WETLAND DELINEATION REPORT
FOR THE
VALLEY HIGHWAY EIS
DENVER, COLORADO

Prepared for:

Federal Highway Administration
Colorado Department of Transportation

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1.0 BACKGROUND/INTRODUCTION

The Colorado Department of Transportation (CDOT) is evaluating potential improvements to the Interstate 25 (I-25) corridor between Logan Street and the 6th Avenue Interchange (the project). The project may include a number of improvements and alterations of the current roadway system. This could include features such as additional lanes, replacement of existing road and utility infrastructure, and the restructuring of interchanges along the length of I-25. An Environmental Impact Statement (EIS) is being prepared for this proposed project in accordance with the National Environmental Policy Act (NEPA) and U.S. Federal Highway (FHWA) regulations. While the project alternatives have not yet been established, a portion of I-25 is adjacent to the South Platte River corridor and the project area has several bridge and fly-over structures that may be reconstructed or modified. Therefore, possible direct impacts to wetlands and streams such as dewatering, the placement of structures within wetland areas, or the possible dredging of fill material must be carefully considered. In addition, there may be indirect effects such as shading or hydrologic modifications to the river corridor.

In order to evaluate alternatives and identify the least environmentally damaging alternative, numerous studies are performed as part of the EIS, including identifying and mapping wetlands and open water, which are considered valuable natural resources. The purpose of mapping wetlands and open water is to define the boundaries of these resources to quantify potential impacts and to provide a better understanding of factors that influence wetlands, the ultimate goal being to provide a basis for analysis of the potential impacts of the project on the wetlands and wetland hydrology.

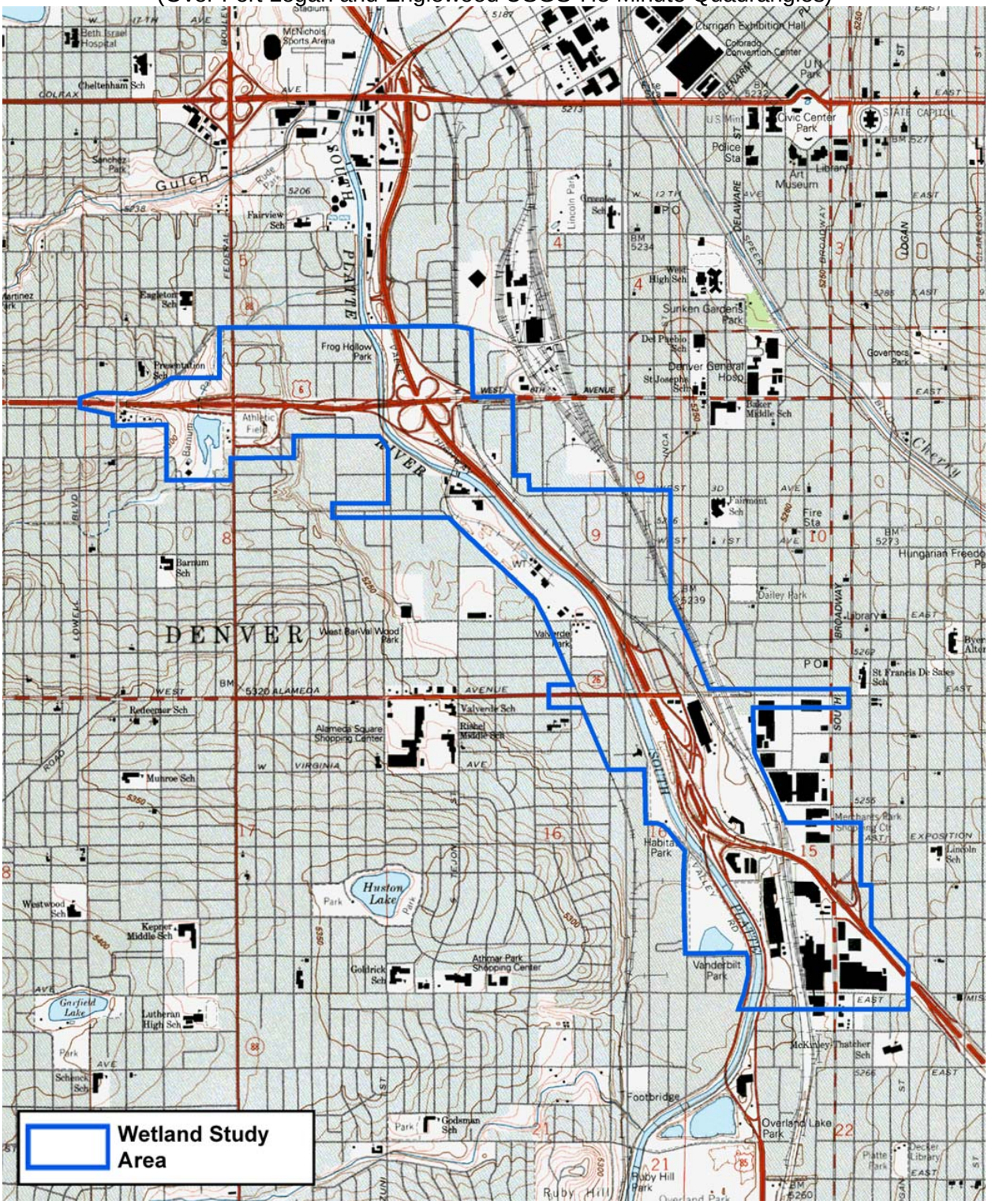
1.1 Description of the Study Area

The area examined for wetlands and open water for the proposed project is located within the South Platte Valley in a highly urbanized portion of Metro Denver. Figure 1 depicts the study area on USGS 7.5 Minute Topographical Quadrangle mapping (Fort Logan and Englewood Quadrangles). It is bisected from south to north by the South Platte River. The I-25 corridor runs primarily parallel to the South Platte River through the project area. Barnum Park Lake, fed by Weir Gulch, is present in the northwestern corner of the study area. Vanderbilt Lake is present in the south end of the study area. Current land uses of the area are varied, with commercial activity and public right-of-way for roads dominating the study area.

Vegetated areas in the study area are primarily restricted to parks, highway right-of-way, and the South Platte River. Riparian vegetation is limited to the banks of the South Platte River, Vanderbilt Lake, Barnum Park Lake, and a small detention pond. The U.S. Army Corps of Engineers (Corps), in partnership with local governmental entities, have channelized the South Platte River over the past 50 years in response to flood events that frequently damaged areas in the South Platte Valley. The last major flood was in 1965; it caused extensive damage and spurred construction of Chatfield Dam, about 7 miles upstream from the project on the South Platte River.

Figure 1 Wetland Study Area

(Over Fort Logan and Englewood USGS 7.5 Minute Quadrangles)



1.2 Applicable Regulations and Guidance

This section briefly describes the applicable regulations and guidance for this project. Definitions of important terms are also presented.

In recognition of the ecological value of wetlands and open water, the Federal government has issued two pieces of legislation relevant to the proposed project. The first, the Clean Water Act (CWA), gives the Corps regulatory authority over the discharge of dredged or fill material into waters of the U.S. Waters of the U.S. include essentially all surface waters, such as all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. The definition of waters of the U.S. under Corps jurisdiction does not include wetlands that do not have a surface connection to, and that are therefore isolated from, regulated waters. In projects with Federal funding or oversight, including the proposed project, the second piece of legislation, Executive Order 11990 Protection of Wetlands, protects isolated wetlands by directing the lead agency, in this case FHWA, to avoid direct or indirect support of construction in wetlands wherever there is a practicable alternative.

In order to standardize methods used to determine the presence of wetlands, the Corps requires the use of its 1987 U.S. Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). The manual defines wetlands as “those areas that are inundated or saturated by surface or ground water 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.”

According to the Corps delineation manual, wetlands have the following three environmental characteristics:

1. Prevalence of wetland vegetation
2. Wetland hydrology
3. Hydric soils.

Wetland, or hydrophytic, vegetation is composed of plants that are adapted to, or tolerant of, wet environments. In simpler terms, they are plants that are able to become established, grow, and reproduce in wet areas. Determinations of hydrophytic vegetation indicator status are based on listings as they appear in Reed (1988) and include the following categories:

- Obligate (OBL) – Plants that almost always (>99% probability) occur in wetlands.
- Facultative Wet (FACW) – Plants that usually (>67% probability) occur in wetlands.
- Facultative (FAC) – Plants that are equally likely (34%-66% probability) to occur in wetland or upland habitat.
- Facultative Upland (FACU) – Plants that usually (67%-99% probability) occur in upland habitat.
- Obligate Upland (UPL) – Plant species that, under natural conditions, almost always (>99% probability) occur in upland habitat.
- No Indicator (NI) – Plant species for which no indicator is available. These are often plants typically found in uplands.

Vegetation is considered hydophytic if more than 50 percent of the species present are facultative or wetter.

Wetland hydrology is present in areas where water has an overriding influence on characteristics of vegetation and soils. These characteristics are commonly found in areas that are inundated or that have saturated soils continuously for at least 5% of the growing season in most years. For the Denver Metropolitan area, an area can be considered to have wetland hydrology if it is inundated or saturated for as few as 5 consecutive days during the growing season.

Hydric soils are soils that contain enough water during the growing season to allow anaerobic conditions and characteristics to develop in the upper layer of the soil. In order for a soil to be considered a hydric soil three critical factors must exist: 1) saturation, 2) reduction, and 3) redoximorphic features (Welsch et. al. 1995)

The landward regulatory limit for jurisdictional waters of the U.S. (in the absence of adjacent wetlands) is the ordinary high water mark (OHWM). The OHWM is the line on the shores of lakes and streams established by the fluctuations of water and indicated by physical characteristics such as: a clear natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas.

2.0 WETLANDS AND WATERS OF THE U.S.

Wetlands and waters of the U.S. in the study area were identified, mapped, and described by biologists trained in wetland delineation. The biologists have extensive experience delineating wetlands in urban settings and used methods that are accepted by the Denver Regulatory Office of the Corps.

2.1 Methods

Wetlands and open water in the study area were delineated according to U.S. Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). Wetland resources were located and mapped as described later in this section.

2.1.1 Review of Previous Studies

Before starting the field studies, biologists collected and reviewed previous studies conducted in the area. The studies included National Wetland Inventory Mapping and Natural Resource Conservation Service soil mapping reports for Arapahoe County and the Golden Area. Prior to and during fieldwork, biologists reviewed National Wetland Inventory mapping to locate areas for investigation and to ensure that all previously mapped areas were documented in this study.

2.1.2 Field Investigations

Biologists delineated wetlands and open water in the study area from January 7 through January 13, 2004. Photographic record of site wetlands is provided in Appendix A. Wetland determinations were based on documentation of the presence of diagnostic environmental characteristics for vegetation, hydrology, and soils as outlined in the U.S. Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). Routine Wetland Determination Forms (Environmental Laboratory 1987) for representative wetlands in the study area are contained in Appendix B. Since the delineation was done during winter months when plants are dormant and soils are frozen, biologists will review the wetland mapping as soon as possible during the growing season. If previously unidentified wetlands are noted or if wetland boundaries are determined to be different, the Corps will be provided with updated wetland mapping for review and approval.

2.1.3 Mapping

The boundaries of all wetlands, open water, and ditches in the study area were mapped using one of two methods: digitizing boundaries drawn by hand in the field on 1”=200’ orthographically rectified aerial photographs (heads-up mapping) or using data gathered with a Global Positioning System (GPS) unit.

When using heads-up mapping, biologists drew wetland boundaries on high resolution 1”=200’ black and white aerial photographs. The scale and quality of the photographs allowed for mapping accuracy of about 2 meters. Heads-up mapping was used in areas with vertical river banks and when overhead tree cover interfered with GPS accuracy.

When using the GPS unit, biologists delineated wetlands with a Trimble ProXR GPS unit and TBC1 data logger. Data were differentially corrected using the CompassCom Denver, Colorado base station and Trimble Pathfinder Office 2.51 software. Trimble records data accuracy levels of approximately 10 centimeters (4 inches) using these methods and equipment. After differential correction, the wetland data were exported to ARC/INFO (a Geographic Information System (GIS) computer program) for further manipulation.

Both the digitized and GPS data were tested for accuracy by overlaying the wetland polygons with the 1"=200' orthographically rectified aerial photographs. The data accurately matched the images.

2.2 Hydrology

Currently, virtually all surface runoff in the study area is directed into the South Platte River. As a result of this capture and redirection of runoff, the South Platte River and Weir Gulch see higher volumes of base flow than they saw historically. In addition, channelization of the South Platte River and Weir Gulch has led to narrower channels with greater water depth.

The unconsolidated bottom of the riverine portions of the study area allows for relatively rapid surface and groundwater movement. As a result, the periods of inundation for periphery soils are relatively brief, but are more frequent than they were historically. Catastrophic flood events and their subsequent periods of inundation have been altogether removed from the typical cycle in the last fifty years. As a result of this change in water regime, many emergent wetlands on the periphery of the historic floodplain have lost their majority of hydrophytic vegetation except in those areas where the water table remains perched due to subsurface conditions.

During the field investigations, the water level in the river was about 18 inches below the OHWM. The low water levels typically exposed bare riprap that would often be under water during the summer months. The most commonly observed indicator of wetland hydrologic conditions was drift lines. The Corps considers drift lines a primary wetland indicator (Environmental Laboratory 1987). Drainage patterns in wetlands and sediment deposits were also occasionally observed. In the few cases where a soil pit could be dug, the soil was saturated within 6 inches of the surface.

