Prospectus for

Judge Orr Mitigation Bank

Prepared By:

CEDAR CREEK
ASSOCIATES, INC.

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List of Acronyms and Abbreviations

Cedar Creek	Cedar Creek Associates, Inc.
EPA	U.S. Environmental Protection Agency
HGM	Hydrogeomorphic Wetland Classification System
HUC	Hydrologic Unit Code
IPaC	Information, Planning, and Conservation System
NWI	National Wetland Inventory
Pete Lien	Pete Lien & Sons, Inc.
PCA	Potential Conservation Area
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WOTUS	Waters of the U.S.

Wetland Indicator Codes

OBL	Obligate Wetland
FACW	Facultative Wetland
FAC	Facultative
FACU	Facultative Upland
UPL	Upland

1.0 OBJECTIVES OF PROPOSED BANK

The primary goal of the project is to develop a commercial wetland mitigation bank, with the intent of providing compensatory mitigation for permitted impacts to Wetlands and Waters of the United States. This will be accomplished through establishment, enhancement, and preservation of wetlands on the bank property. The Site is owned by the bank sponsor, Pete Lien and Sons, Inc., which ensures long term management plans are carried out. The bank property's desirability as a mitigation property is its potential for ecological uplift opportunities. The bank property has sufficient hydrology with a perennial stream and a natural seep. The mitigation credits generated by the bank will be used by permittees within the southwest tablelands ecoregion of the Arkansas River watershed. The Judge Orr bank will provide greater flexibility to applicants needing to comply with mitigation requirements as transportation projects and future regional growth create a need for additional compensatory mitigation options.

In this way the proposed bank seeks to:

1. Establish, enhance, and preserve aquatic resources to provide compensatory mitigation for unavoidable impacts to Waters of the United States.
2. Provide an advanced compensatory mitigation alternative to permittee-responsible mitigation in a region with a single mitigation bank and no in-lieu fee program. Bank credits to be made available commercially.

The bank property is a 48.4-acre drainage basin on the eastern portion of a 92.5-acre pasture (Site) northeast of the city of Falcon (section 34, T12S R64W) in El Paso County, Colorado (Figure 1). The bank property is located on the eastern half of the Site, this area was selected because it encompasses all of the bank features and is controlled by the sponsor (Figure 6). The bank is within the Foothills Grasslands of the Southwestern Tablelands ecoregion and supports a palustrine system of herbaceous wet meadows dominated by grasses and a pond dominated by open water and cattails (Figure 2). The bank property is within the Upper Arkansas Basin and the banks hydrology is supported by a crossing stream and local seep. Table 1 below summarizes the Site conditions and proposed bank operations for the Judge Orr Mitigation Bank project.

Table 1. Judge Orr Mitigation Bank Summary

Project Name	Judge Orr Mitigation Bank	
Project Sponsors	Pete Lien and Sons, Inc.	
Project Land Owner	Pete Lien and Sons, Inc.	
Site Location	S1/2 of SW1/4 of section 34, T.12S, R.64W	
Counties within the watershed	El Paso and Pueblo	
HGM Classification	SLOPE: groundwater discharge, saturated; *herbaceous*, *shrub* RIVERINE: freshwater, flood plain, ponded; *herbaceous*	
NWI Classification	PEM1: Palustrine Persistent Freshwater Emergent PSS1: Palustrine Scrub-Shrub Broad-Leaved Deciduous PUB3: Palustrine Unconsolidated Bottom, Mud	
Ecoregion	Region 26j	Southwestern Tablelands (26) Foothill Grasslands (j)
6-digit HUC 8-digit HUC 10-digit HUC 12-digit HUC	Upper Arkansas Chico Black Squirrel Creek Haegler Ranch	110200 11020004 1102000402 110200040201
Proposed Service Area	Colorado portions of the Southwestern Tablelands within the Upper Arkansas (HU-6)	Includes HU-8: 11020002 through 11020013
Protection Mechanism	Ownership, Ground water rights, mineral rights, Colorado Water Law, and Easements	
Monitoring Frequency	Annually for 5 years or until Project is complete	
Anticipated Date of Final Monitoring	2027	
Size of Site Property	92.5 ac	
Size of Bank Property	48.4 ac	
Species of Concern	None	
Pre-Existing Wetlands in Bank	19.0 ac (including open water)	
Pre-Existing Upland Buffer in Bank	23.0 ac	
Stream Length on Site	Tributary-East: 687 feet (868 feet including Pond) Tributary-West: 1,164 feet	

2.0 ECOLOGICAL SUITABILITY OF THE SITE

2.1 Historical Land Use

The Site is currently vacant with no permanent structures other than the perimeter fence. The Site is zoned as agricultural land with the intended land use of grazing-land, but since it's purchase in April of 2018, grazing has been removed from the property. Observations indicated that the property is still utilized by urban wildlife such as prairie dogs, coyotes, songbirds, and migratory birds such as Canadian geese.

