WETLAND DELINEATION TECHNICAL REPORT

FOR THE

I-25 (US 36 to 104th Avenue)
Environmental Assessment

Prepared for:

Colorado Department of Transportation
Region 1
2829 W. Howard Place
Denver, CO 80204

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List of Acronyms and Abbreviations

BMP	best management practice
CatEx	Categorical Exclusion
CDOT	Colorado Department of Transportation
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
FEIS	Final Environmental Impact Statement
FHU	Felsburg Holt & Ullevig
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	geographic Information system
I-25	Interstate 25
NEPA	National Environmental Policy Act
NWI	National Wetland Inventory
PEL	Planning and Environmental Linkages
PEM	Palustrine Emergent
PSS	Palustrine Scrub/Shrub
PUB	Palustrine Unconsolidated Bottom
ROD	Record of Decision
RTD	Regional Transportation District
US 36	United States Highway 36
USACE	United States Army Corps of Engineers
WUS	waters of the U.S.

1.0 Project Description

A wetland delineation evaluation was completed for the Interstate 25 (I-25) North, United States Highway 36 (US 36) to 104th Avenue project. Colorado Department of Transportation (CDOT), in cooperation with the Federal Highway Administration (FHWA), is preparing a template Environmental Assessment (EA) for the I-25 North, US 36 to 104th Avenue project. The Regional Transportation District (RTD) is a cooperating agency.

The I-25 North, US 36 to 104th Avenue project includes improvements to relieve congestion and improve safety on I-25 from US 36 to 104th Avenue in Adams County and the City of Thornton, Colorado (**Figure 1** and **Figure 2**). The project will provide improvements to an approximately 4-mile segment of I-25 between US 36 and 104th Avenue. The current cross section of I-25 between US 36 and 104th Avenue generally includes three general-purpose lanes and one Express Lane along the inside shoulder, with an auxiliary lane between US 36 and 84th Avenue. The inside shoulder varies in width between 2 and 12 feet, and the outside shoulder varies between 10 and 12 feet. There is a 2-foot inside shoulder and a 2-foot buffer between the Express Lane and the nearest general-purpose lane.

The proposed improvements associated with this project are as follows:

- Adding a fourth general-purpose lane in each direction from 84th Avenue to Thornton Parkway, with the northbound general-purpose lane extending to 104th Avenue;
- Constructing continuous acceleration and deceleration lanes between the I-25/84th Avenue interchange and the I-25/Thornton Parkway interchange;
- Widening the inside and outside shoulder to a consistent 12-foot width;
- Accommodating a proposed median transit station and pedestrian bridge for the Thornton Park-n-Ride just south of 88th Avenue; and
- Replacing the 88th Avenue bridge over I-25.

The proposed typical section on I-25 will consist of four 12-foot general-purpose lanes, a 12-foot Express Lane along the inside traveled way, and a 12-foot outside auxiliary lane between each interchange. Additionally, the inside and outside shoulders will be widened to 12 feet and the Express Lane buffer will be extended to 4 feet. A 2-foot concrete barrier will surround the median station to separate the through-lanes from the bus station and bus lanes.

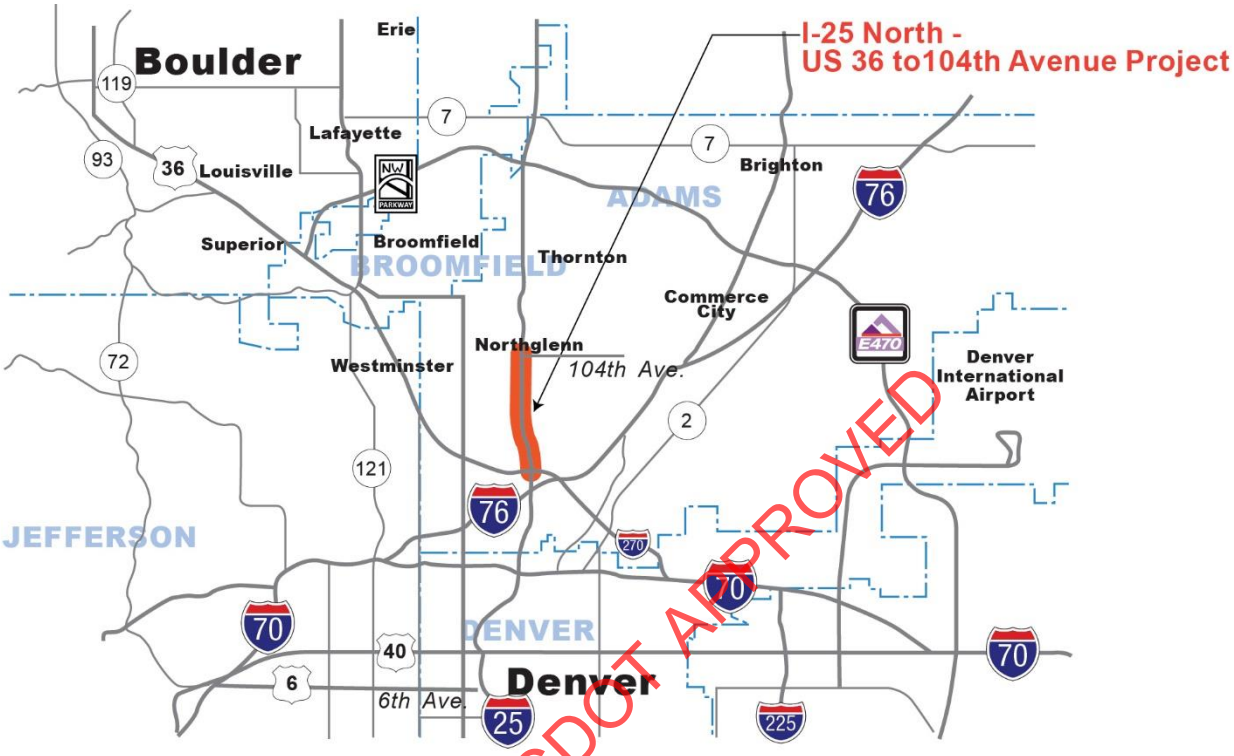
This report describes the wetlands of the project area, including resources delineated through previous surveys (CDOT, FTA, and FHWA, 2010; CDOT and FHWA, 2011a; CDOT and FHWA, 2014a). This report also includes resources identified from federal, state, and local agencies. Lastly, information is included based on site conditions during field surveys conducted on February 14, 2017, and on July 2, 2018. A biological resources report was also completed as a part of this analysis.

2.0 Previous Studies

Several other studies have been completed in the project area. These studies include the North I-25 Final Environmental Impact Statement (EIS) (CDOT, FTA, and FHWA, 2010), I-25/84th Avenue Bridge Reconstruction Project Non-Programmatic Categorical Exclusion (CatEx) (CDOT and FHWA, 2010), and I-25 Managed Lanes Project ROD Re-evaluation (CDOT and FHWA, 2014a).

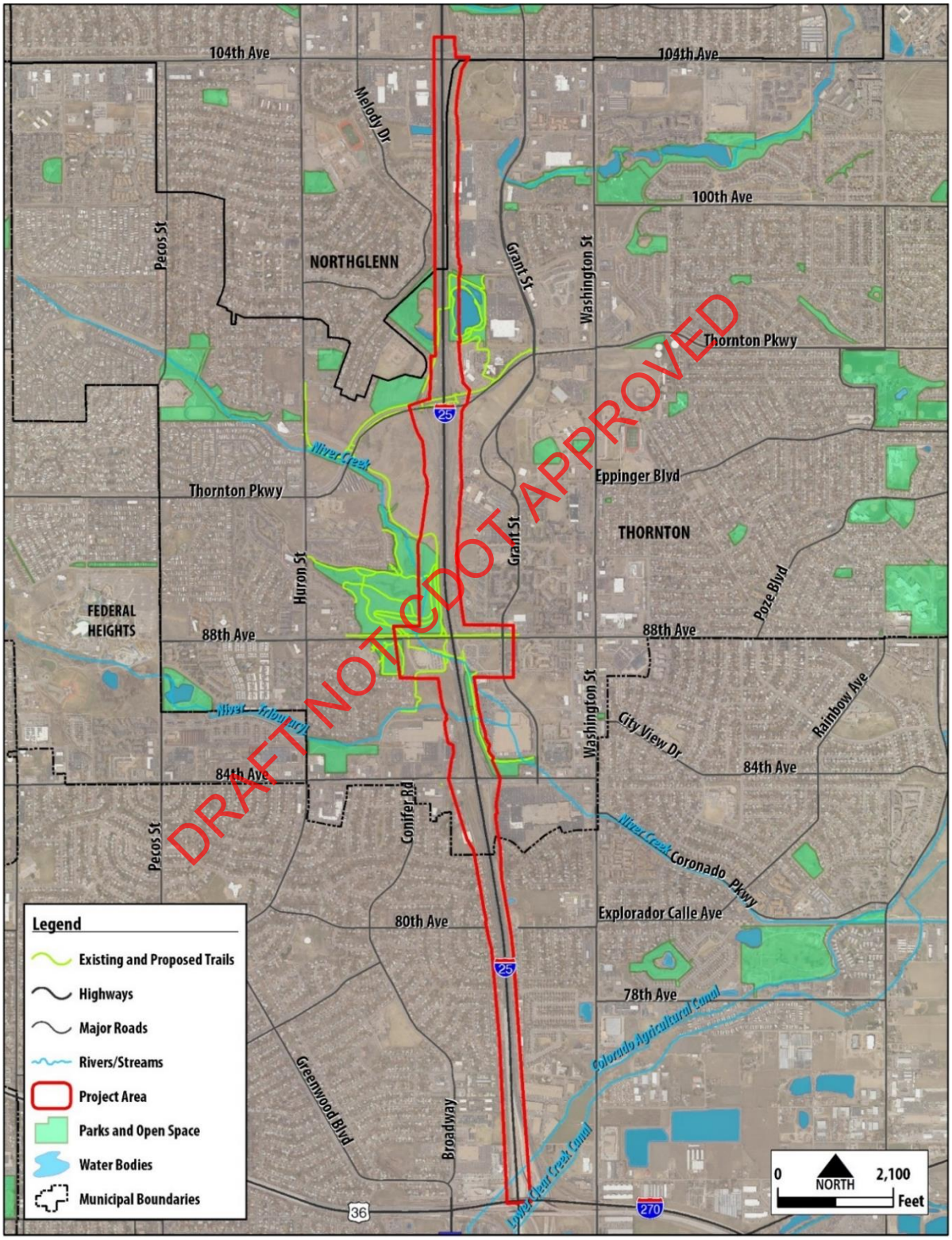
Appendix C includes a correspondence letter with the United States Army Corps of Engineers (USACE) discussing why this project is being considered separately from the previous studies.

Figure 1. Project Vicinity



Source: FHU, 2019

Figure 2. Project Area



Source: FHU, 2019

3.0 Applicable Statutes and Regulations

The National Environmental Policy Act (NEPA) requires projects with federal oversight or projects pursuing federal funding assistance to evaluate the environmental consequences of proposed actions. Other federal regulations also require coordination with federal agencies to identify impacts on other sensitive biological resources.

3.1 Clean Water Act

Passed by the United States Congress in 1972, the Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into waters of the U.S.(WUS). Any discharge of dredged or fill materials into a WUS, including wetlands, requires authorization by the USACE pursuant to Section 404 of the CWA. The CWA also protects the removal of wetlands from dredging activities.

A WUS is defined under Section 404 as all traditional navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. This definition does not include wetlands that lack a significant nexus or surface connection to a regulated water, such as a perennial stream.

For regulatory purposes under the CWA, wetlands are defined as:

> …those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas (EPA, 2018).

More specifically, an area is considered a wetland when three parameters are met: hydrophytic vegetation, hydric soils, and wetland hydrology.

3.2 Executive Order 11990

In addition to CWA requirements, projects with federal funding or oversight must comply with Executive Order (EO) 11990—Protection of Wetlands. EO 11990 directs the lead federal agencies to protect wetlands by avoiding direct or indirect support of construction in wetlands when a practicable alternative is available. Therefore, regardless of CWA jurisdiction, FHWA is responsible for ensuring the avoidance, minimization, and compensatory mitigation of all wetlands within transportation projects having a federal nexus.

4.0 Methods

Felsburg Holt and Ullevig (FHU) staff, including Keith Hildalgo, Neal Goffinet, Brian Fauver, and Haley Stratton, completed the wetland delineation using the latest USACE delineation methodology. FHU staff used routine wetland determination forms from the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0) (USACE, 2010). The manual outlines methods used to determine the presence of wetlands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. FHU staff used the National Wetland Plant List (USACE, 2016) to determine wetland indicator status within the Great Plains Region for each plant. Hydric soils were field identified based on hydric soil indicators, such as gleying, low chroma colors, mottling, sulfuric odor, and inundation and saturation levels. FHU staff also used a Munsell Soil Color Chart (1998) to determine soil color. Routine wetland determination forms were completed for each wetland community type, and photographs document each representative wetland.

Wetlands that had been delineated for other studies were located within this project area. FHU staff visually inspected these wetlands on February 14, 2017, and again on July 2, 2018, to ensure that there were no changes in wetland characteristics or size from the previous delineation. Because all wetland boundaries were clearly defined, no upland points were collected (**Appendix A, Photos**).

On February 14, 2017, FHU staff used a Trimble® GeoXH™ global positioning system with ESRI® ArcPad™ version 10.0 mobile geographic information system (GIS) to collect wetland boundaries. FHU staff then mapped the data in the office with ESRI® ArcMap™ GIS v.10.

5.0 Previously Delineated Wetlands

FHU staff field verified 64 previously delineated wetlands within the corridor on February 14, 2017, and again on July 2, 2018. As shown in **Table 1** , these wetlands included Palustrine Emergent (PEM), Palustrine Unconsolidated Bottom, commonly referred to as a pond (PUB), and Palustrine Scrub/Shrub (PSS). The National Wetland Inventory (NWI) has classified these wetlands similarly (NWI, 2017).

Table 1. Wetland Classifications and Descriptions

Wetland Classification	Description
PEM	PEM wetlands are located along irrigation and roadway ditches and swales, along edges of detention ponds, and adjacent to perennial and intermittent waterways.
PUB/PAB (commonly referred to as a pond)	PUB or PAB wetlands are ponds or lakes occurring within the corridor.
PSS	PSS wetlands are located close to Niver Creek and contain a more dominant tree and shrub stratum than PEM wetlands.

The field verified wetlands were visually confirmed as having both the same wetland characteristics and the same boundaries as when they were previously delineated. **Photo 1** and **Photo 2** show some of the previously delineated wetlands that were field verified.

For additional details, refer to the following technical documents associated with those previous studies:

- *North I-25 EIS – Technical Memorandum Wetlands and Other Waters* (CDOT, 2008)
- *North I-25 EIS – Technical Memorandum Addendum Wetlands and Other Waters of the U.S.* (CDOT, 2011c)
- *North I-25 PEL: Corridor Conditions Report* (CDOT, 2014b)

Photo 1. Previously Delineated Wetlands 777 and 781 – 783

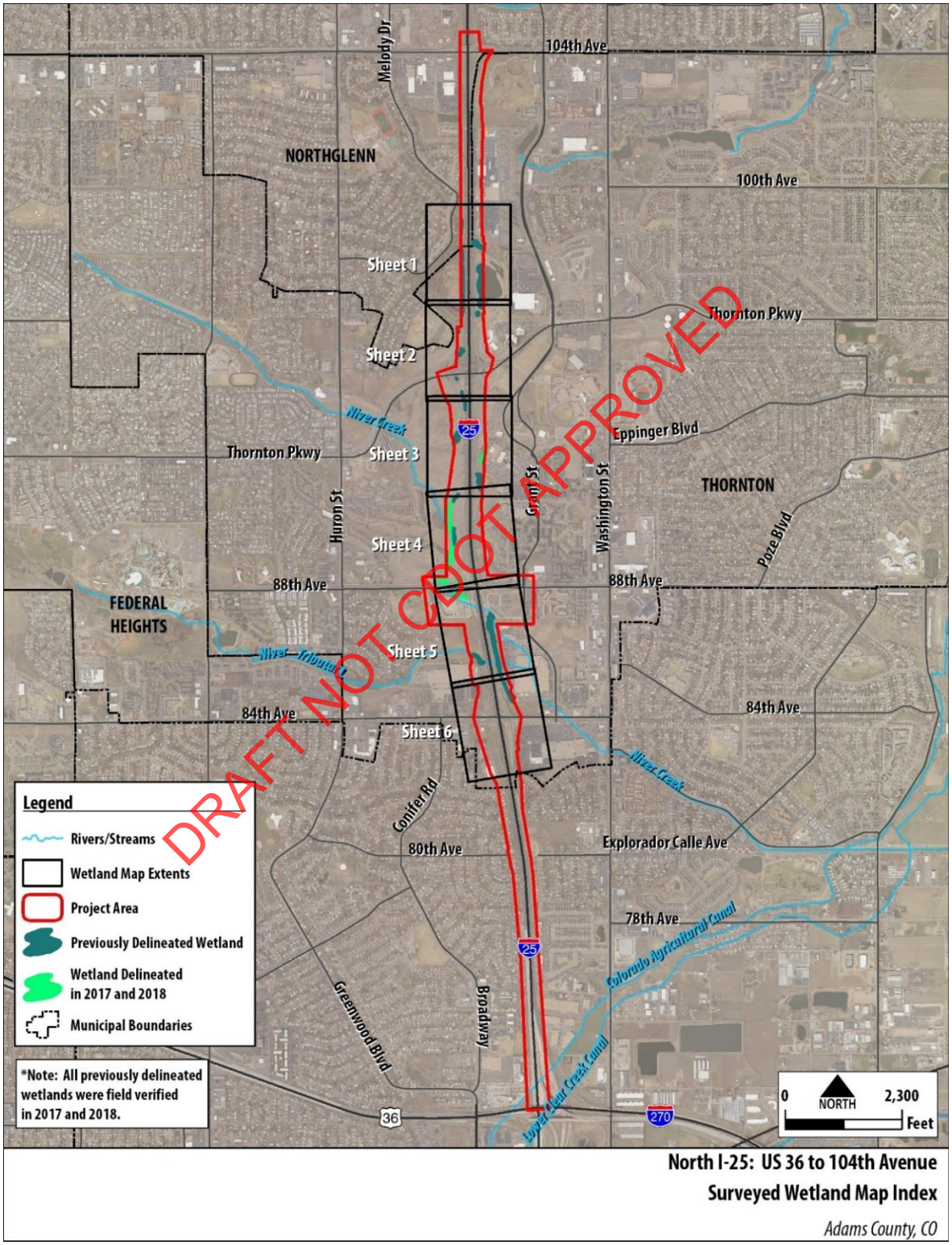
Photo 2. Previously Delineated Wetlands 674 – 677 and 679 - 681

6.0 Newly Delineated Wetlands

Five new wetlands were delineated during a field visit on February 14, 2017. **Appendix B** includes these wetland delineation forms.

