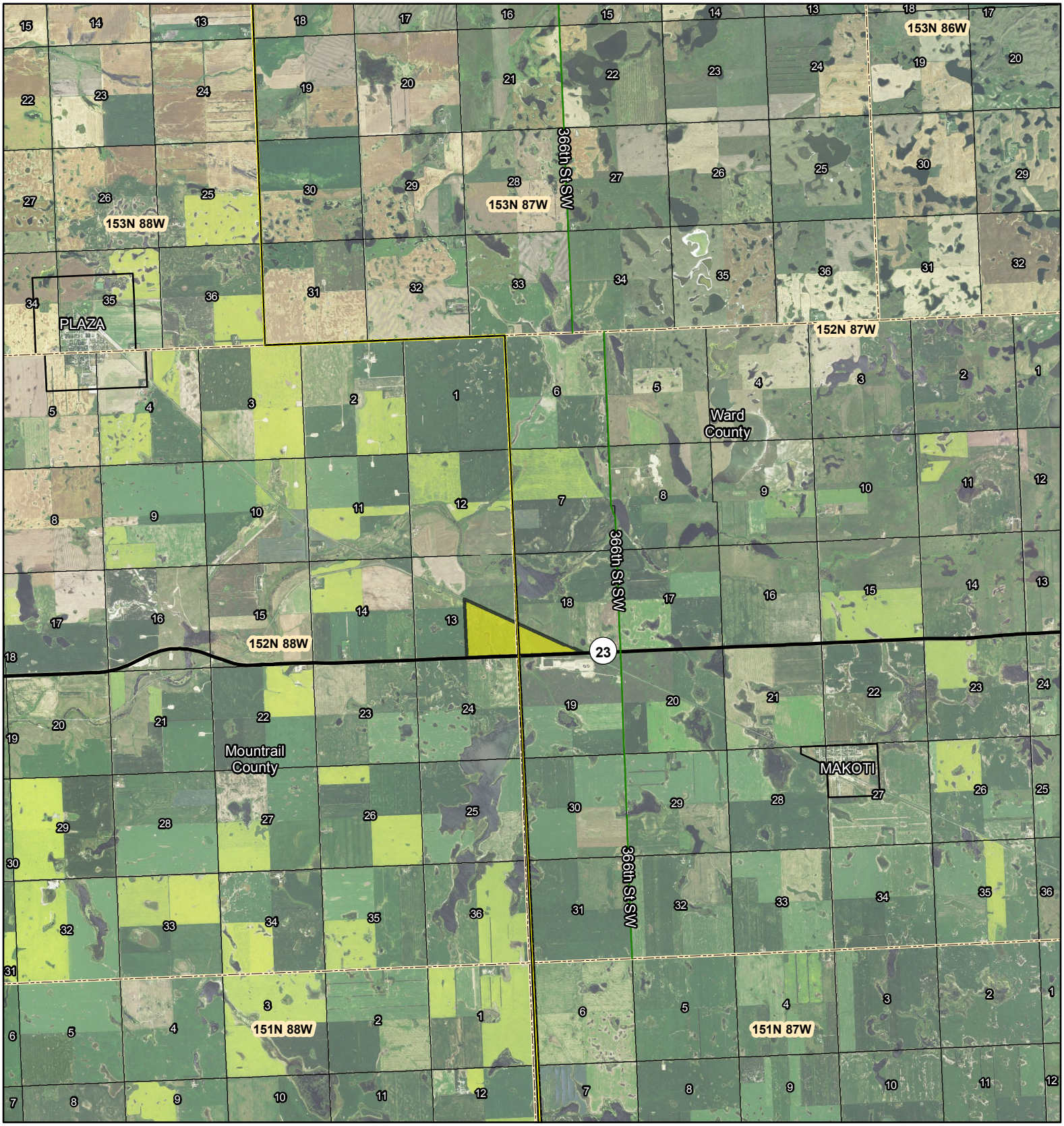
Miles
0 0.075 0.15

Base Map: 2014 Aerial Imagery
Source: North Dakota GIS Hub
Quadrangle: Wabek (1960), Makoti (1980)
T. 152N, R. 88W, Section 13
T. 152N. R. 87W. Section 18
Mountrail and Ward County, North Dakota
Projection: NAD 1983 UTM Zone 13N