2.3 Soils

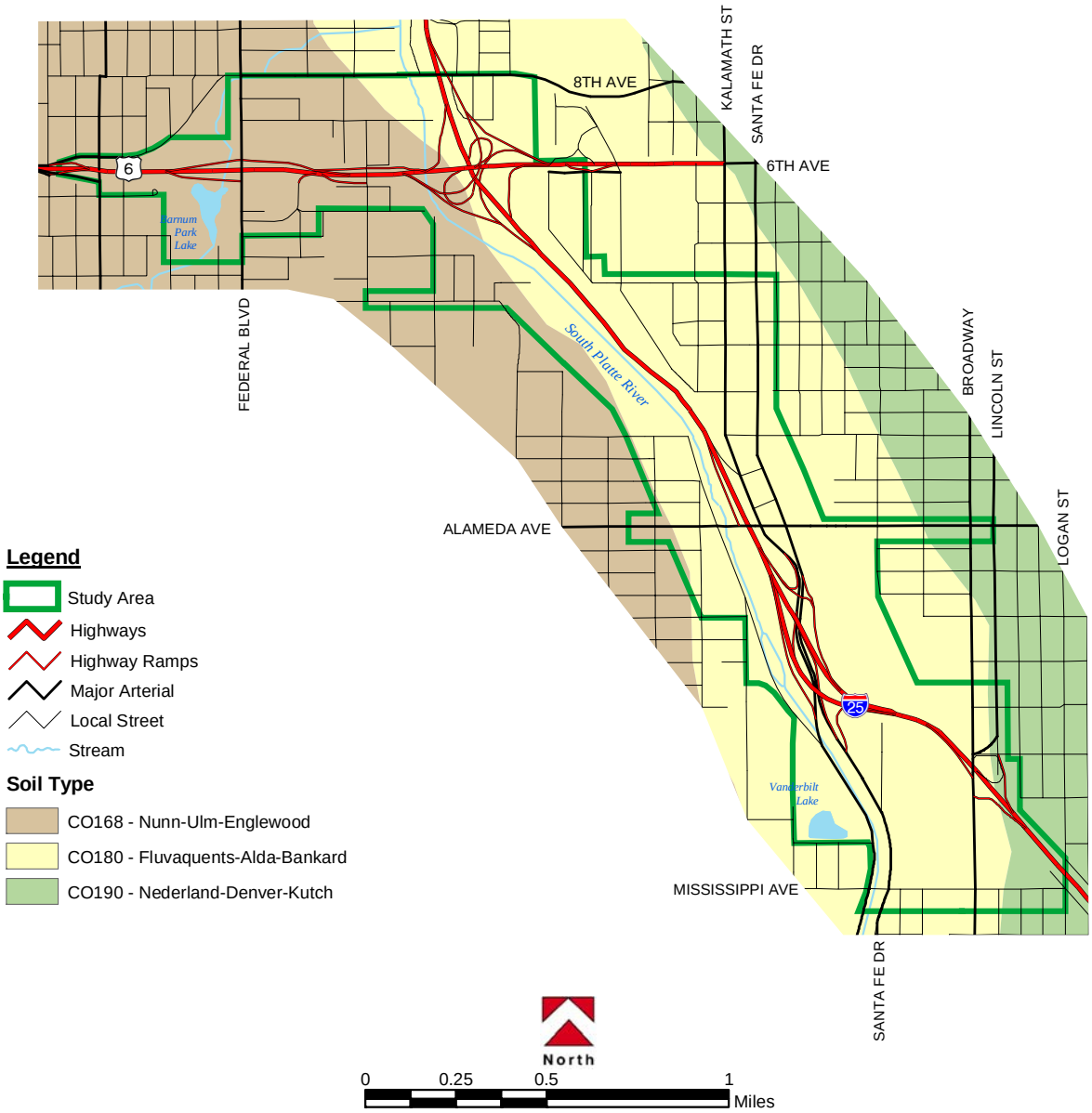
The soil types within the study area consist primarily of conglomerate sedimentary soils with many porous gravel, sandy, or silt-sand consistencies with some underlying clayey soil. Organic material within the soils is comprised primarily of decomposed plant materials from upstream sources. Soil associations are shown in Figure 2 (USDA STATSGO 1994). Although the three parent soil associations in the study area are capable of sustaining hydric soil conditions, because of extensive urbanization, the Natural Resource Conservation Service has not mapped specific soil types in Denver County and no list of hydric soils is available for the study area. As a result, data on soil characteristics were gathered in the field for each wetland community in the study area.

Field observations of soils in wetlands along the South Platte River generally were not reliable indicators because the soils consisted of thin layers overlying riprap, or because the soil was frozen. The high temperatures during the field work in early to mid-January 2004 were around 40 – 50 degrees F; however, the previous week had unusually cold temperatures with highs around 10 – 15 degrees F. As a result, the soil surface was frozen in north-facing or shady areas, and only a few soil pits could be dug.

Additionally, where soil pits were dug, soils consisted of riverine deposits of sand, often covered by a thin (2 – 6 inch) layer of loam or sandy loam. In these highly disturbed or newly deposited soils, wetland characteristics such as mottling have not had time to develop. Since the soils in the study area did not exhibit strong indicators of wetland characteristics, even in areas that are saturated for significant portions of the growing season, soil characteristics were not weighted heavily in wetland determination. In those areas with frozen soil, the presence of hydric soil was assumed when both wetland vegetation and hydrology were present.

Figure 2 Predominant Soil Associations (USDA STATSGO1994)

(The soil information used for this map was Natural Resources Conservation Service 1994 STATSGO data. STATSGO was compiled at 1:250,000 and designed to be used primarily for regional, multistate, State, and river basin resource planning, management and monitoring. (302) 678-4179 Salina, KS 67401)



2.4 Wetlands and Open Water

The majority of vegetation communities in the study area are uplands associated with undeveloped areas of highway right-of-way or with public parks. Riparian communities, typically dominated by Siberian elm (*Ulmus pumila*, NI), are limited to narrow strips of vegetation on the margin of open water areas. Even-narrower strips of wetland communities create a fringe along the shorelines of lakes and stream channels. Open water areas consist of lakes in public parks and the South Platte River channel.

2.4.1 Uplands/Riparian Areas

The uplands tend to be dominated by drought-tolerant, non-native, and weedy species. Vacant lots, disturbed areas, and other waste areas in the study area are generally dominated by annual weeds such as kochia (*Kochia scoparia*, FACU) and cheatgrass (*Bromus tectorum*, NI). Smooth brome (*Bromus inermis*, NI) is also common in upland areas throughout the study area. Bluegrass (*Poa pratensis,* FACU) and landscape trees and shrubs typically dominate the irrigated parts of the study area.

Throughout the study area, the South Platte River has been channelized and straightened. The banks are generally steep and protected by riprap. Riparian vegetation occurs along the banks of the river, sometimes growing in a thin layer of soil over and between the riprap stones. Vegetation on the steep banks (in non-wetland areas) is dominated by Siberian elm and smooth brome. Other species that occur along the upper banks of the river include crested wheatgrass (*Agropyron cristatum*, NI), cheatgrass, kochia, dogbane (*Apocynum cannabinum*, FAC), poison hemlock (*Conium maculatum*, FACW), showy milkweed (*Asclepias speciosa*, FAC), diffuse knapweed (*Centauria diffusa*, NI), and whitetop (*Cardaria draba*, NI). Snowberry (*Symphoricarpos occidentalis*, FACU), rabbitbrush (Chrysothamnus nauseosus, NI), Russian olive (*Elaeagnus angustifolia*, FAC), and sandbar willow (*Salix exigua*, OBL) are occasionally present in the understory. A few scattered plains cottonwoods (*Populus deltoides*, FAC) and peach-leaf willows (*Salix amygdaloides*, FACW) are also present along the banks of the river.

2.4.2 Wetlands

In places, there is a narrow bench or terrace at the bottom of the riprap banks. This terrace is typically about two to three feet above the OHWM and generally lacks wetland characteristics except for a narrow one- to two-foot-wide fringe immediately adjacent to the river. These areas were generally mapped as having a one-to-two foot wide fringe of wetlands. Wetland vegetation along the river is dominated by Emory's sedge (*Carex emoryi*, OBL), reed canarygrass (*Phalaris arundinacea*, FACW+), and sandbar willow. Other species that occur less frequently include bulrush (*Scirpus lacustris*, OBL), broad-leaf cattail (*Typha latifolia*, OBL), poison hemlock, dogbane, Baltic rush (*Juncus balticus*, OBL), barnyard grass (*Echinochloa crus-galli*, FACW), Canada thistle (*Cirsium arvense*, FACU), meadow fescue (*Festuca pratensis*, FAC), and curly dock (*Rumex crispus*, FACW).

A total of 2.01 acres of wetlands were identified and delineated during field investigations. The areas include shrub wetlands and herbaceous wetlands. Locations and boundaries of these wetlands are shown in Appendix C. The wetlands in the study area were classified according to

the wetland classification system outlined in “Classification of Wetlands and Deepwater Habitats of the United States” (Cowardin et al. 1979).

Wetlands in the study area fell into one of three Cowardin classifications. The classifications are as follow:

1. Lacustrine, littoral, emergent (LLE) – The wetland fringes around the lakes and detention pond in the study area fall into this class.
2. Palustrine, scrub-shrub wetland (PSS) – Wetlands along the South Platte River that are dominated by sandbar willow fall into this class.
3. Palustrine, emergent, persistent wetland (PEP) – Wetlands along the South Platte River that are dominated by herbaceous species such as reed canarygrass and poison hemlock fall into this class.

2.4.3 Open Water

Areas of open water in the study area include the channel of the South Platte River, Vanderbilt Lake, Barnum Park Lake, and the detention pond near Home Depot. There are about 45.33 acres of open water areas in the study area. As with the wetlands, open waters in the study area were classified according to the Cowardin system (Cowardin et al. 1979) and fell in to one of two classes:

1. Lacustrine, limnetic, unconsolidated bottom (LLU) – The deep portions of Vanderbilt Lake and Barnum Park Lake fall into this class. Generally, this classification is found below the OHWM.
2. Riverine, unconsolidated bottom (RU) – The South Platte River falls into this class. These areas are typically unvegetated and are subject to scour and sediment deposition. Generally, this classification is found below the OHWM.

2.5 Preliminary Determination of Jurisdiction

As described earlier, waters of the U.S. are those streams and wetlands that are under the jurisdiction of the Corps. In the study area, the South Platte River, Barnum Park Lake, and their adjacent wetlands would be considered under the jurisdiction of the Corps. The South Platte River is a water of the U.S. since it is tributary to the Platte River, which is navigable. Barnum Park Lake is a water of the U.S. since it is on Weir Gulch, a tributary to the South Platte River. Vanderbilt Lake, the detention pond near Home Depot, the drainage ditch between 6th Avenue and 8th Avenue, and a seep at I-25 and Alameda do not have apparent surface connections to the South Platte River; therefore, the Corps would likely consider them isolated and not under Corps jurisdiction. Table1 and Table 2 summarize the area and jurisdictional status and for wetlands and open water in the study area.

This preliminary determination of Corps jurisdiction is based on current regulations and guidelines. The Corps has discretion in determining jurisdiction over water bodies and wetlands and will issue its determination based on its review of this report and other information at its disposal. Although certain wetlands may not be under the jurisdiction of the Corps, and are therefore not afforded protection under the Clean Water Act, Executive Order 11990 Protection of Wetlands and CDOT policy require that impacts to all wetlands be avoided and minimized to the greatest possible extent. Unavoidable impacts to all wetlands will be mitigated.

Table 1 Area and jurisdictional status of wetlands in the study area.

Wetland	Classification	Jurisdictional (Y/N)	Area	
			Acres	Square Feet
6ALE4	PSS	Y	0.019	839.48
6ALW1	PSS	Y	0.018	796.96
8th 6th W1	PSS	Y	0.051	2,214.46
8th 6th W2	PEP	Y	0.006	241.65
ASF E1	PSS	Y	0.440	19,173
ASF E3	PEP	Y	0.057	2,461.38
ASF E4	PEP	Y	0.018	794.05
ASF W2	PEP	Y	0.008	335.51
ASF W3	PEP	Y	0.007	293.96
ASF W4	PEP	Y	0.003	120.02
ASF W5	PEP	Y	0.005	218.62
ASF W6	PEP	Y	0.003	140.68
ASF W7	PEP	Y	0.005	212.59
ASF W8	PEP	Y	0.003	146.50
F 6th SW1	LLE	Y	0.009	372.97
F 6th SW2	LLE	Y	0.016	684.80
F 6th SW3	LLE	Y	0.053	2,318.12
F 6th SW4	LLE	Y	0.050	2,179.26
F 6th SW5	LLE	Y	0.162	7,076.41
F 6th SW6	LLE	Y	0.005	196.87
F 6th SW7	LLE	Y	0.003	124.32
RRA E1	PEP	Y	0.012	537.87
RRA E2	PSS	Y	0.049	2,143.42
RRA E3	PEP	Y	0.097	4,235.49
RRA E4	PEP	Y	0.128	5,586.79
RRA E6	PEP	Y	0.012	520.87
RRA E7	PSS	Y	0.018	764.35
RRA W1	PEP	Y	0.003	149.30
RRA W2	PEP	Y	0.006	248.32
RRA W3	PSS	Y	0.002	78.68
RRA W4	PSS	Y	0.029	1,273.69
RRA W5	PSS	Y	0.012	519.68
RRA W6	PSS	Y	0.002	79.98
SFM E2	PEP	Y	0.003	138.53
SFM E3	PSS	Y	0.015	638.41
SFM E4	PSS	Y	0.011	471.03
SFM E5	PSS	Y	0.009	389.87
SFM W11	PEP	Y	0.018	796.64
SFM W12	PEP	Y	0.010	414.41
SFM W4	PEP	Y	0.003	127.12
SFM W6	PEP	Y	0.002	68.57
SFM W7	PSS	Y	0.009	379.64

Wetland	Classification	Jurisdictional (Y/N)	Area	
			Acres	Square Feet
SFM W9	PSS	Y	0.092	4,024.95
Subtotal Jurisdictional			**1.483**	**64,529.53**
AI25 1	PEP	N	0.010	450.25
AI25 3	LLE	N	0.070	3,029.50
6I25 5	PSS	N	0.130	5,648.15
6I25 6	PSS	N	0.198	8,645.14
VANPK 2	LLE	N	0.014	621.62
VANPK 3	LLE	N	0.105	4,568.42
VANPK 4	LLE	N	0.002	85.03
Subtotal Non-Jurisdictional			**0.529**	**23,048.11**
Total			***2.012***	***87,577.54***

Table 2 Area and jurisdictional status of open water in the study area.

Open Water	Classification	Jurisdictional (Y/N)	Area	
			Acres	Square Feet
F6thSW WUS 1	LLU	Y	4.15	180,912.59
SPR WUS	RU	Y	37.530	1,634,823.94
Subtotal Jurisdictional			**41.683**	**1,815,736.53**
VANPK OW1	LLU	N	3.604	156,986.57
AI25 OW1	LLU	N	0.045	1,949.45
Subtotal Non-Jurisdictional			**3.649**	**158,936.02**
Total			***45.332***	***1,974,672.55***

3.0 WETLAND FUNCTIONS

An understanding of wetland functions can assist in the analysis and mitigation of potential impacts. A variety of studies have recognized that wetlands provide particular functions to the environment (Adamus et al. 1991; Adamus 1983; Smith et al. 1995). Wetland functions are the physical, chemical, and biological processes or attributes vital to the integrity of wetland systems (Adamus et al. 1991). Various researchers and methods recognize a variety of wetland functions that typically are related to water quality, biodiversity, hydrological, and ecological processes. All wetlands do not perform all functions and wetlands do not perform functions equally.

