

# **WETLAND DELINEATION TECHNICAL REPORT**

West Elizabeth Corridor Concept Design

Prepared for:

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## TABLE OF CONTENTS

<b>1.0 Introduction</b> .....	<b>1</b>
1.1 Project Description .....	1
1.2 Project Location .....	1
1.3 Environmental Study Area .....	1
<b>2.0 Methods</b> .....	<b>1</b>
2.1 Applicable Statutes and Regulations .....	1
2.2 Preliminary Desktop Review .....	4
2.3 Field Data Collection.....	4
<b>3.0 Site Setting and Condition</b> .....	<b>6</b>
<b>4.0 Results</b> .....	<b>6</b>
4.1 Wetlands .....	6
1.1 Vegetation .....	8
4.2 Soils.....	8
4.3 Hydrology .....	9
4.4 Other Waters of the U.S. ....	9
<b>5.0 Summary and Recommendations</b> .....	<b>10</b>
5.1 Impacts and Mitigation to Jurisdictional Wetlands.....	10
<b>6.0 Conclusions</b> .....	<b>10</b>
<b>7.0 References</b> .....	<b>11</b>

## Appendices

Appendix A. Site Photographs

Appendix B. Wetland Determination Data Forms

# Wetland Delineation Technical Report

## List of Figures

Figure 1.	Project Location Map.....	2
Figure 2.	Environmental Study Area Map.....	3
Figure 3.	USFWS National Wetlands Inventory Map.....	5
Figure 4.	Surveyed Wetlands and WUS.....	7

## List of Tables

Table 1.	Delineated Wetlands.....	6
Table 2.	Wetland Vegetation.....	8
Table 3.	Wetland Soils.....	9
Table 4.	Wetland Hydrology.....	9

## LIST OF ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
BRT	bus-rapid-transit
CSU	Colorado State University
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	Facultative
FACW	Facultative wetland
FEMA	Federal Emergency Management Agency
FHU	Felsburg Holt & Ullevig
FTA	Federal Transit Administration
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate wetland
OHWM	Ordinary High Water Mark
PEM	palustrine emergent
ROW	right-of-way
RPW	relatively permanent water
TNW	Traditional Navigable Water
UPL	Upland
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WUS	Waters of the US

## 1.0 INTRODUCTION

The City of Fort Collins is completing preliminary engineering design for multi-modal improvements along the West Elizabeth Corridor from Overland Trail to Mason Street in Fort Collins, Colorado. Felsburg Holt and Ullevig (FHU), acting on behalf of the City of Fort Collins, performed a wetland delineation survey in the environmental study area along the right-of-way (ROW) of West Elizabeth from Overland Trail to Shields Street and on Plum Street from Shields Street to the Colorado State University (CSU) campus to Mason Street **Figure 1**. FHU staff conducted the survey to identify wetlands and other Waters of the U.S. **Appendix A** includes a photo log of the existing conditions within the environmental study area at the time of the field surveys. **Appendix B** contains the wetland determination data forms.

### 1.1 Project Description

The West Elizabeth Corridor Concept Design Project (Project) consists of design services for the Project between Overland Trail and Mason Street. The Project is approximately three miles long and involves increasing transit use and streamlining transit operations by establishing a new bus-rapid-transit (BRT) system from CSU's Foothills Campus to the existing MAX BRT system. Safety improvements to pedestrian and bicycle infrastructure will feature better Americans with Disabilities Act (ADA) facilities, high-comfort bike facilities, traffic calming measures as well as enhanced parkways and planted medians. The preliminary design will establish the project footprint and determine ROW, drainage, utility, and traffic requirements such that the City of Fort Collins will seek grant funding through the Federal Transit Administration (FTA) to complete final design and construction.

### 1.2 Project Location

The Project is located along West Elizabeth in Fort Collins, Larimer County, Colorado. A map of the project location can be found on **Figure 1**. The project lies on the U.S. Geological Survey (USGS) 7.5-minute Horsetooth Reservoir and Fort Collins, Colorado quadrangles, in Sections 14, 15, 16, and 17 in Township 7 North, Range 69 West. The approximate coordinates of the center of the project are latitude 40.576173° and longitude -105.101139° (WGS 84 datum).

### 1.3 Environmental Study Area

The environmental study area is approximately 123 acres and extends along West Elizabeth for two miles, Plum Street for 0.5 miles, through CSU campus to Mason Street, and extending north up to Myrtle Street. **Figure 2** shows the environmental study area, including the footprint for the proposed project improvements, construction access, and temporary disturbance. The study area includes the study area street corridors ROW within an additional buffer to include improvement areas.

## 2.0 METHODS

### 2.1 Applicable Statutes and Regulations

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. Any discharge of dredged or fill materials into a WUS, including wetlands, requires authorization by the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the CWA. The CWA also protects the removal of wetlands from dredging activities.

