APPENDIX F

WETLANDS AND OTHER SURFACE WATERS REPORT

PRELIMINARY

WETLANDS AND OTHER SURFACE WATERS REPORT

Project Number 328-02-14
Big Horn County and Washakie County, Wyoming

Prepared for:

Westside Irrigation District
Whorland, WY

Prepared by:

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I. INTRODUCTION

The proposed project involves the conveyance of a parcel of land, comprising approximately 16,500 acres, from the Bureau of Land Management (BLM) to the Westside Irrigation District (WID). The parcel is located in southern Big Horn County and northern Washakie County, immediately west of Whorland, Wyoming. The site is bound to the east by the Bighorn Canal, of which some sections occur within the project boundary (Figure 1). WID proposes to use those portions of the parcel that are irrigable and that avoid impacts to wildlife, recreation, sensitive environmental areas, and other land uses. The majority of the project area is potentially suitable for irrigation by center pivot sprinkler systems. Irrigation water would be obtained by pumping water from the Bighorn River at three locations. Each site would contain two pumps together capable of pumping 80 cfs, a pump station and fore bay.

The majority of the 16,500-acre parcel is dominated by sagebrush steppe. Although extensive tracts of salt desert shrub occur immediately adjacent the site to the west, only small, scattered inclusions of this habitat were observed within the parcel. Four intermittent drainages convey water across the site in an easterly direction into the Bighorn River. The four tributaries, listed from north to south, include Alamo, Fivemile, Sixmile, and Tenmile Creeks. All of these drainages are culverted beneath the Bighorn Canal and presumably receive additional water inputs from the canal via seepage or diversions. Three impoundments (stockponds) were observed on site, one of which was inundated and supported hydrophytic vegetation (Figure1).

This report has been prepared to document a survey that was conducted for waters of the United States within the 16,500-acre project area. The term "waters of the United States" has been defined to include essentially all surface waters, including both those connected to a surface tributary system and isolated waters that are not part of a tributary system. The term also includes wetlands. A summary of the wetland delineation methodology and results is provided below.

II. METHODS

WEST biologists surveyed all portions of the project site for waters of the U.S. Development in such areas is subject to the permit requirements of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (1972). Field surveys were conducted from September 12 through September 16, 2005.

Prior to conducting the survey, WEST biologists reviewed U.S. Geological Survey (USGS) topographic maps, soil survey information from the Natural Resource Conservation Service (NRCS), and U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps for the survey area. Preparation of this report complies with guidelines issued by the Regulatory Branch of the Sacramento District, USACE, titled *Minimum Standards for Acceptance of Preliminary Wetland Delineations* and a guidance letter issued by the Wyoming Regulatory Office, USACE, dated 1996.

Wetlands were delineated in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). This manual emphasizes a three-parameter approach to identify wetlands that may be federally regulated, including the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. These criteria were applied to establish the presence and extent of wetlands. The delineated wetlands were classified according to methodologies set forth in *Wetlands and Deepwater Habitats of the United States* (Cowardin *et al*., 1979).

Vegetation. Plants observed at a given survey location were identified to species using a standard flora appropriate for Wyoming, *Vascular Plants of Wyoming* (Dorn 2001). Plant species nomenclature and indicator status were assigned according to the *National List of Plant Species that Occur in Wetlands: National Summary* (Reed 1988) and the *National List of Plant Species that Occur in Wetlands: Northwest Supplement (Region 9)* (Reed 1993). A list of species was then compiled for the survey area and an assessment of the dominant species was made. It was then determined if the survey area supported wetland vegetation. The 1987 manual frequently uses the term "dominant vegetation" but provides no definition. The term is defined by the 1989 Federal Manual for Identifying and Delineating Wetlands, which is no longer in use, as those species the dominance measures of which, when added together, immediately exceed 50% of the total dominance measure, plus those individual species which contribute 20% or more of the total dominance measure. This definition was used for this project.

Wetland indicator species are so designated according to their frequency of occurrence in wetlands. For instance, a species with a presumed frequency of occurrence of 67 percent to 99 percent in wetlands is designated a facultative wetland indicator species. The wetland indicator groups, indicator symbol, and the frequency of occurrence of species within wetlands are found in table 1.

Table 1. Plant Wetland Indicator Status Categories*

Indicator Category	Symbol	Frequency of Occurrence
OBLIGATE	OBL	Greater than 99%
FACULTATIVE WETLAND	FACW	67-99%
FACULTATIVE	FAC	34-66%
FACULTATIVE UPLAND	FACU	1-33%
UPLAND	UPL	Less than 1%

* Based upon information contained in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987).

Obligate and facultative wetland indicator species are hydrophytes that occur “in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present” (Environmental Laboratory 1987). Facultative indicator species may be considered wetland indicator species when found growing in hydric soils that experience periodic saturation.

Soils. Where possible, the top 22 inches of the soil profile was examined for hydric characteristics. Such characteristics include the presence of organic soils (Histosols), histic epipedons, aquic or peraquic moisture regime, presence of soil on hydric soil list, mottling indicated by the presence of gleyed or bright spots of colors (in the former case, blue grays; in the latter case, orange red, or red brown) within the soil horizons observed. Mottling of soils usually indicates poor aeration and lack of good drainage. Munsell Soil Notations (Kollmorgen Instr. Corp. 1990) were recorded for the soil matrix for each soil sample. The last digit of the Munsell Soil Notation refers to the chroma of the sample. This notation consists of numbers beginning with 0 for neutral grays and increasing at equal intervals to a maximum of about 20. Chroma values of the soil matrix which are one (1) or less, or two (2) or less when mottling is present, are typical of soils which have developed under anaerobic conditions.