USS Parshall Transload Facility

- State Highway
- County Roads
- County Boundary
- Township/Range Boundary
- Study Area
- Section Boundary

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Base Map: 2014 NAIP Imagery
Source: USDA/FSA
Aerial Photography Field Office
Quadrangle: Wabek (1980)
Makoti (1980)
T. 152N, R. 88W, Section 13
T. 152N. R. 87W. Section 18
Mountrail and Ward County, North Dakota
Projection: NAD 1983 UTM Zone 13N

N

APPENDIX B
Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP10W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.979447 Long: -101.877224 Datum: NAD83
Soil Map Unit Name: C2A - Tonka silt loam NWI classification: PEMCd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	40%	Y	FACW
2. *Spartina pectinata*	40%	Y	FACW
3. *Typha latifolia*	20%	Y	OBL
4.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	20%	x 1	20.0%
FACW species	80%	x 2	160.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		180% (B)

Prevalence Index = B/A = 1.80

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP10W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%					Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- X Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- X Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP11U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.979467 Long: -101.877121 Datum: NAD83
Soil Map Unit Name: C2A-Tonka Silt Loam NWI classification: PEMCd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Trifolium repens*	80%	Y	FACU
2. *Cirsium arvense*	10%	N	FACU
3. *Sonchus oleraceus*	10%	N	UPL
4.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	90%	x 4	360.0%
UPL species	10%	x 5	50.0%
Column Totals:	100.0% (A)		410% (B)

Prevalence Index = B/A = 4.10

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks:

Sampling Point: DP11U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%					Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility | City/County: Makoti/ Montrail | Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering | State: North | Sampling Point: DP14W
Investigator(s): A Stegeman & M Keller | Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): Concave | Slope (%): <5%
Subregion (LRR): LRR-F | Lat: 47.979281 | Long: -101.882101 | Datum: NAD83
Soil Map Unit Name: C2A-Tonka silt loam | NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No** ____

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Eleocharis fallax*	30%	Y	OBL
2. *Persicaria amphibia*	25%	Y	OBL
3. *Beckmannia syzigachne*	15%	N	OBL
4. *Typha latifolia*	10%	N	OBL
5. *Rumex occidentalis*	10%	N	OBL
6.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

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)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	90%	x 1	90.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	90.0% (A)		90% (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
Y 2 - Dominance Test if >50%
Y 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No** ____

Remarks:

Sampling Point: DP14W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-12	10YR 2/1	90%	10YR 4/6	10%	CS	PL	Silty Clay Loam	
12-20	10YR 4/2	90%	10YR 3/6	10%	C	M	Silty Clay	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- X Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** **X** **No** ___

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP15U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): None Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.979235 Long: -101.882161 Datum: NAD83
Soil Map Unit Name: C2A-Tonka silt loam NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Thinopyrum intermedium*	75%	Y	UPL
2. *Sonchus oleraceus*	10%	N	UPL
3. *Rumex occidentalis*	5%	N	OBL
4.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	5%	x 1	5.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	85%	x 5	425.0%
Column Totals:	90.0% (A)		430% (B)

Prevalence Index = B/A = 4.78

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks:

Sampling Point: DP15U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 3/1	95%	10YR 5/4	5%	C	PL	Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP18W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.980711 Long: -101.881995 Datum: NAD83
Soil Map Unit Name: C2A-Tonka silt loam NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Sonchus arvensis*	50%	Y	FAC
2. *Typha latifolia*	50%	Y	OBL
3. *Cirsium arvense*	10%	N	FACU
4.			
	110%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

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)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	50%	x 1	50.0%
FACW species	0%	x 2	0.0%
FAC species	50%	x 3	150.0%
FACU species	10%	x 4	40.0%
UPL species	0%	x 5	0.0%
Column Totals:	110.0% (A)		240% (B)

Prevalence Index = B/A = 2.18

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP18W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-16	10YR 2/2	95%	10YR 5/6	5%	C	M	Silty Clay	
16-20	10YR 5/2	95%	10YR 6/4	5%	C	M	Silt Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** **X** **No** ___