Figure 1. Project Location Map

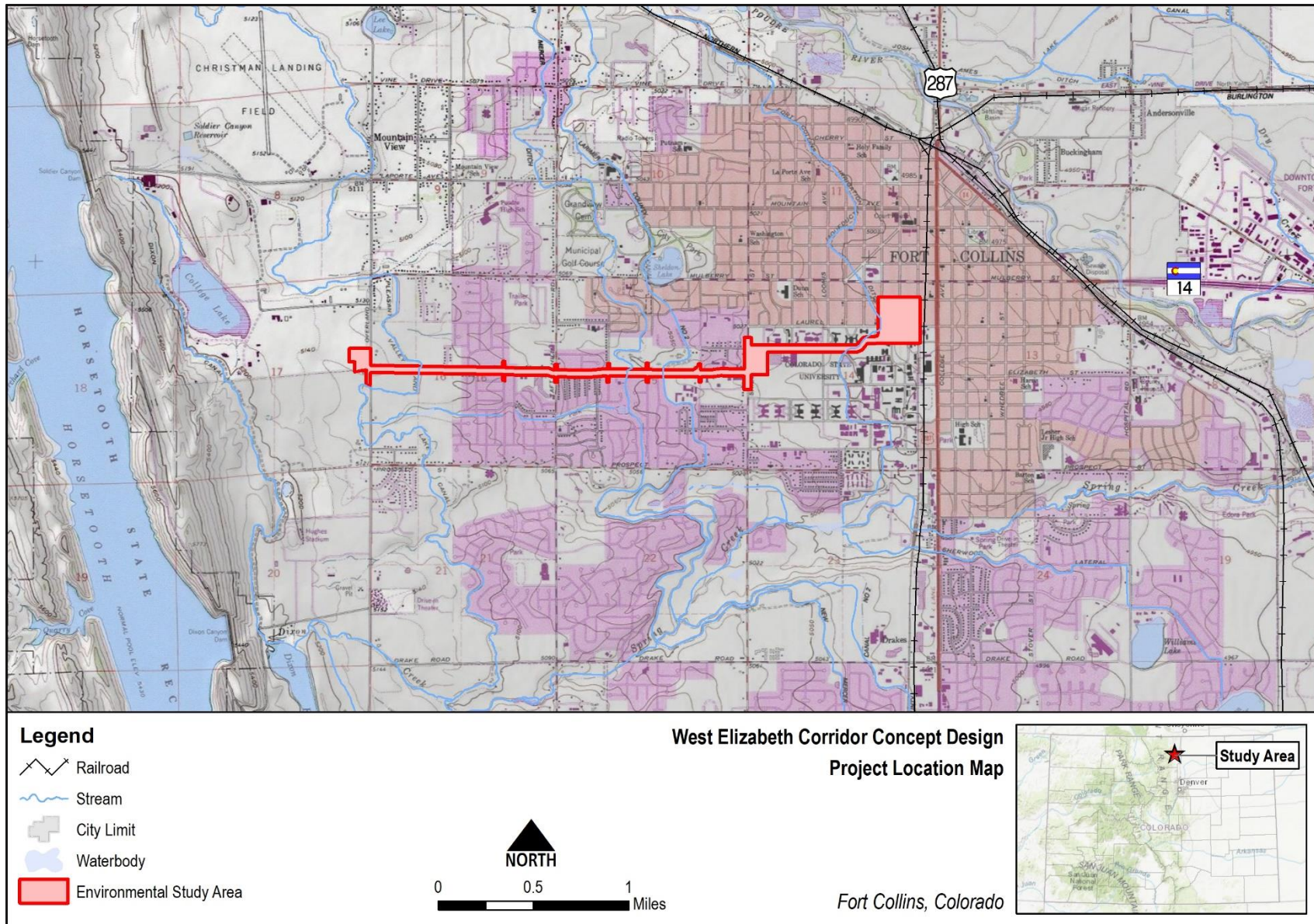
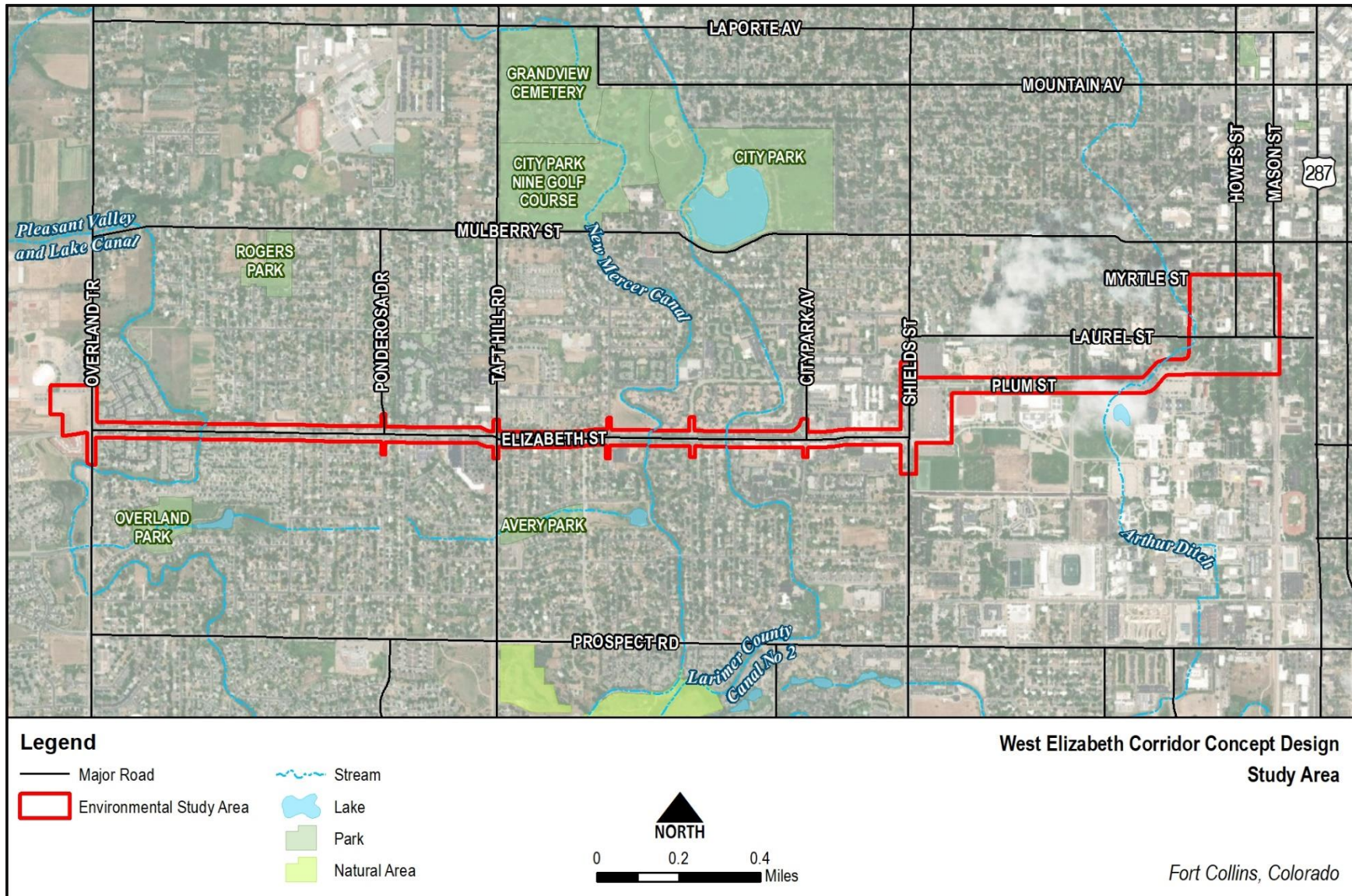


Figure 2. Environmental Study Area Map



A waters of the U.S. 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.

### 2.2 Preliminary Desktop Review

Before engaging in on-site field surveying activities, FHU staff conducted a desktop review and reviewed National Wetlands Inventory (NWI) data from the U.S. Fish and Wildlife Service (USFWS), National Hydrography Dataset (NHD) from the U.S. Geological Survey (USGS), Google Earth and historical aerial imagery, Natural Resource Conservation Service (NRCS) Web Soil Survey (NRCS, 2021), and Federal Emergency Management Agency (FEMA) floodplain data to determine the potential presence of wetlands and WUS in the environmental study area, as well as the Ecoregions of Colorado (2003).

**Figure 3** shows the NWI and NHD stream data near the environmental study area, which includes Arthur Ditch, Pleasant Valley and Lake Canal, Larimer County Canal No. 2, and New Mercer Canal. The streams flowing through the study area have been evaluated using the NWI mapper tool (USFWS, 2021), using the Cowardin classification system (Cowardin et al., 1979). The NWI identifies all of the streams within the study area as R5UBFx which indicates a *riverine system (R)* with an *unknown perennial flow (5)*, categorized in the *unconsolidated bottom class (UB)*, is *semi-permanently flooded (F)* and is excavated by humans (x).

