US 50 West: Wills Boulevard to Purcell Boulevard (Milepost 313 to Milepost 307)

Project Number: STA 0503-088 Project Code: 20448

Wetland Delineation Technical Report

Prepared for:

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Environmental ssessment

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List of Acronyms and Abbreviations

Ave.	Avenue
Blvd	Boulevard
CBC	concrete box culvert
CDOT	Colorado Department of Transportation
EA	Environmental Assessment
FACU	Facultative Upland
FACW	Facultative Wetland
FHWA	Federal Highway Administration
GIS	geographic information system
NRCS	Natural Resource Conservation Service
OBL	Obligate wetland
PBS-1	Pueblo Boulevard South-1
PEL	Planning and Environmental Linkages
PWMD	Pueblo West Metropolitan District
Rd	Road
RPW	relatively permanent waters
TNW	Traditional Navigable Water
UPL	Upland
USACE	United States Army Corps of Engineers
US 50	United States Highway 50
USFWS	United States Fish and Wildlife Service
WCN-1	Williams Creek North-1
WCS-1	Williams Creek South-1
WHDC	Wild Horse Dry Creek-1
WUS	waters of the US

1 **1.** Introduction

2 This environmental assessment (EA) is for safety and capacity improvements to US Highway 50

- 3 (US 50) between Wills Boulevard (Blvd) and McCulloch Blvd that the Colorado Department of
- 4 Transportation (CDOT), is proposing, in consultation with Federal Highway Administration
- 5 (FHWA), within the City of Pueblo, Pueblo County, and Pueblo West Metropolitan District
- 6 (PWMD). This project is the third in a sequence of improvements that CDOT is making to US 50,
- all under the framework of the US 50 West Planning and Environmental Linkages (PEL) Study (CDOT,
- 2012a). The US 50 West PEL established the purpose and need, evaluated a full range of
 alternatives, and developed the US 50 West PEL Implementation Plan (CDOT, 2012b) for the PEL
- recommended Preferred Alternative within a 12-mile corridor from Swallows Road to Baltimore
- 11 Avenue. Safety and capacity improvements included in the PEL recommended Preferred Alternative
- 12 generally consist of widening US 50 from four lanes to six lanes from McCulloch Blvd to Wills Blvd
- 13 and establishing grade-separated interchanges at McCulloch Blvd, Purcell Blvd, and Pueblo Blvd. US
- 14 50 would remain a four-lane highway west of McCulloch Blvd.
- 15 At the completion of the PEL Study, funds were not available to construct the recommended
- 16 improvements for the entire PEL Corridor, leading CDOT to implement a sequence of

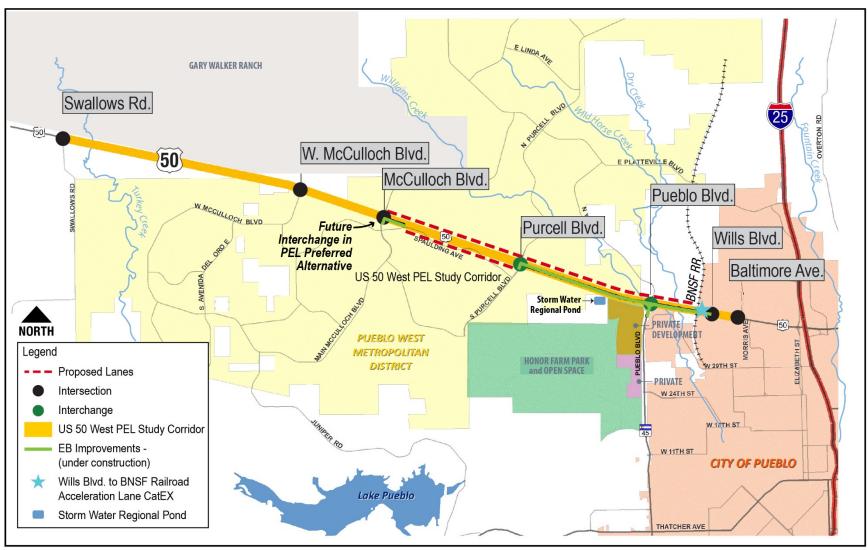
17 improvement projects in coordination with FHWA. The following summarizes the sequence of

18 completed National Environmental Policy Act (NEPA) studies and recent improvements for US 50

- 19 that have led to this US 50 West Wills Blvd to McCulloch Blvd EA, as shown in Figure 1:
- 20 The US 50 West Purcell Blvd to Wills Blvd EA (CDOT, 2014) provides widening 3.4 miles of 21 eastbound US 50 from two lanes to three lanes from Purcell Blvd to Wills Blvd to establish 22 five lanes (three eastbound and two westbound). Safety improvements include adding 23 northbound right turns onto US 50 at McCulloch Blvd and Purcell Blvd and establishing 24 two water quality ponds on the east and west sides of Wild Horse Dry Creek. In addition, 25 widening the eastbound bridge at Wild Horse Dry Creek accommodates a future 26 pedestrian/bicycle path. Construction of these improvements is scheduled for completion in 27 2016.
- The US 50 West Wills Blvd to BNSF Acceleration Lane Categorical Exclusion (CDOT, 2015),
 recently approved by CDOT, establishes a westbound acceleration lane on US 50 from Wills
 Blvd to the BNSF right-of-way (ROW), east of the BNSF bridge, shown on Figure 1.
 Construction of the acceleration lane is scheduled for 2016.
- 32 CDOT and FHWA are currently undertaking the US 50 West Wills Blvd to McCulloch Blvd EA 33 to provide additional safety and capacity improvements to US 50. Improvements include 34 widening 3.4 miles of westbound US 50 between Wills Blvd and Purcell Blvd, from two 35 lanes to three lanes; and widening 2.4 miles of westbound and eastbound US 50 between 36 Purcell Blvd and McCulloch Blvd, from two lanes to three lanes in each direction. Gradeseparated interchanges would be established within the US 50 ROW at Purcell Blvd and 37 38 Pueblo Blvd. A future pedestrian/bicycle path would also be accommodated between Wills 39 Blvd and Pueblo Blvd. A regional water quality pond is proposed to treat US 50 runoff and 40 PWMD municipal runoff.
- 41

- 1 The Proposed Action, in combination with the improvements under construction from Purcell Blvd
- 2 to Wills Blvd, would establish six-lane capacity (three lanes in each direction) in the most congested
- 3 portion of the PEL Corridor, between Wills Blvd and McCulloch Blvd.
- 4 For this EA, the existing features of US 50, including the improvements approved through the US
- 5 50 West Purcell Blvd to Wills Blvd EA (CDOT, 2014) and the US 50 West Wills Blvd to BNSF
- 6 Acceleration Lane Categorical Exclusion, represent the No Action Alternative. The No Action
- 7 Alternative assumes that no other major capacity improvements would be made to US 50. The No
- 8 Action Alternative also includes routine maintenance to keep the existing transportation network in
- 9 good operating condition.
- 10 CDOT and FHWA prepared this EA to evaluate the Proposed Action benefits and environmental
- 11 impacts, relevant to the No Action Alternative. This EA will also ensure that the Proposed Action
- 12 would have logical termini and independent utility and would not restrict other reasonably
- 13 foreseeable transportation improvements identified in the PEL recommended Preferred Alternative.
- 14 Future elements of the PEL recommended Preferred Alternative will undergo NEPA analysis as
- 15 funding for design, ROW, and construction becomes available.
- 16 This wetland delineation has been prepared in support of the US 50 West Wills Blvd to McCulloch Blvd
- 17 EA. This wetland delineation technical report describes the waters of the US (WUS), including
- 18 wetlands and open water, within and adjacent to the project, and evaluates the potential for impacts
- 19 as a result of the Proposed Action and No Action Alternative.
- 20

1 Figure 1. Proposed Action and PEL Study Corridor



3

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2. **Project Description** 1

2.1 **Proposed Action** 2

3 The Proposed Action for this US 50 West Wills Blvd to McCulloch Blvd EA involves widening 3.4 miles 4 of westbound US 50 from two lanes to three lanes, to include a third westbound lane from Wills 5 Blvd (Milepost 313.15) to Purcell Blvd (Milepost 309.78), and widening 2.4 miles of both westbound 6 and eastbound US 50 from Purcell Blvd (Milepost 309.78) to McCulloch Blvd (Milepost 307.34). 7 Grade-separated interchanges would be established at Pueblo Blvd and at Purcell Blvd. The 8 Proposed Action from Wills Blvd to McCulloch Blvd, in combination with the eastbound 9 improvements under construction from Purcell Blvd to Wills Blvd, would establish six-lane capacity 10 (three lanes in each direction), for 5.8 miles of US 50, consistent with the US 50 West PEL Implementation Plan (CDOT, 2012b). 11 12 CDOT is proposing the following transportation improvements between Wills Blvd and McCulloch Blvd: 13

- 14 15 16 17
- Wills Blvd Intersection to BNSF Railroad Bridge (Milepost 313.15 to Milepost 312.87) - A third westbound lane would be established by restriping the Wills Blvd to BNSF acceleration lane (US 50 West Wills Blvd to BNSF Acceleration Lane Categorical Exclusion; CDOT, 2015) and by extending the westbound lane through the BNSF railroad bridge 18 underpass to Pueblo Blvd.
- 19 BNSF Railroad Bridge through Pueblo Blvd Intersection (Milepost 312.87 to 20 Milepost 312.65) – The westbound lanes of US 50 in the vicinity of Pueblo Blvd would be 21 realigned to be parallel to the eastbound lanes from Milepost 311.45 to Milepost 312.65, and 22 the existing westbound bridge over Wild Horse Dry Creek would be replaced. A grade-23 separated interchange would be established, with Pueblo Blvd crossing over US 50. The 24 Williams Creek concrete box culvert (CBC) under the eastbound US 50 lanes would be 25 extended 160 ft. to accommodate the realigned westbound lanes, including the westbound 26 third-lane widening. Pueblo Blvd would be widened to accommodate two additional left turn 27 lanes onto westbound US 50 via a right-side exit ramp. The existing westbound US 50 lanes 28 would be retained and modified to provide access from US 50 onto southbound Pueblo 29 Blvd. The US 50 West PEL Implementation Plan (CDOT, 2012b) identifies the Proposed 30 Action at US 50 at Pueblo Blvd to be implemented as phased improvements over time. The 31 Proposed Action would implement a diamond-type interchange at Pueblo Blvd. The PEL 32 recommends a Diverging Diamond Interchange configuration, which would be implemented 33 at some time in the future when the Pueblo Blvd Extension is developed as an expressway 34 between US 50 and I-25 (CDOT, 2012a).
- Pueblo Blvd to Purcell Blvd Intersection (Milepost 312.65 to 309.78) - The westbound 35 third lane would extend from Pueblo Blvd to Purcell Blvd, and a full six-lane grade-separated 36 37 interchange would be developed, with US 50 crossing over Purcell Blvd. A CBC under 38 Purcell Blvd would be extended to accommodate a future pedestrian/bicycle trail and future 39 widening of Purcell Blvd.
- 40
- 41

1 2 3 4 5 6 7	•	Purcell Blvd to McCulloch Blvd (Milepost 309.78 to Milepost 307.34) – The Proposed Action would include a third westbound lane extending from Purcell Blvd and terminating at a right turn onto northbound McCulloch Blvd; and a third eastbound lane extending from the newly established northbound right turn from McCulloch Blvd and terminating at Purcell Blvd. The ultimate configuration for US 50 and McCulloch Blvd, although not part of this EA, is a grade-separated interchange as identified in the <i>US 50 West PEL Implementation Plan</i> (CDOT, 2012b).
8 9 10 11 12	•	Pedestrian/Bicycle Path – The Proposed Action would accommodate a future pedestrian/bicycle path within CDOT ROW along the south side of US 50 from Wills Blvd to Pueblo Blvd, which is an element of the PEL recommended Preferred Alternative (CDOT, 2012a). The slope paving adjacent to the eastbound lanes at the BNSF railroad underpass would be modified to accommodate the pedestrian/bicycle path.
13 14 15 16 17 18 19 20	•	Municipal Separate Storm Sewer System (MS4) Improvements/Regional Pond – The Proposed Action would include water quality improvements and a regional pond. Stormwater runoff for the westbound lane widening and interchange improvements between Wills Blvd and Pueblo Blvd (Milepost 313.5 to Milepost 311.15) would be directed to the two extended detention basins under construction on the east and west sides of Wild Horse Dry Creek. Stormwater runoff for the westbound and eastbound lanes between Pueblo Blvd and McCulloch Blvd (Milepost 311.5 to Milepost 397.34) would be directed to a proposed regional pond site within a private parcel west of Pueblo Blvd and south of US 50.

21 Figure 2 provides a general map of the Proposed Action

22 2.2 No Action Alternative

23 The existing features of US 50, including the improvements approved through the US 50 West Purcell

24 Blvd to Wills Blvd EA (CDOT, 2014) and the US 50 West Wills Blvd to BNSF Acceleration Lane

25 Categorical Exclusion, represent the No Action Alternative. The No Action Alternative assumes that

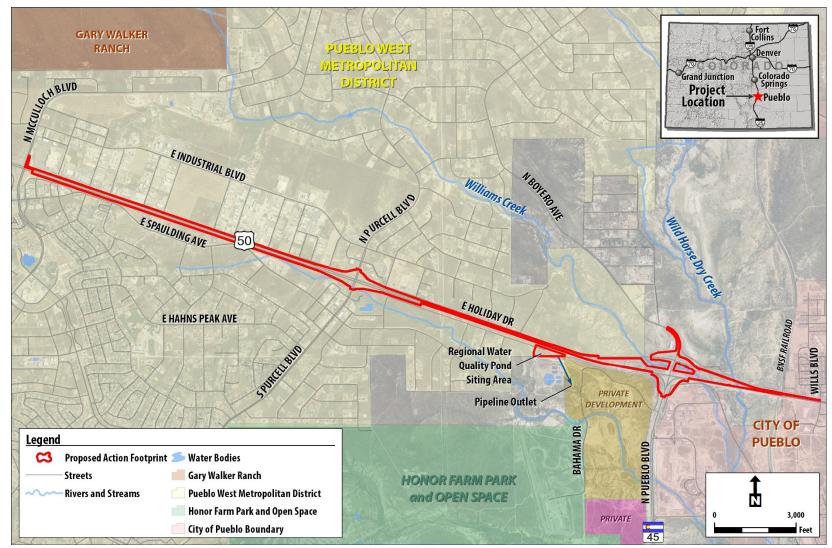
26 no other major capacity improvements would be made to US 50. The No Action Alternative also

27 includes routine maintenance to keep the existing transportation network in good operating

28 condition.

29

1 Figure 2. Proposed Action



23

1 3. Methods

Felsburg Holt & Ullevig (FHU) staff reviewed previous environmental studies conducted in the
project vicinity, reviewed existing environmental data, and conducted a wetland delineation to gather
information about wetlands within and adjacent to the project footprint (wetland resources study
area). FHU staff also completed an impact assessment for the Proposed Action and No Action
Alternative, as discussed in Section 4.
FHU staff used wetland delineations from the US 50 West PEL Study (2012a) and the eastbound
US 50 West Purcell Blvd to Wills Blvd Environmental Assessment (CDOT, 2014) to identify baseline
wetland information.

- 9 wetland information. FHU staff conducted wetland delineations on June 3, 2013, and April 1, 2015,
- and a site reconnaissance on December 3, 2015. The wetland delineations and site reconnaissance
- 11 were based on the latest Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great
- 12 Plains Region (Version 2.0) (USACE, 2010). During the field surveys on April 1, 2015, FHU staff
- 13 reviewed the previous delineation and corrected the previous wetland boundaries based on current
- 14 field conditions. As identified in the field in April 2015, there were no significant changes to the
- 15 previously delineated wetlands. One additional wetland was captured as part of the expanded project
- 16 area west of Purcell Blvd along the unnamed tributary to Williams Creek. FHU staff also reviewed
- 17 field conditions in the vicinity of a potential location for a regional water quality pond during the site
- 18 reconnaissance on December 3, 2015. No wetlands were identified in the location of the proposed
- 19 water quality pond; however, depending on where the pond outlets, a future delineation may be 20 required.
- 21 During the field surveys on June 3, 2013, April 1, 2015, and December 3, 2015, FHU staff collected
- 22 the wetland boundaries using a Trimble® GeoXHTM global positioning system with ESRI®
- 23 ArcPadTM version 10.0 mobile geographic information system (GIS). FHU staff then analyzed the
- 24 data in the office using ESRI® ArcMap[™] GIS v.10. Appendix A includes photographs of the study
- area and illustrates the conditions of wetland and open water areas in June/July 2013, April 2015,
- and December 2015. FHU staff used the latest wetland determination forms to document wetlands
- 27 identified during the June 2013 and April 2015 field surveys for the US 50 West Wills Blvd to 29 $M \in \mathcal{U} \cup \mathcal{D} \cup \mathcal{D} \cup \mathcal{D}$
- 28 McCulloch Blvd EA (Appendix B).