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP19U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): None Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.980682 Long: -101.882004 Datum: NAD83
Soil Map Unit Name: C2A-Tonka silt loam NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes** **No X**
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Sonchus arvensis*	75%	Y	FAC
2. *Typha latifolia*	15%	N	OBL
3. *Cirsium arvense*	10%	N	FACU
4.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	15%	x 1	15.0%
FACW species	0%	x 2	0.0%
FAC species	75%	x 3	225.0%
FACU species	10%	x 4	40.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		280% (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP19U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%					Silt Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP1W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 18 , 152N, 87W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.980235 Long: -101.869784 Datum: NAD83
Soil Map Unit Name: C270A-Hamerly loam NWI classification: PEMCd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation Yes , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:
Field is recently hayed

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	90%	Y	FACW
2. *Persicaria amphibia*	10%	N	OBL
3.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 0.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	10%	x 1	10.0%
FACW species	90%	x 2	180.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		190% (B)

Prevalence Index = B/A = 1.90

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP1W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-12	N 2.5/	95%	10YR 3/6	5%	C	PL	Loam	
12-20	10YR 5/1	100%					Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: na

Depth (inches): ___

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- X Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- X Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** **X** **No** ___

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP20W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.981786 Long: -101.882279 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka complex NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50%	Y	FACW
2. *Persicaria amphibia*	20%	Y	OBL
3. *Spartina pectinata*	20%	Y	FACW
4. *Typha latifolia*	10%	N	OBL
5.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	30%	x 1	30.0%
FACW species	70%	x 2	140.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		170% (B)

Prevalence Index = B/A = 1.70

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
Y 2 - Dominance Test if >50%
Y 3 - Prevalence Index is ≤ 3.0
___ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
___ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP20W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	95%	10YR 5/6	5%	C	M	Silt Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP21U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.981734 Long: -101.882253 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka complex NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes No X

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	30%	Y	FACW
2. *Cirsium arvense*	20%	Y	FACU
3. *Elymus repens*	20%	Y	FACU
4. *Sonchus arvensis*	20%	Y	FAC
5. *Bromus inermis*	10%	N	UPL
6.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	30%	x 2	60.0%
FAC species	20%	x 3	60.0%
FACU species	40%	x 4	160.0%
UPL species	10%	x 5	50.0%
Column Totals:	100.0% (A)		330% (B)

Prevalence Index = B/A = 3.30

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes No X

Remarks:

Sampling Point: DP21U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%						

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP24W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.981732 Long: -101.876397 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka complex NWI classification: PEMAd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:
Fallow ag field

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	70%	Y	FACW
2. *Cirsium arvense*	10%	N	FACU
3. *Typha latifolia*	10%	N	OBL
4. *Sonchus arvensis*	5%	N	FAC
5. *Rumex occidentalis*	5%	N	OBL
6.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	15%	x 1	15.0%
FACW species	70%	x 2	140.0%
FAC species	5%	x 3	15.0%
FACU species	10%	x 4	40.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		210% (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP24W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-10	10YR 2/1	95%	5YR 3/3	5%	C	PL	Silt Loam	
10-20	10YR 5/2	80%	5YR 4/6	20%	C	M	Silty Clay	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: BarBarr Engineeringr State: North Sampling Point: DP25U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.981880 Long: -101.876821 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka complex NWI classification: PEMAd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Cirsium arvense*	50%	Y	FACU
2. *Bromus inermis*	25%	Y	UPL
3. *Sonchus arvensis*	25%	Y	FAC
4.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	25%	x 3	75.0%
FACU species	50%	x 4	200.0%
UPL species	25%	x 5	125.0%
Column Totals:	100.0% (A)		400% (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks:

Sampling Point: DP25U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 5/2	90%	10YR 5/4	10%	C	M	Clay Loam	
0-10	10YR 2/1	100%					Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP26W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.982352 Long: -101.876031 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka complex NWI classification: PEMAd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	55%	Y	FACW
2. *Spartina pectinata*	15%	N	FACW
3. *Beckmannia syzigachne*	10%	N	OBL
4. *Typha latifolia*	10%	N	OBL
5. *Persicaria amphibia*	5%	N	OBL
6. *Sparganium americanum*	5%	N	OBL
7.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	30%	x 1	30.0%
FACW species	70%	x 2	140.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		170% (B)