Wetland values, such as recreation and uniqueness, are attributes not necessarily important to the integrity of wetland systems; however, these values are perceived as being valuable to society (Adamus et al. 1991). Similar to functions, all wetlands do not provide all values and the values that are provided are not provided equally.

3.1 Methods

Functions of wetlands in the study area were qualitatively evaluated using functions described in the Montana Wetland Field Evaluation Form and Instructions (Montana Department of Transportation 1996). The “Montana Method” is a rapid functional assessment process designed primarily to address wetland resources associated with highways and other linear projects. It uses a classification system that combines the Cowardin classification system with a hydrogeomorphic (HGM) approach (Brinson 1993). As a result, the Montana Method provides a landscape context to the Cowardin classification.

Five Montana Method wetland types are present in the study area

1. Lacustrine, littoral, emergent wetland (wetland fringe around lakes and the detention pond);
2. Riverine, palustrine, scrub-shrub wetland (willow-dominated wetlands along the South Platte River);
3. Riverine, palustrine, emergent wetland (herbaceous wetlands along the South Platte River);
4. Lacustrine, limnetic unconsolidated bottom (Barnum Park Lake and Vanderbilt Lake);
5. Riverine, unconsolidated bottom (South Platte River channel).

For the I-25 Valley Highway study area, ratings for wetlands and open waters were assigned qualitatively rather than through a quantitative point system. This method was used for simplicity because the Corps has not defined a preferred method of quantification and has previously accepted this modified method. Ratings of low, moderate, high, or not applicable are based on the best professional judgment of the evaluating biologist. Table 3 summarizes qualitative functional ratings for the five types of wetlands in the study area. These summary ratings were generated by averaging the ratings of three representative wetlands of each wetland type. The ratings for the lakes are based on the average ratings of two lakes in the study area. The rating for the South Platte River is singular, since it is the only river in the study area. The functional assessment data sheet used to score the ratings is contained in Appendix D.

The following is a brief description of the functions and values assessed (Montana Department of Transportation 1996).

Habitat for Federally Listed Species – The potential for threatened, endangered, and candidate species based on use by the species.

Habitat for State Listed Species – The potential for state-listed rare or imperiled species based on use by the species.

General Wildlife Habitat — General wildlife habitat potential of the assessment area based on perceived use by aquatic, semi-aquatic, and non-aquatic wildlife groups and habitat diversity as determined by the variety of wetland types.

General Fish/Aquatic Habitat — General fish use of the assessment area based on the known or suspected presence of native or introduced fish and the duration of surface water.

Flood Attenuation and Storage — The capability of the wetland within the assessment area to detain moving water from in-channel or overbank flows for a short duration when the flow is outside of its channel. This parameter applies only if the assessment area occurs within or contains a discernable flood plain (e.g., is subject to flooding and possesses the opportunity to attenuate and store flood waters), and is based on floodwater proximity, evidence of flood deposits, and Federal Emergency Management Agency maps. This function can apply to any assessment area that includes a flowing water/channel component (e.g., rivers, streams, flowing ditches).

Sediment/Nutrient/Toxicant Retention and Removal — The ability of the assessment area to retain sediments and retain and remove nutrients and toxicants. The assessment is based on the site's proximity to sediment/nutrient/toxicant sources; transport potential of these constituents to the assessment area via surface water; potential for the site to detain the constituents; and potential of the site to filter and/or process (uptake) the constituents.

Sediment/Shoreline Stabilization — The ability of the assessment area to dissipate flow or wave energy and reduce shoreline erosion. This function only applies if the assessment area occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body with a maximum depth exceeding 2 m (6.6 ft.).

Production Export/Food Chain Support — The potential of the assessment area to produce and export food/nutrients for living organisms. Production export typically refers to the flushing of relatively large amounts of organic material from the wetland to downstream habitats or adjacent deeper waters (Adamus et al. 1991).

Ground Water Discharge/Recharge — Ground water discharge and recharge potential of the assessment area. Ground water recharge is the movement of surface water (usually downward), whereas ground water discharge is the movement of ground water into surface water (usually laterally or upward). The evaluation includes observations of springs and seeps and presence of inlets and outlets.

Uniqueness — Includes the general uniqueness of the assessment area relative to the abundance of similar sites occurring in the same major watershed basin, the replacement potential and habitat diversity of the assessment area, and the degree of human disturbance in the assessment area.

Recreation/Education Potential — The potential of the assessment area to support recreational or educational activities. If the assessment area is a known recreation or education site, a high rating is assigned.

Dynamic Surface Water Storage — The potential of the assessment area to capture water from precipitation, upland surface (sheetflow) or subsurface (ground water) flow.

3.2 Functions Provided by Study Area Wetland Types

Most of the wetlands in the study area are palustrine wetlands that occur along the South Platte River and are supported by surface water. Although many of the plant species in the wetlands are considered noxious weeds (e.g., Canada thistle, kochia, cheatgrass, and Russian olive), all the wetland types have a high rating for general wildlife habitat because streams and rivers and their associated riparian communities provide diverse habitat types for a variety of species. Many of the ratings are moderate to low because of the restricted nature of the wetlands. For example, flood attenuation and storage is low in areas with a wetland fringe only 1 or 2 feet wide. Table 3 summarizes the qualitative functional rating for each Montana Method wetland type.

Table 3 Wetland Function Ratings

Montana Method Wetland Type	Wetland Functions	Functional Rating
Lacustrine, littoral emergent wetland	• Habitat for Federally Listed Species	NA
	• Habitat State Listed Species	NA
	• General Wildlife Habitat	High
	• General Fish/Aquatic Habitat	Moderate
	• Flood Attenuation/Storage	Moderate
	• Sediment/Nutrient/Toxicant Removal	Moderate
	• Sediment/Shoreline Stabilization	High
	• Production Export/Food Chain Support	High
	• Ground Water Discharge/Recharge	Moderate
	• Uniqueness	Moderate
	• Recreation/Education Potential	Moderate
	• Dynamic Storage Potential	Moderate

Montana Method Wetland Type	Wetland Functions	Functional Rating
Riverine, Palustrine, scrub-shrub wetland	• Habitat for Federally Listed Species	NA
	• Habitat State Listed Species	NA
	• General Wildlife Habitat	High
	• General Fish/Aquatic Habitat	NA
	• Flood Attenuation/Storage	Moderate
	• Sediment/Nutrient/Toxicant Removal	Moderate
	• Sediment/Shoreline Stabilization	High
	• Production Export/Food Chain Support	Moderate
	• Ground Water Discharge/Recharge	Low
	• Uniqueness	Moderate
	• Recreation/Education Potential	Moderate
	• Dynamic Storage Potential	Moderate
Riverine, Palustrine, emergent wetland	• Habitat for Federally Listed Species	NA
	• Habitat State Listed Species	NA
	• General Wildlife Habitat	High
	• General Fish/Aquatic Habitat	NA
	• Flood Attenuation/Storage	Moderate
	• Sediment/Nutrient/Toxicant Removal	Moderate
	• Sediment/Shoreline Stabilization	High
	• Production Export/Food Chain Support	Moderate
	• Ground Water Discharge/Recharge	Low
	• Uniqueness	Moderate
	• Recreation/Education Potential	Moderate
	• Dynamic Storage Potential	Moderate

Montana Method Wetland Type	Wetland Functions	Functional Rating
Lacustrine, limnetic, unconsolidated bottom	• Habitat for Federally Listed Species	NA
	• Habitat State Listed Species	NA
	• General Wildlife Habitat	High
	• General Fish/Aquatic Habitat	High
	• Flood Attenuation/Storage	High
	• Sediment/Nutrient/Toxicant Removal	Moderate
	• Sediment/Shoreline Stabilization	Low
	• Production Export/Food Chain Support	Low
	• Ground Water Discharge/Recharge	High
	• Uniqueness	Moderate
	• Recreation/Education Potential	High
	• Dynamic Storage Potential	High
Riverine, unconsolidated bottom	• Habitat for Federally Listed Species	NA
	• Habitat State Listed Species	NA
	• General Wildlife Habitat	Moderate
	• General Fish/Aquatic Habitat	Moderate
	• Flood Attenuation/Storage	High
	• Sediment/Nutrient/Toxicant Removal	Moderate
	• Sediment/Shoreline Stabilization	Low
	• Production Export/Food Chain Support	Moderate
	• Ground Water Discharge/Recharge	High
	• Uniqueness	Moderate
	• Recreation/Education Potential	High
	• Dynamic Storage Potential	High

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APPENDIX A
PHOTOGRAPHIC RECORD OF SITE WETLANDS

Valley Highway
Photo Log
January 2004

Photo 1 - Lake with fringe of wetlands, Barnum Park near 6th Avenue and Federal Blvd.

Photo 2 - Lake with fringe of cattail wetlands, Vanderbilt Park

Photo 3 - Isolated wetland on road embankment, southeast of Alameda and I-25 (wetland AI251)

Photo 4 - Detention pond with wetlands north of Home Depot parking lot (wetland AI253)

Photo 5 - South Platte River at Santa Fe Blvd, showing lack of wetland development (data point SFME1)

Photo 6 - Typical view of South Platte River in study area, showing steep, riprap lined banks with lack of wetlands

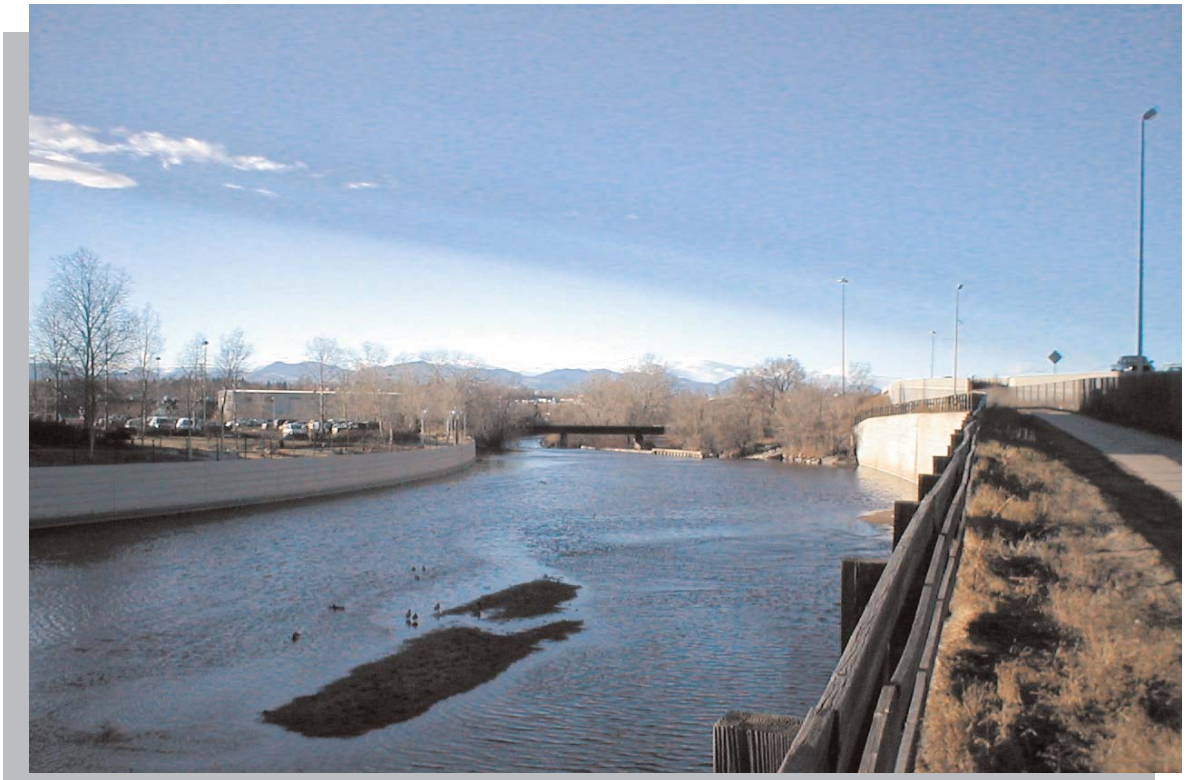

Photo 7 - South Platte River with vertical retaining wall, no wetlands

Photo 8 - Typical one to two-foot wide fringe of wetlands along the South Platte

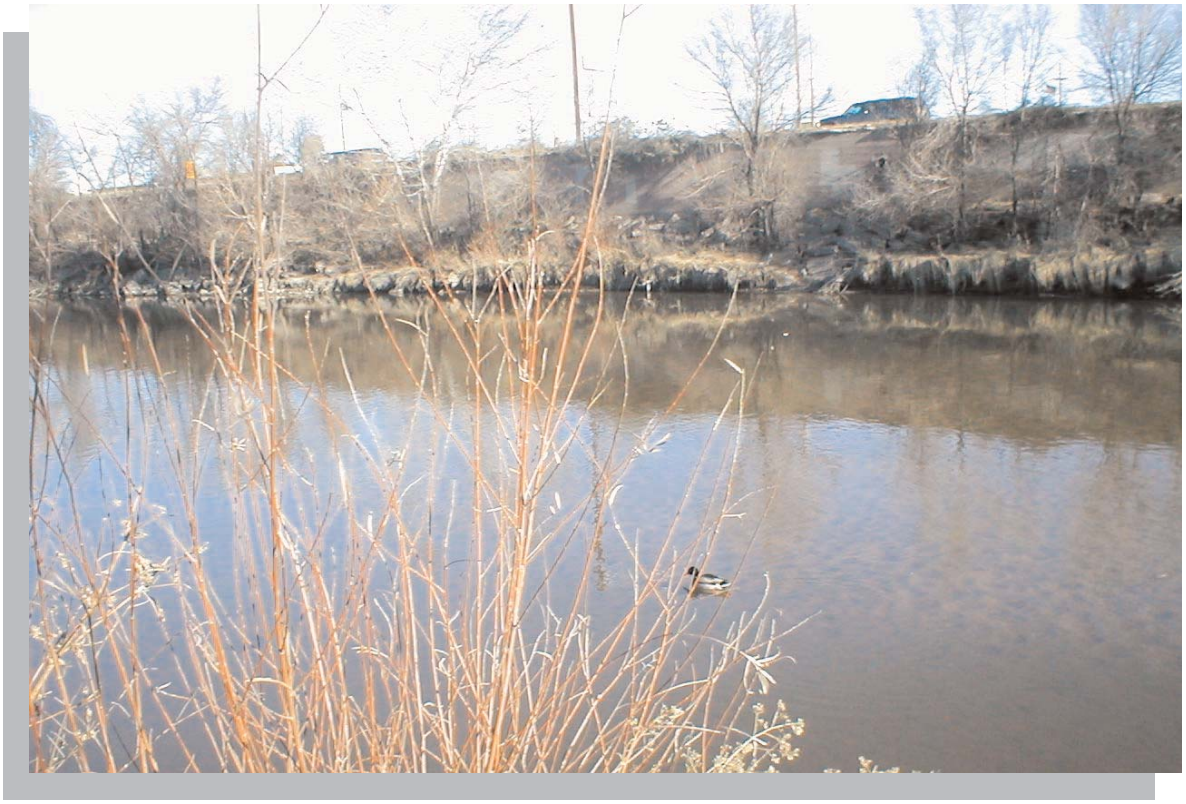

Photo 9 - South Platte River showing narrow fringe of wetlands on far bank

Photo 10 - Narrow wetland fringe at base of vertical retaining wall on South Platte