### 2.3 Field Data Collection

In support of this wetland report, FHU staff members Amanda Cushing and Tamara Keefe performed wetland delineations on August 20, 2021. Wetlands identified in the field were documented using the latest U.S. Army Corps of Engineers (USACE) Wetland Determination Forms from the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0) (USACE, 2010).

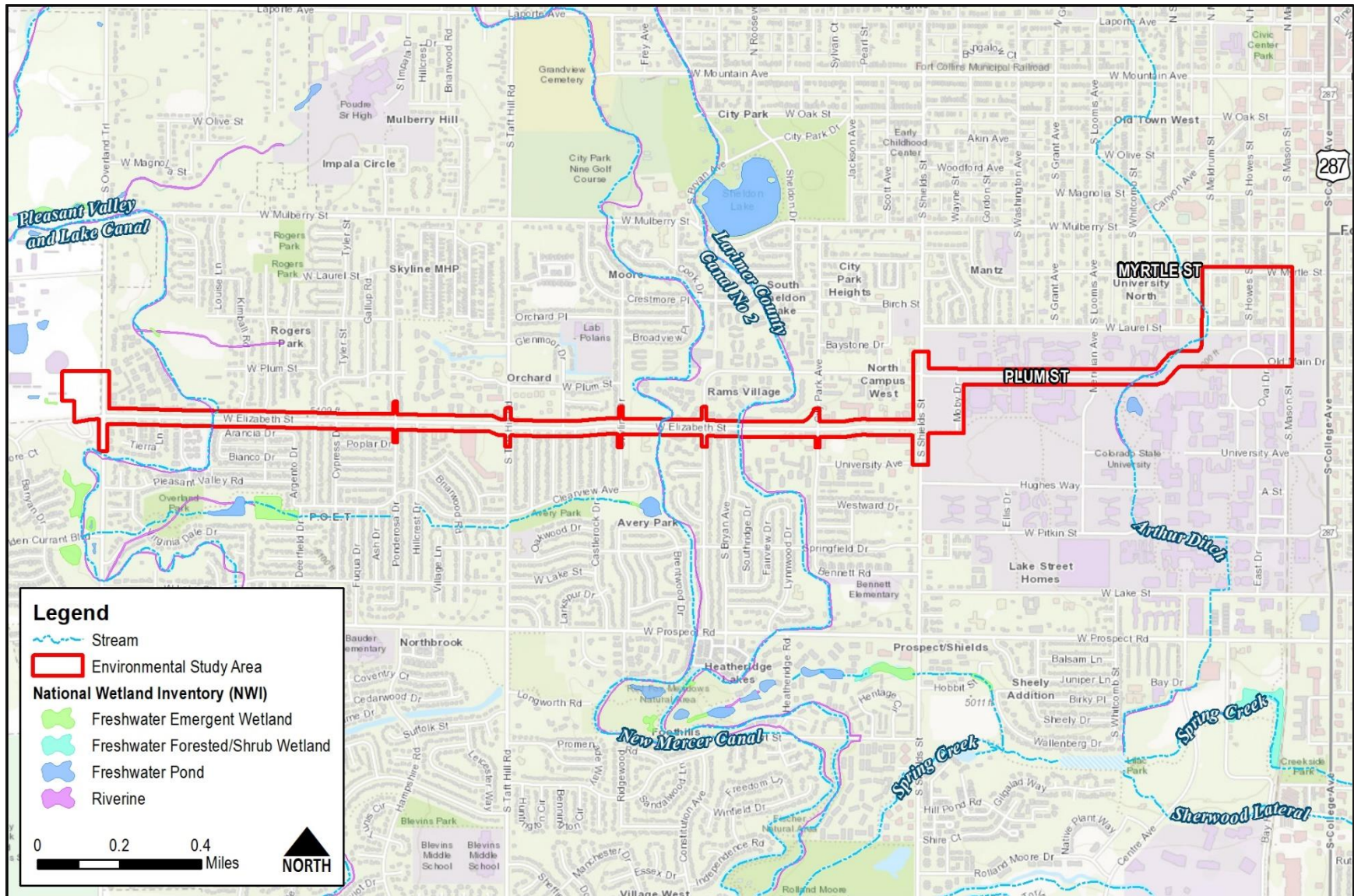
The field evaluation generally involves an assessment of vegetation, soil, and hydrology information at paired data points to determine the boundary between the wetland area and adjacent upland area. If several wetland areas were near each other and surrounded by the same or similar upland vegetation community, then an upland data point of a nearby site was used, instead of creating a new upland data point.

The site was surveyed during normal conditions of average seasonal precipitation. Additional reference materials used *during* the delineation included the Munsell Soil Color Charts (1998) and the National Wetland Plant List (USACE, 2018). A Trimble® RI GNSS Receiver paired with an Apple iPad equipped with the ESRI® Collector™ application was used to delineate wetland boundaries and the Ordinary High Water Mark (OHWM) where it was visible. FHU staff surveyed additional points in areas where wetland status was uncertain. All wetlands were delineated, regardless of potential jurisdictional status.

The Cowardin classification system (Cowardin et al., 1979) was used to classify wetlands within the study area. The Cowardin wetland types that were relevant to wetlands in the study area include palustrine emergent (PEM). PEM wetlands are characterized by erect, rooted, herbaceous hydrophytes (i.e., aquatic plants), excluding mosses and lichens (Cowardin et al. 1979).



Figure 3. USFWS National Wetlands Inventory Map



### 3.0 SITE SETTING AND CONDITION

The overall natural quality of this study area is minimal when compared to a more pristine riparian habitat with no human development. The study area has been extensively developed throughout the project corridor.

The study area lies within the Cache La Poudre watershed, part of the South Platte River Basin. This watershed is 8-digit Hydrologic Unit Code as identified by the U.S. Geological Survey's National Hydrographic Dataset (NHD). Three streams flow beneath West Elizabeth in the environmental study area, Pleasant Valley and Lake Canal, New Mercer Ditch, and Larimer County Canal No. 2; and Arthur Ditch flows beneath Plum Street in the environmental study area.

Ecoregions within the study area include Front Range Fans. The Front Range Fans ecoregion consists of soils that have more outwash gravels than regions farther east and occupy old terraces, benches, and alluvial fans. The soils are formed from materials weathered from arkosic sedimentary rock, gravelly alluvium, and redbed shales and sandstone. Land use is changing from mostly cropland and rangeland to more extensive urban development (EPA, 2006).

Wetland and upland vegetation are present within the environmental study area. Plant species observed include sandbar willow (*Salix exigua*), smooth brome (*Bromus inermis*), tall wheatgrass (*Agropyron cristatum*), Siberian elm (*Ulmus pumila*), ponderosa pine (*Pinus ponderosa*), prickly lettuce (*Lactuca serriola*), reed canarygrass (*Phalaris arundinacea*), Canada thistle (*Cirsium arvense*), leafy spurge (*Euphorbia esula*), sedge (*Carex* sp.), and Kentucky bluegrass (*Poa pratensis*).