Prevalence Index = B/A = 1.70

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP26W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	95%	10YR 3/6	5%	C	PL	Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP27U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.982318 Long: -101.876062 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka complex NWI classification: PEMAd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes No X

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Cirsium arvense*	50%	Y	FACU
2. *Sonchus arvensis*	50%	Y	FAC
3. *Bromus inermis*	5%	N	UPL
4.			
	105%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	50%	x 3	150.0%
FACU species	50%	x 4	200.0%
UPL species	5%	x 5	25.0%
Column Totals:	105.0% (A)		375% (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes No X

Remarks:

Sampling Point: DP27U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%					Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP28W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Convex Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.983248 Long: -101.876037 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka-complex NWI classification: PEMAd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Typha latifolia*	80%	Y	OBL
2. *Hordeum jubatum*	10%	N	FACW
3. *Rumex occidentalis*	5%	N	OBL
4. *Urtica dioica*	5%	N	FAC
5.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	85%	x 1	85.0%
FACW species	10%	x 2	20.0%
FAC species	5%	x 3	15.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		120% (B)

Prevalence Index = B/A = 1.20

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP28W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-7	10YR 2/2	100%					Loam	
7-20	10YR 5/1	90%	10YR 6/8	10%	C	M	Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP29U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.983287 Long: -101.876044 Datum: NAD83
Soil Map Unit Name: C272-Hamerly-Tonka complex NWI classification: PEMAd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Sonchus arvensis*	45%	Y	FAC
2. *Cirsium arvense*	40%	Y	FACU
3. *Bromus inermis*	10%	N	UPL
4. *Hordeum jubatum*	5%	N	FACW
5.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	5%	x 2	10.0%
FAC species	45%	x 3	135.0%
FACU species	40%	x 4	160.0%
UPL species	10%	x 5	50.0%
Column Totals:	100.0% (A)		355% (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks:

Sampling Point: DP29U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-210	10YR 2/2	100%					Loam	
10-20	10YR 4/2	85%	10YR 5/6	15%	C	M	Silt Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP2U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): None Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.980215 Long: -101.869853 Datum: NAD83
Soil Map Unit Name: C270-Hamerly loam NWI classification: PEMCd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes No X**
Hydric Soil Present?	Yes	No X		
Wetland Hydrology Present?	Yes	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	75%	Y	FACW
2. *Bromus inermis*	10%	N	UPL
3. *Persicaria amphibia*	5%	N	OBL
4.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 0.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	5%	x 1	5.0%
FACW species	75%	x 2	150.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	10%	x 5	50.0%
Column Totals:	90.0% (A)		205% (B)

Prevalence Index = B/A = 2.28

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP2U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%					Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP30W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.983649 Long: -101.875973 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka-complex NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	45%	Y	FACW
2. *Typha latifolia*	45%	Y	OBL
3. *Symphyotrichum ericoides*	5%	N	FACU
4. *Sonchus arvensis*	5%	N	FAC
5.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

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)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	45%	x 1	45.0%
FACW species	45%	x 2	90.0%
FAC species	5%	x 3	15.0%
FACU species	5%	x 4	20.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		170% (B)

Prevalence Index = B/A = 1.70

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP30W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-10	10YR 2/1	100%					Clay Loam	
10-20	10YR 2/1	90%	10YR 4/4	10%	C	M	Clay	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP31U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): None Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.983627 Long: -101.875912 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka-complex NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	40%	Y	UPL
2. *Sonchus arvensis*	40%	Y	FAC
3. *Cirsium arvense*	20%	Y	FACU
4.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	40%	x 3	120.0%
FACU species	20%	x 4	80.0%
UPL species	40%	x 5	200.0%
Column Totals:	100.0% (A)		400% (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks:

Sampling Point: DP31U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-10	10YR 2/2	100%					Silty Clay	
10-20	10YR 3/2	100%					Clay	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP32W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.984325 Long: -101.878045 Datum: NAD83
Soil Map Unit Name: C210A-Williams-Bowbells loams NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50%	Y	FACW
2. *Typha latifolia*	50%	Y	OBL
3. *Persicaria amphibia*	5%	N	OBL
4.			
	105% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