Photo 11 - Narrow fringe of wetlands on South Platte, west bank

Photo 12 - Wetland on low terrace above the South Platte River (wetland ASFE2)

Photo 13 - Wetland on low terrace above the South Platte River (wetland ASFE2)

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APPENDIX B
ROUTINE DETERMINATION FORMS

SFM

Site E/U

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Investigator: Steve Butler
Date: 1-8-04
County/State Denver/CO
USGS Quad:

Is the site significantly disturbed (atypical situation)? Yes (No)

VEGETATION — Hydrophytic vegetation present? (Yes) (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Ulmus pumila	20	T	UPL	1			
2 Apocynum cannabinum	15	H	FACW	2			
3 Bromus inermis	50	H	UPL	3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) (33%)

Remarks: -also- lime rock/riprap

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- ____ inundated depth ____ (in.)
- ____ saturated upper 12" depth ____ (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-neutral test
- ____ local soil survey data ____ other

Remarks: No indicators -

SOILS — Hydric soils present? Yes (No)

Map Unit name: ____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No soil pit - riprap w/ thin covering of soil

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks: steep riprap bank - NO W

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? Yes No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site EM-E2

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Carex emoryi	100	H	OBL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ✓ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ✓ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — Hydric soils present? (Yes) No

Map Unit name: ____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: soils assumed - frozen

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: 6" to 1' fringe next to River - E bank

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☑Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site SFM-E3

Project/Site: Valley Highway
Investigator: SB
Date: 1-8-02
County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Phalaris	30	H	FACW	1			
2 Salix exigua	20	S	OBL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100%

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated — depth ____ (in.)
- ____ saturated upper 12" — depth ____ (in.)
- ✓ drift lines — ✓ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves — ✓ FAC-neutral test
- ____ local soil survey data — ____ other

Remarks:

SOILS — Hydric soils present? Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: Frozen -

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

ERO Resources Corporation 1842 Clarkson Street, Denver, Colorado 80218 *Ph.* (303) 830.1188 *Fax* (303) 830.1199

Site SF-M W3U

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Investigator: Steve Butler
Date: 1-8-04
County/State
USGS Quad:

Is the site significantly disturbed (atypical situation)? Yes (No)

VEGETATION — Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Ulmus pumila	10	T	UPL	1			
2 Agropyron cristatum	10	H	UPL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 0

Remarks: - a few patches of Scirpus lacustris (OBL) at water's edge - less than (less than 1% of area) 1 m²

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ___ inundated depth ___ (in.)
- ___ saturated upper 12" depth ___ (in.)
- ✓ drift lines ___ sediment deposits
- ___ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ___ oxidized root channels in upper 12"
- ___ water-stained leaves ___ FAC-neutral test
- ___ local soil survey data ___ other

Remarks:

SOILS — Hydric soils present? Yes (No)

Map Unit name: ___ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: riprap w/ thin layer of soil - frozen

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks: Raccoon tracks in muddy bank

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site W4

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Phalaris arundinacea	100	H	FACW	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks: right above OHWM

SOILS — Hydric soils present? (Yes) No

Map Unit name: ____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: soils assumed - Narrow fringe of soil + riprap

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: west bank of River, just S of Santa Fe bridge

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☒Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site W5 U

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Ulmus pumila	10	T	UPL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 0

Remarks: 90% = bare rock (riprap)

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks: NO hydrol

SOILS — Hydric soils present? Yes (No)

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: NA

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks: uphill from W4

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: mallards, killdeer

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site SFM-W6

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Carex erongi	100	H	OBL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ✓ saturated (upper 12"), Depth ____ (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ✓ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks: 1' fringe - just above drop structure, west bank S of River

SOILS — Hydric soils present? (Yes) No

Map Unit name: ____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: soils frozen - hydric cond. assumed

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site PM-W 7

Project/Site: Valley Highway
Investigator: Steve Butler

Date: 1-8-04
County/State
USGS Quad:

Is the site significantly disturbed (atypical situation)? Yes (No)

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Carex emoryi	20	H	OBL	1			
2 Salix exigua	20	S	OBL	2			
3 Bromus inermis	20	H	UPL	3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 67%

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — Hydric soils present? (Yes) No

Map Unit name: ____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: Soils frozen - NO pit
soils assumed -

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: 6" to 1' fringe along edge of steep bank

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☑Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: beaver activity, mallards

Site SFM W8U

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Investigator: Steve Butler
Date: 1-8-04
County/State
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad:

VEGETATION

Hydrophytic vegetation present? (NO)

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Dom. Plant Species	Rel. %	Stratum	Indicator
1 Bromus inermis	50	H	UPL	1 Nepeta cataria			FACU
2 Apocynum cannabinum	20	H	FACW	2 Conium maculatum			FACW
3 Salix exigua - not dom.				3 Bromus tectorum			UPL
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 50

Remarks:

HYDROLOGY

Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ✓ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS

Hydric soils present? Yes (No)

Map Unit name: ____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: soils frozen

WETLAND DETERMINATION

Is this sampling point within a wetland? Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION

Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: Beaver activity

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site W9

Project/Site: Valley Highway	Date: 1-8-02
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Phalaris arundinacea	30	H	FACW	1			
2 Salix exigua	20	S	OBL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — Hydric soils present? (Yes) No

Map Unit name: ____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: frozen

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☑Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

Site WID

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Date: 1-8-04
Investigator: Steve Butler
County/State
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Phalaris arundinacea	50	H	FACW	1 Salix exigua	10	S	OBL
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100%

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ___ inundated, Depth ___ (in.)
- ✓ saturated (upper 12"), Depth ___ (in.)
- ✓ drift lines ___ sediment deposits
- ___ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ___ oxidized root channels in upper 12"
- ___ water-stained leaves ✓ FAC-Neutral test
- ___ local soil survey data ___ Other

Remarks:

SOILS — Hydric soils present? (Yes) No

Map Unit name: ___ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: frozen

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: west bank - across from Brandon Furniture

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

Site SFM-W11V

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Investigator: SB
Date: 1-8-04
County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Salix exigua	100	S	OBL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks: (no salix west of water - riprap)

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- ____ inundated depth ____ (in.)
- ____ saturated upper 12" depth ____ (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves
- ✓ FAC-neutral test
- ____ local soil survey data
- ____ other

Remarks: not enough hydrol indicators - upto 15' above OHWM

SOILS — Hydric soils present? Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: steep slope/riprap

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site AI25-3

Project/Site: Valley Highway	Date: 1-7-04
Investigator: Steve Butler / Mary Powell	County/State Denver / CO
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Typha latifolia		H	OBL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks: fringe of vegetation on end of detention pond

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ✓ inundated, Depth >6 in places (in.)
- ✓ saturated (upper 12"), Depth 0 (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks: -out let goes underground - probably leads to S. Platte
Man-made pond

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☒ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks:

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: Detention pond - N of Home Depot - off of Santa Fe

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☒No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☒No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site A-SP-E1

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Phalaris	50	H	FACW	1			
2 Salix exigua	20	S	OBL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) _____

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ✓ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A/B	10YR 3/2	NA	NA	Sandy loam
2-12	C	10YR 4/3	NA	NA	sand

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: ~~[illegible]~~
- soil color not reliable indicator in sandy soils - inceptisols

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: E bank, NOT South ice

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☑Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site ASF-E2

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Dom. Plant Species	Rel. %	Stratum	Indicator
1 Phalaris	50	H	FACW	1 Typha latifolia		H	OBL
2 Juncus balticus	20	H	OBL	2 Scirpus lacustris		H	OBL
3				3 Echinochloa crusgalli		H	FACW
4				4 Apocynum cannabinum			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 170%

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ___ inundated, Depth ___ (in.)
- ✓ saturated (upper 12"), Depth 6 (in.)
- ✓ drift lines ___ sediment deposits
- ___ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ___ oxidized root channels in upper 12"
- ___ water-stained leaves ✓ FAC-Neutral test
- ___ local soil survey data ___ Other

Remarks:

SOILS — Hydric soils present? (Yes) No

Map Unit name: ___ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A/B	10YR3/2	NA	—	sandy loam
5-12	C	10YR4/3	NA	—	sandy gravel

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: inceptisol - sandy soil
soil color not good indicator in sandy soils

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: largest w - east bank, S of Alameda, N of Santa Fe

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site ASF E3

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Carex emoryi	70	H	OBL	1			
2 Salix amygdaloides	20	T	FACW	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ___ inundated, Depth ___ (in.)
- ✓ saturated (upper 12"), Depth 12 (in.)
- ✓ drift lines ___ sediment deposits
- ___ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ___ oxidized root channels in upper 12"
- ___ water-stained leaves ___ FAC-Neutral test
- ___ local soil survey data ___ Other

Remarks: oxbow/backwater area behind sandbar

SOILS — Hydric soils present? (Yes) No

Map Unit name: ___ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A	10YR 3/2	NA	NA	sandy loam
2-12		10YR 4/3	NA	NA	sand/gravel

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: inceptisol - color in sandy soils not good indicator

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☑Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

Site ASFE4

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Investigator: SB
Date: 1-8-04
County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes No
USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Carex emoryi		H	OBL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated depth ____ (in.)
- ____ saturated upper 12" depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ✓ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves
- ____ local soil survey data
- ✓ FAC-neutral test
- ____ other

Remarks: backwater area behind sand bar

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
					sand

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: - sandy inceptisol

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

ASF

Site W/U

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Hwy	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? (Yes) No	USGS Quad:

VEGETATION — Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Bromus inermis	40	H	UPL	1			
2 Ulmus pumila	30	T	UPL	2			
3 Apocynum cannabinum	30	H	FACU	3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 0

Remarks:

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- _____ inundated depth _____ (in.)
- _____ saturated upper 12" depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-neutral test
- _____ local soil survey data _____ other

Remarks: no indicators

SOILS — Hydric soils present? Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: soil frozen - thin layer of soil over rip rap

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks: west bank, just N of santa fe bridge

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? Yes No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

ERO Resources Corporation 1842 Clarkson Street, Denver, Colorado 80218 *Ph.* (303) 830.1188 *Fax* (303) 830.1199

ASFM

Site W2

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Phalaris arundinacea	70	H	FACW	1			
2 Carex emoryi	20	H	OBL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated depth ____ (in.)
- ____ saturated upper 12" depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-neutral test
- ____ local soil survey data ____ other

Remarks: on edge of river

SOILS — Hydric soils present? (Yes) No

Map Unit name: ____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: - soil frozen - hydric conditions assumed based on hydrology.
- deposited soil over riprap

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: 1' fringe on west bank of River, just N of Santa Fe bridge

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

Site ASFW3V

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Investigator: Steve Butler
Date: 1-8-04
County/State
USGS Quad:

Is the site significantly disturbed (atypical situation)? Yes **No**

VEGETATION — Hydrophytic vegetation present? Yes **No**

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Salix exigua	20	S	OBL	1			
2 Ulmus pumila	20	T	UPL	2			
3 Bromus inermis	40	H	UPL	3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 33%

Remarks:

HYDROLOGY — Wetland hydrology present? Yes **No**

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks: No indicators - up to 10' above river

SOILS — Hydric soils present? Yes No

Map Unit name: Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No soil pit - frozen

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes **No**

Remarks: Slope above river

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: Beaver activity

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site AST-44

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State _____
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Carex emoryi	50	H	OBL	1			
2 Bromus inermis	20	H	UPL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 50

Remarks: Nearby upland: Bromus inermis, Ulmus pumila

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — Hydric soils present? Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: - Frozen soils - NO soil pit - Assumed soil

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: 1' fringe on West Bank of River

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☑Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site ASF-W5

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Beetler	County/State _____
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — **Hydrophytic vegetation present?** (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Carex emoryi	50	H	OBL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — **Wetland hydrology present?** (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ✓ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ✓ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks: on edge of river

SOILS — **Hydric soils present?** (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: Soil frozen - NO soil pit
soils assumed based on veg & hydrol

WETLAND DETERMINATION — **Is this sampling point within a wetland?** (Yes) No

Remarks: 1' from next to river

JURISDICTIONAL WETLAND DETERMINATION — **Is this an jurisdictional wetland?** (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site ASF-W6U

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State _____
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — **Hydrophytic vegetation present?** (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Ulmus pumila		T	UPL	1			
2 Bromus inermis		H	UPL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 0%

Remarks:

HYDROLOGY — **Wetland hydrology present?** (Yes) No

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- ✓ (0) drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks:

SOILS — **Hydric soils present?** Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No soil pit due to lack of w vegetation

WETLAND DETERMINATION — **Is this sampling point within a wetland?** Yes (No)

Remarks: slope above W5

JURISDICTIONAL WETLAND DETERMINATION — **Is this an jurisdictional wetland?** Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site ASF W7

Project/Site: Valley Highway	Date: 1-8-04
Investigator: Steve Butler	County/State
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — **Hydrophytic vegetation present?** (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Phalaris	30	H	FACW	1			
2 Bromus mermis	20	H	UPL	2			
3 Carex emoryi	20	H	OBL	3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 67%

Remarks:

HYDROLOGY — **Wetland hydrology present?** (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ✓ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — **Hydric soils present?** Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: Frozen soil - soils assumed

WETLAND DETERMINATION — **Is this sampling point within a wetland?** (Yes) No

Remarks: just south of Alameda, on W bank of River

JURISDICTIONAL WETLAND DETERMINATION — **Is this an jurisdictional wetland?** (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☑ Yes ☐ No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐ Yes ☐ No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site AI251

Project/Site: Valley Highway	Date: 1-7-04
Investigator: Steve Butler / Mary Powell	County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Scirpus lacustris		H	OBL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) ~~No~~

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ✓ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks: None observed - no soil pit - unknown?