### 4.0 RESULTS

FHU environmental scientists surveyed wetlands and other WUS on August 20, 2021 within the environmental study area. Wetland boundaries were distinct, formed by topographic, climatic, soil, and vegetative community changes. A total of six wetland determination forms were completed for the project and two wetlands were delineated totaling 0.056 acres. There were also four NHD streams located within the study area.

The wetlands and other WUS are further described in the following sections and refer to **Figure 4** for the overall locations of the surveyed wetlands and other WUS within the environmental study area, as well as a more detailed view of the surveyed wetlands. The site photographs are in **Appendix A** and the wetland determination data forms are located in **Appendix B**.

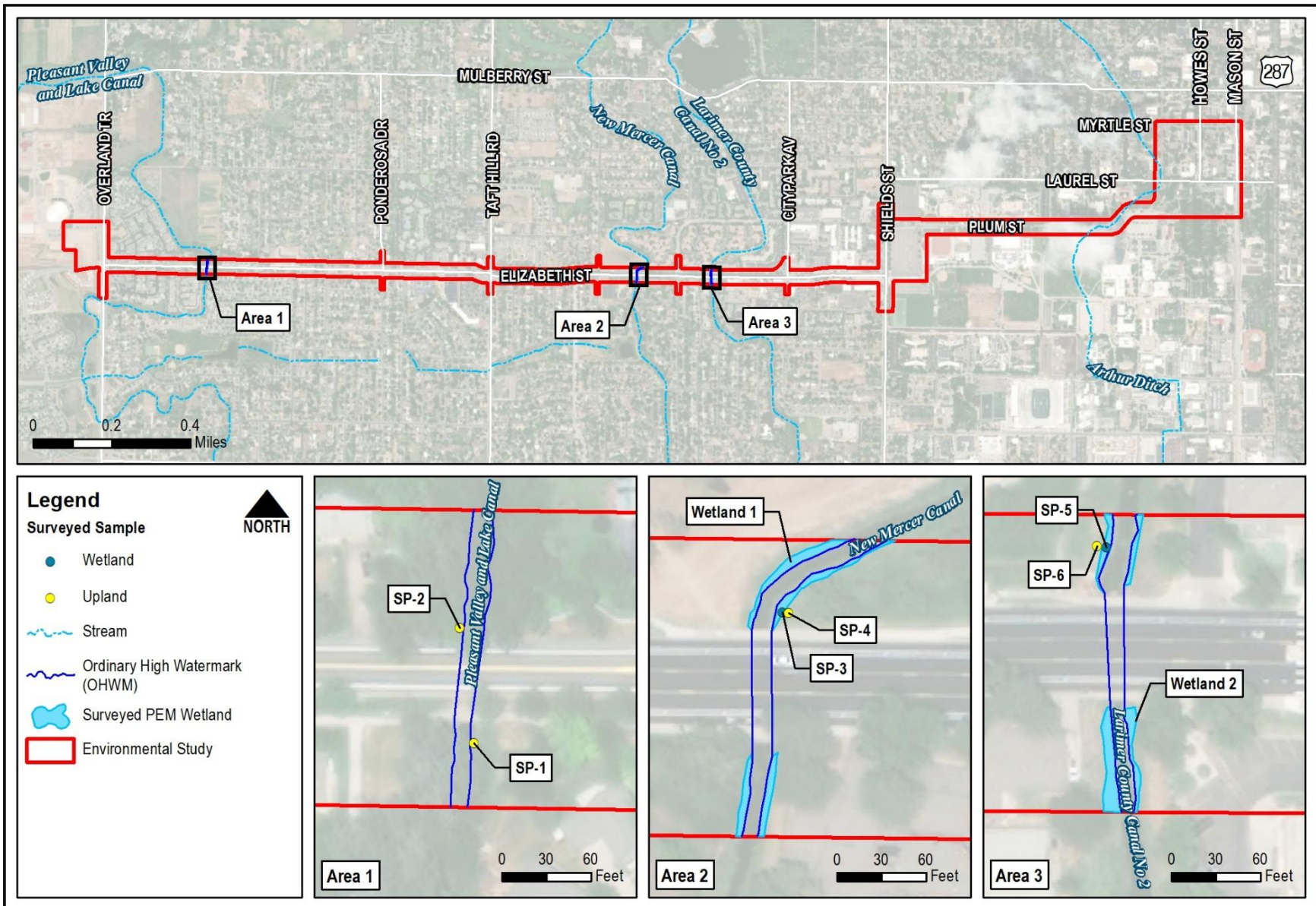
#### 4.1 Wetlands

One classification of wetland, PEM, was delineated within the environmental study area. The two wetlands in the environmental study area were dominated by reed canarygrass and sedges. **Table I** identifies the wetlands delineated in the environmental study area, the associated data forms, the size in acres, the Cowardin classification, as well as the latitude and longitude (WGS 84 datum) for each wetland area.

**Table I. Delineated Wetlands**

Wetland ID	Wetland Form	Upland Form	Area (Acres)	Square Feet (SF)	Cowardin Classification	Latitude	Longitude
1	SP-3	SP-4	0.029	1,257	PEM	40.574755	-105.107889
2	SP-5	SP-6	0.027	1,164	PEM	40.574597	-105.104402
<b>Total Wetland Acres</b>			<b>0.056 Acres (2,421 SF)</b>				

Figure 4. Surveyed Wetlands and WUS



## 1.1 Vegetation

The wetland boundaries were characterized by an abrupt transition from wetland vegetation to upland vegetation. During the field survey, dominant plant species were identified for each data form completed and compared to the National Wetland Plant List (USACE, 2018), to determine the wetland indicator status of each species identified. The National Wetland Plant List indicator ratings are as follows:

- OBL: Obligate - Almost always occurs in wetlands.
- FACW: Facultative wet - Usually occurs in wetlands but may occur in non-wetlands.
- FAC: Facultative - Occurs in wetlands and non-wetlands.
- FACU: Facultative upland - Usually occurs in non-wetlands but may occur in wetlands.
- UPL: Upland - Almost never occurs in wetlands.

Generally, if at least 50% of the dominant species had an indicator rating of FAC or wetter, then the area would be documented as having hydrophytic vegetation present. The indicator ratings are provided in the text, following the plant’s scientific name. **Table 2** lists the wetland, wetland data form, wetland type, and the dominate wetland vegetation in each stratum.

**Table 2. Wetland Vegetation**

ID	Form	Type	Tree Stratum	Sapling/Shrub Stratum	Herb Stratum
1	SP-3	PEM	-	-	Reed canarygrass ( <i>Phalaris arundinacea</i> – FACW) and Sedge ( <i>Carex sp.</i> – FACW)
2	SP-5	PEM	-	-	Reed canarygrass ( <i>Phalaris arundinacea</i> – FACW)

The upland vegetation at the upland outpoints adjacent to the wetlands consisted of smooth brome (*Bromus inermis* - UPL), Kentucky bluegrass (*Poa pratensis* - FACU), leafy spurge (*Euphorbia esula* - UPL), and prickly lettuce (*Lactuca serriola* –FAC).