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)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	55%	x 1	55.0%
FACW species	50%	x 2	100.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	105.0% (A)		155% (B)

Prevalence Index = B/A = 1.48

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- ___ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- ___ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP32W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-5	10YR 2/1	95%	10YR 4/6	5%	C	PL	Clay Loam	
5-20	10YR 4/4	100%					Sandy Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** **X** **No** ___

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP33U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): None Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.984297 Long: -101.878047 Datum: NAD83
Soil Map Unit Name: C210A-Williams-Bowbells loams NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation Yes , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
Vegetation is fully removed surrounding wetland

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Cirsium arvense*	25%	Y	FACU
2. *Poa pratensis*	10%	Y	FACU
3. *Phalaris arundinacea*	10%	Y	FACW
4. *Dalea candida*	5%	N	UPL
5.			
	50%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 60.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33.3%	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	10%	x 2	20.0%
FAC species	0%	x 3	0.0%
FACU species	35%	x 4	140.0%
UPL species	5%	x 5	25.0%
Column Totals:	50.0% (A)		185% (B)
Prevalence Index = B/A =	3.70		

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks: Soil disturbed by construction surrounding wetland

Sampling Point: DP33U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%					Silt Loam	Soil disturbed almost no veg

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- X Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP34W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.985557 Long: -101.881684 Datum: NAD83
Soil Map Unit Name: C2A-Tonka silt loam NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Spartina pectinata*	80%	Y	FACW
2. *Juncus balticus*	10%	N	FACW
3. *Phalaris arundinacea*	10%	N	FACW
4.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	100%	x 2	200.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		200% (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP34W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	N 2.5/	95%	10YR 3/3	5%	C	PL	Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility | City/County: Makoti/ Ward | Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering | State: North | Sampling Point: DP35U
Investigator(s): A Stegeman & M Keller | Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): Concave | Slope (%): <5%
Subregion (LRR): LRR-F | Lat: 47.985517 | Long: -101.881615 | Datum: NAD83
Soil Map Unit Name: C2A-Tonka silt loam | NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	15%	Y	UPL
2. *Sonchus arvensis*	5%	Y	FAC
3.			
	20% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 60.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	5%	x 3	15.0%
FACU species	0%	x 4	0.0%
UPL species	15%	x 5	75.0%
Column Totals:	20.0% (A)		90% (B)

Prevalence Index = B/A = 4.50

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks:

Sampling Point: DP35U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%					Silty Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: Soil recently disturbed. Almost no vegetation surrounding wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP36W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.984304 Long: -101.881635 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka complex NWI classification: PEMa
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Typha latifolia*	100%	Y	OBL
2.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	100%	x 1	100.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		100% (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP36W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	95%	10YR 5/6	5%	C	M	Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP37U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.984326 Long: -101.881667 Datum: NAD83
Soil Map Unit Name: C272A-Hamerly-Tonka complex NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? Yes No X

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Sonchus arvensis*	25%	Y	FAC
2. *Symphyotrichum ericoides*	25%	Y	FACU
3. *Bromus inermis*	20%	Y	UPL
4. *Cirsium arvense*	15%	N	FACU
5. *Poa pratensis*	15%	N	FACU
6.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	25%	x 3	75.0%
FACU species	55%	x 4	220.0%
UPL species	20%	x 5	100.0%
Column Totals:	100.0% (A)		395% (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes No X

Remarks:

Sampling Point: DP37U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%					Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP39W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.983013 Long: -101.877841 Datum: NAD83
Soil Map Unit Name: C210A-Williams-Bowbells loams NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Typha latifolia*	50%	Y	OBL
2. *Phalaris arundinacea*	45%	Y	FACW
3. *Sonchus arvensis*	5%	N	FAC
4. *Rumex occidentalis*	5%	N	OBL
5.			
	105% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

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)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	55%	x 1	55.0%
FACW species	45%	x 2	90.0%
FAC species	5%	x 3	15.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	105.0% (A)		160% (B)