Figure 3 provides an index map of all previously and newly delineated wetlands. **Figure 4** through **Figure 9** show both previously delineated wetlands and newly delineated wetlands.

Figure 3. Wetland Index Map

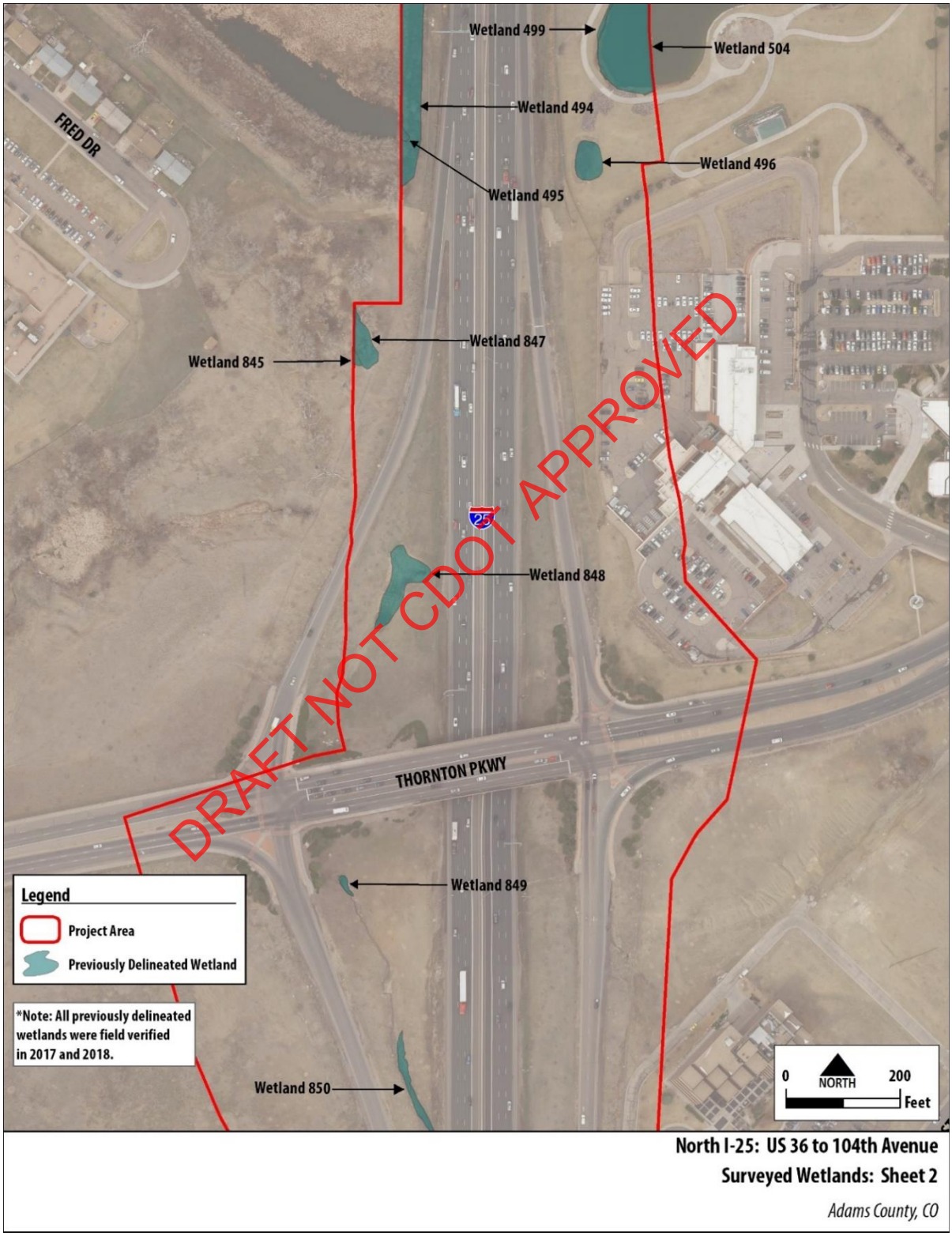


Source: FHU,2019

Figure 4. Wetland Map Sheet 1

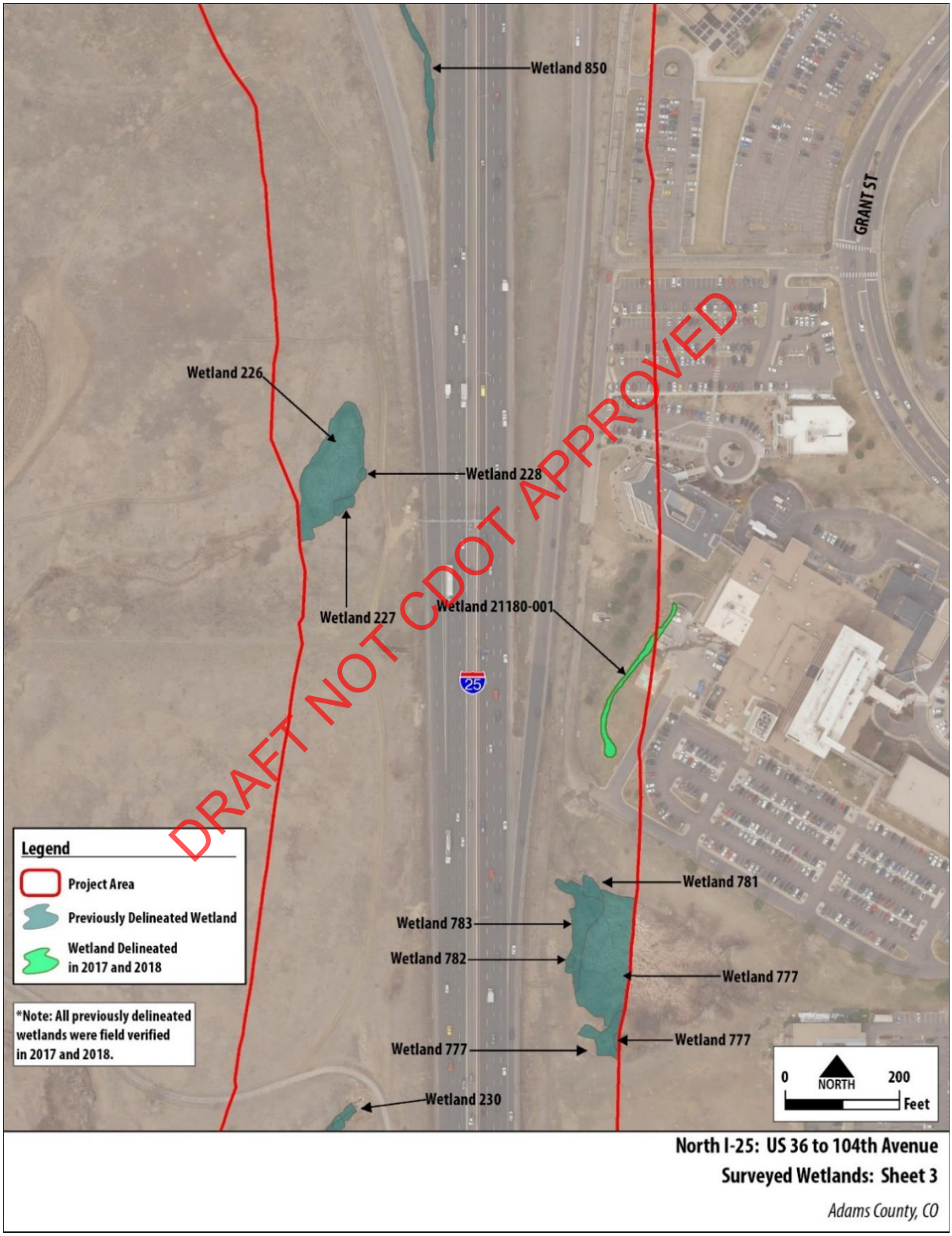
Source: FHU, 2019

Figure 5. Wetland Map Sheet 2



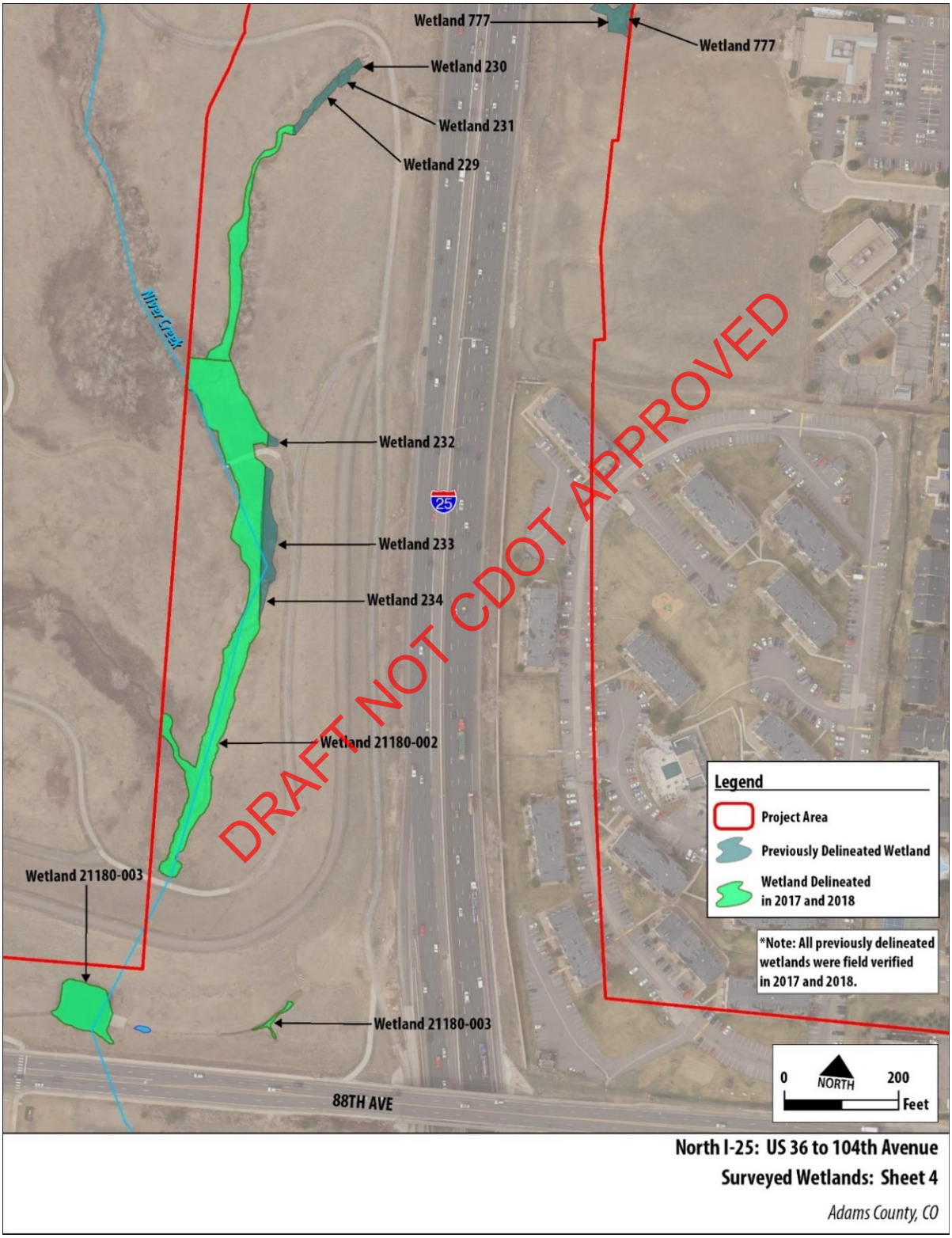
Source: FHU, 2019

Figure 6. Wetland Map Sheet 3



Source: FHU, 2019

Figure 7. Wetland Map Sheet 4

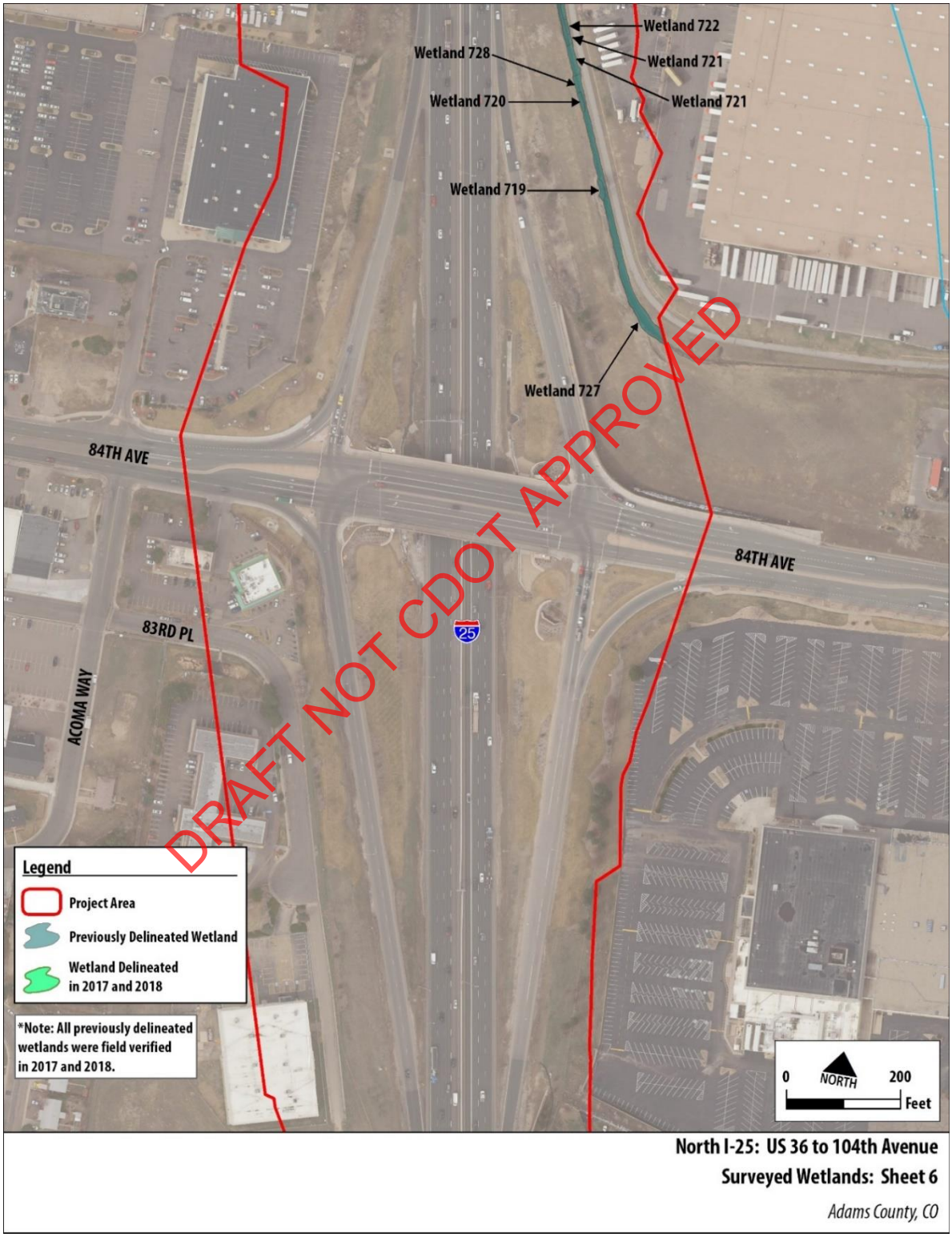


Source: FHU, 2019

Figure 8. Wetland Map Sheet 5

Source: FHU, 2019

Figure 9. Wetland Map Sheet 6



Source: FHU,2019

6.1 Wetland 21180-001

FHU staff identified and delineated Wetland 21180-001 in the middle of the project area as shown on **Figure 3**. Wetland conditions include a drainage swale draining into a water quality pond. FHU staff analyzed one sample point and compiled a wetland determination form for Wetland 21180-001. This wetland determination form is described as SP-1 (**Appendix B**). SP-1 showed wetland characteristics.

FHU staff identified that Wetland 21180-001 should be classified as a PEM wetland under the Cowardin classification system (Cowardin et al., 1979).

The total size of Wetland 21180-001 is 0.06 acre. Detailed wetland characteristics are described below.

Photo 3. Wetland 21180-001

6.1.1 Wetland 21180-001: Vegetation

Herbs dominate the vegetation in Wetland 21180-001 at SP-1. The shrub stratum contained sandbar willow (*Salix interior*) (FACW) (5 percent). The herb stratum contained narrowleaf cattail (*Typha angustifolia*) (OBL) (60 percent), broadleaf cattail (*Typha latifolia*) (OBL) (30 percent), and reed canarygrass (*Phalaris arundinacea*) (FACW) (5 percent). SP-1 passed the Dominance Test and the Prevalence Index; therefore, the area contains a predominance of hydrophytic vegetation.

6.1.2 Wetland 21180-001: Soils

FHU staff downloaded a Web Soil Survey showing this area having a soil type of "Samsil-Shingle complex, 3 to 35 percent slopes." During the field survey, FHU staff dug a soil pit at SP-1 to investigate the soil profile. From 0 to 10 inches, the soil profile included a saturated clay layer with two colors in the matrix: 10YR 5/2 (95 percent) and 2.5YR 5/8 (5 percent) as redox features. Deeper than 10 inches, a restrictive layer of rock was present preventing any further soil analysis. According to USACE guidelines, these soil conditions qualify this soil as hydric due to the presence of redox depressions and a depleted matrix (**Appendix B**).