## 4.2 Soils

Soil associations located within the study area were identified using the NRCS Web Soil Survey (NRCS, 2021). In general, the soils consisted of loams. Two of the soils within the study area were listed as hydric by the NRCS soil survey, including Longmont clay, 0 to 3 percent slopes and Nunn clay loam, wet, 1 to 3 percent slopes. The soil associations consisted of the following soils, including the percentage of the total study area:

- Altvan-Satanta loams, 0 to 3 percent slopes (29.26%)
- Altvan-Satanta loams, 3 to 9 percent slopes (3.21%)
- Fort Collins loam, 0 to 3 percent slopes (29.24%)
- Fort Collins loam, 3 to 5 percent slopes (8.1%)
- Longmont clay, 0 to 3 percent slopes (0.08%)
- Nunn clay loam, 1 to 3 percent slopes (23.28%)
- Nunn clay loam, wet, 1 to 3 percent slopes (6.83%)

Soils were examined by using a shovel to excavate a soil pit at each data point to determine the presence of hydric soil indicators. The Munsell Soil Color Charts (1998) was used to determine soil matrix colors

and colors for any redox features present. **Table 3** lists each of the wetlands, the soil profile, hydric soil indicator observed, and any additional remarks.

**Table 3. Wetland Soils**

ID	Form	Overall Soil Texture	Hydric Soil Indicator	Remarks
1	SP-3	Sandy clay loam	Redox Dark Surface (F6)	Adjacent to New Mercer Canal
2	SP-5	Sandy loam	Depleted Matrix (F3)	Restrictive layer of riprap at 8-inches.

The excavated soil pits generally confirmed the presence of clay loam and sandy loam in the area. The hydric soil indicators for the soils consisted of Indicator F3, Depleted Matrix and F6, Redox Dark Surface.

The soils located in the upland areas consisted of sandy loam/sandy clay loam soils, usually with a restrictive layer of riprap or hard compact soil at a depth of 3 to 8-inches. None of the upland soils displayed any hydric soil indicators.

### 4.3 Hydrology

The primary source of hydrology for the wetlands included seasonal saturation from overflow of the nearby water resources including New Mercer Canal and Larimer County Canal No. 2, as well as stormwater run-off from the adjacent roadways and normal participation events. **Table 4** lists the primary and secondary wetland hydrology indicators for each wetland.

**Table 4. Wetland Hydrology**

ID	Form	Primary Hydrology Indicator	Secondary Hydrology Indicator
1	SP-3	Saturation (A3)	Geomorphic Position (D2) and FAC-Neutral Test (D5)
2	SP-5	-	Geomorphic Position (D2) and FAC-Neutral Test (D5)

The primary source of hydrology for Wetland 1, which is located along the New Mercer Canal (see **Figure 4**), is likely provided by normal precipitation, stormwater run-off, and the intermittent flows of New Mercer Canal. At the time of the survey there was no surface water or water table present within the wetland, however the soils were saturated within 4-inches of the surface.

Wetland 2 is located along Larimer County Canal No. 2 (see **Figure 4**) and the primary source of hydrology is normal precipitation, stormwater run-off, and the intermittent flows of Larimer County Canal No. 2. At the time of the survey there was no surface water or water table present within the wetland and the soils were not saturated.

### 4.4 Other Waters of the U.S.

The following NHD streams are found within the environmental study area:

- Pleasant Valley and Lake Canal:** This canal crosses the study area under West Elizabeth approximately 0.25 miles east of Overland Trail (see **Figure 4**). There is a 14-ft span box culvert that allows the water to flow underneath West Elizabeth. There was a defined channel and the OHWM was delineated. The channel was approximately 10-feet wide and 1 to 2-feet deep of flowing or standing water present at the time of the survey.

- **New Mercer Canal:** The canal crosses the study area under West Elizabeth approximately 0.10 miles east of Skyline Drive (see **Figure 4**). There is a 16-ft span bridge that allows the water to flow underneath West Elizabeth. There was a defined channel and the OHWM was delineated. The channel was approximately 5 to 10-feet wide and 1 to 2-feet deep of flowing or standing water present at the time of the survey.
- **Larimer County Canal No. 2:** The canal crosses West Elizabeth at approximately 0.08 miles east of Constitution Avenue (see **Figure 4**). A single 20-ft span bridge allows the water to flow underneath West Elizabeth. The channel was approximately 12-feet wide and 0.5 to 1.5-feet deep with flowing or standing water present at the time of the survey.
- **Arthur Ditch:** Arthur Ditch crosses the study area under Plum Street approximately 0.11 miles east of Meridian Avenue (see **Figure 4**). A box culvert allows the water to flow underneath Plum Street. Arthur Ditch does not daylight within the study area. Outside of the study area on the south side of Plum Street, the channel was approximately 10 to 15-feet wide and 1 to 2-feet deep with flowing water present at the time of the survey.

## 5.0 SUMMARY AND RECOMMENDATIONS

In order for a water resource to be considered a WUS, and jurisdictional under the CWA Section 404, it must be either a Traditional Navigable Water (TNW); a relatively permanent water (RPW) that flows directly or indirectly into a TNW; a wetland directly abutting an RPW that flows directly or indirectly into a TNW; or a wetland adjacent to a TNW (USACE, 2007). Pleasant Valley and Lake Canal, New Mercer Canal, Larimer County Canal No. 2, and Arthur Ditch are likely to be considered RPWs. Wetlands identified during the 2021 delineation, directly abutting or connected to the RPWs would likely be considered jurisdictional as well. **Table 5** shows the likely jurisdictional status of the wetlands found in this delineation.

**Table 5. Likely Jurisdictional Status of Wetlands**

Wetland ID	Existing Area Acres (SF)	Jurisdictional Status	Remarks
1	0.01 (560 SF)	Likely Jurisdictional	Adjacent to New Mercer Canal
2	0.02 (1,031 SF)	Likely Jurisdictional	Adjacent to Larimer County Canal No. 2

### 5.1 Impacts and Mitigation to Jurisdictional Wetlands

Once final impacts are determined and depending on the extent of wetland impacts, this project will likely require a Section 404 Permit for construction at Pleasant Valley and Lake Canal, New Mercer Canal, and Larimer County Canal No. 2. The project team will coordinate with the USACE to identify mitigation strategies related to wetland impacts if necessary. These strategies may include on-site mitigation, off-site mitigation, purchase of wetland bank credits, or use of a separate strategy approved by the USACE. Once design progresses to a point where impacts can be calculated, FHU staff will analyze total quantities of stream and wetland temporary and permanent impacts. As the design progresses, these impacts may be refined to minimize and avoid streams and wetlands to the extent possible.