Prevalence Index = B/A = 1.52

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP39W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	95%	10YR 4/6	5%	C	M	Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP3W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.980453 Long: -101.872301 Datum: NAD83
Soil Map Unit Name: C210B-Williams-Bowbells loams NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	25%	Y	FACW
2. *Cirsium arvense*	25%	Y	FACU
3. *Hordeum jubatum*	25%	Y	FACW
4. *Typha latifolia*	10%	N	OBL
5. *Rumex occidentalis*	10%	N	OBL
6. *Persicaria amphibia*	5%	N	OBL
7.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 0.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	25%	x 1	25.0%
FACW species	50%	x 2	100.0%
FAC species	0%	x 3	0.0%
FACU species	25%	x 4	100.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		225% (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP3W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-6	10YR 2/2	95%	10YR 4/4	5%	C	M	Clay Loam	
6-20	10YR 3/1	100%					Loamy Sand	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP40U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.983005 Long: -101.877911 Datum: NAD83
Soil Map Unit Name: C210A-Williams-Bowbells-loams NWI classification: PEMC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Cirsium arvense*	45%	Y	FACU
2. *Sonchus arvensis*	45%	Y	FAC
3. *Typha latifolia*	5%	N	OBL
4. *Hordeum jubatum*	5%	N	FACW
5.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	5%	x 1	5.0%
FACW species	5%	x 2	10.0%
FAC species	45%	x 3	135.0%
FACU species	45%	x 4	180.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		330% (B)

Prevalence Index = B/A = 3.30

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks:

Sampling Point: DP40U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-10	10YR 2/1	100%					Loam	
10-20	10YR 4/1	95%	10YR 3/4	5%	C	M	Silty Clay	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility | City/County: Makoti/ Ward | Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering | State: North | Sampling Point: DP42W
Investigator(s): A Stegeman & M Keller | Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): Concave | Slope (%): <5%
Subregion (LRR): LRR-F | Lat: 47.981984 | Long: -101.874762 | Datum: NAD83
Soil Map Unit Name: C210B-Williams-Bowbells loams | NWI classification: PEMAd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?**	**Yes X No ____**
Hydric Soil Present?	Yes X	No ____		
Wetland Hydrology Present?	Yes X	No ____		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	90%	Y	FACW
2. *Cirsium arvense*	5%	N	FACU
3. *Sonchus arvensis*	5%	N	FAC
4.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	90%	x 2	180.0%
FAC species	5%	x 3	15.0%
FACU species	5%	x 4	20.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		215% (B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
Y 2 - Dominance Test if >50%
Y 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks:

Sampling Point: DP42W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-8	10YR 2/1	100%					Loam	
8-20	10YR 2/2	90%	10YR 4/6	10%	C	M	Silty Clay	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/27/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP43U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.982020 Long: -101.874707 Datum: NAD83
Soil Map Unit Name: C210B-Williams-Bowbells loams NWI classification: PEMAd
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Sonchus arvensis*	60%	Y	FAC
2. *Cirsium arvense*	40%	Y	FACU
3.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	60%	x 3	180.0%
FACU species	40%	x 4	160.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		340% (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks:

Sampling Point: DP43U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/1	100%					Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP4U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.980477 Long: -101.872311 Datum: NAD83
Soil Map Unit Name: C210B-Williams-Bowbells loams NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Cirsium arvense*	80%	Y	FACU
2. *Sonchus oleraceus*	15%	N	UPL
3. *Rudbeckia hirta*	5%	N	FACU
4.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 0.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	85%	x 4	340.0%
UPL species	15%	x 5	75.0%
Column Totals:	100.0% (A)		415% (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks:

Sampling Point: DP4U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-20	10YR 2/2	100%					Sandy Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP5W
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.978863 Long: -101.872831 Datum: NAD83
Soil Map Unit Name: C210B-Williams-Bowbells loams NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	95%	Y	FACW
2. *Rumex occidentalis*	5%	N	OBL
3.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	5%	x 1	5.0%
FACW species	95%	x 2	190.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		195% (B)