In sandy soils, such as alluvial deposits in the bottom of drainage channels, hydric soil indicators include high organic matter content in the surface horizon and streaking of subsurface horizons by organic matter.

Hydrology. Each of the survey areas was examined for positive field indicators of wetland hydrology. Such indicators include visual observation of inundation and/or soil saturation, watermarks, drift lines, water-borne sediment deposits, water-stained leaves, and drainage patterns in wetlands. In the COE Omaha District, in which the project area is included, evidence must be sufficient to indicate continuous saturation for at least 5% of the growing season. For the project area, this means that soil saturation for 6 to 7 consecutive days is required.

Wetland boundaries were recorded with a Global Positioning System (GPS) unit with sub-meter accuracy. The location of each wetland sample point was also recorded with the GPS unit.

III. RESULTS

Wetland habitat types identified on the project site include wet meadow, marsh, fringe wetland, scrub shrub wetland, and riparian woodland. With the exception of one wetland on site (WL-2), the hydrology for all other wetlands was associated with the proximity of the Bighorn Canal (*i.e.*, seepage, diversions, and/or high water table). Figure 1 shows an aerial photograph of the site with the locations of all the wetlands. Figures depicting each individual wetland and associated sample point(s) are provided in Appendix A. Wetland data forms are provided in Appendix B. Photos of wetlands and sample points are provided in Appendix C. The following section describes representative wetlands surveyed within the project area, including dominant plant species and their indicator status, hydrology, and hydric soil characteristics. Information regarding each of the wetlands, including type, acreage, and a brief description, are provided in Table 1. A list of all plant species encountered during the wetland survey is provided in Appendix D.

Wet meadow wetlands were observed in several locations along the perimeter of the Bighorn Canal (WL-4a, WL-6; Figure 1). Plant species commonly identified in these wetlands includes slender wheatgrass (*Agropyron trachycaulum*; FAC), creeping bentgrass (*Agrostis stolonifera*; FAC+), meadow foxtail (*Alopecurus pratensis*; FACW), beaked sedge (*Carex rostrata*; OBL),

foxtail barley (*Hordeum jubatum*; FAC), Baltic rush (*Juncus balticus*; FACW+), and reed canarygrass (*Phalaris arundinacea*; FACW). Wetland hydrology in wet meadows was mostly associated with seepage and a high water table resulting from their close proximity to the Bighorn Canal. Additionally, they typically occurred in topographically lower positions on the landscape where surface water may collect. Soils in wet meadows were variable in both texture and color. They ranged from silty clays with low chroma values and distinct mottling to sandy loams with considerable organic streaking.

Table 1. Wetlands delineated at the Westside Irrigation District project.

Wetland ID	Wetland Type	Size (acres)
WL-1	Marsh	1.94
WL-2	Scrub shrub	0.52
WL-3a,b	Scrub shrub	0.12
WL-3c	Scrub shrub	0.82
WL-3d	Fringe wetland	0.02
WL-3e	Scrub shrub	0.1
WL-3f	Marsh	0.35
WL-4a	Wet meadow	0.01
WL-4b	Riparian woodland	0.85
WL-5a	Scrub shrub	0.81
WL-5b	Scrub shrub	1.36
WL-6	Wet meadow	0.67
	Total	**7.57**

Marsh wetland was mapped in two locations within the project area (WL-1, -3f; Figure 1). These wetlands were typically dominated by tall graminoid species including reed canarygrass (FACW), common threesquare (*Scirpus pungens*; OBL), softstem bulrush (*Scirpus validus*; OBL), and broadleaf cattail (*Typha latifolia*; OBL). Hydrology of the marsh wetlands was associated with a high water table, presumably created from the presence of the Bighorn Canal. Soils were typically saturated to the soil surface and portions of these wetlands were inundated (up to 8 inches). Soil texture and color varied, but abundant gley mottling was typically observed.

Fringe wetland was delineated along the portion of Fivemile Creek adjacent the Bighorn Canal (WL-3d; Figure 1). Dominant plant species, hydrology, and soil characteristics were similar to those observed in wet meadow habitat.

Scrub shrub and riparian woodland occurred along Alamo Creek, Fivemile Creek, and Tenmile Creek, in the vicinity of the Bighorn Canal (WL-2, 3ab, 3c, 3e, 4b, 5ab; Figure 1). Dominant tree and shrub species observed include plains cottonwood (*Populus deltoides*; FAC), Russian olive (*Elaeagnus angustifolia*; FAC), whiplash willow (*Salix lasiandra*; FACW+), sandbar willow (*Salix exigua*; OBL), tamarisk (*Tamarix chinensis*; FACW), and prickly rose (*Rosa acicularis*; FACU). Dominant herbaceous species included cattail, reed canarygrass, and beaked sedge. Hydrology was associated with drainage channel depressions and proximity to the Bighorn Canal. Soils typically had low chroma values and some mottling. One scrub shrub wetland was observed at an impoundment along an unnamed, intermittent tributary to Tenmile

Creek, along the southern boundary of the site (WL-2; Figure 1). Dominant species included plains cottonwood and whiplash willow around the perimeter of the shallow pond, with sparse broadleaf cattail within the pond. This wetland occurred far from the Bighorn Canal. Its hydrology was associated with its location in a large depression within an impounded, intermittent drainage. Clay soils with gleys and/or low chroma values were observed at this wetland.