## 6.0 CONCLUSIONS

This technical report summarizes FHU’s delineation of WUS, including wetlands in support of the West Elizabeth project. Based on the information provided in this report, there are two wetlands, with a total of 0.056 acres, delineated within the study area. Should the proposed project be subject to design

## Wetland Delineation Technical Report

alteration, additional wetland delineation efforts may be required. The construction of the proposed action will require permitting under Section 404 of the CWA. Any Section 404 permits will be acquired from the USACE prior to construction activities occurring.

Once project design has progressed to a level capable of identifying final impacts, the appropriate documentation will be provided and will need to include the following documents:

- Appropriate permitting under Section 404 of the CWA; and
- Appropriate revegetation plans that include appropriate plantings for wetland areas.

## 7.0 REFERENCES

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.

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## APPENDIX A. SITE PHOTOGRAPHS



Wetland Delineation Technical Report



**Photo 1:**

August 20, 2021

Pleasant Valley and Lake Canal

(Located on the north side of West Elizabeth,  
north side of box culvert, facing north)



**Photo 2:**

August 20, 2021

Pleasant Valley and Lake Canal

(Located on the south side of West Elizabeth,  
south side of box culvert, facing south)



**Photo 3:**

August 20, 2021

Wetland I and New Mercer Canal

(Located along New Mercer Canal on the north  
side of West Elizabeth, facing west)



**Photo 4:**

August 20, 2021

Wetland I and New Mercer Canal

(Located on the south side of West Elizabeth,  
facing south)

# Wetland Delineation Technical Report



**Photo 5:**

August 20, 2021

Wetland 2 and Larimer County Canal No. 2  
(Located on the north side of West Elizabeth,  
facing north)



**Photo 6:**

August 20, 2021

Wetland 2 and Larimer County Canal No. 2  
(Located on the south side of West Elizabeth,  
facing south)



**Photo 7:**

August 20, 2021

Arthur Ditch

(Located just outside of the Study Area on the  
south side of Plum Street/CSU)



**Photo 8:**

August 20, 2021

Arthur Ditch

(Located just outside of the Study Area on the  
south side of Plum Street/CSU)

APPENDIX B. WETLAND DETERMINATION DATA  
FORMS

**WETLAND DETERMINATION DATA FORM - Great Plains Region**

Project/Site: West Elizabeth City/County: Fort Collins Sampling Date: 8-20-2021  
 Applicant/Owner: City of Fort Collins State: Colorado Sampling Point: SP-1  
 Investigator(s): T. Keefe, A. Cushing Section, Township, Range: Sec. 16, T 7 N, R 69 W  
 Landform (hillslope, terrace, etc.): channel bank Local relief (concave, convex, none): Concave Slope (%): 0-3  
 Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 40.57479377 Long: -105.1288225 Datum: NAD 83  
 Soil Map Unit Name: Altvan-Satanta loams, 0 to 3 percent slopes NWI classification: R5UBFx

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? <u>    N    </u> Hydric Soil Present? <u>    N    </u> Indicators of Wetland Hydrology Present? <u>    N    </u>	<b>Is the Sampled Area Within a Wetland?</b> <u>    N    </u> If yes, optional wetland site ID: _____
--	--

Remarks:

Located on the south side of West Elizabeth, east side of Pleasant Valley and Lake Canal.

**VEGETATION -- Use scientific names of plants.**

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____					Number of Dominant Species that are OBL, FACW, or FAC: <u>    1    </u> (A) Total Number of Dominant Species Across all Strata: <u>    3    </u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>  33.33%  </u> (A/B)
2 _____					
3 _____					
4 _____					
5 _____					
		<u>    0    </u> = Total Cover			
Sapling/Shrub Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 <u>Salix exigua</u>		<u>  70  </u>	<u>  Y  </u>	<u>  FACW  </u>	Total % Cover of:      Multiply by: OBL species <u>    0    </u> x 1 = <u>    0    </u> FACW species <u>   70   </u> x 2 = <u>  140  </u> FAC species <u>    0    </u> x 3 = <u>    0    </u> FACU species <u>    0    </u> x 4 = <u>    0    </u> UPL species <u>   50   </u> x 5 = <u>  250  </u> Column totals <u>  120  </u> (A) <u>  390  </u> (B) Prevalence Index = B/A = <u>   3.25  </u>
2 _____					
3 _____					
4 _____					
5 _____					
		<u>   70   </u> = Total Cover			
Herb Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 <u>Bromus inermis</u>		<u>   30   </u>	<u>  Y  </u>	<u>  UPL  </u>	<u>    </u> 1 - Rapid Test for Hydrophytic Vegetation <u>    </u> 2 - Dominance Test is >50% <u>    </u> 3 - Prevalence Index is ≤3.0 <sup>1</sup>  <u>    </u> 4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
2 <u>Agropyron cristatum</u>		<u>   20   </u>	<u>  Y  </u>	<u>  UPL  </u>	
3 _____					
4 _____					
5 _____					
6 _____					
7 _____					
8 _____					
9 _____					
10 _____					
		<u>   50   </u> = Total Cover			
Woody Vine Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Present?</b>
1 _____					<u>    N    </u>
2 _____					
		<u>    0    </u> = Total Cover			
% Bare Ground in Herb Stratum _____					

Remarks:

**SOIL**

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	10YR 4/2	100					Sandy loam	
1-4	10YR 4/2	80					Sandy clay loam	
	10YR 5/3	20						
4-6	10YR 5/3	90					Sandy clay	
	10YR 4/2	10						

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: <u>Hard compact soil</u> Depth (inches): <u>6"</u>	<b>Hydric Soil Present?</b> <u>N</u>
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) ( <b>where not tilled</b> )
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

<b>Field Observations:</b>	<b>Indicators of Wetland Hydrology Present?</b> <u>N</u>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	

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

Remarks:

**WETLAND DETERMINATION DATA FORM - Great Plains Region**

Project/Site: West Elizabeth City/County: Fort Collins Sampling Date: 8-20-2021  
 Applicant/Owner: City of Fort Collins State: Colorado Sampling Point: SP-2  
 Investigator(s): T. Keefe, A. Cushing Section, Township, Range: Sec. 16, T 7 N, R 69 W  
 Landform (hillslope, terrace, etc.): channel bank Local relief (concave, convex, none): Concave Slope (%): 0-3  
 Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 40.57500594 Long: -105.1288557 Datum: NAD 83  
 Soil Map Unit Name: Altvan-Satanta loams, 0 to 3 percent slopes NWI classification: R5UBFx

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? <u>    N    </u> Hydric Soil Present? <u>    N    </u> Indicators of Wetland Hydrology Present? <u>    N    </u>	<b>Is the Sampled Area Within a Wetland?</b> <u>    N    </u> If yes, optional wetland site ID: _____
--	--

Remarks:  
  
 Located on the north side of West Elizabeth, west side of Pleasant Valley and Lake Canal.