Prevalence Index = B/A = 1.95

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Sampling Point: DP5W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-8	10YR 2/2	100%					Loam	
8-20	10YR 5/6	90%	10YR 3/1	10%	C	M	Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Parshall Transload Facility City/County: Makoti/ Ward Sampling Date: 8/25/2015
Applicant/Owner: Barr Engineering State: North Sampling Point: DP6U
Investigator(s): A Stegeman & M Keller Section, Township, Range: 13 , 152N, 88W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): none Slope (%): <5%
Subregion (LRR): LRR-F Lat: 47.978879 Long: -101.872791 Datum: NAD83
Soil Map Unit Name: C210B-Williams-Bowbells loams NWI classification: PEMA
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____	No X		
Wetland Hydrology Present?	Yes ____	No X		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Cirsium arvense*	75%	Y	FACU
2. *Sonchus oleraceus*	10%	N	UPL
3. *Rumex occidentalis*	5%	N	OBL
4.			
	90%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	5%	x 1	5.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	75%	x 4	300.0%
UPL species	10%	x 5	50.0%
Column Totals:	90.0% (A)		355% (B)

Prevalence Index = B/A = 3.94

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes ____ No X**

Remarks:

Sampling Point: DP6U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-16	10YR 2/1	100%						

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hardpan >16 inches

Depth (inches): 16

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX C
Photographs of Survey Area

Figure C.1. Seasonal wetland (WET1), facing north (photograph taken August 25, 2015).

Figure C.2. Seasonal wetland (WET1), facing west (photograph taken August 25, 2015).

Figure C.3. Seasonal wetland (WET2), facing south (photograph taken August 25, 2015).

Figure C.4. Seasonal wetland (WET2), facing north (photograph taken August 25, 2015).

Figure C.5. Seasonal wetland (WET3), facing south (photograph taken August 25, 2015).

Figure C.6. Seasonal wetland (WET3), facing north (photograph taken August 25, 2015).

Figure C.7. Permanent wetland (WET4), facing north (photograph taken August 25, 2015).

Figure C.8. Permanent wetland (WET4), facing east (photograph taken August 25, 2015).

Figure C.9. Seasonal wetland (WET5), facing south (photograph taken August 25, 2015).

Figure C.10. Seasonal wetland (WET5), facing north (photograph taken August 25, 2015).

Figure C.11. Seasonal wetland (WET6), facing north (photograph taken August 25, 2015).

Figure C.12. Seasonal wetland (WET6), facing west (photograph taken August 25, 2015).

Figure C.13. Seasonal wetland (WET7), facing north (photograph taken August 25, 2015).

Figure C.14. Seasonal wetland (WET7), facing south (photograph taken August 25, 2015).

Figure C.15. Seasonal wetland (WET8), facing west (photograph taken August 27, 2015).

Figure C.16. Seasonal wetland (WET8), facing south (photograph taken August 27, 2015).

Figure C.17. Seasonal wetland (WET9), facing south (photograph taken August 27, 2015).

Figure C.18. Seasonal wetland (WET9), facing north (photograph taken August 27, 2015).

Figure C.19. Seasonal wetland (WET10), facing south (photograph taken August 27, 2015).

Figure C.20. Seasonal wetland (WET10), facing north (photograph taken August 27, 2015).

Figure C.21. Seasonal wetland (WET11), facing south (photograph taken August 27, 2015).

Figure C.22. Seasonal wetland (WET11), facing west (photograph taken August 27, 2015).

Figure C.23. Seasonal wetland (WET12), facing south (photograph taken August 27, 2015).

Figure C.24. Seasonal wetland (WET12), facing northwest (photograph taken August 27, 2015).

Figure C.25. Seasonal wetland (WET13), facing south (photograph taken August 27, 2015).

Figure C.26. Seasonal wetland (WET13), facing north (photograph taken August 27, 2015).

Figure C.27. Seasonal wetland (WET14), facing north (photograph taken August 27, 2015).

Figure C.28. Seasonal wetland (WET14), facing south (photograph taken August 27, 2015).

Figure C.29. Seasonal wetland (WET15), facing southeast (photograph taken August 27, 2015).

Figure C.30. Seasonal wetland (WET15), facing north (photograph taken August 27, 2015).

Figure C.31. Seasonal wetland (WET16), facing south (photograph taken August 27, 2015).

Figure C.32. Seasonal wetland (WET16), facing north (photograph taken August 27, 2015).