Photo 4. Soil Redox Characteristics in Wetland 21180-001

6.1.3 Wetland 21180-001: Hydrology

Primary hydrologic indicators for SP-1 include saturation (0 to 12 inches within the soil profile) and oxidized rhizospheres on living roots. Secondary indicators include drainage patterns, geomorphic position, and passing the FAC-Neutral Test. Therefore, wetland hydrology is present at Wetland 21180-001.

6.2 Wetland 21180-002

FHU staff identified and delineated Wetland 21180-002 in the middle of the project area as shown on **Figure 3**. This wetland was located on both sides of Niver Creek. FHU staff analyzed one sample point and compiled a wetland determination form for Wetland 21180-002. This wetland determination form is described as SP-2 (**Appendix B**), which showed wetland characteristics.

FHU staff identified that Wetland 21180-002 should be classified as a PEM wetland under the Cowardin classification system (Cowardin et al., 1979).

The total size of Wetland 21180-002 is 0.33 acre. Detailed wetland characteristics are described below.

6.2.1 Wetland 21180-002: Vegetation

Trees, shrubs, and herbs dominate the vegetation in Wetland 21180-002 at SP-2. The tree stratum contained crack willow (*Salix fragilis*) (Not Listed) (4 percent) and Siberian elm (*Ulmus pumila*) (UPL) (3 percent). The shrub stratum contained sandbar willow (FACW) (10 percent). The herb stratum contained broadleaf cattail (OBL) (70 percent), poison hemlock (*Conium maculatum*) (FACW) (9 percent), wild licorice (*Glycyrrhiza lepidota*) (FACU) (1 percent), and common teasel (*Dipsacus fullonum*) (FACU). SP-2 passed the Dominance Test and the Prevalence Index; therefore, the area contains a predominance of hydrophytic vegetation.

6.2.2 Wetland 21180-002: Soils

FHU staff downloaded a Web Soil Survey showing this area having "Samsil-Shingle complex, 3 to 35 percent slopes and Ulm loam, 3 to 5 percent slopes" soil types.

During the field survey, FHU staff dug soil pits at SP-2 to investigate the soil profile. At SP-2, from 0 to 2 inches the soil profile was an organic layer of cattail material. From 2 to 14 inches, the soil profile included a saturated clay loamy sand layer with one color in the matrix: 10 YR 3/2 (100 percent). No restrictive layer was present. According to USACE guidelines, these soil conditions qualify this soil as hydric due to the presence of a depleted matrix (**Appendix B**).

6.2.3 Wetland 21180-002: Hydrology

Primary hydrologic indicators for SP-2 include a high water table, surface water (approximately 14 inches deep), and saturation (2 to 14 inches within the soil profile), sediment deposits, and dry-season water table. Secondary indicators include drainage patterns and geomorphic position. Therefore, wetland hydrology is present at Wetland 21180-002.

Photo 5. Wetland 21180-002

6.3 Wetland 21180-003

FHU staff identified and delineated the Wetland 21180-003 complex in the middle of the project area as shown on **Figure 3**. Wetland conditions include a drainageway that flows into a water quality pond. FHU staff analyzed one sample point and compiled a wetland determination form for the Wetland 21180-003 complex. This wetland determination form is described as SP-3 (**Appendix B**). SP-3 showed wetland characteristics.

FHU staff identified that the Wetland 21180-003 complex should be classified as one PEM wetland and one PUB wetland (commonly referred to as a pond) under the Cowardin classification system (Cowardin et al., 1979).

The total size of the Wetland 21180-003 complex is 0.18 acre. Detailed wetland characteristics are described below.

6.3.1 Wetland 21180-003: Vegetation

The only plants found in the Wetland 21180-003 complex were common spike rush (*Eleocharis palustris*) (OBL) (98 percent) and common teasel (FACU) (2 percent). Both of these plant species were in the herb stratum. SP-3 passed the Dominance Test and the Prevalence Index; therefore, the area contains a predominance of hydrophytic vegetation.

6.3.2 Wetland 21180-003: Soils

FHU staff downloaded a Web Soil Survey showing this area having a soil type of "Samsil-Shingle complex, 3 to 35 percent slopes." During the field survey, FHU staff dug soil pits at SP 3 to investigate the soil profile.

At SP 3 from 0 to 2 inches, the soil profile included a moist clay layer with one color in the matrix: 10 YR 3/2. From 2 to 14 inches, the soil profile included a moist clay layer with one color in the matrix: 10 YR 5/4. Deeper than 14 inches, a restrictive layer of soil compaction was present preventing any further soil analysis. The soil profile contained a depleted matrix. This sample indicated a problematic hydric soil with a darker layer on top, suggesting that a possible liner soil layer, likely Bententite, was placed on the site previously.

6.3.3 Wetland 21180-003: Hydrology

Primary hydrologic indicators for SP-3 included water marks. Secondary indicators included drainage patterns and geomorphic position. Therefore, wetland hydrology is present at Wetland 21180-003.

Photo 6. Wetland 21180-003 Complex

6.4 Wetland 21180-004

FHU staff identified and delineated Wetland 21180-004 in the middle of the project area as shown on **Figure 3**. This wetland was on either side of a man-made drainage. FHU staff analyzed one sample point and compiled a wetland determination form for Wetland 21180-004. This wetland determination form is described as SP-4 (**Appendix B**), which showed wetland characteristics.

FHU staff identified that Wetland 21180-004 should be classified as a PSS wetland under the Cowardin classification system (Cowardin et al., 1979).

The total size of Wetland 21180-004 is 0.05 acre. Detailed wetland characteristics are described below.

6.4.1 Wetland 21180-004: Vegetation

Trees, shrubs, and herbs dominate the vegetation in Wetland 21180-004 at SP-4. The tree stratum contained Siberian elm (UPL) (7 percent) and Russian olive (*Elaeangnus angustifolia*) (Not Listed) (3 percent). The shrub stratum contained crack willow (Not Listed) (20 percent). The herb stratum contained common teasel (FACU) (40 percent), poison hemlock (FACW) (20 percent), narrowleaf cattail (OBL) (5 percent), and common spikerush (OBL) (5 percent). SP-4 passed the Prevalence Index; therefore, the area did contain a predominance of hydrophytic vegetation.

6.4.2 Wetland 21180-004: Soils

FHU staff downloaded a Web Soil Survey showing this area having a soil type of "Ulm loam 3 to 5 percent slopes."

During the field survey, FHU staff dug soil pits at SP-4 to investigate the soil profile. At SP-4, from 0 to 8 inches, the soil profile was a saturated loamy clay layer with one color in the matrix: 10 YR 3/1 (100 percent). A restrictive layer of riprap was present below 8 inches. According to USACE guidelines, these soil conditions qualify this soil as hydric due to the presence of a depleted matrix (**Appendix B**).

6.4.3 Wetland 21180-004 Hydrology

Primary hydrologic indicators for SP-4 include high water table, sediment deposits, and drift deposits. Secondary indicators include drainage patterns. Therefore, wetland hydrology is present at Wetland 21180-004.

6.5 Wetland 21180-005

FHU staff identified and delineated Wetland 21180-005 in the middle of the project area as shown on **Figure 3.** This wetland was a water quality drainage site. FHU staff analyzed one sample point and compiled a wetland determination form for Wetland 21180-005. This wetland determination form is described as SP-5 (**Appendix B**), which showed wetland characteristics.

FHU staff identified that Wetland 21180-005 should be classified as a PEM wetland under the Cowardin classification system (Cowardin et al., 1979).

The total size of Wetland 21180-005 is 0.08 acre. Detailed wetland characteristics are described below.

Photo 7. Wetland 21180-005

6.5.1 Wetland 21180-005: Vegetation

Only plants in the herb stratum were present in Wetland 21180-005 at SP-5. This wetland area had been mowed, making plant identification down to the species difficult. The herb stratum contained common spikerush (OBL) (90 percent) and an unidentified cattail species (OBL) (*Typha* ssp.*)* (10 percent). SP-5 passed the Dominance Test and the Prevalence Index; therefore, the area contains a predominance of hydrophytic vegetation.

6.5.2 Wetland 21180-005: Soils

FHU staff downloaded a Web Soil Survey showing this area having "Ulm loam 3 to 5 percent slopes" soil types.

During the field survey, FHU staff dug a soil pit at SP-5 to investigate the soil profile. At SP-5, from 0 to 18 inches, the soil profile was a clay layer with two colors in the matrix: 10YR 3/2 (95 percent) and 7.5YR 5/8 (5 percent) as redox features. According to USACE guidelines, these soil conditions qualify this soil as hydric due to the presence of redox depressions and a depleted matrix (**Appendix B**).

6.5.3 Wetland 21180-005 Hydrology

Primary hydrologic indicators for SP-5 include surface water and salt crusts. Secondary indicators include drainage patterns and geomorphic position. Therefore, wetland hydrology is present at Wetland 21180-005.

7.0 Changes to Previous Delineations

Only one previously delineated wetland was determined to no longer meet the criteria of a wetland. This previously delineated wetland is located in the northeast quadrant of I-25 and Thornton Parkway. It is a small drainage ditch on the side of the I-25 on-ramp. However, it was observed that most of the wetland had been displaced by a retaining wall on the eastern and southern boundary of the wetland. In addition, a grate drained the wetland located on the northern boundary of the wetland. Additionally, mowing activity occurred before FHU's observation. This wetland was 0.057 acre in size; however, due to the absence of the wetland, it was not included in the total acreage of wetlands within the project area.

Photo 8. Previously Delineated Wetland that is No Longer a Wetland

8.0 Summary

In total, 69 wetlands were found within the study area. Five new wetlands were delineated February 14, 2017, and 64 were from previous delineations, but verified as still intact. **Table 2** summarizes all delineated wetlands within the project area.

Table 2. Wetlands Delineated or Verified within the Project Area

Wetland IDs	Newly or Previously Delineated	Cowardin Classification and Jurisdictional Status	Total Acreage
127, 848, 849, 850, 223, 225, 226, 229, 230, 234, 493, 496, 497, 498, 499, 500, 501, 526, 574, 674, 677, 679, 681, 721, 723, 725, 727, 731, 732, 735, 784, **	Previously Delineated	PEM	1.81
126, 845, 847, 224, 227, 228, 231, 232, 233, 494, 495, 525, 573, 675, 676, 678, 680, 719, 720, 722, 724, 726, 728, 729, 730, 733, 734, 736, 777, 781, 782, 783	Previously Delineated	PSS	2.80
504	Previously Delineated	Open Water (PUB/PAB - commonly referred to as a pond)	1.49
21180-001, 21180-002, 21180-003, 21180-005	Newly Delineated	PEM	0.49
21180-004	Newly Delineated	PSS	0.05

**One previously delineated wetland was determined to no longer have wetland characteristics during visual inspection. This wetland was 0.057 acre in size; however, due to the absence of the wetland, it was not included in the total acreage of wetlands within the project area.

PEM = Palustrine Emergent

PUB/PAB = Palustrine Unconsolidated Bottom, commonly referred to as a pond

PSS = Palustrine Scrub/Shrub.

Table 3 documents the expected impacts for wetland resources associated with the Proposed Action. **Table 4** documents the mitigation commitments for the wetland resources associated with the Proposed Action.

Table 3. Summary of Impacts on Wetland Resources

Context	No Action Alternative	Proposed Action
Wetlands within the project area are associated with water quality ponds, Niver Creek, and roadside swales. There are 69 wetlands, with a total of 6.64 acres, delineated within the project area.	**Permanent Impacts** The No Action Alternative would result in no impacts to wetlands or other WUS.	**Permanent Impacts** The Proposed Action would likely have a permanent impact on approximately 0.4 acre of wetlands within the project area. **Temporary Impacts** Construction of impervious surfaces has the potential for indirect impacts by increasing runoff, exposing the surrounding vegetation, including wetlands and other WUS, to higher levels of pollutants during construction. Increased runoff may also lead to increased soil erosion during construction.

Table 4. Mitigation Commitments for Wetland Resources

Impact	Mitigation Commitment	Responsible Branch	Timing/Phase That Mitigation Will Be Implemented
Direct and/or indirect impacts on wetlands and other Waters of the United States	Impacts on wetlands and jurisdictional open water will be avoided and minimized to the greatest extent possible during final design.	CDOT	Design
Direct and/or indirect impacts on wetlands and other Waters of the United States	Prepare a Clean Water Act Section 404 Permit for CDOT review, approval, and submittal to USACE.	CDOT/Contractor	Design
Direct and/or indirect impacts on wetlands and other Waters of the United States	Mitigate for temporary impacts by restoring areas to pre-existing conditions. Depending on approval by the USACE, permanent impacts will be mitigated through onsite mitigation, offsite mitigation, purchase of wetland bank credits, or use of a separate strategy, to both jurisdictional and non-jurisdictional wetlands on a 1:1 basis.	CDOT/Contractor	Design
Direct and/or indirect impacts on wetlands and other Waters of the United States	During construction, BMPs will be used to avoid indirect construction impacts on wetlands. Materials and equipment will be stored a minimum of 50 feet from wetlands, drainages, and ditches that could carry toxic materials into wetlands. Construction fencing and appropriate sediment control BMPs will be used to mark wetland boundaries and sensitive habitats during construction. Sediment and erosion control will be required to be placed during all construction phases and will remain in place until all disturbed areas have reached 70 percent of pre-construction vegetative cover.	Contractor	Construction

9.0 Conclusions and Next Steps

Based on the information provided in this report, 69 wetlands are present in the project area.

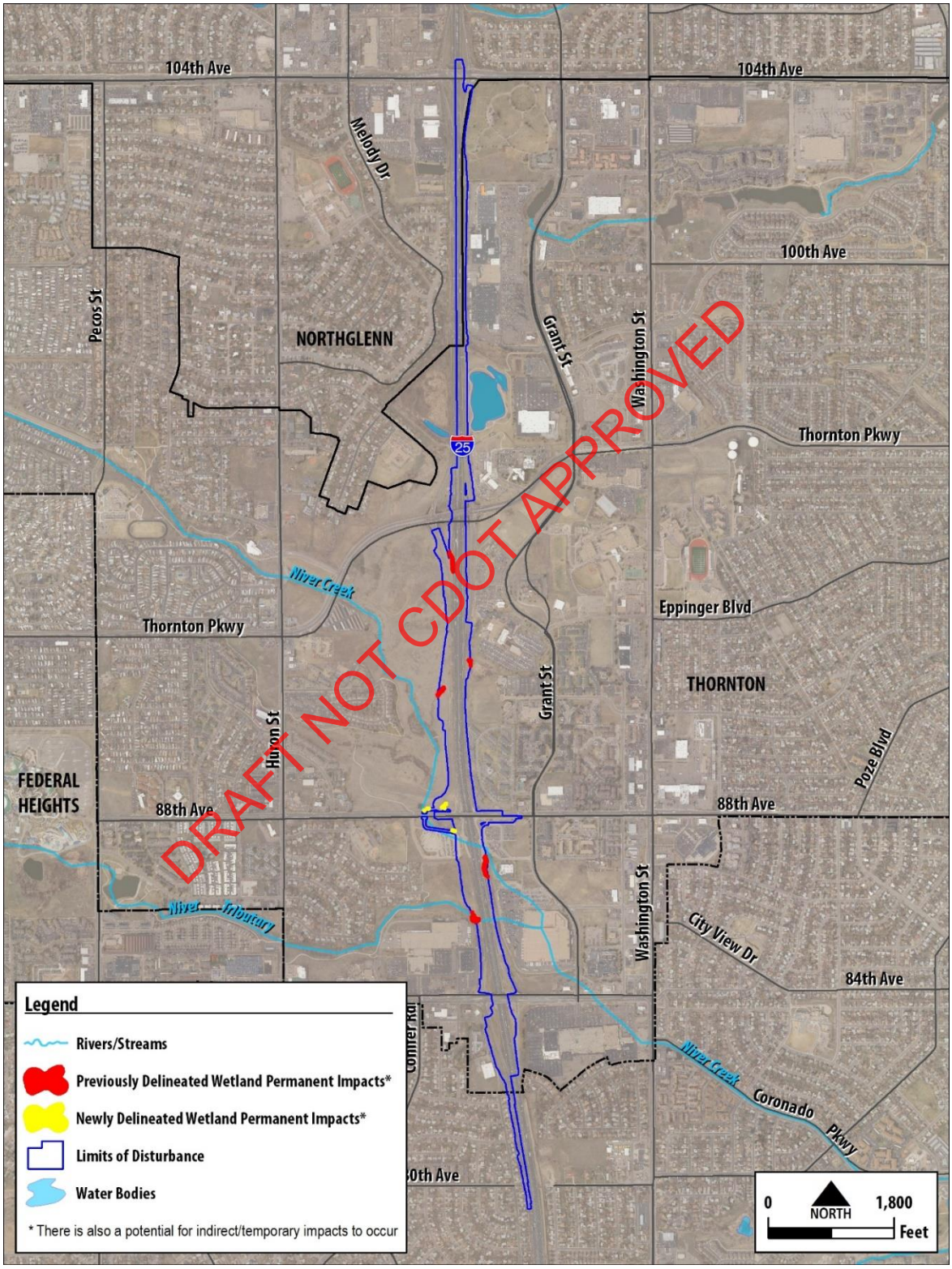
Based on the current roadway design, the Proposed Action would result in permanent impacts of approximately 0.4 acre of wetlands within the project area.

Figure 10, **Figure 11**, and **Figure 12** show the locations of the wetland impacts.

Before construction, the appropriate documentation will be provided and will include:

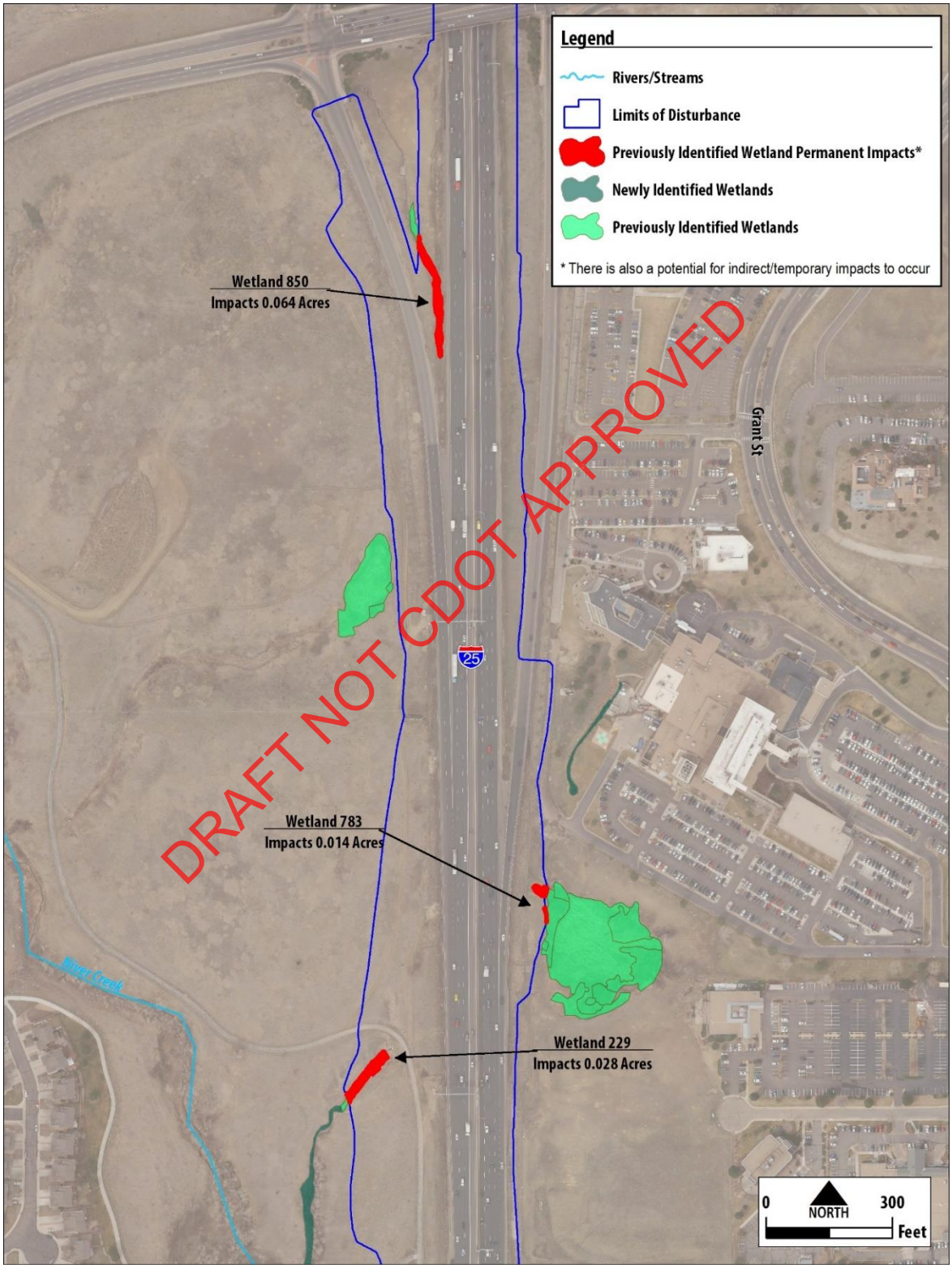
- A Wetland Finding Report and FACWet Analysis due to permanent wetland impacts exceeding 0.10 acre;
- A CWA Section 404 Pre-Construction Notification/Permit Request; and
- Native plant seed mix for CDOT right-of-way and appropriate plantings for wetland areas.

Figure 10. Overall Wetland Impacts Map



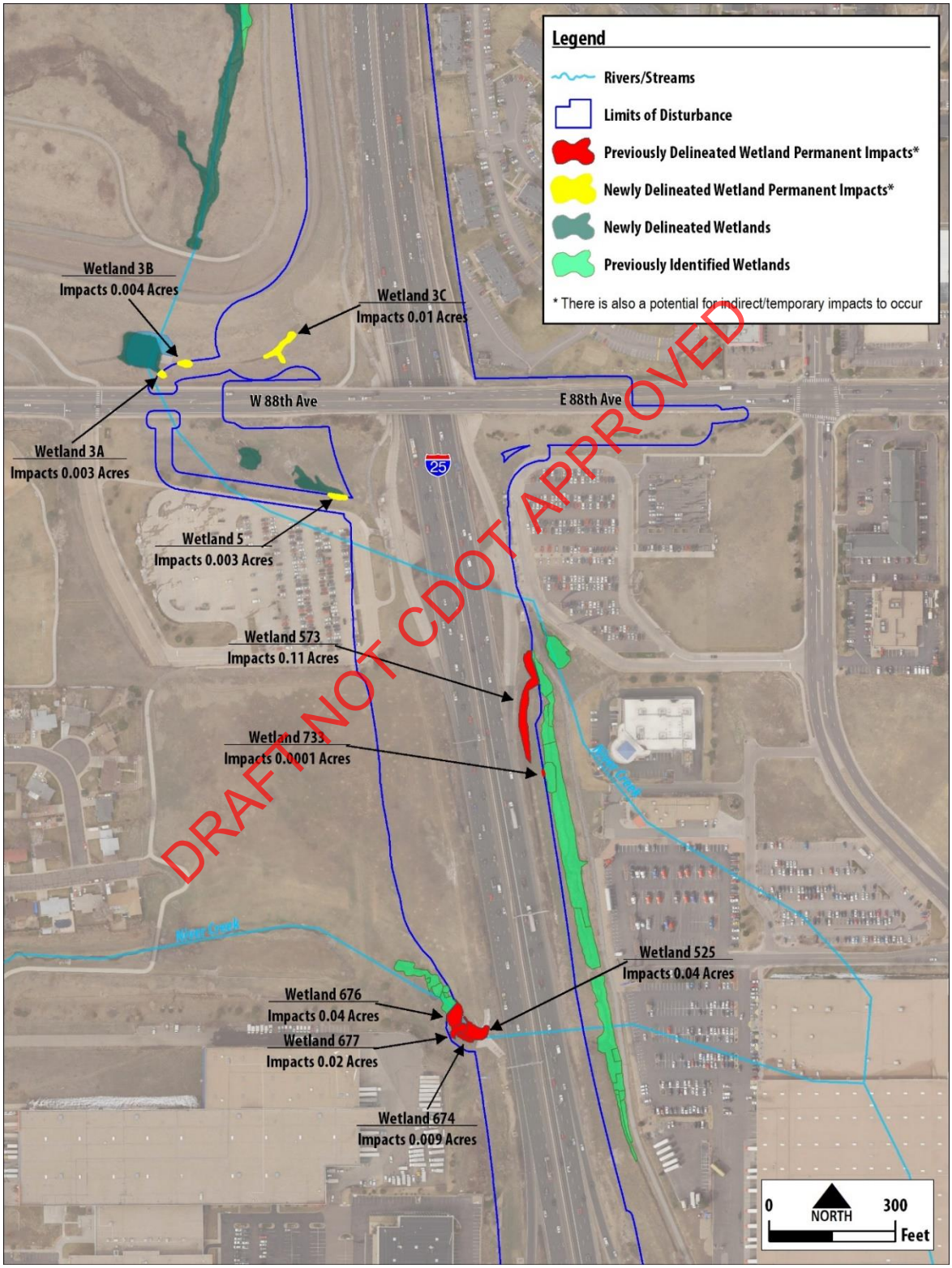
Source: FHU, 2019

Figure 11. Northern Wetland Impacts



Source: FHU, 2019

Figure 12. Southern Wetland Impacts



Source: FHU, 2019

10.0 References

Colorado Department of Transportation (CDOT), Federal Transit Administration (FTA), and the Federal Highway Administration (FHWA). 2010. *North I-25 Draft Environmental Impact Statement (EIS)*. October.

CDOT. 2008. *North I-25 EIS – Technical Memorandum Wetlands and Other Waters*. Prepared by Jacobs October 2008.

CDOT and FHWA. 2010. *I-25/84th Avenue Bridge Reconstruction Project Non-Programmatic Categorical Exclusion (CatEx)*. June.

CDOT and FHWA. 2011a. *North I-25 Final EIS*. August. Prepared by Jacobs & FHU.

CDOT and FHWA. 2011b. *North I-25 EIS Record of Decision (ROD)*. December.

CDOT. 2011c. *Wildlife Technical Report Addendum for North I-25 – Adams, Boulder, Broomfield, Denver, Larimer, and Weld Counties, Colorado*. Prepared by ERO Resources August 2011.

CDOT and FHWA. 2014a. *I-25 Managed Lanes Project ROD Re-evaluation*. August.

CDOT and FHWA. 2014b. *North I-25, US 36 to SH 7 Planning and Environmental Linkages (PEL) Study*. December.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitat of the United States. FWS/OBS-79/31. US Fish and Wildlife Service (USFWS). Washington D.C.

Environmental Protection Agency. 2018. Section 404 of the Clean Water Act. Accessed September 2018 online from https://www.epa.gov/cwa-404/section-404-clean-water-act-how-wetlands-are-defined-and-identified

Felsburg Holt & Ullevig (FHU). 2019. Graphics, figures, and tables prepared in support of the Environmental Assessment for the I-25 (US 36 to 104th Avenue) Project. June.

Munsell Soil Color Charts. 1998. Revised Edition. Munsell Color, New Windsor, NY.

Natural Resources Conservation Service (NRCS). 2017. Web Soil Survey. Accessed February 2017 from: http://websoilsurvey.nrcs.usda.gov/app

National Wetland Inventory (NWI). 2017. Wetland Mapper V2. Accessed February 2017 from: https://www.fws.gov/wetlands/data/mapper.html

United States Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains (Version 2.0)* ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center. The National Wetland Plant List (USACE 2016)

USACE. 2016. *State of Colorado 2016 Wetland Plant List*. The National Wetland Plant List: 2016 Update of Wetland Ratings.

United States Geological Survey (USGS). 2017. The Hydrography Viewer. Accessed February 2017 from: https://viewer.nationalmap.gov/viewer/nhd.html?p=nhd

Appendix A – Photos

Photo 1: February 14, 2017 – Previously delineated section of Niver Creek, in the southeast portion of the project area.

Photo 2: February 14, 2017 – Southernmost extent of Niver Creek within the project area.

Photo 3: February 14, 2017 – Wetland 21180-001.

Photo 4: February 14, 2017 – Previously delineated wetlands 229, 230, and 231, which are the same size and quality.

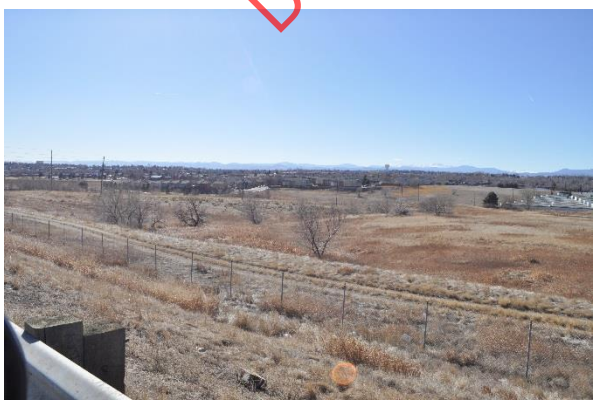


Photo 5: February 14, 2017 – Previously delineated wetlands 226, 227, and 228, which are the same size and quality.

Photo 6: February 14, 2017 – Niver Creek and Wetland 21180-002.

	
Photo 7: February 14, 2017 – Wetland 21180-003.	Photo 8: February 14, 2017 – Wetland 21180-005.

Appendix B - Wetland Delineation Forms

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 | City/County: Henderson/Adams | Sampling Date: 7/17/18
Applicant/Owner: CDOT | State: Colorado | Sampling Point: SP1
Investigator(s): Tamara Keefe and Alex Nelson | Section, Township, Range: 15, 2S, 67W
Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave | Slope (%): 1-5
Subregion (LRR): G-Western Great Plains Range & Irrigated | Lat: 39.88262817 | Long: -104.8842411 | Datum: NAD 83
Soil Map Unit Name: Nunn loam | NWI classification:
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil X, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	Outpoint for Wetland 1

Remarks:

Point located on the up-slope of a drainage area along US 85 on-ramp from I-76 to US 85.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Bromus tectorum*	45	Y	UPL
2 *Onopordum acanthium*	15	Y	NI
3 *Convolvulus arvensis*	10	N	UPL
4			
5			
6			
7			
8			
9			
10			
	70	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	55	x 5 =	275
Column totals	55 (A)		275 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? N

Remarks:

SOIL

Sampling Point: SP1

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/4	100					silty clay loam	
							compaction and gravel	Restrictive layer

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: Compaction and gravel

Depth (inches): 5

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/17/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP2
Investigator(s): Tamara Keefe and Alex Nelson Section, Township, Range: 16, 2S, 67W
Landform (hillslope, terrace, etc.): drainage basin Local relief (concave, convex, none): concave Slope (%): 1-5
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.8827624 Long: -104.8843436 Datum: NAD 83
Soil Map Unit Name: Nunn loam NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil X, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important 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 1

Remarks:

Located on the east side of US 85, by the on-ramp from I-76 to US 85.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Populus deltoides*	20	Y	FAC
2 *Salix amygdaloides*	5	Y	FACW
3			
4			
5			
	25	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *typha latifolia*	30	Y	OBL
2 *cirsium arvense*	15	Y	FACU
3 *erigeron canadensis*	10	N	FACU
4 *rumex crispus*	5	N	FAC
5			
6			
7			
8			
9			
10			
	60	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 40

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 75.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	5	x 2 =	10
FAC species	25	x 3 =	75
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column totals	85 (A)		215 (B)

Prevalence Index = B/A = 2.53

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

SOIL

Sampling Point: SP2

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					silty clay loam	
4-12	10YR 3/2	98	10YR 4/6	2	C	M	silty clay loam	
12+							compaction	Restrictive layer

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: compaction

Depth (inches): 12

Hydric Soil Present? Y

Remarks:

Due to proximity to the roadway, it is likely that these soils were road fill and too young to present typical hydric indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	1
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	

Indicators of Wetland Hydrology Present? Y

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

Remarks:

Roadside runoff collects in the area

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/17/18

Applicant/Owner: CDOT State: Colorado Sampling Point: SP3

Investigator(s): Tamara Keefe and Alex Nelson Section, Township, Range: 15, 2S, 67W

Landform (hillslope, terrace, etc.): drainge swale Local relief (concave, convex, none): concave Slope (%): 1-3

Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.88433116 Long: -104.882478 Datum: NAD 83

Soil Map Unit Name: Nunn loam NWI classification: NA

Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	

Remarks:

wet area off roadway (not a wetland)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)		Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)				
1				
2				
3				
4				
5				
		0	= Total Cover	
Herb Stratum (Plot size: ____)				
1	*convolvulus arvensis*	40	Y	UPL
2	*bromus tectorum*	20	Y	UPL
3	*erigeron canadensis*	15	Y	FACU
4				
5				
6				
7				
8				
9				
10				
		75	= Total Cover	
Woody Vine Stratum (Plot size: ____)				
1				
2				
		0	= Total Cover	

% Bare Ground in Herb Stratum 20

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	60	x 5 =	300
Column totals	75 (A)		360 (B)

Prevalence Index = B/A = 4.80

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? N

Remarks:

SOIL

Sampling Point: SP3

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					silty clay	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: compaction

Depth (inches): 8

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):	___
Water Table Present?	Yes	___	No	X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	0

Indicators of Wetland Hydrology Present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/17/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP4
Investigator(s): Haley Stratton, Neal Goffinet Section, Township, Range: 10, 2S, 67W
Landform (hillslope, terrace, etc.): drainage swale Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.88554718 Long: -104.8830982 Datum: NAD 83
Soil Map Unit Name: Vona sandy loam NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important 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 7

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)		Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)				
1				
2				
3				
4				
5				
		0	= Total Cover	
Herb Stratum (Plot size: ____)				
1	*Typha latifolia*	30	Y	OBL
2	*rumex crispus*	20	Y	FAC
3	*Echinochloa crus-galli*	10	N	FAC
4	*Bromus inermis*	5	N	UPL
5	*Asclepias speciosa*	5	N	FAC
6	*Melilotus indicus*	1	N	FACU
7				
8				
9				
10				
		71	= Total Cover	
Woody Vine Stratum (Plot size: ____)				
1				
2				
		0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	1	x 4 =	4
UPL species	5	x 5 =	25
Column totals	71 (A)		164 (B)

Prevalence Index = B/A = 2.31

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

SOIL

Sampling Point: SP4

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					organic	Muck
3-10	10YR 5/3	85	10YR 5/8	15	C	M	silty loam	
10-18	10YR 5/3	85	7.5YR 4/6	15	C	M	silty clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 | City/County: Henderson/Adams | Sampling Date: 7/17/18

Applicant/Owner: CDOT | State: Colorado | Sampling Point: SP5

Investigator(s): Haley Stratton, Neal Goffinet | Section, Township, Range: 10, 2S, 67W

Landform (hillslope, terrace, etc.): slope | Local relief (concave, convex, none): concave | Slope (%): 1-5

Subregion (LRR): G-Western Great Plains Range & Irrigated | Lat: 39.88572321 | Long: -104.8829409 | Datum: NAD 83

Soil Map Unit Name: Vona sandy loam | NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	Outpoint for Wetland 7

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)		Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)				
1				
2				
3				
4				
5				
		0	= Total Cover	

Herb Stratum (Plot size: ____)				
1	*convolvulus arvensis*	20	Y	UPL
2	*bromus tectorum*	20	Y	UPL
3	*Bouteloua curtipendula*	10	Y	UPL
4				
5				
6				
7				
8				
9				
10				
		50	= Total Cover	

Woody Vine Stratum (Plot size: ____)				
1				
2				
		0	= Total Cover	

% Bare Ground in Herb Stratum 50

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	50	x 5 =	250
Column totals	50 (A)		250 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? N

Remarks:

SOIL

Sampling Point: SP5

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 7/2	100					silty clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: rock

Depth (inches): 4

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 | City/County: Henderson/Adams | Sampling Date: 7/17/18
Applicant/Owner: CDOT | State: Colorado | Sampling Point: SP6
Investigator(s): Haley Stratton, Neal Goffinet | Section, Township, Range: 10, 2S, 67W
Landform (hillslope, terrace, etc.): drainage swale | Local relief (concave, convex, none): concave | Slope (%): 1-3
Subregion (LRR): G-Western Great Plains Range & Irrigated | Lat: 39.88731868 | Long: -104.8801888 | Datum: NAD 83
Soil Map Unit Name: Satanta loam | NWI classification: PSS
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important 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 2

Remarks:

Portion of wetland outside boundaries

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Populus deltoides*	10	Y	FAC
2			
3			
4			
5			
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Salix exigua*	70	Y	FACW
2			
3			
4			
5			
	70	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *typha latifolia*	5	Y	OBL
2 *Schoenoplectus tabernaemontani*	5	Y	OBL
3			
4			
5			
6			
7			
8			
9			
10			
	10	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	70	x 2 =	140
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	90 (A)		180 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

SOIL

Sampling Point: SP6

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/1	90	10YR 5/8	10	C	M	clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	

Indicators of Wetland Hydrology Present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 | City/County: Henderson/Adams | Sampling Date: 7/17/18

Applicant/Owner: CDOT | State: Colorado | Sampling Point: SP7

Investigator(s): Haley Stratton, Neal Goffinet | Section, Township, Range: 10, 2S, 67W

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave | Slope (%): 1-3

Subregion (LRR): G-Western Great Plains Range & Irrigated | Lat: 39.88752926 | Long: -104.880241 | Datum: NAD 83

Soil Map Unit Name: Satanta loam | NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	Outpoint for Wetland 2

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)		Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)				
1				
2				
3				
4				
5				
		0	= Total Cover	

Herb Stratum (Plot size: ____)				
1	*convolvulus arvensis*	20	Y	UPL
2	*Bromus tectorum*	10	Y	UPL
3	*Heterotheca sp.*	1	N	UPL
4				
5				
6				
7				
8				
9				
10				
		31	= Total Cover	

Woody Vine Stratum (Plot size: ____)				
1				
2				
		0	= Total Cover	

% Bare Ground in Herb Stratum 70

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	31	x 5 =	155
Column totals	31 (A)		155 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? N

Remarks:

SOIL

Sampling Point: SP7

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 7/3	100					silt loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: compaction

Depth (inches): 6

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/17/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP8
Investigator(s): Haley Stratton, Neal Goffinet Section, Township, Range: 10, 2S, 67W
Landform (hillslope, terrace, etc.): drainage swale Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.8887746 Long: -104.8784631 Datum: NAD 83
Soil Map Unit Name: Nunn loam NWI classification: PSS
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important 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 3

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *populus deltoides*	10	Y	FAC
2 *salix amygdaloides*	10	Y	FACW
3			
4			
5			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1 *Salix exigua*	50	Y	FACW
2			
3			
4			
5			
	50	= Total Cover	
Herb Stratum (Plot size: ____)			
1 *rumex crispus*	20	Y	FAC
2 *agropyron cristatum*	10	Y	
3 *bromus tectorum*	5	N	UPL
4 *cirsium arvense*	5	N	FACU
5			
6			
7			
8			
9			
10			
	40	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 80.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	30	x 3 =	90
FACU species	5	x 4 =	20
UPL species	5	x 5 =	25
Column totals	100 (A)		255 (B)

Prevalence Index = B/A = 2.55

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

SOIL

Sampling Point: SP8

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/2	97	10YR 4/6	3	C	M	sandy loam	sandy gravel at 18in and lower

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	3
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	18

Indicators of Wetland Hydrology Present? Y

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

Remarks:

Hydrology from surface run-off

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 | City/County: Henderson/Adams | Sampling Date: 7/17/18

Applicant/Owner: CDOT | State: Colorado | Sampling Point: SP9

Investigator(s): Haley Stratton, Neal Goffinet | Section, Township, Range: 10, 2S, 67W

Landform (hillslope, terrace, etc.): | Local relief (concave, convex, none): slope | Slope (%): 1-3

Subregion (LRR): G-Western Great Plains Range & Irrigated | Lat: 39.88884867 | Long: -104.8785255 | Datum: NAD 83

Soil Map Unit Name: Nunn loam | NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	Outpoint for Wetland 3

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size:)			
1 *bromus tectorum*	50	Y	UPL
2 *convolvulus arvensis*	50	Y	UPL
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody Vine Stratum (Plot size:)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column totals	100 (A)		500 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? N

Remarks:

SOIL

Sampling Point: SP9

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/6	100					silty loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: compaction

Depth (inches): 5

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/17/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP10
Investigator(s): Haley Stratton, Neal Goffinet Section, Township, Range: 2, 2S, 67W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1-5
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.89998159 Long: -104.8649814 Datum: NAD 83
Soil Map Unit Name: Vona sandy loam NWI classification: PSS
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	Outpoint for Wetland 8

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Medicago sativa*	10	Y	UPL
2 *convolvulus arvensis*	5	Y	UPL
3			
4			
5			
6			
7			
8			
9			
10			
	15	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 70

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	15	x 5 =	75
Column totals	15 (A)		75 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? N

Remarks:

SOIL

Sampling Point: SP10

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/3	100					silty loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: compaction

Depth (inches): 4

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/17/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP11
Investigator(s): Tamara Keefe and Alex Nelson Section, Township, Range: 2, 2S, 67W
Landform (hillslope, terrace, etc.): drainage swale Local relief (concave, convex, none): Concave Slope (%): 1-3
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.90023718 Long: -104.864905 Datum: NAD 83
Soil Map Unit Name: Vona sandy loam NWI classification: PSS
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important 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 8

Remarks:

Drainage swale

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *populus deltoides*	10	Y	FAC
2			
3			
4			
5			
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *salix exigua*	40	Y	FACW
2 *populus deltoides*	10	Y	FAC
3			
4			
5			
	50	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	50	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
	50	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	110 (A)		240 (B)

Prevalence Index = B/A = 2.18

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

SOIL

Sampling Point: SP11

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					organic	muck
3-6	10YR 3/2	95	10YR 5/6	5	C	M	silty clay loam	
6-10	10YR 5/4	85	10YR 7/6	15	C	M	silty sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):	___
Water Table Present?	Yes	___	No	X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	0

Indicators of Wetland Hydrology Present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/18/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP12
Investigator(s): Tamara Keefe and Alex Nelson Section, Township, Range: 2, 2S, 67W
Landform (hillslope, terrace, etc.): toe of slope Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.90990257 Long: -104.8602254 Datum: NAD 83
Soil Map Unit Name: Nunn loam NWI classification:
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	

Remarks:

Not a wetland

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	100	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

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

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

SOIL

Sampling Point: SP12

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					loamy clay	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: compaction

Depth (inches): 6

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/18/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP13
Investigator(s): Tamara Keefe and Alex Nelson Section, Township, Range: 2, 2S, 67W
Landform (hillslope, terrace, etc.): Drainage swale Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.91407988 Long: -104.8577511 Datum: NAD 83
Soil Map Unit Name: Vona sandy loam NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important 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 6

Remarks:

Drainage area next to Conoco

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		

Herb Stratum (Plot size: ____)			
1 *Typha latifolia*	80	Y	OBL
2 *Schoenoplectus tabernaemontani*	5	N	OBL
3 *Echinochloa crus-galli*	3	N	FAC
4			
5			
6			
7			
8			
9			
10			
	88 = Total Cover		

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0 = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	0	x 2 =	0
FAC species	3	x 3 =	9
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	88 (A)		94 (B)

Prevalence Index = B/A = 1.07

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

SOIL

Sampling Point: SP13

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					organic- silty loam	
2-6	10YR 4/2	90	10YR 4/6	10			sandy clay	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: compaction and rocks

Depth (inches): 6

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	2
Water Table Present?	Yes		No		Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of Wetland Hydrology Present? Y

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

Remarks:

Surface run-off

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/18/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP14
Investigator(s): Tamara Keefe and Alex Nelson Section, Township, Range: 2, 2S, 67W
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 1-5
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.91408111 Long: -104.8577545 Datum: NAD 83
Soil Map Unit Name: Vona sandy loam NWI classification:
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	Outpoint for Wetland 6

Remarks:

Area near Conoco

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 0 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? N

Remarks:

no vegetation

SOIL

Sampling Point: SP14

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					silty sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: compaction and rocks

Depth (inches): 8

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 | City/County: Henderson/Adams | Sampling Date: 7/18/18

Applicant/Owner: CDOT | State: Colorado | Sampling Point: SP15

Investigator(s): Haley Stratton, Neal Goffinet | Section, Township, Range: 35, 1S, 67W

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): 1-5

Subregion (LRR): G-Western Great Plains Range & Irrigated | Lat: 39.91448017 | Long: -104.8609625 | Datum: NAD 83

Soil Map Unit Name: Ascalon sandy loam | NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	Outpoint for Wetland 4

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)		Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)				
1				
2				
3				
4				
5				
		0	= Total Cover	

Herb Stratum (Plot size: ____)				
1	*bromus tectorum*	75	Y	UPL
2	*rumex crispus*	5	N	FAC
3	*Heterotheca sp.*	5	N	UPL
4	*convolvulus arvensis*	2	N	UPL
5				
6				
7				
8				
9				
10				
		87	= Total Cover	

Woody Vine Stratum (Plot size: ____)				
1				
2				
		0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	82	x 5 =	410
Column totals	87 (A)		425 (B)

Prevalence Index = B/A = 4.89

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? N

Remarks:

SOIL

Sampling Point: SP15

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/6	100					silt loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: rock

Depth (inches): 5

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/18/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP16
Investigator(s): Haley Stratton, Neal Goffinet Section, Township, Range: 35, 1S, 67W
Landform (hillslope, terrace, etc.): channel bank Local relief (concave, convex, none): concave Slope (%): 1-3
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.91451506 Long: -104.8610046 Datum: NAD 83
Soil Map Unit Name: Ascalon sandy loam NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important 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 4

Remarks:

Fulton ditch

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *ulmus americana*	3	N	FAC
2			
3			
4			
5			
	3	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	80	Y	FACW
2 *bromus tectorum*	10	N	UPL
3			
4			
5			
6			
7			
8			
9			
10			
	90	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	3	x 3 =	9
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column totals	93 (A)		219 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Y

Remarks:

SOIL

Sampling Point: SP16

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	97	10YR 5/8	3	C	M	sandy loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes	X	No		Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches): 0

Indicators of Wetland Hydrology Present? Y

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

Remarks:

Water source from Fulton Ditch

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 | City/County: Henderson/Adams | Sampling Date: 7/18/18
Applicant/Owner: CDOT | State: Colorado | Sampling Point: SP17
Investigator(s): Haley Stratton, Neal Goffinet | Section, Township, Range: 35, 1S, 67W
Landform (hillslope, terrace, etc.): channel bank | Local relief (concave, convex, none): concave | Slope (%): 1-3
Subregion (LRR): G-Western Great Plains Range & Irrigated | Lat: 39.9145064 | Long: -104.861194 | Datum: NAD 83
Soil Map Unit Name: Ascalon sandy loam | NWI classification: PEM
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important 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 7

Remarks:

other side of fulton ditch

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	80	Y	FACW
2 *bromus tectorum*	10	N	UPL
3			
4			
5			
6			
7			
8			
9			
10			
	90	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column totals	90 (A)		210 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Y

Remarks:

SOIL

Sampling Point: SP17

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	95	10YR 5/8	5	C	M	sandy loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes	X	No		Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches): 0

Indicators of Wetland Hydrology Present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 7/18/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP18
Investigator(s): Haley Stratton, Neal Goffinet Section, Township, Range: 35, 1S, 67W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1-5
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.91449845 Long: -104.8612311 Datum: NAD 83
Soil Map Unit Name: Ascalon sandy loam NWI classification:
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	Outpoint for Wetland 5

Remarks:

other side of fulton ditch

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *bromus tectorum*	80	Y	UPL
2 *convolvulus arvensis*	10	N	UPL
3			
4			
5			
6			
7			
8			
9			
10			
	90	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	90	x 5 =	450
Column totals	90 (A)		450 (B)

Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? N

Remarks:

SOIL

Sampling Point: SP18

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	100					sandy loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US 85 City/County: Henderson/Adams Sampling Date: 8/2/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP19
Investigator(s): Brian Fauver, Haley Stratton Section, Township, Range: 2, 2S, 67W
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 10
Subregion (LRR): H-Central Great Plains Winter Wheat & Range Lat: 39.91199159 Long: -104.8594238 Datum: NAD 83
Soil Map Unit Name: Truckton loamy sand NWI classification: Palustrine Scrub-Shrub
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important 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 9

Remarks:

Same upland point as Wetland 11 (SP-22)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1 *Salix exigua*	90	Y	FACW
2			
3			
4			
5			
	90 = Total Cover		
Herb Stratum (Plot size: ____)			
1 *Cirsium arvense*	5	Y	FACU
2			
3			
4			
5			
6			
7			
8			
9			
10			
	5 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0 = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 2 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column totals	95 (A)		200 (B)

Prevalence Index = B/A = 2.11

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

Sandbar willow dominated PSS wetland with a few weeds in herb stratum.

SOIL

Sampling Point: SP19

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	95	10YR 5/8	5	C	M	Sand	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

Soil was saturated sand with small amounts of redox concentrations.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):	___
Water Table Present?	Yes	___	No	X	Depth (inches):	___
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	0

Indicators of Wetland Hydrology Present? Y

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

Remarks:

Wet side slope with no surface water or water table present.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 | City/County: Henderson/Adams | Sampling Date: 8/2/18
Applicant/Owner: CDOT | State: Colorado | Sampling Point: SP20
Investigator(s): Brian Fauver, Haley Stratton | Section, Township, Range: 2, 2S, 67W
Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave | Slope (%): 20
Subregion (LRR): use drop-down list | Lat: 39.91300031 | Long: -104.8586002 | Datum: NAD 83
Soil Map Unit Name: Vona sandy loam | NWI classification: Palustrine Scrub-Shrub
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?		**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 10

Remarks:

Same upland point as wetland 11 (SP-22).

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Salix exigua*	90	Y	FACW
2			
3			
4			
5			
	90	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Apocynum cannabinum*	15	Y	FAC
2 *Cirsium arvense*	5	Y	FACU
3 *Lactuca serriola*	1	N	FAC
4 *Nepeta cataria*	1	N	FACU
5 *Convolvulus arvensis*	1	N	UPL
6			
7			
8			
9			
10			
	23	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	16	x 3 =	48
FACU species	6	x 4 =	24
UPL species	1	x 5 =	5
Column totals	113 (A)		257 (B)

Prevalence Index = B/A = 2.27

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

Salix exigua with sparce herbs in the understory.

SOIL

Sampling Point: SP20

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	95	10YR 5/8	5	C	M	sandy loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? _____

Remarks:

Soil may be problematic due to the erosion of the bank.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? Y

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

Remarks:

On the edge of a perennial lake.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 8/2/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP21
Investigator(s): Brian Fauver, Haley Stratton Section, Township, Range: 2, 2S, 67W
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 35
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.91330672 Long: -104.8594617 Datum: NAD 83
Soil Map Unit Name: Ascalon sandy loam NWI classification: Palustrine Scrub-Shrub
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Y		
Hydric Soil Present?		**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	Y	If yes, optional wetland site ID:	Wetland 11

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1 *Ulmus americana*	10	Y	FAC
2 *Elaeagnus angustifolia*	5	Y	FACU
3			
4			
5			
	15	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1 *Salix exigua*	70	Y	FACW
2			
3			
4			
5			
	70	= Total Cover	

Herb Stratum (Plot size: ____)			
1 *Phalaris arundinacea*	10	Y	FACW
2 *Apocynum cannabinum*	5	Y	FAC
3 *Helianthus sp.*	1	N	
4			
5			
6			
7			
8			
9			
10			
	16	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 80.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	15	x 3 =	45
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column totals	100 (A)		225 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Y

Remarks:

Salix exigua dominated wetland with large Elm and russian olive tree, one patch of reed canary grass, and indian hemp dispersed along the bank.

SOIL

Sampling Point: SP21

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 6/2	90	10YR 6/6	10	C	M	sand	
4-12	10YR 3/1	100					sandy loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? _____

Remarks:

Sandy redox concentrated through soil sample from the steep eroding bank.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes		No	X	Depth (inches):
Water Table Present?	Yes	X	No		Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches): 0

Indicators of Wetland Hydrology Present? Y

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

Remarks:

On the edge of a perennial lake.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: US85 City/County: Henderson/Adams Sampling Date: 8/2/18
Applicant/Owner: CDOT State: Colorado Sampling Point: SP22
Investigator(s): Brian Fauver, Haley Stratton Section, Township, Range: 2, 2S, 67W
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 39.91331997 Long: -104.8594494 Datum: NAD 83
Soil Map Unit Name: Ascalon sandy loam NWI classification: Palustrine Scrub-Shrub
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	N		
Hydric Soil Present?	N	**Is the Sampled Area Within a Wetland?**	N
Indicators of Wetland Hydrology Present?	N	If yes, optional wetland site ID:	Outpoint for Wetlands 9, 10 and 11

Remarks:

Upland point for each wetland, in close proximity to the dirt road that wraps around the perennial lake.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)		Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)				
1				
2				
3				
4				
5				
		0	= Total Cover	
Herb Stratum (Plot size: ____)				
1	*Convolvulus arvensis*	30	Y	UPL
2	*Bromus tectorum*	10	N	UPL
3	*Bassia scoparia*	10	N	FACU
4	*Unknown grass*	5	N	
5				
6				
7				
8				
9				
10				
		55	= Total Cover	
Woody Vine Stratum (Plot size: ____)				
1				
2				
		0	= Total Cover	

% Bare Ground in Herb Stratum 45

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	40	x 5 =	200
Column totals	50 (A)		240 (B)

Prevalence Index = B/A = 4.80

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? N

Remarks:

Sparcely vegetated weedy upland point, dominated by bind weed.

SOIL

Sampling Point: SP22

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/3	100					sandy loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS = Covered or Coated Sand Grains. [2]Location: PL = Pore Lining, M = Matrix

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? N

Remarks:

Dry soil, mostly bare ground.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of Wetland Hydrology Present? N

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

Remarks:

In between wetland and dirt access road on eroding slope.

Appendix C - US Army Corps of Engineers Correspondence

COLORADO
Department of Transportation

March 23, 2017

Mr. Aaron Eilers
United States Army Corps of Engineers
Omaha District
9307 South Wadsworth Boulevard
Littleton, CO 80128

Re: Interstate 25 (I-25) North, US 36 to Thornton Parkway Project Environmental Assessment (EA)

Dear Mr. Eilers

Felsburg Holt & Ullevig (FHU), acting on behalf of the Colorado Department of Transportation (CDOT) and in cooperation with the Federal Highway Authority (FHWA), is preparing a template Environmental Assessment (EA) for the Interstate 25 (I-25) North, US 36 to Thornton Parkway project. The template EA is being developed to satisfy the National Environmental Policy Act (NEPA) process for the I-25 North, US 36 to Thornton Parkway project, which will include improvements to relieve congestion, improve safety, enhance multimodal travel, and replace aging infrastructure on I-25 from US 36 to Thornton Parkway in Adams County and the City of Thornton, Colorado.

The project area, shown on the attached map, contains primarily residential, commercial, and undeveloped open space land use. The project area extends approximately 3 miles along I-25 from the US 36 to Thornton Parkway. The project is part of the corridor improvements identified in the North I-25, US 36 to SH 7 Planning and Environmental Linkages (PEL) Study. There have been several other studies conducted in the project area. These studies include: 2011 North I-25 Environmental Impact Statement (EIS) and Record of Decision (ROD1), 2010 I-25/84th Avenue Bridge Reconstruction Project Non-Programmatic Categorical Exclusion (CatEx), and 2014 I-25 Managed Lanes Project ROD Re-evaluation.

As part of the N I-25, US 36 to SH 7 PEL, an initial scoping meeting on March 26, 2012 to comment on any particular concerns in the project area and the PEL's Purpose and Need. In addition, a copy of the PEL report was provided upon completion of the study. The template EA is the next phase of project development. Since a scoping meeting was held as part of the PEL, a scoping meeting will not be held for the Template EA; however, if your agency would like a one-on-one scoping meeting, please contact Jordan Rudel or Kevin Maddoux to schedule a meeting.

CDOT and FHU look forward to working with you in preparing the template EA and associated Technical Reports. The resource authors are currently preparing the relevant reports. If you have preliminary concerns or items you would like us to consider during the NEPA process, please provide comments at your earliest convenience. If you have any general questions about this letter, please contact me at (303) 721-1440 or at kevin.maddoux@fhueng.com, or contact Jordan Rudel, CDOT Region 1 Environmental Program Manager, at (303) 757-9881 or jordan.rudel@state.co.us.

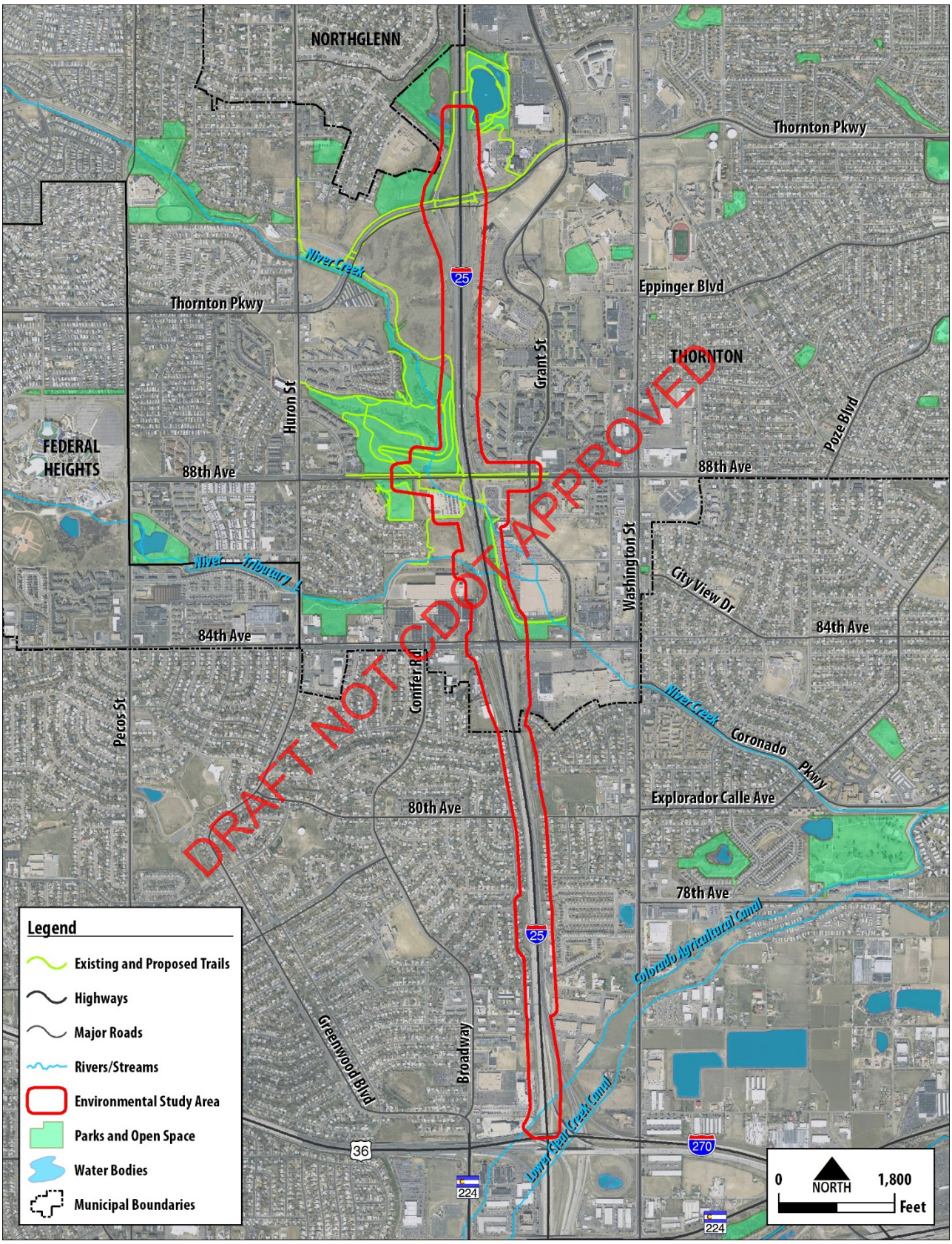
Sincerely,

Jordan Rudel
CDOT Region 1 Environmental Program Manager

Kevin Maddoux
FHU Environmental Project Manager

cc: Jean Cordova, Colorado Department of Public Health and Environment
Allison Deans Michael, US Fish and Wildlife Service
Jordan Likes, Colorado Parks and Wildlife
Carol Anderson, US Environmental Protection Agency
Jordan Rudel, CDOT Region 1

Attachment A: Study Area Map



Kevin.Maddoux

From: Eilers, Aaron R CIV USARMY CENWO (US) <Aaron.R.Eilers@usace.army.mil>
Sent: Friday, March 24, 2017 12:29 PM
To: Neal.Goffinet
Cc: Kevin.Maddoux; Jeanne.Sharps; Rudel - CDOT, Jordan; stephanie.alanis@state.co.us
Subject: RE: I-25 North, US 36 to Thornton Parkway Agency Scoping Letter
Attachments: Final_2015ColoradoNEPA404Merger.pdf

I think a meeting would be appropriate. Let me know which of these dates work so I can reserve our conference room here at Chatfield. (April 17, 18, 19, 24-28).

There are a couple of issues of immediate concern. I want to put these out there so that our meeting will be as productive as possible.

1) This project is within an area which has already received an Individual Permit prepared as part of the I-25 North EIS. That project involved a NEPA/404 merger between the Corps/FHWA/CDOT and is currently under construction. The Corps can't just nullify that. Perhaps there is an argument to be made that there is independent utility. If so, I need a letter signed by FHWA and CDOT that clearly demonstrates that. Please also refer to the "Exiting the Merger Process" (attached). The point of contact for CDOT on that Individual Permit is Carol Parr.

2) Assuming that the two projects have clearly demonstrated independent utility, we don't have any information on the potential impacts. Will the impacts trigger an Individual Permit or will they qualify for a Nationwide Permit verification? If the project has clearly demonstrated independent utility and qualifies for Nationwide Permit(s), then that makes things relatively straightforward. However,

3) If an IP is required, then we go back to the NEPA/404 Merger agreement which lays out a specific formal framework for the NEPA/404 merger process. Please carefully review this document because I will refer to it often in our meeting. FHWA is the NEPA lead federal agency for federally funded transportation projects proposed by CDOT and the process for initiating the merger process is specified in the merger agreement. Environmental Assessment's requiring an IP will enter the merger process only if the FHWA, USACE, and CDOT determine it is in the overall best interest of the public. This decision is made after considering potential impacts to waters of the US, the range of potential alternatives, and the potential for controversy on environmental grounds. If, after consideration of these factors, we conclude that a merger is not appropriate, then the Corps is required to ensure compliance with the 404(b)(1) guidelines as we identify a LEDPA. I understand not all EA's have multiple alternatives, but the standards for IPs are a little different and the Corps would want to evaluate a range of practicable alternatives.

That's about all I have for now. It's a bit thorny, frankly, and I don't want to mislead you into believing that it is a simple or fast process. Other states in the Omaha District are involved in rather complicated alternatives analysis stemming from the NEPA/404 merger process. The best advice I can give for now is to avoid and minimize to the point where the impacts qualify for a Nationwide Permit and start preparing a letter with FHWA and CDOT which clearly demonstrates independent utility. I'm happy to continue this discussion in April. Let me know what works for you.

AE

Aaron R. Eilers
U.S. Army Corps of Engineers
Denver Regulatory Office
9307 South Wadsworth Blvd.

Littleton, CO 80128
(303) 979-4120
Aaron.R.Eilers@usace.army.mil

-----Original Message-----
From: Neal.Goffinet [mailto:Neal.Goffinet@fhueng.com]
Sent: Friday, March 24, 2017 10:53 AM
To: Eilers, Aaron R CIV USARMY CENWO (US) <Aaron.R.Eilers@usace.army.mil>
Cc: Kevin.Maddoux <Kevin.Maddoux@FHUENG.COM>; Jeanne.Sharps <Jeanne.Sharps@FHUENG.COM>; Rudel - CDOT, Jordan <jordan.rudel@state.co.us>; stephanie.alanis@state.co.us
Subject: [EXTERNAL] RE: I-25 North, US 36 to Thornton Parkway Agency Scoping Letter

Aaron,

Although this a largely urban corridor, there are several aquatic resources present in and adjacent to the project area. Surface water resources within the project area include Badding Creek, Badding Reservoir, Croke Lake, Niver Creek, Niver Creek Tributary L, associated tributaries to these drainages, and several water quality/detention basins. Additionally, there are approximately 22 acres of wetlands in and adjacent to the project area. The delineated wetlands have been recorded in the Biological Resources Report and Wetland Delineation Report which are undergoing internal review and will eventually be going through CDOT review. The attached map should help give you a sense of where the surface waters are located near the project.

Thanks!
Neal

Neal Goffinet
Environmental Scientist
6300 S Syracuse Way, Ste. 600
Centennial, CO 80111
P: 303-721-1440 x 8892
Blockedwww.fhueng.com

-----Original Message-----
From: Eilers, Aaron R CIV USARMY CENWO (US) [mailto:Aaron.R.Eilers@usace.army.mil]
Sent: Friday, March 24, 2017 9:54 AM
To: Neal.Goffinet <Neal.Goffinet@fhueng.com>
Cc: Kevin.Maddoux <Kevin.Maddoux@FHUENG.COM>; Jeanne.Sharps <Jeanne.Sharps@FHUENG.COM>; Rudel - CDOT, Jordan <jordan.rudel@state.co.us>; stephanie.alanis@state.co.us
Subject: RE: I-25 North, US 36 to Thornton Parkway Agency Scoping Letter

Are there any aquatic resources in this pristine corridor?

AE

Aaron R. Eilers
U.S. Army Corps of Engineers
Denver Regulatory Office
9307 South Wadsworth Blvd.
Littleton, CO 80128
(303) 979-4120
Aaron.R.Eilers@usace.army.mil

-----Original Message-----
From: Downing, Kiel G CIV USARMY CENWO (US)
Sent: Thursday, March 23, 2017 11:28 AM
To: Neal.Goffinet <Neal.Goffinet@fhueng.com>
Cc: Kevin.Maddoux <Kevin.Maddoux@FHUENG.COM>; Jeanne.Sharps <Jeanne.Sharps@FHUENG.COM>; Rudel - CDOT, Jordan <jordan.rudel@state.co.us>; stephanie.alanis@state.co.us; Eilers, Aaron R CIV USARMY CENWO (US) <Aaron.R.Eilers@usace.army.mil>
Subject: RE: I-25 North, US 36 to Thornton Parkway Agency Scoping Letter

Neal,

Aaron Eilers will be the project manager for the Corps. He will coordinate with you.

Kiel

-----Original Message-----
From: Neal.Goffinet [mailto:Neal.Goffinet@fhueng.com]
Sent: Wednesday, March 22, 2017 2:03 PM
To: Downing, Kiel G CIV USARMY CENWO (US) <Kiel.G.Downing@usace.army.mil>
Cc: Kevin.Maddoux <Kevin.Maddoux@FHUENG.COM>; Jeanne.Sharps <Jeanne.Sharps@FHUENG.COM>; Rudel - CDOT, Jordan <jordan.rudel@state.co.us>; stephanie.alanis@state.co.us
Subject: [EXTERNAL] I-25 North, US 36 to Thornton Parkway Agency Scoping Letter

Mr. Downing

Please find attached an agency scoping letter for the I-25 North, US 36 to Thornton Parkway project that we are working on here at FHU.

Thank you!

Neal Goffinet

Neal Goffinet

Environmental Scientist

6300 S Syracuse Way, Ste. 600

Centennial, CO 80111

P: 303-721-1440 x 8892

BlockedBlockedwww.fhueng.com

COLORADO
Department of Transportation

Mr. Aaron Eilers
United States Army Corps of Engineers
Omaha District
9307 South Wadsworth Boulevard
Littleton, CO 80128

RE: Interstate 25 (I-25) (U.S. 36 to 104th Ave) Project Environmental Assessment - Purpose and Need, Independent Utility, and Impacts to Wetlands and Waters of the U.S.

Dear Mr. Eilers:

This letter is in response to your email dated March 17, 2017 requesting additional information in regard to Purpose and Need, Independent Utility, and Impacts to Wetlands and Waters of the U.S. for the I-25 (U.S. 36 to 104th Avenue) project. Your email was in response to the Colorado Department of Transportation's (CDOT) scoping letter to the U.S. Army Corps of Engineers dated March 23, 2017. Please note that the title of the project has changed from the I-25 North, U.S. 36 to Thornton Parkway, Project to the I-25 (U.S. 36 to 104th Avenue) project based on revisions to the project extents.

Project Description

CDOT in cooperation with the Federal Highway Authority (FHWA) is preparing a template Environmental Assessment (EA) for the I-25 (U.S. 36 to 104th Avenue) project. The Proposed Action would provide improvements to an approximately 4-mile segment of I-25 between U.S. 36 and 104th Avenue (**Figure1**). The current cross section of I-25 between U.S. 36 and 104th Avenue includes three general-purpose lanes and one Express Lane along the inside shoulder, with an auxiliary lane between 84th Avenue and Thornton Parkway. The inside shoulder varies in width between 2 and 12 feet, and the outside shoulder varies between 10 and 12 feet. There is a 2-foot inside shoulder and a 2-foot buffer between the Express Lane and the nearest general-purpose lane.

The proposed improvements associated with the Proposed Action (**Figures 2** and **3**) are as follows:

- Adding a fourth general-purpose lane in each direction from 84th Avenue to Thornton Parkway with the northbound general-purpose lane extending to 104th Avenue;
- Constructing continuous acceleration and deceleration lanes between the I-25/84th Avenue interchange and the I-25/Thornton Parkway interchange;
- Widening the inside and outside shoulders to a consistent 12-foot width;
- Accommodating a proposed median transit station and pedestrian bridge for the Thornton Park-n-Ride just south of 88th Avenue;
- Replacing the 88th Avenue bridge over I-25.

The proposed typical section on I-25 will consist of four 12-ft general-purpose lanes, a 12-ft Express Lane along the inside traveled way, and a 12-ft outside auxiliary lane between each interchange. Additionally, the inside and outside shoulders will be widened to 12 feet and the Express Lane buffer will be widened to 4 feet, and a 2-foot barrier will separate the northbound and southbound lanes of I-25. Surrounding the median station will be a 2-foot concrete barrier separating the Express Lanes from the bus station and bus lanes.

Figure 1 ***I-25 (U.S. 36 to 104th Avenue) Project Area***

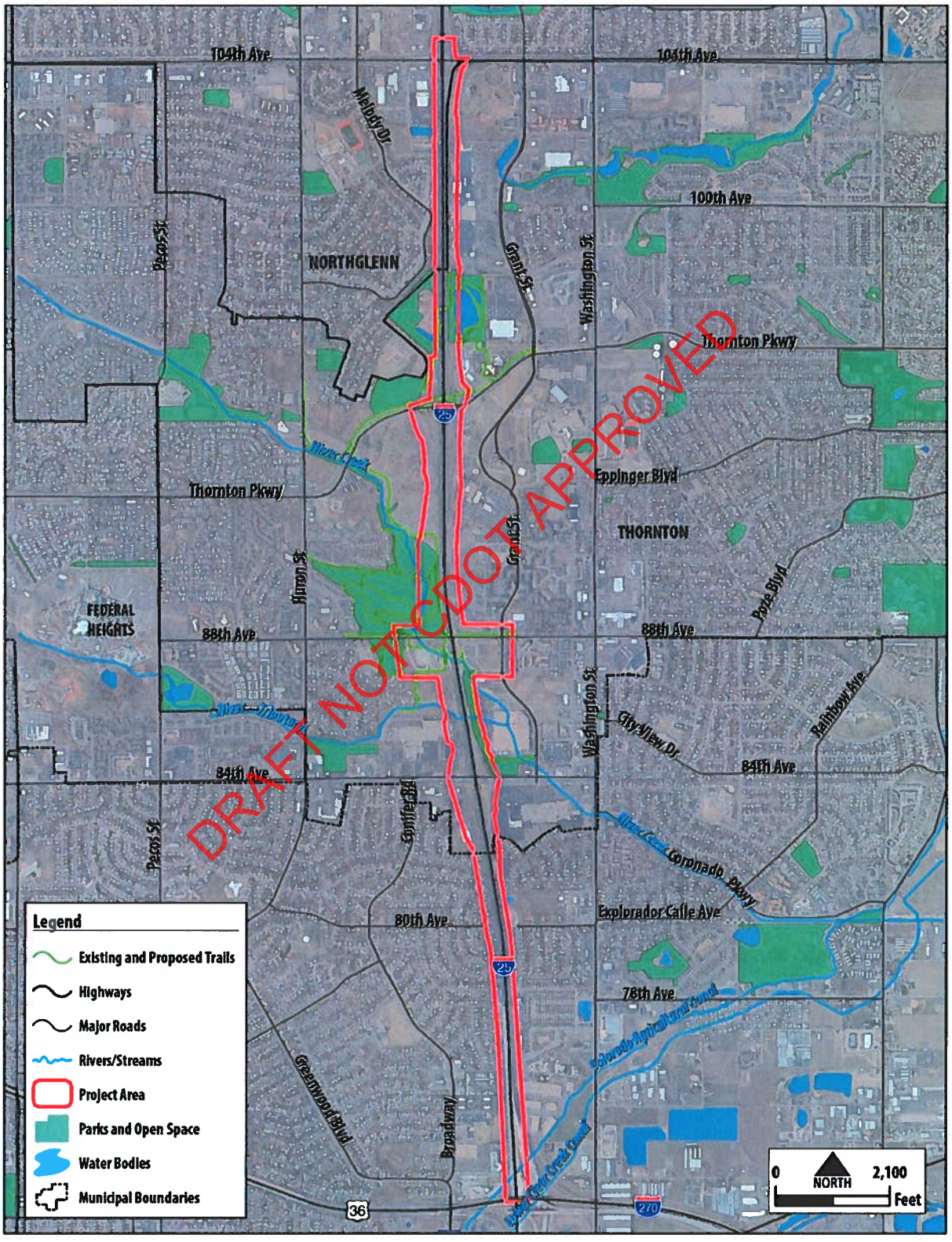
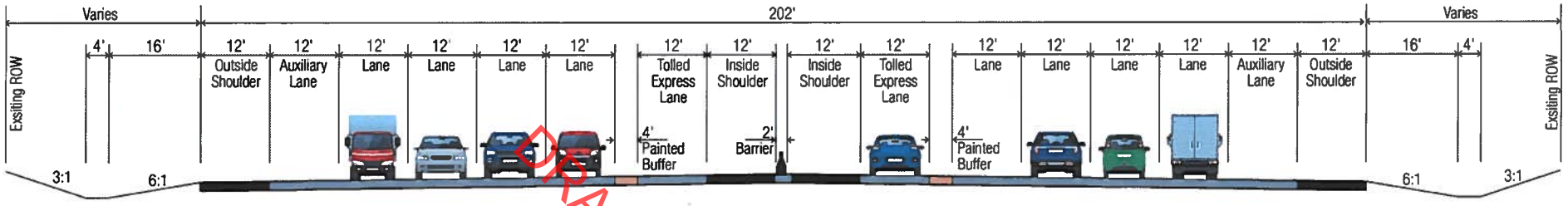
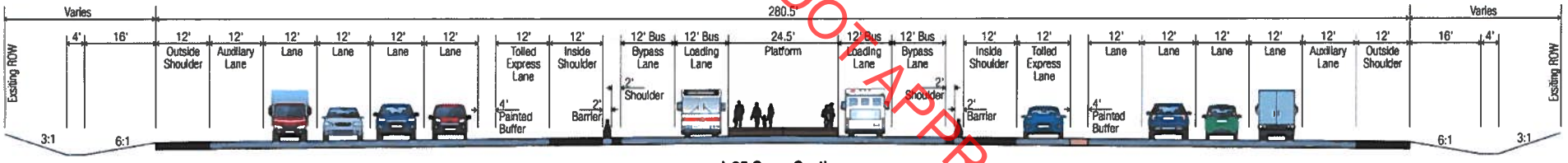


Figure 2 ***Proposed Action Typical Cross Section(s)***



I-25 Cross Section
I-76/US 36/I-270 Interchange Merge to Thornton Park-n-Ride Station
and
Thornton Park-n-Ride Station to 104th Avenue

Figure 3 ***Proposed Action Cross Section at the Thornton Park-n-Ride Station at 88th Avenue***



I-25 Cross Section
Thornton Park-n-Ride Station at 88th Avenue

Purpose and Need

The purpose of this project is to relieve congestion and improve safety on I-25 between U.S. 36 and 104th Avenue in Adams County, Colorado. These transportation improvements are needed to address traffic operation and safety.

- **Traffic Operations** - Existing traffic volumes along I-25 between the Interstate 76 (I-76)/U.S. 36/Interstate I-270 (I-270) interchange complex and 104th Avenue are nearing or exceeding capacity. Population and employment growth are projected to increase travel demand further reducing travel speeds and increasing congestion.
- **Safety** - The total annual crash rate for I-25 between the I-76/U.S. 36/ I-270 interchange complex and 112th Avenue has been increasing since 2012. Rear-end crashes, typically associated with congestion, are the predominant crash type.

Figure 4 illustrates the existing and project operational deficiencies for the project area.

Independent Utility

The I-25 (US 36 to 104th Avenue) project satisfies the independent utility requirements set forth in 23CFR 771.111(f). The I-25 (US 36 to 104th Avenue) project demonstrates independent utility because it provides transportation benefits by improving safety and decreasing and travel times along I-25; it does not rely on any other transportation projects being completed in order to be usable and is a reasonable expenditure. Additionally, it does not restrict the consideration of alternatives for other reasonably foreseeable transportation projects.

I-25 (US 36 to 104th) project was initiated to address the projected 2040 operational deficiencies of I-25 identified on **Figure 4**. The Proposed Action for the project is consistent with the PEL's recommendations **Figure 5** and includes:

- Extension of the (fourth) northbound general-purpose lane to 104th Avenue;
- Extension of the (fourth) southbound general-purpose lane to Thornton Parkway;
- Construction of continuous acceleration and deceleration lanes between the I-76/US 36/I-270 interchange complex, the I 25/84th Avenue interchange, and I-25/Thornton Parkway interchange;
- Construction of a center-median bus station and pedestrian bridge for the Thornton Park-n-Ride;
- 12-ft inside and outside shoulders in each direction; and
- Replacement of the 88th Avenue bridge over I-25.

The Proposed Action incorporates transportation improvements that were previously evaluated and recommended as part of the *North I-25, US 36 to SH 7 Planning and Environmental Linkages (PEL) Study* (CDOT, 2014), as well as improvements developed specially in response to the transportation needs identified for this project. The improvements of this project build upon the improvements the were previously constructed as part of the *North I-25 Final Environmental Impact Statement, Final Section 4(f) Evaluation* (FEIS) (FHWA and CDOT, 2011a), *North I-25 Record of Decision 1* (ROD1) (FHWA CDOT, 2011b. **Figure 5** depicts the portions of the Proposed Action that were previously evaluated and recommended as part of the FEIS, ROD1, and PEL.

The *North I-25, US 36 to SH 7 PEL* was conducted to evaluate transportation improvements to reduce congestion and improve safety on I-25 between US 36 and SH 7 by implementing near term, multimodal, and cost-effective transportation improvements that were compatible with long-term options and the recently constructed interchange structures at I-25/84th Avenue, I-25/120th Avenue, I-25/128th Avenue, I-25/136th Avenue, and I-25/144th Avenue. The termini for the *North I-25, US 36 to SH 7 PEL* was set based on the observed and modeled areas of existing and future congestion, as well as the boundaries of other major corridors where improvements were being made at the time of the study. Demand and congestion on I-25 drops off substantially north of SH 7; therefore, SH 7 was identified as the northern logical terminus. On the southern end of the corridor, congestion drops off southbound south of 84th Avenue as a result of increased capacity. However, US 36 was identified as the southern terminus to address congestion caused by the I-270, US 36 merge onto northbound I-25. In addition to the FEIS Preferred Alternative, the *North I-25, US 36 to SH 7 PEL* recommended the:

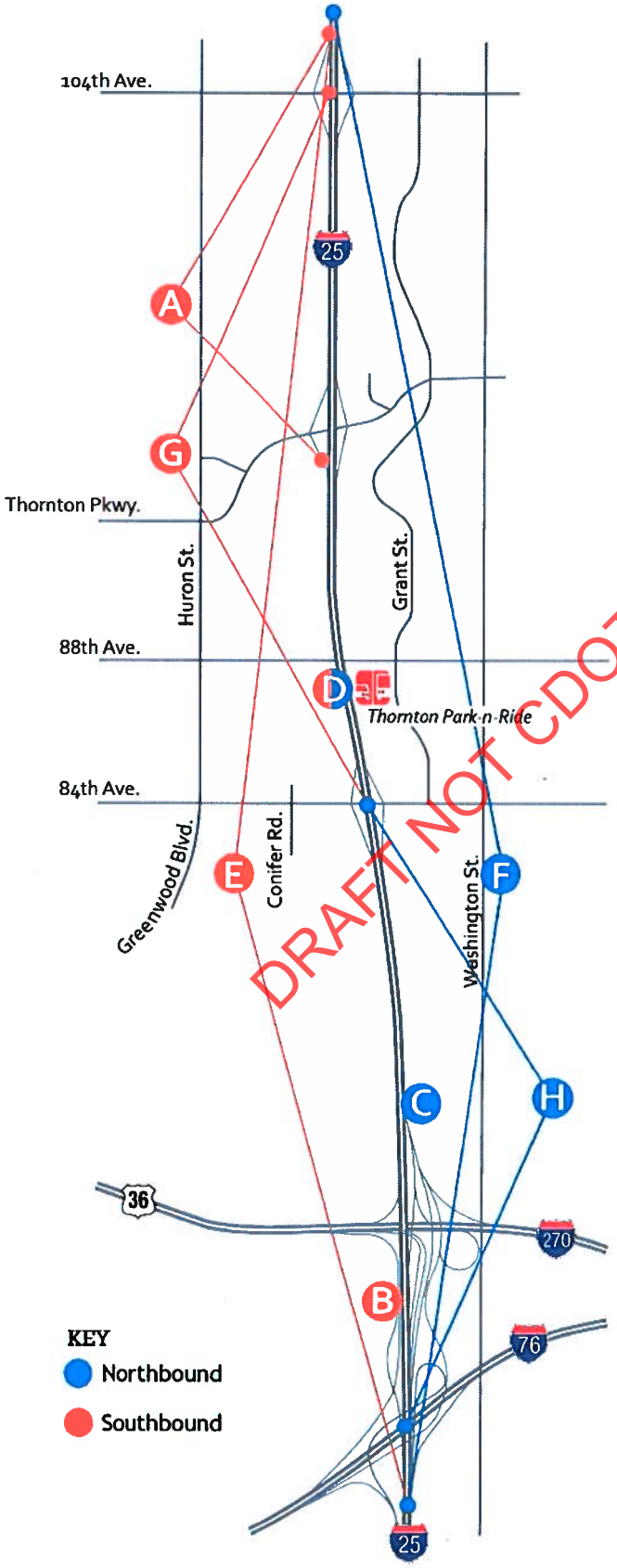
- Addition of a fourth general-purpose lane in each direction on I-25 between Thornton Parkway and the I-76/US 36/ I-270 interchange complex;
- Construction of continuous acceleration and deceleration lanes between the I-76/US 36/I-270 interchange complex, the I-25/84th Avenue interchange, and I-25/Thornton Parkway interchange; and
- Construction of a center-median bus station and pedestrian bridge for the Thornton Park-n-Ride.

The *North I-25 Final Environmental Impact Statement, Final Section 4(f) Evaluation* (FEIS) was conducted to identify and evaluate multi-modal transportation improvements along the 61-mile I-25 transportation corridor extending from the Fort Collins/Wellington area to Denver. The improvements being considered in the FEIS addressed regional and inter-regional movement of people, goods, and services in the I-25 corridor. The improvements were needed to address mobility, accessibility, safety, and aging infrastructure problems along I-25, as well as to provide for a greater variety of transportation choices. The FEIS Preferred Alternative and ROD1 Selected Alternative planned reconstruction of I-25 from US 36 to 120th Avenue with the addition of Express Lanes. Between US 36 and 104th Avenue, the FEIS Preferred Alternative and ROD1 Selected Alternative included:

- Three 12-foot (ft) general-purpose lanes in each direction,
- One 12-ft Express Lane with a 4-ft buffer along the inside traveled way in each direction,
- 12-ft inside and outside shoulders in each direction,
- A 2-foot barrier between the northbound and southbound directions of the roadway, and
- Replacement of the 88th Avenue bridge over I-25.

In May 2013, FHWA and CDOT completed a Reevaluation of ROD1 for construction of an interim version of only one aspect of Phase 1 of the FEIS Preferred Alternative between US 36 and 120th Avenue (FHWA and CDOT, 2013). The interim project consisted of a new inside Express Lane striped on the existing pavement surface, without the widening of I-25.

Figure 4 Existing and Projected 2040 Operational Deficiencies



A Southbound on-ramp vehicles at Thornton Parkway merge onto southbound I-25 creating congestion that currently extends north of Thornton Parkway. By 2040 this southbound morning (AM) peak hour congestion is projected to extend north of the 104th Avenue.

B Southbound AM peak hour merge and diverge interactions at the Interstate 76 (I-76)/US 36/Interstate I-270 (I-270) interchange complex currently operate at level of service (LOS) D/E. In 2040, operations are projected to be reduced to LOS F.

C The northbound evening (PM) peak hour merge and weaving interactions from I-76/US 36 and I-270 ramps onto I-25 currently operate at LOS C. By 2040 increased travel demand is expected to reduce operations to LOS F.

D Buses exiting the Thornton Park-n-Ride at 88th Avenue create slow traffic when merging and weaving across northbound and southbound traffic into the Express Lanes from the bus-only on-ramps causing congestion and reducing vehicle throughput along I-25.

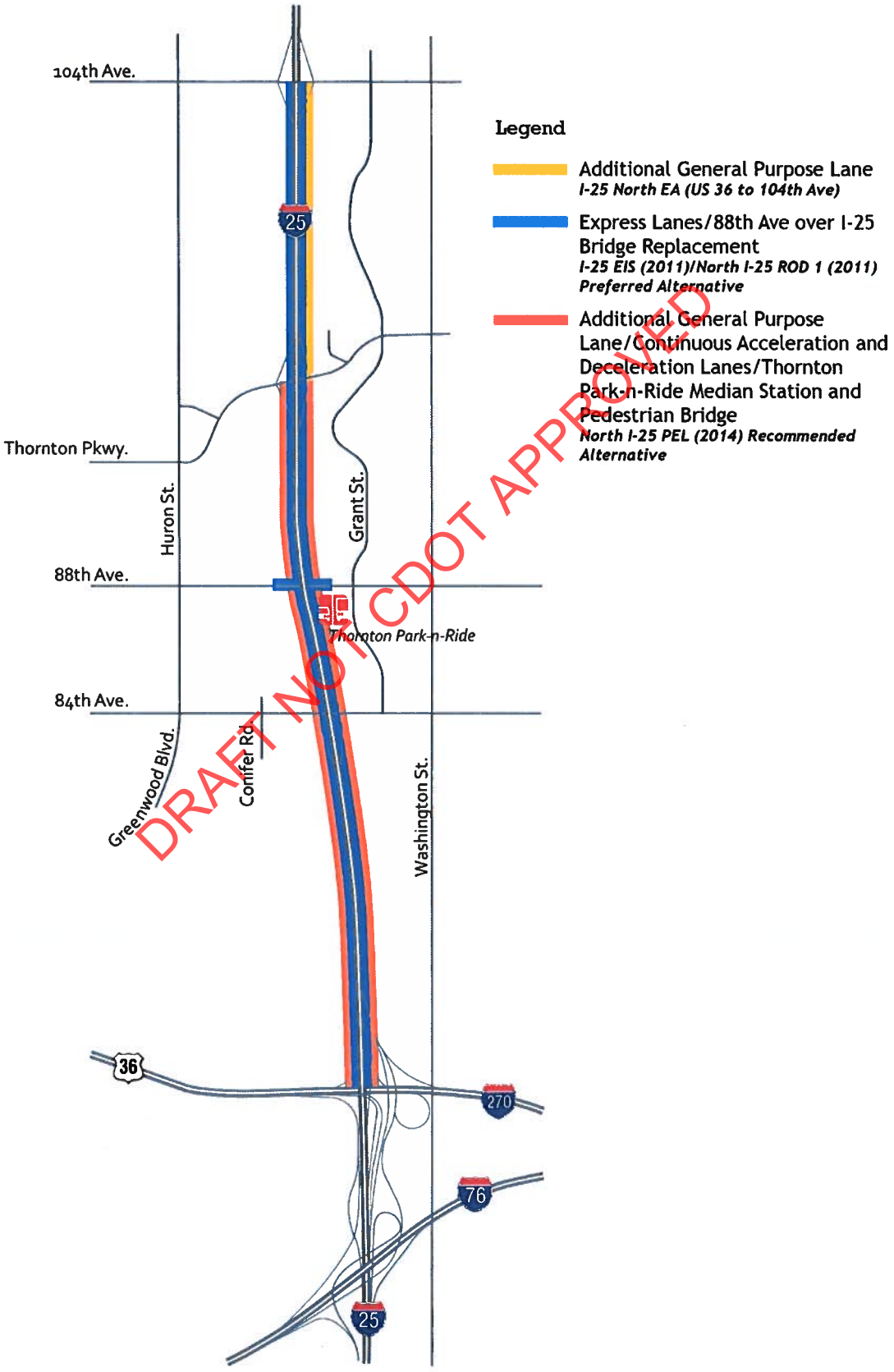
E The existing average AM peak hour southbound speeds range from 30 to 50 miles per hour (MPH) (on an incident-free day). By 2040 these speeds are projected to decrease to between 20 and 45 MPH.

F The existing average PM peak hour northbound speeds range from 25 to 45 MPH (on an incident-free day). By 2040, these speeds are projected to decrease to between 10 and 40 MPH.

G Morning AM peak hour southbound travel times between the 104th Avenue and 84th Avenue interchanges are projected nearly double from 2 to 4 minutes in 2017 to 4 to 6 minutes in 2040.

H Evening PM peak hour northbound corridor long travel times from I-76 to 104th Avenue, are projected to nearly double from 6 to 8 minutes in 2017 to 10 to 12 minutes in 2040.

Figure 5 Proposed Action – Transportation Improvements Previously Evaluated and Recommended



The interim also included implementation of the tolling and ITS infrastructure to operate the Express Lane, the resurfacing/reconstructing and restriping of I-25 in this section, the construction of four new noise walls, and the rehabilitation of existing noise walls. Construction of this project was completed in 2017 and thus is the condition that is currently the existing condition along I-25 between US 36 and 120th Avenue.

Impacts to Wetlands and Other Waters of the U.S.

Wetlands and other waters of the U.S. within the project area are typical of roadside ditches, water quality ponds, and wetlands associated with Niver Creek. A total of 6.64 acres of wetlands are in the vicinity of the project. The Proposed Action would result in a total estimate of 0.365 acres of impacts to wetlands and other waters of the U.S. adjacent to the roadway abutting Niver Creek. This is based on a preliminary (NEPA) level of design and will be verified during final design. Construction of impervious surfaces would increase runoff exposing the surrounding vegetation to higher levels of pollutants. Increased runoff may lead to increased soil erosion. The impacts would not trigger a Section 404 Individual Permit but would qualify for a Nationwide Permit verification.

Conclusion

CDOT and FHU look forward to working with you in preparing the template EA and associated Technical Reports. The resource authors are currently preparing the relevant reports. If you have preliminary concerns or items you would like us to consider during the NEPA process, please provide comments at your earliest convenience. If you have any general questions about this letter, please contact me contact Jordan Rudel, CDOT Region 1 Environmental Program Manager, at (303) 757-9881 or jordan.rudel@state.co.us.

Sincerely,

Jordan Rudel

CDOT Region 1 Environmental Program Manager

cc: Stephanie Alanis, CDOT Region 1
Francesca Tordonato, CDOT Region 1
Chris Horn, FHWA

Kevin.Maddoux

From: Eilers, Aaron R CIV USARMY CENWO (US) <Aaron.R.Eilers@usace.army.mil>
Sent: Friday, November 16, 2018 10:50 AM
To: Rudel - CDOT, Jordan
Cc: Neal.Goffinet; Kevin.Maddoux; Jeanne.Schley; Stephanie Alanis - CDOT
Subject: RE: [Non-DoD Source] Re: I-25 North, US 36 to Thornton Parkway Agency Scoping Letter (UNCLASSIFIED)
Attachments: 2017 PCN Requirements (002).pdf; Compensatory Mitigation Plan Requirements.pdf

CLASSIFICATION: UNCLASSIFIED

CLASSIFICATION: UNCLASSIFIED

OK. That all sounds great. Your November 14, 2018 letter resolves our questions of independent utility. Please provide the Corps with a hard copy of the signed FHWA/CDOT EA/FONSI document once final.

CDOT is welcome to submit a pre-construction notification (PCN) for the impacts to waters of the U.S. once you have clearances for NHPA Section 106 and ESA Section 7. I've attached a document describing the minimum requirements for a complete PCN.

A couple of things to consider in the PCN:

The Denver Regulatory Office can't authorize more than 300 linear feet of stream loss under a Nationwide Permit. Greater than 300 linear feet of stream loss would require an Individual Permit.

Also, 0.365 acres of impacts to jurisdictional wetlands would require compensatory mitigation. Please keep in mind that there are currently no wetland mitigation credits available for sale in this service area. That could require CDOT to construct a permittee-responsible wetland mitigation area and would require a compensatory mitigation plan. I've attached a document describing the minimum requirements for a wetland mitigation plan. The Corps does not require mitigation for impacts to non-jurisdictional wetlands such as off-line storm water detention ponds and roadside ditches constructed in uplands.

Please let me know if you have any additional questions or concerns.

AE

Aaron R. Eilers
U.S. Army Corps of Engineers
Denver Regulatory Office
9307 South Wadworth Blvd
Littleton, CO 80128
(303) 979-4120
aaron.r.eilers@usace.army.mil

-----Original Message-----

From: Rudel - CDOT, Jordan [mailto:jordan.rudel@state.co.us]
Sent: Wednesday, November 14, 2018 3:40 PM
To: Eilers, Aaron R CIV USARMY CENWO (US) <Aaron.R.Eilers@usace.army.mil>
Cc: Neal.Goffinet <Neal.Goffinet@fhueng.com>; Kevin.Maddoux <Kevin.Maddoux@fhueng.com>; Jeanne.Sharps <Jeanne.Sharps@fhueng.com>; Stephanie Alanis - CDOT <stephanie.alanis@state.co.us>
Subject: [Non-DoD Source] Re: I-25 North, US 36 to Thornton Parkway Agency Scoping Letter

Hello Mr. Eilers,

I am writing to follow up on some of the early informal coordination we initiated last year in March 2017 around project scoping. After further consideration and additional conversations both internal as well as external with FHWA, CDOT has concluded that our Proposed Action for this Environmental Assessment is positioned to fall into what you had previously helped to categorize below in item #2 of your previous email thread.

Please find the attached memo thoroughly explaining CDOT's basis of conclusions and acknowledgment of impacts to wetlands and waters of the U.S. associated with this NEPA study and preliminary design. Also explained, for background and history purposes, is a summary of the previous corridor studies within this project's area distinguished from this Environmental Assessment.

If you have any further questions or comments that the USACE would like to have considered in the Environmental Assessment please let me know. I would be happy to open up for additional dialogue if needed. Thank you in advance for your time and consideration.

Respectfully,
Jordan Rudel

Jordan Rudel

Region 1 Environmental Program Manager

<Blockedhttps://drive.google.com/uc?export=download&id=0B8gdupL6hOgVblg5dUNLOHRsN2c>

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jordan.rudel@state.co.us <mailto:jordan.rudel@state.co.us> | Blockedwww.codot.info <Blockedhttp://www.coloradodot.info/> | Blockedwww.colorado.gov/jobs <Blockedhttp://www.colorado.gov/jobs>

On Fri, Mar 24, 2017 at 12:30 PM Eilers, Aaron R CIV USARMY CENWO (US) <Aaron.R.Eilers@usace.army.mil <mailto:Aaron.R.Eilers@usace.army.mil> > wrote:

I think a meeting would be appropriate. Let me know which of these dates work so I can reserve our conference room here at Chatfield. (April 17, 18, 19, 24-28).

There are a couple of issues of immediate concern. I want to put these out there so that our meeting will be as productive as possible.

1) This project is within an area which has already received an Individual Permit prepared as part of the I-25 North EIS. That project involved a NEPA/404 merger between the Corps/FHWA/CDOT and is currently under construction. The Corps can't just nullify that. Perhaps there is an argument to be made that there is independent utility. If so, I need a letter signed by FHWA and CDOT that clearly demonstrates that. Please also refer to the "Exiting the Merger Process" (attached). The point of contact for CDOT on that Individual Permit is Carol Parr.

2) Assuming that the two projects have clearly demonstrated independent utility, we don't have any information on the potential impacts. Will the impacts trigger an Individual Permit or will they qualify for a Nationwide Permit verification? If the project has clearly demonstrated independent utility and qualifies for Nationwide Permit(s), then that makes things relatively straightforward. However,

3) If an IP is required, then we go back to the NEPA/404 Merger agreement which lays out a specific formal framework for the NEPA/404 merger process. Please carefully review this document because I will refer to it often in our meeting. FHWA is the NEPA lead federal agency for federally funded transportation projects proposed by CDOT and the process for initiating the merger process is specified in the merger agreement. Environmental Assessment's requiring an IP will enter the merger process only if the FHWA, USACE, and CDOT determine it is in the overall best interest of the public. This decision is made after considering potential impacts to waters of the US, the range of potential alternatives, and the potential for controversy on environmental grounds. If, after consideration of these factors, we conclude that a merger is not appropriate, then the Corps is required to ensure compliance with the 404(b)(1) guidelines as we identify a LEDPA. I understand not all EA's have multiple alternatives, but the standards for IPs are a little different and the Corps would want to evaluate a range of practicable alternatives.

That's about all I have for now. It's a bit thorny, frankly, and I don't want to mislead you into believing that it is a simple or fast process. Other states in the Omaha District are involved in rather complicated alternatives analysis stemming from the NEPA/404 merger process. The best advice I can give for now is to avoid and minimize to the point where the impacts qualify for a Nationwide Permit and start preparing a letter with FHWA and CDOT which clearly demonstrates independent utility. I'm happy to continue this discussion in April. Let me know what works for you.

AE

Aaron R. Eilers
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Littleton, CO 80128
(303) 979-4120
Aaron.R.Eilers@usace.army.mil <mailto:Aaron.R.Eilers@usace.army.mil>

-----Original Message-----
From: Neal.Goffinet [mailto:Neal.Goffinet@fhueng.com <mailto:Neal.Goffinet@fhueng.com>]
Sent: Friday, March 24, 2017 10:53 AM
To: Eilers, Aaron R CIV USARMY CENWO (US) <Aaron.R.Eilers@usace.army.mil <mailto:Aaron.R.Eilers@usace.army.mil> >
Cc: Kevin.Maddoux <Kevin.Maddoux@FHUENG.COM <mailto:Kevin.Maddoux@FHUENG.COM> >; Jeanne.Sharps <Jeanne.Sharps@FHUENG.COM <mailto:Jeanne.Sharps@FHUENG.COM> >; Rudel - CDOT, Jordan <jordan.rudel@state.co.us <mailto:jordan.rudel@state.co.us> >; stephanie.alanis@state.co.us <mailto:stephanie.alanis@state.co.us>
Subject: [EXTERNAL] RE: I-25 North, US 36 to Thornton Parkway Agency Scoping Letter

Aaron,

Although this a largely urban corridor, there are several aquatic resources present in and adjacent to the project area. Surface water resources within the project area include Badding Creek, Badding Reservoir, Croke Lake, Niver Creek, Niver Creek Tributary L, associated tributaries to these drainages, and several water quality/detention basins. Additionally, there are approximately 22 acres of wetlands in and adjacent to the project area. The delineated wetlands have been recorded in the Biological Resources Report and Wetland Delineation Report which are undergoing internal review and will eventually be going through CDOT review. The attached map should help give you a sense of where the surface waters are located near the project.

Thanks!
Neal

Neal Goffinet
Environmental Scientist
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Centennial, CO 80111
P: 303-721-1440 x 8892
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-----Original Message-----
From: Eilers, Aaron R CIV USARMY CENWO (US) [mailto:Aaron.R.Eilers@usace.army.mil <mailto:Aaron.R.Eilers@usace.army.mil>]
Sent: Friday, March 24, 2017 9:54 AM
To: Neal.Goffinet <Neal.Goffinet@fhueng.com <mailto:Neal.Goffinet@fhueng.com> >
Cc: Kevin.Maddoux <Kevin.Maddoux@FHUENG.COM <mailto:Kevin.Maddoux@FHUENG.COM> >; Jeanne.Sharps <Jeanne.Sharps@FHUENG.COM <mailto:Jeanne.Sharps@FHUENG.COM> >; Rudel - CDOT, Jordan <jordan.rudel@state.co.us <mailto:jordan.rudel@state.co.us> >; stephanie.alanis@state.co.us <mailto:stephanie.alanis@state.co.us>
Subject: RE: I-25 North, US 36 to Thornton Parkway Agency Scoping Letter

Are there any aquatic resources in this pristine corridor?

AE

Aaron R. Eilers
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(303) 979-4120
Aaron.R.Eilers@usace.army.mil <mailto:Aaron.R.Eilers@usace.army.mil>

-----Original Message-----
From: Downing, Kiel G CIV USARMY CENWO (US)
Sent: Thursday, March 23, 2017 11:28 AM
To: Neal.Goffinet <Neal.Goffinet@fhueng.com <mailto:Neal.Goffinet@fhueng.com> >
Cc: Kevin.Maddoux <Kevin.Maddoux@FHUENG.COM <mailto:Kevin.Maddoux@FHUENG.COM> >; Jeanne.Sharps <Jeanne.Sharps@FHUENG.COM <mailto:Jeanne.Sharps@FHUENG.COM> >; Rudel - CDOT, Jordan <jordan.rudel@state.co.us <mailto:jordan.rudel@state.co.us> >; stephanie.alanis@state.co.us <mailto:stephanie.alanis@state.co.us> ; Eilers, Aaron R CIV USARMY CENWO (US) <Aaron.R.Eilers@usace.army.mil <mailto:Aaron.R.Eilers@usace.army.mil> >
Subject: RE: I-25 North, US 36 to Thornton Parkway Agency Scoping Letter

Neal,

Aaron Eilers will be the project manager for the Corps. He will coordinate with you.

Kiel

-----Original Message-----
From: Neal.Goffinet [mailto:Neal.Goffinet@fhueng.com <mailto:Neal.Goffinet@fhueng.com>]
Sent: Wednesday, March 22, 2017 2:03 PM
To: Downing, Kiel G CIV USARMY CENWO (US) <Kiel.G.Downing@usace.army.mil <mailto:Kiel.G.Downing@usace.army.mil> >
Cc: Kevin.Maddoux <Kevin.Maddoux@FHUENG.COM <mailto:Kevin.Maddoux@FHUENG.COM> >; Jeanne.Sharps <Jeanne.Sharps@FHUENG.COM <mailto:Jeanne.Sharps@FHUENG.COM> >; Rudel - CDOT, Jordan <jordan.rudel@state.co.us <mailto:jordan.rudel@state.co.us> >; stephanie.alanis@state.co.us <mailto:stephanie.alanis@state.co.us>
Subject: [EXTERNAL] I-25 North, US 36 to Thornton Parkway Agency Scoping Letter

Mr. Downing

Please find attached an agency scoping letter for the I-25 North, US 36 to Thornton Parkway project that we are working on here at FHU.

Thank you!

Neal Goffinet

Neal Goffinet

Environmental Scientist

6300 S Syracuse Way, Ste. 600

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CLASSIFICATION: UNCLASSIFIED
CLASSIFICATION: UNCLASSIFIED

Pre-Construction Notification (PCN) Requirements

(Nationwide Permit General Condition No. 32
from the January 6, 2017 Federal Register)

US Army Corps of Engineers, Omaha District, Denver Regulatory Office
9307 South Wadsworth Blvd, Littleton, CO 80128
Phone: (303) 979-4120

Contents of Pre-Construction Notification:

The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) Identify the specific NWP or NWP(s) the prospective permittee want to use to authorize the proposed activity;

(4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are

no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

Mitigation Plans for Nationwide Permits

(1) ***Preparation and Approval***.

On-site Mitigation: The Corps may approve a conceptual or detailed compensatory mitigation plan to meet required time frames for general permit verifications, but a final mitigation plan incorporating the elements in paragraphs (2) through (14), at a level of detail commensurate with the scale and scope of the impacts, must be approved by the Corps before the permittee commences work in waters of the United States.

Mitigation Bank: For permittees who intend to fulfill their compensatory mitigation obligations by securing credits from approved mitigation banks, their mitigation plans need include only the items described in paragraphs (5) and (6), and either the name of the specific mitigation bank to be used or a statement indicating that a mitigation bank will be used (contingent upon approval by the Corps).

(2) ***Objectives***. A description of the resource type(s) and amount(s) that will be provided, the method of compensation (i.e., restoration, establishment, enhancement, and/or preservation), and the manner in which the resource functions of the compensatory mitigation project will address the needs of the watershed, ecoregion, physiographic province, or other geographic area of interest.

(3) ***Site selection***. A description of the factors considered during the site selection process. This should include consideration of watershed needs, on-site alternatives where applicable, and the practicability of accomplishing ecologically self-sustaining aquatic resource restoration, establishment, enhancement, and/or preservation at the compensatory mitigation project site.

(4) ***Site protection instrument***. A description of the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the compensatory mitigation project site.

(5) ***Baseline information***. A description of the ecological characteristics of the proposed compensatory mitigation project site and, in the case of an application for a DA permit, the impact site. This may include descriptions of historic and existing plant communities, historic and existing hydrology, soil conditions, a map showing the locations of the impact and mitigation site(s) or the geographic coordinates for those site(s), and other site characteristics appropriate to the type of resource proposed as compensation. The baseline information should also include a delineation of waters of the United States on the proposed compensatory mitigation project site. A prospective permittee planning to secure credits from an approved mitigation bank or in-lieu fee program only needs to provide baseline information about the impact site, not the mitigation bank or in-lieu fee project site.

(6) ***Determination of credits***. A description of the number of credits to be provided, including a brief explanation of the rationale for this determination.

(i) For permittee-responsible mitigation, this should include an explanation of how the compensatory mitigation project will provide the required compensation for unavoidable impacts to aquatic resources resulting from the permitted activity.

(ii) For permittees intending to secure credits from an approved mitigation bank or in-lieu fee program, it should include the number and resource type of credits to be secured and how these were determined.

(7) ***Mitigation work plan***. Detailed written specifications and work descriptions for the compensatory mitigation project, including, but not limited to, the geographic boundaries of the project; construction methods, timing, and sequence; source(s) of water, including connections to existing waters and uplands; methods for establishing the desired plant community; plans to control invasive plant species; the proposed grading plan, including elevations and slopes of the substrate; soil management; and erosion control measures. For stream compensatory mitigation projects, the mitigation work plan may also include other relevant information, such as planform geometry, channel form (e.g., typical channel cross-sections), watershed size, design discharge, and riparian area plantings.

(8) ***Maintenance plan***. A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed.

(9) ***Performance standards***. Ecologically-based standards that will be used to determine whether the compensatory mitigation project is achieving its objectives.

(10) ***Monitoring requirements***. A description of parameters to be monitored in order to determine if the compensatory mitigation project is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting on monitoring results to the district engineer must be included.

(11) ***Long-term management plan***. A description of how the compensatory mitigation project will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party responsible for long-term management.

(12) ***Adaptive management plan***. A management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project, including the party or parties responsible for implementing adaptive management measures. The adaptive management plan will guide decisions for revising compensatory mitigation plans and implementing measures to address both foreseeable and unforeseen circumstances that adversely affect compensatory mitigation success.

(13) ***Financial assurances***. A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standards.

(14) ***Other information***. The Corps may require additional information as necessary to determine the appropriateness, feasibility, and practicability of the compensatory mitigation project.

For further descriptions of the above referenced elements, please see the Final Mitigation Rule. Copies of the Final Mitigation Rule may be obtained from the Denver Regulatory Office (DRO), or by accessing the DRO website at:

https://www.nwo.usace.army.mil/html/od-tl/mitigation-final-rule.33CFR332.10-apr-08.pdf