29 **3.1 Environmental Setting**

- 30 The approximate center of the project is located in Pueblo County in the SW ¹/₄ of the SW ¹/₄ of
- 31 Section 9, Township 2 South, Range 65 West (Lat 38.318 and Long -104.678). Land use surrounding
- 32 US 50 in the study area is predominantly rangeland with scattered residential and commercial
- 33 development. Commercial development focuses on the four major arterial roads: McCulloch Blvd,
- 34 Purcell Blvd, Pueblo Blvd, and Wills Blvd, and in the southwest corner of the McCulloch
- 35 Blvd/Purcell Blvd intersection. The BNSF railroad also crosses US 50 within the study area.
- 36 The study area lies within both the Dry Creek watershed and the Wild Horse Creek watershed,
- 37 which are both within the Upper Arkansas River Basin. Williams Creek and Wild Horse Dry Creek
- 38 cross US 50 at the Pueblo Blvd intersection. Williams Creek flows from northwest to southeast and
- 39 passes under the highway and under Pueblo Blvd. Wild Horse Dry Creek also flows from northwest
- 40 to southeast and passes under the highway to the east of Pueblo Blvd. An unnamed tributary to

- 1 Williams Creek also exists south of US 50 and crosses under Purcell Blvd in a narrow channelized2 ditch.
- 3 The natural setting within the study area is disturbed by surrounding commercial development,
- 4 residential development, recreational off-road vehicle use, utility corridors, noxious weeds, and a
- 5 highly traveled highway. Most of the project corridor has limited habitat to support wildlife species;
- 6 however, the Williams Creek and Wild Horse Dry Creek drainages provide habitat for various
- 7 species. Also, prairie dog colonies are present throughout the study area.
- 8 Common vegetation present in the study area includes grasses, forbs, shrubs, and trees. Vegetation
- 9 includes buffalograss (Bouteloua dactyloides), purple milkvetch (Astragalus agrestis), common threesquare
- 10 (Schoenoplectus pungens), common spikerush (Eleocharis palustris), creeping bentgrass (Agrostis stolonifera),
- 11 narrowleaf cattail (Typha angustifolia), tamarisk (Tamarix chinensis), golden currant (Ribes aureum),
- 12 sandbar willow (Salix interior), plains cottonwood (Populus deltoides), and Siberian elm (Ulmus pumila).
- 13 Williams Creek and Wild Horse Dry Creek pass under US 50 from northwest to southeast in the
- study area. These two creeks are lined with tamarisk, Canada thistle (*Cirsium arvense*), and other
- 15 vegetation similar to the vegetation identified throughout the study area. Common spikerush was
- 16 also found within the ordinary high water mark channel in both creeks. The wetlands identified at
- 17 Wild Horse Dry Creek, other than the vegetation in the channel, are fringe wetlands (between 1- and
- 18 2-feet wide) on a shelf above the channel. The wetlands identified at Williams Creek are found in a
- 19 depressional area. The wetlands found at the Williams Creek tributary, east and west of Purcell Blvd,
- 20 are within the channel/depressional area. This tributary channel is also dry in other areas between
- 21 McCulloch Blvd and Purcell Blvd, where the water is present for a short time and where wetland
- 22 vegetation does not grow.
- 23 No wetlands were found at the intersection of McCulloch Blvd and US 50. Formal landscaping was
- 24 added to the two south quadrants of the intersection, which mark the gateway to Pueblo West. The
- 25 landscaping consists of large beds of crushed red gravel, with clumps of shrubs and evergreen trees.
- 26 The northern two quadrants of the intersection were not landscaped in the past, have little
- 27 vegetation, and are dominated by prairie dog colonies.
- 28

1 **3.2** Summary of Wetlands

- 2 The project team identified six wetland areas (Purcell Wetland, Purcell Wetland West, Williams
- 3 Creek North-1 [WCN-1], Williams Creek South-1 [WCS-1], Pueblo Boulevard South-1 [PBS-1], and
- 4 Wild Horse Dry Creek-1 [WHDC-1]) in the study area (**Table 1** and **Figure 3**).

5 **Table 1.** Summary of Wetlands in the Study Area

Wetland ID	Existing Area (acres)
Purcell Wetland	0.127
Purcell Wetland West	0.163
Williams Creek North-1 (WCN-1)	0.050
Williams Creek South-1 (WCS-1)	0.559
Pueblo Boulevard South-1 (PBS-1)	0.282
Wild Horse Dry Creek-1 (WHDC-1)	0.077 (4 separate areas)
TOTAL	1.258

6 The Purcell Wetland and Purcell Wetland West are located in the Williams Creek tributary southwest

7 and southeast of the US 50 and Purcell Blvd intersection. Wetlands WCN-1, WCS-1, and PBS-1 are

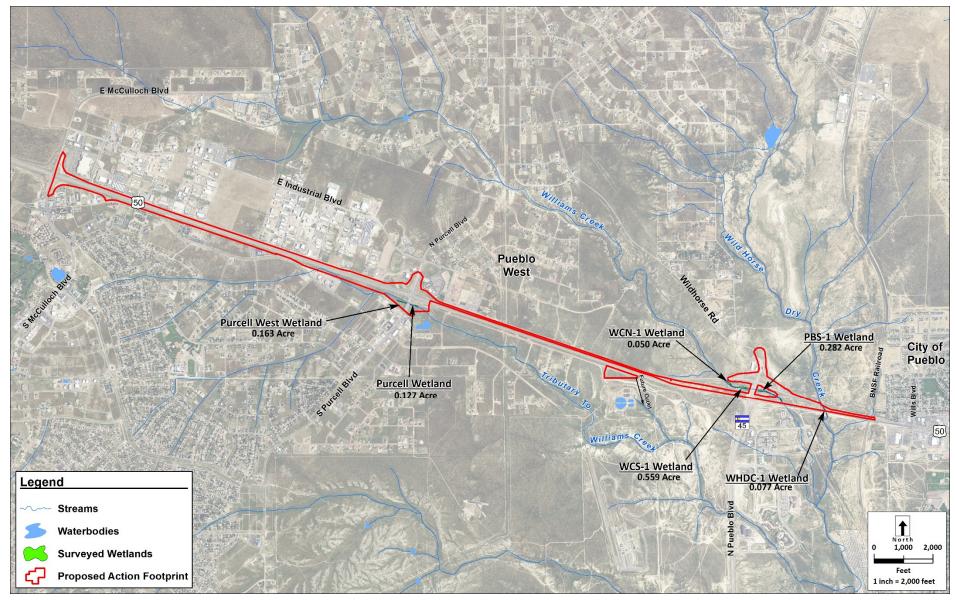
8 found in or adjacent to Williams Creek near the US 50 and Pueblo Blvd intersection. Wetland

9 WHDC-1 is found underneath US 50 at Wild Horse Dry Creek, east of Pueblo Blvd. All of these

10 wetlands have distinct boundaries within the narrow floodplain/drainage areas. The following

11 sections present more detail on each wetland/wetland group identified in the study area.

Figure 3. Surveyed Wetlands Overview



1 3.3 Purcell Wetland

2 FHU staff identified and delineated one wetland area associated with the Williams Creek tributary,

- 3 which flows in a west-to-east direction and is located south of US 50 and east of Purcell Blvd
- 4 (Figure 3 above and in detail on Figure C-2 in Appendix C). The wetland area is completely
- 5 within a depression (**Photo 12**), in and adjacent to a narrow channel. The vegetation that was
- 6 present during the June 2013 field survey varies between 5 feet and 10 feet in width and extends
- 7 upstream and downstream outside the study area. The size of this wetland is 0.127 acre. FHU staff
- 8 completed one wetland determination form for the wetland described as Purcell Wetland. This form
- 9 is in **Appendix B**.
- 10 The Purcell Wetland is categorized as a palustrine emergent wetland that is seasonally flooded. The
- 11 soils in this area, which are Niobrara shale, are higher in selenium and exhibit other alkaline
- 12 properties. Under the Cowardin classification system, the Purcell Wetland is considered to be
- 13 PEMAi, with the "i" indicating the alkaline content in the water (Cowardin et al., 1979). The
- 14 characteristics of this wetland are described below and are shown as Purcell Wetland on Figure 3
- 15 above and in detail (1" = 100') on Figure C-2 in Appendix C.

16 Vegetation

- 17 Weeds dominate the vegetation identified in the Purcell Wetland, including common reed (Phragmites
- 18 australis) and tamarisk. FHU staff also identified narrowleaf cattail as another dominant plant located
- 19 in and adjacent to the Williams Creek tributary channel during the June 2013 field survey. No trees
- 20 were identified in this area. The common reed and the narrowleaf cattail, which are the dominant
- 21 species, account for 60 percent of the herb stratum. Canada thistle is also present but to a much
- 22 lesser extent. Tamarisk accounts for 40 percent in the sapling/shrub stratum. The Dominance Test
- 23 was passed; therefore, the wetland consists of hydrophytic vegetation. The upland vegetation
- surrounding the wetland consists of buffalograss, rubber rabbitbrush (*Ericameria nauseosa*), fourwing
- 25 saltbrush (*Atriplex canescens*), other grasses, and noxious weeds.

26 Hydrology

- 27 Hydrology in the Purcell Wetland consists of intermittent surface flow as a tributary to Williams
- 28 Creek, which collects stormwater and carries it in a highly channelized narrow channel to Williams
- 29 Creek downstream. The primary hydrologic indicators include the presence of surface water at the
- 30 CBC under Purcell Blvd and saturation. The one secondary indicator is the geomorphic position.
- 31 Therefore, wetland hydrology is present at the Purcell Wetland.

32 Soils

- 33 Before conducting the field survey, FHU staff downloaded a Web Soil Survey that identified the soil
- 34 types in the area. Soil types include Heldt silty clay loam, Manvel silt loam, Minnequa-Manvel loams,
- 35 Penrose-Minnequa complex, Penrose-Rock outcrop complex, and Shingle silty clay loams (NRCS,
- 36 2013). During the field survey, FHU staff dug a soil pit to investigate the soil profile in the Purcell
- 37 Wetland. Within the first 4 inches of the surface, the soil color consists of 10 YR 4/3. Below these
- 5 inches of clay loam, there is another 5 inches of clay loam of 2.5 YR 5/2 as the dominant color
- 39 with 80 percent in the matrix. The second soil color (20 percent) in this matrix had a color
- 40 consisting of 2.5 YR 5/1. The soils at the Purcell Wetland were problematic due to a deeply incised
- 41 channel and young soils. Soils at this location were assumed hydric due to the presence of wetland
- 42 vegetation and hydrology.

1 **3.4 Purcell Wetland West**

2 FHU staff identified and delineated one wetland area associated with the Williams Creek tributary,

- 3 located south of US 50 and west of Purcell Blvd (Figure 3 above and in detail on Figure C-2 in
- 4 **Appendix C**). The wetland area is completely within a depression, in and adjacent to a narrow
- 5 channel (Photos 13 & 14). The vegetation that was present during the April 2015 field survey varies
- 6 between 5 feet and 10 feet in width and extends upstream and downstream outside the study area.
- 7 The size of this wetland is 0.163 acre. FHU staff completed two wetland determination forms for
- 8 the wetland described as Purcell Wetland West. These forms in **Appendix B** are identified as PWW-
- 9 1 and PWW-2.
- 10 The Purcell Wetland West is categorized as a palustrine emergent wetland that is seasonally flooded.
- 11 The soils in this area, which are Niobrara shale, are higher in selenium and exhibit other alkaline
- 12 properties. Under the Cowardin classification system, the Purcell Wetland West is considered to be
- 13 PEMAi, with the "i" indicating the alkaline content in the water (Cowardin et al., 1979). The
- 14 characteristics of this wetland are described below and are shown as Purcell Wetland West on
- 15 Figure 3 above and in detail (1" = 100") on Figure C-2 in in Appendix C.

16 Vegetation

- 17 Weeds dominate the vegetation identified in the Purcell Wetland West, including common reed and
- 18 tamarisk. FHU staff also identified narrowleaf cattail as another dominant plant located in and
- 19 adjacent to the Williams Creek tributary channel during the April 2015 field survey. No trees were
- 20 identified in this area. The common reed and narrowleaf cattail, which are the dominant species,
- 21 account for 55 percent of the herb stratum. Tamarisk accounts for 30 percent in the sapling/shrub
- 22 stratum. The Dominance Test was passed; therefore, the wetland consists of hydrophytic vegetation.
- 23 The upland vegetation surrounding the wetland consists of buffalograss, rubber rabbitbrush,
- 24 fourwing saltbrush, other grasses, and noxious weeds.

25 Hydrology

- 26 Hydrology in the Purcell Wetland West consists of intermittent surface flow as a tributary to
- 27 Williams Creek, which collects stormwater and carries it in a highly channelized narrow channel to
- 28 Williams Creek downstream. The primary hydrologic indicators include the presence of surface
- 29 water, a high water table, saturation, and the appearance of a salt crust. Secondary indicators include
- 30 drainage patterns, the geomorphic position, and passing the FAC-Neutral Test. Therefore, wetland
- 31 hydrology is present at the Purcell Wetland West.

32 Soils

- 33 Before conducting the field survey, FHU staff downloaded a Web Soil Survey that identified the soil
- 34 types in the area. Soil types include Heldt silty clay loam, Manvel silt loam, Minnequa-Manvel loams,
- 35 Penrose-Minnequa complex, Penrose-Rock outcrop complex, and Shingle silty clay loams (NRCS,
- 36 2013). During the field survey, FHU staff dug a soil pit to investigate the soil profile in the Purcell
- 37 Wetland West. Within the first 2 inches of the surface, the soil colors observed consists of GLEY 1
- 38 2.5/N (60 percent) and 10 YR 4/3 (40 percent). Between these 2 inches of sandy clay and the
- bottom of the soil sample (20 inches), there is clay loam of 10YR 4/4. This soil profile qualifies as a Sandy Gleved Matrix and is considered hydric. The soils at the Purcell Wetland West were also
- 41 somewhat problematic due to a deeply incised channel.

1 3.5 Wetlands WCN-1, WCS-1, and PBS-1

FHU staff identified and delineated three wetland areas associated with the Williams Creek drainage,
which flows in a northwest-to-southeast direction and is located in the area of the US 50/Pueblo

- 4 Blvd intersection (Figure 3 above and in detail on Figures C-3 and C-4 in Appendix C). Williams
- 5 Creek crosses underneath Pueblo Blvd in a CBC in this area. The wetland areas identified during the
- 6 June 2013 field survey are completely within a depression in and adjacent to a narrow channel. The
- 7 vegetation that is present varies between 3 feet and 50 feet in width and extends upstream and
- 8 downstream outside the study area. The size of these wetlands combined is 0.891 acre. FHU staff
- 9 compiled an "in-point" and an "out-point" wetland determination form for each wetland identified
- as WCN-1, WCN-2, WCS-1, WCS-2, PBS-1, and PBS-2, which are provided in **Appendix B**.
- 11 All wetlands identified in the Williams Creek drainage are categorized as being palustrine emergent
- 12 wetlands that are seasonally flooded (USFWS, 2013). The soils in this area (Niobrara shale) are
- 13 higher in selenium and other alkaline properties and exhibited a rotten egg smell the day of the
- 14 survey. Under the Cowardin classification system, the wetlands here are considered to be PEMAi,
- 15 with the "i" indicating the alkaline content in the water (Cowardin et al., 1979). Wetland
- 16 characteristics are described below and are shown as Wetland WCN-1, Wetland WCS-1, and

17 Wetland PBS-1 on **Figure 3** above and in detail (1" = 100') on **Figures C-3 and C-4** in

18 Appendix C.

19 Vegetation

- 20 **Table 2** identifies the dominant vegetation for Wetland WCN-1, Wetland WCS-1, and Wetland
- 21 PBS-1 for each wetland "in-point" sampling area, including the dominant vegetation, wetland
- 22 vegetation indicator status, and the results of the Dominance Test. Appendix B includes
- 23 information on the dominant vegetation in the "out-point" sampling areas.
- 24 The Dominance Test was passed for all three wetlands; therefore, these wetlands consist of
- 25 hydrophytic vegetation. The upland vegetation surrounding the wetlands consists of buffalograss,
- 26 rubber rabbitbrush, fourwing saltbrush, other grasses, and noxious weeds.

27 Table 2. Surveyed Vegetation in the Williams Creek Wetlands

Common Name	non Name Species Name		Wetland WCN-1	Wetland WCS-1	Wetland PBS-1
		Herb Stratum			
Kochia	Bassia scoparia	FACU			Х
Canada thistle	Cirsium arvense	FACU			Х
Common spikerush	Eleocharis palustris	OBL	Х	Х	
Common threesquare	Schoenoplectus pungens	OBL			х
Creeping bentgrass	Agrostis stolonifera	FACW	Х	Х	
Narrowleaf cattail	Typha angustifolia	OBL	Х	Х	Х
Purple milkvetch	Astragalus agrestis	FACU			Х

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Common Name	Species Name	Indicator Status	Wetland WCN-1	Wetland WCS-1	Wetland PBS-1			
	Sapli	ng/Shrub Stratum						
Golden currant	Ribes aureum	FACU	Х	Х	Х			
Russian olive	Elaeagnus angustifolia	FACU		х				
Sandbar willow	Salix interior	FACW			Х			
Tamarisk	Tamarix chinensis	FACW	Х	Х	Х			
	Tree Stratum							
Siberian elm	Ulmus pumila	UPL			х			
Do	ominance Test Score	80%	75%	60%				

Wetland Vegetation Indicator Key: OBL = Obligate wetland, FACW = Facultative Wetland, FACU = Facultative Upland, UPL = Upland

1 Hydrology

- 2 Hydrology in Wetland WCN-1, Wetland WCS-1, and Wetland PBS-1 consists of perennial surface
- 3 flow as part of Williams Creek, which carries water from the northwest to the southeast in a
- 4 depression or an arroyo and which eventually empties into Wild Horse Dry Creek and then into the
- 5 Arkansas River further downstream. The primary hydrologic indicators include the presence of
- 6 surface water and saturation in all three wetlands. Another primary indicator and two secondary
- 7 indicators in Wetlands WCN-1 and WCS-1 include an algal mat or crust, geomorphic position, and
- 8 drainage patterns. A third primary indicator, drift deposits, was also observed at Wetland PBS-1.