IV. LITERATURE CITED

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Reed, P.B., Jr. 1988. National list of plant species that occur in wetlands: national summary. U.S. Fish and Wildlife Service.

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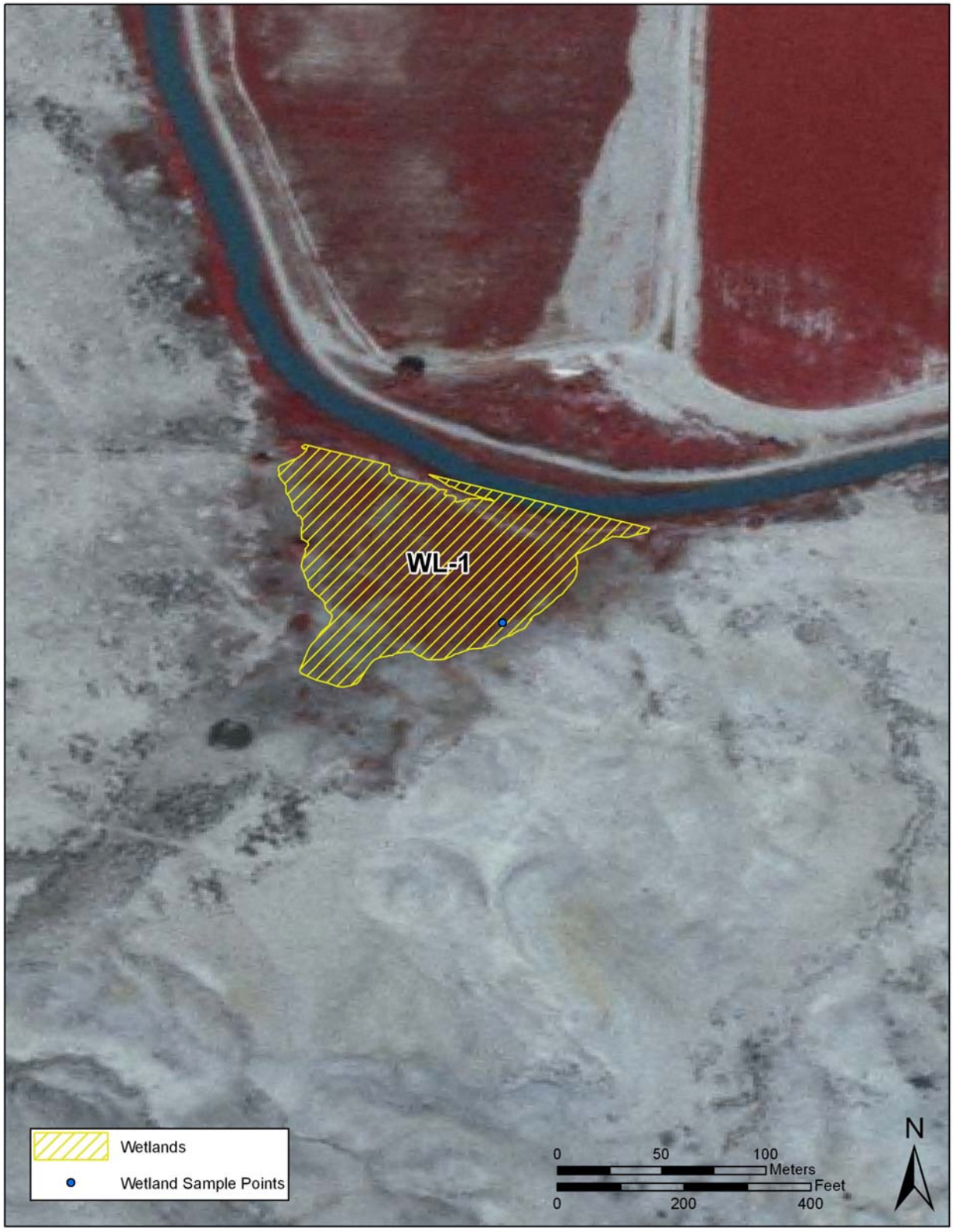
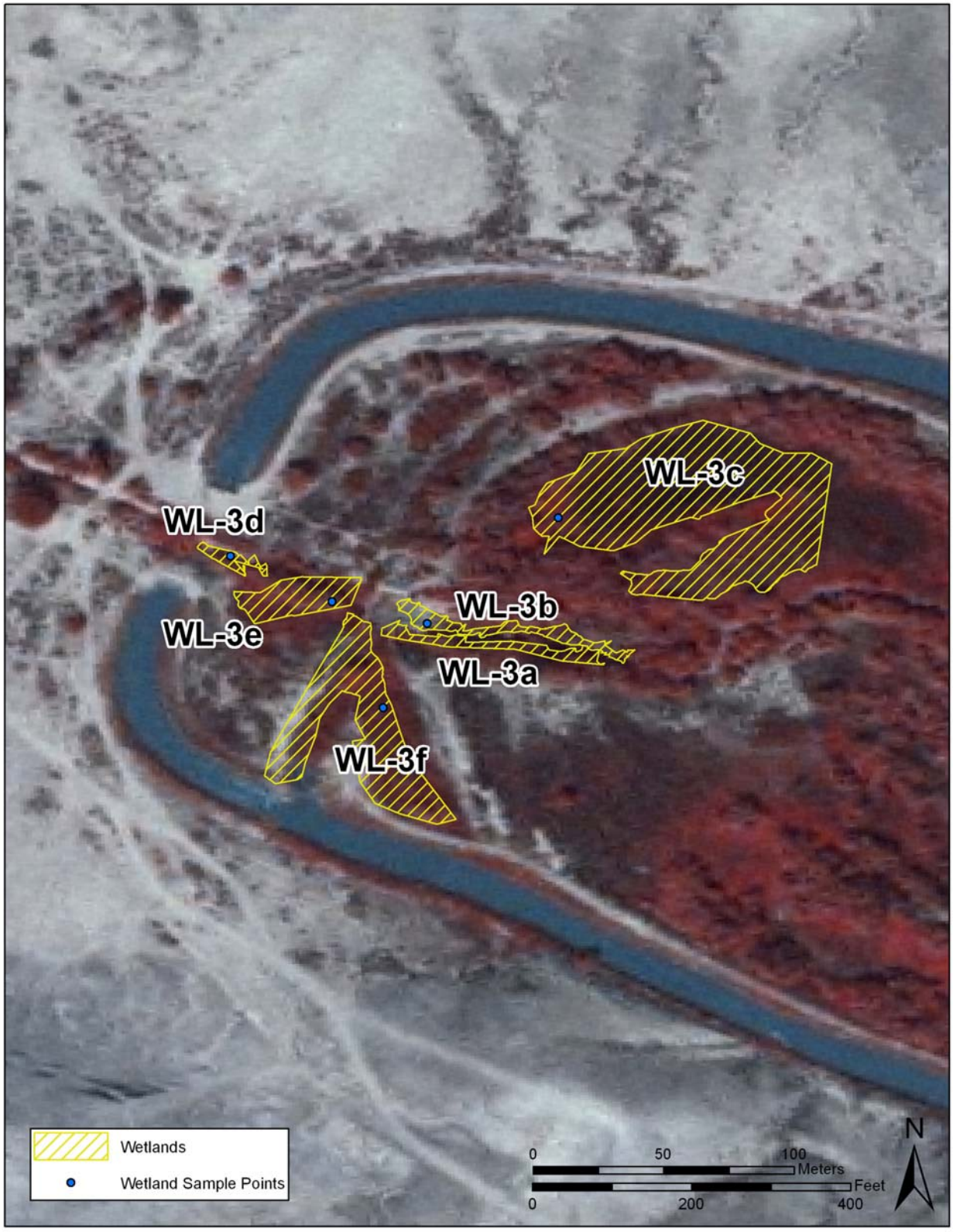
Weber, William A. 1976. Rocky Mountain Flora. University Press of Colorado.

Appendix A. Figures for wetlands delineated for the Westside Irrigation District project.

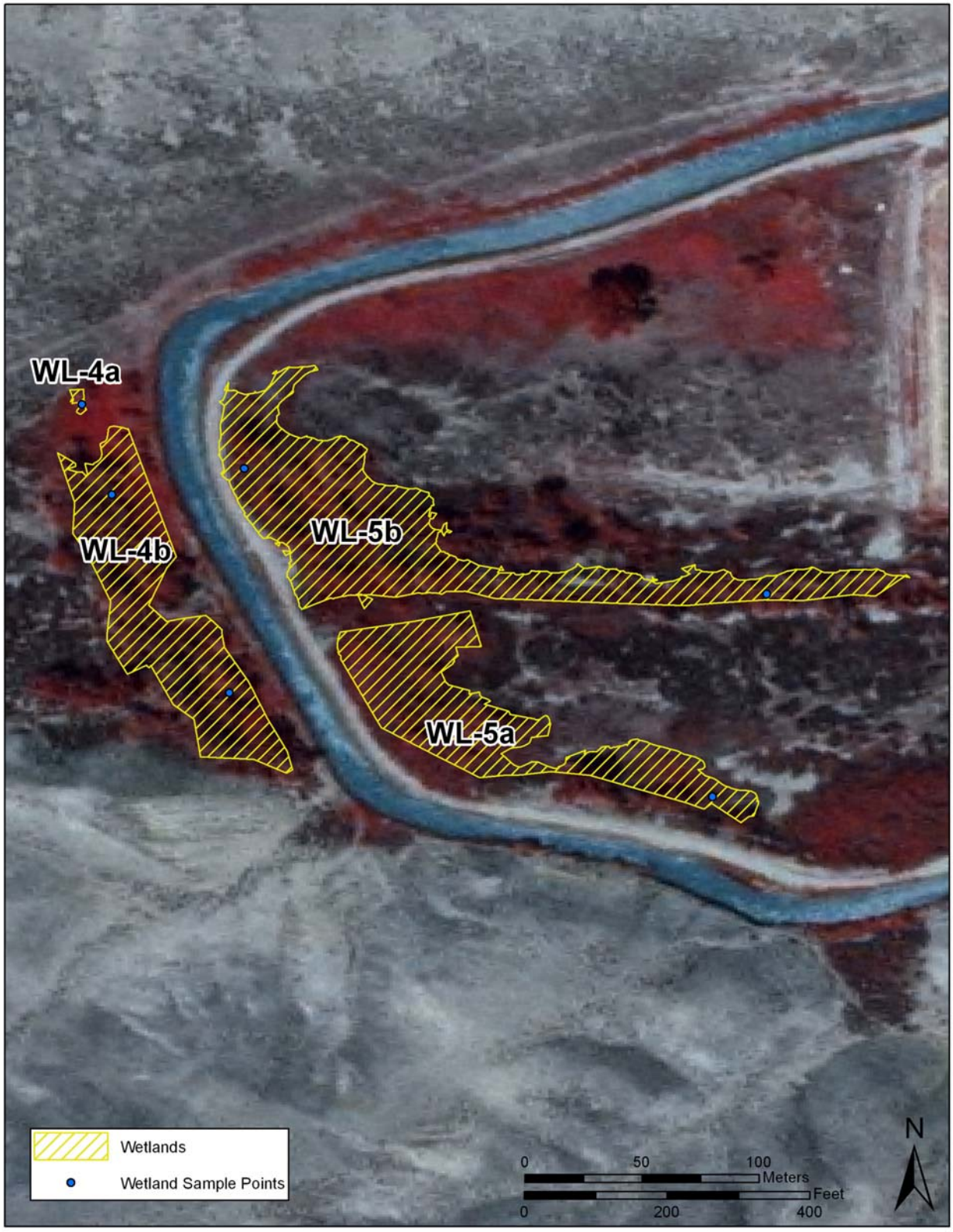


Map 1. Location of wetland 1 and associated sample point.

Map 2. Location of wetland 2 and associated sample point.



Map 3. Location of wetland 3 and associated sample points.



Map 4. Location of wetland 4 and 5 with associated sample points.

Map 5. Location of wetland 6 and associated sample point.

Appendix B. Data forms for wetlands delineated at the Westside Irrigation District project.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 9/12/05
Applicant/Owner:			County: Big Horn
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: marsh
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-1

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Scirpus microcarpus	40	Herb	OBL
2. Typha latifolia	15	Herb	OBL
3. Eleocharis palustris	10	Herb	OBL
4. Scirpus pungens	10	Herb	OBL
5. Hordeum jubatum	10	Herb	FAC
6.			
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks) ____ Stream, Lake or Tide Gauge ____ Aerial Photographs (infrared) ____ Other _X_ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated ___ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits _X_ Drainage Patterns in Wetlands
Field Observations Depth of Surface Water ___None___ (in.) Depth to Free Water in Pit ___None___ (in.) Depth to Saturated Soil ___None___(in.)	Secondary Indicators (2 or more required) ___ Oxidized Root Channels in upper 12 in. ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Remarks: Wetland located at mouth of intermittent drainage, adjacent Bighorn Canal; wl is connected to canal through narrow channel (breach) in levee; portions of wl inundated up to 10 inches	

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-6		10YR 5/2	7.5YR 3/4	Common/distinct	Silty clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
_X_ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 9/13/05
Applicant/Owner:			County: Washakie
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: scrub shrub
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-2

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Salix lasiandra	45	Shrub	FACW+
2. Populus deltoides	35	Tree	FAC
3. Typha latifolia	10	Herb	OBL
4. Xanthium strumarium	5	Herb	FAC
5. Iva axillaris	5	Herb	FAC
6.			
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks: Majority of vegetation around perimeter/shoreline of small impoundment; impoundment appears to be slowly filling in with Typha			

HYDROLOGY

Recorded Data (Describe in Remarks)
_____ Stream, Lake or Tide Gauge
_____ Aerial Photographs (infrared)
_____ Other
_X_ No Recorded Data Available

Field Observations

Depth of Surface Water ___None___ (in.)

Depth to Free Water in Pit ___None___ (in.)

Depth to Saturated Soil ___None___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
_X_ Water Marks
___ Drift Lines
___ Sediment Deposits
_X_ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required)
___ Oxidized Root Channels in upper 12 in.
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Sample point along vegetated bank of shallow (up to 2' deep) impoundment

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-6		10YR 3/2	4/10GY	Common/prominent	Clay
6-16		5/10G	7.5YR 4/4	Many/prominent	Clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
_X_ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes _X_ No ___
Wetland Hydrology Present? Yes _X_ No ___
Hydric Soils Present? Yes _X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 9/13/05
Applicant/Owner:			County: Washakie
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: scrub shrub
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-3a,b

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Elaeagnus angustifolia	60	Tree	FAC
2. Salix exigua	15	Shrub	OBL
3. Xanthium strumarium	30	Herb	FAC
4. Agropyron trachycaulum	30	Herb	FAC
5. Typha latifolia	10	Herb	OBL
6. Scirpus pungens	10	Herb	OBL
7. Phalaris arundinacea	10	Herb	FACW
8. Tamarix chinensis	10	Shrub	FACW
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks) ____ Stream, Lake or Tide Gauge ____ Aerial Photographs (infrared) ____ Other _X_ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits _X_ Drainage Patterns in Wetlands Secondary Indicators (2 or more required) ___ Oxidized Root Channels in upper 12 in. ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations Depth of Surface Water __None__ (in.) Depth to Free Water in Pit __None__ (in.) Depth to Saturated Soil __0__ (in.)	
Remarks: Fringe wetlands along both banks of Tenmile Creek	

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-3		-----			Sand
3-14		2.5YR 4/2	4/5GY	Many/prominent	Sandy loam
14+		-----			Gravelly sand

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
_X_ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Soils in area are highly variable due to evident deposition and erosion

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes _X_ No ___
Wetland Hydrology Present? Yes _X_ No ___
Hydric Soils Present? Yes _X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 9/13/05
Applicant/Owner:			County: Washakie
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: marsh
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-3c

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Typha latifolia	80	Herb	OBL
2. Phalaris arundinacea	10	Herb	FACW
3. Scirpus validus	10	Herb	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks) ____ Stream, Lake or Tide Gauge ____ Aerial Photographs (infrared) ____ Other _X_ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits _X_ Drainage Patterns in Wetlands Secondary Indicators (2 or more required) ___ Oxidized Root Channels in upper 12 in. ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations Depth of Surface Water __None__ (in.) Depth to Free Water in Pit __10__ (in.) Depth to Saturated Soil __0__ (in.)	
Remarks: Wetland within large depression adjacent Bighorn Canal and Tenmile Creek	

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-16		10YR 4/2	2.5Y/N	Many/prominent	Silty clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
_X_ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks: Eastern boundary of wetland was cut off because of project boundary, but wetland extends further east (outside project boundary)

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 9/13/05
Applicant/Owner:			County: Washakie
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: fringe wetland
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-3d

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Phragmites australis	60	Herb	FACW+
2. Scirpus pungens	20	Herb	OBL
3. Xanthium strumarium	10	Herb	FAC
4. Agropyron trachycaulum	10	Herb	FAC
5.			
6.			
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks) ____ Stream, Lake or Tide Gauge ____ Aerial Photographs (infrared) ____ Other _X_ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 Inches ___ Water Marks _X_ Drift Lines _X_ Sediment Deposits ___ Drainage Patterns in Wetlands
Field Observations Depth of Surface Water __None__ (in.) Depth to Free Water in Pit __None__ (in.) Depth to Saturated Soil __None__ (in.)	Secondary Indicators (2 or more required) ___ Oxidized Root Channels in upper 12 in. ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Remarks: Wetland spans channel of Tenmile Creek	

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-16		-----	3/10Y	Many/prominent	Loamy sand

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
_X_ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks: Difficult to determine matrix color because of high sand content; organic streaking throughout profile

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes_X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 09/13/05
Applicant/Owner:			County: Washakie
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: scrub shrub
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-3e

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Salix exigua	60	Shrub	OBL
2. Phragmites australis	20	Herb	FACW+
3. Elaeagnus anugustifoliua	10	Tree	FAC
4. Xanthium strumarium	5	Herb	FAC
5. Agropyron trachycaulum	5	Herb	FAC
6.			
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks) ____ Stream, Lake or Tide Gauge ____ Aerial Photographs (infrared) ____ Other _X_ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 Inches ___ Water Marks _X_ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands
Field Observations Depth of Surface Water __None__ (in.) Depth to Free Water in Pit __None__ (in.) Depth to Saturated Soil __0__ (in.)	Secondary Indicators (2 or more required) ___ Oxidized Root Channels in upper 12 in. ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Remarks: Fringe wetland along Tenmile Creek; includes portions of secondary stream terrace. Soil pit saturated to soil surface.	

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-16		10YR 4/2	2.5Y/5G	Many/prominent	Sandy loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
_X_ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside irrigation District			Date: 09/13/05
Applicant/Owner:			County: Washakie
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: marsh
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-3f

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Phragmites australis	50	Herb	FACW+
2. Typha latifolia	20	Herb	OBL
3. Carex rostrata	15	Herb	OBL
4. Scirpus validus	10	Herb	OBL
5. Cirsium arvense	5	Herb	FACU
6.			
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks)
____ Stream, Lake or Tide Gauge
____ Aerial Photographs (infrared)
____ Other
_X_ No Recorded Data Available

Field Observations

Depth of Surface Water None (in.)

Depth to Free Water in Pit 10 (in.)

Depth to Saturated Soil 0 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
_X_ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required)
___ Oxidized Root Channels in upper 12 in.
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Wetland spans two, connected slough-like channels. Channels presumably function as diversion of overflow channels from Bighorn Canal.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-4		10YR 4/1	2.5N	Common/prominent	Sandy clay
4-16		10YR 4/1	2.5N	Many/prominent	Sandy loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
_X_ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 09/14/05
Applicant/Owner:			County: Big Horn
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: wet meadow
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-4a

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Carex rostrata	70	Herb	OBL
2. Scirpus pungens	20	Herb	OBL
3. Xanthium strumarium	5	Herb	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks) ____ Stream, Lake or Tide Gauge ____ Aerial Photographs (infrared) ____ Other _X_ No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: ___ Inundated _X_ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators (2 or more required) ___ Oxidized Root Channels in upper 12 in. ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations Depth of Surface Water __None__ (in.) Depth to Free Water in Pit __None__ (in.) Depth to Saturated Soil __0__ (in.)	
Remarks: Wetland located within small depression near Bighorn Canal; portions of wetland inundated up to 3 inches.	

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-4		10YR 4/1	2.5/N	Common/prominent	Sandy clay loam
4-16		10YR 4/1	2.5/N	Many/prominent	Clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
_X_ High Organic Content in Surface Layer in Sandy Soils
_X_ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 09/14/05
Applicant/Owner:			County: Big Horn
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: riparian woodland
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID: Sample point 1
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-4b

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Elaeagnus angustifolia	25	Tree	FAC
2. Salix lasiandra	15	Shrub	FACW+
3. Typha latifolia	35	Herb	OBL
4. Carex rostrata	35	Herb	OBL
5. Alopecurus pratensis	15	Herb	FACW
6. Agrostis stolonifera	15	Herb	FAC+
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks)
____ Stream, Lake or Tide Gauge
____ Aerial Photographs (infrared)
____ Other
_X_ No Recorded Data Available

Field Observations

Depth of Surface Water __None__ (in.)

Depth to Free Water in Pit __8__ (in.)

Depth to Saturated Soil __0__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
_X_ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
_X_ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required)
___ Oxidized Root Channels in upper 12 in.
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Wetland located adjacent Bighorn Canal and is bisected by intermittent drainage.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-5		10YR 2/1	2.5/N	Few/distinct	Silt loam
5-16		10YR 4/1	2.5/N	Many/prominent	Silty clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
_X_ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks: Although the wetland was identified as riparian woodland, it includes small, open areas dominated by emergent vegetation (see dominant plant species list).

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 09/14/05
Applicant/Owner:			County: Big Horn
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: riparian woodland
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID: Sample point 2
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-4b

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Elaeagnus angustifolia	5	Tree	FAC
2. Salix amygdaloides	10	Tree	FACW+
3. Salix lasiandra	15	Shrub	FACW+
4. Carex rostrata	30	Herb	OBL
5. Typha latifolia	25	Herb	OBL
6. Glycyrrhiza lepidota	20	Herb	FAC+
7. Agrostis stolonifera	10	Herb	FAC+
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks)
____ Stream, Lake or Tide Gauge
____ Aerial Photographs (infrared)
____ Other
_X_ No Recorded Data Available

Field Observations

Depth of Surface Water __None__ (in.)

Depth to Free Water in Pit __10__ (in.)

Depth to Saturated Soil __o__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
_X_ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required)
___ Oxidized Root Channels in upper 12 in.
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Sample point located adjacent Big Horn Canal levee; hydrology presumably associated with canal seepage.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-3		10YR 4/1			Silt loam
3-16		2.5Y 4/2	7.5YR 4/4	Common/distinct	Clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
_X_ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 09/14/05
Applicant/Owner:			County: Big Horn
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: scrub shrub
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-5a

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Salix exigua	60	Shrub	OBL
2. Typha latifolia	20	Herb	OBL
3. Rosa acicularis	5	Shrub	FACU
4. Rhus trilobata	5	Shrub	NI
5. Atriplex micrantha	5	Herb	NOL
6. Hordeum jubatum	5	Herb	FAC
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 75-100%			
Remarks: Using 50/20 rule, salix, typha, atriplex (NOL), and hordeum were counted as dominants, so either 75% or 100% of dominants are FAC or greater.			

HYDROLOGY

Recorded Data (Describe in Remarks)
____ Stream, Lake or Tide Gauge
____ Aerial Photographs (infrared)
____ Other
_X_ No Recorded Data Available

Field Observations

Depth of Surface Water __0__ (in.)

Depth to Free Water in Pit __8__ (in.)

Depth to Saturated Soil __0__ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
_X_ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
_X_ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required)
___ Oxidized Root Channels in upper 12 in.
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Wetland within channel-like depression along base of Bighorn Canal levee; receives water from small diversion in creek channel and presumably seepage from canal.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-3		10YR 3/1			Silty clay loam
3+		10YR 4/2	2.5/N	Few/prominent	Clay

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
_X_ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 09/15/05
Applicant/Owner:			County: Big Horn
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: scrub shrub
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID: Sample point 1
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-5b

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Elaeagnus angustifolia	50	Tree	FAC
2. Salix lasiandra	30	Shrub	FACW+
3. Typha latifolia	45	Herb	OBL
4. Carex roastrata	40	Herb	OBL
5. Sonchus uglinosus	10	Herb	NOL
6. Mentha arvensis	5	Herb	FAC
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks)
____ Stream, Lake or Tide Gauge
____ Aerial Photographs (infrared)
____ Other
_X_ No Recorded Data Available

Field Observations

Depth of Surface Water ___None___ (in.)

Depth to Free Water in Pit ___6___ (in.)

Depth to Saturated Soil ___0___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
_X_ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
_X_ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required)
___ Oxidized Root Channels in upper 12 in.
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Large wetland complex with inclusions of small emergent wetlands; wetland spans creek channel and is situated adjacent the Big Horn Canal.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-4		2.5Y 4/2			Clay loam
4-16		3/10Y			Clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
_X_ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 09/15/05
Applicant/Owner:			County: Big Horn
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: scrub shrub
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID: Sample point 2
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-5b

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Salix lasiandra	10	Shrub	FACW+
2. Salix exigua	10	Shrub	OBL
3. Typha latifolia	70	Herb	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 100%			
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks)
____ Stream, Lake or Tide Gauge
____ Aerial Photographs (infrared)
____ Other
_X_ No Recorded Data Available

Field Observations

Depth of Surface Water 0-2 (in.)

Depth to Free Water in Pit 0 (in.)

Depth to Saturated Soil 0 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
_X_ Inundated
_X_ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required)
___ Oxidized Root Channels in upper 12 in.
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Sample point located below Big Horn Canal levee.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Taxonomy (Subgroup): _____ Field Observations
Confirm Mapped Type? Yes___ No___

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-16		10YR 4/1			Silt loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
_X_ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
_X_ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Westside Irrigation District			Date: 09/15/05
Applicant/Owner:			County: Big Horn
Investigator: Kurt Flaig/Jeanette Flaig			State: Wyoming
Do Normal Circumstances exist on the site?	Yes X	No	Community ID: wet meadow
Is the site significantly disturbed (Atypical situation?)	Yes	No X	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No X	Plot ID: WL-6

VEGETATION

Dominant Plant Species	% Cover	Stratum	Indicator
1. Phalaris arundinacea	75	Herb	FACW
2. Rumex crispus	5	Herb	FAC+
3. Hordeum jubatum	5	Herb	FAC
4. Cirsium arvense	5	Herb	FACU+
5. Alopecurus pratensis	5	Herb	FACW
6.			
7.			
8.			
9.			
10.			
Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).	100%		
Remarks:			

HYDROLOGY

Recorded Data (Describe in Remarks)
_____ Stream, Lake or Tide Gauge
_____ Aerial Photographs (infrared)
_____ Other
_X_ No Recorded Data Available

Field Observations

Depth of Surface Water ___None___ (in.)

Depth to Free Water in Pit ___None___ (in.)

Depth to Saturated Soil ___None___ (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
_X_ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required)
___ Oxidized Root Channels in upper 12 in.
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Wetland located adjacent Bighorn Canal, hydrology presumably associated with canal seepage/high water table.

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes___ No___
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture,Concretions, Structure, etc.
0-3		10YR 3/2	7.5YR 3/4	Common/distinct	Silt loam
3-16		10YR 4/2	7.5YR 3/4	Many/distinct	Silt clay loam

Hydric Soil Indicators:

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
_X_ Reducing Conditions
___ Gleyed or Low-Chroma Colors
___ Concretions (iron)
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes_X_ No ___
Wetland Hydrology Present? Yes_X_ No ___
Hydric Soils Present? Yes_X_ No ___

Is this Sampling Point Within a Wetland?
Yes _X_ No ___

Remarks:

Appendix C. Photos of wetlands delineated at the Westside Irrigation District project.

Wetland 1.

Wetland 2.

Wetland 3a and b.

Wetland 3c.

Wetland 3d.

Wetland 3e.

Wetland 3f.

Wetland 4a.

Wetland 4b.

Wetland 5a.

Wetland 5b.

Wetland 6.

Appendix D. Plants encountered during wetland surveys at the Westside Irrigation District project.

FAMILY	COMMON NAME	SCIENTIFIC NAME	Wetland Indicator Status (Reg 9)
Alismataceae	Northern water plantain	*Alisma triviale*	NOL
	Arumleaf arrowhead	*Sagittaria cuneata*	OBL
Anacardiaceae	Skunkbush sumac	*Rhus trilobata*	NI
Apiaceae	Water hemlock	*Cicuta douglasii*	OBL
Asclepidaceae	Showy milkweed	*Asclepias speciosa*	FAC+
Asteraceae	Big sagebrush	*Artemisia tridentata*	NOL
	Gray rabbitbrush	*Chrysothamnus nauseosus*	NOL
	Canada thistle	*Cirsium arvense*	FACU+
	Curly-cup gumweed	*Grindelia squarrosa*	FACU
	Povertyweed	*Iva axillaris*	FAC
	Sow thistle	*Sonchus uglinosus*	NOL
	Common cocklebur	*Xanthium strumarium*	FAC
Brassicaceae	Whitetop	*Cardaria draba*	NOL
	Tumble mustard	*Sysimbrium* sp.	----
Chenopodiaceae	Amaranth	*Amaranthus* sp.	----
	Twoscale saltbush	*Atriplex micrantha*	NOL
	Pitseed goosefoot	*Chenopodium berlandieri*	NOL
	Red goosefoot	*Chenopodium rubrum*	FACW+
	Halogeton	*Halogeton glomeratus*	NOL
	Russian thistle	*Salsola tragus*	UPL
Cyperaceae	Nebraska sedge	*Carex nebrascensis*	OBL
	Beaked sedge	*Carex rostrata*	OBL
	Creeping spikerush	*Eleocharis palustris*	OBL
	Panicled bulrush	*Scirpus microcarpus*	OBL
	Common threesquare	*Scirpus pungens*	OBL
	Softstem bulrush	*Scirpus validus*	OBL
Elaeagnaceae	Russian olive	*Elaeagnus angustifolia*	FAC
Equisetaceae	Horsetail	*Equisetum* sp.	----
Fabaceae	Wild licorice	*Glycyrrhiza lepidota*	FAC+
	White sweetclover	*Melilotus alba*	FACU
	Yellow sweetclover	*Melilotus officinalis*	FACU
Grossulariaceae	Gooseberry	*Ribes* sp.	----
Juncaceae	Baltic rush	*Juncus balticus*	FACW+
Lamiaceae	Field mint	*Mentha arvensis*	FAC
Onagraceae	Fringed willowherb	*Epilobium ciliatum*	FACW-
Poaceae	Slender wheatgrass	*Agropyron trachycaulum*	FAC
	Creeping bentgrass	*Agrostis stolonifera*	FAC+
	Meadow foxtail	*Alopecurus pratensis*	FACW
	American sloughgrass	*Beckmannia syzigachne*	OBL
	Smooth brome	*Bromus inermis*	NOL
	Cheatgrass	*Bromus tectorum*	NOL
	Barnyardgrass	*Echinochloa crusgalli*	FACW
	Canada wildrye	*Elymus canadensis*	FAC
	Foxtail barley	*Hordeum jubatum*	FAC
	Reed canarygrass	*Phalaris arundinacea*	FACW
	Common reed	*Phragmites australis*	FACW+
	Bristlegrass	*Setaria* sp.	----
	Sand dropseed	*Sporobolus cryptandrus*	FACU-
Polygonaceae	Curly dock	*Rumex crispus*	FAC+
	Golden dock	*Rumex maritimus*	FACW+

Rosaceae	Prickly rose	*Rosa acicularis*	FACU
Salicaceae	Plains cottonwood	*Populus deltoides*	FAC
	Peachleaf willow	*Salix amygdaloides*	FACW
	Sandbar willow	*Salix exigua*	OBL
	Whiplash willow	*Salix lasiandra*	FACW+
Sarcobataceae	Greasewood	*Sarcobatus vermiculatus*	FACU+
Tamaricaceae	Tamarisk	*Tamarix chinensis*	FACW
Typhaceae	Broadleaf cattail	*Typha latifolia*	OBL