**VEGETATION -- Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 <u><i>Ulmus pumila</i></u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	Number of Dominant Species that are OBL, FACW, or FAC: <u>    0    </u> (A)	
2 <u><i>Pinus ponderosa</i></u>	<u>20</u>	<u>Y</u>	<u>UPL</u>	Total Number of Dominant Species Across all Strata: <u>    6    </u> (B)	
3 _____				Percent of Dominant Species that are OBL, FACW, or FAC: <u>    0.00%    </u> (A/B)	
4 _____					
5 _____					
<u>50</u> = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>	
1 <u><i>Ribes aureum</i></u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	Total % Cover of:	Multiply by:
2 <u><i>Prunus virginiana</i></u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	OBL species <u>    0    </u> x 1 = <u>    0    </u>	
3 _____				FACW species <u>    0    </u> x 2 = <u>    0    </u>	
4 _____				FAC species <u>    0    </u> x 3 = <u>    0    </u>	
5 _____				FACU species <u>    50    </u> x 4 = <u>    200    </u>	
<u>40</u> = Total Cover				UPL species <u>    80    </u> x 5 = <u>    400    </u>	
				Column totals <u>    130    </u> (A) <u>    600    </u> (B)	
				Prevalence Index = B/A = <u>    4.62    </u>	
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>	
1 <u><i>Bromus inermis</i></u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	_____ 1 - Rapid Test for Hydrophytic Vegetation	
2 <u><i>Hackelia virginiana</i></u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	_____ 2 - Dominance Test is >50%	
3 _____				_____ 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
4 _____				_____ 4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
5 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
6 _____					
7 _____					
8 _____					
9 _____					
10 _____					
<u>40</u> = Total Cover					
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status		
1 _____					
2 _____					
<u>0</u> = Total Cover					
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> <u>    N    </u>	

Remarks:

**SOIL**

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	10YR 3/2	100					Sandy loam	
1-3	10YR 4/2	100					Sandy loam	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> (LRR G, H)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)			

<b>Restrictive Layer (if observed):</b> Type: <u>Riprap</u> Depth (inches): <u>3"</u>	<b>Hydric Soil Present?</b> <u>N</u>
Remarks:  Unable to get a full soil profile.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living	<input type="checkbox"/> Roots (C3) ( <b>where tilled</b> )
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Roots (C3) ( <b>where not tilled</b> )	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

<b>Field Observations:</b>		<b>Indicators of Wetland Hydrology Present?</b> <u>N</u>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		

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

Remarks:

**WETLAND DETERMINATION DATA FORM - Great Plains Region**

Project/Site: West Elizabeth City/County: Fort Collins Sampling Date: 8-20-2021  
 Applicant/Owner: City of Fort Collins State: Colorado Sampling Point: SP-3  
 Investigator(s): T. Keefe, A. Cushing Section, Township, Range: Sec. 15, T 7 N, R 69 W  
 Landform (hillslope, terrace, etc.): channel bank Local relief (concave, convex, none): Concave Slope (%): 0-3  
 Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 40.57479114 Long: -105.1079586 Datum: NAD 83  
 Soil Map Unit Name: Altvan-Satanta loams, 0 to 3 percent slopes NWI classification: R5UBFx

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? <u>Y</u> Hydric Soil Present? <u>Y</u> Indicators of Wetland Hydrology Present? <u>Y</u>	<b>Is the Sampled Area Within a Wetland?</b> <u>Y</u> If yes, optional wetland site ID: _____
--	--

Remarks:  
  
 Located on the north side of West Elizabeth, east side of New Mercer Canal.

**VEGETATION -- Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index Worksheet</b> Total % Cover of: Multiply by: OBL species <u>35</u> x 1 = <u>35</u> FACW species <u>60</u> x 2 = <u>120</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>3</u> x 4 = <u>12</u> UPL species <u>2</u> x 5 = <u>10</u> Column totals <u>100</u> (A) <u>177</u> (B) Prevalence Index = B/A = <u>1.77</u>
Sapling/Shrub Stratum (Plot size: _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot size: _____)				
1 <u>Phalaris arundinacea</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	
2 <u>Carex nebrascensis</u>	<u>35</u>	<u>Y</u>	<u>OBL</u>	
3 <u>Cirsium arvense</u>	<u>3</u>	<u>N</u>	<u>FACU</u>	
4 <u>Euphorbia esula</u>	<u>2</u>	<u>N</u>	<u>UPL</u>	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum _____				
<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
<b>Hydrophytic Vegetation Present?</b> <u>Y</u>				

Remarks:



**SOIL**

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 3/1	100					Sandy loam	
2-5	10YR 3/1	95	10YR 4/6	5	C	M	Sandy clay loam	
5-18	10YR 3/2	85	10YR 4/6	15	C	M	Sandy clay loam	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)		

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> <u>Y</u>
Remarks: _____	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living	<input type="checkbox"/> Roots (C3) ( <b>where tilled</b> )
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Roots (C3) ( <b>where not tilled</b> )	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

<b>Field Observations:</b>		<b>Indicators of Wetland Hydrology Present?</b> <u>Y</u>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u>		
(includes capillary fringe)		

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

Remarks: \_\_\_\_\_

**WETLAND DETERMINATION DATA FORM - Great Plains Region**

Project/Site: West Elizabeth City/County: Fort Collins Sampling Date: 8-20-2021  
 Applicant/Owner: City of Fort Collins State: Colorado Sampling Point: SP-4  
 Investigator(s): T. Keefe, A. Cushing Section, Township, Range: Sec. 15, T 7 N, R 69 W  
 Landform (hillslope, terrace, etc.): sideslope Local relief (concave, convex, none): Convex Slope (%): 0-3  
 Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 40.57479046 Long: -105.1079435 Datum: NAD 83  
 Soil Map Unit Name: Altvan-Satanta loams, 0 to 3 percent slopes NWI classification: R5UBFx

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? <u>N</u> Hydric Soil Present? <u>N</u> Indicators of Wetland Hydrology Present? <u>N</u>	<b>Is the Sampled Area Within a Wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
--	--

Remarks:  
  
 Located on the north side of West Elizabeth, east side of New Mercer Canal.