9 Soils

- 10 Before conducting the field survey, FHU staff downloaded a Web Soil Survey that identified the soil
- 11 types in the area. Soil types include Heldt silty clay loam, Manvel silt loam, Minnequa-Manvel loams,
- 12 Penrose-Minnequa complex, Penrose-Rock outcrop complex, and Shingle silty clay loams (NRCS,
- 13 2013). During the field survey, FHU staff dug a soil pit to investigate the soil profiles in these three
- 14 wetlands. **Table 3** identifies each hydric soil property in the "in-point" sampling locations at each
- 15 wetland site. Refer to Appendix B for additional information about soils captured on the wetland
- 16 determination forms and the "out-point" soil properties.
- 17 The soil profiles in Wetlands WCN-1 and WCS-1 have a hydric soil indicator of sandy redox.
- 18 Therefore, these soils are considered hydric soils. The soil profiles in Wetland PBS-1 are problematic
- 19 due to indications that there were recent fluvial deposits. Due to the soils being recently deposited
- 20 here, hydric soil characteristics have not had enough time to form. Hydric soils are assumed for
- 21 Wetland PBS-1 due to the presence of wetland vegetation and wetland hydrology.

1 **Table 3.**

Wetlands WCN-1, WCS-1, and PBS-1 Soil Profiles

Soil Depth	Soil Color	Percent of Matrix	Soil Texture	Remarks					
	WCN-1								
0 - 5"	10 YR 5/2	70%	Sandy Loam						
0 - 5"	0 – 5" 7.5 YR 5/6 5		Sandy Loam						
0 -5"	0 -5" 10 YR 3/1		Sandy Loam	Restricted at 5"					
	WCS-1								
0 - 5"	10 YR 5/2	70%	Sandy Loam						
0 - 5"	7.5 YR 5/6	5% Redox	Sandy Loam						
0 - 5"	0 - 5" 10 YR 3/1		Sandy Loam	Restricted at 5"					
	PBS-1								
0 - 5"	2.5 YR 4/2	100%	Sandy Clay						
5" - 8"	2.5 YR 4/2	100%	Sandy Clay	Saturated					

2 3.6 Wetland WHDC-1

3 FHU staff identified and delineated one wetland area associated with Wild Horse Dry Creek, which

4 flows in a northwest-to-southeast direction and is located east of Pueblo Blvd and crosses

5 underneath the westbound and eastbound US 50 bridges in this area. The wetland area is completely

6 within a depression in and adjacent to a narrow channel. The vegetation that is present varies

7 between 1 foot and 4 feet in width and extends upstream and downstream outside the study area.

8 The size of four separate wetland features associated with Wetland WHDC-1 combined is

9 0.077 acre. The project team compiled one "in-point" wetland determination form and one

10 "out-point" wetland determination form for Wetland WHDC-1 (Appendix B).

11 Wetland WHDC-1 is categorized as a palustrine emergent wetland that is intermittently

12 flooded/temporary (USFWS, 2013). The soils in this area (Niobrara shale) are higher in selenium

13 and other alkaline properties. Under the Cowardin classification system, the wetland here is

14 considered to be PEMAi, with the "i" indicating the alkaline content in the water (Cowardin et al.,

- 15 1979).
- 16 The characteristics of this wetland are described below and are shown as Wetland WHDC-1 on
- 17 Figure 3 above and in detail (1" = 100") on Figure C-5 in Appendix C.

18 Vegetation

- 19 Creeping bentgrass and tamarisk dominate the vegetation identified in Wetland WHDC-1 and
- 20 account for 40 percent of the herb stratum and 30 percent of the sapling/shrub stratum,
- 21 respectively. No trees were identified in this area. The Dominance Test was passed; therefore, the
- 22 wetland consists of hydrophytic vegetation. The upland vegetation surrounding the wetland consists
- 23 of buffalograss, rubber rabbitbrush, fourwing saltbrush, and other grasses. Two other noxious
- 24 weeds, perennial pepperweed (Lepidium latifolium) and hoary cress (Cardaria draba), are also present in
- 25 dense populations.

1 Hydrology

- 2 Hydrology in Wetland WHDC-1 consists of perennial surface flow as part of Wild Horse Dry Creek,
- 3 which is a perennial stream. The primary hydrologic indicators include the presence of surface water,
- 4 saturation, an algal mat or crust, and a salt crust. Two secondary indicators were observed: the
- 5 geomorphic position and drainage patterns. Therefore, wetland hydrology is present at Wetland
- 6 WHDC-1.

7 Soils

- 8 Before conducting the field survey, FHU staff downloaded a Web Soil Survey that identified the soil
- 9 types in the area. Soil types include Heldt silty clay loam, Manvel silt loam, Minnequa-Manvel loams,
- 10 Penrose-Minnequa complex, Penrose-Rock outcrop complex, and Shingle silty clay loams (NRCS,
- 11 2013). During the field survey, FHU environmental scientists dug a soil pit to investigate the soil
- 12 profile in Wetland WHDC-1. Within the first 5 inches of the surface, the soil consists of a dominant
- 13 (70 percent) color of 10 YR 5/2, with 5 percent of the matrix showing that redox features are
- 14 apparent (7.5 YR 5/6). The other 25 percent of the matrix shows a color of 10 YR 3/1. Because this
- soil profile has a hydric soil indicator of sandy redox, this soil is considered a hydric soil.

16**3.7**Waters of the US and Jurisdictional Status

- 17 The definition of WUS under United States Army Corps of Engineers (USACE) jurisdiction does
- 18 not include wetlands that lack a surface connection to and, therefore, are isolated from, regulated
- 19 waters. However, in projects with federal funding or oversight, such as this Project, a second piece
- 20 of legislation, Executive Order 11990 Protection of Wetlands, directs the lead federal agencies, in
- 21 this instance FHWA, to protect isolated wetlands by avoiding direct or indirect support of
- 22 construction in wetlands when a practicable alternative is available.
- 23 The tributary to Williams Creek, Williams Creek, and Wild Horse Dry Creek would potentially be
- considered WUS within the Clean Water Act jurisdiction (as defined by 33 Code of Federal
- 25 Regulations Part 328). The specific WUS indicators include relatively permanent waters (RPWs) that
- 26 flow directly or indirectly into a Traditional Navigable Water (TNW) and wetlands directly abutting
- 27 RPWs that flow directly or indirectly into TNWs (USACE, 2007). Purcell Wetland, Purcell Wetland
- 28 West, WCN-1, WCS-1, PBS-1, and WHDC-1 would likely be considered jurisdictional wetlands.
- 29

1 4. Impacts

- 2 This section describes the impact assessment of the Proposed Action and the No Action Alternative
- 3 on the wetland resources identified in the study area. Impacts of highway improvements on
- 4 wetlands, whether from the Proposed Action or No Action Alternative, can result from:
 - Placement of fill within a wetland boundary
 - Soil disturbance

- Changing hydrology
- Pollutant discharge
- Vegetation removal

- Changing adjacent land use
- 5 Permanent impacts can be defined as changes to vegetation, hydrology, or soils that lead to a change
- 6 in the presence of wetlands. Permanent impacts from the Proposed Action were evaluated based on
- 7 the project design footprint and included the areas of ground disturbance from the following project
- 8 elements:
- Addition of a third eastbound lane and intersection improvements at Purcell Blvd/US 50
 and McCulloch Blvd/US 50
- 11 Bridge widening, including pier work, at Wild Horse Dry Creek
- 12 Extending the CBC at Pueblo Blvd
- 13 Extending the CBC at Purcell Blvd
- 14 Placement of riprap for erosion control
- 15 Drainage outfall structures
- 16 A temporary impact can be defined as a change to at least one of the wetland characteristics
- 17 (vegetation, hydrology, or soils) but can later be restored to a pre-construction condition at the same
- 18 location. Temporary impacts from the Proposed Action were evaluated based on the areas of
- 19 ground disturbance that will be reseeded and revegetated following construction and included a
- 20 10-foot buffer around the construction footprint.
- 21 Wetland impacts were summed within the concept-level design footprint. The total potential
- wetland impact in these three drainages due to construction of the westbound US 50 project is 0.160 scree (0.025 screep)
- 23 0.160 acre (0.025 acre of permanent impacts and 0.135 acre of temporary impacts).
- 24 There are no permanent or temporary wetland impacts due to the No Action Alternative.
- 25 Refer to Appendix C, Figures C-1 to C-5 for a detailed view of the Proposed Action in the area of
- 26 the Wild Horse Dry Creek, Williams Creek, and unnamed tributary to Williams Creek drainages.

1 5. Mitigation

2 CDOT mitigates impacts to wetlands that have been determined to be jurisdictional and non-3 jurisdictional by the USACE. CDOT also mitigates impacts to non-jurisdictional wetlands on 4 projects per Executive Order 11990, as identified in an Memorandum of Agreement with FHWA. 5 Due to not having formal design at this time (December 2015), wetland impacts were estimated 6 within the concept-level design footprint. The estimated amount of permanent wetland impacts is 7 0.025 acre at the three drainage locations. CDOT would either mitigate on site or purchase wetland 8 mitigation bank credits from the Limon Wetland Bank as mitigation to offset permanent impacts to 9 wetlands. CDOT will also implement best management practices to avoid any erosion or other 10 indirect impacts to wetlands identified in the study area. Also, due to the presence of thick stands of 11 tamarisk along these three drainages, CDOT determined that the project would benefit from 12 vegetation enhancement/restoration in these three drainages as part of the US 50 West Project. The 13 vegetation enhancement/restoration strategy involves removing tamarisk and common reed and 14 replanting with a combination of sandbar willow, other shrubs, and a grass seed-mix. CDOT will 15 address the vegetation enhancement/restoration strategy in accordance with specification 214 (Planting) of the CDOT Standard Specifications for Road and Bridge Construction (CDOT, 2011). 16 17 This vegetation restoration/enhancement strategy is being implemented in an effort to improve the

18 overall quality of vegetation in this drainage. Refer to Appendix A08, Biological Resources Report, of this

19 EA for additional information on the noxious weed management plan in these three drainages.

20 6. Conclusions

This technical report summarizes the delineation of wetlands in support of the *US 50 West Wills Blvd to McCulloch Blvd EA*. Six wetland areas were identified, three of which are associated with Williams Creek, two of which are associated with a tributary to Williams Creek near Purcell Blvd, and one of which is associated with Wild Horse Dry Creek. **Table 1 and Figure 3** include an overview of the wetlands identified in the study area. The Proposed Action would affect some or all of the identified wetlands. If wetland impacts are identified as the project design is completed, the project team will complete any additional reporting and CDOT will prepare a notification to the USACE.

Environmental ssessment

7. References

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- 17 (Version 2.0) ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-1.
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- United States Fish and Wildlife Service (USFWS). 2013. National Wetlands Inventory. Available at:
 http://107.20.228.18/Wetlands/WetlandsMapper.html Accessed June 2013.

Appendix A Site Photographs



Photo 1 — Wetland WCN-1 in the background and Wetland WCS-1 in the foreground. View looking north from in the bottom of the drainage/arroyo.



Photo 2 — Looking northwest out over Wetland WCN-1 showing the vegetation present in the channel.



Photo 3 — Wetland WCS-1, looking northwest toward the westbound bridge.



Photo 4 — Wetland WCS-1, looking southeast toward the Pueblo Blvd intersection in the background.



Photo 5 — Looking southeast from the box culvert on Williams Creek under Pueblo Blvd toward Wild Horse Dry Creek, Wetland PBS-1.



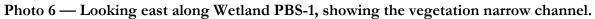




Photo 7 — Looking southeast from the median at Pueblo Blvd, showing the typical upland and depressional (arroyo) geomorphology of the area.



Photo 8 — USGS gauging station between Wetlands WCN-1 and WCS-1 on Williams Creek.



Photo 9 — USGS gauging station at Wetland WHDC-1 on Wild Horse Dry Creek.



Photo 10 — **Looking south from under the eastbound bridge.** This channel is very narrow and filled with noxious weeds.



Photo 11 — Looking north from under the eastbound bridge. Pedestrian/off-road vehicle use in the area has eroded and damaged wetlands.



Photo 12 — Looking north next to the concrete box culvert under Purcell Blvd for the tributary to Williams Creek.

This drainage is highly channelized and filled with noxious weeds.



Photo 13 — The Purcell Wetland had vegetation growing within the channel.



Photo 14 — Looking east over the Purcell Wetland. Filled with common reed and tamarisk.

Appendix B Great Plains Wetland Delineation Forms

WETLAND DETERMINA	ATION DATA F	ORM - Great Plair	າs Region	
Project/Site: US-50 PEL	City/County:	Pueblo	Sampling Date:	6/3/13
Applicant/Owner: CDOT	State:	COLORADO	Sampling Point:	Purcell Wetland
Investigator(s): KH & JL	Sec	ction, Township, Range	e: SECT 7,	T2S, R65W
Landform (hillslope, terrace, etc.): Depression	Local relie	ef (concave, convex, n	one): Concave	Slope (%): 1 to 3
Subregion (LRR): LRR G Lat:	38.323	Long: -1	04.701 Datum	n: NAD 83
Soil Map Unit Name: Manvel silt loam 1 to 5 percent slopes		NWI classific	ation:	PEMWi
Are climatic/hydrologic conditions on the site typical for this tim	ne of the year?	N (If no, exp	lain in Remarks.)	
Are Vegetation , Soil , or Hydrology	significantly	y disturbed? Are "no	ormal circumstances" pr	resent? Yes
Are Vegetation , Soil , or Hydrology	naturally pr	oblematic? (If nee	eded, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	sampling point lo	ocations, transects, ir	nportant features, et	с.
Hydrophytic Vegetation Present? Y				
Hydric Soil Present? Y	Is the	Sampled Area Within	n a Wetland?	Y
Indicators of Wetland Hydrology Present? Y	lf yes,	optional wetland site IE	D: Purcell Wetlan	d
Remarks: (Explain alternative procedures here or in a sepa		•		
	• •			CH 1 141 1
In an extreme drought for 2 years now, very stressed ve	egetation. This dra weeds	linage nas been nigni	y channelized and is	filled with noxious
VECETATION Lies estentific nomes of plants				
VEGETATION Use scientific names of plants.		Domi	nance Test Workshee	
	olute Dominant Cover Species			л
1 (Fiber Size:) / // C		Turnoci	of Dominant Species OBL, FACW, or FAC:	3 (A)
2			umber of Dominant	(/,)
3			Across all Strata:	3 (B)
4		Percent	of Dominant Species	
5			OBL, FACW, or FAC:	100.00% (A/B)
	0 = Total Cove			
Sapling/Shrub Stratum (Plot size:)	40 X		lence Index Worksh	
1 <u>Tamarix chinensis</u>	40 Y			ultiply by:
3				1 = <u>35</u> 2 = 130
4			·	3 = 0
5			·	4 = 60
	40 = Total Cove			5 = 0
Herb Stratum (Plot size:)		Colum	nn totals 115 (A	.) <u>225</u> (B)
1 Typha angustifolia	35 Y	OBL Preva	lence Index = B/A =	1.96
2 Phragmites australis	25 Y	FACW		
3 Cirsium arvense	15 N		ophytic Vegetation I	
4			- Rapid Test for Hydro	
5			 Dominance Test is > Prevalence Index is s 	
6				
8			 Morphological Adap upporting data in Rem 	
9			eparate sheet)	
10			roblematic Hydrophyt	tic Vegetation ¹
	75 = Total Cove		Explain)	
Woody Vine Stratum (Plot size:)		¹ Indic	ators of hydric soil and we	etland hydrology must be
1			present, unless disturbe	
2			ydrophytic	
	0 = Total Cove		egetation	
% /Bare Ground in Herb Stratum			resent? Y	
Remarks: (Include photo numbers here or on a separate sh	neet)			
			1	
This channel is filled	with noxious weed	is, some water is pres	sent.	