SOILS — Hydric soils present? (Yes) ~~No~~

Map Unit name: ____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No soil pit - soils frozen

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: seep on side of steep bank - SE corner of I25 & Alameda - likely isolated

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☒No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☒No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site AI25-2U

Project/Site: Valley Highway
Investigator: Steve Butler / Mary Powell
Date: 1-7-04
County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Kochia scoparia	100	H	UPL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 0

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ____ drift lines ✓ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks: Detention area - not wetland

SOILS — Hydric soils present? Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: no soil pit

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks: Detention area - SE of I-25 & Alameda, not wetland, isolated

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☒No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☒No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site RRAE1

Project/Site: Valley Highway
Investigator: SB
Date: 1-8-04
County/State Denver/CO
USGS Quad: _____

Is the site significantly disturbed (atypical situation)? Yes (No)

VEGETATION

Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Phalaris arundinacea	100	H	FACW	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY

Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated depth ____ (in.)
- ____ saturated upper 12" depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves
- ____ local soil survey data
- ✓ FAC-neutral test
- ____ other

Remarks:

SOILS

Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No pit - soils assumed based on veg & hydrology
No ground access

WETLAND DETERMINATION

Is this sampling point within a wetland? (Yes) No

Remarks: just ds from drop structure

JURISDICTIONAL WETLAND DETERMINATION

Is this a jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site RRAE2

Project/Site: Valley Highway	Date: 1-8-04
Investigator: SB	County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — **Hydrophytic vegetation present?** (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Salix exigua		S	OBL	1			
2 Phalaris arundinacea		H	FACW	2			
3 Cirsium arvense		H	FACU	3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 67%

Remarks:

HYDROLOGY — **Wetland hydrology present?** (Yes) No

Primary indicators:
- ____ inundated depth ____ (in.)
- ____ saturated upper 12" depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ✓ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves
- ✓ FAC-neutral test
- ____ local soil survey data
- ____ other

Remarks:

SOILS — **Hydric soils present?** (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No soil pit - no access to this area

WETLAND DETERMINATION — **Is this sampling point within a wetland?** (Yes) No

Remarks: low area on ds end of old sandbar

JURISDICTIONAL WETLAND DETERMINATION — **Is this a jurisdictional wetland?** (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site RRAE3

Project/Site: Valley Highway	Date: 1-8-04
Investigator: SB	County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Bromus inermis	30	H	UPL	1			
2 Phalaris arundinacea	20	H	FACW	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 50

Remarks: also Ulmus pumila

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ✓ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No access - base of vertical wall - Assumed

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☑Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

Site RRLE5

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Investigator: SB
Date: 1-8-04
County/State Denver/CO
USGS Quad: _____

Is the site significantly disturbed (atypical situation)? Yes (No)

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Carex emoryi	100%	H	OBL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ✓ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ✓ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No pit - Assumed

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: 1' fringe at base of steep slope

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ✓Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site RRAE6

Project/Site: Valley Highway
Investigator: SB
Date: 1-8-04
County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Carex emoryi	50	H	OBL	1			
2 Festuca pratensis	20	H	FAC	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ✓ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ✓ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
					sand

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: sandy deposits over rip rap - inceptisol

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: just upstream of RR bridge

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

Site RR4 W1

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Investigator: Steve Butler
Date: 1-8-04
County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Phalaris arundinacea	20	H	FACW	1			
2 Carex emory	50	H	OBL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated depth ____ (in.)
- ____ saturated upper 12" depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves
- ____ local soil survey data
- ✓ FAC-neutral test
- ____ other

Remarks: ~~Outside~~ fringe - approx 5' wide

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: NO soil pit - thin soil over riprap - soils assumed

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: west side of SR - just N of Santa Fe & Alameda - ~~approximate~~

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site RRAW2

Project/Site: Valley Highway
Investigator: Steve Butler
Date: 1-8-04
County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Carex emoryi	50	H	OBL	1			
2 Apocynum cannabinum	20	H	FAC	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated depth ____ (in.)
- ____ saturated upper 12" depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-neutral test
- ____ local soil survey data ____ other

Remarks: 3' fringe next to river

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: thin soil over riprap - no soil pit

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

Site RRAW3

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway
Investigator: SB
Date: 1-8-04
County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Salix exigua		S	OBL	1			
2 Carex emoryi		H	OBL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated depth ____ (in.)
- ____ saturated upper 12" depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves
- ____ local soil survey data
- ✓ FAC-neutral test
- ____ other

Remarks: 1' fringe of wetlands, behind 1-2' riprap

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: thin soil over riprap

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: west bank of SPR, upstream of drop structure

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site RRA W4

Project/Site: Valley Highway
Investigator: SB

Date: 1-8-04
County/State Denver/CO

Is the site significantly disturbed (atypical situation)? Yes (No)

USGS Quad: _____

VEGETATION

Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Salix exigua		S	OBL	1			
2 Phalaris		H	FACW	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY

Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated, Depth ____ (in.)
- ✓ saturated (upper 12"), Depth ____ (in.)
- ✓ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ✓ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS

Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: soil frozen - No soil pit

WETLAND DETERMINATION

Is this sampling point within a wetland? (Yes) No

Remarks: 3' fringe

JURISDICTIONAL WETLAND DETERMINATION

Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site RPAW5

Project/Site: Valley Highway	Date: 1-8-04
Investigator: SB	County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Other Plant Species	Rel. %	Stratum	Indicator
1 Salix exigua		S	OBL	1			
2				2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) _____

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- ____ inundated — depth ____ (in.)
- ____ saturated upper 12" — depth ____ (in.)
- ✓ drift lines — ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves — ____ FAC-neutral test
- ____ local soil survey data — ____ other

Remarks:

SOILS — Hydric soils present? Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic epipedon
- ☐ Sulfidic odor
- ☐ High organic content in surface layer in sandy soils
- ☐ Aquic moisture regime
- ☐ Reducing conditions
- ☐ Gleyed or low-chroma colors
- ☐ Organic streaking in sandy soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: no pit

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks: 1' fringe, west bank

JURISDICTIONAL WETLAND DETERMINATION — Is this a jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (waters of the U.S. or their tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☒Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site 6I25-1U

Project/Site: Valley Highway	Date: 1-7-04
Investigator: SB/KP	County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Kochia		H	UPL	1			
2 Bromus tectorum		H	UPL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 0

Remarks:

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: no hydrol

SOILS — Hydric soils present? Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No soil pit

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks: swale SE of I25 & 6th Ave

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☑No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☑No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site 6I25-3U

Project/Site: Valley Highway	Date: 1-7-04
Investigator: SB/MP	County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Kochia		H	UPL	1			
2 Bromus tectorum		H	UPL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 0

Remarks:

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: No hydrol indicators

SOILS — Hydric soils present? Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks:

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks: swale SE of I-25 & 6th Ave

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site 6I25-2V

Project/Site: Valley Hwy Project	Date: 1-12-04
Investigator: CH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Onopordum acanthium	50	H	FACU	1			
2 Equisetum laevigatum	20	H	FAC	2			
3 Bromus inermis	10	H	UPL	3			
4 Polygonum lapathifolium	20	H	OBL	4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) ~~40~~ ~~50~~ 66%

Remarks:

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: Dry - water likely pools temporarily. no primary indicators - fails FAC-neutral test

SOILS — Hydric soils present? Yes (No)

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	10yr 3/3			Gravel - Clay loam

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: - Packed clay + gravel - Too packed to dig soil pit. Hydric soils not assumed based on above indicators

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: - Water from storm events and rooftop runoff from adjacent buildings likely supports wetland vegetation when temporary pools form.

Site 6 ~~I25-4~~ U

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Valley Highway	Date: 1-7-04
Investigator: Steve Butler / Mary Powell	County/State Denver/CO
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Bromus inermis		H	UPL	1			
2 Kochia		H	UPL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 0

Remarks:

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: No hydrol indicators

SOILS — Hydric soils present? Yes No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: No soil pit

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks: swale next to RR tracks, NE of I25 + 6th Ave

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☒No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☒No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site Colf 25-5

Project/Site: Valley Hwy	Date: 1-13-04
Investigator: GH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Typha latifolia	30	H	OBL	1			
2 Scirpus tabernaemontani	20	H	OBL	2			
3 Cirsium arvense	30	H	FACU	3			
4 Salix exigua	20	S	OBL	4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 75%

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- X inundated, Depth ~6 (in.)
- X saturated (upper 12"), Depth ~~[illegible]~~ (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks: Could not access the site - depth estimated from distant visual observation

SOILS — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: Assumed based on inundated conditions.

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: Could not find a surface connection to navigable waterway.

* Note - Site could not be accessed on foot - observed from nearby bridge (8th Ave)

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site 6ALE1U

Project/Site: S. Platte River Valley Hwy Project	Date: 1/12/04
Investigator: CH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Conium maculatum	50	H	FACW	1 Salix exigua	5	S	OBL
2 Cardaria draba	30	H	UPL	2			
3 Bromus inermis	10	H	UPL	3			
4 Phalaris arundinacea	5	H	FACW	4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 50%

Remarks:

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: Soil dry - OHWM approximately 24" below site

SOILS — Hydric soils present? Yes (No)

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	O				Plant material
3-15	A	10yr 5/3			Sand

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: Frequent scouring likely - Area also disturbed by urban development

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: Lacking 2 of 3 indicators - vegetation likely supported by occasional high flows.

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site 6ALE2U

Project/Site: S Platte River - Valley Highway Project
Date: 1-12-04
Investigator: CH
County/State: Denver
Is the site significantly disturbed (atypical situation)? Yes (No)
USGS Quad: _____

VEGETATION

Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
* 1 Bromus inermis	90	H	UPL	1			
2 Salix exigua	5	S	OBL	2			
3 Ambrosia artemisiifolia	5	H	FACU	3			
4 Convolvulus arvensis	Trace	H	OBL	4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 50 100%

Remarks:

HYDROLOGY

Wetland hydrology present? Yes (No)

Primary indicators:
_____ inundated, Depth _____ (in.)
_____ saturated (upper 12"), Depth _____ (in.)
_____ drift lines _____ sediment deposits
_____ drainage patterns in wetlands

Secondary indicators (2 or more required):
_____ oxidized root channels in upper 12"
_____ water-stained leaves _____ FAC-Neutral test
_____ local soil survey data _____ Other

Remarks: OHWM ~~below~~ approximately 8' below sample site.

SOILS

Hydric soils present? Yes (No)

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	10yr 4/3			Sandy loam
4-14	B	10yr 5/3			Sand

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks:

WETLAND DETERMINATION

Is this sampling point within a wetland? Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION

Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: Site high on banks of S. Platte River
Killdeer and Canada Goose present

GMLE JU

Site ~~6I25-5~~

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: S Platte Valley Hwy East Side	Date: 1-12-04
Investigator: CH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Apocynum cannabinum	15	H	FAC	1 Alyssum alyssoides	5	H	UPL
2 Bromus inermis	30	H	UPL	2 Echinocystis oregonus	5	H	FAC
3 Conium maculatum	30	H	FACW	3			
4 Cirsium arvense	5	H	FACW	4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 50

Remarks: ~~30% without FAC plants cannot~~

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: No primary indicators. Fails FAC-neutral test. OHWM at least 8 feet below sample site.

SOILS — Hydric soils present? Yes (No)

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7	A	10yr 4/3			fine particles - clay loam
7-16	B	10yr 4/4			Sand - mixed w A horizon.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: A + B horizons mixed below 7" - likely due to frequent disturbance.

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: - High banks.

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site GALE4U

Project/Site: S. Platte River - Valley Highway Project East	Date: 1-12-04
Investigator: CH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — **Hydrophytic vegetation present?** (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
* 1 Conium maculatum	15	H	FACW	1 Bromus tectorum	10	H	UPL
2 Kochia scoparia	5	H	FACU	* 2 Salix exigua	20	S	OBL
3 Phalaris arundinacea	10	H	FACW+	3 Populus deltoides	10	T	FAC
* 4 Apocynum cannabinum	20	H	FAC	4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) * 100%

Remarks:

HYDROLOGY — **Wetland hydrology present?** Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: high water mark approx 24" below sample site. - no primary indicators

SOILS — **Hydric soils present?** Yes (No)

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	10yr 3/3			Sand/clay
3-16	B	10yr 6/4			Sand

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks:

WETLAND DETERMINATION — **Is this sampling point within a wetland?** Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — **Is this an jurisdictional wetland?** Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site 8-6th-W1U

Project/Site: South Platte River 8th Ave. - West Banks	Date: 1/8/04
Investigator: CH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — **Hydrophytic vegetation present?** Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Bromus inermis	60	H	UPL	1 Cirsium arvense	5	H	FACW
2 Carex emoryi	15	H	OBL	2 Centaurea diffusa	5	H	UPL
3 Rumex crispus	5	H	FACW	3 Kochia scoparia	5	H	
4 Panicum virgatum	5	H	FAC	4 Ulmus pumila		T	

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 25

Remarks:

HYDROLOGY — **Wetland hydrology present?** Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: River Banks - ~~@~~ Supportive hydrology approx. 1-3' below the banks / riprap.

SOILS ✗ — **Hydric soils present?** Yes (No)

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: ✗ - Soil frozen - based on above indicators hydric soils not likely - slope consists of burned riprap.

WETLAND DETERMINATION — **Is this sampling point within a wetland?** Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — **Is this an jurisdictional wetland?** Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks: Top of South Platte river banks. 1-2' wide wetland swath at toe of slope

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site 8-6th E IV

Project/Site: South Platte River 8th Ave to 6th Ave - East Banks	Date: 11/8/04
Investigator: CH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Bromus inermis	85	H	UPL	1 Symphoricarpos albus		S	FAC
2 Asclepias speciosa	5	H	FAC	2 Elaeagnus angustifolia		T	FAC
3 Apocynum ~~Eleocharis~~ cannabinum	5	H	FAC	3 Ulmus pumila		T	FACW
4 Salix exigua		S	OBL	4 Conium maculatum		10	FACW

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 20

Remarks: - General commentary found

HYDROLOGY — Wetland hydrology present? Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: - River water approximately 10 feet lower - vegetation on upper banks

SOILS — Hydric soils present? Yes (No)

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: - Evidence of Fresh soil / buried rip rap. Presence of hydric soils not assumed based on vegetation, hydrology and presence of rip rap.

WETLAND DETERMINATION — Is this sampling point within a wetland? Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☐No

Remarks:

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site Van Pk - 1U

Project/Site: Valley Hwy Improvement Project - Vanderbilt Park	Date: 1/8/04
Investigator: CH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — **Hydrophytic vegetation present?** Yes (No)

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Bromus inermis	30	H	UPL	1 Populus deltoides		T	FAC
2 Rumex crispus	20	H	FACW	2 Ulmus pumila		T	
3 Agropyron cristatum	50	H	UPL	3			
4 Salix exigua		S	OBL	4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 20 - herbaceous layer

Remarks:

HYDROLOGY — **Wetland hydrology present?** Yes (No)

Primary indicators:
- _____ inundated, Depth _____ (in.)
- _____ saturated (upper 12"), Depth _____ (in.)
- _____ drift lines _____ sediment deposits
- _____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- _____ oxidized root channels in upper 12"
- _____ water-stained leaves _____ FAC-Neutral test
- _____ local soil survey data _____ Other

Remarks: Supportive hydrology approx 3 feet below data point

SOILS — **Hydric soils present?** Yes (No)

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-7	A	10yr 3/3	None	None	Clay loam
7-14	B	7.5yr 5/3	None	None	Sand

Hydric Soil Indicators:
- □ Histosol
- □ Histic Epipedon
- □ Sulfidic Odor
- □ High Organic Content in Surface Layer in Sandy Soils
- □ Aquic Moisture Regime
- □ Reducing Conditions
- □ Gleyed or Low-chroma colors
- □ Organic Streaking in Sandy Soils
- □ Concretions
- □ Listed on hydric soil list

Remarks:

WETLAND DETERMINATION — **Is this sampling point within a wetland?** Yes (No)

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — **Is this an jurisdictional wetland?** Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? □Yes □No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? □Yes □No

Remarks: Several small nests in trees adjacent to pond.

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site Ren PL-2

Project/Site: Valley Hwy Improvement Project - Vanderbilt Park	Date: 1/8/04
Investigator: CH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad:

VEGETATION — **Hydrophytic vegetation present?** (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Scirpus tabernaemontani	50	H	OBL	1			
2 Typha latifolia	50	H	OBL	2			
3				3			
4				4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 100

Remarks:

HYDROLOGY — **Wetland hydrology present?** (Yes) No

Primary indicators:
- X inundated, Depth 6 (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS — **Hydric soils present?** (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: Site inundated - hydric soils assumed based on hydrology

WETLAND DETERMINATION — **Is this sampling point within a wetland?** (Yes) No

Remarks:

JURISDICTIONAL WETLAND DETERMINATION — **Is this an jurisdictional wetland?** Yes (No)

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☐Yes ☒No

Remarks: no surface connection to navigable waters

DATA FORM - ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Site F-6th SW-1

Project/Site: Valley Hwy Project SW corner 6th + Fed - Park	Date: 1/8/04
Investigator: CH	County/State Denver
Is the site significantly disturbed (atypical situation)? Yes (No)	USGS Quad: _____

VEGETATION — Hydrophytic vegetation present? (Yes) No

Dom. Plant Species	Rel. %	Stratum	Indicator	Dom. Plant Species	Rel. %	Stratum	Indicator
1 Typha latifolia	80	H	OBL	1			
2 Scirpus pungens	5	H	OBL	2			
3 Carex emoryi	5	H	OBL	3			
4 Cirsium arvense	5	H	FACU	4			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC) 90

Remarks:

HYDROLOGY — Wetland hydrology present? (Yes) No

Primary indicators:
- X inundated, Depth 1 (in.)
- ____ saturated (upper 12"), Depth ____ (in.)
- ____ drift lines ____ sediment deposits
- ____ drainage patterns in wetlands

Secondary indicators (2 or more required):
- ____ oxidized root channels in upper 12"
- ____ water-stained leaves ____ FAC-Neutral test
- ____ local soil survey data ____ Other

Remarks:

SOILS ✱ — Hydric soils present? (Yes) No

Map Unit name: _____ Do field observations confirm mapped type?

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.

Hydric Soil Indicators:
- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-chroma colors
- ☐ Organic Streaking in Sandy Soils
- ☐ Concretions
- ☐ Listed on hydric soil list

Remarks: ✱ Assume hydric soils based on hydrology

WETLAND DETERMINATION — Is this sampling point within a wetland? (Yes) No

Remarks:

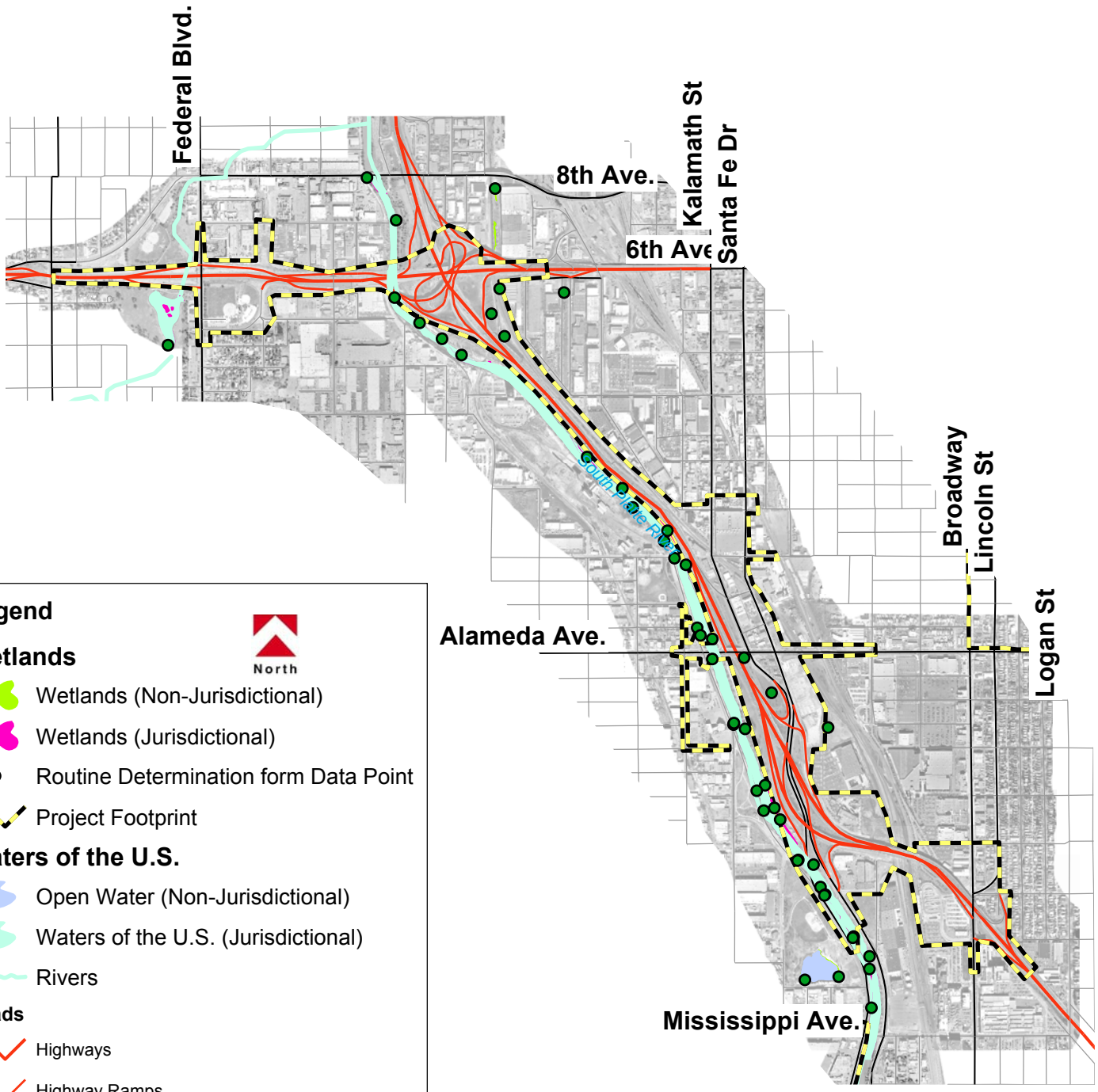
JURISDICTIONAL WETLAND DETERMINATION — Is this an jurisdictional wetland? (Yes) No

Is wetland adjacent or neighboring to jurisdictional waters (navigable waters or tributaries) or jurisdictional wetlands (wetlands adjacent to or with surface connections to jurisdictional waters)? ☐Yes ☐No

Does wetland have a surface connection to jurisdictional waters or jurisdictional wetlands? ☒Yes ☐No

Remarks: Surface connection to weir Gulch

APPENDIX C
FIGURES



Legend

Wetlands

North

- Wetlands (Non-Jurisdictional)
- Wetlands (Jurisdictional)
- Routine Determination form Data Point
- Project Footprint

Waters of the U.S.

- Open Water (Non-Jurisdictional)
- Waters of the U.S. (Jurisdictional)
- Rivers

Roads

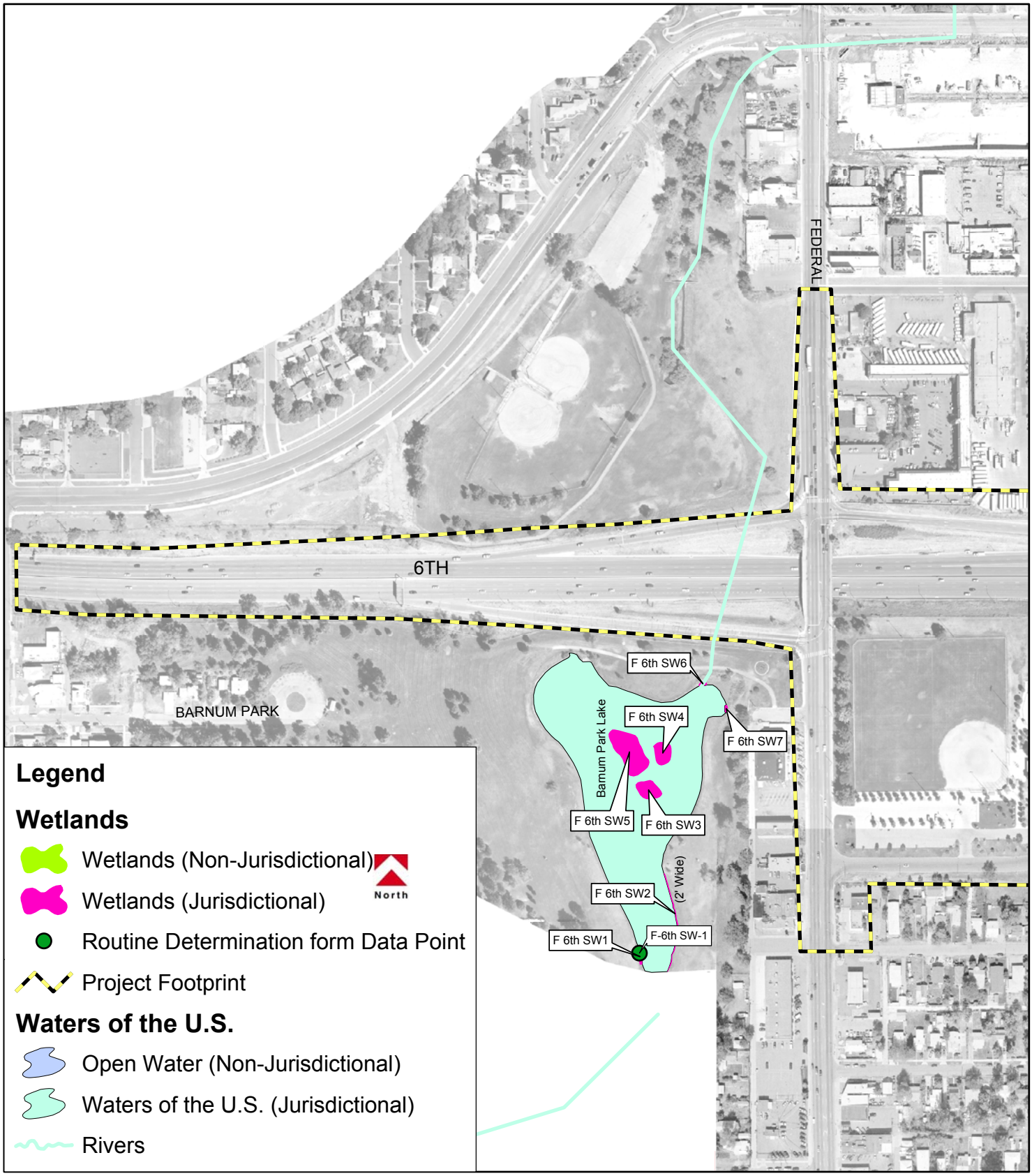
- Highways
- Highway Ramps
- Major Arterial
- Local Street

0 0.25 0.5 1 Miles

Wetland Delineation Map

Valley Highway - Logan to 6th Ave. Environmental Impact Statement (EIS)

Figure 1

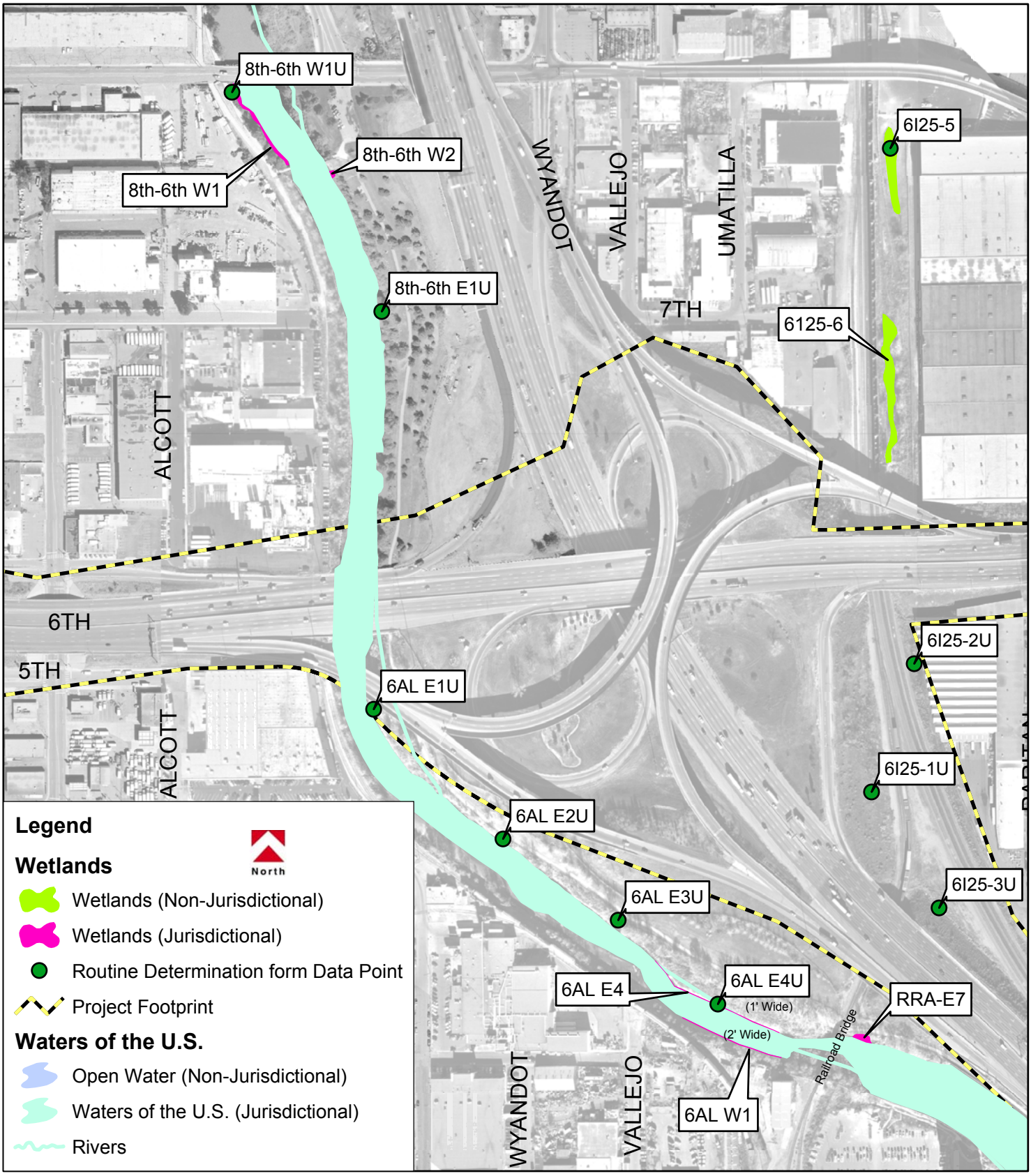


0 250 500 1,000 Feet

Wetland Delineation Map

Valley Highway - Logan to 6th Ave. Environmental Impact Statement (EIS)

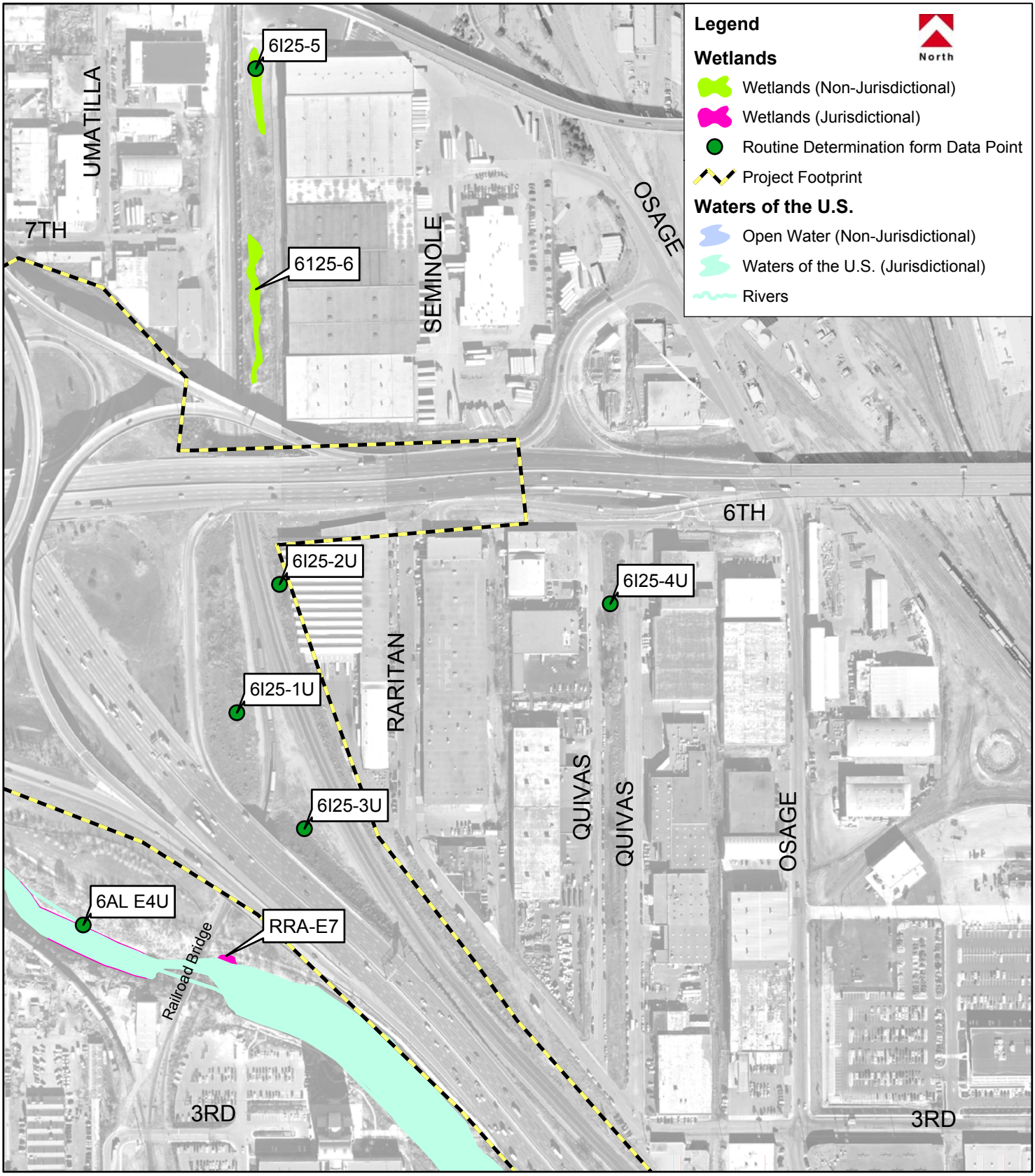
Figure 2



Wetland Delineation Map

Valley Highway - Logan to 6th Ave. Environmental Impact Statement (EIS)

Figure 3

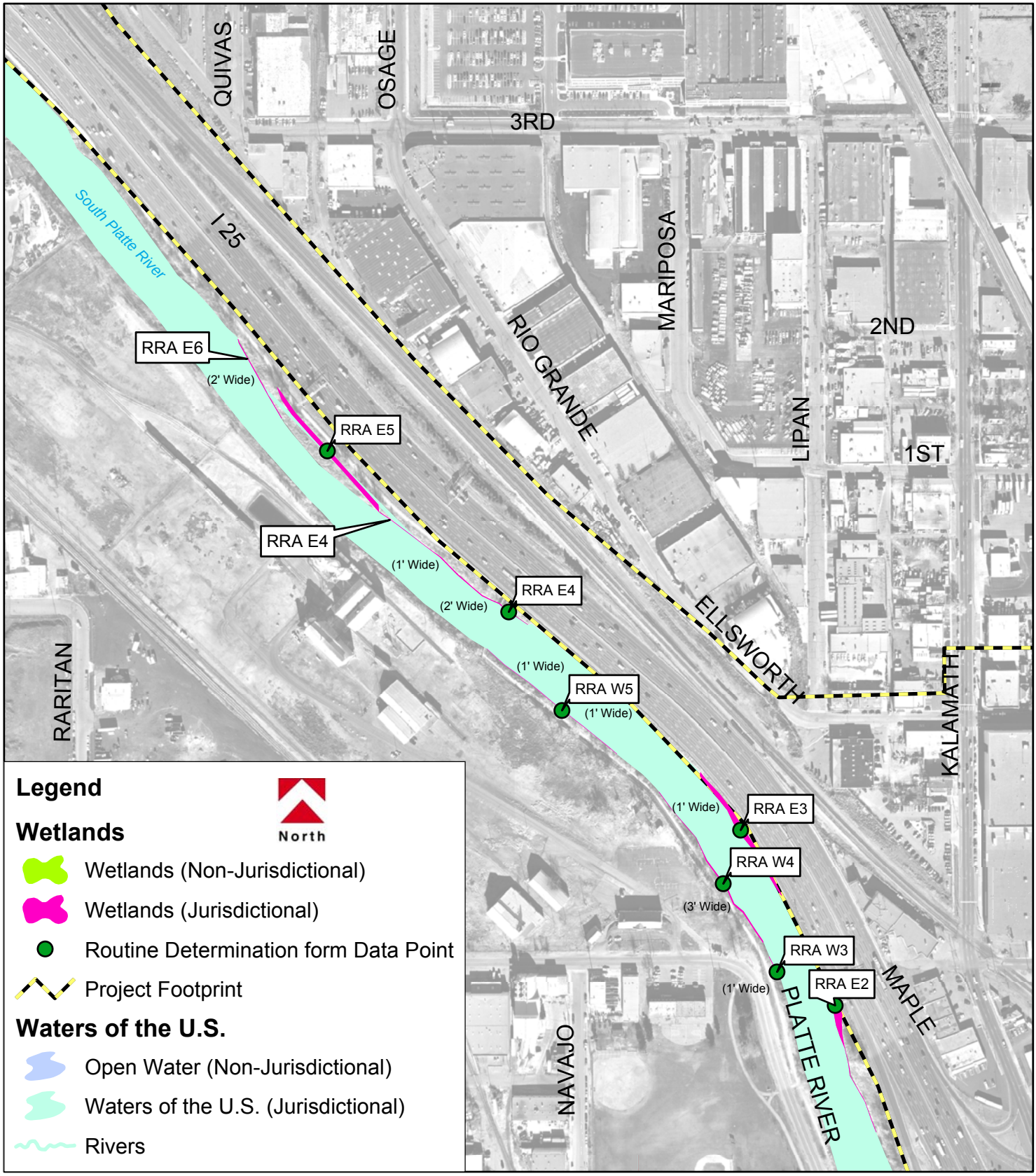


0 250 500 1,000 Feet

Wetland Delineation Map

Valley Highway - Logan to 6th Ave. Environmental Impact Statement (EIS)

Figure 4

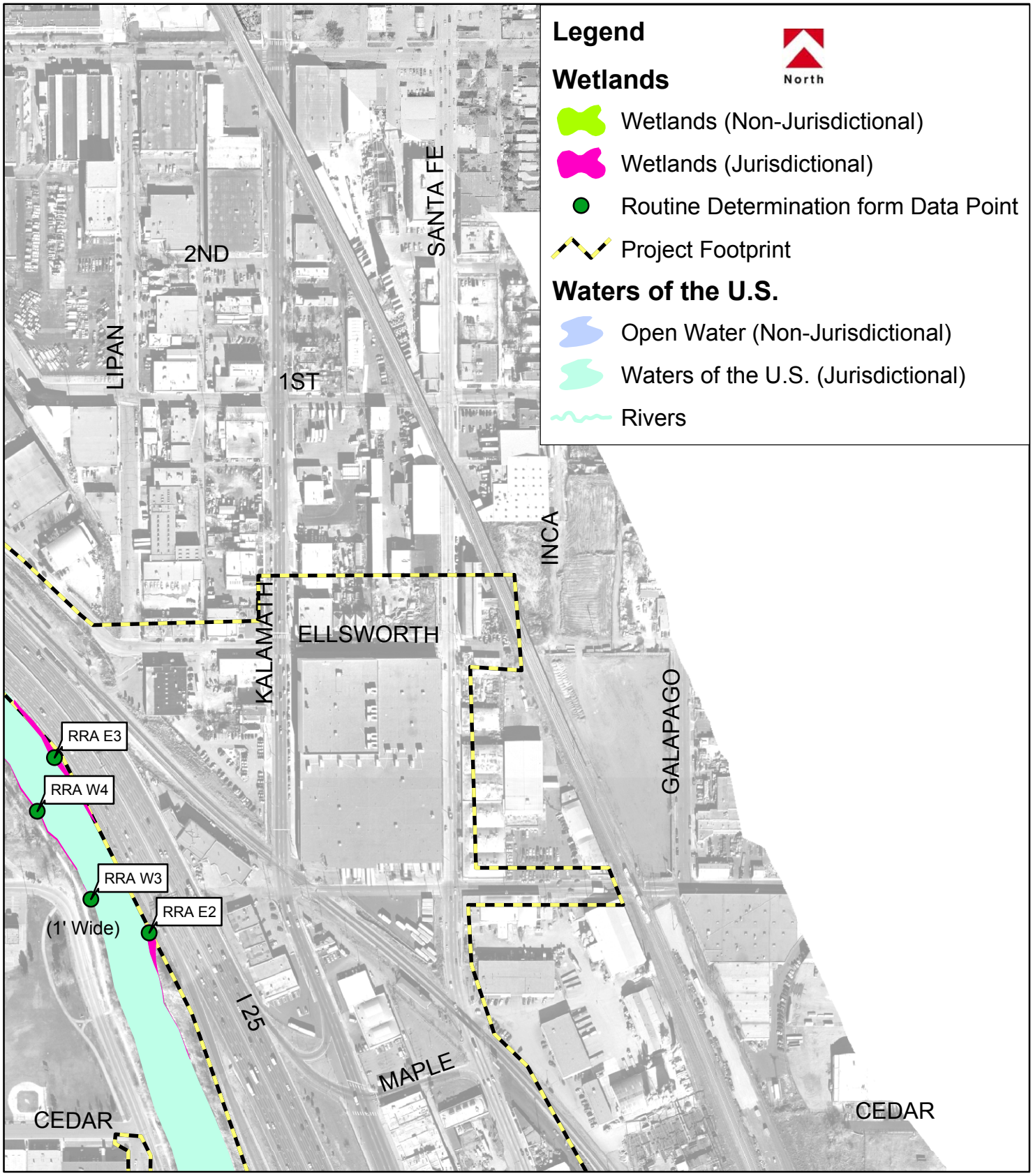


0 250 500 1,000 Feet

Wetland Delineation Map

Valley Highway - Logan to 6th Ave. Environmental Impact Statement (EIS)

Figure 5

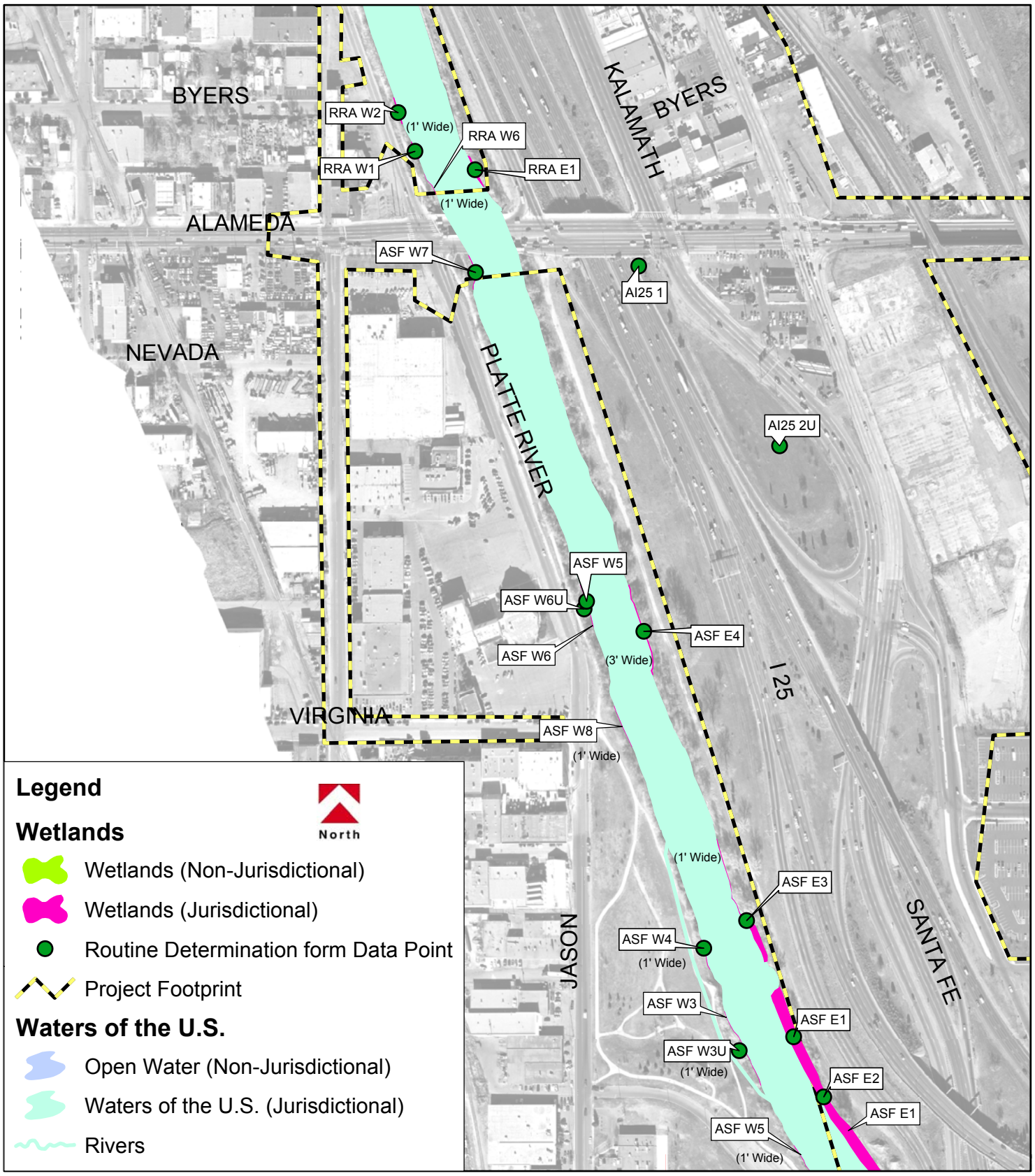


0 250 500 1,000 Feet

Wetland Delineation Map

Valley Highway - Logan to 6th Ave. Environmental Impact Statement (EIS)

Figure 6

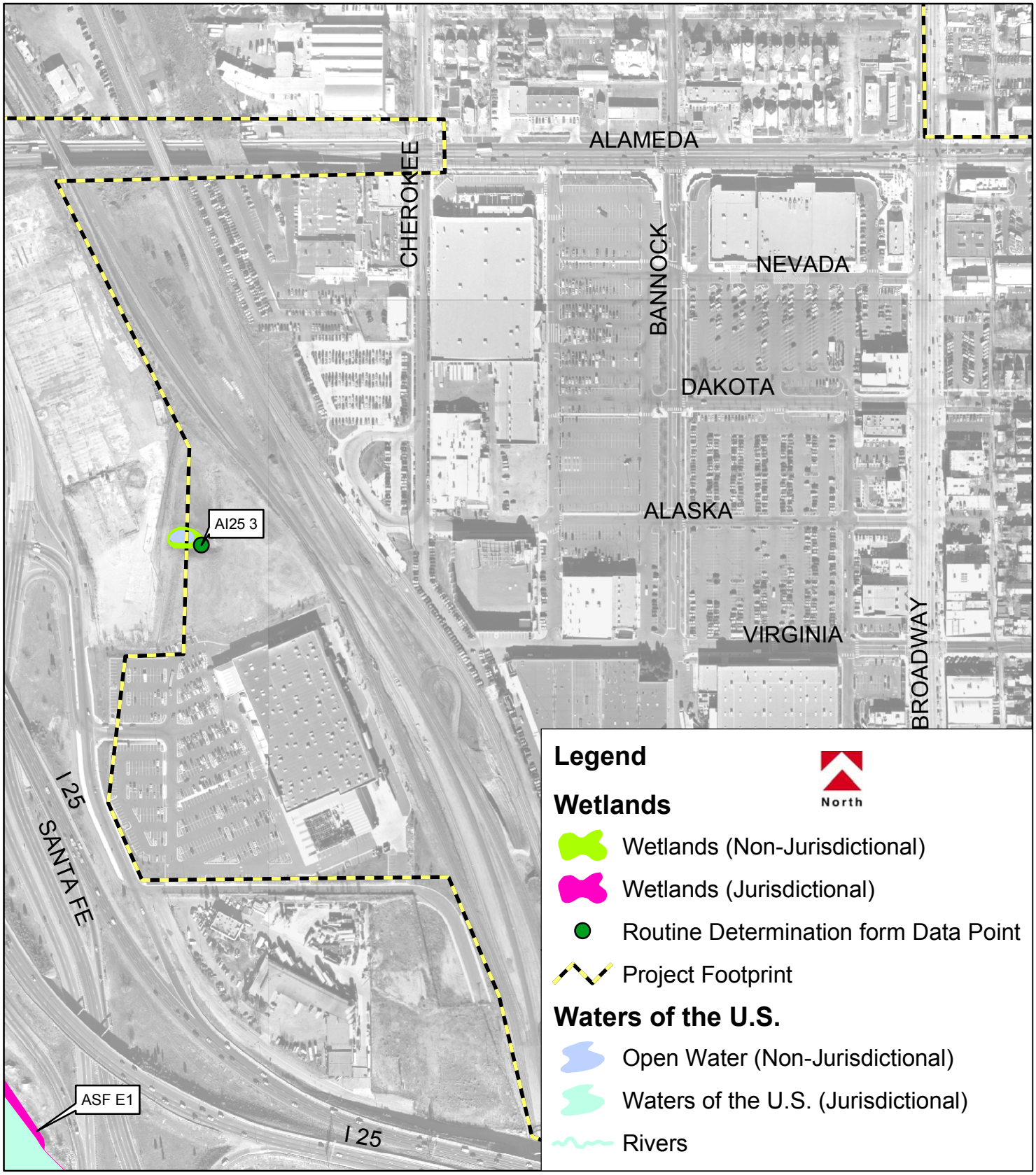


0 250 500 1,000 Feet

Wetland Delineation Map

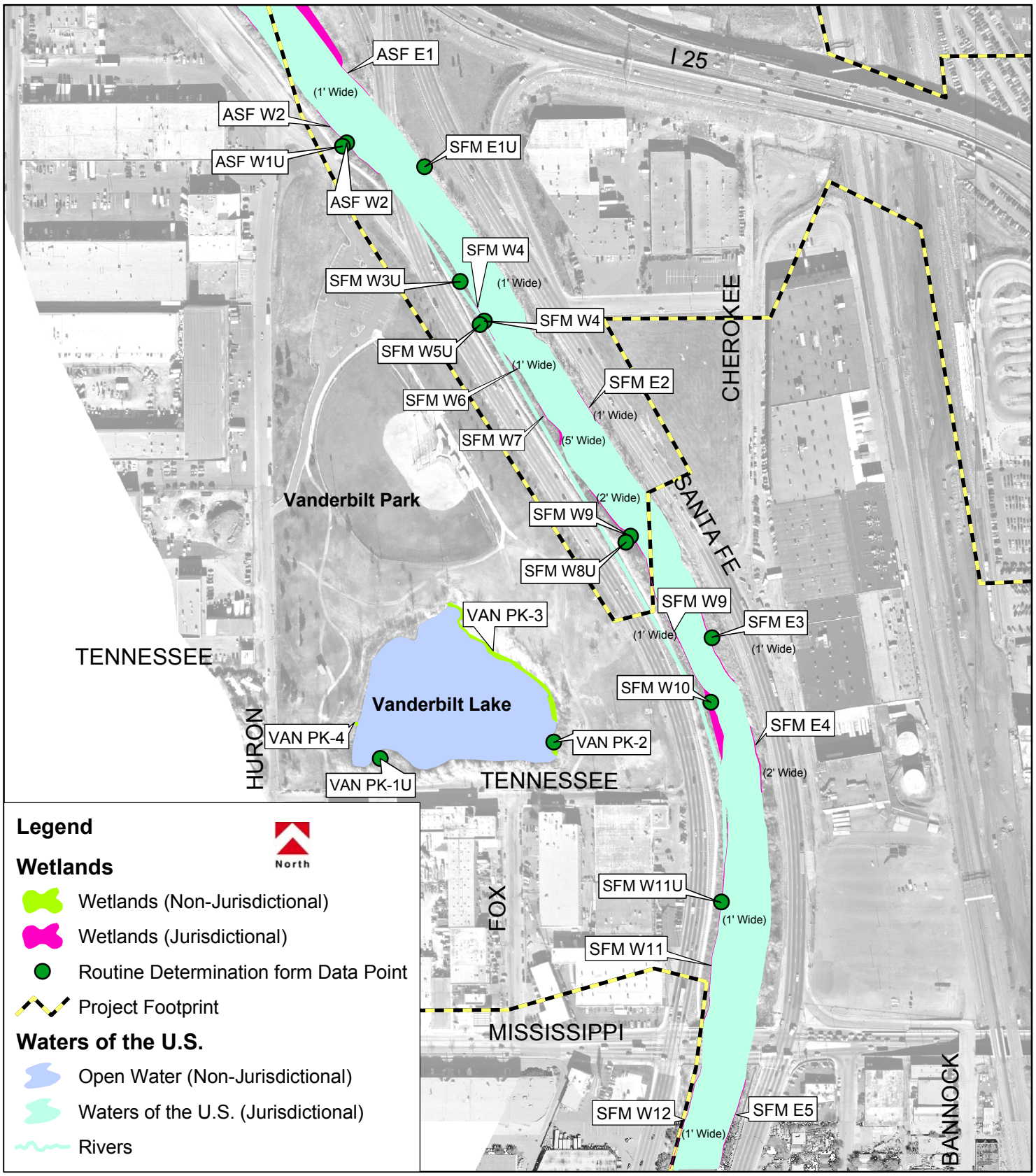
Valley Highway - Logan to 6th Ave. Environmental Impact Statement (EIS)

Figure 7



0 250 500 1,000 Feet

Wetland Delineation Map



0 250 500 1,000 Feet

Wetland Delineation Map

Valley Highway - Logan to 6th Ave. Environmental Impact Statement (EIS)

Figure 9

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APPENDIX D
FUNCTIONAL ASSESSMENT DATA SHEET

Functions and Values of Representative Wetlands in the Study Area.

Wetland No.	Montana Wetland Type	Wetland Functions and Values									
		General Wildlife Habitat	General Fish/ Aquatic Habitat	Flood Attenuation/ Storage	Sediment/ Nutrient/ Toxicant Removal	Sediment/ Shoreline Stabilization	Production Export/Food Chain Support	Ground Water Discharge/ Recharge	Uniqueness	Recreation/ Education Potential	Dynamic Surface Water Storage
		Rating									
F-6th SW3	Lacustrine, littoral, emergent	High	Moderate	Moderate	Moderate	High	High	Moderate	Moderate	Moderate	Moderate
F-6th SW2	Lacustrine, littoral, emergent	Low	Low	Low	Low	High	High	Low	Low	Low	Low
VAN PK-3	Lacustrine, littoral, emergent	High	Moderate	Moderate	Moderate	High	High	Moderate	Moderate	Moderate	Moderate
Average Rating	***Lacustrine, littoral, emergent***	***High***	***Moderate***	***Moderate***	***Moderate***	***High***	***High***	***Moderate***	***Moderate***	***Moderate***	***Moderate***
ASF E1	Riverine, palustrine, shrub/scrub	High	NA	High	Moderate	High	High	Moderate	Moderate	Moderate	Moderate
RRA W5	Riverine, palustrine, shrub/scrub	Moderate	NA	Low	Low	Moderate	Low	Low	Low	Low	Low
SFM W9	Riverine, palustrine, shrub/scrub	High	NA	Moderate	Moderate	High	Moderate	Low	Moderate	Moderate	Moderate
Average Rating	***Riverine, palustrine shrub/scrub***	***High***	***NA***	***Moderate***	***Moderate***	***High***	***Moderate***	***Low***	***Moderate***	***Moderate***	***Moderate***
ASF E4	Riverine, palustrine, emergent	High	NA	Moderate	Moderate	High	Moderate	Low	Moderate	Moderate	Moderate
RRA W1	Riverine, palustrine, emergent	High	NA	Moderate	Moderate	High	Moderate	Low	Moderate	Moderate	Moderate
SFM W10	Riverine, palustrine, emergent	High	NA	Moderate	Moderate	High	Moderate	Low	Moderate	Moderate	Moderate
Average Rating	***Riverine, palustrine emergent***	***High***	***NA***	***Moderate***	***Moderate***	***High***	***Moderate***	***Low***	***Moderate***	***Moderate***	***Moderate***

Wetland No.	Wetland Functions and Values										
	Montana Wetland Type	General Wildlife Habitat	General Fish/ Aquatic Habitat	Flood Attenuation/ Storage	Sediment/ Nutrient/ Toxicant Removal	Sediment/ Shoreline Stabilization	Production Export/Food Chain Support	Ground Water Discharge/ Recharge	Uniqueness	Recreation/ Education Potential	Dynamic Surface Water Storage
		Rating									
VANPK OW1	Lacustrine, limnetic, unconsolidated Bottom	High	High	High	Moderate	Low	Low	High	Moderate	High	High
AI25OW1	Lacustrine, limnetic, unconsolidated Bottom	High	High	High	Moderate	Low	Low	High	Moderate	High	High
Average Rating	***Lacustrine, limnetic, unconsol-idated Bottom***	***High***	***High***	***High***	***Moderate***	***Low***	***Low***	***High***	***Moderate***	***High***	***High***
SPR WUS	Riverine, unconsolidated bottom	Moderate	Moderate	High	Moderate	Low	Moderate	High	Moderate	High	High
Average Rating	***Riverine, unconsolidated bottom***	***Moderate***	***Moderate***	***High***	***Moderate***	***Low***	***Moderate***	***High***	***Moderate***	***High***	***High***