**VEGETATION -- Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
<u>0</u> = Total Cover					
<b>Sapling/Shrub Stratum (Plot size: _____)</b>					
1 _____	_____	_____	_____	<b>Prevalence Index Worksheet</b>	
2 _____	_____	_____	_____	Total % Cover of: Multiply by:	
3 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
4 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
5 _____	_____	_____	_____	FAC species <u>2</u> x 3 = <u>6</u>	
	_____	_____	_____	FACU species <u>76</u> x 4 = <u>304</u>	
	_____	_____	_____	UPL species <u>22</u> x 5 = <u>110</u>	
	_____	_____	_____	Column totals <u>100</u> (A) <u>420</u> (B)	
	_____	_____	_____	Prevalence Index = B/A = <u>4.20</u>	
<u>0</u> = Total Cover					
<b>Herb Stratum (Plot size: _____)</b>					
1 <u>Poa pratensis</u>	<u>73</u>	<u>Y</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b> _____ 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 <sup>1</sup>  4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
2 <u>Bromus inermis</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>		
3 <u>Cirsium arvense</u>	<u>3</u>	<u>N</u>	<u>FACU</u>		
4 <u>Euphorbia esula</u>	<u>2</u>	<u>N</u>	<u>UPL</u>		
5 <u>Lactuca serriola</u>	<u>2</u>	<u>N</u>	<u>FAC</u>		
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
<u>100</u> = Total Cover					
<b>Woody Vine Stratum (Plot size: _____)</b>					
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
<u>0</u> = Total Cover					
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> <u>N</u>	

Remarks:

**SOIL**

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	10YR 3/3	100					Sandy loam	
1-8	10YR 4/3	100					Sandy clay loam	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)		

<b>Restrictive Layer (if observed):</b> Type: <u>Hard compact soil</u> Depth (inches): <u>8"</u>	<b>Hydric Soil Present?</b> <u>N</u>
Remarks:	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) ( <b>where not tilled</b> )
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) ( <b>where tilled</b> )
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

<b>Field Observations:</b>	<b>Indicators of Wetland Hydrology Present?</b> <u>N</u>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X Depth (inches): _____ (includes capillary fringe)	

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

Remarks:

**WETLAND DETERMINATION DATA FORM - Great Plains Region**

Project/Site: West Elizabeth City/County: Fort Collins Sampling Date: 8-20-2021  
 Applicant/Owner: City of Fort Collins State: Colorado Sampling Point: SP-5  
 Investigator(s): T. Keefe, A. Cushing Section, Township, Range: Sec. 15, T 7 N, R 69 W  
 Landform (hillslope, terrace, etc.): channel bank Local relief (concave, convex, none): Concave Slope (%): 0-3  
 Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 40.57481038 Long: -105.1044451 Datum: NAD 83  
 Soil Map Unit Name: Altvan-Satanta loams, 0 to 3 percent slopes NWI classification: R5UBFx

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? <u>Y</u> Hydric Soil Present? <u>Y</u> Indicators of Wetland Hydrology Present? <u>Y</u>	<b>Is the Sampled Area Within a Wetland?</b> <u>Y</u> If yes, optional wetland site ID: _____
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Remarks:  
  
 Located on the north side of West Elizabeth, west side of Larimer County Canal No. 2.

**VEGETATION -- Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index Worksheet</b>
Sapling/Shrub Stratum (Plot size: _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
Herb Stratum (Plot size: _____)				
1 <u>Phalaris arundinacea</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	<u>UPL</u>	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum _____				
<b>Hydrophytic Vegetation Indicators:</b>				
<u>X</u> 1 - Rapid Test for Hydrophytic Vegetation				
<u>X</u> 2 - Dominance Test is >50%				
<u>X</u> 3 - Prevalence Index is ≤3.0 <sup>1</sup>				
4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)				
Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) _____				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic				
<b>Hydrophytic Vegetation Present?</b> <u>Y</u>				

Remarks:

**SOIL**

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	10YR 2/1	100					Organic muck	
2-4	10YR 4/2	100					Sandy loam	
4-8	10YR 4/2	95	10YR 5/6	5	C	M	Sandy loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	

<b>Restrictive Layer (if observed):</b> Type: <u>Riprap</u> Depth (inches): <u>8"</u>	<b>Hydric Soil Present?</b> <u>Y</u>
Remarks:	

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Roots (C3) ( <b>where tilled</b> )
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>8"</u> (includes capillary fringe)	<b>Indicators of Wetland Hydrology Present?</b> <u>Y</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Great Plains Region**

Project/Site: West Elizabeth City/County: Fort Collins Sampling Date: 8-20-2021  
 Applicant/Owner: City of Fort Collins State: Colorado Sampling Point: SP-6  
 Investigator(s): T. Keefe, A. Cushing Section, Township, Range: Sec. 15, T 7 N, R 69 W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Sideslope \_\_\_\_\_ Local relief (concave, convex, none): Convex Slope (%): 0-3  
 Subregion (LRR): G-Western Great Plains Range & Irrigated Lat: 40.57481234 Long: -105.1044678 Datum: NAD 83  
 Soil Map Unit Name: Altvan-Satanta loams, 0 to 3 percent slopes NWI classification: R5UBFx

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? <u>    N    </u> Hydric Soil Present? <u>    N    </u> Indicators of Wetland Hydrology Present? <u>    N    </u>	<b>Is the Sampled Area Within a Wetland?</b> <u>    N    </u> If yes, optional wetland site ID: _____
--	--

Remarks:

Located on the north side of West Elizabeth, west side of Larimer County Canal No. 2.

**VEGETATION -- Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>    0    </u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>    1    </u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>    0.00%    </u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
<u>    0    </u> = Total Cover					
Sapling/Shrub Stratum (Plot size: _____)				<b>Prevalence Index Worksheet</b>	
1 _____	_____	_____	_____	Total % Cover of: Multiply by:	
2 _____	_____	_____	_____	OBL species <u>    0    </u> x 1 = <u>    0    </u>	
3 _____	_____	_____	_____	FACW species <u>    0    </u> x 2 = <u>    0    </u>	
4 _____	_____	_____	_____	FAC species <u>    5    </u> x 3 = <u>    15    </u>	
5 _____	_____	_____	_____	FACU species <u>   10   </u> x 4 = <u>   40   </u>	
<u>    0    </u> = Total Cover				UPL species <u>   85   </u> x 5 = <u>  425  </u>	
<u>   100   </u> = Total Cover				Column totals <u>   100   </u> (A) <u>   480   </u> (B)	
<u>   100   </u> = Total Cover				Prevalence Index = B/A = <u>   4.80   </u>	
Herb Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1 <u>Bromus inermis</u>	<u>80</u>	<u>Y</u>	<u>UPL</u>	___ 1 - Rapid Test for Hydrophytic Vegetation	
2 <u>Cirsium arvense</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	___ 2 - Dominance Test is >50%	
3 <u>Lactuca serriola</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
4 <u>Euphorbia esula</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	___ 4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
<u>   100   </u> = Total Cover					
Woody Vine Stratum (Plot size: _____)					
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
<u>    0    </u> = Total Cover					
% Bare Ground in Herb Stratum _____				<b>Hydrophytic Vegetation Present?</b> <u>    N    </u>	

Remarks:

**SOIL**

Sampling Point: SP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 4/3	100					Sandy clay loam	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2)	<input type="checkbox"/> High Plains Depressions (F16)		
<input type="checkbox"/> (LRR G, H)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: <u>Hard compact soil</u> Depth (inches): <u>4"</u>	<b>Hydric Soil Present?</b> <u>N</u>
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Remarks:  
  
Unable to get a full soil profile.

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living	<input type="checkbox"/> Roots (C3) ( <b>where tilled</b> )
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Roots (C3) ( <b>where not tilled</b> )	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

<b>Field Observations:</b>		<b>Indicators of Wetland Hydrology Present?</b> <u>N</u>
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	

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

Remarks: