2008 Annual Wetland Mitigation Monitoring Report

for the Rocky Flats Site

(Click on the links below to view the wetland report, wetland project photos and forms)

2008 Annual Wetland Mitigation Monitoring Report (PDF Version)

2008 Photopoint Monitoring Photos

Example Wetland Delineation Forms/Qualitative Wetland Assessment Forms

Wetland Locations	Wetland Delineation Forms/ Qualitative Wetland Assessment Forms	Noxious Weed Forms
B116 Wetlands	2008 forms	Noxious weed forms
B131 Wetland	2008 forms	Noxious weed forms
B131 SAEX1 Area	2008 forms	Noxious weed forms
B371 Wetland	2008 forms	NA
B771 North Area Wetland	2008 forms	Noxious weed forms
B771 NW Hillside Wetland	2008 forms	Noxious weed forms

B881 Wetland	2008 forms	Noxious weed forms
Bowman's Pond/B771 Wetland	2008 forms	Noxious weed forms
B-1 Pond Wetland	2008 forms	Noxious weed forms
B-2 Pond Wetland	2008 forms	Noxious weed forms
B-3 Pond Wetland	2008 forms	Noxious weed forms
C-1 Pond Wetland	2008 forms	Noxious weed forms
East Shooting Range Wetland	2008 forms	Noxious weed forms
East Trenches Wetland	2008 forms	Noxious weed forms
Functional Channel 1 Wetland	2008 forms	Noxious weed forms
Functional Channel 1 Road Crossing	2008 forms	Noxious weed forms
Functional Channel 2 Wetland	2008 forms	Noxious weed forms
Functional Channel 2 Hillside Wetland	2008 forms	Noxious weed forms
Functional Channel 2/3 Confluence	2008 forms	Noxious weed forms
Functional Channel 3 Upper Wetland	2008 forms	Noxious weed forms
Functional Channel 3 Lower Wetland	2008 forms	Noxious weed forms
Functional Channel 4 Wetland	2008 forms	Noxious weed forms
Functional Channel 4 Hillside Wetland	2008 forms	Noxious weed forms
Functional Channel 5 Wetlands	2008 forms	NA
Melvin's Way Wetland	2008 forms	Noxious weed forms
Mound East Wetland	2008 forms	Noxious weed forms
Mound West Wetland	2008 forms	Noxious weed forms
Mound SW Wetland	2008 forms	Noxious weed forms
Mound West-West Wetland	2008 forms	Noxious weed forms
Mound Well Wetland	2008 forms	Noxious weed forms
Original Landfill Wetlands	2008 forms	Noxious weed forms
Present Landfill Wetlands	2008 forms	Noxious weed forms
SW093 West Wetland	2008 forms	Noxious weed forms
Solar Ponds Well Area	2008 forms	Noxious weed forms
Solar Pond Discharge Gallery Wetland	2008 forms	Noxious weed forms

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Rocky Flats, Colorado, Site 2008 Annual Wetland Mitigation Monitoring Report

February 2009

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U.S. Department of Energy
Office of Legacy Management

Rocky Flats, Colorado, Site
2008 Annual Wetland Mitigation Monitoring Report

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1.0 Introduction

This report summarizes the wetland mitigation monitoring conducted during 2008 at the Rocky Flats Site (Site), a U.S. Department of Energy (DOE) facility near Denver, Colorado.

Cleanup and closure activities disturbed approximately 7.7 acres of jurisdictional wetlands at the Site. To offset these impacts, several wetlands were established or re-created as mitigation wetlands. Monitoring of the mitigation wetlands began as each wetland-impact project was completed. A wetland monitoring and management plan was implemented (DOE 2006) to evaluate the reestablishment of the mitigation wetlands (i.e., either reestablished or newly created wetlands). The objective is to reestablish 7.7 acres or more of wetlands on the Site as mitigation for those wetlands disturbed during project activities at the Site. The DOE Standley Lake Wetland Mitigation Bank can also be used to offset these effects; however, establishing the mitigation wetlands on the Site, if possible, is preferable.

For the first several years after initial wetland establishment, interim monitoring—consisting of qualitative and semi-quantitative assessments of each of the wetland mitigation sites (DOE 2006)—is to be conducted. In addition, the wetlands will be mapped annually, and noxious weeds will be monitored and managed if necessary. Wetland determination during this time will be based primarily on hydrophytic-vegetation characteristics only; about the fifth year after project initiation, the impacted wetlands will be mapped and delineated according to the U.S. Army Corps of Engineers wetland-delineation procedure (USACOE 1987). 2008 is the third year of interim wetland monitoring for most of the wetland areas.

2.0 Background

A brief description of each mitigation-wetland area that is being monitored at the Site is found below. The seed mixes that were used at the various wetland areas are found in Table 1.

2.1 B-Pond Series

During 2005, ponds B-1, B-2, and B-3 at the Site were disturbed by remediation activities. Pond sediments were dredged and removed. Approximately 2.235 acres of open water, palustrine emergent, and palustrine scrub-shrub wetland types were affected by project activities (Table 2). The preexisting wetland vegetation along the pond edges was typified by coyote willow (*Salix exigua*), cattails (*Typha* sp.), Canada thistle (*Cirsium arvense*), and smaller amounts of snowberry (*Symphoricarpos occidentalis*), arctic rush (*Juncus balticus*), and other herbaceous plants (USACOE 1994). The mitigation is *in situ* at the B-ponds and is shown in Figure 1. After project completion, the ponds were backfilled, contoured, and seeded (Table 1). Erosion controls were installed after seeding. Additionally, 487 plains cottonwood (*Populus deltoides*) poles and 273 coyote willow stakes were planted in May 2005 along the southern edges of ponds B-1, B-2, and B-3 as part of a phytoremediation project for the East Trenches Groundwater Treatment System Remedy and to provide a shrub component to the wetlands. In 2006, ponds B-1, B-2, and B-3 had an additional 110, 128, and 118 coyote willow stakes installed, respectively, along their southern shorelines. In 2007, ponds B-2 and B-3 had 59 and 42 additional coyote willow stakes installed on their northern shorelines, respectively. In 2008, pond B-1 had an additional 13 peach-leaf willow (*Salix amygdaloides*) bare-root plants installed. During the fall of 2008 and

the winter of 2008/2009, the dams at ponds B-1, B-2, B-3, and B-4 were breached to create a more natural flow-through system through the wetlands. As a result, portions of the pond wetland areas were disturbed again. They will be reseeded and planted with woody plant material, in a way similar to that of the first planting that was done after the initial remediation activities in the ponds.

2.2 C-1 Pond

During 2005, DOE removed part of the dam and installed a stop-log structure to create a flow-through system at the C-1 pond along Woman Creek at the Site. Some of the wetlands on the northern edge of the pond and just downstream of the dam were affected by project activities. Approximately 0.25 acre of wetland was disturbed by project activities (Table 2). The wetland vegetation along the northern edge of the pond prior to the project contained cattails, a few coyote willow and lead plant (*Amorpha fruticosa*) shrubs, and a single peach-leaf willow tree. The disturbed area below the dam was dominated by a few plains cottonwood trees, some coyote willow, and an understory of mostly smooth brome (*Bromus inermis*). The mitigation at the C-1 pond is *in situ* and is shown in Figure 2. After project completion, 115 coyote willow stakes and 3 plains cottonwood poles were installed along the northern edge of the pond west of the stop-log structure. Below the dam, approximately 28 coyote willow stakes were installed along the edges of the stream. In 2007, an additional 23 coyote willow stakes were installed below the dam. In 2008, three peach-leaf willow bare-root plants were installed at the C-1 pond (two above the stop-log structure and one below the grouted riprap area).

2.3 East Shooting Range

During 2005, DOE disturbed a small wetland area along Woman Creek during remediation activities for the East Shooting Range Project. The wetland impacts were located where a culvert was placed in the stream to allow equipment access. Approximately 0.017 acre of palustrine scrub-shrub, seasonally flooded wetland was affected by project activities (Table 2). The wetland vegetation along Woman Creek in this area is typified by coyote willow, lead plant, Nebraska sedge (*Carex nebrascensis*), bulrushes (*Scirpus* sp.), and an occasional plains cottonwood tree or peach-leaf willow. After project completion, the culvert was removed, the disturbed areas along the stream edge were seeded with a riparian seed mix, and erosion controls were installed. *In situ* wetland reestablishment is expected at this location and is shown in Figure 2. Additionally, 3 plains cottonwood poles and 40 peach-leaf willow stakes were planted in March 2005 along the edges of the stream where the culvert crossing had been.

2.4 Functional Channels 1, 2, 3, 2/3 Confluence, and 4

During 2005, several mitigation wetlands were constructed in the North and South Walnut Creek drainages at the Site. Figures 3 through 5 show the locations of Functional Channel (FC) 1, FC2, the FC2/FC3 confluence, FC3 (upper and lower), and FC4 mitigation wetlands. With the exception of the FC1 wetland, each of these wetlands was designed to provide suitable conditions for wetland establishment for mitigation purposes at the Site.

The FC1 area was a borrow area that, at several locations, was excavated to the groundwater table, which now provides the appropriate hydrology for wetland establishment (Figure 3). The FC1 wetland area was the last mitigation area to be completed in the early fall of 2005, when it

was seeded with wetland species. In 2007, 185 coyote willow stakes and 7 plains cottonwood stakes were installed at various locations at the FC1 wetland. Additional borrow material was removed from the eastern part of the bottom of FC1 in fall 2007 and used for fill at another project. The area was recontoured to potentially create additional wetland habitat. This area was seeded with both the wetland seed mix and flat areas upland mix in January 2008 (Table 1). In spring 2008, 36 coyote willow bare-root plants were installed on the south end of the new wetland area and adjacent wet hillslope.

In 2005, the road northwest of the FC1 area that went across North Walnut Creek to the Present Landfill (PLF) was removed, and the culvert crossing was taken out (Figure 3). This area is referred to as the FC1 Road Crossing. Initially, the area was seeded with wetland species in the fall of 2005 (Table 1). In 2006, 36 coyote willow stakes were installed there. In 2008, the culvert was reinstalled to reestablish the road to the PLF. Part of the area that was becoming wetland was destroyed, so less mitigation than expected will be possible there.

The FC2 wetland is an engineered shallow wetland (Figure 4). It was completed and seeded with wetland species in the late spring of 2005 (Table 1). Erosion controls, consisting of an erosion mat and wattles, were placed across the bottom of the wetland area after seeding. A row of coyote willow (63 stakes) was initially installed along the first berm to provide a wetland shrubland component in 2005. In 2006, 151 coyote willow stakes were installed along the western shoreline of the wetland area. The following year, 117 coyote willow stakes were installed along the eastern shoreline of the wetland area. In 2008, 100 coyote willow bare-root plants and 26 peach-leaf willow bare-root plants were installed on the north end of the wetland and along portions of the northeast perimeter.

The FC2 hillside wetland is an area where a natural seep occurs on a hillside to the south of the main FC2 wetland (Figure 4). Prior to closure, this area was dominated by cattails. Approximately 81 coyote willow stakes were installed throughout this wetland area in the spring of 2006.

At the FC2/FC3 confluence (a settling pool where FC2 and FC3 meet in North Walnut Creek), the wetland margin was seeded with wetland species (Table 1), and 18 coyote willow stakes were installed in 2005 (Figure 4). Prior to this project, the area was dominated by cattails and a few Russian olive trees (*Elaeagnus angustifolia*). In 2008, seven peach-leaf willow bare-root plants were installed around the perimeter of the wetland area.

The FC3 wetlands were created in the bottom of the channel where shallow streambed slopes allowed the placement of a soil cover over the riprap (Figure 4). The wetland bottom areas and hillsides were seeded with a mix of wetland and riparian species (Table 1). Erosion controls, consisting of an erosion mat and wattles, were placed across the bottom of the wetland areas after seeding. In the upper (west) wetland, a total of 48 coyote willow stakes were planted along the channel in 2005. The same year, a total of 94 coyote willow stakes were installed along the bottom of the channel at the lower (east) wetland.

The FC4 wetland is a shallow engineered wetland in the South Walnut Creek drainage (Figure 5). The broad, flat bottom slopes gently eastward, and 13 berms (approximately 6 inches high) were installed across the wetland, running north–south, to create shallow pools throughout the wetland. A total of 862 coyote willow stakes were planted along the berms in 2005.

Additionally, in the center of the wetland, several large clumps of willow, salvaged from areas of Woman Creek disturbed by the Original Landfill (OLF) Project, were transplanted by front-end loaders. The wetland was seeded with wetland species (Table 1). Unfortunately, when the area was seeded and erosion matting and wattles were installed across the bottom of the wetland, many of the willow stakes were pulled up and replanted after being in place for a month; many died as a result. In January 2006, the steep hillside on the south side of the wetland began to slump. By mid-2007, some uplift had occurred along the southern edge of the FC4 wetland. In 2007, approximately 100 additional coyote willow bare-root plants were installed along the northern edge of the wetland. In the late fall of 2007, the hillside was repaired, and portions of the uplifted material along the southern edge of the wetland were removed to reestablish as much of the mitigation area as possible. In 2008, 182 coyote willow bare-root stock were installed along the southern margin of the FC4 wetland. Also, 24 peach-leaf willows were installed near the west end on both the north and south sides of the wetland.

2.5 Original Landfill

During 2005, DOE impacted several wetland areas during remediation activities at the OLF Project. Approximately 1.26 acres of jurisdictional wetlands were disturbed by the landfill-cover-construction activities (Table 2). Approximately 1.17 acres of this was assumed to be permanent wetland loss because the landfill cover was being placed over the previous wetland locations, and it was assumed that no *in situ* wetland restoration would occur. Within the OLF Project area, the South Interceptor Ditch (SID)—a narrow, linear ditch—was classified as a jurisdictional wetland, although it had a lower functional value than the natural wetlands associated with Woman Creek (USACOE 1994). The vegetation in the SID was typified by cattails and some coyote willow. Along Woman Creek, the wetlands were dominated by large plains cottonwood trees, coyote willow, lead plant, snowberry, arctic rush (*Juncus balticus*), and various other plants. After project completion, however, several wet seep areas were found to be forming in certain areas on the cover, so it is possible that some *in situ* wetland restoration may occur in time. In 2008, several locations around the perimeter of the OLF (Figure 6) had enough wetland species establishment to be qualitatively evaluated. A total of 56 and 91 coyote willow stakes were installed in the West Channel and at the bottom of the east side of the buttress wall, respectively, in 2007. In fall 2008, the West Channel was reconfigured to address stability issues on the OLF. As a result, some of the potential wetland area that was developing there was lost. However, additional wetland area is expected to develop at the south end of the West Channel, where seep drains now exit.

2.6 Present Landfill

In 2005, the East Landfill Pond (ELP) at the Site's PLF was disturbed by remediation activities during Site cleanup and closure. The pond itself was an open-water habitat and was surrounded by emergent wetlands composed largely of cattails, Torrey's rush (*Juncus torreyi*), and wintercress (*Barbarea orthoceras*). South of the ELP, some wet areas that contained arctic rush and Canada thistle were present. As a result of the project, portions of the wetlands along the western edge of the pond were permanently lost under the new landfill cover. In addition, the upper 1 to 2 feet of sediment on the pond bottom was removed and placed under the landfill cover. After project activities were completed, the pond bottom and surrounding upland edges were reseeded (Table 1), and the pond was allowed to refill with water. Based on the projected final water level in the pond after project completion, it was estimated that approximately

2.9 acres of wetland had been disturbed, with approximately 2.13 acres being considered a permanent loss due to the pond's lower water levels (Table 2).

The seeding of the wetland (pond edge) was done in the late spring of 2005. In addition to the seeding of the wetland, 75 willow stakes were planted between the west end of the pond and the passive treatment cell. A mixture of coyote willow and peach-leaf willow was planted in the wet areas at this location. In 2006, a total of 182 coyote willow stakes were installed around the pond perimeter. In 2007, an additional 46, 125, and 80 coyote willow stakes were installed below the passive treatment cell (between the cell and pond), along the northern edge of the pond, and along the wet slump edges (of a newly formed slump north of the pond), respectively. The mitigation locations monitored at the PLF in 2008 are shown in Figure 7.

2.7 Solar Pond Discharge Gallery

The Solar Pond Discharge Gallery (SPDG) is an area to the east of the solar pond treatment cells where effluent from the Solar Pond Plume Treatment System (SPPTS) is discharged. The discharge gallery consists of a gravel bed with a buried discharge pipe. Prior to the installation of the treatment system and discharge gallery in 1999, there was no wetland at this location. After the discharge gallery was installed, water flowed eastward from the system in tire ruts of an old two-track road and saturated the soil along the route. These conditions have allowed the growth of cattails, coyote willow, and various other wetland species in the discharge gallery and surrounding area where the saturated conditions provide suitable habitat for hydrophytic vegetation (Table 2). In 2005, 435 coyote willow stakes were planted along North Walnut Creek, with a few dozen in the general vicinity of the discharge gallery as part of a phytoremediation project for the SPPTS. Most of these died because their locations lacked moisture. In 2006, an additional 40 coyote willow stakes were installed near the tire-rut locations. In 2007, 100 more coyote willow bare-root plants were installed around and east of the discharge gallery. In fall 2008, a new sump was installed for the SPPTS and impacted a small wetland area on the hillside. The wetland area affected by this activity measured approximately 40 square feet (Table 2). Monitoring of the area will begin in 2009. Figure 8 shows the SPDG locations that were monitored in 2008. Monitoring at the SPPTS in 2008 was conducted as directed by the U.S. Environmental Protection Agency.

The wetland that has formed at the discharge gallery is artificially created and maintained. In time, when the treatment system is no longer needed at the Site, the system may be decommissioned, and all or portions of them may be removed. At that point, the artificially maintained wetlands associated with the groundwater treatment system will be left in place, and natural succession will be allowed to proceed. The hydrophytic vegetation that is present may or may not be able to sustain itself, depending on the final environmental conditions. No mitigation for a potential loss of this wetland area will be made, as it is artificially created and maintained. Nature will be allowed to take its course, and plant species will adapt to the final conditions at the location. The same is true for the East Trenches wetland area (discussed below) which is also part of a groundwater treatment system.

2.8 East Trenches

The East Trenches Plume Treatment System (ETPTS) was installed in 1999. At the discharge gallery, a small underground pipe exits into riprap before flowing down a short hill into the

B-4 pond. The predominant vegetation in the area is arctic rush and bulrushes. In the spring of 2006, the system's discharge pipe was extended a couple of feet to improve effluent flow from the system. The wetland area affected by this activity measured approximately 10 square feet (Table 2). The area monitored in 2008 is shown in Figure 1. Monitoring at the ETPTS in 2008 was conducted as directed by the U.S. Environmental Protection Agency.

2.9 B131 Wetland

In 2005, as a part of a road-removal project, a culvert to the north of the B131 building was taken out (Table 2). Wetlands dominated by cattails occurred upstream and downstream of the culvert location, so in time, the former culvert area is expected to become a wetland as well. The area was seeded with wetland species in 2005. The area monitored in 2008 is shown in Figure 9.

2.10 Miscellaneous Wetlands

Several additional new wet areas exhibiting hydrophytic vegetation have been observed on hillsides and other locations since Site closure. Those that were monitored in 2008 are shown in Figures 1 through 10. Where appropriate, the additional seeding of wetland species and planting of woody wetland species may be conducted in the future to help develop these locations.

3.0 Methodology

Wetland monitoring in 2008 was conducted using both qualitative and semi-quantitative monitoring methodologies. Wetland monitoring was conducted in late August to evaluate vegetation establishment. For each wetland area, qualitative wetland assessments were conducted. A Wetland Qualitative Revegetation Evaluation form and a Routine Wetland Determination form (USACOE 1987) were completed for each wetland (see the "Example Wetland Delineation Forms/Qualitative Wetland Assessment Forms" link on the DVD for sample forms). For each species across the wetland area as a whole, cover was estimated on the Routine Wetland Determination form, to the nearest percentage. For species that were estimated to have less than 1 percent cover, a value of 0.25 percent was recorded (refer to the "2008 forms" link on the DVD for the completed forms for each wetland). No soils data were collected and only surface observations for the presence of water were noted on the Routine Wetland Determination form.

A species list and foliar-cover summary were generated for each wetland area. Foliar-cover data are reported as the percent absolute cover and percent relative cover for each species encountered. Cover was estimated visually across each wetland area as a whole. The percent absolute foliar cover was the estimated actual cover value for each species (percentage of ground surface covered by the leaves and stems) in a wetland area. Relative foliar cover was the estimated absolute cover value for each species in a wetland area divided by the sum of all the absolute cover values for all species in the same wetland area, multiplied by 100.

Wetland-development progress was determined by using the 50/20 relative-cover rule to determine dominance of hydrophytic vegetation as outlined in the *COE Wetland Delineation Manual* (USACOE 1987). Areas that qualify as potential wetlands were based on hydrophytic-vegetation criteria only. For purposes of these qualitative assessments, tree/shrub species were

considered as trees or shrubs based on their typical full-grown growth form—regardless of the size of the plants. For example, a 6-inch-tall cottonwood seedling was considered a tree for the purpose of these analyses. This variation on the tree/shrub categories is a variation from the typical *COE Wetland Delineation Manual* method.

The extent of wetlands and potential mitigation wetland areas that were becoming established in 2008 were mapped using a Trimble GPS unit and downloaded into ArcGIS (ESRI 2005). Acreages were calculated and summarized for each area surveyed.

Photo-monitoring was conducted at each of the mitigation-wetland sites. Photos were taken from the same location at each wetland. For new wetland areas monitored in 2008, new photopoints were established. These photo series will show the development of the wetlands over time (refer to the "2008 Photopoint Monitoring Photos" link for each wetland on the DVD).

Noxious weed surveys were conducted monthly for most wetland sites during the height of the growing season from June through August (refer to the "Noxious Weed Forms" link for each wetland on the DVD). Some of the smaller "new" wetlands were not discovered until late August and early September when monitoring was conducted; hence, they have no weed-survey forms for 2008. State-listed noxious weeds (CNWA 2006) and other problematic species at the Site were listed on these forms, along with a percent cover estimate and a diagram of their location in the wetland, as appropriate.

4.0 Results and Discussion

Eighty-four sites totaling 7.96 acres of potential wetland acres were monitored and mapped during 2008 (Table 3). Out of these potential acres, 7.43 acres had a dominance of hydrophytic vegetation based on the 50/20 dominance rule in 2008. This represents 93 percent of the total potential wetlands mapped in 2008. This is promising, considering that 2008 was only the third year of monitoring and was very dry for most of the growing season. Excluding the SPPTS and ETPTS areas (artificially created and maintained wetlands), the total potential mitigation areas that had a dominance of hydrophytic vegetation in 2008 was 7.4 acres. The average yearly precipitation received at the Site from 1992 to 2008 is 15.29 inches (National Renewable Energy Laboratory NWTC M2 Tower data). Over the past 3 years, when wetland monitoring has been conducted, the Site has received below-average precipitation. Precipitation for 2008 was 12.26 inches at the Site, compared to 14.59 inches and 12.62 inches received in 2007 and 2006, respectively. During the growing-season months of April through September in 2008, a total of 9.02 inches of precipitation was received. This is up from 2007 and 2006 when only 7.97 inches and 4.86 inches were received, respectively, during the same timeframe. The mean for this period from 1992 to 2008 is 10.46 inches. Unfortunately, in June 2008, the precipitation received was 50 percent of the normal amount, and in July 2008, it was only 25 percent. This probably accounts for the reduction in total potential wetland acres monitored and mapped in 2008 (7.96 acres) as compared to 2007 (8.51 acres).

The smallest area that had hydrophytic vegetation and was monitored in 2008 was 0.0001 acre (3 square feet) located at the OLF site (Table 3). The largest area with hydrophytic vegetation was 1.03 acres at FC4, which is one of the engineered mitigation wetlands.

Tables 4 through 13 summarize the species richness and cover data for the potential wetlands monitored. The highlighted cells in the table represent the dominant species as determined by the 50/20 rule at each location. Wetland locations are shown in Figures 1 through 10. The number of dominant indicator species within each indicator class is summarized, and whether a location met the hydrophytic-vegetation criteria in 2008 is indicated at the bottom of each table. A total of 67 locations were dominated by hydrophytic vegetation in 2007. Thirteen locations did not meet the hydrophytic-vegetation criteria. Two locations (GIS 81 and 82 on Figure 4) were open-water habitats that had no vegetation; therefore, they are not presented in the tables.

For areas that met the hydrophytic-vegetation criteria in 2008, the common herbaceous hydrophytic indicator species were cattails, arctic rush, foxtail barley (*Hordeum jubatum*), bulrushes, Torrey's rush, and switchgrass (*Panicum virgatum*) (Table 14). Common hydrophytic shrub and tree species at these locations included coyote willow, plains cottonwood, peach-leaf willow, and Russian olive. Common non-hydrophytic species at these locations included slender wheatgrass (*Agropyron caninum* [*A. trachycaulum*]) and Canada thistle.

At the locations that did not meet the hydrophytic-vegetation criteria in 2008, the common herbaceous non-hydrophytic species included slender wheatgrass, Canada thistle, Canada wildrye, and western wheatgrass (*Agropyron smithii*)(Table 15). The most common herbaceous hydrophytic indicator species at these locations was arctic rush. The only non-hydrophytic shrub species was snowberry. Common hydrophytic shrub and tree species at these locations included coyote willow, plains cottonwood, peach-leaf willow, and Russian olive.

Photo-monitoring results for 2008, as compared with earlier photos, are presented in the "2008 Photopoint Monitoring Photos" link for each wetland on the DVD.

Table 2 is the wetland debit sheet that shows the acreage of wetlands disturbed throughout, and since, closure. The total acreage that was disturbed during closure activities was approximately 7.7 acres. Based on monitoring conducted in 2008, the total acreage of the mitigation areas that currently meet the hydrophytic-vegetation requirement is approximately 7.43 acres (Table 3; excluding the SPPTS and ETPTS). An additional 0.53 acre did not meet the hydrophytic-vegetation requirement in 2008. In 2008, the less-than-normal precipitation received at the Site reduced the overall amount of potential wetland areas meeting the hydrophytic vegetation criteria. Dependent on precipitation received in future years, the Site should be able to come close to meeting the "no net loss" of wetlands, using on-site wetland mitigation. Ultimately, after about 5 years, the wetland areas will be delineated using the U.S. Army Corps of Engineers wetland-delineation methods (USACOE 1987), and the final acreages will be determined. Until then, continued monitoring and management efforts will work to further develop the wetlands and enhance or create others where new seeps and wet areas become present in the revegetation areas at the Site.

4.1 Wetland Management

Most of the naturally occurring wetland habitat types that occur at the Site are emergent herbaceous communities. However, wetland shrub and forest communities also occur along the streams and at a few other locations at the Site. While the establishment of the emergent herbaceous communities is typically accomplished by seeding wetland species, the establishment of the shrubland and forest communities is often also done by installing woody plant stakes or

bare-root stock. The establishment of several shrub-dominated communities at the mitigation wetlands would further enhance the overall habitat at the Site by adding additional vegetation structure in the wetland communities.

In spring 2008, additional woody vegetation was planted at several locations using stakes and bare-root stock. The following wetland locations received additional woody plant stock: FC1; FC2; the FC2/FC3 confluence; FC4; and ponds B-1, C-1, and C-2. Species planted included coyote willow (132 stakes and 300 bare-root plants), peach-leaf willow (100 bare-root plants), American plum (*Prunus americana*; 50 bare-root plants), and chokecherry (*Prunus virginiana*; 50 bare-root plants).