Profile Des	cription: (Descr	ibe to th	e depth needed	to docu	ment the	e indicat	or or confirm the abs	sence of indicators.)
Depth	Matrix		Ree	dox Feat	ures			
(Inches)	Color (moist)	%	Color (moist)	%	Type¹	Loc ²	Texture	Remarks
0 - 5"	10 YR 4/3	100					Clay Loam	
5 - 10"	2.5 YR 5/2	80					Clay Loam	
5 - 10"	2.5 YR 5/1	20					Clay Loam	
5-10	2.5 18 5/1	20						
$1_{\text{Trimes}} C = C$	Concentration D	– Donioti		ad Matrix) overed e	r Cooted Cood Crains	$\frac{2}{1}$ and $\frac{2}{1}$
	Indicators: (App							S. ² Location: PL = Pore Lining, M = N oblematic Hydric Soils ³ :
								-
	iosol (A1)			dy Gleye		(54)	1 cm Muck (A	
	ic Epipedon (A2)			dy Redo				Redox (A16) (LRR F, G, H)
	ck Histic (A3)	、 、		oped Mat			Dark Surface	
	lrogen Sulfide (A4)			my Muck	-		×	epressions (F16)
	tified Layers (A5)			my Gleye		(г∠)	,	side of MLRA 72 & 73)
	n Muck (A9) (LRR			leted Ma			Reduced Vert	
	leted Below Dark			lox Dark			Red Parent M	Dark Surface (TF12)
	ck Dark Surface (A dy Mucky Mineral			leted Dar		. ,	Other (Explain	, ,
	cm Mucky Milleral			lox Depre	•	-o) ons (F16)		
	RR G, H)	real (32		LRA 72 8				drophytic vegetation and wetland
	m Mucky Peat or F	Poat (S3)				лл п)	nyurology musi	be present, unless disturbed or problematic.
	-					-		problematic.
	Layer (if observ	ed):						
Туре:							Hydric Soil Pre	esent? Y
Depth (inche	es):				-			
Remarks:								
Channa	lized tributery of \	Villiamo	Crock 5/1 value	at dopth	of 5" 1	10" indice	tod that this sail is a d	lepleted matrix. No redox features
Charme		/villanis	Cieek. 5/1 value			er presen		lepieted matrix. No redox reatures
	/			proce	int. Trate	procen		
HYDROLO								
Wetland Hy	drology Indicate	ors:						
Primary Indi	cators (minimum	of one is	required; check	all that a	<u>pply)</u>		Secondary	Indicators (minimum of two required)
X Surface	Water (A1)			Salt Cru	st (B11)			ace Soil Cracks (B6)
	ter Table (A2)					ates (B13		sely Vegetated Concave Surface (B8)
X Saturatio	()					Odor (C	,	nage Patterns (B10)
	larks (B1)					er Table (ized Rhizospheres on Living
	nt Deposits (B2)			_	•	heres on	•	ots (C3) (where tilled)
	posits (B3)				. , .	ere not ti		fish Burrows (C8)
	at or Crust (B4)					uced Iron		ration Visible on Aerial Imagery (C9)
·	oosits (B5)	Imagan	(P7)		ck Surfac	()		morphic Position (D2)
	on Visible on Aeria tained Leaves (B9		/(B7)	Other (E	xpiain in	Remarks		-Neutral Test (D5) t-Heave Hummocks (D7) (LRR F)
	tailled Leaves (D3)						
Field Oberry	wationa							
Field Obser Surface Wat		Voo	Y No		Donth (i	nches).	1	
Water Table		Yes Yes	X No No	X	Depth (i Depth (i	,	<u> </u>	Indicators of Wetland
Saturation P		Yes	X No		Depth (i	,	1	Hydrology Present? Y
	pillary fringe)	100			-	nonco).		
		am aau		all aerial	nhotos	nrevious	inspections), if availat	
Describe Re		sam yau	ye, monitoring we	aciidi	priotos,	PIEVIOUS	mapections), il avallat	л с .
Domortion								
Remarks:								
			<1" of water in th	e concre	ete box c	ulvert un	stream of the wetland	

WETLAND DETERMIN	ATION	DATA FOR	RM - Gre	at Plains I	Region			
Project/Site: US-50 PEL	City/C	ounty:	Pueblo) (Sampling Date:	4/1/201	5	
Applicant/Owner: CDOT		State:	COLOR	ADO S	Sampling Point:	Purcell Wetlan	d West	
Investigator(s): KH & TT		Sectio	on, Townsh	ip, Range:	SECT 7	, T2S, R65W		
Landform (hillslope, terrace, etc.): Stream bank		Local relief ((concave, c	onvex, none)): Concave	Slope (%):	3 to 5	
Subregion (LRR): LRR G Lat:	3	38.323	Long:	-104.7	701 Datu	m: NAD	83	
Soil Map Unit Name: Manvel silt loam 1 to 5 percent slopes	3		NWI	classificatio	n:	PEMWi		
Are climatic/hydrologic conditions on the site typical for this tin	ne of the	year?	Y (lf no, explain	in Remarks.)			
Are Vegetation, Soil, or Hydrology		significantly d	listurbed?	Are "norma	al circumstances" p	present? Y	es	
Are Vegetation, Soil, or Hydrology	I	naturally prob	ematic?	(If needed	l, explain any ans	wers in Remarl	ks.)	
SUMMARY OF FINDINGS - Attach site map showing	g sampli	ng point loca	ations, tran	isects, impo	ortant features, e	tc.		
Hydrophytic Vegetation Present? Y								
Hydric Soil Present? Y		Is the Sampled Area Within a Wetland?						
Indicators of Wetland Hydrology Present? Y		If yes, optional wetland site ID: Purcell Wetland West						
Remarks: (Explain alternative procedures here or in a sepa	arate rep	ort.)						
Area is coming out of a drought, vegetation and precipit		,	from last si	irvev Veget	tation dominated	by Common F	Reed	
		k, and Cattai		livey. reget			1000,	
VEGETATION Use scientific names of plants.								
	solute	Dominant	Indicator	Dominan	ce Test Workshe	et		
	Cover	Species	Status	Number of I	Dominant Species	S		
1					L, FACW, or FAC		(A)	
2				Total Numb	er of Dominant		_	
3				Species Act	ross all Strata:	3	(B)	
4					Dominant Species			
5	0 =	Total Cover		that are OB	L, FACW, or FAC	: 100.00%	(A/B)	
Sapling/Shrub Stratum (Plot size:)				Prevalen	ce Index Works	sheet		
	30	Y	FACW	Total % C		fultiply by:		
2				OBL spec		1 = 30		
3				FACW sp	ecies 55 x	2 = 110		
4				FAC spec		3 = 0		
5				FACU sp		4 = 0	_	
	30 =	Total Cover		UPL spec		5 = 0		
Herb Stratum (Plot size:)		N		Column to	(A) <u>140</u>	(B)	
<u></u>	30 25	Y	OBL FACW	Prevalenc	ce Index = B/A =	1.65	-	
3	25	<u> </u>	FACW	Hydroph	ytic Vegetation	Indicators:		
4					apid Test for Hydr		tion	
5					ominance Test is			
6				X 3 - Pr	evalence Index is	≤3.0 ¹		
7				4 - M	orphological Ada	aptations ¹ (prov	vide	
8					orting data in Re	marks or on a		
9					rate sheet)		1	
10	55 =	Total Cover		Probl (Expl	ematic Hydrophy ain)	ytic Vegetation	l'	
Woody Vine Stratum (Plot size:)					s of hydric soil and v			
2					esent, unless disturt ophytic			
⁻	0 =	Total Cover			tation			
% /Bare Ground in Herb Stratum				Prese		_		
Remarks: (Include photo numbers here or on a separate sl	heet)							
· · · · · · · · · · · · · · · · · · ·								
This channel is filled	with nox	ious weeds,	some wate	er is present	Ι.			

Profile Des	cription: (Descr	ibe to th	e depth needeo	l to docu	ment the	e indicat	or or confirm the abse	nce of indicators.)			
Depth <u>Matrix</u> <u>Redox Features</u>											
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0 - 2"	GLEY 1 2.5/N	60					Sandy Clay	Saturated			
0 - 2"	10YR 4/3	40					Sandy Clay	Saturated			
2 - 20"	10YR 4/4	100					Clay Loam	Saturated			
							0.03 200				
								² Location: PL = Pore Lining, $M = N$			
-	Indicators: (App	olicable						blematic Hydric Soils ³ :			
	tosol (A1)			ndy Gleye		(S4)	1 cm Muck (A9)				
	tic Epipedon (A2)			ndy Redox	. ,	Coast Prairie Redox (A16) (LRR F, G, H)					
	ck Histic (A3)			ipped Mat			Dark Surface (S	, , ,			
	Irogen Sulfide (A4)			amy Muck	-		High Plains Dep				
	atified Layers (A5)			amy Gleye		(F2)		le of MLRA 72 & 73)			
	m Muck (A9) (LRR bleted Below Dark			pleted Ma dox Dark \$			Reduced Vertic Red Parent Mat				
	ck Dark Surface (A			pleted Dai				ark Surface (TF12)			
	idy Mucky Mineral	,		dox Depre		. ,	Other (Explain i				
	cm Mucky Peat or			h Plains [•			ophytic vegetation and wetland			
	RR G, H)			/LRA 72 8				e present, unless disturbed or			
	m Mucky Peat or F	Peat (S3)	,			,		problematic.			
Restrictive	Layer (if observ	ed).									
Type:		<i>cu)</i> .					Hydric Soil Pres	ent? Y			
Depth (inche	es):				•						
Remarks:	·				-						
ixemarks.											
	Channeliz	ed tributa	ary of Williams C	reek. Gle	yed soils	present	in the top layer. Deeply	incised channel.			
HYDROLO											
Wetland Hy	drology Indicate	ors:									
	cators (minimum	of one is	required; check	all that a	<u>pply)</u>			ndicators (minimum of two required)			
X Surface Water (A1) X Salt Crust (B11)											
	X High Water Table (A2) Aquatic Inverteb										
	X Saturation (A3) Hydrogen Sulfide Odor (C1) X Drainage Patterns (B10)							,			
Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)											
	Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Drift Deposits (B3) Roots (C3) (where not tilled) Crayfish Burrows (C8)										
	Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9)										
	Iron Deposits (B5) Thin Muck Surface (C7) X Geomorphic Position (D2)										
Inundatio	on Visible on Aeria	al Imagery	y (B7)	Other (E	xplain in	Remarks		eutral Test (D5)			
Water-Stained Leaves (B9)											
Field Obser			X N								
Surface Wat Water Table		Yes	X No X No		Depth (i		1	ndicators of Wetland			
Saturation P		Yes Yes	X No X No		Depth (i Depth (i	-	-	Hydrology Present? Y			
		103				nones).					
(includes car	Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:										
(includes cap Describe Re		am dau	ae monitoring w	ell aerial	nnotos	nrevious	Inspections) if available	2.			
-		eam gau	ge, monitoring w	ell, aerial	photos,	previous	inspections), if available	:			
-		eam gau	ge, monitoring w	ell, aerial	photos,	previous	inspections), if available				
Describe Re	ecorded Data (stre						inspections), if available hannel. Hidden by vege				

WETLAND DETERM	NINATION	N DATA FC	ORM - Gre	at Plains R	Region			
Project/Site: US-50 PEL	County: Pueblo			Sampling Date: 6/3/13				
Applicant/Owner: CDOT		State:	COLOF	RADO Sa	ampling Point:	WCN-1		
Investigator(s): KH & JL		Sec	tion, Townsh	nip, Range:	SECT 16,	T2S, R65W		
Landform (hillslope, terrace, etc.): Depression (a	arroyo)	Local reliet	f (concave, o	convex, none):	Concave	Slope (%): 0	0 - 3	
Subregion (LRR): LRR G L	_at:	38.316	Long:	-104.6	65 Datum:	NAD 83		
Soil Map Unit Name: Penrose-Minnequa complex			NWI	classification	n: P	EMWi		
Are climatic/hydrologic conditions on the site typical for the	is time of th	e year?	<u>N</u> (If no, explain i	in Remarks.)			
Are Vegetation, Soil, or Hydrol	ogy	significantly	disturbed?	Are "normal	I circumstances" pre	esent? Yes	_	
	ogy				explain any answe	,)	
SUMMARY OF FINDINGS - Attach site map sho	wing samp	ling point lo	cations, tra	nsects, impor	rtant features, etc	•		
Hydrophytic Vegetation Present? Y	_							
Hydric Soil Present? Y	_	Is the Sampled Area Within a Wetland? Y						
Indicators of Wetland Hydrology Present? Y	_	If yes, optional wetland site ID: Wetland WCN-1						
Remarks: (Explain alternative procedures here or in a	separate re	eport.)						
				,				
In an extreme dro	ught for ab	out 2 years n	ow, vegetat	ion is stresse	ed			
VEGETATION Use scientific names of plant	S.						I	
	Absolute	Dominant	Indicator	Dominanc	e Test Workshee	t		
Tree Stratum (Plot size:)	% Cover	Species	Status	Number of D	ominant Species			
1				that are OBL	, FACW, or FAC:	4 (A	()	
2					er of Dominant			
				•	oss all Strata:	<u> </u>	;)	
5					ominant Species	80.00% (A	VB)	
·	0	= Total Cove			., 17,000, 0117,01	(/(UD)	
Sapling/Shrub Stratum (Plot size:)				Prevalence	e Index Worksh	eet		
1 Tamarix chinensis	20	Y	FACW	Total % Co	over of: Mu	ltiply by:		
2 Ribes aureum	15	Y	FACU	OBL speci				
3				FACW spe				
4				FAC speci FACU spe				
	35	= Total Cove		UPL speci				
Herb Stratum (Plot size:)				Column to			3)	
1 Typha angustifolia	30	Y	OBL		e Index = B/A =	1.79	,	
2 Agrostis stolonifera	30	Y	FACW					
3 Eleocharis palustris	25	Y	OBL	Hydrophy	tic Vegetation Ir	dicators:		
4					pid Test for Hydrop		ı	
5					minance Test is >5			
6					evalence Index is ≤			
8					orphological Adap		э	
9					rting data in Rem ate sheet)	arks or on a		
10					ematic Hydrophyti	c Vegetation ¹		
	85	= Total Cove	r	(Expla				
Woody Vine Stratum (Plot size:)				¹ Indicators	of hydric soil and we	tland hydrology mu	ist be	
1				pres	sent, unless disturbed			
2					ophytic			
	0	= Total Cover	r	Veget Prese				
% /Bare Ground in Herb Stratum Remarks: (Include photo numbers here or on a separa	ate sheet)					-		
Salt Cedar	r and Golde	en Currant alo	ong wetland	fringe.				
			0	J-				

SOIL								Sampling Point: WCN-1
Profile Desc	cription: (Descri	be to th				e indicat	or or confirm the abse	ence of indicators.)
Depth	Matrix			lox Feat		.,		
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0 - 5"	10 YR 5/2	70	7.5 YR 5/6	5	CS	Μ	Sandy Loam	Restricted at 5"
0 - 5"	10 YR 3/1	25						
1 T		Dealet		al Mastria				$\frac{2}{1}$
	Indicators: (App	-						² Location: PL = Pore Lining, M = N blematic Hydric Soils ³ :
-	indicators. (App iosol (A1)	licable			ed Matrix		1 cm Muck (A9	-
	ic Epipedon (A2)			dy Redo		(04)		Redox (A16) (LRR F, G, H)
	ck Histic (A3)			oped Mat			Dark Surface (
	lrogen Sulfide (A4)		`	•	y Mineral	(F1)	High Plains De	pressions (F16)
Stra	tified Layers (A5)	(LRR F)	Loa	my Gleye	ed Matrix	(F2)	(LRR H outsi	de of MLRA 72 & 73)
1 cn	n Muck (A9) (LRR	F, G, H)	Dep	leted Ma	atrix (F3)		Reduced Vertic	c (F18)
	Depleted Below Dark Surface (A11)				Surface (Red Parent Ma	
	ck Dark Surface (A				rk Surfac			Dark Surface (TF12)
	dy Mucky Mineral	• •		•	essions (F	,	Other (Explain	
	cm Mucky Peat or RR G, H)	Peat (S2	· · · · · · · · · · · · · · · · · · ·		Depressic & 73 of L	. ,		rophytic vegetation and wetland
	m Mucky Peat or F	Peat (S3)	· ·			КК Π)	nyurology must t	pe present, unless disturbed or problematic.
	-					1		
	Layer (if observe	ed):					Undria Cail Drag	
Type: B Depth (inche	edrock/Shale es): 5"				-		Hydric Soil Pres	sent? Y
					-			
Remarks:								
			Restricted at 5	" due to	shale/he	drock lav	ver, Saturation at 3"	
					Shale/be			
HYDROLO	DGY							
Wetland Hy	drology Indicato	ors:						
Primary Indi	cators (minimum	of one is	required; check	all that a	ipply)		Secondary I	Indicators (minimum of two required)
X Surface	Water (A1)				ıst (B11)			ce Soil Cracks (B6)
-	iter Table (A2)				Invertebra			ely Vegetated Concave Surface (B8)
X Saturatio	()			, , ,	en Sulfide	``	,	age Patterns (B10)
	larks (B1) nt Deposits (B2)				ison Wate d Rhizosp	•	,	zed Rhizospheres on Living (C3) (where tilled)
	posits (B3)				(C3) (whe		-	sh Burrows (C8)
	at or Crust (B4)				ce of Redu			ation Visible on Aerial Imagery (C9)
	oosits (B5)			Thin Mu	ick Surfac	e (C7)		orphic Position (D2)
	on Visible on Aeria	0	y (B7)	Other (E	Explain in	Remarks		Neutral Test (D5)
Water-S	tained Leaves (B9))					Frost-	Heave Hummocks (D7) (LRR F)

Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe)	Yes Yes Yes	X X	No No No	Depth (inches):3"XDepth (inches):Depth (inches):5"	Indicators of Wetland Hydrology Present? Y
Describe Recorded Data (st	ream gaug	je, moni	itoring we	ll, aerial photos, previous inspections), if a	vailable:
Remarks:					

Flowing water, very yellow/gold color

WETLAND DETER		N DATA FO	RM - Gre	at Plains	Region		
Project/Site: US-50 PEL	City/	/County:	Pueblo)	Sampling Date:	6/3/13	
Applicant/Owner: CDOT		State:	COLOR	ADO	Sampling Point:	WCN-2	2
Investigator(s): KH and JL		Sect	ion, Townsh	ip, Range:	SECT 10	6, T2S, R65W	
Landform (hillslope, terrace, etc.): Hillslo	ре	Local relief	(concave, c	onvex, none	e): Concave	Slope (%):	5 to 15
Subregion (LRR): LRR G	Lat:	38.316	Long:	-104	.665 Datu	m: NAD	83
Soil Map Unit Name: Penrose-Minnequa complex			NWI	classificatio	on:	N/A	
Are climatic/hydrologic conditions on the site typical for	this time of th	ie year?	N (If no, explai	n in Remarks.)		
Are Vegetation , Soil , or Hydr	rology	significantly	disturbed?	Are "norm	nal circumstances"	present? Y	′es
Are Vegetation , Soil , or Hydr	ology	naturally pro	blematic?	(If neede	d, explain any ans	swers in Remar	ks.)
SUMMARY OF FINDINGS - Attach site map sl	howing samp	ling point loc	ations, trar	nsects, imp	ortant features, e	etc.	
Hydrophytic Vegetation Present? N							
Hydric Soil Present? N		Is the Sa	ampled Are	ea Within a	a Wetland?	Ν	
Indicators of Wetland Hydrology Present? N			- otional wetla		_		
Remarks: (Explain alternative procedures here or in	- separate ri			-			
Relliding. (Explain alternative procedures here or in	a separate n	eport.)					
Outpoir	nt for WCN-1	, extreme dro	ught for 2 y	ears.			
	t _						
VEGETATION Use scientific names of pla			· ,	Deminor	Test Worksh	4	—————
<u>Tree Stratum</u> (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status		n ce Test Worksh o		
1	/0 00401	opeoiee	Olalus		f Dominant Specie BL, FACW, or FAC		(A)
2					ber of Dominant		
3		·			cross all Strata:	4	(B)
4	•			Percent of	Dominant Specie	s	- ` `
5	·				BL, FACW, or FAC		(A/B)
	0	= Total Cover					
Sapling/Shrub Stratum (Plot size:)				nce Index Works		
1 Ericamerica nauseosa	30	<u> </u>	UPL			Multiply by:	
2 Tamarix chinensis 3 Ribes aureum	20	<u> </u>	FACW FACU	OBL spe FACW s		(1 = 0) (2 = 50)	-
	10	N	FACO	FACWS FAC spe	·	$x^2 = \frac{50}{3} = \frac{1}{2}$	-
5		·		FACU spe		(4 = 160)	-
	60	= Total Cover		UPL spe		(5 = 160	-
Herb Stratum (Plot size:)			Column	totals 97 (A) 370	(B)
1 Helianthus annuus	10	Y	FACU	Prevaler	nce Index = B/A =	3.81	-
2 Bassia scoparia	10	Y	FACU				-
3 Astragalus agrestis	5	Ν	FACU	Hydropl	hytic Vegetation	Indicators:	
4 Agrostis stolonifera	5	N	FACW	-	Rapid Test for Hydi		ation
5 Grindelia hirsutula	5	<u>N</u>	FACU		Dominance Test is		
6 Cucurbita foetidissima		<u> </u>	UPL	I —	Prevalence Index is		
7 <u>Eragrostis spectabilis</u> 8	1	<u>N</u>	UPL		Aorphological Ada		
8 9					porting data in Re arate sheet)	emarks or on a	
10		·			plematic Hydroph	vtic Vegetation	n ¹
	37	= Total Cover			plain)	yilo vegetation	
Woody Vine Stratum (Plot size:)				ors of hydric soil and v	wetland hydrology	/ must be
1	-				present, unless distur		
2				Hyd	rophytic		
	0	= Total Cover		Veg	etation		
% /Bare Ground in Herb Stratum 15				Pres	sent? N		
Remarks: (Include photo numbers here or on a sepa	rate sheet)						
Drier upland area surroundin	g Williams C	reek. Vegetat	ion is stress	sed due to e	extreme drought		

Profile Desc	cription: (Descr	ibe to th	e depth needed	to docu	ment the	e indicat	or or confirm the absen	ce of indicators.)
Depth	Matrix		Rec	dox Feat	ures			
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0 - 8"	2.5 YR 6/2	100					Sand	Restricted at 8"
				l				
				ļ'				
		1						
¹ Type: C = C	Concentration, D :	= Depleti	ion, RM = Reduce	ed Matrix	, CS = C	overed o	or Coated Sand Grains. ²	² Location: PL = Pore Lining, M = M
		-	to all LRRs, unle					lematic Hydric Soils ³ :
Hist	tosol (A1)		San	idy Gleye	d Matrix ((S4)	1 cm Muck (A9) (LRR I, J)
	tic Epipedon (A2)			dy Redox		. ,	Coast Prairie Rec	lox (A16) (LRR F, G, H)
	ck Histic (A3)			pped Mat	. ,		Dark Surface (S7	
	Irogen Sulfide (A4))		my Muck		(F1)	High Plains Depre	essions (F16)
Stra	atified Layers (A5)	(LRR F)	Loa	my Gleye	ed Matrix	(F2)	(LRR H outside	of MLRA 72 & 73)
1 cn	m Muck (A9) (LRR	F, G, H)	Dep	leted Ma	trix (F3)		Reduced Vertic (F	-18)
Dep	leted Below Dark	Surface (A11) Red	lox Dark \$	Surface (F6)	Red Parent Mater	rial (TF2)
Thic	ck Dark Surface (A	.12)	Dep	leted Dar	rk Surface	e (F7)	Very Shallow Dar	k Surface (TF12)
San	ndy Mucky Mineral	(S1)	Red	lox Depre	essions (F	8)	Other (Explain in	Remarks)
2.5	cm Mucky Peat or	Peat (S2	2) High	h Plains D	Depressio	ns (F16)	³ Indicators of hydrop	ohytic vegetation and wetland
	RR G, H)		,	LRA 72 8	& 73 of L	RR H)	hydrology must be	present, unless disturbed or
5 cr	m Mucky Peat or F	eat (S3)	(LRR F)				рг	roblematic.
Restrictive	Layer (if observe	ed):						
71	edrock/shale				_		Hydric Soil Preser	nt? <u>N</u>
Depth (inche	es): 8"				-			
Remarks:								
		V	'ery dry sand, res	tricted at	t 8" due t	o drynes	s and/or bedrock/shale	
HYDROLO	JGY							
Wetland Hy	drology Indicato	ors:						
Primary Indi	cators (minimum	of one is	s required; check	all that a	<u>pply)</u>		Secondary Inc	dicators (minimum of two required)
Surface '	Water (A1)			Salt Crus	st (B11)		Surface	Soil Cracks (B6)
High Wa	ater Table (A2)			Aquatic	Invertebra	ates (B13	B) Sparsely	Vegetated Concave Surface (B8)
Saturatio	on (A3)			Hydroge	en Sulfide	Odor (C	1) Drainage	e Patterns (B10)
	larks (B1)				son Wate		-	Rhizospheres on Living
	nt Deposits (B2)			-	Rhizosp			(C3) (where tilled)
	posits (B3)				(C3) (whe			Burrows (C8)
	at or Crust (B4)			-	e of Redu		. ,	on Visible on Aerial Imagery (C9)
· · ·	oosits (B5)			-	ck Surfac	· · ·		phic Position (D2)
	on Visible on Aeria tained Leaves (B9		/(B7)	Other (E	xplain in	Remarks		utral Test (D5) eave Hummocks (D7) (LRR F)
	tailleu Leaves (D9)						
Field Obser	vations:							
Surface Wat		Yes	No	Х	Depth (i	nches):		
Water Table	Present?	Yes	No	Х	Depth (i		Inc	dicators of Wetland
Saturation P	resent?	Yes	No	Х	Depth (i		H	ydrology Present? N
(includes ca	pillary fringe)				-			
Describe Re	corded Data (stre	eam gau	ge, monitoring we	I, aerial	photos,	previous	inspections), if available:	
Remarks:								
			V	on dn i	planad br	nke of o	hannal	
			V	ery dry, s	soped be		namei	

WETLAND DETER					•	
Project/Site: US-50 PEL	City/	/County:	Pueblo		Sampling Date:	6/3/13
Applicant/Owner: CDOT		State:	COLOR	ADO	Sampling Point:	WCS-1
Investigator(s): KH and JL			ion, Townsh			6, T2S, R65W
Landform (hillslope, terrace, etc.):					e):	Slope (%):
	Lat:	38.315	Long:	-104.		
Soil Map Unit Name: Penrose-Minnequa complex				classificatio		PEMWi
Are climatic/hydrologic conditions on the site typical for the		•	`		n in Remarks.)	
	logy				nal circumstances"	·
	logy					swers in Remarks.)
SUMMARY OF FINDINGS - Attach site map sho	owing samp	oling point loc	ations, trar	nsects, imp	ortant features,	etc.
Hydrophytic Vegetation Present? Y	-					
Hydric Soil Present? Y	-		-		Wetland?	Y
Indicators of Wetland Hydrology Present? Y		lf yes, o	ptional wetla	ind site ID:	Wetland WC	S-1
Remarks: (Explain alternative procedures here or in a	separate re	eport.)				
No	Dlas -le/ob		Il - u do	U. Oslanii		
Very similar to WCN-1, extreme drought for 2 years.	Bedrock/sna	ale present at	snallow de	ptn. Selerin	um present visio	ly and based on scent.
VEGETATION Use scientific names of plan	ts.					
	Absolute	Dominant	Indicator	Dominar	nce Test Worksh	eet
Tree Stratum (Plot size:)	% Cover	Species	Status		Dominant Specie	
1		,		that are OF	BL, FACW, or FA	C: <u>3</u> (A)
2					ber of Dominant	
3				· ·	cross all Strata:	(B)
4		· ·			Dominant Specie BL, FACW, or FA	
5	0	= Total Cover				C: <u>75.00%</u> (A/B)
Sapling/Shrub Stratum (Plot size:)			Prevaler	nce Index Work	sheet
1 Tamarix chinensis	, 30	Y	FACW			Multiply by:
2 Ribes aureum	10	Y	FACU	OBL spe		x 1 = <u>90</u>
3 Elaeagnus angustifolia	1	Ν	FACU	FACW s	pecies 40	k 2 = 80
4		,		FAC spe		x 3 = <u>0</u>
5		<u></u>		FACU sp		4 = 44
Useb Otratum (Dist size)	<u>41</u>	= Total Cover		UPL spe		x = 0
Herb Stratum (Plot size:) 70	V		Column	`	(A) $\frac{214}{1.52}$ (B)
1 Typha angustifolia 2 Eleocharis palustris	70 20	· <u> </u>	OBL OBL	Prevalen	nce Index = B/A =	= <u>1.52</u>
3 Agrostis stolonifera	10	<u> </u>	FACW	Hydroph	hytic Vegetation	Indicators:
4			TAON			rophytic Vegetation
5					ominance Test is	
6		·		X 3-P	revalence Index i	s ≤3.0 ¹
7				4 - N	Iorphological Ad	aptations ¹ (provide
8		,		supp	oorting data in Re	
9		,			arate sheet)	4
10	100	= Total Cover		Prob (Exp	olematic Hydroph olain)	ytic Vegetation ¹
<u>Woody Vine Stratum</u> (Plot size:1)				rs of hydric soil and resent, unless distur	wetland hydrology must be bed or problematic
2					rophytic	
% /Bare Ground in Herb Stratum	0	= Total Cover			etation sent? Y	
Remarks: (Include photo numbers here or on a separ	ate sheet)			1		
Vegetation stressed due to extreme dro	ought, south	western arroy	∕o topograp	hy/vegetati	on with distinct b	oundary.

	nindiana (Daaan							
		ibe to th				e indicat	or or confirm the absen	ce of indicators.)
Depth (Inches)	<u>Matrix</u> Color (moist)	%	Color (moist)	<u>dox Featı</u> %	<u>ures</u> Type ¹	Loc ²	Texture	Remarks
<u> </u>		1		1		1		
0 - 5"	10 YR 5/2	70	7.5 YR 5/6	5	CS	M	Sandy Loam	Restricted at 5"
0 - 5"	10 YR 3/1	25						
				l				
			1					
			l		<u> </u>			
			l	 	 			
				 	┣────			
1								
								² Location: PL = Pore Lining, M = M
-	• • •	licable t	to all LRRs, unle					lematic Hydric Soils ³ :
	osol (A1)				d Matrix ((S4)	1 cm Muck (A9) (-
	ic Epipedon (A2)			dy Redo				lox (A16) (LRR F, G, H)
	k Histic (A3)			oped Mat	. ,		Dark Surface (S7	, , ,
	rogen Sulfide (A4)			-	y Mineral		High Plains Depr	
	tified Layers (A5)				ed Matrix	(F2)	(e of MLRA 72 & 73)
	n Muck (A9) (LRR loted Bolow Dark			leted Mat			Reduced Vertic (
	leted Below Dark				Surface (Red Parent Mate	
	k Dark Surface (A dy Mucky Mineral		·		rk Surface essions (F	. ,	Very Shallow Dar Other (Explain in	
	cm Mucky Mineral			•	Depression	,		
	RR G, H)	r cut (or	· · · · · · · · · · · · · · · · · · ·		& 73 of L			phytic vegetation and wetland present, unless disturbed or
	n Mucky Peat or F	Peat (S3)	•	LIV	x / c c			roblematic.
			(1		
	Layer (if observe	ea):					Undria Sail Brasa	
Type: Be Depth (inche	edrock/shale es): 5"				-		Hydric Soil Prese	nt? <u>Y</u>
	s). <u> </u>							
Remarks:								
			Destricted a	+ E" from	bodrook			
			Restricted a	15 1000	Degrock	OF SHale	, saturation at 3"	
HYDROLC)GY							
	drology Indicato	nre.						
-			required; check	all that a	2010		Secondary In	listers (minimum of two required)
-		01 0110 15	Tequirea, crieca					dicators (minimum of two required)
X Surface V	ter Table (A2)			Salt Crus		ates (B13		Soil Cracks (B6) / Vegetated Concave Surface (B8)
X Saturatio				-		Odor (C1		e Patterns (B10)
	arks (B1)					er Table (, 3	Rhizospheres on Living
	t Deposits (B2)					heres on		(C3) (where tilled)
	oosits (B3)			Roots ((C3) (wh e	ere not til		Burrows (C8)
	t or Crust (B4)					uced Iron		on Visible on Aerial Imagery (C9)
	osits (B5)			-	ck Surfac			phic Position (D2)
	on Visible on Aeria		/ (B7)	Other (E	xplain in	Remarks		utral Test (D5)
Water-St	tained Leaves (B9)						eave Hummocks (D7) (LRR F)
Field Obser		Vaa	V No		Donth (i	inchoo).	4"	
Surface Wate Water Table		Yes Yes	X No X No		Depth (i Depth (i			dicators of Wetland
Saturation P		Yes			Depth (i	,		ydrology Present? Y
	pillary fringe)					nonec,	<u> </u>	
		am gau	ne, monitoring we	aerial	nhotos.	nrevious	inspections), if available:	
		Jan gaa	je,e	in, aonai	priotoo,	p. e e u e		
Remarks:								
Wate	r flowing through	wetland	in a channel. Wa	ter table	present	and assu	umed below soil pit depth	due to presence of stream.

WETLAND DET	ERMINATIO	N DATA FO	ORM - Gre	eat Plains Re	egion		
Project/Site: US-50 PEL	City	/County:	Pueblo	o Sa	ampling Date:	6/3/13	
Applicant/Owner: CDOT		State:	COLOF	RADO Sa	mpling Point:	WCS-2	2
Investigator(s): KH & JL		Sec	tion, Townsh	nip, Range:	SECT 16,	T2S, R65W	
Landform (hillslope, terrace, etc.):	llslope	Local relie	f (concave, c	convex, none):	Concave	Slope (%):	5 to 15
Subregion (LRR): LRR G	Lat:	38.315	Long:	-104.66	4 Datum	: NAD	83
Soil Map Unit Name: Penrose-Minnequa complex			NWI	classification:		N/A	
Are climatic/hydrologic conditions on the site typical	for this time of th	ne year?	N ((If no, explain in	Remarks.)		
Are Vegetation , Soil , or H	lydrology	significantly	disturbed?	Are "normal of	circumstances" pre	esent? Y	'es
Are Vegetation , Soil , or H	lydrology	naturally pro	oblematic?	(If needed, e	explain any answ	ers in Remar	ks.)
SUMMARY OF FINDINGS - Attach site ma	p showing sam	oling point lo	cations, trai	nsects, import	ant features, etc		
Hydrophytic Vegetation Present?	Ν						
Hydric Soil Present?	N	Is the S	ampled Ar	ea Within a W	/etland?	Ν	
Indicators of Wetland Hydrology Present?	N	lf yes, o	ptional wetla	and site ID:			
Remarks: (Explain alternative procedures here o	r in a conarato r	oport)					
Remarks. (Explain alternative procedures here o	r in a separate r	eport.)					
Outpoint for WCS-1, ext	reme drought fo	r 2 years, upl	ands stress	ed and sparse	vegetation.		
VEGETATION Use scientific names of	plants.			T			
	Absolute	Dominant	Indicator		Test Workshee	t	
<u>Tree Stratum</u> (Plot size: 1 Populus deltoides) % Cover 5	Species Y	Status FAC		FACW, or FAC:	2	(A)
2		·	TAO		of Dominant		_(//)
3				Species Acros		7	(B)
4					minant Species		_``
5					FACW, or FAC:	28.57%	(A/B)
	5	= Total Cove	r				_
Sapling/Shrub Stratum (Plot size:)				e Index Worksh		
1 Tamarix chinensis	40	Y	FACW	Total % Co		Itiply by:	
2 Ribes aureum		Y	FACU	OBL specie			_
3 Ericamerica nauseosa	10	<u>N</u>	UPL	FACW specie FAC specie			-
5				FAC specie FACU spec			-
		= Total Cove	r	UPL specie			-
Herb Stratum (Plot size:)			Column tota		420	(B)
1 Helianthus annuus	10	Y	FACU	Prevalence	Index = B/A =	3.47	
2 Bassia scoparia	10	Y	FACU				-
3 Cirsium arvense	10	Y	FACU	Hydrophyt	ic Vegetation Ir	ndicators:	
4 Convolvulus arvensis	10	Y	UPL		id Test for Hydror		ation
5 Astragalus agrestis	5	N	FACU		ninance Test is >5		
6 Lathyrus latifolius	1	N	UPL		alence Index is ≤		
7					phological Adap		
8 9		·			ting data in Rem te sheet)	arks or on a	
10				·	natic Hydrophyti	c Vegetation	1
	46	= Total Cove	r	(Explain		e vegetatio	
Woody Vine Stratum (Plot size:)				, of hydric soil and we	tland hydrology	/ must be
1					ent, unless disturbe	, .	
2				Hydrop			
	0	= Total Cove	r	Vegeta			
% /Bare Ground in Herb Stratum 10				Presen	nt? N	_	
Remarks: (Include photo numbers here or on a s	eparate sheet)						
Vegetation stre	ssed especially	in the upland	s due to an	extreme droug	ght.		

Profile Desc	ription: (Descr	ibe to th	e depth needed	to docu	ment the	e indicat	tor or confirm the abse	nce of indicators.)
Depth	Matrix			dox Feat				,
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0 - 8"	2.5 YR 6/2	100					Sand	Restricted at 8"
1 T	Second section D	Denlati						$\frac{2}{2}$
								² Location: PL = Pore Lining, M = M
•			to all LRRs, unle					olematic Hydric Soils ³ :
	osol (A1)				d Matrix	(54)	1 cm Muck (A9)	
	c Epipedon (A2)			dy Redo	. ,			edox (A16) (LRR F, G, H)
	k Histic (A3)			oped Mat		(54)	Dark Surface (S	
	rogen Sulfide (A4)			-	y Mineral		High Plains Dep	. ,
	tified Layers (A5)				ed Matrix	(F2)		le of MLRA 72 & 73)
	n Muck (A9) (LRR leted Below Dark			leted Ma	Surface (Reduced Vertic	()
					surrace (rk Surfac	,	Red Parent Mat	. ,
	k Dark Surface (A dy Mucky Mineral	,	'			· · /		ark Surface (TF12)
	cm Mucky Peat or	. ,		•	essions (F Depressic	,	Other (Explain i	,
	RR G, H)	real (32	· ·		& 73 of L			ophytic vegetation and wetland e present, unless disturbed or
	n Mucky Peat or F	Peat (S3)	•			IXIX 11)		problematic.
								biobicinatic.
	Layer (if observe	ed):						
Type:	-) -				-		Hydric Soil Pres	ent? <u>N</u>
Depth (inche	s):				-			
Remarks:								
				5	ame as \	WCN-2		
HYDROLC	OGY							
Wetland Hy	drology Indicate	ors:						
Primary India	cators (minimum	of one is	required; check	all that a	pply)		Secondary I	ndicators (minimum of two required)
-	Water (A1)			Salt Cru			=	e Soil Cracks (B6)
	ter Table (A2)				Invertebra	ates (B13		ly Vegetated Concave Surface (B8)
Saturatio	on (A3)			Hydroge	en Sulfide	Odor (C		ge Patterns (B10)
Water Ma	arks (B1)			Dry-Sea	son Wate	er Table (C2) Oxidize	ed Rhizospheres on Living
Sedimen	t Deposits (B2)				d Rhizosp		•	(C3) (where tilled)
	osits (B3)				(C3) (whe			h Burrows (C8)
	t or Crust (B4)			-	e of Redu			tion Visible on Aerial Imagery (C9)
	osits (B5)		(D.T.)	-	ck Surfac			prphic Position (D2)
	on Visible on Aeria		y (B7)	Other (E	xplain in	Remarks	/	eutral Test (D5)
water-St	ained Leaves (B9)					FIOSL-F	leave Hummocks (D7) (LRR F)
Field Obser	votiona							
Field Obser Surface Wate		Yes	No	х	Depth (i	nches).		
Water Table		Yes	No		Depth (i	,	I II	ndicators of Wetland
Saturation P		Yes	No		Depth (i	-		Hydrology Present? N
(includes cap								
		eam dau	ae, monitorina we	ell, aerial	photos	previous	inspections), if available	:
		san gau	ge, mennennig we	, aonar	p.10100,			
Remarks:								
			V	ery dry, s	sloped ba	anks of c	hannel	

WETLAND DET	ERMINATIO	N DATA FO	ORM - Gre	at Plains Region	
Project/Site: US-50 PEL	City	/County:	Pueblo		
Applicant/Owner: CDOT		State:	COLOF	ADO Sampling Point: PBS-1	
Investigator(s): KH & JL		Sec	tion, Townsh	ip, Range: SECT 15, T2S, R65W	
Landform (hillslope, terrace, etc.):	royo	Local relie	f (concave, c	convex, none): <u>Concave</u> Slope (%): <u>0-</u>	2
Subregion (LRR): LLR G	Lat:	38.315	Long:	-104.66 Datum: NAD 83	
Soil Map Unit Name: Penrose-Minnequa complex			NWI	classification: PEMWi	
Are climatic/hydrologic conditions on the site typical	for this time of th	ne year?	<u>N</u> (If no, explain in Remarks.)	
Are Vegetation, Soil, or H	ydrology	significantly	disturbed?	Are "normal circumstances" present? Yes	
Are Vegetation, Soil, or H	ydrology	naturally pro	oblematic?	(If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map	o showing same	oling point lo	cations, trai	nsects, important features, etc.	
Hydrophytic Vegetation Present?	Y				
Hydric Soil Present?	Y	Is the S	ampled Ar	ea Within a Wetland? Y	
Indicators of Wetland Hydrology Present?	Y	lf yes, o	ptional wetla	and site ID: Wetland PBS-1	
Remarks: (Explain alternative procedures here or	in a separate r	eport.)			
		• •			
In-point for PBS-1, extreme drought for 2 y	ears now causi	ng stressed a	ind sparse v	regetation. Wetland boundaries very distinct.	
VEGETATION Use scientific names of p	lants				
	Absolute	Dominant	Indicator	Dominance Test Worksheet	
Tree Stratum (Plot size:) % Cover	Species	Status	Number of Dominant Species	
1 Ulmus pumila	, 5	Ý	UPL	that are OBL, FACW, or FAC: 3 (A)	
2				Total Number of Dominant	
3				Species Across all Strata: 5 (B)	
4				Percent of Dominant Species	
5				that are OBL, FACW, or FAC: 60.00% (A/B	3)
Carling (Chruh Chature (Diat size)	5	= Total Cove	r	Drevelence Index Werkeheet	
Sapling/Shrub Stratum (Plot size: 1 Tamarix chinensis) 50	Y	FACW	Prevalence Index Worksheet Total % Cover of: Multiply by:	
2 Ribes aureum	15	Y	FACU	OBL species $60 \times 1 = 60$	
3 Salix interior	5	N	FACW	FACW species $55 \times 2 = 110$	
4		·		FAC species $0 \times 3 = 0$	
5				FACU species 18 x 4 = 72	
	70	= Total Cove	r	UPL species $5 \times 5 = 25$	
Herb Stratum (Plot size:)			Column totals <u>138</u> (A) <u>267</u> (B)	
1 Schoenoplectus pungens	40	Y	OBL	Prevalence Index = B/A = 1.93	
2 Typha angustifolia	20	Y	OBL		
3 Cirsium arvense 4 Bassia scoparia	<u>1</u>	- <u>N</u>	FACU FACU	Hydrophytic Vegetation Indicators:	
5 Astragalus agrestis	<u></u>	N	FACU	1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50%	
6			17,00	$\frac{1}{X}$ 3 - Prevalence Index is $\leq 3.0^{1}$	
7		·		4 - Morphological Adaptations ¹ (provide	
8		·		supporting data in Remarks or on a	
9				separate sheet)	
10				Problematic Hydrophytic Vegetation ¹	
	63	= Total Cove	r	(Explain)	
Woody Vine Stratum (Plot size:)			¹ Indicators of hydric soil and wetland hydrology must	be
1				present, unless disturbed or problematic	
2	0	= Total Cove		Hydrophytic Vegetation	
% (Para Cround in Harb Stratum	0		I	Present? Y	
% /Bare Ground in Herb Stratum Remarks: (Include photo numbers here or on a se	enarate sheet)			I	
Abundant	dead kochia ar	nd saltcedar a	alona banks	of channel	
			0.22.110	-	

Profile Desc	cription: (Descr	ibe to th	e depth needeo	to docu	ment the	e indicat	or or confirm t	he absenc	e of indicators.)
Depth	Matrix		Re	edox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Textur	re	Remarks
0 - 5"	2.5 YR 4/2	100					Sandy Clay		
5 - 8"	2.5 YR 4/2						Sandy Clay		Saturated
1 Turnet C = C	Concentration D	- Doploti	on DM - Dodu	ad Matrix	$\int c s = c$	overed a	r Coatad Sand	Craina ² I	_ocation: PL = Pore Lining, M = M
	Indicators: (App	-							ematic Hydric Soils ³ :
-	osol (A1)			ndy Gleye				luck (A9) (L	-
	ic Epipedon (A2)			ndy Redo		(01)			ox (A16) (LRR F, G, H)
	k Histic (A3)			ipped Mat				urface (S7)	
Hyd	rogen Sulfide (A4)			amy Muck	• •	(F1)		. ,	ssions (F16)
Stra	tified Layers (A5)	(LRR F)	Lo	amy Gleye	ed Matrix	(F2)	(LRR	H outside	of MLRA 72 & 73)
	n Muck (A9) (LRR			pleted Ma	trix (F3)		Reduce	ed Vertic (F	18)
	leted Below Dark		·	dox Dark				arent Materia	
	k Dark Surface (A			pleted Da		. ,			Surface (TF12)
	dy Mucky Mineral			dox Depre	•	,		Explain in F	
	cm Mucky Peat or	Peat (S2	· ·	h Plains [hytic vegetation and wetland
	RR G, H) m Mucky Peat or F	Poat (S3)	•	MLRA 72	54 / 3 OT L	KK H)	nyarolog		present, unless disturbed or oblematic.
	-							pic	
	Layer (if observe	ed):							
Type: Be Depth (inche	edrock/Shale es): 8"				-		Hydric S	oil Present	t? <u>Y</u>
	-5). 0				-				
Remarks:									
	P	ossihle n	roblematic soils	from new	fluvial d	ennsits l	Restricted due t	o shale/her	drock
					naviai a	opoonto. I			
HYDROLO	DGY								
Wetland Hy	drology Indicato	ors:							
Primary Indi	cators (minimum	of one is	required; check	all that a	<u>pply)</u>		Sec	ondary Indi	cators (minimum of two required)
X Surface	Water (A1)			Salt Cru	st (B11)			Surface S	Soil Cracks (B6)
	ter Table (A2)				Invertebra		,		Vegetated Concave Surface (B8)
X Saturatio	· · ·				en Sulfide	•		-	Patterns (B10)
	arks (B1)				son Wate d Rhizosp				Rhizospheres on Living C3) (where tilled)
X Drift Dep	nt Deposits (B2)			_	(C3) (whe		-		Burrows (C8)
	it or Crust (B4)				e of Redu				n Visible on Aerial Imagery (C9)
	osits (B5)			_	ck Surfac		(hic Position (D2)
Inundatio	on Visible on Aeria	I Imagery	/ (B7)	Other (E	xplain in	Remarks)		tral Test (D5)
Water-St	tained Leaves (B9)		-				Frost-Hea	ave Hummocks (D7) (LRR F)
Field Obser		Vaa	V N-		Donth /	nohee).	2"		
Surface Wat Water Table		Yes Yes	X No X No		Depth (i Depth (i		<u>3"</u> 8"+	Indi	icators of Wetland
Saturation P		Yes	X No		Depth (i	,	8"		drology Present? Y
	pillary fringe)								
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:									
		5	_ 5		-	-	. ,		
Remarks:									
		Mater	outing through	otlonda	unter tet		un to poorter - f	room ober	
		vvaler	owing through M	cudiius, \	walei laD	ις αι σ Ο	ue to nearby st	ream chành	101.

WETLAND DETERM	MINATIO	N DATA FO	RM - Gre	at Plains	Region		
Project/Site: US-50 PEL	City	County:	Pueblo		Sampling Date:	6/3/13	
Applicant/Owner: CDOT		State:	COLOR	ADO	Sampling Point:	PBS-2	
Investigator(s): KH & JL		Secti	ion, Townsh	ip, Range: _	SECT 1	5, T2S, R65W	
Landform (hillslope, terrace, etc.): Hillslope above	e arroyo	Local relief	(concave, c	onvex, non	e): Concave	Slope (%):	5 to 15
Subregion (LRR): LLR G	Lat:	38.315	Long:	-104	4.66 Dati	um:	
Soil Map Unit Name: Penrose-Minnequa complex			NWI	classificati	on:	N/A	
Are climatic/hydrologic conditions on the site typical for the	nis time of th	e year?	N (lf no, explai	in in Remarks.)		
	logy				nal circumstances"	·	es
	logy			`	ed, explain any an		ks.)
SUMMARY OF FINDINGS - Attach site map sho	owing samp	ling point loc	ations, tran	sects, imp	ortant features,	etc.	
Hydrophytic Vegetation Present? N	_						
Hydric Soil Present? N	_		-		a Wetland?	N	
Indicators of Wetland Hydrology Present? N	_	lf yes, op	otional wetla	nd site ID:			
Remarks: (Explain alternative procedures here or in a	separate re	eport.)					
Very dry shundanes of hare ar	ound and d	and plant mat	torial Extra	mo drough	t for 2 voars nou	,	
Very dry; abundance of bare gr		leau plant mai	ienai. Exire	me drougn	it for 2 years now	/.	
VEGETATION Use scientific names of plant	ts.						
	Absolute	Dominant	Indicator	Domina	nce Test Worksh	leet	
Tree Stratum (Plot size:)	% Cover	Species	Status		f Dominant Specie		
1				that are O	BL, FACW, or FA	C: 1	(A)
2					ber of Dominant cross all Strata:	4	(B)
4				•	Dominant Specie		_(D)
5					BL, FACW, or FA		(A/B)
	0	= Total Cover				-	_ ` ´ ´
Sapling/Shrub Stratum (Plot size:)				Prevale	nce Index Work		
1 Ericameria nauseosa	20	Y	UPL			Multiply by:	
2 Ribes aureum	10	<u>Y</u>	FACU	OBL spe		x 1 = 0	-
3 Tamarix chinensis	10	Y	FACW	FACW s		x 2 = 20 x 3 = 0	-
5				FACU s		x 4 = 124	-
	40	= Total Cover		UPL spe		x 5 = 125	-
Herb Stratum (Plot size:)				Column	totals 66	(A) 269	(B)
1 Grindelia hirsutula	15	Y	FACU	Prevaler	nce Index = B/A	= 4.08	_
2 Stanleya pinnata	5	Ν	UPL				_
3 Cirsium arvense	5	<u>N</u>	FACU		hytic Vegetation		
4 Astragalus agrestis	1	<u>N</u>	FACU		Rapid Test for Hyd		tion
5 6					Dominance Test is Prevalence Index i		
7					Norphological Ad	· · · ·	vido
8					porting data in Re		viue
9					arate sheet)		
10				Prot	plematic Hydroph	nytic Vegetation	1
	26	= Total Cover		(Exp	olain)		
Woody Vine Stratum (Plot size:) 1)					ors of hydric soil and present, unless distu	, ,,	
2				Hyd	Irophytic		
% /Bare Ground in Herb Stratum35	0	= Total Cover			etation sent?	1	
Remarks: (Include photo numbers here or on a separa	ate sheet)						
Abundant dea	d kochia ar	nd saltcedar a	long banks	of channel			

Profile Dese	cription: (Descr	ibe to th	e depth needed	to docu	ment the	e indicat	or or confirm the abser	nce of indicators.)	
Depth	Matrix			lox Feat					
(Inches)	Color (moist)	%	Color (moist)	%	Type¹	Loc ²	Texture	Remarks	
0 - 8"	2.5 YR 6/2	100					Sand	Dry	
¹ Type: $C = C$	Concentration, D :	= Depleti	on, RM = Reduce	ed Matrix	, CS = C	overed o	or Coated Sand Grains.	² Location: PL = Pore Lining, M = M	
	Indicators: (App							lematic Hydric Soils ³ :	
Hist	osol (A1)		San	dy Gleye	d Matrix ((S4)	1 cm Muck (A9)	(LRR I, J)	
Hist	ic Epipedon (A2)		San	dy Redo	x (S5)		Coast Prairie Re	dox (A16) (LRR F, G, H)	
Blac	ck Histic (A3)		Stri	oped Mat	rix (S6)		Dark Surface (S	7) (LRR G)	
Hyd	lrogen Sulfide (A4))	Loa	my Muck	y Mineral	(F1)	High Plains Dep	ressions (F16)	
Stra	tified Layers (A5)	(LRR F)	Loa	my Gleye	ed Matrix	(F2)	(LRR H outsid	e of MLRA 72 & 73)	
	n Muck (A9) (LRR			leted Ma	trix (F3)		Reduced Vertic		
	leted Below Dark				Surface (,	Red Parent Mate		
	ck Dark Surface (A	,			rk Surface	. ,		rk Surface (TF12)	
	dy Mucky Mineral	. ,		•	essions (F	,	Other (Explain in	,	
	cm Mucky Peat or	Peat (S2	· · · · · · · · · · · · · · · · · · ·		Depressio			phytic vegetation and wetland	
	RR G, H)			LRA 72 8	& 73 of L	RR H)		e present, unless disturbed or	
	m Mucky Peat or F		(LRR F)				Ā	problematic.	
	Layer (if observe	ed):							
	edrock/Shale				-		Hydric Soil Prese	nt? <u>N</u>	
Depth (inche	es): 8"				-				
Remarks:									
		Same	e as others, pure	sand. Re	estricted	at 8" due	to dryness, bedrock/sha	le.	
-	drology Indicato		un au din als als als	- 11 41 4 -			a		
-	cators (minimum	of one is	required; check					dicators (minimum of two required)	
	Water (A1) Iter Table (A2)			Salt Cru	Invertebra	atos (B13		e Soil Cracks (B6) y Vegetated Concave Surface (B8)	
Saturatio					n Sulfide			je Patterns (B10)	
	larks (B1)				son Wate	•		d Rhizospheres on Living	
	nt Deposits (B2)				d Rhizosp			(C3) (where tilled)	
	posits (B3)				(C3) (whe		•	n Burrows (C8)	
	at or Crust (B4)			Presenc	e of Redu	uced Iron	(C4) Saturat	ion Visible on Aerial Imagery (C9)	
Iron Dep	oosits (B5)			Thin Mu	ck Surfac	e (C7)	Geomo	rphic Position (D2)	
Inundatio	on Visible on Aeria	al Imagery	/ (B7)	Other (E	xplain in	Remarks		eutral Test (D5)	
Water-S	tained Leaves (B9)					Frost-H	eave Hummocks (D7) (LRR F)	
Field Obser		N -		~					
Surface Wat		Yes	No	X	Depth (i			dicators of Wetland	
Water Table Saturation P		Yes Yes	No No	X X	Depth (i Depth (i	-		lydrology Present? N	
	pillary fringe)	163	NO	~		nenes).	'		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:									
Describe Re		Sani yau		n, acriai	priotos,	PICVIOUS	nopections, il available		
Remarks:									
i terrarito.									
			Dry ι	iplands r	near Wet	land PBS	S-1, sand.		
			5						

WETLAND DETERMIN	ATION DATA F	ORM - Great P	lains Region	
Project/Site: US-50 PEL	City/County:	Pueblo	Sampling Date:	6/3/13
Applicant/Owner: CDOT	State:	COLORADO	Sampling Point:	WHDC-1
Investigator(s): KH and JL	See	ction, Township, Ra	ange: SECT 15,	T2S, R65W
Landform (hillslope, terrace, etc.): Depression, arro	byo Local relie	ef (concave, conve	x, none): Concave	Slope (%): 0 to 3
Subregion (LRR): LRR G Lat:	38.313	Long:	-104.652 Datum:	NAD 83
Soil Map Unit Name: Manvel silt loam, 1 to 5 percent slope	es	NWI class	sification: P	EMWi
Are climatic/hydrologic conditions on the site typical for this ti	ime of the year?	N (If no,	explain in Remarks.)	
Are Vegetation , Soil , or Hydrology	significantly	y disturbed? Are	e "normal circumstances" pre	esent? Yes
Are Vegetation , Soil , or Hydrology	naturally pr	oblematic? (If	needed, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showin	ng sampling point lo	ocations, transect	s, important features, etc	•
Hydrophytic Vegetation Present? Y			· · ·	
Hydric Soil Present? Y	Is the	Sampled Area W	ithin a Wetland?	Y
Indicators of Wetland Hydrology Present? Y	If ves.	optional wetland si	te ID: WETLAND WHDO	C-1
Remarks: (Explain alternative procedures here or in a sep	parate report.)			
Marginal wetland along flowing creek, ex	xtreme drought for 2	years causing ve	getation to be very stress	ed.
	_			
VEGETATION Use scientific names of plants.				
	bsolute Dominant		ominance Test Workshee	t
	Cover Species		nber of Dominant Species	2 (A)
1			are OBL, FACW, or FAC:	(A)
3			al Number of Dominant cies Across all Strata:	2 (B)
4			cent of Dominant Species	<u> </u>
5			are OBL, FACW, or FAC:	100.00% (A/B)
	0 = Total Cove			()
Sapling/Shrub Stratum (Plot size:)		Pr	evalence Index Worksh	eet
1 Tamarix chinensis	30 Y	FACW To	otal % Cover of: Mu	Itiply by:
2			BL species 6 x 1	
3			ACW species 70 x 2	
4			AC species 0 x 3	
5	30 = Total Cove		ACU species 5 x 4 PL species 0 x 5	
Herb Stratum (Plot size:)			olumn totals 81 (A)	
1 Agrostis stolonifera	40 Y		revalence Index = B/A =	2.05
2 Eleocharis palustris	5 N	OBL		2.00
3 Helianthus annuus	5 N		vdrophytic Vegetation In	dicators:
4 Carex nebrascensis	1 N	OBL	1 - Rapid Test for Hydrop	
5		X	2 - Dominance Test is >5	50%
6		X	3 - Prevalence Index is ≤	3.0 ¹
7			4 - Morphological Adapt	tations ¹ (provide
8			supporting data in Rem	arks or on a
9			separate sheet)	1
10	51 = Total Cove		Problematic Hydrophyti	c Vegetation'
Woody Vine Stratum (Plot size:)	51 = Total Cove		(Explain)	
1		''	Indicators of hydric soil and wel present, unless disturbed	
2			Hydrophytic	
	0 = Total Cove	er	Vegetation	
% /Bare Ground in Herb Stratum 50			Present? N	
Remarks: (Include photo numbers here or on a separate s	sheet)	I		-
	,			
Abunda	ant dead saltcedar a	long channel		

Profile Des	cription: (Descr	ibe to th	e depth needed	to docu	ment the	e indicat	or or confirm the absen	ce of indicators.)
Depth	Matrix			dox Feat				
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0 - 5"	10 YR 5/2	70	7.5 YR 5/6	5	CS	М	Sandy Loam	Restricted at 5"
0 - 5"	10 YR 3/1	25					,	
¹ Type: $C = C$	Concentration, D	= Depleti	on, RM = Reduce	ed Matrix	. CS = C	overed o	or Coated Sand Grains.	² Location: PL = Pore Lining, M = N
	Indicators: (App							lematic Hydric Soils ³ :
-	tosol (A1)				d Matrix	-	1 cm Muck (A9)	-
	tic Epipedon (A2)			dy Redo		,		dox (A16) (LRR F, G, H)
	ck Histic (A3)		Stri	oped Mat	rix (S6)		Dark Surface (S7	7) (LRR G)
Hyd	Irogen Sulfide (A4))	Loa	my Muck	y Mineral	(F1)	High Plains Depr	essions (F16)
Stra	atified Layers (A5)	(LRR F)	Loa	my Gleye	ed Matrix	(F2)	(LRR H outside	e of MLRA 72 & 73)
	m Muck (A9) (LRR			leted Ma	trix (F3)		Reduced Vertic (F18)
	leted Below Dark				Surface (Red Parent Mate	
	ck Dark Surface (A	,	`		rk Surfac	. ,		rk Surface (TF12)
	ndy Mucky Mineral			•	essions (F	,	Other (Explain in	,
	cm Mucky Peat or	Peat (S2	· _ ·		Depressio			phytic vegetation and wetland
-	RR G, H)	De et (00)		LRA 72 8	& 73 of L	RR H)		present, unless disturbed or
<u> </u>	m Mucky Peat or F	Peat (S3)	(LRR F)				р	roblematic.
Restrictive	Layer (if observ	ed):						
	edrock/shale				-		Hydric Soil Prese	nt? Y
Depth (inche	es): 5"				-			
Remarks:								
			Same as Will	iams Cre	eek, restr	icted due	e to bedrock/shale	
HYDROLO								
-	drology Indicate							
-	cators (minimum	of one is	-					dicators (minimum of two required)
X Surface	()		<u>X</u>	Salt Cru	· ,			Soil Cracks (B6)
	ater Table (A2)				Invertebra	•		y Vegetated Concave Surface (B8)
X Saturatio	larks (B1)				en Sulfide son Wate		,	e Patterns (B10) d Rhizospheres on Living
	nt Deposits (B2)				d Rhizosp	,		(C3) (where tilled)
	posits (B3)			-	(C3) (wh e			Burrows (C8)
	at or Crust (B4)				e of Redu			on Visible on Aerial Imagery (C9)
	oosits (B5)			Thin Mu	ck Surfac	e (C7)		phic Position (D2)
Inundatio	on Visible on Aeria	I Imagery	y (B7)	Other (E	xplain in	Remarks		utral Test (D5)
Water-S	tained Leaves (B9)					Frost-H	eave Hummocks (D7) (LRR F)
Field Obser					<u> </u>			
Surface Wat		Yes	X No		Depth (i	,	2"	
Water Table Saturation P		Yes Yes	X No No	X	Depth (i		-	dicators of Wetland ydrology Present? Y
	pillary fringe)	165	NO		Depth (i	nenes).	"	
		am aour			nhotos	nrevieue	inenections) if available:	
Describe Re		sam yau	ge, monitoring we	aciidi	priotos,	pievious	inspections), if available:	
Remarks:								
INCINGINS.								
	Flo	owing wa	ater in an incised	channel.	Much dr	ier bencl	hes on either side of the c	hannel.
		-						

WETLAND DETE	ERMINATIO	N DATA FO	RM - Grea	at Plains	Region		
Project/Site: US-50 PEL	City	/County:	Pueblo		Sampling Date:	6/3/13	
Applicant/Owner: CDOT		State:	COLOR	ADO	Sampling Point:	WHDC-	2
Investigator(s): KH and JL		Sect	ion, Townsh	ip, Range:	Sect 15,	T2S, R65W	
Landform (hillslope, terrace, etc.): hills	slope	Local relief	(concave, c	onvex, none	e): Concave	Slope (%):	3 to 10
Subregion (LRR): LRR G	Lat:	38.313	Long:	-104	.652 Datum	n: NAD	83
Soil Map Unit Name: Manvel silt loam, 1 to 5 perce	nt slopes		NWI	classificatio	on:	N/A	
Are climatic/hydrologic conditions on the site typical f	or this time of th	ne year?	N (I	lf no, explai	n in Remarks.)		
Are Vegetation , Soil , or Hy	/drology	significantly	disturbed?	Are "norm	nal circumstances" pr	resent? Y	′es
Are Vegetation , Soil , or Hy	/drology	naturally pro	blematic?	(If neede	d, explain any answ	ers in Remar	ks.)
SUMMARY OF FINDINGS - Attach site map	showing same	oling point loo	ations, tran	sects, imp	ortant features, et	с.	
Hydrophytic Vegetation Present?	Ν						
– Hydric Soil Present?	N	Is the S	ampled Are	ea Within a	a Wetland?	Ν	
Indicators of Wetland Hydrology Present?	Ν	lf yes, o	otional wetla	nd site ID:			
Remarks: (Explain alternative procedures here or	in a senarate r	enort)					
	in a separate i	epon.)					
Outpoint for WHDC-1, extreme droug	ght for 2 years	stressing veg	etation alon	g streams	and especially in u	plands.	
	1 4						
VEGETATION Use scientific names of p				Denting			
Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status		nce Test Workshee	t	
1 (FIOUSIZE)	/0 00000	opecies	Status		f Dominant Species BL, FACW, or FAC:	1	(A)
2		· ·			ber of Dominant	·	_(,,)
3		· ·			cross all Strata:	4	(B)
4		· ·		Percent of	Dominant Species		
5				that are Of	BL, FACW, or FAC:	25.00%	(A/B)
	0	= Total Cover					
Sapling/Shrub Stratum (Plot size:	_)				nce Index Worksh		
1 Ericameria nauseosa 2 Ribes aureum		· <u> </u>	FACU			ultiply by:	
2 Ribes aureum 3	5		FACU	OBL spe FACW s			-
4		· ·		FAC spe		3 = 0	_
5		· ·		FACU sp			-
	15	= Total Cover		UPL spe		5 = 105	-
Herb Stratum (Plot size:)			Column	totals 47 (A) 169	(B)
1 Lepidium latifolium	20	Y	FACW	Prevaler	nce Index = B/A =	3.60	
2 Cardaria draba	20	Y	UPL				
3 Astragalus agrestis	1	N	FACU		hytic Vegetation I		
4 Stanleya pinnata	1	N	UPL		Rapid Test for Hydro		ation
5		· ·)ominance Test is > Prevalence Index is :		
6		· ·					
8		· ·			Norphological Adap porting data in Rem		
9		· ·			arate sheet)		
10		· ·		Prob	plematic Hydrophyt	ic Vegetation	า ¹
	42	= Total Cover		(Exp	olain)		
Woody Vine Stratum (Plot size:)			¹ Indicato	ors of hydric soil and we	etland hydrology	/ must be
1				-	present, unless disturbe	ed or problemat	ic
2					rophytic		
% (Para Cround in Llorb Stratum 40	0	= Total Cover		-	etation sent? N		
% /Bare Ground in Herb Stratum 40 Remarks: (Include photo numbers here or on a se	narate choot)					_	
	parate sileet)						
Abundant	dead kochia ai	nd saltcedar a	long banks	of channel			
			0				

Depth (Inches) Matrix Color (moist) Redox Features Type: Type' Loc ⁴ Texture Remarks 0 - 8" 2.5 YR 6/2 100 Sand Restricted at 8" Restricted at 8" 0 - 8" 2.5 YR 6/2 100 Sand Restricted at 8" 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
0 - 8" 2.5 YR 6/2 100 Image: Construction of the second sec
Image: Secondary Indicators Image: Secondary Indicators Image: Secondary Ind
Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (LRR I, J) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Stratified Layers (A5) (LRR F, G, H) Depleted Matrix (F2) (LRR H outside of MLRA 72 & 73) Depleted Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Sandy Mucky Mineral (S1) Depleted dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Peat or Peat (S2) High Plains Depressions (F16) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale N Depth (inches): 8* Sand Redox Christic (T11) Sand Redox (B6) Surface Water (A1) Salt Crust (B11) Surface S0il Cracks (B6) Surface S0il Cracks (B6) Hydrogen Suffide CA2, Harris (B1) Hydrogen Suffide CA2 Sand Redox Lawer Table (C2) Oxidized Rhizospherers on Living <
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (LRR I, J) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Stratified Layers (A5) (LRR F, G, H) Depleted Matrix (F2) (LRR H outside of MLRA 72 & 73) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Peat or Peat (S2) High Plains Depressions (F16) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale N Depth (inches): 8* Sand value to dryness and/or bedrock/shale. Hydrogy Indicators: Sand as WCN-2, very dry sand - restricted at 8* due to dryness and/or bedrock/shale. Saturation (A3) Hydrogen Sufface (C1) Sarface S0il Cracks (B6) Saturation (A3) Hydrogen Sufface Our (C1) Drainage Pa
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (LRR I, J) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Stratified Layers (A5) (LRR F, G, H) Depleted Matrix (F2) (LRR H outside of MLRA 72 & 73) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Peat or Peat (S2) High Plains Depressions (F16) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale N Depth (inches): 8* Sand value to dryness and/or bedrock/shale. Hydrogy Indicators: Sand as WCN-2, very dry sand - restricted at 8* due to dryness and/or bedrock/shale. Saturation (A3) Hydrogen Sufface (C1) Sarface S0il Cracks (B6) Saturation (A3) Hydrogen Sufface Our (C1) Drainage Pa
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Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (LRR I, J) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Stratified Layers (A5) (LRR F, G, H) Depleted Matrix (F2) (LRR H outside of MLRA 72 & 73) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Peat or Peat (S2) High Plains Depressions (F16) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale N Depth (inches): 8* Sand value to dryness and/or bedrock/shale. Hydrogy Indicators: Sand as WCN-2, very dry sand - restricted at 8* due to dryness and/or bedrock/shale. Saturation (A3) Hydrogen Sufface (C1) Sarface S0il Cracks (B6) Saturation (A3) Hydrogen Sufface Our (C1) Drainage Pa
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Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (LRR I, J) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Stratified Layers (A5) (LRR F, G, H) Depleted Matrix (F2) (LRR H outside of MLRA 72 & 73) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Peat or Peat (S2) High Plains Depressions (F16) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale N Depth (inches): 8* Sand value to dryness and/or bedrock/shale. Hydrogy Indicators: Sand as WCN-2, very dry sand - restricted at 8* due to dryness and/or bedrock/shale. Saturation (A3) Hydrogen Sufface (C1) Sarface S0il Cracks (B6) Saturation (A3) Hydrogen Sufface Our (C1) Drainage Pa
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils*: Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (LRR I, J) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Stratified Layers (A5) (LRR F, G, H) Depleted Matrix (F2) (LRR H outside of MLRA 72 & 73) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Peat or Peat (S2) High Plains Depressions (F16) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale N Depth (inches): 8* Sand value to dryness and/or bedrock/shale. Hydrogy Indicators: Sand as WCN-2, very dry sand - restricted at 8* due to dryness and/or bedrock/shale. Saturation (A3) Hydrogen Sufface (C1) Sarface S0il Cracks (B6) Saturation (A3) Hydrogen Sufface Our (C1) Drainage Pa
Histosol (A1) Sandy Gleyed Matrix (S4) 1 cm Muck (A9) (LRR I, J) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfde (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Stratified Layers (A5) (LRR F, G, H) Depleted Matrix (F2) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) Redox Depressions (F16) Other (Explain in Remarks) 2.5 cm Mucky Peat or Peat (S2) High Plains Depressions (F16) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Type: Bedrock/shale Hydric Soil Present? N Depth (inches): 8" Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HYDROLOGY Satt Crust (B11) Satt Crust (B11) Surface Soil Cracks (B6) Surface Water (A1) Satt Crust (B11) Sarselve seas on Water Table (A2) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sourface Soil
Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) 1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F2) (LR R H outside of MLRA 72 & 73) Pepleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Red Parent Material (TF2) Sandy Mucky Mineral (S1) Redox Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) Redox Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) Redox Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Peat or Peat (S2) High Plains Depressions (F16) "indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Type: Bedrock/shale
Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Stratified Layers (A5) (LRR F) Loamy Gleyed Matrix (F2) (LRR H outside of MLRA 72 & 73) 1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Sandy Mucky Mineral (S1) Redox Depressions (F16) Other (Explain in Remarks) 2.5 cm Mucky Peat or Peat (S2) High Plains Depressions (F16) Thick care (F7) (LRR G, H) (MLRA 72 & 73 of LRR H) Thicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale N Depth (inches): 8" Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. Hydrogen Sulface Soil Cracks (B6) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Sediment Deposits (B2) Oxidized Rhizospheres on Li
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Stratified Layers (A5) (LRR F) Loamy Gleyed Matrix (F2) (LRR H outside of MLRA 72 & 73) 1 cm Muck (A9) (LRR F, G, H) Depleted Blew Dark Surface (A11) Redox Dark Surface (F6) Red Vertic (F18) Depleted Blew Dark Surface (A12) Depleted Dark Surface (F6) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) Redox Depressions (F6) Other (Explain in Remarks) 2.5 cm Mucky Peat or Peat (S2) High Plains Depressions (F16) Other (Explain in Remarks) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): (mLRA 72 & 73 of LRR H) Hydric Soil Present? N Type: Bedrock/shale Hydric Soil Present? N N Betrictive Layer (if observed): Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. Hydrogon Sulfide Odor (C1) Surface Soil Cracks (B6) Surface Vater (A1) Salt Crust (B11) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely
Stratified Layers (Å5) (LRR F) Loamy Gleyed Matrix (F2) (LRR H outside of MLRA 72 & 73) 1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Thick Dark Surface (A12) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) 2.5 cm Mucky Peat or Peat (S2) High Plains Depressions (F16) MLRA 72 & 73 of LRR H)
1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Depleted Below Dark Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Thick Dark Surface (A12) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) 2.5 cm Mucky Peat or Peat (S2) High Plains Depressions (F16) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale Hydric Soil Present? N Depth (inches): 8" N Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HyproLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Hydroge Sutface Odr (C1) Drainage Patterns (B10) Saturation (A3) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Soit Cracks (C3) (where tilled)
Image: Construct Surface (A11) Redox Dark Surface (F6) Red Parent Material (TF2) Image: Construct Surface (A12) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) 2.5 cm Mucky Peat or Peat (S2) High Plains Depressions (F16) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale Hydric Soil Present? N Depth (inches): 8" N Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HYDROLOGY Wetland Hydrology Indicators: Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Section to proside Rhizospheres on Living Oxidized Rhizospheres on Living
Thick Dark Surface (A12) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) 2.5 cm Mucky Peat or Peat (S2) High Plains Depressions (F16) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale Problematic. Restrictive Layer (if observed): N N N Type: Bedrock/shale N N Depth (inches): 8" N N Remarks: Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. N HYDROLOGY Secondary Indicators (minimum of two required) Surface Soil Cracks (B6) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) 2.5 cm Mucky Peat or Peat (S2) High Plains Depressions (F16) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale Hydric Soil Present? N Pepth (inches): 8" Mineral (S1) Remarks: Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) High Water Table (A2) Aquatic Invertebrates (B13) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Oxidized Rhizospheres on Living Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
2.5 cm Mucky Peat or Peat (S2) High Plains Depressions (F16) (MLRA 72 & 73 of LRR H) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Bedrock/shale Hydric Soil Present? N Depth (inches): 8" N N Remarks: Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. N HYDROLOGY Secondary Indicators (minimum of one is required: check all that apply) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) Saturation (A3) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Wet Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Drainage Patterns (B10) Water Marks (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
(LRR G, H) (MLRA 72 & 73 of LRR H) hydrology must be present, unless disturbed or problematic. Sector Sector Present, unless disturbed or problematic. Restrictive Layer (if observed): Hydric Soil Present? N Type: Bedrock/shale N Depth (inches): 8" N Remarks: Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
5 cm Mucky Peat or Peat (S3) (LRR F) problematic. Restrictive Layer (if observed): Type:Bedrock/shale Depth (inches):8" Hydric Soil Present?N Remarks:
Restrictive Layer (if observed): Type: Bedrock/shale Hydric Soil Present? N Depth (inches): 8" Hydric Soil Present? N Remarks: Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
Type: Bedrock/shale Hydric Soil Present? N Depth (inches): 8" N Remarks: Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
Depth (inches): 8" Remarks: Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
Remarks: Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HYDROLOGY Metland Hydrology Indicators: Primary Indicators (minimum of one is required: check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) High Water Table (A2) Aquatic Invertebrates (B13) Saturation (A3) Hydrogen Sulfide Odor (C1) Water Marks (B1) Dry-Season Water Table (C2) Sediment Deposits (B2) Oxidized Rhizospheres on Living
Same as WCN-2, very dry sand - restricted at 8" due to dryness and/or bedrock/shale. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
Surface Water (A1)Salt Crust (B11)Surface Soil Cracks (B6)High Water Table (A2)Aquatic Invertebrates (B13)Sparsely Vegetated Concave Surface (B8)Saturation (A3)Hydrogen Sulfide Odor (C1)Drainage Patterns (B10)Water Marks (B1)Dry-Season Water Table (C2)Oxidized Rhizospheres on LivingSediment Deposits (B2)Oxidized Rhizospheres on LivingRoots (C3) (where tilled)
High Water Table (A2)Aquatic Invertebrates (B13)Sparsely Vegetated Concave Surface (B8)Saturation (A3)Hydrogen Sulfide Odor (C1)Drainage Patterns (B10)Water Marks (B1)Dry-Season Water Table (C2)Oxidized Rhizospheres on LivingSediment Deposits (B2)Oxidized Rhizospheres on LivingRoots (C3) (where tilled)
Saturation (A3)Hydrogen Sulfide Odor (C1)Drainage Patterns (B10)Water Marks (B1)Dry-Season Water Table (C2)Oxidized Rhizospheres on LivingSediment Deposits (B2)Oxidized Rhizospheres on LivingRoots (C3) (where tilled)
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)
Drift Deposits (B3) Roots (C3) (where not tilled) Crayfish Burrows (C8)
Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9)
Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5)
Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F)
Field Observations:
Surface Water Present? Yes No X Depth (inches):
Water Table Present? Yes No X Depth (inches): Indicators of Wetland
Saturation Present? Yes No X Depth (inches): Hydrology Present? N
Saturation Present? Yes No X Depth (inches): Hydrology Present? N (includes capillary fringe)
Saturation Present? Yes No X Depth (inches): Hydrology Present? N
Saturation Present? Yes No X Depth (inches): Hydrology Present? N (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Hydrology Present? N
Saturation Present? Yes No X Depth (inches): Hydrology Present? N (includes capillary fringe)
Saturation Present? Yes No X Depth (inches): Hydrology Present? N (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Hydrology Present? N

Appendix C Surveyed Wetlands Detailed Maps (1" = 100')

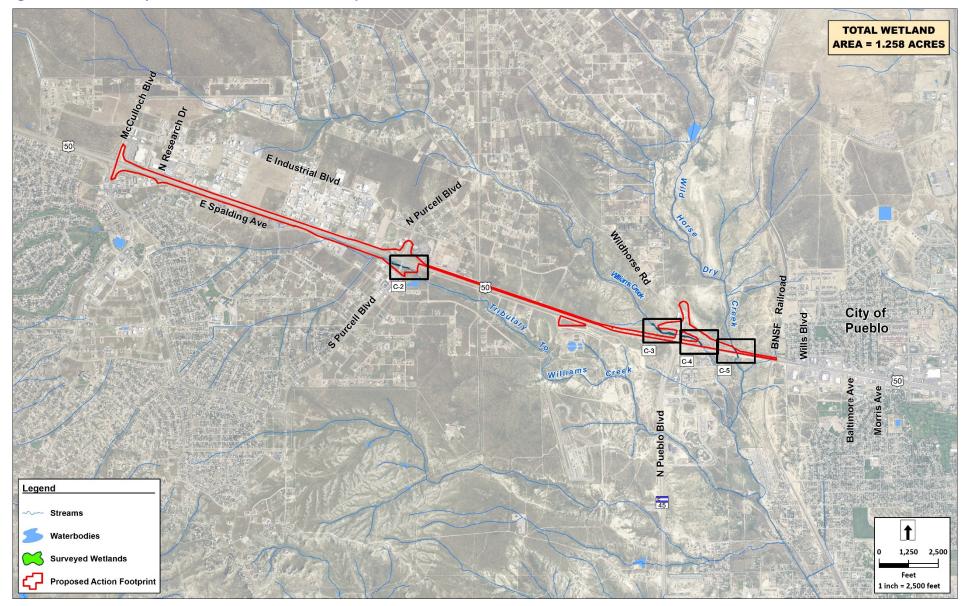


Figure C-1. Surveyed Wetlands Detail Index Map

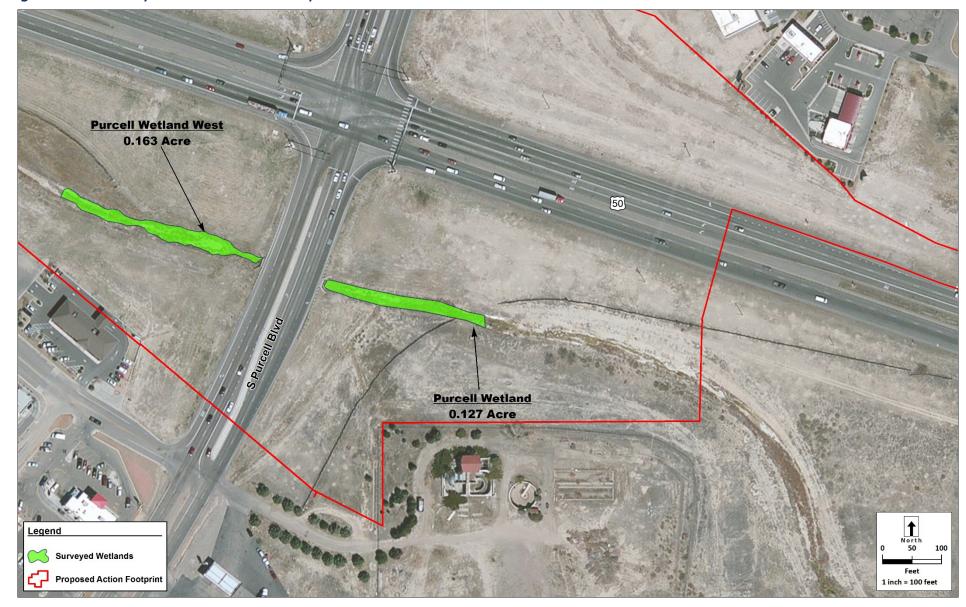


Figure C-2. Surveyed Wetlands Detail Map

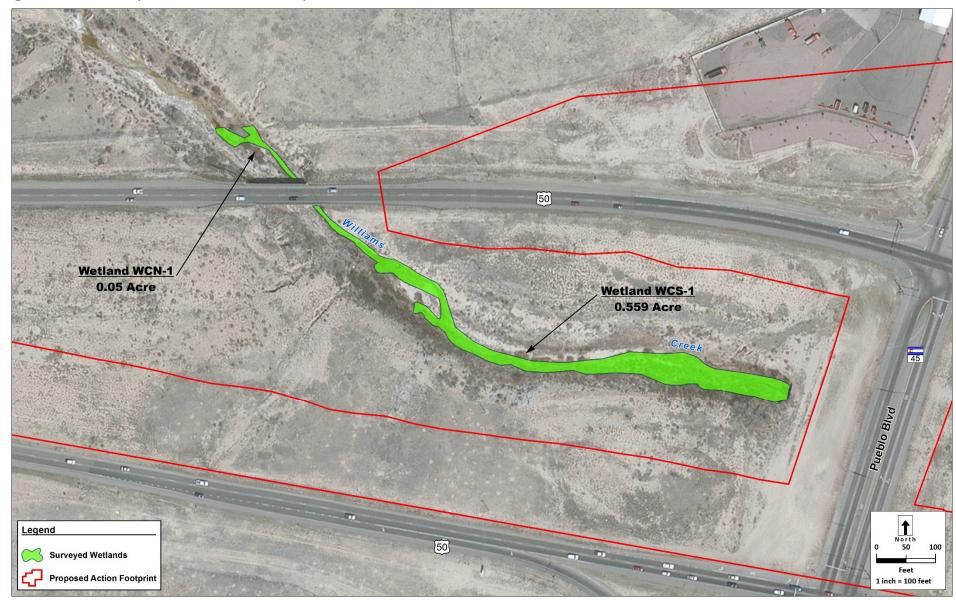


Figure C-3. Surveyed Wetlands Detail Map

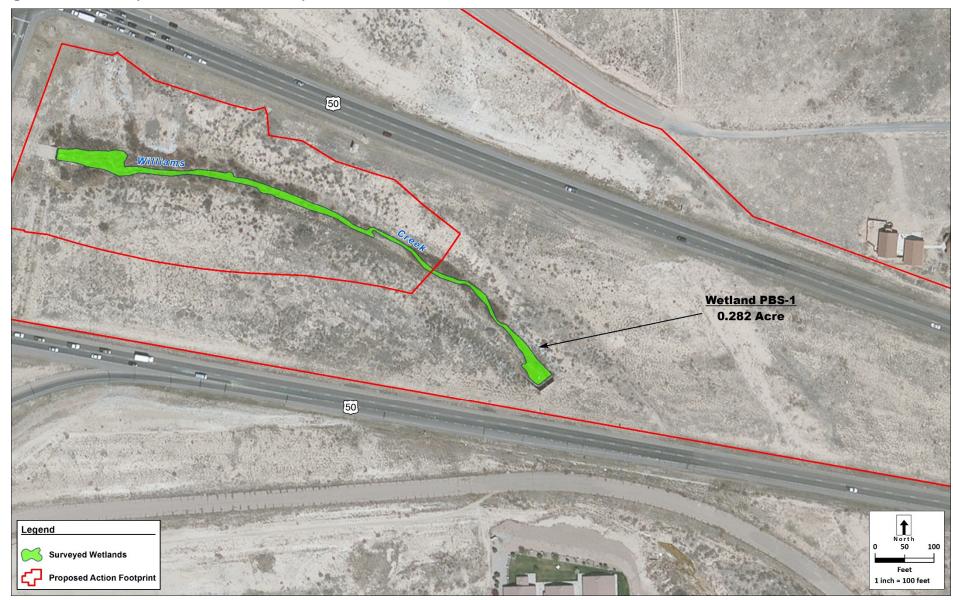


Figure C-4. Surveyed Wetlands Detail Map