In the past, counts were made to assess the survival of species that had been planted. However, over time, accurate counts of the individuals surviving at the different locations has become impossible because the plants have all grown together. So, survival counts are no longer made. Instead, live woody plants growing at each wetland mitigation location are counted. Table 16 lists the number of woody plants of different species found at each location in 2008. These counts include both planted individuals and "volunteers" that have come in on their own. The individuals that are too numerous to count are indicated with a "TN" in the table. At most locations where the originally installed plants survived the first year, plants have begun to spread and fill in the surrounding areas. Where clumps of willow had intact root systems after project disturbance, these plants have come up and continued to spread by vegetative means. At many locations, volunteers of lead plant, coyote willow, peach-leaf willow, plains cottonwood, lanceleaf cottonwood (*Populus x acuminata*), Russian olive, and salt cedar or tamarisk (*Tamarix ramosissima*) seedlings have come in on their own. The seed source most likely came from nearby established plants or from seed brought in by wildlife. Plains cottonwood and willow require an open, scoured area for seedlings to germinate and survive; areas of open, bare ground that were available after wetland projects were completed in 2005 created ideal germination conditions for them. While most of the volunteers are desirable, two species, Russian olive and salt cedar, are noxious weeds in Colorado. Therefore, attempts are made to control them so they do not proliferate at the wetland locations. To help with wetland-species establishment, several areas were reseeded in 2008 using either a wetland seed mix or a riparian seed mix where appropriate (Table 1). Future seeding and planting of woody species are planned for many of the wetland areas in the spring of 2009 to further enhance the mitigation wetlands.

In 2008, minor modifications to water-flow pathways through several wetlands continued to adjust the depth of water and saturation of different locations within the developing wetland areas. Typically these modifications involved using a shovel or pickaxe to change the direction of the flow of water at different locations—to either drain pooling areas or direct water into areas that were too dry. Modifications were made to help saturate additional locations to create conditions conducive to hydrophytic vegetation.

4.2 Noxious Weed Species

Monthly noxious weed surveys were performed from June through August at each of the wetland areas. Weed species recorded in 2008 at the various mitigation wetlands included quackgrass (*Agropyron repens*), musk thistle (*Carduus nutans*), diffuse knapweed (*Centaurea diffusa*), Canada thistle, bull thistle (*Cirsium vulgare*), houndstougue (*Cynoglossum officinale*), Russian olive, red-stem filaree (*Erodium cicutarium*), Dame's rocket (*Hesperis matronalis*), Dalmatian

toadflax (*Linaria dalmatica*), salt cedar, and moth mullein (*Verbascum blattaria*), all of which are found on the B list of the Colorado Noxious Weed Act. Six C-list species were also noted: chicory (*Chicorium intybus*), St. John's wort (*Hypericum perforatum*), field bindweed (*Convolvulus arvensis*), poison hemlock (*Conium maculatum*), common mullein (*Verbascum thapsus*), and sowthistle (*Sonchus arvensis*). Other species that could become problematic (but that are not on the Colorado noxious weed list) and that were found in the wetlands were birdsfoot trefoil (*Lotus corniculatus*), Russian thistle (*Salsola iberica*), kochia (*Kochia scoparia*), and cocklebur (*Xanthium strumarium*), although the latter three species are expected to largely disappear as the desired vegetation becomes established.

During 2008, weed-control activities were conducted at several of the wetland mitigation locations. Herbicide applications (using Milestone [aminopyrilid]) were made along the perimeter of a few wetland areas in order to control such noxious species as Canada thistle, diffuse knapweed, and musk thistle. At several locations in 2008, individual salt cedar plants were found and removed. In 2009, efforts will continue to eradicate any new salt cedar found growing at the Site. At a number of locations (both in wetlands and other upland locations at the Site), Russian olive seedlings and saplings were observed in 2008. Plans are being developed to remove existing Russian olive on the Site. As necessary, weed control will be conducted in the future to eradicate, suppress, or contain various weed species based on the target species of concern. Weed control will be conducted as part of the normal natural-resource-management operations at the Site.

5.0 Summary

Since the wetland mitigation efforts began in 2005, a variety of wetland species have started to become established in the mitigation areas. Hydrophytic vegetation has begun to fill in the previously open spaces in the mitigation areas. Based on the monitoring conducted in 2008, approximately 93 percent of the mitigation areas meet the hydrophytic-vegetation criteria. Management will continue, with a goal of transforming these areas into successful, sustainable mitigation wetlands. As needed, additional native wetland species will be reseeded, and native shrub and tree species will be planted, to enhance these areas. The continued monitoring and control of invasive species will help detect weed problems, which will save time and reduce the costs to control them.

6.0 References

CNWA (Colorado Noxious Weed Act), 2006. *Rules Pertaining to the Administration and Enforcement of the Colorado Noxious Weed Act*, 8 CCR 1206-2, Colorado Department of Agriculture, Conservation Services Division.

DOE (U.S. Department of Energy), 2006. *Rocky Flats, Colorado, Site Wetland Mitigation Monitoring and Management Plan*, Department of Energy, Office of Legacy Management, Grand Junction, Colorado, June.

ESRI (Environmental Systems Research Institute), 2005. *ArcGIS version 9.1*, Environmental Systems Research Institute, Inc. Redlands, California.

USACOE (U.S. Army Corps of Engineers), 1987. *Corps of Engineers Wetlands Delineation Manual*, Wetlands Research Program Technical Report Y-87-1 (online edition), U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi.

USACOE (U.S. Army Corps of Engineers), 1994. *Rocky Flats Plant Wetlands Mapping and Resource Study*, prepared for the U.S. Department of Energy, Golden, Colorado, prepared by the U.S. Army Corps of Engineers, Omaha District, December.

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Rocky Flats Site
2008 Wetland Monitoring
B-Ponds/East Trenches
Wetland Areas
LEGEND
Hydrophytic Vegetation Not Present in 2008
Hydrophytic Vegetation Present in 2008
Road
Open
ATV Only
Truck by Permission
Stream, Ditch, or Other Drainage Feature
Pond B-1
Pond B-2
Pond B-3
East Trenches
1
2
3
4
5
6
7
8
22
N
SCALE IN FEET
150 100 50 0 150
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO
Work Performed by
S.M. Stoller Corporation
Under DOE Contract
No. DE-AC01-07LM00060
DATE PREPARED:
January 21, 2009
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Figure 1

Rocky Flats Site
2008 Wetland Monitoring
C-1 Pond/East Shooting Range
Wetland Areas
LEGEND
Hydrophytic Vegetation Not Present in 2008
Hydrophytic Vegetation Present in 2008
Road
Open
ATV Only
Truck by Permission
Stream, Ditch, or Other Drainage Feature
17
18
19
19
20
21
C-1 Pond
East Shooting Range
N
SCALE IN FEET
150 100 50 0 150
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO
Work Performed by
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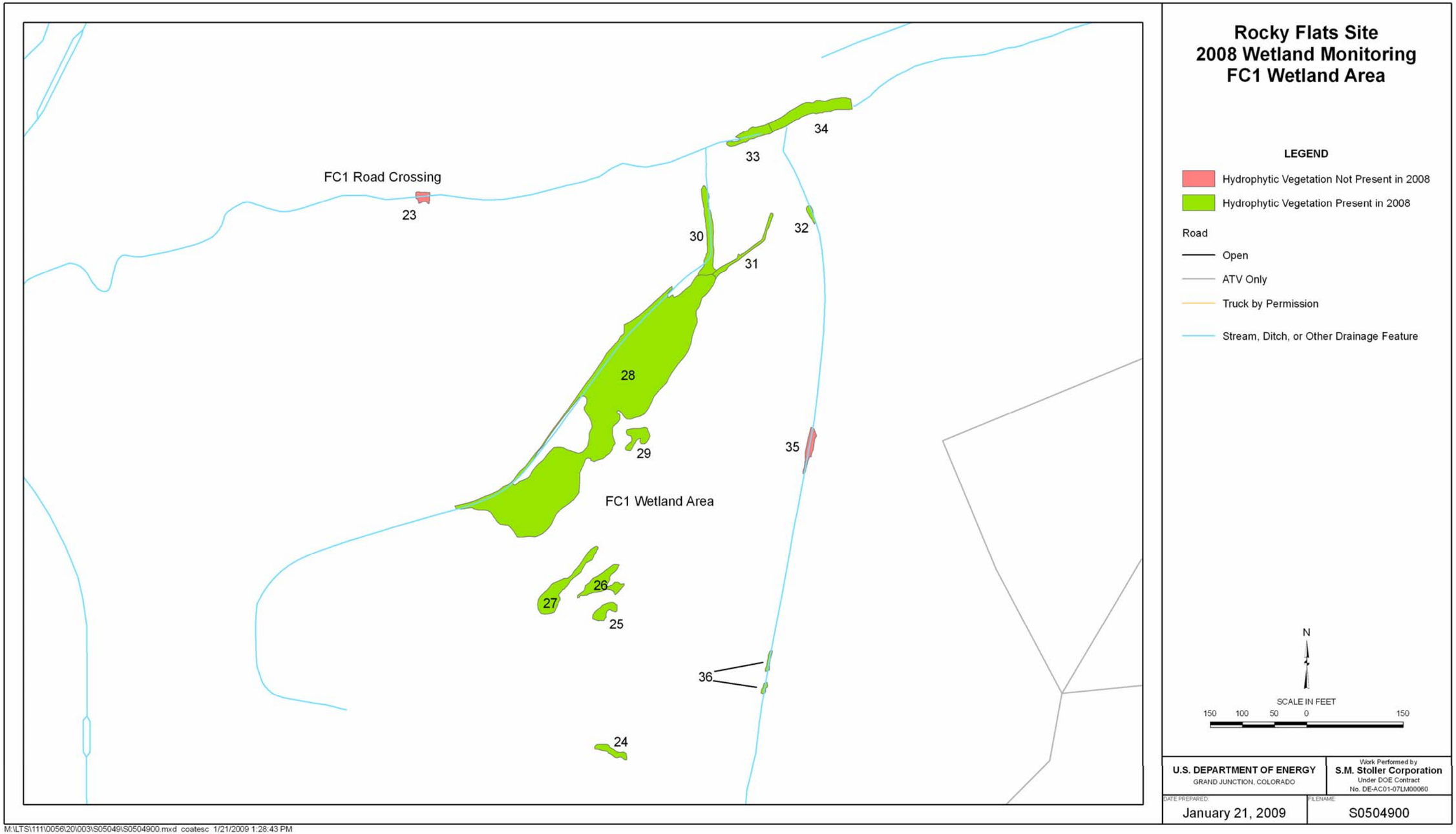
Figure 2


Rocky Flats Site
2008 Wetland Monitoring
FC1 Wetland Area
LEGEND
Hydrophytic Vegetation Not Present in 2008
Hydrophytic Vegetation Present in 2008
Road
Open
ATV Only
Truck by Permission
Stream, Ditch, or Other Drainage Feature
FC1 Road Crossing
FC1 Wetland Area
23
24
25
26
27
28
29
30
31
32
33
34
35
36
N
SCALE IN FEET
150 100 50 0 150
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GRAND JUNCTION, COLORADO
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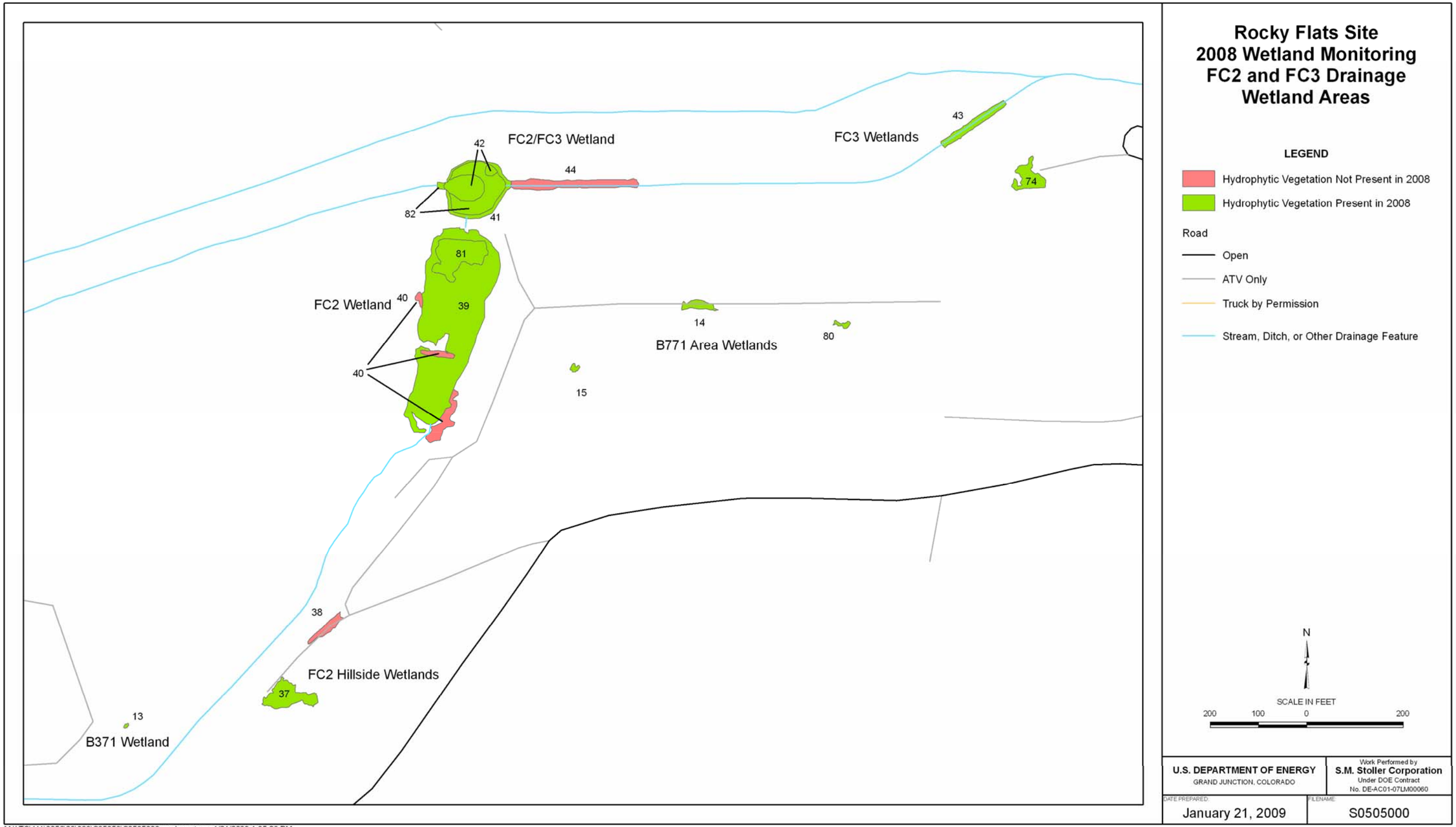
Figure 3


Rocky Flats Site
2008 Wetland Monitoring
FC2 and FC3 Drainage
Wetland Areas
LEGEND
Hydrophytic Vegetation Not Present in 2008
Hydrophytic Vegetation Present in 2008
Road
Open
ATV Only
Truck by Permission
Stream, Ditch, or Other Drainage Feature
N
SCALE IN FEET
200 100 0 200
FC2/FC3 Wetland
FC3 Wetlands
FC2 Wetland
B771 Area Wetlands
FC2 Hillside Wetlands
B371 Wetland
42
44
43
74
82
41
81
40
39
14
80
15
38
37
13
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO
Work Performed by
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No. DE-AC01-07LM00060
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Figure 4

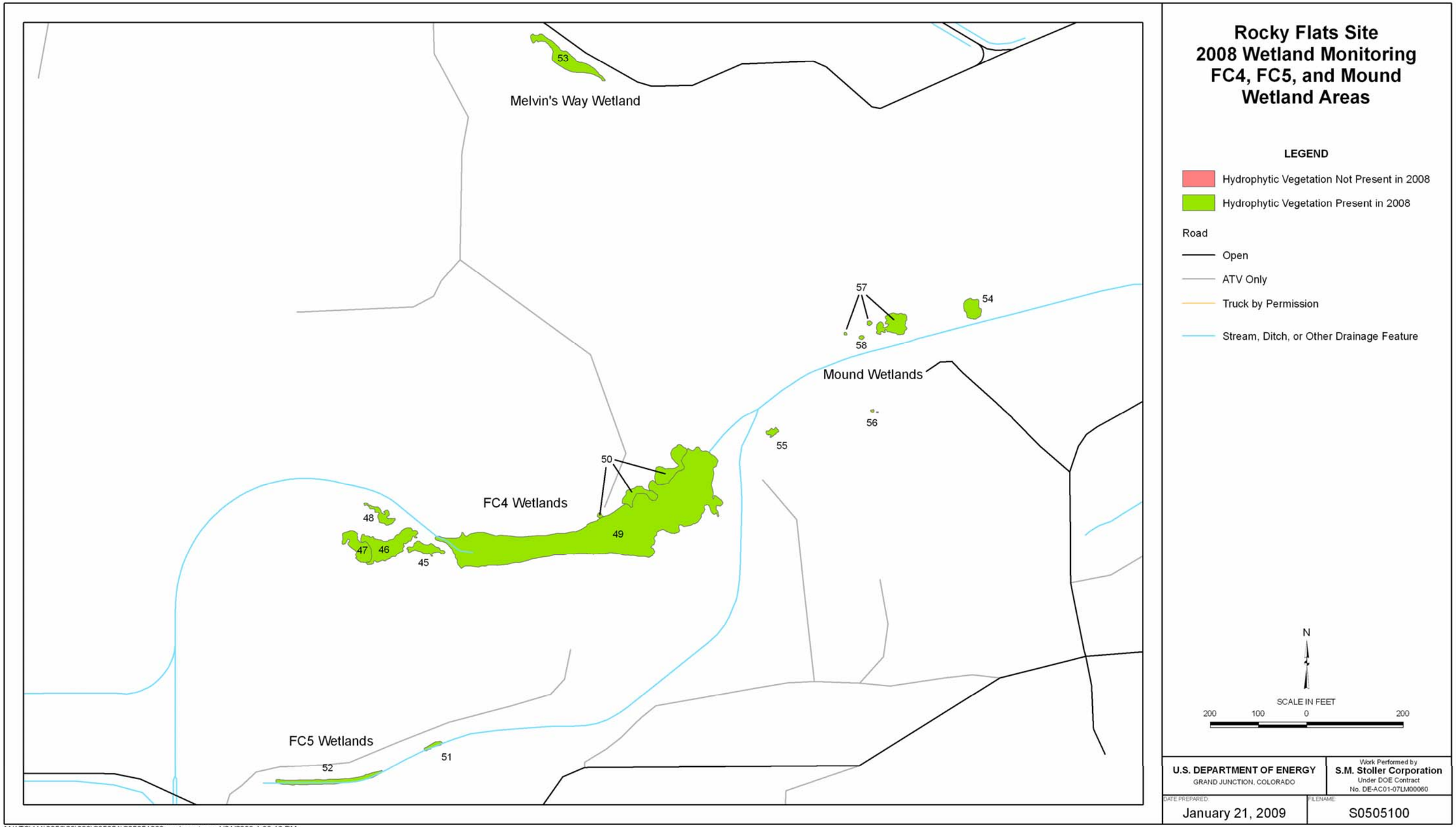
Rocky Flats Site
2008 Wetland Monitoring
FC4, FC5, and Mound
Wetland Areas
LEGEND
Hydrophytic Vegetation Not Present in 2008
Hydrophytic Vegetation Present in 2008
Road
Open
ATV Only
Truck by Permission
Stream, Ditch, or Other Drainage Feature
Melvin's Way Wetland
53
Mound Wetlands
57
58
54
56
55
FC4 Wetlands
50
49
48
47
46
45
FC5 Wetlands
52
51
N
SCALE IN FEET
200
100
0
200
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO
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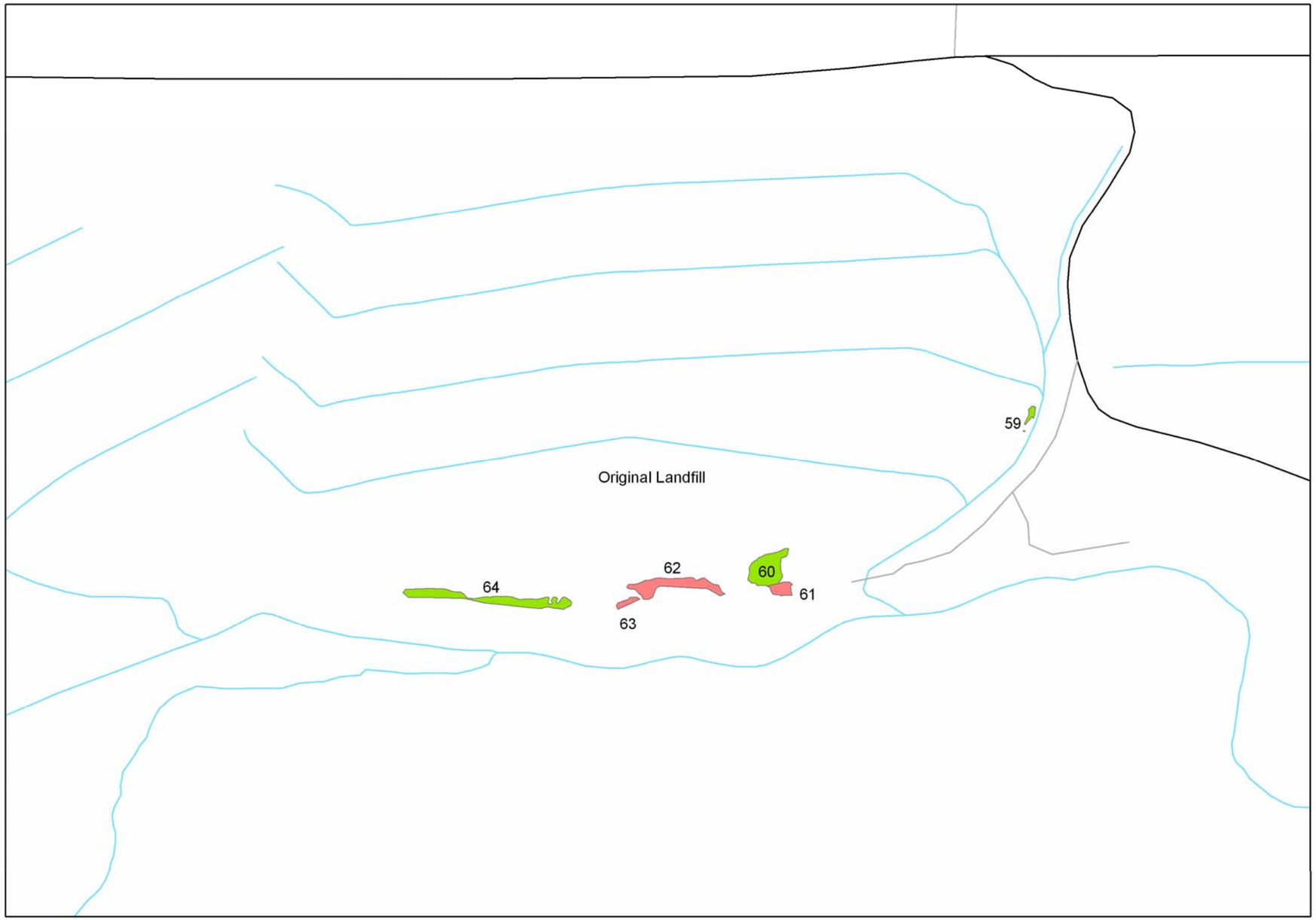
Figure 5



Rocky Flats Site
2008 Wetland Monitoring
Original Landfill
Wetland Areas

LEGEND

Hydrophytic Vegetation Not Present in 2008

Hydrophytic Vegetation Present in 2008

Road

Open

ATV Only

Truck by Permission

Stream, Ditch, or Other Drainage Feature

N

SCALE IN FEET

150 75 0 150

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-07LM00060
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Figure 6

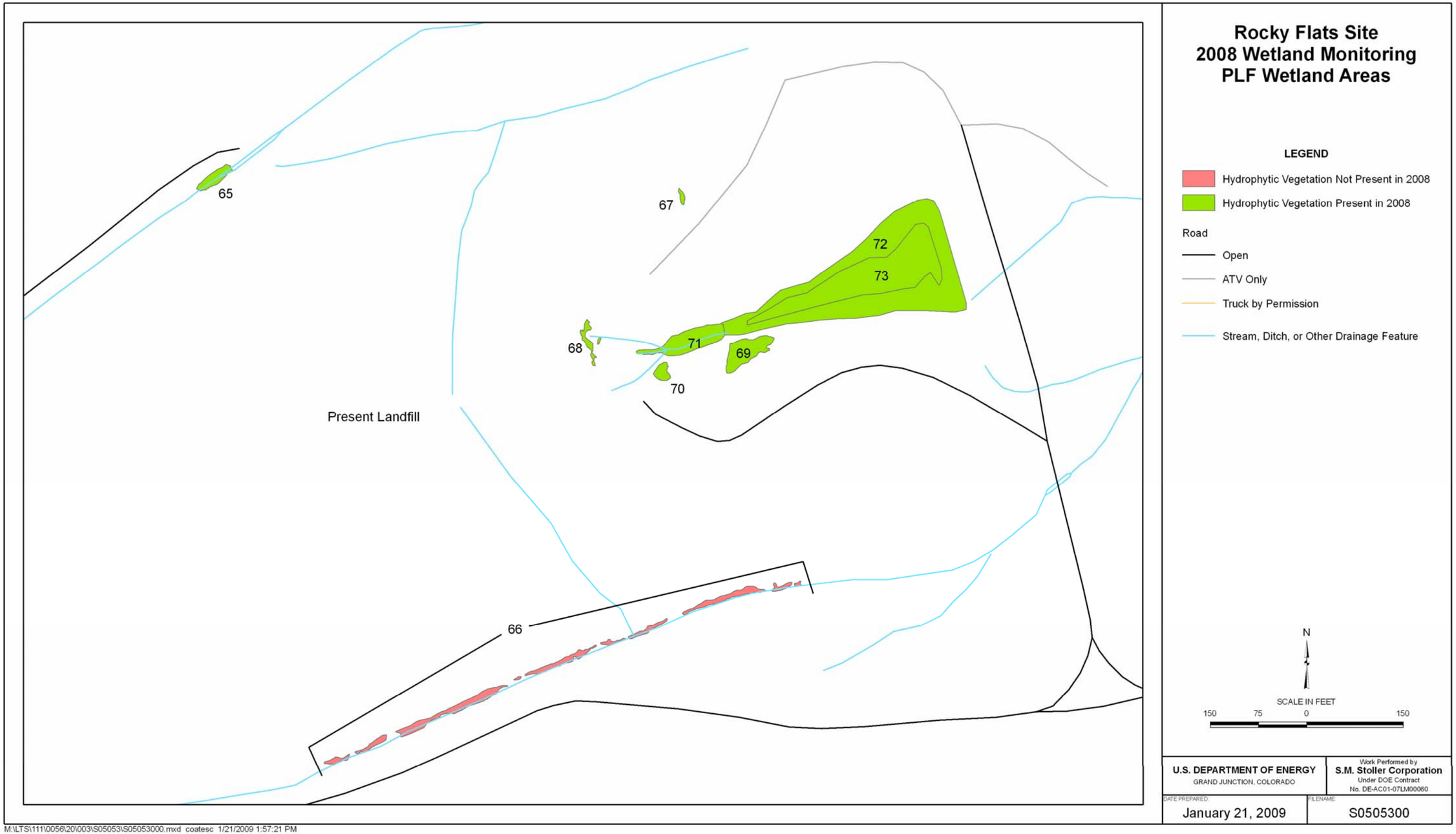
Rocky Flats Site
2008 Wetland Monitoring
PLF Wetland Areas
LEGEND
Hydrophytic Vegetation Not Present in 2008
Hydrophytic Vegetation Present in 2008
Road
Open
ATV Only
Truck by Permission
Stream, Ditch, or Other Drainage Feature
65
67
72
73
68
71
69
70
Present Landfill
66
N
SCALE IN FEET
150
75
0
150
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO
Work Performed by
S.M. Stoller Corporation
Under DOE Contract
No. DE-AC01-07LM00060
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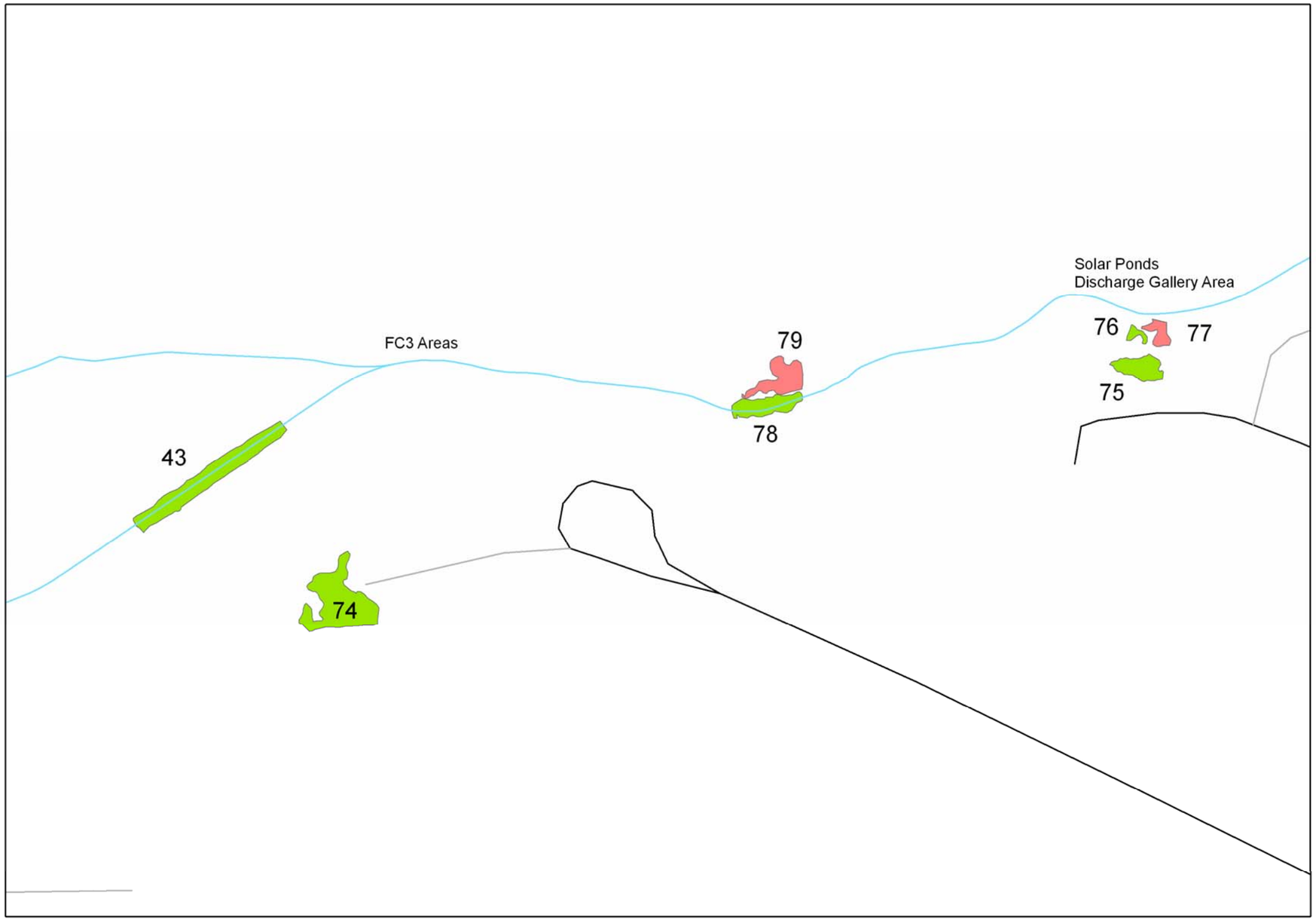
Figure 7



Rocky Flats Site
2008 Wetland Monitoring
Solar Ponds Discharge Gallery
and Nearby Wetland Areas

LEGEND

Hydrophytic Vegetation Not Present in 2008

Hydrophytic Vegetation Present in 2008

Road

Open

ATV Only

Truck by Permission

Stream, Ditch, or Other Drainage Feature

N

SCALE IN FEET

100 50 0 100

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by **S.M. Stoller Corporation** Under DOE Contract No. DE-AC01-07LM00060
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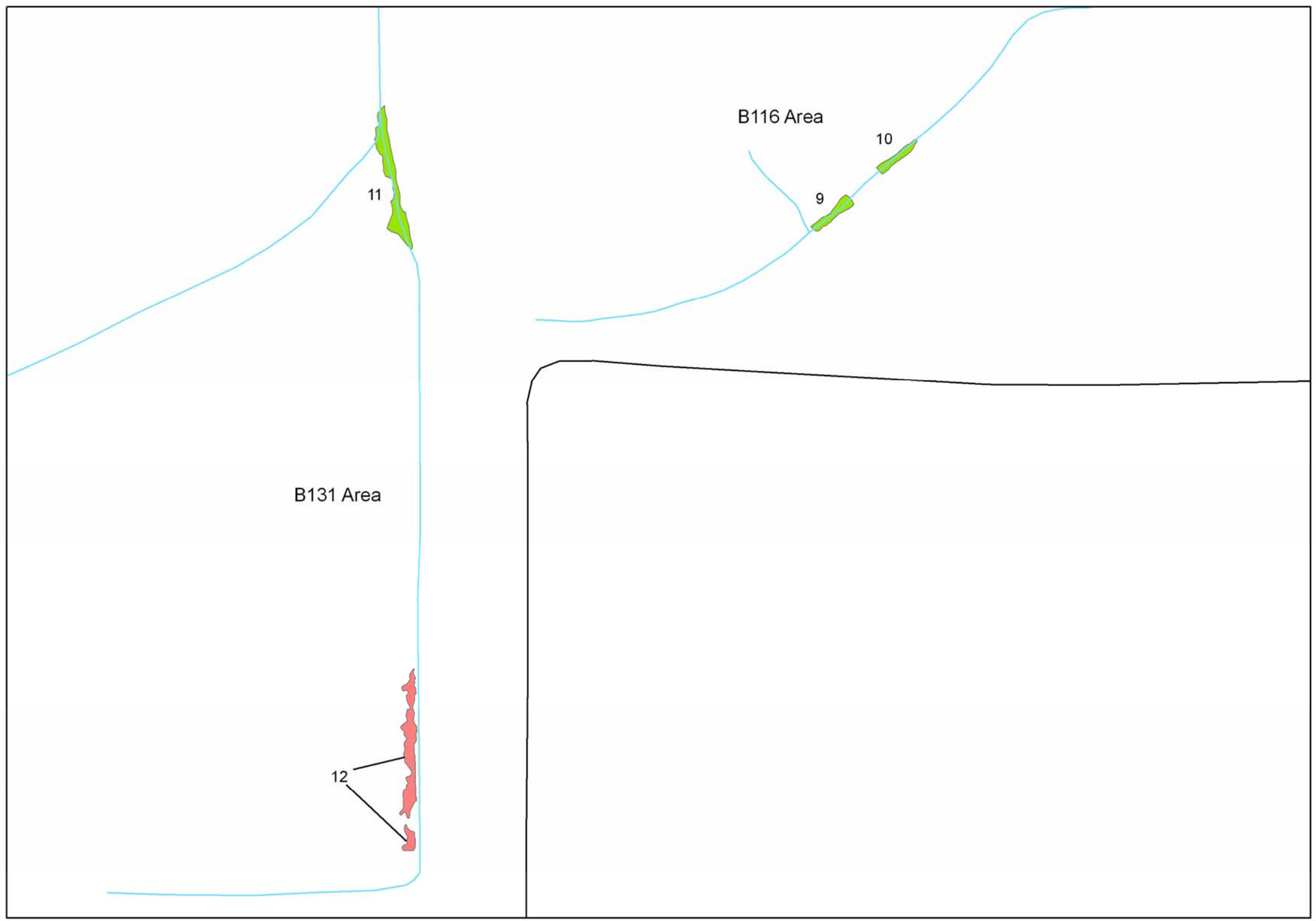
Figure 8



Rocky Flats Site
2008 Wetland Monitoring
B116/B131 Wetland Areas

LEGEND

Hydrophytic Vegetation Not Present in 2008

Hydrophytic Vegetation Present in 2008

Road

Open

ATV Only

Truck by Permission

Stream, Ditch, or Other Drainage Feature

N

SCALE IN FEET

150 100 50 0 150

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by **S.M. Stoller Corporation** Under DOE Contract No. DE-AC01-07LM00060
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Figure 9

Rocky Flats Site
2008 Wetland Monitoring
B881 Wetland Area

LEGEND

Hydrophytic Vegetation Not Present in 2008

Hydrophytic Vegetation Present in 2008

Road

Open

ATV Only

Truck by Permission

Stream, Ditch, or Other Drainage Feature

N

SCALE IN FEET

150 100 50 0 150

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-07LM00060
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Figure 10

Table 1. Seed Mixes Used At Various Wetland Mitigation Areas

B-1 Pond Wetland Seed Mix

Zone	Scientific Name	Common Name	Wetland Designation	% of Mix
1	Carex lanuginosa	Wooly Sedge	OBL	10
	Carex nebrascensis	Nebraska Sedge	OBL	10
	Carex praegracilis	Clustered Beak Sedge	FACW	10
	Carex utriculata	Beaked Sedge	OBL	10
	Eleocharis palustris	Spikerush	OBL	10
	Juncus tenuis	Poverty Rush	FAC	10
	Junus torreyi	Torrey's Rush	FACW	10
	Panicum virgatum var. nebraska 28	Switchgrass	FAC	10
	Scirpus americanus	Three-Square Bulrush	OBL	10
	Spartina pectinata	Prairie Cordgrass	FACW	10
2	Agrostis scabra	Hair Grass	FAC	5
	Carex lanuginosa	Wooly Sedge	OBL	10
	Carex praegracilis	Clustered Beak Sedge	FACW	10
	Eleocharis palustris	Spikerush	OBL	10
	Elymus canadensis	Canada Wildrye	FACU	10
	Elymus trachycaulum var. San Luis	Slender Wheatgrass	FACU	10
	Juncus balticus	Arctic Rush	FACW	10
	Panicum virgatum var. nebraska 28	Switchgrass	FAC	10
	Pascopyrum smithii var. arriba	Western Wheatgrass	FACU	10
	Spartina pectinata	Prairie Cordgrass	FACW	10
	Amorpha fruiticosa	Lead Plant	OBL	5

B-2 Pond Wetland Seed Mix

Zone	Scientific Name	Common Name	Wetland Designation	% of Mix
1	Andropogon gerardii	Big Bluestem	FAC-	15
	Bouteloua gracilis var. hachita	Blue Grama		10
	Elymus canadensis	Canada Wildrye	FACU	20
	Elymus trachycaulus var. san luis	Slender Wheatgrass	FACU	20
	Panicum virgatum var. nebraska 28	Switchgrass	FAC	20
	Pascopyrum smithii var. arriba	Western Wheatgrass	FACU	15
2	Agrostis scabra	Hair Grass	FAC	5
	Carex lanuginosa	Wooly Sedge	OBL	10
	Carex praegracilis	Clustered Beak Sedge	FACW	10
	Eleocharis palustris	Spikerush	OBL	10
	Elymus canadensis	Canada Wildrye	FACU	10
	Elymus trachycaulum var. San Luis	Slender Wheatgrass	FACU	10
	Juncus balticus	Arctic Rush	FACW	10
	Panicum virgatum var. nebraska 28	Switchgrass	FAC	10
	Pascopyrum smithii var. arriba	Western Wheatgrass	FACU	10
	Spartina pectinata	Prairie Cordgrass	FACW	10
	Amorpha fruiticosa	Lead Plant	OBL	5

Table 1. Seed Mixes Used At Various Wetland Mitigation Areas (cont.)

3	Carex lanuginosa	Wooly Sedge	OBL	5
	Carex nebrascensis	Nebraska Sedge	OBL	10
	Carex praegracilis	Clustered Beak Sedge	FACW	5
	Carex utriculata	Beaked Sedge	OBL	10
	Eleocharis palustris	Spikerush	OBL	10
	Juncus tenuis	Poverty Rush	FAC	10
	Junus torreyi	Torrey's Rush	FACW	10
	Panicum virgatum var. nebraska 28	Switchgrass	FAC	10
	Scirpus americanus	Three-Square Bulrush	OBL	20
	Spartina pectinata	Prairie Cordgrass	FACW	10
4	Scirpus americanus	Three-Square Bulrush	OBL	20
	Scirpus validus	Soft-Stem Bulrush	OBL	40
	Scirpus acutus	Hardstem Bulrush	OBL	40

B-3 Pond Wetland Seed Mix

Zone	Scientific Name	Common Name	Wetland Designation	% of Mix
1	Andropogon gerardii	Big Bluestem	FAC-	15
	Bouteloua gracilis var. hachita	Blue Grama		10
	Elymus canadensis	Canada Wildrye	FACU	20
	Elymus trachycaulus var. san luis	Slender Wheatgrass	FACU	20
	Panicum virgatum var. nebraska 28	Switchgrass	FAC	20
	Pascopyrum smithii var. arriba	Western Wheatgrass	FACU	15
2	Not used for B-3 Pond			
3	Carex lanuginosa	Wooly Sedge	OBL	5
	Carex nebrascensis	Nebraska Sedge	OBL	10
	Carex praegracilis	Clustered Beak Sedge	FACW	5
	Carex utriculata	Beaked Sedge	OBL	10
	Eleocharis palustris	Spikerush	OBL	10
	Juncus tenuis	Poverty Rush	FAC	10
	Junus torreyi	Torrey's Rush	FACW	10
	Panicum virgatum var. nebraska 28	Switchgrass	FAC	10
	Scirpus americanus	Three-Square Bulrush	OBL	20
	Spartina pectinata	Prairie Cordgrass	FACW	10
4	Scirpus americanus	Three-Square Bulrush	OBL	20
	Scirpus validus	Soft-Stem Bulrush	OBL	40
	Scirpus acutus	Hardstem Bulrush	OBL	40

Table 1. Seed Mixes Used At Various Wetland Mitigation Areas (cont.)

Functional Channel 1 Wetland Seed Mix

Scientific Name	Common Name	Wetland Designation	% of Mix
Graminoids			
Agrostis scabra	Hair Grass	FAC	10
Carex lanuginosa	Wooly Sedge	OBL	0
Carex nebrascensis	Nebraska Sedge	OBL	5
Carex utriculata	Beaked Sedge	OBL	0
Eleocharis palustris	Longstem Spike Rush	OBL	15
Juncus balticus	Arctic Rush	FACW	10
Juncus torreyi	Torrey's Rush	FACW	15
Scirpus acutus	Hard-stem Bulrush	OBL	7
Scirpus americana	Three-Square	OBL	5
Scirpus validus	Softstem Bulrush	OBL	13
Spartina pectinata	Prairie Cordgrass	FACW	20

Functional Channel 2 and 4 Wetland Seed Mix

Scientific Name	Common Name	Wetland Designation	% of Mix
Calamagrostis canadensis	Bluejoint Reedgrass	OBL	25
Carex nebrascensis	Nebraska Sedge	OBL	10
Eleocharis palustris	Creeping Spikerush	OBL	10
Juncus balticus	Arctic Rush	FACW	15
Poa palustris	Fowl Bluegrass	FACU	10
Schenoplectus pungens	Three Square Bulrush	OBL	20
Spartina pectinata	Prairie Cordgrass	FACW	10

Present Landfill Wetland Seed Mix

Scientific Name	Common Name	Wetland Designation	% of Mix
Graminoids			
Agropyron smithii	Western Wheatgrass	FACU	15
Agropyron trachycaulum	Slender Wheatgrass	FACU	15
Agrostis scabra	Hair Grass	FAC	6
Carex nebrascensis	Nebraska Sedge	OBL	5
Eleocharis palustris	Longstem Spike Rush	OBL	5
Elymus canadensis	Canada Wildrye	FACU	10
Juncus balticus	Baltic Rush	OBL	5
Panicum virgatum	Switchgrass	FAC	10
Scirpus acutus	Hard-Stem Bulrush	OBL	6
Scirpus pungens	Three-Square Bulrush	OBL	6
Scirpus validus	Great Bulrush	OBL	6
Spartina pectinata	Prairie Cordgrass	FACW	10
Shrubs			
Amorpha fruticosa	Lead Plant	OBL	1

Table 1. Seed Mixes Used At Various Wetland Mitigation Areas (cont.)

Wetland Seed Mix Used Since 2006

Scientific Name	Common Name	Wetland Designation	% of Mix
Graminoids			
Agrostis scabra	Hair Grass	FAC	10
Carex nebrascensis	Nebraska Sedge	OBL	5
Eleocharis palustris	Longstem Spike Rush	OBL	15
Juncus balticus	Arctic Rush	FACW	10
Juncus torreyi	Torrey's Rush	FACW	15
Scirpus acutus	Hard-stem Bulrush	OBL	7
Scirpus americana	Three-Square	OBL	5
Scirpus validus	Softstem Bulrush	OBL	13
Spartina pectinata	Prairie Cordgrass	FACW	20

Riparian Seed Mix

Scientific Name	Common Name	Wetland Designation	% of Mix
Graminoids			
Agropyron smithii	Western Wheatgrass	FACU	15
Agropyron trachycaulum	Slender Wheatgrass	FACU	20
Andropogon gerardii	Big Bluestem	FAC-	15
Bouteloua gracilis	Blue Grama		10
Elymus canadensis	Canada Wildrye	FACU	20
Panicum virgatum	Switchgrass	FAC	20

Flat Areas Seed Mix

Scientific Name	Common Name	Wetland Designation	% of Mix
Graminoids			
Agropyron smithii	Western Wheatgrass	FACU	20
Agropyron trachycaulum	Slender Wheatgrass	FACU	10
Andropogon gerardii	Big Bluestem	FAC-	10
Andropogon scoparius	Little Bluestem		8
Bouteloua curtipendula	Side-Oats Grama		15
Bouteloua gracilis	Blue Grama		15
Buchloe dactyloides	Buffalo Grass	FACU	5
Koleria pyrimidata	June Grass		3
Sorghastrum nutans	Indian Grass	FACU	2
Sporobolus cryptandra	Sand Dropseed	FACU-	7
Stipa viridula	Green Needlegrass		5

Table 2. USACOE and EPA Final Jurisdictional Wetland Impacts and Projected Mitigation Acreage Summary for RFETS
1/22/2009

Project Description	Agency	Estimated Temporary Acres Impacted	Estimated Permanent Acres Impacted	Estimated In-Situ Restored Acres	Estimated Mitigation Needed Beyond In-Situ	Estimated Additional Wetland Acres Created	Actual Temporary Acres Impacted *	Actual Permanent Acres Impacted +	Projected In-Situ Wetland Acres Restored @	Projected Additional Wetland Acres Created ^	Comments	GIS File Locations
East Shooting Range Project	EPA	0.022	0.000	0.022	0.000	0.000	0.017	0.000	0.017	0.000	Wetlands issues submitted under modifications to IM/IRA.	* @ = 05-0008: ESR wetland calcs.xls
Original Landfill Project	EPA	0.000	1.240	0.000	1.240	0.000	0.086	1.171	0.086	0.139	Wetland plan submitted with IM/IRA document.	* + @ ^ = 06-0002: OLF wetland impact calcs.xls
Present Landfill Project	EPA	3.045	0.010	3.045	0.010	0.000	0.800	2.131	0.800	0.000	Wetland plan submitted with IM/IRA. Because of outlet works height will now be the maximum height the water can reach, the wetland cannot re-establish to original levels. Therefore there is a loss because of less open water.	* + = 05-0030: PLF wetland impact calcs 062205.xls @ = 05-0041: KHDOE wetland acreage.xls
B-Pond Remediation Project	EPA	2.600	0.000	2.600	0.000	0.000	1.874	0.361	1.874	0.000	Wetlands addressed in RSOP notification. Wetland design has resulted in smaller emergent wetlands with less open water.	* + = 05-0031: Bponds wetland impact calcs.xls @ = 05-0041: KHDOE wetland acreages.xls
East Trenches Project	EPA						0.0002	0.000	0.0002		Actual impacted area = 10 square feet. Project done in 2006. Extended discharge piping a few feet north. Area monitored per EPA direction.	* = 06-0018: EastTrencheswetlandcalc021207.xls
Solar Ponds Discharge Gallery	EPA										Area monitored per EPA direction.	^ = 07-0019
Solar Pond Sump Installation	EPA						0.0009	0.000	0.001		Actual impacted area = ~40 square feet. Project done in fall 2008. Installed sump at SPPTS. Area monitored per EPA direction.	* @ = 09-0001: SPPTSsumpwetlanddisturbance
EPA Subtotal		**5.667**	**1.250**	**5.667**	**1.250**	**0.000**	**2.778**	**3.663**	**2.778**	**0.139**		
C-1 Pond	USACOE	0.400	0.000	0.000	0.000	0.000	0.249	0.002	0.249	0.011		* + @ ^ = 05-0017: C-1 Pond wetland impact calcs.xls
C-2 Pond	USACOE	0.500	0.000	0.500	0.000	0.000	0.500	0.000	0.500	0.000	All disturbance on pond bottom, so assumed will return.	This value was an initial eyeball estimate because the area was all on the pond bottom and is assumed to return. No GIS data was used for the calcs.
Road North of B131	USACOE	0.050	0.000	0.050	0.000	0.030	0.039	0.010	0.039	0.036	Road area assumed to become wetland.	* + @ ^ = 06-0001: B131 wetland impact calcs.xls
Wetland West of Parking Area North of B771 (FC2/FC3 Confluence)	USACOE	0.000	0.120	0.000	0.120	1.310	0.180	0.000	0.180	0.106	Wetland area now larger than originally because final outlet is higher than previously.	* + @ ^ = 05-0027: fc2 3 wetland calcs.xls
Functional Channel 1 (includes North Access Road NW of B371)	USACOE	0.100	0.000	0.100	0.000	1.000	0.005	0.026	0.005	8.435	Road area assumed to become wetland. Also some wetland will be present in drainage to be created to the south. Assumed most of bottom of FC#1 will be wetland.	* + @ ^ = 06-0001: B371NAR wetland impact calcs.xls
Functional Channel 2	USACOE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.085	Acreage created includes only the FC#2 constructed wetland area. Willow area above it not included at this time.	^ = 05-0027: functional channel wetland creation calcs.xls
Functional Channel 3 (Area Near SW093)	USACOE	0.020	0.000	0.020	0.000	0.000	0.000	0.009	0.000	0.098	Acreage created includes only the FC#3 constructed wetland area. Small areas of soil covered riprap counted as wetland since they have water flowing through them or are saturated.	+ = 05-0027: fc3 wetland calcs.xls ^ = 05-0027: functional channel wetland creation calcs.xls
Functional Channel 4 (North Access Road Near WWTP (east and west of road), (B991 and Old Pidas Area)	USACOE	0.134	0.117	0.134	0.117	0.000	0.119	0.117	0.119	1.345	Acreage created includes only the FC#4 constructed wetland area. Areas above the created wetland that are not riprapped will have to wait and see if they become wetlands.	* + @ = 05-0003: fc4 wetland impact calcs.xls ^ = 05-0027: functional channel wetland creation calcs.xls
USACOE Subtotal		**1.204**	**0.237**	**0.804**	**0.237**	**2.340**	**1.092**	**0.164**	**1.092**	**11.116**		
Grand Total		**6.871**	**1.487**	**6.471**	**1.487**	**2.340**	**3.870**	**3.827**	**3.870**	**11.255**		

Does not include any impacts to wetlands associated with water depletion due to cessation of wastewater.

Off-Site Ratios will be 1:1 for the following reasons:
1. Off-site wetlands replace comparable wetlands impacted.
2. Off-site wetlands are close to impacted site (~1 1/2 miles).
3. Off-site wetlands are located in the same stream drainage.

Shaded projects have been GPS'ed after project completion and actual values are final as of 02/12/07.
Most values rounded at third decimal place. Values shown as 0.000 were beyond three decimal places.

Table 3. 2008 Mitigation Wetland Summary

Location	2008 Wetland GIS Number	Acres	Area (Sq. Ft.)	Hydrophytic Vegetetation Present (Y/N)
B-1 Pond A	1	0.51	22167.88	YES
B-1 Pond B	2	0.05	2380.55	YES
B-1 Pond C	3	0.05	2097.61	YES
B-1 Pond C	3	0.002	105.78	YES
B-2 Pond A	4	0.005	214.43	YES
B-2 Pond A	4	0.60	26107.81	YES
B-3 Pond A	6	0.25	10729.02	YES
B-3 Pond B	7	0.14	6307.63	YES
B-3 Pond C	8	0.01	405.96	YES
B-3 Pond C	8	0.10	4244.52	YES
B116 Wetland A	9	0.02	751.69	YES
B116 Wetland B	10	0.01	603.32	YES
B131	11	0.06	2651.22	YES
B371 Hillside Wetland	13	0.002	66.47	YES
B771 N Wetland	14	0.02	991.53	YES
B771 NW Wetland	15	0.005	215.97	YES
B881 Wetland	16	0.16	7036.58	YES
C-1 Pond - A	17	0.02	751.14	YES
C-1 Pond - B	18	0.15	6472.70	YES
C-1 Pond - C	19	0.001	53.32	YES
C-1 Pond - C	19	0.002	106.92	YES
C-1 Pond - D	20	0.02	899.39	YES
East Shooting Range	21	0.02	665.22	YES
East Trenches Wetland	22	0.001	24.28	YES
FC-1 Wetland A	24	0.01	462.12	YES
FC-1 Wetland B	25	0.01	576.06	YES
FC-1 Wetland C	26	0.03	1351.57	YES
FC-1 Wetland D	27	0.04	1954.70	YES
FC-1 Wetland E	28	0.85	36962.74	YES
FC-1 Wetland F	29	0.02	763.69	YES
FC-1 Wetland G	30	0.04	1587.30	YES
FC-1 Wetland H	31	0.01	636.78	YES
FC-1 Wetland I	32	0.004	175.57	YES
FC-1 Wetland J	33	0.02	936.23	YES
FC-1 Wetland K	34	0.05	2247.65	YES
FC-1 Wetland M	36	0.002	101.87	YES
FC-1 Wetland M	36	0.003	143.50	YES
FC-2 Hillside Wetland A	37	0.09	3821.96	YES
FC-2 Wetland A	39	0.88	38290.39	YES
FC-2/FC-3 Confluence A	41	0.05	2237.23	YES
FC-2/FC-3 Confluence B	42	0.08	3423.78	YES
FC-2/FC-3 Confluence B	42	0.01	421.42	YES
FC-3 Lower Wetland	43	0.05	2358.57	YES
FC-4 Hillside Wetland A	45	0.03	1135.70	YES
FC-4 Hillside Wetland B	46	0.09	3885.54	YES
FC-4 Hillside Wetland C	47	0.05	2105.40	YES
FC-4 Hillside Wetland D	48	0.02	859.25	YES
FC-4 Wetland A	49	1.03	44851.18	YES
FC-4 Wetland B	50	0.002	84.09	YES
FC-4 Wetland B	50	0.03	1324.69	YES
FC-4 Wetland B	50	0.05	2344.82	YES
FC-5 East Wetland	51	0.01	290.09	YES
FC-5 West Wetland	52	0.05	1989.43	YES
Melvin's Way Wetland	53	0.07	3212.70	YES
Mound East Wetland	54	0.03	1184.01	YES
Mound SW Wetland	55	0.01	283.39	YES
Mound Well Wetland	56	0.0001	4.25	YES
Mound Well Wetland	56	0.001	31.58	YES
Mound West Wetland	57	0.04	1947.72	YES
Mound West Wetland	57	0.001	28.91	YES
Mound West Wetland	57	0.002	74.07	YES
Mound W-W Wetland	58	0.001	63.82	YES
OLF - Wetland A	59	0.0001	2.90	YES
OLF - Wetland A	59	0.003	150.93	YES
OLF - Wetland B	60	0.04	1685.68	YES
OLF - Wetland F	64	0.05	2250.15	YES
PLF - N Channel	65	0.02	893.60	YES
PLF - E Face North Wetland	67	0.003	138.33	YES
PLF - E Face West Wetland	68	0.01	461.29	YES
PLF - E Face West Wetland	68	0.001	36.67	YES
PLF - SAEX1 Area	69	0.05	2248.21	YES
PLF - SW Hillside Wetland	70	0.01	495.57	YES
PLF Pond A	71	0.07	3106.56	YES
PLF Pond B	72	0.49	21421.76	YES
PLF Pond C	73	0.31	13355.75	YES
SPPTS Well Wetland	74	0.06	2395.89	YES
SPDG - Wetland A	75	0.02	712.63	YES
SPDG - Wetland B	76	0.003	138.37	YES
SW093 - Wetland A	78	0.02	873.25	YES
Bowman Pond/B771 Wetland	80	0.01	267.47	YES
FC-2 Wetland C	81	0.14	6157.52	YES
FC-2/FC-3 Confluence C	82	0.15	6385.15	YES
FC-2/FC-3 Confluence C	82	0.005	200.56	YES
Total Area w/ Hydrophytic Vegetation in 2008		7.428		
Excluding the Solar Pond Discharge Gallery and East Trenches Areas		7.408		

Table 3. 2008 Mitigation Wetland Summary (cont.)

Location	2008 Wetland GIS Number	Acres	Area (Sq. Ft.)	Hydrophytic Vegetetation Present (Y/N)
B-2 Pond B	5	0.06	2461.29	NO
B131 SAEX1 Area	12	0.01	360.78	NO
B131 SAEX1 Area	12	0.05	2311.61	NO
FC-1 Road Crossing	23	0.01	324.09	NO
FC-1 Wetland L	35	0.01	565.91	NO
FC-2 Hillside Wetland B	38	0.03	1172.37	NO
FC-2 Wetland B	40	0.01	292.30	NO
FC-2 Wetland B	40	0.05	2181.66	NO
FC-2 Wetland B	40	0.02	715.86	NO
FC-3 Upper Wetland	44	0.10	4477.60	NO
OLF - Wetland C	61	0.01	437.79	NO
OLF - Wetland D	62	0.04	1650.00	NO
OLF - Wetland E	63	0.00	201.96	NO
PLF - S Channel	66	0.01	241.72	NO
PLF - S Channel	66	0.01	329.08	NO
PLF - S Channel	66	0.04	1739.52	NO
PLF - S Channel	66	0.00	33.92	NO
PLF - S Channel	66	0.02	784.65	NO
PLF - S Channel	66	0.00	147.73	NO
PLF - S Channel	66	0.01	342.28	NO
PLF - S Channel	66	0.02	925.07	NO
PLF - S Channel	66	0.00	205.15	NO
PLF - S Channel	66	0.00	57.24	NO
SPDG - Wetland C	77	0.01	323.10	NO
SW093 - Wetland B	79	0.02	954.92	NO
Total Area w/out Hydrophytic Vegetation in 2007		0.533		
Excluding the Solar Pond Discharge Gallery Areas		0.526		

Total Potential Mitigation Wetland Area	7.93
Total Potential Wetland Area	7.96

NOTE: The hydrophytic vegetation determination is based on the application of the 50/20 Rule for determining dominant plant species in wetlands.

The Solar Ponds Discharge Gallery and East Trenches areas are excluded from the mitigation totals because they are not mitigation wetlands.

Table 4. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 1		GIS 2		GIS 3		GIS 4		GIS 5		GIS 6		GIS 7		GIS 8	
					B-1 Pond A		B-1 Pond B		B-1 Pond C		B-2 Pond A		B-2 Pond B		B-3 Pond A		B-3 Pond B		B-3 Pond C	
Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)
Herbaceous Species																				
Chenopodium sp.	CHE1	F									20.0	21.3			0.3	0.3				
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N						0.3	0.3										
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC					0.3	0.3										
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N						0.3	0.3					0.3	0.3				
Centaurea diffusa Lam.	CEDI1	F	N		0.3	0.3														
Cichorium intybus L.	CIIN1	F	N	NI																
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU	1.0	1.3	5.0	13.8			1.0	1.1	2.0	4.0	1.0	1.4			25.0	34.4
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL															0.3	0.3
Conium maculatum L.	COMA1	F	N	FACW																
Convolvulus arvensis L.	COAR1	F	N																	
Cynoglossum officinale L.	CYOF1	F	N	NI			0.3	0.7	0.3	0.3										
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N																	
Erodium cicutarium (L.) L'Her.	ERCI1	F	N																	
Hypericum perforatum L.	HYPE1	F	N				0.3	0.7											0.3	0.3
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU	1.0	1.3			1.0	1.0	2.0	2.1			0.3	0.3				
Lactuca serriola L.	LASE1	F	N	FAC	0.3	0.3			0.3	0.3					0.3	0.3				
Lepidium campestre (L.) R. Br.	LECA1	F	N																	
Linaria dalmatica (L.) Mill.	LIDA1	F	N										0.3	0.5						
Lotus corniculatus L.	LOCO1	F	N	FACU																
Medicago lupulina L.	MELU1	F	N	FAC																
Melilotus alba Medic.	MEAL1	F	N	FACU																
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU															4.0	5.5
Nepeta cataria L.	NECA1	F	N	FACU			0.3	0.7	0.3	0.3									0.3	0.3
Oxalis dillenii Jacq.	OXDI1	F	N	NI																
Plantago lanceolata L.	PLLA1	F	N	FAC							0.3	0.3								
Plantago major L.	PLMA1	F	N	FAC																
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI	0.3	0.3					0.3	0.3								
Polygonum persicaria L.	POPE2	F	N	OBL							0.3	0.3								
Rumex crispus L.	RUCR1	F	N	FACW																
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU	0.3	0.3														
Scorzonera laciniata L.	SCLA1	F	N																	
Sisymbrium altissimum L.	SIAL1	F	N	FACU					0.3	0.3										
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC							0.3	0.3								
Taraxacum officinale Weber	TAOF1	F	N	FACU																
Thlaspi arvense L.	THAR1	F	N	FACU																
Tragopogon dubius Scop.	TRDU1	F	N																	
Trifolium pratense L.	TRPR1	F	N	FACU																
Verbascum blattaria L.	VEBL1	F	N	UPL			0.3	0.7	0.3	0.3										
Verbascum thapsus L.	VETH1	F	N	NI			1.0	2.8	1.0	1.0			0.3	0.5					0.3	0.3
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL																
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU																
Agrostis scabra Willd.	AGSC1	F	Y	FAC																
Alisma trivale Pursh	ALTR1	F	Y	NI																
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU	0.3	0.3									0.3	0.3				
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC			1.0	2.8											0.3	0.3
Apocynum cannabinum L.	APCA1	F	Y	FAC																
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-																
Asclepias speciosa Torr.	ASSP1	F	Y	FAC			0.3	0.7												
Asclepias viridiflora Raf.	ASVI1	F	Y																	
Aster falcatus Lindl.	ASFA1	F	Y	FAC			8.0	22.1	0.3	0.3									0.3	0.3
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI	0.3	0.3														
Aster porteri Gray	ASPO1	F	Y	NI																
Ceratophyllum demersum L.	CEDE1	F	Y	OBL																
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU																
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-																
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y																	
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y						0.3	0.3										
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL																
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU							0.3	0.3								
Euphorbia serpyllifolia Pers.	EUSE1	F	Y																	
Gaura parviflora Dougl.	GAPA1	F	Y	UPL			0.3	0.7												
Geum macrophyllum Willd.	GEMA1	F	Y	OBL															0.3	0.3
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU									0.3	0.5					0.3	0.3
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-	0.3	0.3														
Helianthus annuus L.	HEAN1	F	Y	FACU	0.3	0.3									0.3	0.3				
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL															0.3	0.3
Lythrum alatum Pursh.	LYAL1	F	Y	OBL																
Mentha arvensis L.	MEAR1	F	Y	FACW																
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI			0.3	0.7	0.3	0.3			0.3	0.5					0.3	0.3
Potamogeton natans L.	PONA1	F	Y	OBL																
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI			0.3	0.7												

Table 4. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 1		GIS 2		GIS 3		GIS 4		GIS 5		GIS 6		GIS 7		GIS 8	
					B-1 Pond A		B-1 Pond B		B-1 Pond C		B-2 Pond A		B-2 Pond B		B-3 Pond A		B-3 Pond B		B-3 Pond C	
Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y						0.3	0.3										
Solidago canadensis L.	SOCA1	F	Y	FACU															0.3	0.3
Solidago missouriensis Nutt.	SOMI1	F	Y																	
Spergularia media (L.) Presl.	SPME1	F	Y																	
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU																
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU																
Xanthium strumarium L.	XAST1	F	Y	FAC											0.3	0.3			0.3	0.3
Scirpus sp.	SCI1	G																		
Agropyron intermedium (Host) Beauv.	AGIN1	G	N																	
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC																
Agrostis stolonifera L.	AGST1	G	N	FACW	0.3	0.3	0.3	0.7			0.3	0.3								
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU			10.0	27.6	10.0	10.4			0.3	0.5						
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU	0.3	0.3														
Dactylis glomerata L.	DAGL1	G	N	FACU																
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW	0.3	0.3					0.3	0.3			0.3	0.3			0.3	0.3
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N																	
Festuca pratensis Huds.	FEPR1	G	N	FAC																
Phleum pratense L.	PHPR1	G	N	FACU																
Poa compressa L.	POCO1	G	N	FACU																
Poa pratensis L.	POPR1	G	N	FACU																
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL							0.3	0.3			0.3	0.3				
Setaria viridis (L.) Beauv.	SEVI1	G	N																	
Typha angustifolia L.	TYAN1	G	N	OBL											2.0	2.8				
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU	0.3	0.3							0.3	0.5					1.0	1.4
Agropyron smithii Rydb.	AGSM1	G	Y	FACU	2.0	2.5					15.0	16.0			0.3	0.3				
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-															0.3	0.3
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y																	
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y																0.3	0.3
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU																
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL																
Carex lanuginosa Michx.	CALA1	G	Y	OBL					1.0	1.0										
Carex nebrascensis Dew.	CANE1	G	Y	OBL																
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW																
Carex simulata Mack.	CASI1	G	Y	NI																
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI							0.3	0.3								
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL	5.0	6.3					3.0	3.2	4.0	8.1	3.0	4.2			3.0	4.1
Elymus canadensis L.	ELCA1	G	Y	FACU							2.0	2.1	40.0	80.8					15.0	20.6
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI																
Hordeum jubatum L.	HOJU1	G	Y	FACW	0.3	0.3					0.3	0.3			0.3	0.3				
Juncus balticus Willd.	JUBA1	G	Y	FACW			4.0	11.0	80.0	83.3										
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC																
Juncus longistylis Torr.	JULO1	G	Y	FACW																
Juncus torreyi Cov.	JUTO1	G	Y	FACW	0.3	0.3					0.3	0.3	0.3	0.5	0.3	0.3			0.3	0.3
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL																
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW																
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW																
Panicum capillare L.	PACA1	G	Y	FAC																
Panicum virgatum L.	PAVI1	G	Y	FAC	1.0	1.3							0.3	0.5	0.3	0.3			20.0	27.5
Phalaris arundinacea L.	PHAR1	G	Y	FACW+																
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL	0.3	0.3							0.3	0.5						
Scirpus pungens Vahl	SCPU1	G	Y	OBL											7.0	9.7			0.3	0.3
Scirpus validus Vahl.	SCVA1	G	Y	OBL	1.0	1.3					2.0	2.1			15.0	20.8	0.3	50.0	0.3	0.3
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU																
Spartina pectinata Link	SPPE1	G	Y	FACW	0.3	0.3					1.0	1.1	0.3	0.5	1.0	1.4				
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU																
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-																
Sporobolus neglectus Nash	SPNE1	G	Y	UPL																
Triglochin maritima L.	TRMA1	G	Y	OBL																
Typha latifolia L.	TYLA1	G	Y	OBL	65.0	81.3	5.0	13.8			45.0	48.0	1.0	2.0	40.0	55.4	0.3	50.0	0.3	0.3
Shrub Species																				
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW							0.3	20.0			0.3	4.8				
Amorpha fruticosa L.	AMFR1	S	Y	OBL																
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU															1.0	1.3
Rosa arkansana Porter	ROAR1	S	Y	FACU																
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL			85.0	94.4	0.3	20.0	1.0	80.0	90.0	97.8	5.0	95.2			75.0	96.2
Salix irrorata Andersson	SAIR1	S	Y	NI																
Salix lutea Nutt.	SALU1	S	Y	FACW																
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI			5.0	5.6	1.0	80.0			2.0	2.2					2.0	2.6
Tree Species																				
Elaeagnus angustifolia L.	ELAN1	T	N	FAC																
Populus x acuminata Rydb.	POAC1	T	Y	FAC																
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC	0.3	50.0					0.3	50.0							0.3	11.1

Table 4. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 1		GIS 2		GIS 3		GIS 4		GIS 5		GIS 6		GIS 7		GIS 8	
					B-1 Pond A		B-1 Pond B		B-1 Pond C		B-2 Pond A		B-2 Pond B		B-3 Pond A		B-3 Pond B		B-3 Pond C	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL	0.3	50.0														
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW							0.3	50.0							2.0	88.9
Cover Summary																				
Total Herbaceous Foliar Cover					80.0	100.0	36.3	100.0	96.0	100.0	93.8	100.0	49.5	100.0	72.3	100.0	0.5	100.0	72.8	100.0
Total Herbaceous Forb Cover					4.0	5.0	17.0	46.9	5.0	5.2	24.3	25.9	3.0	6.1	2.8	3.8	0.0	0.0	32.0	44.0
Total Native Herbaceous Forb Cover					1.0	1.3	10.0	27.6	1.0	1.0	0.3	0.3	0.5	1.0	0.8	1.0	0.0	0.0	2.0	2.7
Total Non-Native Forb Cover					3.0	3.8	7.0	19.3	4.0	4.2	4.0	4.3	2.5	5.1	1.8	2.4	0.0	0.0	30.0	41.2
Total Graminoid Cover					76.0	95.0	19.3	53.1	91.0	94.8	69.5	74.1	46.5	93.9	69.5	96.2	0.5	100.0	40.8	56.0
Total Native Graminoid Cover					75.3	94.1	9.0	24.8	81.0	84.4	68.8	73.3	46.3	93.4	67.0	92.7	0.5	100.0	40.5	55.7
Total Non-Native Graminoid Cover					0.8	0.9	10.3	28.3	10.0	10.4	0.8	0.8	0.3	0.5	2.5	3.5	0.0	0.0	0.3	0.3
Total Native Herbaceous Cover					76.3	95.3	19.0	52.4	82.0	85.4	69.0	73.6	46.8	94.4	67.8	93.8	0.5	100.0	42.5	58.4
Total Non-Native Herbaceous Cover					3.8	4.7	17.3	47.6	14.0	14.6	4.8	5.1	2.8	5.6	4.3	5.9	0.0	0.0	30.3	41.6
Total Shrub Cover					0.0	0.0	90.0	100.0	1.3	100.0	1.3	100.0	92.0	100.0	5.3	100.0	0.0	0.0	78.0	100.0
Total Native Shrub Cover					0.0	0.0	90.0	100.0	1.3	100.0	1.0	80.0	92.0	100.0	5.0	95.2	0.0	0.0	78.0	100.0
Total Non-Native Shrub Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.3	20.0	0.0	0.0	0.3	4.8	0.0	0.0	0.0	0.0
Total Tree Cover					0.5	100.0	0.0	0.0	0.0	0.0	0.5	100.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	100.0
Total Native Tree Cover					0.5	100.0	0.0	0.0	0.0	0.0	0.5	100.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	100.0
Total Non-Native Tree Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)																				
Wetland Indicator				**Wetland Indicator Code**																
Obligate Species				OBL		1		2		1		2		1		3		2		1
Facultative Wet Species				FACW						1		2								1
Facultative Species				FAC		1		1				1								1
Facultative Species				FAC-																
Facultative Upland Species				FACU				2						1						2
Facultative Upland Species				FACU-																
Upland Species				UPL		1														
Non-Indicator Species				NI						1										
Not Applicable/Available - Not listed in USFWS species lists				NA																
Unknown												1								
% Vegetation Hydrophytic (OBL, FACW, FAC)						67		60		67		83		50		100		100		60
Hydrophytic Vegetation is Present (Y/N)						Y		Y		Y		Y		N		Y		Y		Y

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 5. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 9		GIS 10		GIS 11		GIS 12		GIS 13		GIS 14		GIS 15		GIS 16		GIS 17	
					B116 Wetland A		B116 Wetland B		B131 Wetland		B131 SAEX1 Area		B371 Hillside Wetland		B771 N Wetland		B771 NW Wetland		B881 Wetland		C-1 Pond - A	
Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)
Herbaceous Species																						
Chenopodium sp.	CHE1	F																				
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N								3.0	5.4										
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC																		
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N																			
Centaurea diffusa Lam.	CEDI1	F	N		0.3	1.4					3.0	5.4			0.3	0.5					0.3	0.2
Cichorium intybus L.	CIIN1	F	N	NI																		
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU	0.3	1.4	0.3	0.7	0.3	0.7	20.0	35.9			0.3	0.5			3.0	3.2	5.0	4.7
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL																		
Conium maculatum L.	COMA1	F	N	FACW																		
Convolvulus arvensis L.	COAR1	F	N								0.3	0.4			2.0	4.3						
Cynoglossum officinale L.	CYOF1	F	N	NI																		
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N																			
Erodium cicutarium (L.) L'Her.	ERCI1	F	N								0.3	0.4										
Hypericum perforatum L.	HYPE1	F	N																			
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU					0.3	0.7	0.3	0.4			0.3	0.5	8.0	15.0	0.3	0.3		
Lactuca serriola L.	LASE1	F	N	FAC	0.3	1.4	0.3	0.7	0.3	0.7	0.3	0.4										
Lepidium campestre (L.) R. Br.	LECA1	F	N																			
Linaria dalmatica (L.) Mill.	LIDA1	F	N																			
Lotus corniculatus L.	LOCO1	F	N	FACU																		
Medicago lupulina L.	MELU1	F	N	FAC																		
Melilotus alba Medic.	MEAL1	F	N	FACU	0.3	1.4	0.3	0.7											0.3	0.3		
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU					0.3	0.7	0.3	0.4			0.3	0.5						
Nepeta cataria L.	NECA1	F	N	FACU																		
Oxalis dillenii Jacq.	OXDI1	F	N	NI																		
Plantago lanceolata L.	PLLA1	F	N	FAC	0.3	1.4			0.3	0.7	0.3	0.4			0.3	0.5						
Plantago major L.	PLMA1	F	N	FAC			0.3	0.7	0.3	0.7												
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI																		
Polygonum persicaria L.	POPE2	F	N	OBL					0.3	0.7												
Rumex crispus L.	RUCR1	F	N	FACW																		
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU																		
Scorzonera laciniata L.	SCLA1	F	N								0.3	0.4										
Sisymbrium altissimum L.	SIAL1	F	N	FACU																		
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC																		
Taraxacum officinale Weber	TAOF1	F	N	FACU																		
Thlaspi arvense L.	THAR1	F	N	FACU																		
Tragopogon dubius Scop.	TRDU1	F	N								0.3	0.4										
Trifolium pratense L.	TRPR1	F	N	FACU																		
Verbascum blattaria L.	VEBL1	F	N	UPL																		
Verbascum thapsus L.	VETH1	F	N	NI																		
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL																		
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU																		
Agrostis scabra Willd.	AGSC1	F	Y	FAC					0.3	0.7									0.3	0.3		
Alisma trivale Pursh	ALTR1	F	Y	NI																		
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU					0.3	0.7									0.3	0.3		
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC			0.3	0.7			0.3	0.4									1.0	0.9
Apocynum cannabinum L.	APCA1	F	Y	FAC																		
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-					0.3	0.7												
Asclepias speciosa Torr.	ASSP1	F	Y	FAC							0.3	0.4							0.3	0.3		
Asclepias viridiflora Raf.	ASVI1	F	Y																0.3	0.3		
Aster falcatus Lindl.	ASFA1	F	Y	FAC															0.3	0.3		
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI																		
Aster porteri Gray	ASPO1	F	Y	NI															0.3	0.3		
Ceratophyllum demersum L.	CEDE1	F	Y	OBL																		
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU																		
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-																		
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y																0.3	0.3		
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y																			
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL																		
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU																		
Euphorbia serpyllifolia Pers.	EUSE1	F	Y																			
Gaura parviflora Dougl.	GAPA1	F	Y	UPL																		
Geum macrophyllum Willd.	GEMA1	F	Y	OBL																		
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU																		
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-	0.3	1.4	0.3	0.7			0.3	0.4			0.3	0.5			1.0	1.1	0.3	0.2
Helianthus annuus L.	HEAN1	F	Y	FACU											0.3	0.5			0.3	0.3		
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL																		
Lythrum alatum Pursh.	LYAL1	F	Y	OBL																		
Mentha arvensis L.	MEAR1	F	Y	FACW																		
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI	0.3	1.4			0.3	0.7												
Potamogeton natans L.	PONA1	F	Y	OBL																		
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI																		

Table 5. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 9		GIS 10		GIS 11		GIS 12		GIS 13		GIS 14		GIS 15		GIS 16		GIS 17	
					B116 Wetland A		B116 Wetland B		B131 Wetland		B131 SAEX1 Area		B371 Hillside Wetland		B771 N Wetland		B771 NW Wetland		B881 Wetland		C-1 Pond - A	
Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y																			
Solidago canadensis L.	SOCA1	F	Y	FACU																		
Solidago missouriensis Nutt.	SOMI1	F	Y																			
Spergularia media (L.) Presl.	SPME1	F	Y						1.0	2.6									0.3	0.3		
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU																		
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU																		
Xanthium strumarium L.	XAST1	F	Y	FAC															0.3	0.3	3.0	2.8
Scirpus sp.	SCI1	G																				
Agropyron intermedium (Host) Beauv.	AGIN1	G	N																			
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC																		
Agrostis stolonifera L.	AGST1	G	N	FACW																		
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU											0.3	0.5			0.3	0.3		
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU							0.3	0.4			0.3	0.5					0.3	0.2
Dactylis glomerata L.	DAGL1	G	N	FACU																		
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW					2.0	5.2			0.3	0.5					0.3	0.3	20.0	18.9
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N																			
Festuca pratensis Huds.	FEPR1	G	N	FAC	5.0	27.0	30.0	78.9	0.3	0.7												
Phleum pratense L.	PHPR1	G	N	FACU																		
Poa compressa L.	POCO1	G	N	FACU													1.0	1.9				
Poa pratensis L.	POPR1	G	N	FACU																		
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL					0.3	0.7												
Setaria viridis (L.) Beauv.	SEVI1	G	N																			
Typha angustifolia L.	TYAN1	G	N	OBL																		
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU			1.0	2.6	0.3	0.7	25.0	44.8	3.0	6.1	2.0	4.3			0.3	0.3		
Agropyron smithii Rydb.	AGSM1	G	Y	FACU			0.3	0.7	0.3	0.7	0.3	0.4	3.0	6.1	0.3	0.5	1.0	1.9	0.3	0.3	1.0	0.9
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-																		
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y								0.3	0.4										
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y								1.0	1.8										
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU							0.3	0.4					0.3	0.5				
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL																		
Carex lanuginosa Michx.	CALA1	G	Y	OBL																		
Carex nebrascensis Dew.	CANE1	G	Y	OBL															0.3	0.3		
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW																		
Carex simulata Mack.	CASI1	G	Y	NI																		
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI																		
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL					4.0	10.5									1.0	1.1	15.0	14.2
Elymus canadensis L.	ELCA1	G	Y	FACU	0.3	1.4	2.0	5.3	0.3	0.7												
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI																		
Hordeum jubatum L.	HOJU1	G	Y	FACW			0.3	0.7	0.3	0.7					40.0	85.6	30.0	56.3	20.0	21.1		
Juncus balticus Willd.	JUBA1	G	Y	FACW	0.3	1.4			1.0	2.6												
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC					0.3	0.7												
Juncus longistylis Torr.	JULO1	G	Y	FACW																	0.3	0.2
Juncus torreyi Cov.	JUTO1	G	Y	FACW					5.0	13.1			40.0	81.2					0.3	0.3		
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL					0.3	0.7												
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW															0.3	0.3		
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW																		
Panicum capillare L.	PACA1	G	Y	FAC																		
Panicum virgatum L.	PAVI1	G	Y	FAC	10.0	54.1	3.0	7.9	0.3	0.7												
Phalaris arundinacea L.	PHAR1	G	Y	FACW+																		
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL																		
Scirpus pungens Vahl	SCPU1	G	Y	OBL	1.0	5.4																
Scirpus validus Vahl.	SCVA1	G	Y	OBL					10.0	26.1			3.0	6.1					5.0	5.3		
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU																		
Spartina pectinata Link	SPPE1	G	Y	FACW					0.3	0.7												
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU																		
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-															0.3	0.3		
Sporobolus neglectus Nash	SPNE1	G	Y	UPL																		
Triglochin maritima L.	TRMA1	G	Y	OBL																		
Typha latifolia L.	TYLA1	G	Y	OBL	0.3	1.4			10.0	26.1					0.3	0.5	13.0	24.4	60.0	63.2	60.0	56.6
Shrub Species																						
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW	0.3	0.6																
Amorpha fruticosa L.	AMFR1	S	Y	OBL																		
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU																		
Rosa arkansana Porter	ROAR1	S	Y	FACU																		
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL	45.0	99.4	55.0	100.0			60.0	100.0									60.0	100.0
Salix irrorata Andersson	SAIR1	S	Y	NI																		
Salix lutea Nutt.	SALU1	S	Y	FACW																		
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI																		
Tree Species																						
Elaeagnus angustifolia L.	ELAN1	T	N	FAC															0.3	50.0		
Populus x acuminata Rydb.	POAC1	T	Y	FAC																		
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC					0.3	100.0									0.3	50.0	2.0	100.0

Table 5. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 9		GIS 10		GIS 11		GIS 12		GIS 13		GIS 14		GIS 15		GIS 16		GIS 17	
					B116 Wetland A		B116 Wetland B		B131 Wetland		B131 SAEX1 Area		B371 Hillside Wetland		B771 N Wetland		B771 NW Wetland		B881 Wetland		C-1 Pond - A	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL																		
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW																		
Cover Summary																						
Total Herbaceous Foliar Cover					18.5	100.0	38.0	100.0	38.3	100.0	55.8	100.0	49.3	100.0	46.8	100.0	53.3	100.0	95.0	100.0	106.0	100.0
Total Herbaceous Forb Cover					1.8	9.5	1.5	3.9	3.8	9.8	28.8	51.6	0.0	0.0	3.8	8.0	8.0	15.0	7.0	7.4	9.5	9.0
Total Native Herbaceous Forb Cover					0.5	2.7	0.5	1.3	2.0	5.2	0.8	1.3	0.0	0.0	0.5	1.1	0.0	0.0	3.5	3.7	4.3	4.0
Total Non-Native Forb Cover					1.3	6.8	1.0	2.6	1.8	4.6	28.0	50.2	0.0	0.0	3.3	7.0	8.0	15.0	3.5	3.7	5.3	5.0
Total Graminoid Cover					16.8	90.5	36.5	96.1	34.5	90.2	27.0	48.4	49.3	100.0	43.0	92.0	45.3	85.0	88.0	92.6	96.5	91.0
Total Native Graminoid Cover					11.8	63.5	6.5	17.1	32.0	83.7	26.8	48.0	49.0	99.5	42.5	90.9	44.3	83.1	87.5	92.1	76.3	71.9
Total Non-Native Graminoid Cover					5.0	27.0	30.0	78.9	2.5	6.5	0.3	0.4	0.3	0.5	0.5	1.1	1.0	1.9	0.5	0.5	20.3	19.1
Total Native Herbaceous Cover					12.3	66.2	7.0	18.4	34.0	88.9	27.5	49.3	49.0	99.5	43.0	92.0	44.3	83.1	91.0	95.8	80.5	75.9
Total Non-Native Herbaceous Cover					6.3	33.8	31.0	81.6	4.3	11.1	28.3	50.7	0.3	0.5	3.8	8.0	9.0	16.9	4.0	4.2	25.5	24.1
Total Shrub Cover					45.3	100.0	55.0	100.0	0.0	0.0	60.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	100.0
Total Native Shrub Cover					45.0	99.4	55.0	100.0	0.0	0.0	60.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	100.0
Total Non-Native Shrub Cover					0.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Tree Cover					0.0	0.0	0.0	0.0	0.3	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	100.0	2.0	100.0
Total Native Tree Cover					0.0	0.0	0.0	0.0	0.3	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	50.0	2.0	100.0
Total Non-Native Tree Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	50.0	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)																						
Wetland Indicator				**Wetland Indicator Code**																		
Obligate Species				OBL		1		1		2		1						1		1		2
Facultative Wet Species				FACW										1		1		1		1		
Facultative Species				FAC		2		1		1										2		1
Facultative Species				FAC-																		
Facultative Upland Species				FACU								2										
Facultative Upland Species				FACU-																		
Upland Species				UPL																		
Non-Indicator Species				NI																		
Not Applicable/Available - Not listed in USFWS species lists				NA																		
Unknown																						
% Vegetation Hydrophytic (OBL, FACW, FAC)						100		100		100		33		100		100		100		100		100
Hydrophytic Vegetation is Present (Y/N)						Y		Y		Y		N		Y		Y		Y		Y		Y

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 6. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 18		GIS 19		GIS 20		GIS 21		GIS 22		GIS 23		GIS 24		GIS 25		GIS 26	
					C-1 Pond - B		C-1 Pond - C		C-1 Pond - D		East Shooting Range		East Trenches Wetland		FC-1 Road Crossing		FC-1 Wetland A		FC-1 Wetland B		FC-1 Wetland C	
Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)
Herbaceous Species																						
Chenopodium sp.	CHE1	F																				
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N																			
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC																		
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N																			
Centaurea diffusa Lam.	CEDI1	F	N																			
Cichorium intybus L.	CIIN1	F	N	NI																		
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU					20.0	93.0	5.0	21.1	1.0	1.5	8.0	20.0	0.3	0.7	1.0	1.6	0.3	0.5
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL					0.3	1.2												
Conium maculatum L.	COMA1	F	N	FACW																		
Convolvulus arvensis L.	COAR1	F	N																			
Cynoglossum officinale L.	CYOF1	F	N	NI									0.3	0.4								
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N																			
Erodium cicutarium (L.) L'Her.	ERCI1	F	N																			
Hypericum perforatum L.	HYPE1	F	N						0.3	1.2												
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU																		
Lactuca serriola L.	LASE1	F	N	FAC															0.3	0.4		
Lepidium campestre (L.) R. Br.	LECA1	F	N																			
Linaria dalmatica (L.) Mill.	LIDA1	F	N																			
Lotus corniculatus L.	LOCO1	F	N	FACU																		
Medicago lupulina L.	MELU1	F	N	FAC													1.0	2.6				
Melilotus alba Medic.	MEAL1	F	N	FACU																		
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU													2.0	5.3	1.0	1.6		
Nepeta cataria L.	NECA1	F	N	FACU																		
Oxalis dillenii Jacq.	OXDI1	F	N	NI																		
Plantago lanceolata L.	PLLA1	F	N	FAC																		
Plantago major L.	PLMA1	F	N	FAC																		
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI																		
Polygonum persicaria L.	POPE2	F	N	OBL																		
Rumex crispus L.	RUCR1	F	N	FACW			0.3	1.2					7.0	10.6	0.3	0.6						
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU																		
Scorzonera laciniata L.	SCLA1	F	N																			
Sisymbrium altissimum L.	SIAL1	F	N	FACU																		
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC											0.3	0.6						
Taraxacum officinale Weber	TAOF1	F	N	FACU																		
Thlaspi arvense L.	THAR1	F	N	FACU																		
Tragopogon dubius Scop.	TRDU1	F	N																			
Trifolium pratense L.	TRPR1	F	N	FACU																		
Verbascum blattaria L.	VEBL1	F	N	UPL											1.0	2.5						
Verbascum thapsus L.	VETH1	F	N	NI			0.3	1.2														
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL					0.3	1.2	1.0	4.2										
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU																		
Agrostis scabra Willd.	AGSC1	F	Y	FAC													2.0	5.3	2.0	3.3	4.0	7.6
Alisma trivale Pursh	ALTR1	F	Y	NI																		
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU															0.3	0.4		
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC																		
Apocynum cannabinum L.	APCA1	F	Y	FAC																		
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-																		
Asclepias speciosa Torr.	ASSP1	F	Y	FAC																		
Asclepias viridiflora Raf.	ASVI1	F	Y																			
Aster falcatus Lindl.	ASFA1	F	Y	FAC									0.3	0.4								
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI																		
Aster porteri Gray	ASPO1	F	Y	NI																		
Ceratophyllum demersum L.	CEDE1	F	Y	OBL																		
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU																		
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-																		
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y																			
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y																			
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL									0.3	0.4								
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU																		
Euphorbia serpyllifolia Pers.	EUSE1	F	Y																			
Gaura parviflora Dougl.	GAPA1	F	Y	UPL																		
Geum macrophyllum Willd.	GEMA1	F	Y	OBL							0.3	1.1										
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU									0.3	0.4								
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-											0.3	0.6						
Helianthus annuus L.	HEAN1	F	Y	FACU																		
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL																		
Lythrum alatum Pursh.	LYAL1	F	Y	OBL																		
Mentha arvensis L.	MEAR1	F	Y	FACW																		
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI									0.3	0.4								
Potamogeton natans L.	PONA1	F	Y	OBL																		
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI																		

Table 6. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 18		GIS 19		GIS 20		GIS 21		GIS 22		GIS 23		GIS 24		GIS 25		GIS 26	
					C-1 Pond - B		C-1 Pond - C		C-1 Pond - D		East Shooting Range		East Trenches Wetland		FC-1 Road Crossing		FC-1 Wetland A		FC-1 Wetland B		FC-1 Wetland C	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y																			
Solidago canadensis L.	SOCA1	F	Y	FACU																		
Solidago missouriensis Nutt.	SOMI1	F	Y																			
Spergularia media (L.) Presl.	SPME1	F	Y																			
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU																		
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU																		
Xanthium strumarium L.	XAST1	F	Y	FAC			0.3	1.2														
Scirpus sp.	SCI1	G																				
Agropyron intermedium (Host) Beauv.	AGIN1	G	N																			
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC																		
Agrostis stolonifera L.	AGST1	G	N	FACW							0.3	1.1			0.3	0.6	0.3	0.7	0.3	0.4		
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU																		
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU																		
Dactylis glomerata L.	DAGL1	G	N	FACU																		
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW			8.0	38.6														
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N																			
Festuca pratensis Huds.	FEPR1	G	N	FAC																		
Phleum pratense L.	PHPR1	G	N	FACU																		
Poa compressa L.	POCO1	G	N	FACU					0.3	1.2									1.0	1.6		
Poa pratensis L.	POPR1	G	N	FACU																		
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL															0.3	0.4		
Setaria viridis (L.) Beauv.	SEVI1	G	N																			
Typha angustifolia L.	TYAN1	G	N	OBL																		
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU											5.0	12.5	15.0	39.5	10.0	16.3	2.0	3.8
Agropyron smithii Rydb.	AGSM1	G	Y	FACU													1.0	2.6				
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-																		
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y																			
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y																			
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU																		
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL																		
Carex lanuginosa Michx.	CALA1	G	Y	OBL																		
Carex nebrascensis Dew.	CANE1	G	Y	OBL							5.0	21.1					0.3	0.7	0.3	0.4	1.0	1.9
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW							2.0	8.4										
Carex simulata Mack.	CASI1	G	Y	NI																		
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI																		
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL																		
Elymus canadensis L.	ELCA1	G	Y	FACU							4.0	16.8			25.0	62.5	1.0	2.6	8.0	13.0	4.0	7.6
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI																		
Hordeum jubatum L.	HOJU1	G	Y	FACW													0.3	0.7				
Juncus balticus Willd.	JUBA1	G	Y	FACW									25.0	37.7							15.0	28.6
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC					0.3	1.2												
Juncus longistylis Torr.	JULO1	G	Y	FACW																		
Juncus torreyi Cov.	JUTO1	G	Y	FACW							1.0	4.2							25.0	40.7	2.0	3.8
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL																		
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW																		
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW																		
Panicum capillare L.	PACA1	G	Y	FAC																		
Panicum virgatum L.	PAVI1	G	Y	FAC													15.0	39.5	10.0	16.3	4.0	7.6
Phalaris arundinacea L.	PHAR1	G	Y	FACW+																		
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL							5.0	21.1	7.0	10.6								
Scirpus pungens Vahl	SCPU1	G	Y	OBL																	0.3	0.5
Scirpus validus Vahl.	SCVA1	G	Y	OBL	3.0	6.3	2.0	9.6											1.0	1.6	15.0	28.6
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU																		
Spartina pectinata Link	SPPE1	G	Y	FACW															1.0	1.6	1.0	1.9
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU							0.3	1.1										
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-																		
Sporobolus neglectus Nash	SPNE1	G	Y	UPL																		
Triglochin maritima L.	TRMA1	G	Y	OBL																		
Typha latifolia L.	TYLA1	G	Y	OBL	45.0	93.8	10.0	48.2	0.3	1.2			25.0	37.7					0.3	0.4	4.0	7.6
Shrub Species																						
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW																		
Amorpha fruticosa L.	AMFR1	S	Y	OBL							25.0	55.6			30.0	42.9	1.0	100.0				
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU																		
Rosa arkansana Porter	ROAR1	S	Y	FACU																		
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL					60.0	100.0	20.0	44.4			40.0	57.1			0.3	100.0		
Salix irrorata Andersson	SAIR1	S	Y	NI																		
Salix lutea Nutt.	SALU1	S	Y	FACW																		
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI									0.3	100.0								
Tree Species																						
Elaeagnus angustifolia L.	ELAN1	T	N	FAC															0.3	20.0		
Populus x acuminata Rydb.	POAC1	T	Y	FAC					25.0	99.0												
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC			0.3	100.0			1.0	3.8							1.0	80.0	1.0	100.0

Table 6. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 18		GIS 19		GIS 20		GIS 21		GIS 22		GIS 23		GIS 24		GIS 25		GIS 26	
					C-1 Pond - B		C-1 Pond - C		C-1 Pond - D		East Shooting Range		East Trenches Wetland		FC-1 Road Crossing		FC-1 Wetland A		FC-1 Wetland B		FC-1 Wetland C	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL																		
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW					0.3	1.0	25.0	96.2										
Cover Summary																						
Total Herbaceous Foliar Cover					48.0	100.0	20.8	100.0	21.5	100.0	23.8	100.0	66.3	100.0	40.0	100.0	38.0	100.0	61.5	100.0	52.5	100.0
Total Herbaceous Forb Cover					0.0	0.0	0.8	3.6	20.8	96.5	6.3	26.3	9.3	14.0	9.8	24.4	5.3	13.8	4.5	7.3	4.3	8.1
Total Native Herbaceous Forb Cover					0.0	0.0	0.3	1.2	0.0	0.0	0.3	1.1	1.0	1.5	0.3	0.6	2.0	5.3	2.3	3.7	4.0	7.6
Total Non-Native Forb Cover					0.0	0.0	0.5	2.4	20.8	96.5	6.0	25.3	8.3	12.5	9.5	23.8	3.3	8.6	2.3	3.7	0.3	0.5
Total Graminoid Cover					48.0	100.0	20.0	96.4	0.8	3.5	17.5	73.7	57.0	86.0	30.3	75.6	32.8	86.2	57.0	92.7	48.3	91.9
Total Native Graminoid Cover					48.0	100.0	12.0	57.8	0.5	2.3	17.3	72.6	57.0	86.0	30.0	75.0	32.5	85.5	55.5	90.2	48.3	91.9
Total Non-Native Graminoid Cover					0.0	0.0	8.0	38.6	0.3	1.2	0.3	1.1	0.0	0.0	0.3	0.6	0.3	0.7	1.5	2.4	0.0	0.0
Total Native Herbaceous Cover					48.0	100.0	12.3	59.0	0.5	2.3	17.5	73.7	58.0	87.5	30.3	75.6	34.5	90.8	57.8	93.9	52.3	99.5
Total Non-Native Herbaceous Cover					0.0	0.0	8.5	41.0	21.0	97.7	6.3	26.3	8.3	12.5	9.8	24.4	3.5	9.2	3.8	6.1	0.3	0.5
Total Shrub Cover					0.0	0.0	0.0	0.0	60.0	100.0	45.0	100.0	0.3	100.0	70.0	100.0	1.0	100.0	0.3	100.0	0.0	0.0
Total Native Shrub Cover					0.0	0.0	0.0	0.0	60.0	100.0	45.0	100.0	0.3	100.0	70.0	100.0	1.0	100.0	0.3	100.0	0.0	0.0
Total Non-Native Shrub Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Tree Cover					0.0	0.0	0.3	100.0	25.3	100.0	26.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	100.0	1.0	100.0
Total Native Tree Cover					0.0	0.0	0.3	100.0	25.3	100.0	26.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	80.0	1.0	100.0
Total Non-Native Tree Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	20.0	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)																						
Wetland Indicator				**Wetland Indicator Code**																		
Obligate Species				OBL		1		1		1		4		1		2		1		1		1
Facultative Wet Species				FACW				1				1		1						1		1
Facultative Species				FAC				1		1								1		3		1
Facultative Species				FAC-																		
Facultative Upland Species				FACU						1		1				2		1		1		
Facultative Upland Species				FACU-																		
Upland Species				UPL																		
Non-Indicator Species				NI										1								
Not Applicable/Available - Not listed in USFWS species lists				NA																		
Unknown																						
% Vegetation Hydrophytic (OBL, FACW, FAC)						100		100		67		83		67		50		67		83		100
Hydrophytic Vegetation is Present (Y/N)						Y		Y		Y		Y		Y		N		Y		Y		Y

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 7. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 27		GIS 28		GIS 29		GIS 30		GIS 31		GIS 32		GIS 33		GIS 34		GIS 35	
					FC-1 Wetland D		FC-1 Wetland E		FC-1 Wetland F		FC-1 Wetland G		FC-1 Wetland H		FC-1 Wetland I		FC-1 Wetland J		FC-1 Wetland K		FC-1 Wetland L	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Herbaceous Species																						
Chenopodium sp.	CHE1	F																				
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N																			
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC																		
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N				0.3	0.3														
Centaurea diffusa Lam.	CEDI1	F	N														0.3	1.7				
Cichorium intybus L.	CIIN1	F	N	NI																		
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU			0.3	0.3			1.0	1.9	0.3	0.8			0.3	1.7				
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL																		
Conium maculatum L.	COMA1	F	N	FACW																		
Convolvulus arvensis L.	COAR1	F	N												0.3	7.7						
Cynoglossum officinale L.	CYOF1	F	N	NI																		
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N																			
Erodium cicutarium (L.) L'Her.	ERCI1	F	N																			
Hypericum perforatum L.	HYPE1	F	N														0.3	1.7				
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU																	0.3	1.1
Lactuca serriola L.	LASE1	F	N	FAC			0.3	0.3							0.3	7.7					0.3	1.1
Lepidium campestre (L.) R. Br.	LECA1	F	N																			
Linaria dalmatica (L.) Mill.	LIDA1	F	N																			
Lotus corniculatus L.	LOCO1	F	N	FACU																		
Medicago lupulina L.	MELU1	F	N	FAC																		
Melilotus alba Medic.	MEAL1	F	N	FACU			0.3	0.3														
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU	0.3	0.4	1.0	1.1	1.0	1.7											0.3	1.1
Nepeta cataria L.	NECA1	F	N	FACU																		
Oxalis dillenii Jacq.	OXDI1	F	N	NI																		
Plantago lanceolata L.	PLLA1	F	N	FAC																		
Plantago major L.	PLMA1	F	N	FAC																		
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI																	0.3	1.1
Polygonum persicaria L.	POPE2	F	N	OBL			0.3	0.3													0.3	1.1
Rumex crispus L.	RUCR1	F	N	FACW													0.3	1.7				
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU	0.3	0.4																
Scorzonera laciniata L.	SCLA1	F	N																			
Sisymbrium altissimum L.	SIAL1	F	N	FACU																		
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC																		
Taraxacum officinale Weber	TAOF1	F	N	FACU																		
Thlaspi arvense L.	THAR1	F	N	FACU																		
Tragopogon dubius Scop.	TRDU1	F	N																			
Trifolium pratense L.	TRPR1	F	N	FACU			0.3	0.3														
Verbascum blattaria L.	VEBL1	F	N	UPL																		
Verbascum thapsus L.	VETH1	F	N	NI																		
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL																		
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU																		
Agrostis scabra Willd.	AGSC1	F	Y	FAC	10.0	14.4	15.0	16.0	0.3	0.4	0.3	0.5	1.0	3.1			0.3	1.7				
Alisma trivale Pursh	ALTR1	F	Y	NI															0.3	0.7		
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU			0.3	0.3	0.3	0.4	0.3	0.5	0.3	0.8	0.3	7.7						
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC																		
Apocynum cannabinum L.	APCA1	F	Y	FAC																		
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-																		
Asclepias speciosa Torr.	ASSP1	F	Y	FAC																		
Asclepias viridiflora Raf.	ASVI1	F	Y																			
Aster falcatus Lindl.	ASFA1	F	Y	FAC																		
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI																		
Aster porteri Gray	ASPO1	F	Y	NI																		
Ceratophyllum demersum L.	CEDE1	F	Y	OBL															30.0	84.5		
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU																	0.3	1.1
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-																		
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y																			
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y																			
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL			0.3	0.3			0.3	0.5							0.3	0.7		
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU																		
Euphorbia serpyllifolia Pers.	EUSE1	F	Y																			
Gaura parviflora Dougl.	GAPA1	F	Y	UPL																		
Geum macrophyllum Willd.	GEMA1	F	Y	OBL																		
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU																		
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-																		
Helianthus annuus L.	HEAN1	F	Y	FACU			0.3	0.3					0.3	0.8								
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL																		
Lythrum alatum Pursh.	LYAL1	F	Y	OBL																		
Mentha arvensis L.	MEAR1	F	Y	FACW																		
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI																		
Potamogeton natans L.	PONA1	F	Y	OBL																		
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI																		

Table 7. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 27		GIS 28		GIS 29		GIS 30		GIS 31		GIS 32		GIS 33		GIS 34		GIS 35	
					FC-1 Wetland D		FC-1 Wetland E		FC-1 Wetland F		FC-1 Wetland G		FC-1 Wetland H		FC-1 Wetland I		FC-1 Wetland J		FC-1 Wetland K		FC-1 Wetland L	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y																			
Solidago canadensis L.	SOCA1	F	Y	FACU																		
Solidago missouriensis Nutt.	SOMI1	F	Y																			
Spergularia media (L.) Presl.	SPME1	F	Y																			
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU																		
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU																		
Xanthium strumarium L.	XAST1	F	Y	FAC																		
Scirpus sp.	SCI1	G																				
Agropyron intermedium (Host) Beauv.	AGIN1	G	N																			
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC																		
Agrostis stolonifera L.	AGST1	G	N	FACW	0.3	0.4	0.3	0.3	0.3	0.4									0.3	0.7		
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU																		
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU					0.3	0.4					0.3	7.7			0.3	0.7		
Dactylis glomerata L.	DAGL1	G	N	FACU																		
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW													0.3	1.7			0.3	1.1
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N																			
Festuca pratensis Huds.	FEPR1	G	N	FAC																		
Phleum pratense L.	PHPR1	G	N	FACU																		
Poa compressa L.	POCO1	G	N	FACU																		
Poa pratensis L.	POPR1	G	N	FACU							0.3	0.5										
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL	0.3	0.4																
Setaria viridis (L.) Beauv.	SEVI1	G	N																			
Typha angustifolia L.	TYAN1	G	N	OBL																		
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU	7.0	10.1	4.0	4.3	5.0	8.7			12.0	37.5	2.0	61.5					5.0	21.3
Agropyron smithii Rydb.	AGSM1	G	Y	FACU	0.3	0.4															4.0	17.0
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-																		
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y																			
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y																			
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU																		
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL																		
Carex lanuginosa Michx.	CALA1	G	Y	OBL																		
Carex nebrascensis Dew.	CANE1	G	Y	OBL	1.0	1.4	2.0	2.1	7.0	12.2												
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW																		
Carex simulata Mack.	CASI1	G	Y	NI																		
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI																		
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL	1.0	1.4					3.0	5.6							0.3	0.7		
Elymus canadensis L.	ELCA1	G	Y	FACU	8.0	11.6	10.0	10.7	15.0	26.2	1.0	1.9	15.0	46.9	0.3	7.7					3.0	12.8
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI																		
Hordeum jubatum L.	HOJU1	G	Y	FACW			0.3	0.3											0.3	0.7		
Juncus balticus Willd.	JUBA1	G	Y	FACW	12.0	17.3	20.0	21.4			15.0	27.9	1.0	3.1			1.0	6.9			2.0	8.5
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC							0.3	0.5										
Juncus longistylis Torr.	JULO1	G	Y	FACW																		
Juncus torreyi Cov.	JUTO1	G	Y	FACW	5.0	7.2	8.0	8.6	0.3	0.4	3.0	5.6	1.0	3.1							2.0	8.5
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL							0.3	0.5					1.0	6.9				
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW																		
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW			0.3	0.3													0.3	1.1
Panicum capillare L.	PACA1	G	Y	FAC																		
Panicum virgatum L.	PAVI1	G	Y	FAC			20.0	21.4	25.0	43.7	1.0	1.9									0.3	1.1
Phalaris arundinacea L.	PHAR1	G	Y	FACW+																		
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL			0.3	0.3														
Scirpus pungens Vahl	SCPU1	G	Y	OBL																	0.3	1.1
Scirpus validus Vahl.	SCVA1	G	Y	OBL	8.0	11.6	5.0	5.3	3.0	5.2	20.0	37.2	1.0	3.1			1.0	6.9	1.0	2.8	5.0	21.3
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU																		
Spartina pectinata Link	SPPE1	G	Y	FACW	1.0	1.4	0.3	0.3			0.3	0.5										
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU																		
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-																		
Sporobolus neglectus Nash	SPNE1	G	Y	UPL																		
Triglochin maritima L.	TRMA1	G	Y	OBL																		
Typha latifolia L.	TYLA1	G	Y	OBL	15.0	21.7	5.0	5.3			8.0	14.9	0.3	0.8			10.0	69.0	3.0	8.5		
Shrub Species																						
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW			0.3	14.3														
Amorpha fruticosa L.	AMFR1	S	Y	OBL			0.3	14.3			0.3	4.5	2.0	50.0			1.0	6.3				
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU	1.0	100.0	0.3	14.3			0.3	4.5										
Rosa arkansana Porter	ROAR1	S	Y	FACU																		
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL			1.0	57.1			5.0	90.9	2.0	50.0	5.0	100.0	15.0	93.8	0.3	100.0		
Salix irrorata Andersson	SAIR1	S	Y	NI																		
Salix lutea Nutt.	SALU1	S	Y	FACW																		
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI																		
Tree Species																						
Elaeagnus angustifolia L.	ELAN1	T	N	FAC																		
Populus x acuminata Rydb.	POAC1	T	Y	FAC																		
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC	0.3	100.0	1.0	80.0	0.3	50.0	0.3	100.0	1.0	100.0	2.0	100.0	1.0	100.0			0.3	100.0

Table 7. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 27		GIS 28		GIS 29		GIS 30		GIS 31		GIS 32		GIS 33		GIS 34		GIS 35	
					FC-1 Wetland D		FC-1 Wetland E		FC-1 Wetland F		FC-1 Wetland G		FC-1 Wetland H		FC-1 Wetland I		FC-1 Wetland J		FC-1 Wetland K		FC-1 Wetland L	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL			0.3	20.0														
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW					0.3	50.0												
Cover Summary																						
Total Herbaceous Foliar Cover					69.3	100.0	93.5	100.0	57.3	100.0	53.8	100.0	32.0	100.0	3.3	100.0	14.5	100.0	35.5	100.0	23.5	100.0
Total Herbaceous Forb Cover					10.5	15.2	18.3	19.5	1.5	2.6	1.8	3.3	1.8	5.5	0.8	23.1	1.3	8.6	30.5	85.9	1.5	6.4
Total Native Herbaceous Forb Cover					10.0	14.4	15.8	16.8	0.5	0.9	0.8	1.4	1.5	4.7	0.3	7.7	0.3	1.7	30.5	85.9	0.3	1.1
Total Non-Native Forb Cover					0.5	0.7	2.5	2.7	1.0	1.7	1.0	1.9	0.3	0.8	0.5	15.4	1.0	6.9	0.0	0.0	1.3	5.3
Total Graminoid Cover					58.8	84.8	75.3	80.5	55.8	97.4	52.0	96.7	30.3	94.5	2.5	76.9	13.3	91.4	5.0	14.1	22.0	93.6
Total Native Graminoid Cover					58.3	84.1	75.0	80.2	55.3	96.5	51.8	96.3	30.3	94.5	2.3	69.2	13.0	89.7	4.5	12.7	21.8	92.6
Total Non-Native Graminoid Cover					0.5	0.7	0.3	0.3	0.5	0.9	0.3	0.5	0.0	0.0	0.3	7.7	0.3	1.7	0.5	1.4	0.3	1.1
Total Native Herbaceous Cover					68.3	98.6	90.8	97.1	55.8	97.4	52.5	97.7	31.8	99.2	2.5	76.9	13.3	91.4	35.0	98.6	22.0	93.6
Total Non-Native Herbaceous Cover					1.0	1.4	2.8	2.9	1.5	2.6	1.3	2.3	0.3	0.8	0.8	23.1	1.3	8.6	0.5	1.4	1.5	6.4
Total Shrub Cover					1.0	100.0	1.8	100.0	0.0	0.0	5.5	100.0	4.0	100.0	5.0	100.0	16.0	100.0	0.3	100.0	0.0	0.0
Total Native Shrub Cover					1.0	100.0	1.5	85.7	0.0	0.0	5.5	100.0	4.0	100.0	5.0	100.0	16.0	100.0	0.3	100.0	0.0	0.0
Total Non-Native Shrub Cover					0.0	0.0	0.3	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Tree Cover					0.3	100.0	1.3	100.0	0.5	100.0	0.3	100.0	1.0	100.0	2.0	100.0	1.0	100.0	0.0	0.0	0.3	100.0
Total Native Tree Cover					0.3	100.0	1.3	100.0	0.5	100.0	0.3	100.0	1.0	100.0	2.0	100.0	1.0	100.0	0.0	0.0	0.3	100.0
Total Non-Native Tree Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)																						
Wetland Indicator				**Wetland Indicator Code**																		
Obligate Species				OBL		1		1				2		2		1		2		2		1
Facultative Wet Species				FACW		1		1		1		1										
Facultative Species				FAC		2		3		2		1		1		1		1				1
Facultative Species				FAC-																		
Facultative Upland Species				FACU		1				1				2		1						2
Facultative Upland Species				FACU-																		
Upland Species				UPL				1														
Non-Indicator Species				NI																		
Not Applicable/Available - Not listed in USFWS species lists				NA																		
Unknown																						
% Vegetation Hydrophytic (OBL, FACW, FAC)						80		83		75		100		60		67		100		100		50
Hydrophytic Vegetation is Present (Y/N)						Y		Y		Y		Y		Y		Y		Y		Y		N

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 8. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 36		GIS 37		GIS 38		GIS 38		GIS 40		GIS 41		GIS 42		GIS 43	
					FC-1 Wetland M		FC-2 Hillside Wetland A		FC-2 Hillside Wetland B		FC-2 Wetland A		FC-2 Wetland B		FC-2/FC-3 Confluence A		FC-2/FC-3 Confluence B		FC-3 Lower Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Herbaceous Species																				
Chenopodium sp.	CHE1	F							0.3	1.1										
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N																	
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC																
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N										0.3	0.9						
Centaurea diffusa Lam.	CEDI1	F	N								0.3	0.3	3.0	10.8						
Cichorium intybus L.	CIIN1	F	N	NI																
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU			1.0	1.1	1.0	4.4	1.0	1.2	5.0	18.0	3.0	16.0			0.3	0.3
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL																
Conium maculatum L.	COMA1	F	N	FACW																
Convolvulus arvensis L.	COAR1	F	N																	
Cynoglossum officinale L.	CYOF1	F	N	NI																
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N																	
Erodium cicutarium (L.) L'Her.	ERCI1	F	N																	
Hypericum perforatum L.	HYPE1	F	N																	
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU	0.3	1.9			0.3	1.1	0.3	0.3								
Lactuca serriola L.	LASE1	F	N	FAC									0.3	0.9						
Lepidium campestre (L.) R. Br.	LECA1	F	N																	
Linaria dalmatica (L.) Mill.	LIDA1	F	N																	
Lotus corniculatus L.	LOCO1	F	N	FACU																
Medicago lupulina L.	MELU1	F	N	FAC																
Melilotus alba Medic.	MEAL1	F	N	FACU									1.0	3.6						
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU									1.0	3.6	1.0	5.3				
Nepeta cataria L.	NECA1	F	N	FACU																
Oxalis dillenii Jacq.	OXDI1	F	N	NI																
Plantago lanceolata L.	PLLA1	F	N	FAC											0.3	1.3				
Plantago major L.	PLMA1	F	N	FAC																
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI	0.3	1.9			1.0	4.4										
Polygonum persicaria L.	POPE2	F	N	OBL			0.3	0.3												
Rumex crispus L.	RUCR1	F	N	FACW																
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU	0.3	1.9														
Scorzonera laciniata L.	SCLA1	F	N																	
Sisymbrium altissimum L.	SIAL1	F	N	FACU																
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC			0.3	0.3			0.3	0.3	0.3	0.9						
Taraxacum officinale Weber	TAOF1	F	N	FACU																
Thlaspi arvense L.	THAR1	F	N	FACU																
Tragopogon dubius Scop.	TRDU1	F	N																	
Trifolium pratense L.	TRPR1	F	N	FACU																
Verbascum blattaria L.	VEBL1	F	N	UPL			0.3	0.3											0.3	0.3
Verbascum thapsus L.	VETH1	F	N	NI			0.3	0.3					0.3	0.9						
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL																
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU																
Agrostis scabra Willd.	AGSC1	F	Y	FAC																
Alisma trivale Pursh	ALTR1	F	Y	NI																
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU																
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC			0.3	0.3												
Apocynum cannabinum L.	APCA1	F	Y	FAC																
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-																
Asclepias speciosa Torr.	ASSP1	F	Y	FAC			0.3	0.3												
Asclepias viridiflora Raf.	ASVI1	F	Y																	
Aster falcatus Lindl.	ASFA1	F	Y	FAC																
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI																
Aster porteri Gray	ASPO1	F	Y	NI																
Ceratophyllum demersum L.	CEDE1	F	Y	OBL																
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU																
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-																
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y																	
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y																	
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL																
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU																
Euphorbia serpyllifolia Pers.	EUSE1	F	Y																	
Gaura parviflora Dougl.	GAPA1	F	Y	UPL																
Geum macrophyllum Willd.	GEMA1	F	Y	OBL																
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU																
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-																
Helianthus annuus L.	HEAN1	F	Y	FACU			0.3	0.3			0.3	0.3								
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL																
Lythrum alatum Pursh.	LYAL1	F	Y	OBL																
Mentha arvensis L.	MEAR1	F	Y	FACW																
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI									0.3	0.9						
Potamogeton natans L.	PONA1	F	Y	OBL																
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI																

Table 8. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 36		GIS 37		GIS 38		GIS 38		GIS 40		GIS 41		GIS 42		GIS 43	
					FC-1 Wetland M		FC-2 Hillside Wetland A		FC-2 Hillside Wetland B		FC-2 Wetland A		FC-2 Wetland B		FC-2/FC-3 Confluence A		FC-2/FC-3 Confluence B		FC-3 Lower Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y																	
Solidago canadensis L.	SOCA1	F	Y	FACU																
Solidago missouriensis Nutt.	SOMI1	F	Y																	
Spergularia media (L.) Presl.	SPME1	F	Y						5.0	22.0	0.3	0.3	0.3	0.9						
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU																
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU			0.3	0.3												
Xanthium strumarium L.	XAST1	F	Y	FAC					0.3	1.1										
Scirpus sp.	SCI1	G																		
Agropyron intermedium (Host) Beauv.	AGIN1	G	N																	
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC																
Agrostis stolonifera L.	AGST1	G	N	FACW					0.3	1.1	0.3	0.3	0.3	0.9					0.3	0.3
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU									0.3	0.9	0.3	1.3				
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU			0.3	0.3					0.3	0.9						
Dactylis glomerata L.	DAGL1	G	N	FACU																
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW											0.3	1.3				
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N																	
Festuca pratensis Huds.	FEPR1	G	N	FAC											0.3	1.3				
Phleum pratense L.	PHPR1	G	N	FACU																
Poa compressa L.	POCO1	G	N	FACU	0.3	1.9	0.3	0.3												
Poa pratensis L.	POPR1	G	N	FACU																
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL			0.3	0.3	0.3	1.1										
Setaria viridis (L.) Beauv.	SEVI1	G	N																	
Typha angustifolia L.	TYAN1	G	N	OBL																
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU	2.0	14.8	0.3	0.3	13.0	57.1	0.3	0.3	3.0	10.8	5.0	26.7			0.3	0.3
Agropyron smithii Rydb.	AGSM1	G	Y	FACU	0.3	1.9	0.3	0.3	0.3	1.1	2.0	2.5	3.0	10.8	3.0	16.0			0.3	0.3
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-							0.3	0.3								
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y																	
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y												0.3	1.3				
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU					0.3	1.1										
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL																
Carex lanuginosa Michx.	CALA1	G	Y	OBL																
Carex nebrascensis Dew.	CANE1	G	Y	OBL			1.0	1.1					0.3	0.9						
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW																
Carex simulata Mack.	CASI1	G	Y	NI																
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI																
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL			2.0	2.2			0.3	0.3			0.3	1.3			0.3	0.3
Elymus canadensis L.	ELCA1	G	Y	FACU	0.3	1.9					1.0	1.2	5.0	18.0						
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI																
Hordeum jubatum L.	HOJU1	G	Y	FACW			0.3	0.3			0.3	0.3	0.3	0.9						
Juncus balticus Willd.	JUBA1	G	Y	FACW	2.0	14.8	2.0	2.2	0.3	1.1	40.0	49.4	2.0	7.2					1.0	1.1
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC															0.3	0.3
Juncus longistylis Torr.	JULO1	G	Y	FACW																
Juncus torreyi Cov.	JUTO1	G	Y	FACW	2.0	14.8	1.0	1.1	0.3	1.1									1.0	1.1
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL																
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW																
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW																
Panicum capillare L.	PACA1	G	Y	FAC																
Panicum virgatum L.	PAVI1	G	Y	FAC							0.3	0.3			0.3	1.3				
Phalaris arundinacea L.	PHAR1	G	Y	FACW+									0.3	0.9						
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL																
Scirpus pungens Vahl	SCPU1	G	Y	OBL							0.3	0.3								
Scirpus validus Vahl.	SCVA1	G	Y	OBL	5.0	37.0	40.0	44.0	0.3	1.1	1.0	1.2	0.3	0.9						
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU			0.3	0.3												
Spartina pectinata Link	SPPE1	G	Y	FACW			0.3	0.3	0.3	1.1	3.0	3.7	0.3	0.9						
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU																
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-									0.3	0.9						
Sporobolus neglectus Nash	SPNE1	G	Y	UPL																
Triglochin maritima L.	TRMA1	G	Y	OBL																
Typha latifolia L.	TYLA1	G	Y	OBL	1.0	7.4	40.0	44.0			30.0	37.0	1.0	3.6	5.0	26.7	98.0	100.0	85.0	95.8
Shrub Species																				
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW																
Amorpha fruticosa L.	AMFR1	S	Y	OBL			0.3	20.0							0.3	0.4				
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU																
Rosa arkansana Porter	ROAR1	S	Y	FACU																
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL			1.0	80.0	0.3	100.0	1.0	100.0	55.0	100.0	60.0	99.6			25.0	100.0
Salix irrorata Andersson	SAIR1	S	Y	NI																
Salix lutea Nutt.	SALU1	S	Y	FACW																
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI																
Tree Species																				
Elaeagnus angustifolia L.	ELAN1	T	N	FAC			0.3	50.0							0.3	33.3				
Populus x acuminata Rydb.	POAC1	T	Y	FAC																
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC			0.3	50.0	0.3	100.0					0.3	33.3				

Table 8. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 36		GIS 37		GIS 38		GIS 38		GIS 40		GIS 41		GIS 42		GIS 43	
					FC-1 Wetland M		FC-2 Hillside Wetland A		FC-2 Hillside Wetland B		FC-2 Wetland A		FC-2 Wetland B		FC-2/FC-3 Confluence A		FC-2/FC-3 Confluence B		FC-3 Lower Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL																
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW							0.3	100.0	20.0	100.0	0.3	33.3			0.3	100.0
Cover Summary																				
Total Herbaceous Foliar Cover					13.5	100.0	91.0	100.0	22.8	100.0	81.0	100.0	27.8	100.0	18.8	100.0	98.0	100.0	88.8	100.0
Total Herbaceous Forb Cover					0.8	5.6	3.0	3.3	7.8	34.1	2.3	2.8	11.5	41.4	4.3	22.7	0.0	0.0	0.5	0.6
Total Native Herbaceous Forb Cover					0.0	0.0	1.0	1.1	5.3	23.1	0.5	0.6	0.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Total Non-Native Forb Cover					0.8	5.6	2.0	2.2	2.3	9.9	1.8	2.2	11.0	39.6	4.3	22.7	0.0	0.0	0.5	0.6
Total Graminoid Cover					12.8	94.4	88.0	96.7	15.0	65.9	78.8	97.2	16.3	58.6	14.5	77.3	98.0	100.0	88.3	99.4
Total Native Graminoid Cover					12.5	92.6	87.3	95.9	14.5	63.7	78.5	96.9	15.5	55.9	13.8	73.3	98.0	100.0	88.0	99.2
Total Non-Native Graminoid Cover					0.3	1.9	0.8	0.8	0.5	2.2	0.3	0.3	0.8	2.7	0.8	4.0	0.0	0.0	0.3	0.3
Total Native Herbaceous Cover					12.5	92.6	88.3	97.0	19.8	86.8	79.0	97.5	16.0	57.7	13.8	73.3	98.0	100.0	88.0	99.2
Total Non-Native Herbaceous Cover					1.0	7.4	2.8	3.0	2.8	12.1	2.0	2.5	11.8	42.3	5.0	26.7	0.0	0.0	0.8	0.8
Total Shrub Cover					0.0	0.0	1.3	100.0	0.3	100.0	1.0	100.0	55.0	100.0	60.3	100.0	0.0	0.0	25.0	100.0
Total Native Shrub Cover					0.0	0.0	1.3	100.0	0.3	100.0	1.0	100.0	55.0	100.0	60.3	100.0	0.0	0.0	25.0	100.0
Total Non-Native Shrub Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Tree Cover					0.0	0.0	0.5	100.0	0.3	100.0	0.3	100.0	20.0	100.0	0.8	100.0	0.0	0.0	0.3	100.0
Total Native Tree Cover					0.0	0.0	0.3	50.0	0.3	100.0	0.3	100.0	20.0	100.0	0.5	66.7	0.0	0.0	0.3	100.0
Total Non-Native Tree Cover					0.0	0.0	0.3	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	33.3	0.0	0.0	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)																				
Wetland Indicator				**Wetland Indicator Code**																
Obligate Species				OBL		1		4		1		2		1		2		1		2
Facultative Wet Species				FACW		2						2		1		1				1
Facultative Species				FAC				2		1						2				
Facultative Species				FAC-																
Facultative Upland Species				FACU		1				1				4		1				
Facultative Upland Species				FACU-																
Upland Species				UPL																
Non-Indicator Species				NI																
Not Applicable/Available - Not listed in USFWS species lists				NA						1				1						
Unknown																				
% Vegetation Hydrophytic (OBL, FACW, FAC)						75		100		50		100		29		83		100		100
Hydrophytic Vegetation is Present (Y/N)						Y		Y		N		Y		N		Y		Y		Y

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 9. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 44		GIS 45		GIS 46		GIS 47		GIS 48		GIS 49		GIS 50		GIS 51	
					FC-3 Upper Wetland		FC-4 Hillside Wetland A		FC-4 Hillside Wetland B		FC-4 Hillside Wetland C		FC-4 Hillside Wetland D		FC-4 Wetland A		FC-4 Wetland B		FC-5 East Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Herbaceous Species																				
Chenopodium sp.	CHE1	F																		
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N																	
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC																
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N																	
Centaurea diffusa Lam.	CEDI1	F	N						0.3	0.3					0.3	0.3	0.3	0.6		
Cichorium intybus L.	CIIN1	F	N	NI																
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU	1.0	8.9	2.0	2.3	0.3	0.3	4.0	4.6			2.0	2.1	25.0	63.3	1.0	3.4
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL																
Conium maculatum L.	COMA1	F	N	FACW																
Convolvulus arvensis L.	COAR1	F	N																	
Cynoglossum officinale L.	CYOF1	F	N	NI																
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N																	
Erodium cicutarium (L.) L'Her.	ERCI1	F	N																	
Hypericum perforatum L.	HYPE1	F	N														0.3	0.6		
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU									0.3	0.3	0.3	0.3			0.3	0.9
Lactuca serriola L.	LASE1	F	N	FAC			0.3	0.3												
Lepidium campestre (L.) R. Br.	LECA1	F	N																	
Linaria dalmatica (L.) Mill.	LIDA1	F	N																	
Lotus corniculatus L.	LOCO1	F	N	FACU					0.3	0.3										
Medicago lupulina L.	MELU1	F	N	FAC																
Melilotus alba Medic.	MEAL1	F	N	FACU	1.0	8.9														
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU	1.0	8.9	0.3	0.3									0.3	0.6		
Nepeta cataria L.	NECA1	F	N	FACU													0.3	0.6		
Oxalis dillenii Jacq.	OXDI1	F	N	NI																
Plantago lanceolata L.	PLLA1	F	N	FAC	0.3	2.2			0.3	0.3										
Plantago major L.	PLMA1	F	N	FAC											0.3	0.3				
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI																
Polygonum persicaria L.	POPE2	F	N	OBL																
Rumex crispus L.	RUCR1	F	N	FACW					0.3	0.3										
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU																
Scorzonera laciniata L.	SCLA1	F	N																	
Sisymbrium altissimum L.	SIAL1	F	N	FACU																
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC					0.3	0.3										
Taraxacum officinale Weber	TAOF1	F	N	FACU					0.3	0.3										
Thlaspi arvense L.	THAR1	F	N	FACU																
Tragopogon dubius Scop.	TRDU1	F	N																	
Trifolium pratense L.	TRPR1	F	N	FACU																
Verbascum blattaria L.	VEBL1	F	N	UPL																
Verbascum thapsus L.	VETH1	F	N	NI	0.3	2.2														
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL																
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU																
Agrostis scabra Willd.	AGSC1	F	Y	FAC					0.3	0.3					0.3	0.3				
Alisma trivale Pursh	ALTR1	F	Y	NI																
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU			0.3	0.3	0.3	0.3										
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC																
Apocynum cannabinum L.	APCA1	F	Y	FAC													0.3	0.6		
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-																
Asclepias speciosa Torr.	ASSP1	F	Y	FAC			0.3	0.3			1.0	1.2								
Asclepias viridiflora Raf.	ASVI1	F	Y																	
Aster falcatus Lindl.	ASFA1	F	Y	FAC																
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI																
Aster porteri Gray	ASPO1	F	Y	NI																
Ceratophyllum demersum L.	CEDE1	F	Y	OBL																
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU																
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-											0.3	0.3				
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y																	
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y																	
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL																
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU									0.3	0.3						
Euphorbia serpyllifolia Pers.	EUSE1	F	Y																	
Gaura parviflora Dougl.	GAPA1	F	Y	UPL																
Geum macrophyllum Willd.	GEMA1	F	Y	OBL																
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU																
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-					0.3	0.3					1.0	1.1	3.0	7.6		
Helianthus annuus L.	HEAN1	F	Y	FACU			4.0	4.5	0.3	0.3			0.3	0.3						
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL																
Lythrum alatum Pursh.	LYAL1	F	Y	OBL																
Mentha arvensis L.	MEAR1	F	Y	FACW																
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI							0.3	0.3			0.3	0.3				
Potamogeton natans L.	PONA1	F	Y	OBL																
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI																

Table 9. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 44		GIS 45		GIS 46		GIS 47		GIS 48		GIS 49		GIS 50		GIS 51	
					FC-3 Upper Wetland		FC-4 Hillside Wetland A		FC-4 Hillside Wetland B		FC-4 Hillside Wetland C		FC-4 Hillside Wetland D		FC-4 Wetland A		FC-4 Wetland B		FC-5 East Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y																	
Solidago canadensis L.	SOCA1	F	Y	FACU																
Solidago missouriensis Nutt.	SOMI1	F	Y																	
Spergularia media (L.) Presl.	SPME1	F	Y												0.3	0.3				
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU																
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU																
Xanthium strumarium L.	XAST1	F	Y	FAC																
Scirpus sp.	SCI1	G																		
Agropyron intermedium (Host) Beauv.	AGIN1	G	N																	
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC					0.3	0.3										
Agrostis stolonifera L.	AGST1	G	N	FACW			8.0	9.0	10.0	10.5			1.0	1.2	0.3	0.3			0.3	0.9
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU			1.0	1.1	1.0	1.0			3.0	3.7	0.3	0.3				
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU																
Dactylis glomerata L.	DAGL1	G	N	FACU																
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW																
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N																	
Festuca pratensis Huds.	FEPR1	G	N	FAC			1.0	1.1			0.3	0.3	1.0	1.2					2.0	6.9
Phleum pratense L.	PHPR1	G	N	FACU					0.3	0.3										
Poa compressa L.	POCO1	G	N	FACU																
Poa pratensis L.	POPR1	G	N	FACU																
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL											0.3	0.3				
Setaria viridis (L.) Beauv.	SEVI1	G	N																	
Typha angustifolia L.	TYAN1	G	N	OBL																
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU	4.0	35.6							0.3	0.3			0.3	0.6	2.0	6.9
Agropyron smithii Rydb.	AGSM1	G	Y	FACU	2.0	17.8	0.3	0.3					0.3	0.3						
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-																
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y														0.3	0.6		
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y		0.3	2.2											0.3	0.6		
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU																
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL			0.3	0.3	0.3	0.3			5.0	6.2						
Carex lanuginosa Michx.	CALA1	G	Y	OBL																
Carex nebrascensis Dew.	CANE1	G	Y	OBL											0.3	0.3				
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW																
Carex simulata Mack.	CASI1	G	Y	NI																
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI																
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL	1.0	8.9			0.3	0.3	1.0	1.2			0.3	0.3	0.3	0.6		
Elymus canadensis L.	ELCA1	G	Y	FACU	0.3	2.2									0.3	0.3				
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI					0.3	0.3										
Hordeum jubatum L.	HOJU1	G	Y	FACW	0.3	2.2			0.3	0.3			0.3	0.3	0.3	0.3			15.0	51.7
Juncus balticus Willd.	JUBA1	G	Y	FACW			45.0	50.7	30.0	31.4	20.0	23.1	25.0	31.0	20.0	21.1	5.0	12.7	0.3	0.9
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC																
Juncus longistylis Torr.	JULO1	G	Y	FACW																
Juncus torreyi Cov.	JUTO1	G	Y	FACW			3.0	3.4	0.3	0.3			0.3	0.3	1.0	1.1	0.3	0.6		
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL																
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW			0.3	0.3	5.0	5.2	0.3	0.3								
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW																
Panicum capillare L.	PACA1	G	Y	FAC																
Panicum virgatum L.	PAVI1	G	Y	FAC																
Phalaris arundinacea L.	PHAR1	G	Y	FACW+																
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL																
Scirpus pungens Vahl	SCPU1	G	Y	OBL			5.0	5.6	2.0	2.1			4.0	5.0	0.3	0.3				
Scirpus validus Vahl.	SCVA1	G	Y	OBL											2.0	2.1			0.3	0.9
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU																
Spartina pectinata Link	SPPE1	G	Y	FACW			15.0	16.9	35.0	36.6			40.0	49.5	5.0	5.3	2.0	5.1	8.0	27.6
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU																
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-																
Sporobolus neglectus Nash	SPNE1	G	Y	UPL																
Triglochin maritima L.	TRMA1	G	Y	OBL																
Typha latifolia L.	TYLA1	G	Y	OBL			3.0	3.4	8.0	8.4	60.0	69.2			60.0	63.3	2.0	5.1		
Shrub Species																				
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW											0.3	20.0				
Amorpha fruticosa L.	AMFR1	S	Y	OBL																
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU																
Rosa arkansana Porter	ROAR1	S	Y	FACU																
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL	80.0	100.0									1.0	80.0	60.0	100.0		
Salix irrorata Andersson	SAIR1	S	Y	NI																
Salix lutea Nutt.	SALU1	S	Y	FACW																
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI																
Tree Species																				
Elaeagnus angustifolia L.	ELAN1	T	N	FAC	0.3	100.0					2.0	100.0			0.3	33.3	2.0	47.1		
Populus x acuminata Rydb.	POAC1	T	Y	FAC																
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC											0.3	33.3	0.3	5.9		

Table 9. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 44		GIS 45		GIS 46		GIS 47		GIS 48		GIS 49		GIS 50		GIS 51	
					FC-3 Upper Wetland		FC-4 Hillside Wetland A		FC-4 Hillside Wetland B		FC-4 Hillside Wetland C		FC-4 Hillside Wetland D		FC-4 Wetland A		FC-4 Wetland B		FC-5 East Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL																
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW											0.3	33.3	2.0	47.1		
Cover Summary																				
Total Herbaceous Foliar Cover					11.3	100.0	88.8	100.0	95.5	100.0	86.8	100.0	80.8	100.0	94.8	100.0	39.5	100.0	29.0	100.0
Total Herbaceous Forb Cover					3.5	31.1	7.0	7.9	2.8	2.9	5.3	6.1	0.8	0.9	4.8	5.0	29.3	74.1	1.3	4.3
Total Native Herbaceous Forb Cover					0.0	0.0	4.5	5.1	1.0	1.0	1.3	1.4	0.5	0.6	2.0	2.1	3.3	8.2	0.0	0.0
Total Non-Native Forb Cover					3.5	31.1	2.5	2.8	1.8	1.8	4.0	4.6	0.3	0.3	2.8	2.9	26.0	65.8	1.3	4.3
Total Graminoid Cover					7.8	68.9	81.8	92.1	92.8	97.1	81.5	93.9	80.0	99.1	90.0	95.0	10.3	25.9	27.8	95.7
Total Native Graminoid Cover					7.8	68.9	71.8	80.8	81.3	85.1	81.3	93.7	75.0	92.9	89.3	94.2	10.3	25.9	25.5	87.9
Total Non-Native Graminoid Cover					0.0	0.0	10.0	11.3	11.5	12.0	0.3	0.3	5.0	6.2	0.8	0.8	0.0	0.0	2.3	7.8
Total Native Herbaceous Cover					7.8	68.9	76.3	85.9	82.3	86.1	82.5	95.1	75.5	93.5	91.3	96.3	13.5	34.2	25.5	87.9
Total Non-Native Herbaceous Cover					3.5	31.1	12.5	14.1	13.3	13.9	4.3	4.9	5.3	6.5	3.5	3.7	26.0	65.8	3.5	12.1
Total Shrub Cover					80.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	100.0	60.0	100.0	0.0	0.0
Total Native Shrub Cover					80.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	80.0	60.0	100.0	0.0	0.0
Total Non-Native Shrub Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	20.0	0.0	0.0	0.0	0.0
Total Tree Cover					0.3	100.0	0.0	0.0	0.0	0.0	2.0	100.0	0.0	0.0	0.8	100.0	4.3	100.0	0.0	0.0
Total Native Tree Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	66.7	2.3	52.9	0.0	0.0
Total Non-Native Tree Cover					0.3	100.0	0.0	0.0	0.0	0.0	2.0	100.0	0.0	0.0	0.3	33.3	2.0	47.1	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)																				
Wetland Indicator				**Wetland Indicator Code**																
Obligate Species				OBL		1						1				2		1		
Facultative Wet Species				FACW				1		2		1		2		3		1		2
Facultative Species				FAC		1						1				2		1		
Facultative Species				FAC-																
Facultative Upland Species				FACU		2												1		
Facultative Upland Species				FACU-																
Upland Species				UPL																
Non-Indicator Species				NI																
Not Applicable/Available - Not listed in USFWS species lists				NA																
Unknown																				
% Vegetation Hydrophytic (OBL, FACW, FAC)						50		100		100		100		100		100		75		100
Hydrophytic Vegetation is Present (Y/N)						N		Y		Y		Y		Y		Y		Y		Y

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 10. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 52		GIS 53		GIS 54		GIS 55		GIS 56		GIS 57		GIS 58		GIS 59	
					FC-5 West Wetland		Melvin's Way Wetland		Mound East Wetland		Mound SW Wetland		Mound Well Wetland		Mound West Wetland		Mound W-W Wetland		OLF - Wetland A	
Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)
Herbaceous Species																				
Chenopodium sp.	CHE1	F																		
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N																	
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC																
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N																	
Centaurea diffusa Lam.	CEDI1	F	N				0.3	0.3												
Cichorium intybus L.	CIIN1	F	N	NI																
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU	0.3	0.4			4.0	4.6	2.0	2.7			10.0	14.5				
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL																
Conium maculatum L.	COMA1	F	N	FACW																
Convolvulus arvensis L.	COAR1	F	N																	
Cynoglossum officinale L.	CYOF1	F	N	NI																
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N																	
Erodium cicutarium (L.) L'Her.	ERCI1	F	N																	
Hypericum perforatum L.	HYPE1	F	N																	
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU	10.0	17.4	2.0	2.3												
Lactuca serriola L.	LASE1	F	N	FAC	0.3	0.4														
Lepidium campestre (L.) R. Br.	LECA1	F	N																	
Linaria dalmatica (L.) Mill.	LIDA1	F	N																	
Lotus corniculatus L.	LOCO1	F	N	FACU																
Medicago lupulina L.	MELU1	F	N	FAC																
Melilotus alba Medic.	MEAL1	F	N	FACU																
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU																
Nepeta cataria L.	NECA1	F	N	FACU																
Oxalis dillenii Jacq.	OXDI1	F	N	NI																
Plantago lanceolata L.	PLLA1	F	N	FAC																
Plantago major L.	PLMA1	F	N	FAC	0.3	0.4					0.3	0.3			1.0	1.4				
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI	0.3	0.4														
Polygonum persicaria L.	POPE2	F	N	OBL																
Rumex crispus L.	RUCR1	F	N	FACW																
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU											0.3	0.4				
Scorzonera laciniata L.	SCLA1	F	N																	
Sisymbrium altissimum L.	SIAL1	F	N	FACU																
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC	0.3	0.4			0.3	0.3										
Taraxacum officinale Weber	TAOF1	F	N	FACU			0.3	0.3												
Thlaspi arvense L.	THAR1	F	N	FACU																
Tragopogon dubius Scop.	TRDU1	F	N																	
Trifolium pratense L.	TRPR1	F	N	FACU																
Verbascum blattaria L.	VEBL1	F	N	UPL					0.3	0.3										
Verbascum thapsus L.	VETH1	F	N	NI			0.3	0.3	0.3	0.3										
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL																
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU																
Agrostis scabra Willd.	AGSC1	F	Y	FAC	0.3	0.4														
Alisma trivale Pursh	ALTR1	F	Y	NI																
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU																
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC																
Apocynum cannabinum L.	APCA1	F	Y	FAC																
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-																
Asclepias speciosa Torr.	ASSP1	F	Y	FAC																
Asclepias viridiflora Raf.	ASVI1	F	Y																	
Aster falcatus Lindl.	ASFA1	F	Y	FAC																
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI																
Aster porteri Gray	ASPO1	F	Y	NI																
Ceratophyllum demersum L.	CEDE1	F	Y	OBL																
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU																
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-							0.3	0.3								
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y																	
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y																	
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL																
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU																
Euphorbia serpyllifolia Pers.	EUSE1	F	Y								1.0	1.3								
Gaura parviflora Dougl.	GAPA1	F	Y	UPL																
Geum macrophyllum Willd.	GEMA1	F	Y	OBL																
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU																
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-			5.0	5.6			0.3	0.3								
Helianthus annuus L.	HEAN1	F	Y	FACU	0.3	0.4			0.3	0.3	0.3	0.3								
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL																
Lythrum alatum Pursh.	LYAL1	F	Y	OBL																
Mentha arvensis L.	MEAR1	F	Y	FACW																
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI																
Potamogeton natans L.	PONA1	F	Y	OBL																
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI																

Table 10. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 52		GIS 53		GIS 54		GIS 55		GIS 56		GIS 57		GIS 58		GIS 59	
					FC-5 West Wetland		Melvin's Way Wetland		Mound East Wetland		Mound SW Wetland		Mound Well Wetland		Mound West Wetland		Mound W-W Wetland		OLF - Wetland A	
Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y																	
Solidago canadensis L.	SOCA1	F	Y	FACU											0.3	0.4				
Solidago missouriensis Nutt.	SOMI1	F	Y																	
Spergularia media (L.) Presl.	SPME1	F	Y																	
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU																
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU			0.3	0.3												
Xanthium strumarium L.	XAST1	F	Y	FAC																
Scirpus sp.	SCI1	G																	0.3	0.3
Agropyron intermedium (Host) Beauv.	AGIN1	G	N												1.0	1.4				
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC											0.3	0.4				
Agrostis stolonifera L.	AGST1	G	N	FACW	0.3	0.4			4.0	4.6	2.0	2.7	20.0	21.1						
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU			0.3	0.3												
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU			0.3	0.3												
Dactylis glomerata L.	DAGL1	G	N	FACU	0.3	0.4														
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW							1.0	1.3							5.0	6.5
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N		0.3	0.4														
Festuca pratensis Huds.	FEPR1	G	N	FAC					0.3	0.3					0.3	0.4				
Phleum pratense L.	PHPR1	G	N	FACU					0.3	0.3										
Poa compressa L.	POCO1	G	N	FACU	0.3	0.4	0.3	0.3							2.0	2.9			2.0	2.6
Poa pratensis L.	POPR1	G	N	FACU																
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL	2.0	3.5														
Setaria viridis (L.) Beauv.	SEVI1	G	N												2.0	2.9				
Typha angustifolia L.	TYAN1	G	N	OBL											15.0	21.7				
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU	2.0	3.5			0.3	0.3	1.0	1.3	5.0	5.3					5.0	6.5
Agropyron smithii Rydb.	AGSM1	G	Y	FACU	4.0	7.0	10.0	11.3			15.0	19.9	30.0	31.6			10.0	12.5		
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-																
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y												1.0	1.4				
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y														0.3	0.3		
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU	0.3	0.4														
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL																
Carex lanuginosa Michx.	CALA1	G	Y	OBL																
Carex nebrascensis Dew.	CANE1	G	Y	OBL																
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW																
Carex simulata Mack.	CASI1	G	Y	NI																
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI																
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL					5.0	5.7	25.0	33.2								
Elymus canadensis L.	ELCA1	G	Y	FACU											8.0	11.6				
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI																
Hordeum jubatum L.	HOJU1	G	Y	FACW	15.0	26.1	70.0	78.9							2.0	2.9			30.0	38.8
Juncus balticus Willd.	JUBA1	G	Y	FACW	8.0	13.9														
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC							0.3	0.3								
Juncus longistylis Torr.	JULO1	G	Y	FACW																
Juncus torreyi Cov.	JUTO1	G	Y	FACW	0.3	0.4			3.0	3.4	20.0	26.6							5.0	6.5
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL											1.0	1.4				
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW																
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW																
Panicum capillare L.	PACA1	G	Y	FAC																
Panicum virgatum L.	PAVI1	G	Y	FAC											10.0	14.5				
Phalaris arundinacea L.	PHAR1	G	Y	FACW+																
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL																
Scirpus pungens Vahl	SCPU1	G	Y	OBL											15.0	21.7	70.0	87.2		
Scirpus validus Vahl.	SCVA1	G	Y	OBL																
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU	0.3	0.4														
Spartina pectinata Link	SPPE1	G	Y	FACW	12.0	20.9														
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU																
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-																
Sporobolus neglectus Nash	SPNE1	G	Y	UPL																
Triglochin maritima L.	TRMA1	G	Y	OBL																
Typha latifolia L.	TYLA1	G	Y	OBL	1.0	1.7			70.0	79.8	7.0	9.3	40.0	42.1					30.0	38.8
Shrub Species																				
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW	1.0	50.0														
Amorpha fruticosa L.	AMFR1	S	Y	OBL																
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU																
Rosa arkansana Porter	ROAR1	S	Y	FACU													2.0	100.0		
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL	1.0	50.0			3.0	100.0	1.0	100.0			25.0	96.2			2.0	100.0
Salix irrorata Andersson	SAIR1	S	Y	NI																
Salix lutea Nutt.	SALU1	S	Y	FACW											1.0	3.8				
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI																
Tree Species																				
Elaeagnus angustifolia L.	ELAN1	T	N	FAC					0.3	2.4										
Populus x acuminata Rydb.	POAC1	T	Y	FAC																
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC							0.3	50.0			0.3	0.6				

Table 10. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 52		GIS 53		GIS 54		GIS 55		GIS 56		GIS 57		GIS 58		GIS 59	
					FC-5 West Wetland		Melvin's Way Wetland		Mound East Wetland		Mound SW Wetland		Mound Well Wetland		Mound West Wetland		Mound W-W Wetland		OLF - Wetland A	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL																
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW					10.0	97.6	0.3	50.0			40.0	99.4	5.0	100.0	5.0	100.0
Cover Summary																				
Total Herbaceous Foliar Cover					57.5	100.0	88.8	100.0	87.8	100.0	75.3	100.0	95.0	100.0	69.0	100.0	80.3	100.0	77.3	100.0
Total Herbaceous Forb Cover					11.8	20.4	8.0	9.0	5.0	5.7	4.0	5.3	0.0	0.0	11.5	16.7	0.0	0.0	0.0	0.0
Total Native Herbaceous Forb Cover					0.5	0.9	5.3	5.9	0.3	0.3	1.8	2.3	0.0	0.0	0.3	0.4	0.0	0.0	0.0	0.0
Total Non-Native Forb Cover					11.3	19.6	2.8	3.1	4.8	5.4	2.3	3.0	0.0	0.0	11.3	16.3	0.0	0.0	0.0	0.0
Total Graminoid Cover					45.8	79.6	80.8	91.0	82.8	94.3	71.3	94.7	95.0	100.0	57.5	83.3	80.3	100.0	77.3	100.0
Total Native Graminoid Cover					42.8	74.3	80.0	90.1	78.3	89.2	68.3	90.7	75.0	78.9	37.0	53.6	80.3	100.0	70.0	90.6
Total Non-Native Graminoid Cover					3.0	5.2	0.8	0.8	4.5	5.1	3.0	4.0	20.0	21.1	20.5	29.7	0.0	0.0	7.0	9.1
Total Native Herbaceous Cover					43.3	75.2	85.3	96.1	78.5	89.5	70.0	93.0	75.0	78.9	37.3	54.0	80.3	100.0	70.0	90.6
Total Non-Native Herbaceous Cover					14.3	24.8	3.5	3.9	9.3	10.5	5.3	7.0	20.0	21.1	31.8	46.0	0.0	0.0	7.0	9.1
Total Shrub Cover					2.0	100.0	0.0	0.0	3.0	100.0	1.0	100.0	0.0	0.0	26.0	100.0	2.0	100.0	2.0	100.0
Total Native Shrub Cover					1.0	50.0	0.0	0.0	3.0	100.0	1.0	100.0	0.0	0.0	26.0	100.0	2.0	100.0	2.0	100.0
Total Non-Native Shrub Cover					1.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Tree Cover					0.0	0.0	0.0	0.0	10.3	100.0	0.5	100.0	0.0	0.0	40.3	100.0	5.0	100.0	5.0	100.0
Total Native Tree Cover					0.0	0.0	0.0	0.0	10.0	97.6	0.5	100.0	0.0	0.0	40.3	100.0	5.0	100.0	5.0	100.0
Total Non-Native Tree Cover					0.0	0.0	0.0	0.0	0.3	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)																				
Wetland Indicator				**Wetland Indicator Code**																
Obligate Species				OBL		1				2		2		1		1		1		2
Facultative Wet Species				FACW		3		1		1		2		1		1		1		2
Facultative Species				FAC								1								
Facultative Species				FAC-																
Facultative Upland Species				FACU		1								1				1		
Facultative Upland Species				FACU-																
Upland Species				UPL																
Non-Indicator Species				NI																
Not Applicable/Available - Not listed in USFWS species lists				NA																
Unknown																				
% Vegetation Hydrophytic (OBL, FACW, FAC)						80		100		100		100		67		100		67		100
Hydrophytic Vegetation is Present (Y/N)						Y		Y		Y		Y		Y		Y		Y		Y

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 11. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 60		GIS 61		GIS 62		GIS 63		GIS 64		GIS 65		GIS 66		GIS 67	
					OLF - Wetland B		OLF - Wetland C		OLF - Wetland D		OLF - Wetland E		OLF - Wetland F		PLF - N Channel		PLF - S Channel		PLF - E Face North Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Herbaceous Species																				
Chenopodium sp.	CHE1	F																		
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N																	
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC					0.3	6.3	2.0	2.3								
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N																	
Centaurea diffusa Lam.	CEDI1	F	N																	
Cichorium intybus L.	CIIN1	F	N	NI	0.3	0.4														
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU	1.0	1.5	1.0	1.1	1.0	25.0	25.0	28.8	3.0	17.6			0.3	0.4	6.0	9.9
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL																
Conium maculatum L.	COMA1	F	N	FACW									0.3	1.5						
Convolvulus arvensis L.	COAR1	F	N																	
Cynoglossum officinale L.	CYOF1	F	N	NI					0.3	6.3	2.0	2.3	0.3	1.5						
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N																	
Erodium cicutarium (L.) L'Her.	ERCI1	F	N				0.3	0.3												
Hypericum perforatum L.	HYPE1	F	N								0.3	0.3	0.3	1.5					6.0	9.9
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU																
Lactuca serriola L.	LASE1	F	N	FAC	0.3	0.4														
Lepidium campestre (L.) R. Br.	LECA1	F	N																	
Linaria dalmatica (L.) Mill.	LIDA1	F	N																	
Lotus corniculatus L.	LOCO1	F	N	FACU																
Medicago lupulina L.	MELU1	F	N	FAC																
Melilotus alba Medic.	MEAL1	F	N	FACU													0.3	0.4		
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU													0.3	0.4		
Nepeta cataria L.	NECA1	F	N	FACU							1.0	1.2								
Oxalis dillenii Jacq.	OXDI1	F	N	NI					0.3	6.3										
Plantago lanceolata L.	PLLA1	F	N	FAC	0.3	0.4	1.0	1.1									0.3	0.4		
Plantago major L.	PLMA1	F	N	FAC																
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI																
Polygonum persicaria L.	POPE2	F	N	OBL	0.3	0.4														
Rumex crispus L.	RUCR1	F	N	FACW			0.3	0.3					0.3	1.5						
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU																
Scorzonera laciniata L.	SCLA1	F	N																	
Sisymbrium altissimum L.	SIAL1	F	N	FACU							0.3	0.3								
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC	0.3	0.4	0.3	0.3												
Taraxacum officinale Weber	TAOF1	F	N	FACU													0.3	0.4		
Thlaspi arvense L.	THAR1	F	N	FACU							0.3	0.3								
Tragopogon dubius Scop.	TRDU1	F	N																	
Trifolium pratense L.	TRPR1	F	N	FACU																
Verbascum blattaria L.	VEBL1	F	N	UPL			0.3	0.3					0.3	1.5	0.3	0.5				
Verbascum thapsus L.	VETH1	F	N	NI			0.3	0.3	0.3	6.3			1.0	5.9						
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL																
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU							0.3	0.3								
Agrostis scabra Willd.	AGSC1	F	Y	FAC																
Alisma trivale Pursh	ALTR1	F	Y	NI																
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU											0.3	0.5	0.3	0.4		
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC					0.3	6.3			0.3	1.5						
Apocynum cannabinum L.	APCA1	F	Y	FAC																
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-																
Asclepias speciosa Torr.	ASSP1	F	Y	FAC																
Asclepias viridiflora Raf.	ASVI1	F	Y																	
Aster falcatus Lindl.	ASFA1	F	Y	FAC																
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI	0.3	0.4			0.3	6.3					0.3	0.5				
Aster porteri Gray	ASPO1	F	Y	NI	0.3	0.4														
Ceratophyllum demersum L.	CEDE1	F	Y	OBL																
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU																
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-																
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y																	
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y																	
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL			1.0	1.1												
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU																
Euphorbia serpyllifolia Pers.	EUSE1	F	Y																	
Gaura parviflora Dougl.	GAPA1	F	Y	UPL																
Geum macrophyllum Willd.	GEMA1	F	Y	OBL			0.3	0.3			0.3	0.3	0.3	1.5						
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU																
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-																
Helianthus annuus L.	HEAN1	F	Y	FACU	0.3	0.4	0.3	0.3												
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL																
Lythrum alatum Pursh.	LYAL1	F	Y	OBL																
Mentha arvensis L.	MEAR1	F	Y	FACW																
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI					0.3	6.3					0.3	0.5	0.3	0.4		
Potamogeton natans L.	PONA1	F	Y	OBL																
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI							0.3	0.3								

Table 11. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 60		GIS 61		GIS 62		GIS 63		GIS 64		GIS 65		GIS 66		GIS 67	
					OLF - Wetland B		OLF - Wetland C		OLF - Wetland D		OLF - Wetland E		OLF - Wetland F		PLF - N Channel		PLF - S Channel		PLF - E Face North Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y																	
Solidago canadensis L.	SOCA1	F	Y	FACU									0.3	1.5						
Solidago missouriensis Nutt.	SOMI1	F	Y																	
Spergularia media (L.) Presl.	SPME1	F	Y																	
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU							0.3	0.3								
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU																
Xanthium strumarium L.	XAST1	F	Y	FAC																
Scirpus sp.	SCI1	G																		
Agropyron intermedium (Host) Beauv.	AGIN1	G	N																	
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC																
Agrostis stolonifera L.	AGST1	G	N	FACW	0.3	0.4									1.0	1.9				
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU			0.3	0.3									0.3	0.4		
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU	0.3	0.4	0.3	0.3												
Dactylis glomerata L.	DAGL1	G	N	FACU											0.3	0.5				
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW											1.0	1.9				
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N																	
Festuca pratensis Huds.	FEPR1	G	N	FAC	0.3	0.4	0.3	0.3							0.3	0.5	0.3	0.4		
Phleum pratense L.	PHPR1	G	N	FACU																
Poa compressa L.	POCO1	G	N	FACU	0.3	0.4	0.3	0.3							0.3	0.5	3.0	4.8		
Poa pratensis L.	POPR1	G	N	FACU	0.3	0.4													0.3	0.4
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL	0.3	0.4														
Setaria viridis (L.) Beauv.	SEVI1	G	N		0.3	0.4														
Typha angustifolia L.	TYAN1	G	N	OBL																
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU	2.0	3.0			1.0	25.0			10.0	58.8	0.3	0.5	25.0	39.8		
Agropyron smithii Rydb.	AGSM1	G	Y	FACU			1.0	1.1	0.3	6.3					0.3	0.5	0.3	0.4		
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-											0.3	0.5	5.0	8.0		
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y																	
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y				0.3	0.3					0.3	1.5						
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU													15.0	23.9		
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL																
Carex lanuginosa Michx.	CALA1	G	Y	OBL																
Carex nebrascensis Dew.	CANE1	G	Y	OBL	0.3	0.4														
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW																
Carex simulata Mack.	CASI1	G	Y	NI																
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI																
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL											1.0	1.9				
Elymus canadensis L.	ELCA1	G	Y	FACU																
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI																
Hordeum jubatum L.	HOJU1	G	Y	FACW	0.3	0.4									5.0	9.7	0.3	0.4		
Juncus balticus Willd.	JUBA1	G	Y	FACW	20.0	29.6	75.0	83.1			55.0	63.4							3.0	5.0
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC											5.0	9.7	1.0	1.6		
Juncus longistylis Torr.	JULO1	G	Y	FACW																
Juncus torreyi Cov.	JUTO1	G	Y	FACW	10.0	14.8							0.3	1.5	0.3	0.5	5.0	8.0	0.3	0.4
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL	0.3	0.4														
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW																
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW																
Panicum capillare L.	PACA1	G	Y	FAC													4.0	6.4		
Panicum virgatum L.	PAVI1	G	Y	FAC			0.3	0.3							20.0	38.8	0.3	0.4		
Phalaris arundinacea L.	PHAR1	G	Y	FACW+																
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL									0.3	1.5						
Scirpus pungens Vahl	SCPU1	G	Y	OBL	1.0	1.5														
Scirpus validus Vahl.	SCVA1	G	Y	OBL	20.0	29.6											0.3	0.4		
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU											0.3	0.5	0.3	0.4		
Spartina pectinata Link	SPPE1	G	Y	FACW	1.0	1.5														
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU																
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-											0.3	0.5	0.3	0.4		
Sporobolus neglectus Nash	SPNE1	G	Y	UPL											0.3	0.5				
Triglochin maritima L.	TRMA1	G	Y	OBL																
Typha latifolia L.	TYLA1	G	Y	OBL	8.0	11.9	8.0	8.9					0.3	1.5	15.0	29.1	1.0	1.6	45.0	74.4
Shrub Species																				
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW																
Amorpha fruticosa L.	AMFR1	S	Y	OBL									2.0	2.1						
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU									1.0	1.1						
Rosa arkansana Porter	ROAR1	S	Y	FACU																
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL	3.0	100.0	0.3	3.0	98.0	100.0			90.0	95.7	1.0	100.0	10.0	97.6		
Salix irrorata Andersson	SAIR1	S	Y	NI													0.3	2.4		
Salix lutea Nutt.	SALU1	S	Y	FACW																
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI			8.0	97.0			10.0	100.0	1.0	1.1						
Tree Species																				
Elaeagnus angustifolia L.	ELAN1	T	N	FAC	0.3	16.7														
Populus x acuminata Rydb.	POAC1	T	Y	FAC																
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC	1.0	66.7							4.0	50.0			0.3	0.8		

Table 11. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 60		GIS 61		GIS 62		GIS 63		GIS 64		GIS 65		GIS 66		GIS 67	
					OLF - Wetland B		OLF - Wetland C		OLF - Wetland D		OLF - Wetland E		OLF - Wetland F		PLF - N Channel		PLF - S Channel		PLF - E Face North Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL																
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW	0.3	16.7							4.0	50.0	4.0	100.0	30.0	99.2		
Cover Summary																				
Total Herbaceous Foliar Cover					67.5	100.0	90.3	100.0	4.0	100.0	86.8	100.0	17.0	100.0	51.5	100.0	62.8	100.0	60.5	100.0
Total Herbaceous Forb Cover					3.0	4.4	4.8	5.3	2.8	68.8	31.8	36.6	6.0	35.3	1.0	1.9	1.8	2.8	12.0	19.8
Total Native Herbaceous Forb Cover					0.8	1.1	1.5	1.7	0.8	18.8	1.0	1.2	0.8	4.4	0.8	1.5	0.5	0.8	0.0	0.0
Total Non-Native Forb Cover					2.3	3.3	3.3	3.6	2.0	50.0	30.8	35.4	5.3	30.9	0.3	0.5	1.3	2.0	12.0	19.8
Total Graminoid Cover					64.5	95.6	85.5	94.7	1.3	31.3	55.0	63.4	11.0	64.7	50.5	98.1	61.0	97.2	48.5	80.2
Total Native Graminoid Cover					62.8	93.0	84.5	93.6	1.3	31.3	55.0	63.4	11.0	64.7	47.8	92.7	57.5	91.6	48.3	79.8
Total Non-Native Graminoid Cover					1.8	2.6	1.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	2.8	5.3	3.5	5.6	0.3	0.4
Total Native Herbaceous Cover					63.5	94.1	86.0	95.3	2.0	50.0	56.0	64.6	11.8	69.1	48.5	94.2	58.0	92.4	48.3	79.8
Total Non-Native Herbaceous Cover					4.0	5.9	4.3	4.7	2.0	50.0	30.8	35.4	5.3	30.9	3.0	5.8	4.8	7.6	12.3	20.2
Total Shrub Cover					3.0	100.0	8.3	100.0	98.0	100.0	10.0	100.0	94.0	100.0	1.0	100.0	10.3	100.0	0.0	0.0
Total Native Shrub Cover					3.0	100.0	8.3	100.0	98.0	100.0	10.0	100.0	94.0	100.0	1.0	100.0	10.3	100.0	0.0	0.0
Total Non-Native Shrub Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Tree Cover					1.5	100.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	100.0	4.0	100.0	30.3	100.0	0.0	0.0
Total Native Tree Cover					1.3	83.3	0.0	0.0	0.0	0.0	0.0	0.0	8.0	100.0	4.0	100.0	30.3	100.0	0.0	0.0
Total Non-Native Tree Cover					0.3	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)																				
Wetland Indicator				**Wetland Indicator Code**																
Obligate Species				OBL		2				1				1		2		1		1
Facultative Wet Species				FACW		1		1				1		1		1		1		
Facultative Species				FAC		1				2				1		1				
Facultative Species				FAC-																
Facultative Upland Species				FACU						3		1		1				2		
Facultative Upland Species				FACU-																
Upland Species				UPL																
Non-Indicator Species				NI				1		5		1								
Not Applicable/Available - Not listed in USFWS species lists				NA																
Unknown																				
% Vegetation Hydrophytic (OBL, FACW, FAC)						100		50		27		33		75		100		50		100
Hydrophytic Vegetation is Present (Y/N)						Y		N		N		N		Y		Y		N		Y

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 12. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 68		GIS 69		GIS 70		GIS 71		GIS 72		GIS 73		GIS 74		GIS 75	
					PLF - E Face West Wetland		PLF - SAEX1 Area		PLF - SW Hillside Wetland		PLF Pond A		PLF Pond B		PLF Pond C		SPPTS Well Wetland		SPDG Wetland A	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Herbaceous Species																				
Chenopodium sp.	CHE1	F																		
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N																	
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC																
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N																	
Centaurea diffusa Lam.	CEDI1	F	N				0.3	0.8	0.3	0.7										
Cichorium intybus L.	CIIN1	F	N	NI																
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU	0.3	0.4	2.0	6.5	2.0	5.5	0.3	0.3	1.0	1.0			0.3	0.3	20.0	22.3
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL																
Conium maculatum L.	COMA1	F	N	FACW																
Convolvulus arvensis L.	COAR1	F	N																	
Cynoglossum officinale L.	CYOF1	F	N	NI																
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N								0.3	0.3								
Erodium cicutarium (L.) L'Her.	ERCI1	F	N																	
Hypericum perforatum L.	HYPE1	F	N				0.3	0.8												
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU													2.0	2.3	0.3	0.3
Lactuca serriola L.	LASE1	F	N	FAC																
Lepidium campestre (L.) R. Br.	LECA1	F	N																1.0	1.1
Linaria dalmatica (L.) Mill.	LIDA1	F	N																	
Lotus corniculatus L.	LOCO1	F	N	FACU																
Medicago lupulina L.	MELU1	F	N	FAC																
Melilotus alba Medic.	MEAL1	F	N	FACU																
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU																
Nepeta cataria L.	NECA1	F	N	FACU			0.3	0.8											0.3	0.3
Oxalis dillenii Jacq.	OXDI1	F	N	NI																
Plantago lanceolata L.	PLLA1	F	N	FAC									0.3	0.3						
Plantago major L.	PLMA1	F	N	FAC									0.3	0.3						
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI																
Polygonum persicaria L.	POPE2	F	N	OBL									0.3	0.3						
Rumex crispus L.	RUCR1	F	N	FACW															0.3	0.3
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU																
Scorzonera laciniata L.	SCLA1	F	N																	
Sisymbrium altissimum L.	SIAL1	F	N	FACU																
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC																
Taraxacum officinale Weber	TAOF1	F	N	FACU																
Thlaspi arvense L.	THAR1	F	N	FACU															2.0	2.2
Tragopogon dubius Scop.	TRDU1	F	N																	
Trifolium pratense L.	TRPR1	F	N	FACU																
Verbascum blattaria L.	VEBL1	F	N	UPL							0.3	0.3	0.3	0.3						
Verbascum thapsus L.	VETH1	F	N	NI			0.3	0.8			0.3	0.3	0.3	0.3						
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL																
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU																
Agrostis scabra Willd.	AGSC1	F	Y	FAC													0.3	0.3		
Alisma trivale Pursh	ALTR1	F	Y	NI									0.3	0.3						
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU															0.3	0.3
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC					0.3	0.7										
Apocynum cannabinum L.	APCA1	F	Y	FAC																
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-																
Asclepias speciosa Torr.	ASSP1	F	Y	FAC			0.3	0.8			0.3	0.3								
Asclepias viridiflora Raf.	ASVI1	F	Y																	
Aster falcatus Lindl.	ASFA1	F	Y	FAC					0.3	0.7										
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI																
Aster porteri Gray	ASPO1	F	Y	NI																
Ceratophyllum demersum L.	CEDE1	F	Y	OBL																
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU																
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-																
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y																	
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y																	
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL																
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU									0.3	0.3						
Euphorbia serpyllifolia Pers.	EUSE1	F	Y								0.3	0.3	3.0	3.0						
Gaura parviflora Dougl.	GAPA1	F	Y	UPL							0.3	0.3								
Geum macrophyllum Willd.	GEMA1	F	Y	OBL																
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU					2.0	5.5										
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-			0.3	0.8	0.3	0.7										
Helianthus annuus L.	HEAN1	F	Y	FACU									0.3	0.3			2.0	2.3		
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL									0.3	0.3						
Lythrum alatum Pursh.	LYAL1	F	Y	OBL																
Mentha arvensis L.	MEAR1	F	Y	FACW									1.0	1.0						
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI							0.3	0.3	0.3	0.3						
Potamogeton natans L.	PONA1	F	Y	OBL									4.0	4.0	4.0	66.7				
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI																

Table 12. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 68		GIS 69		GIS 70		GIS 71		GIS 72		GIS 73		GIS 74		GIS 75	
					PLF - E Face West Wetland		PLF - SAEX1 Area		PLF - SW Hillside Wetland		PLF Pond A		PLF Pond B		PLF Pond C		SPPTS Well Wetland		SPDG Wetland A	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y																	
Solidago canadensis L.	SOCA1	F	Y	FACU																
Solidago missouriensis Nutt.	SOMI1	F	Y				0.3	0.8	1.0	2.8										
Spergularia media (L.) Presl.	SPME1	F	Y																	
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU																
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU									0.3	0.3					0.3	0.3
Xanthium strumarium L.	XAST1	F	Y	FAC									0.3	0.3						
Scirpus sp.	SCI1	G																		
Agropyron intermedium (Host) Beauv.	AGIN1	G	N																	
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC																
Agrostis stolonifera L.	AGST1	G	N	FACW																
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU									0.3	0.3			0.3	0.3		
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU									0.3	0.3						
Dactylis glomerata L.	DAGL1	G	N	FACU																
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW									0.3	0.3						
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N																	
Festuca pratensis Huds.	FEPR1	G	N	FAC	0.3	0.4														
Phleum pratense L.	PHPR1	G	N	FACU																
Poa compressa L.	POCO1	G	N	FACU																
Poa pratensis L.	POPR1	G	N	FACU																
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL	3.0	4.6							2.0	2.0					10.0	11.2
Setaria viridis (L.) Beauv.	SEVI1	G	N																	
Typha angustifolia L.	TYAN1	G	N	OBL									3.0	3.0						
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU	3.0	4.6	20.0	64.5	5.0	13.8	1.0	1.1	0.3	0.3						
Agropyron smithii Rydb.	AGSM1	G	Y	FACU	3.0	4.6	2.0	6.5					0.3	0.3			15.0	17.3		
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-																
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y																	
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y										0.3	0.3						
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU	0.3	0.4							0.3	0.3						
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL													1.0	1.2		
Carex lanuginosa Michx.	CALA1	G	Y	OBL																
Carex nebrascensis Dew.	CANE1	G	Y	OBL	3.0	4.6					0.3	0.3								
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW																
Carex simulata Mack.	CASI1	G	Y	NI																
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI																
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL							0.3	0.3	1.0	1.0						
Elymus canadensis L.	ELCA1	G	Y	FACU	0.3	0.4	5.0	16.1					0.3	0.3			0.3	0.3		
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI																
Hordeum jubatum L.	HOJU1	G	Y	FACW	1.0	1.5					0.3	0.3	0.3	0.3			40.0	46.1	15.0	16.8
Juncus balticus Willd.	JUBA1	G	Y	FACW	2.0	3.1					0.3	0.3	0.3	0.3			20.0	23.1		
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC	10.0	15.3														
Juncus longistylis Torr.	JULO1	G	Y	FACW																
Juncus torreyi Cov.	JUTO1	G	Y	FACW	30.0	45.8					0.3	0.3	1.0	1.0						
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL	2.0	3.1														
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW																
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW																
Panicum capillare L.	PACA1	G	Y	FAC									0.3	0.3						
Panicum virgatum L.	PAVI1	G	Y	FAC	3.0	4.6					5.0	5.3	2.0	2.0						
Phalaris arundinacea L.	PHAR1	G	Y	FACW+																
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL													0.3	0.3		
Scirpus pungens Vahl	SCPU1	G	Y	OBL							0.3	0.3								
Scirpus validus Vahl.	SCVA1	G	Y	OBL	0.3	0.4			0.3	0.7	0.3	0.3	10.0	10.1	1.0	16.7	0.3	0.3	0.3	0.3
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU																
Spartina pectinata Link	SPPE1	G	Y	FACW	0.3	0.4							0.3	0.3			5.0	5.8		
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU																
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-	1.0	1.5														
Sporobolus neglectus Nash	SPNE1	G	Y	UPL																
Triglochin maritima L.	TRMA1	G	Y	OBL													0.3	0.3		
Typha latifolia L.	TYLA1	G	Y	OBL	3.0	4.6	0.3	0.8	25.0	69.0	85.0	89.7	65.0	65.7	1.0	16.7			40.0	44.7
Shrub Species																				
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW																
Amorpha fruticosa L.	AMFR1	S	Y	OBL																
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU																
Rosa arkansana Porter	ROAR1	S	Y	FACU																
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL			55.0	100.0	45.0	81.8	1.0	100.0	15.0	100.0					0.3	100.0
Salix irrorata Andersson	SAIR1	S	Y	NI																
Salix lutea Nutt.	SALU1	S	Y	FACW																
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI					10.0	18.2										
Tree Species																				
Elaeagnus angustifolia L.	ELAN1	T	N	FAC			7.0	96.6	0.3	0.4			0.3	33.3						
Populus x acuminata Rydb.	POAC1	T	Y	FAC																
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC			0.3	3.4					0.3	33.3						

Table 12. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 68		GIS 69		GIS 70		GIS 71		GIS 72		GIS 73		GIS 74		GIS 75	
					PLF - E Face West Wetland		PLF - SAEX1 Area		PLF - SW Hillside Wetland		PLF Pond A		PLF Pond B		PLF Pond C		SPPTS Well Wetland		SPDG Wetland A	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL																
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW	0.3	100.0			70.0	99.6	1.0	100.0	0.3	33.3						
Cover Summary																				
Total Herbaceous Foliar Cover					65.5	100.0	31.0	100.0	36.3	100.0	94.8	100.0	99.0	100.0	6.0	100.0	86.8	100.0	89.5	100.0
Total Herbaceous Forb Cover					0.3	0.4	3.8	12.1	6.0	16.6	2.0	2.1	12.0	12.1	4.0	66.7	4.5	5.2	24.3	27.1
Total Native Herbaceous Forb Cover					0.0	0.0	0.8	2.4	3.8	10.3	1.0	1.1	9.8	9.8	4.0	66.7	2.3	2.6	0.5	0.6
Total Non-Native Forb Cover					0.3	0.4	3.0	9.7	2.3	6.2	1.0	1.1	2.3	2.3	0.0	0.0	2.3	2.6	23.8	26.5
Total Graminoid Cover					65.3	99.6	27.3	87.9	30.3	83.4	92.8	97.9	87.0	87.9	2.0	33.3	82.3	94.8	65.3	72.9
Total Native Graminoid Cover					62.0	94.7	27.3	87.9	30.3	83.4	92.8	97.9	81.3	82.1	2.0	33.3	82.0	94.5	55.3	61.7
Total Non-Native Graminoid Cover					3.3	5.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8	0.0	0.0	0.3	0.3	10.0	11.2
Total Native Herbaceous Cover					62.0	94.7	28.0	90.3	34.0	93.8	93.8	98.9	91.0	91.9	6.0	100.0	84.3	97.1	55.8	62.3
Total Non-Native Herbaceous Cover					3.5	5.3	3.0	9.7	2.3	6.2	1.0	1.1	8.0	8.1	0.0	0.0	2.5	2.9	33.8	37.7
Total Shrub Cover					0.0	0.0	55.0	100.0	55.0	100.0	1.0	100.0	15.0	100.0	0.0	0.0	0.0	0.0	0.3	100.0
Total Native Shrub Cover					0.0	0.0	55.0	100.0	55.0	100.0	1.0	100.0	15.0	100.0	0.0	0.0	0.0	0.0	0.3	100.0
Total Non-Native Shrub Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Tree Cover					0.3	100.0	7.3	100.0	70.3	100.0	1.0	100.0	0.8	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Native Tree Cover					0.3	100.0	0.3	3.4	70.0	99.6	1.0	100.0	0.5	66.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Non-Native Tree Cover					0.0	0.0	7.0	96.6	0.3	0.4	0.0	0.0	0.3	33.3	0.0	0.0	0.0	0.0	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)																				
Wetland Indicator				**Wetland Indicator Code**																
Obligate Species				OBL				1		2		2		2		1				2
Facultative Wet Species				FACW		2				1		1		1				2		
Facultative Species				FAC		1		1						2						
Facultative Species				FAC-																
Facultative Upland Species				FACU				1												1
Facultative Upland Species				FACU-																
Upland Species				UPL																
Non-Indicator Species				NI																
Not Applicable/Available - Not listed in USFWS species lists				NA																
Unknown																				
% Vegetation Hydrophytic (OBL, FACW, FAC)						100		67		100		100		100		100		100		67
Hydrophytic Vegetation is Present (Y/N)						Y		Y		Y		Y		Y		Y		Y		Y

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 13. 2008 Wetland Monitoring Foliar Cover Summary

					GIS 76		GIS 77		GIS 78		GIS 79		GIS 80	
					SPDG Wetland B		SPDG Wetland C		SW093 Wetland A		SW093 Wetland B		Bowman Pond/B771 Wetland	
Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)
Herbaceous Species														
Chenopodium sp.	CHE1	F												
Alyssum minus (L.) Rothmaler var. micranthus (C. A. Mey.) Dudley	ALMI1	F	N											
Barbarea vulgaris R. Br.	BAVU1	F	N	FAC										
Carduus nutans L. ssp. macrolepis (Peterm.) Kazmi	CANU1	F	N											
Centaurea diffusa Lam.	CEDI1	F	N										0.3	0.4
Cichorium intybus L.	CIIN1	F	N	NI									0.3	0.4
Cirsium arvense (L.) Scop.	CIAR1	F	N	FACU	1.0	1.1	60.0	63.2			5.0	14.2	0.3	0.4
Cirsium vulgare (Savi) Ten.	CIVU1	F	N	UPL										
Conium maculatum L.	COMA1	F	N	FACW										
Convolvulus arvensis L.	COAR1	F	N											
Cynoglossum officinale L.	CYOF1	F	N	NI	1.0	1.1								
Dyssodia papposa (Vent) Hitchc.	DYPA1	F	N											
Erodium cicutarium (L.) L'Her.	ERCI1	F	N											
Hypericum perforatum L.	HYPE1	F	N											
Kochia scoparia (L.) Schrad.	KOSC1	F	N	FACU										
Lactuca serriola L.	LASE1	F	N	FAC					0.3	0.4			0.3	0.4
Lepidium campestre (L.) R. Br.	LECA1	F	N		1.0	1.1	5.0	5.3						
Linaria dalmatica (L.) Mill.	LIDA1	F	N											
Lotus corniculatus L.	LOCO1	F	N	FACU										
Medicago lupulina L.	MELU1	F	N	FAC										
Melilotus alba Medic.	MEAL1	F	N	FACU									0.3	0.4
Melilotus officinalis (L.) Pall.	MEOF1	F	N	FACU									0.3	0.4
Nepeta cataria L.	NECA1	F	N	FACU			30.0	31.6						
Oxalis dillenii Jacq.	OXDI1	F	N	NI										
Plantago lanceolata L.	PLLA1	F	N	FAC									0.3	0.4
Plantago major L.	PLMA1	F	N	FAC										
Polygonum arenastrum Jord. ex Bor.	POAR1	F	N	NI										
Polygonum persicaria L.	POPE2	F	N	OBL										
Rumex crispus L.	RUCR1	F	N	FACW										
Salsola iberica Senn. & Pau.	SAIB1	F	N	FACU										
Scorzonera laciniata L.	SCLA1	F	N											
Sisymbrium altissimum L.	SIAL1	F	N	FACU										
Sonchus arvensis L. ssp. arvensis L.	SOAR1	F	N	FAC										
Taraxacum officinale Weber	TAOF1	F	N	FACU										
Thlaspi arvense L.	THAR1	F	N	FACU										
Tragopogon dubius Scop.	TRDU1	F	N											
Trifolium pratense L.	TRPR1	F	N	FACU										
Verbascum blattaria L.	VEBL1	F	N	UPL										
Verbascum thapsus L.	VETH1	F	N	NI										
Veronica anagallis-aquatica L.	VEAN1	F	N	OBL										
Achillea millefolium L. ssp. lanulosa (Nutt.) Piper	ACMI1	F	Y	FACU										
Agrostis scabra Willd.	AGSC1	F	Y	FAC										
Alisma trivale Pursh	ALTR1	F	Y	NI										
Ambrosia artemisiifolia L.	AMAR1	F	Y	FACU										
Ambrosia psilostachya DC.	AMPS1	F	Y	FAC										
Apocynum cannabinum L.	APCA1	F	Y	FAC										
Artemisia ludoviciana Nutt. var. ludoviciana	ARLU1	F	Y	FACU-										
Asclepias speciosa Torr.	ASSP1	F	Y	FAC										
Asclepias viridiflora Raf.	ASVI1	F	Y											
Aster falcatus Lindl.	ASFA1	F	Y	FAC										
Aster laevis L. var. geyeri A. Gray	ASLA1	F	Y	NI										
Aster porteri Gray	ASPO1	F	Y	NI										
Ceratophyllum demersum L.	CEDE1	F	Y	OBL										
Chenopodium leptophyllum Nutt. ex Moq.	CHLE2	F	Y	FACU										
Conyza canadensis (L.) Cronq.	COCA1	F	Y	FACU-										
Dalea candida Michx. ex Willd. var. oligophylla (Torr.) Shinners.	DACA1	F	Y											
Descurainia pinnata (Walt.) Britt.	DEPI1	F	Y											
Epilobium ciliatum Raf. ssp. glandulosum (Lehm.) Hock & Raven	EPCI1	F	Y	OBL										
Euphorbia marginata Pursh.	EUMA1	F	Y	FACU										
Euphorbia serpyllifolia Pers.	EUSE1	F	Y										15.0	24.1
Gaura parviflora Dougl.	GAPA1	F	Y	UPL										
Geum macrophyllum Willd.	GEMA1	F	Y	OBL										
Glycyrrhiza lepidota Pursh.	GLLE1	F	Y	FACU									0.3	0.4
Grindelia squarrosa (Pursh.) Dun.	GRSQ1	F	Y	FACU-									0.3	0.4
Helianthus annuus L.	HEAN1	F	Y	FACU										
Lycopus americanus Muhl. ex Barton	LYAM1	F	Y	OBL										
Lythrum alatum Pursh.	LYAL1	F	Y	OBL										
Mentha arvensis L.	MEAR1	F	Y	FACW										
Oenothera villosa Thunb. ssp. strigosa (Rydb.) Dietrich & Raven	OEVI1	F	Y	NI										
Potamogeton natans L.	PONA1	F	Y	OBL										
Potentilla gracilis Dougl. ex Hook. var. glabrata (Lehm.) C. L. Hitchc.	POGR1	F	Y	NI										

Table 13. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 76		GIS 77		GIS 78		GIS 79		GIS 80	
					SPDG Wetland B		SPDG Wetland C		SW093 Wetland A		SW093 Wetland B		Bowman Pond/B771 Wetland	
Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)	Absolute Cover (%)	Relative Cover (%)
Rumex salicifolius Weinm. ssp. triangulivalvis Danser	RUME1	F	Y											
Solidago canadensis L.	SOCA1	F	Y	FACU										
Solidago missouriensis Nutt.	SOMI1	F	Y											
Spergularia media (L.) Presl.	SPME1	F	Y											
Thermopsis rhombifolia var. divaricarpa (Nels.) Isely	THRH1	F	Y	FACU										
Verbena bracteata Lag. & Rodr.	VEBR1	F	Y	FACU										
Xanthium strumarium L.	XAST1	F	Y	FAC										
Scirpus sp.	SCI1	G												
Agropyron intermedium (Host) Beauv.	AGIN1	G	N								3.0	8.5		
Agropyron repens (L.) Beauv.	AGRE1	G	N	FAC										
Agrostis stolonifera L.	AGST1	G	N	FACW										
Bromus inermis Leyss. ssp. inermis	BRIN1	G	N	FACU	0.3	0.3					15.0	42.6		
Bromus japonicus Thunb. ex Murr.	BRJA1	G	N	FACU										
Dactylis glomerata L.	DAGL1	G	N	FACU										
Echinochloa crusgallii (L.) Beauv.	ECCR1	G	N	FACW					0.3	0.4				
Eragrostis curvula (Schrad.) Nees	ERCU1	G	N											
Festuca pratensis Huds.	FEPR1	G	N	FAC										
Phleum pratense L.	PHPR1	G	N	FACU										
Poa compressa L.	POCO1	G	N	FACU					0.3	0.4				
Poa pratensis L.	POPR1	G	N	FACU										
Polypogon monspeliensis (L.) Desf.	POMO1	G	N	OBL	1.0	1.1								
Setaria viridis (L.) Beauv.	SEVI1	G	N											
Typha angustifolia L.	TYAN1	G	N	OBL										
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	G	Y	FACU							2.0	5.7		
Agropyron smithii Rydb.	AGSM1	G	Y	FACU							10.0	28.4		
Andropogon gerardii Vitman	ANGE1	G	Y	FAC-										
Bouteloua curtipendula (Michx.) Torr.	BOCU1	G	Y										1.0	1.6
Bouteloua gracilis (H. B. K.) Lag ex Griffiths	BOGR1	G	Y										1.0	1.6
Buchloe dactyloides (Nutt.) Engelm.	BUDA1	G	Y	FACU										
Calamagrostis canadensis (Michx.) Beauv.	CACA1	G	Y	OBL										
Carex lanuginosa Michx.	CALA1	G	Y	OBL										
Carex nebrascensis Dew.	CANE1	G	Y	OBL										
Carex praegracilis W. Boott.	CAPR1	G	Y	FACW										
Carex simulata Mack.	CASI1	G	Y	NI										
Distichlis spicata (L.) Greene var. stricta (Torr.) Beetle	DISP1	G	Y	NI										
Eleocharis macrostachya Britt.	ELMA1	G	Y	OBL					22.0	39.3				
Elymus canadensis L.	ELCA1	G	Y	FACU										
Festuca ovina L. var. rydbergii St. Yves	FEOV1	G	Y	NI										
Hordeum jubatum L.	HOJU1	G	Y	FACW	85.0	95.2			0.3	0.4			1.0	1.6
Juncus balticus Willd.	JUBA1	G	Y	FACW										
Juncus dudleyi Wieg.	JUDU1	G	Y	FAC										
Juncus longistylis Torr.	JULO1	G	Y	FACW										
Juncus torreyi Cov.	JUTO1	G	Y	FACW					1.0	1.8				
Leptochloa fasicularis (Lam.) A. Gray	LEFA1	G	Y	OBL										
Muhlenbergia asperifolia (Nees. & Mey.) Parodi	MUAS1	G	Y	FACW									20.0	32.1
Muhlenbergia racemosa (Michx.) B. S. P.	MURA1	G	Y	FACW										
Panicum capillare L.	PACA1	G	Y	FAC										
Panicum virgatum L.	PAVI1	G	Y	FAC									2.0	3.2
Phalaris arundinacea L.	PHAR1	G	Y	FACW+										
Scirpus pallidus (Britt.) Fern	SCPA1	G	Y	OBL										
Scirpus pungens Vahl	SCPU1	G	Y	OBL									20.0	32.1
Scirpus validus Vahl.	SCVA1	G	Y	OBL					2.0	3.6				
Sorghastrum nutans (L.) Nash	SONU1	G	Y	FACU										
Spartina pectinata Link	SPPE1	G	Y	FACW										
Sporobolus asper (Michx.) Kunth	SPAS1	G	Y	FACU										
Sporobolus cryptandrus (Torr.) A. Gray	SPCR1	G	Y	FACU-										
Sporobolus neglectus Nash	SPNE1	G	Y	UPL										
Triglochin maritima L.	TRMA1	G	Y	OBL										
Typha latifolia L.	TYLA1	G	Y	OBL					30.0	53.6	0.3	0.7		
Shrub Species														
Tamarix ramosissima Ledeb.	TARA1	S	N	FACW									0.3	20.0
Amorpha fruticosa L.	AMFR1	S	Y	OBL										
Prunus virginiana L. var. melanocarpa (A. Nels.) Sarg.	PRVI1	S	Y	FACU										
Rosa arkansana Porter	ROAR1	S	Y	FACU										
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL	4.0	100.0	75.0	93.8	1.0	100.0	80.0	90.9	1.0	80.0
Salix irrorata Andersson	SAIR1	S	Y	NI										
Salix lutea Nutt.	SALU1	S	Y	FACW										
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI			5.0	6.3			8.0	9.1		
Tree Species														
Elaeagnus angustifolia L.	ELAN1	T	N	FAC										
Populus x acuminata Rydb.	POAC1	T	Y	FAC										
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC					8.0	100.0	5.0	100.0	0.3	100.0

Table 13. 2008 Wetland Monitoring Foliar Cover Summary (cont.)

					GIS 76		GIS 77		GIS 78		GIS 79		GIS 80	
					SPDG Wetland B		SPDG Wetland C		SW093 Wetland A		SW093 Wetland B		Bowman Pond/B771 Wetland	
Scientific Name	**Speccode**	**Growth Form**	**Native**	**Wetland Indicator**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**	**Absolute Cover (%)**	**Relative Cover (%)**
Prunus americana Marsh.	PRAM1	T	Y	UPL										
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW										
Cover Summary														
Total Herbaceous Foliar Cover					89.3	100.0	95.0	100.0	56.0	100.0	35.3	100.0	62.3	100.0
Total Herbaceous Forb Cover					3.0	3.4	95.0	100.0	0.3	0.4	5.0	14.2	17.3	27.7
Total Native Herbaceous Forb Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5	24.9
Total Non-Native Forb Cover					3.0	3.4	95.0	100.0	0.3	0.4	5.0	14.2	1.8	2.8
Total Graminoid Cover					86.3	96.6	0.0	0.0	55.8	99.6	30.3	85.8	45.0	72.3
Total Native Graminoid Cover					85.0	95.2	0.0	0.0	55.3	98.7	12.3	34.8	45.0	72.3
Total Non-Native Graminoid Cover					1.3	1.4	0.0	0.0	0.5	0.9	18.0	51.1	0.0	0.0
Total Native Herbaceous Cover					85.0	95.2	0.0	0.0	55.3	98.7	12.3	34.8	60.5	97.2
Total Non-Native Herbaceous Cover					4.3	4.8	95.0	100.0	0.8	1.3	23.0	65.2	1.8	2.8
Total Shrub Cover					4.0	100.0	80.0	100.0	1.0	100.0	88.0	100.0	1.3	100.0
Total Native Shrub Cover					4.0	100.0	80.0	100.0	1.0	100.0	88.0	100.0	1.0	80.0
Total Non-Native Shrub Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	20.0
Total Tree Cover					0.0	0.0	0.0	0.0	8.0	100.0	5.0	100.0	0.3	100.0
Total Native Tree Cover					0.0	0.0	0.0	0.0	8.0	100.0	5.0	100.0	0.3	100.0
Total Non-Native Tree Cover					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50/20 Rule Analysis Summary (Wetland Determination)														
Wetland Indicator				**Wetland Indicator Code**										
Obligate Species				OBL		1		1		3		1		2
Facultative Wet Species				FACW		1								2
Facultative Species				FAC						1		1		1
Facultative Species				FAC-										
Facultative Upland Species				FACU				2				2		
Facultative Upland Species				FACU-										
Upland Species				UPL										
Non-Indicator Species				NI										
Not Applicable/Available - Not listed in USFWS species lists				NA										1
Unknown														
% Vegetation Hydrophytic (OBL, FACW, FAC)						100		33		100		50		83
Hydrophytic Vegetation is Present (Y/N)						Y		N		Y		N		Y

Absolute Cover = Actual estimated cover of each species.
Relative Cover = Relative percent of cover each species (i.e., the absolute cover of a species divided by the total of all absolute cover values summed for each wetland area).
Native Categories: Y = Native, N = Non-Native
Growth Form Categories: F = Forb, G = Graminoid, S = Shrub, T = Tree
Wetland Indicator Categories: OBL = Obligate Wetland species, FACW = Facultative Wetland species, FACW+ = Facultative Wetland species (wetter), FACW- = Facultative Wetland species (drier),
FAC = Facultative species, FAC+ = Facultative species (wetter), FAC- = Facultative species (drier), FACU = Facultative Upland species, FACU+ = Facultative Upland species (wetter), FACU- = Facultative Upland species (drier), UPL = Upland species, NI = Non-Indicator species
Highlighted cells are dominant species based on the application of the 50/20 rule. These species' wetland indicator codes are then used to populate the 50/20 Rule Analysis Summary portion of the table and used to make the final determination of wetland status (based on vegetation alone).
Numbers may not total exactly due to rounding errors and the fact that some species were only identified to genus.

Table 14. Dominant Species at Locations Meeting Hydrophytic Vegetation Criteria in 2008

Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Relative Cover (%)*
Typha latifolia L.	TYLA1	H	Y	OBL	27.2133
Juncus balticus Willd.	JUBA1	H	Y	FACW	8.2791
Hordeum jubatum L.	HOJU1	H	Y	FACW	8.0438
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	H	Y	FACU	6.1312
Scirpus validus Vahl.	SCVA1	H	Y	OBL	5.6318
Cirsium arvense (L.) Scop.	CIAR1	H	N	FACU	5.5145
Juncus torreyi Cov.	JUTO1	H	Y	FACW	4.4036
Panicum virgatum L.	PAVI1	H	Y	FAC	4.3585
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL	52.0124
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC	26.8892
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW	23.0797
Elaeagnus angustifolia L.	ELAN1	T	N	FAC	7.2100

H = Herbaceous, S = Shrub, T = Tree

* Averaged across all locations meeting hydrophytic vegetation criteria in 2008.

Table 15. Dominant Species at Locations Not Meeting Hydrophytic Vegetation Criteria in 2008

Scientific Name	Speccode	Growth Form	Native	Wetland Indicator	Relative Cover (%)*
Agropyron caninum (L.) Beauv. ssp. majus (Vasey) C. L. Hitchc.	AGCA1	H	Y	FACU	19.4729
Cirsium arvense (L.) Scop.	CIAR1	H	N	FACU	17.2219
Elymus canadensis L.	ELCA1	H	Y	FACU	13.5626
Juncus balticus Willd.	JUBA1	H	Y	FACW	12.5631
Agropyron smithii Rydb.	AGSM1	H	Y	FACU	6.4063
Salix exigua Nutt. ssp. interior (Rowlee) Cronq.	SAEX1	S	Y	OBL	72.3246
Symphoricarpos occidentalis Hook.	SYOC1	S	Y	NI	16.4988
Populus deltoides Marsh. ssp. monilifera (Ait.) Eckenw.	PODE1	T	Y	FAC	23.1405
Salix amygdaloides Anderss.	SAAM1	T	Y	FACW	15.3210
Elaeagnus angustifolia L.	ELAN1	T	N	FAC	7.6923

H = Herbaceous, S = Shrub, T = Tree

* Averaged across all locations NOT meeting hydrophytic vegetation criteria in 2008.

Table 16. 2008 Woody Plant Summary at Wetland Mitigation Locations

		Woody Species										
Location	2008 Wetland GIS Number	Coyote Willow	Snowberry	Lead Plant	Yellow Willow	Dewy Stem Willow	American Plum	Chokecherry	Tamarisk	Peach Leaf Willow	Cottonwood*	Russian Olive
B-1 Pond A	1	TN					2				TN	
B-1 Pond B	2	TN	TN									
B-1 Pond C	3	1	TN									
B-2 Pond A	4	TN							10		3	
B-2 Pond B	5	TN	TN									
B-3 Pond A	6	TN							4			
B-3 Pond B	7											
B-3 Pond C	8	TN	TN					TN		9	1	
B116 Wetland A	9	TN							1			
B116 Wetland B	10	TN										
B131	11										1	
B131 SAEX1 Area	12	TN										
B371 Hillside Wetland	13											
B771 N Wetland	14										8	
B771 NW Wetland	15											
B881 Wetland	16									1	2	3
C-1 Pond - A	17	TN									1	
C-1 Pond - B	18											
C-1 Pond - C	19										1	
C-1 Pond - D	20	TN								1	1	
East Shooting Range	21	TN		TN						TN	1	
East Trenches Wetland	22		3									
FC-1 Road Crossing	23	TN		TN								
FC-1 Wetland A	24			3								
FC-1 Wetland B	25	1									TN	1
FC-1 Wetland C	26										20	
FC-1 Wetland D	27							7			TN	
FC-1 Wetland E	28	TN					11	12	1	4	TN	
FC-1 Wetland F	29									1	6	
FC-1 Wetland G	30	TN		5				17			TN	
FC-1 Wetland H	31	TN		TN							TN	
FC-1 Wetland I	32	33									14	
FC-1 Wetland J	33	TN		TN							TN	
FC-1 Wetland K	34	3										
FC-1 Wetland L	35										1	
FC-1 Wetland M	36											
FC-2 Hillside Wetland A	37	TN		3							6	1
FC-2 Hillside Wetland B	38	1									7	
FC-2 Wetland A	39	TN					2			2		
FC-2 Wetland B	40	TN								TN		
FC-2/FC-3 Confluence A	41										TN	
FC-2/FC-3 Confluence B	42	TN		2					1	2	TN	7
FC-3 Lower Wetland	43	TN										
FC-3 Upper Wetland	44	TN										2
FC-4 Hillside Wetland A	45											
FC-4 Hillside Wetland B	46											
FC-4 Hillside Wetland C	47											9
FC-4 Hillside Wetland D	48											
FC-4 Wetland A	49	TN							2	1	1	10
FC-4 Wetland B	50	TN								4	TN	2
FC-5 East Wetland	51											
FC-5 West Wetland	52	3							3			
Melvin's Way Wetland	53											
Mound East Wetland	54	TN								TN		1
Mound SW Wetland	55	4								5	3	
Mound Well Wetland	56											
Mound West Wetland	57	TN			2					TN	1	
Mound W-W Wetland	58	1								2		
OLF - Wetland A	59	1								3		
OLF - Wetland B	60	TN								3	TN	2
OLF - Wetland C	61	9	TN									
OLF - Wetland D	62	TN										
OLF - Wetland E	63		TN									
OLF - Wetland F	64	TN						2		3	3	
PLF - N Channel	65	3								TN	1	
PLF - S Channel	66	TN				1				TN	2	
PLF - E Face North Wetland	67											
PLF - E Face West Wetland	68									1		
PLF - SAEX1 Area	69	TN									3	TN
PLF - SW Hillside Wetland	70	TN	TN							2		1
PLF Pond A	71	14								3		
PLF Pond B	72	TN								7	1	1
PLF Pond C	73											
SPPTS Well Wetland	74											
SPDG - Wetland A	75	1										
SPDG - Wetland B	76	2										
SPDG - Wetland C	77	TN	TN									
SW093 - Wetland A	78	9									TN	
SW093 - Wetland B	79	TN									1	
Bowman Pond/B771 Wetland	80											
FC-2 Wetland C	81											
FC-2/FC-3 Confluence C	82											

TN = too numerous to count

* Cottonwoods include both plains cottonwood and lanceleaf cottonwood counts combined.