The abutting property (north and east boundaries) is an undeveloped lot, currently being used for livestock grazing. The southern boundary of the bank property runs parallel Judge Orr Rd., and the western boundary runs parallel to Stapleton Rd.

The development of a mitigation bank on the property will not have an adverse impact on adjacent lands. As Figure 8 depicts, the bank property is located within CNHP potential conservation area ranked as B2 with a very high biodiversity significance. These regions of biodiversity significance were determined by comparing land areas for their relative capacity to support unique ecological communities, a particular species, or suit of species. The historic grazing and extensive prairie dog colony on Site has diminished biodiversity so the generalized CHNP rank of B2 is not applicable to the Site in its current condition. Proposed mitigation activities should benefit Site biodiversity.

2.2 Wildlife

Wetland and upland herbaceous habitats in the bank property are valuable habitats in that they typically support a greater diversity of plants and animals. In addition, many wildlife species from adjacent upland habitats rely on wetland habitats for obtaining food, cover, and water on a regular or intermittent basis. These wetland areas are fairly well developed in terms of soils and hydrology, but species diversity is limited to the same dominant herbaceous species (1-3 species per wetland) and woody species presence is relatively minor and underdeveloped with the exception of coyote willow (*Salix exigua*) dominating WL-2. Wildlife species potentially present in wetland and upland herbaceous habitats along the unnamed drainage and in the northeast property corner include small mammals, Woodhouse's toad (*Anaxyrus woodhousii*), chorus frog (*Pseudacris* sp.), and

wandering garter snake (*Thamnophis elegans* ssp. *vagrans*). Red fox (*Vulpes vulpes*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), and open-country raptors such as red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), kestrel (*Falco sparverius*) and ferruginous hawk (*Buteo regalis*) may also hunt the drainage.

In terms of vegetation and wildlife species diversity, wildlife habitat value, and potential to support sensitive plant and wildlife species, the stream and pond areas represent the most important habitats in the bank property. Open water habitats are limited in areal extent in the Greater Colorado Springs Area. Wetlands and associated seasonal open water habitats provide foraging, resting, and breeding habitat for some urban adapted species of waterfowl such as mallard (*Anas platyrhynchos*) and Canada goose (*Branta canadensis*). Wetlands with herbaceous and woody vegetation cover also support a variety of other wildlife populations including small mammals, mammalian predators, songbirds, reptiles, and amphibians.

Larger trees and snags in riparian habitats near the bank property provide important foraging and/or nesting habitat for woodpeckers, variety of songbirds, and raptors such as red-tailed hawk, Swainson's hawk, kestrel, and great horned owl (*Bubo virginianus*).

An active prairie dog colony is located throughout the uplands of the property. Other wildlife observations were limited to one coyote, five Canadian geese and several songbirds including the red-winged blackbird (*Agelaius phoeniceus*) utilizing the pond and stream.

2.3 Special Status Species and their Habitats

The USFWS Information, Planning, and Conservation System (IPaC) query revealed three birds, two fishes, one insect, and two flowering plants with the potential to occur in the bank property. Bird species are Eastern Black Rail (*Laterallus jamaicensis* ssp. *jamaicensis*), Piping Plover (*Charadrius melodus*), and Whooping Crane (*Grus americana*). Fishes species are Greenback Cutthroat Trout (*Oncorhynchus clarkii stomias*) and Pallid Sturgeon (*Scaphirhynchus albus*). The insect species is Monarch butterfly (*Danaus plexippus*). Flowering plant speces are Ute Ladies'-tresses (*Spiranthes diluvialis*) and Western Prairie Fringed Orchid (*Platanthera praeclara*). The results of the query are found in Appendix E.

Ute Ladies'-tresses occurs along riparian edges, gravel bars, old oxbows, high flow channels, and moist to wet meadows along perennial streams. It typically occurs in stable

wetland and seepage areas associated with old landscape features within historical floodplains of major rivers. It also is found in wetland and seepage areas near freshwater lakes or springs. Western Prairie Fringed Orchid occurs most often in mesic to wet unplowed tallgrass prairies and meadows but have been found in old fields and roadside ditches.

According to the USFWS determination key, the Site falls outside of parameters which would normally trigger protocol surveys for Ute Ladies'-tresses. The Site is located at an elevation above 6,500 ft along a perennial tributary of Black Squirrel Creek (Figure 4, Figure 3). The Site is not located in the 100-year flood plain and has no connectivity to Fountain Creek. Further, none of the commonly associated species were observed during the field surveys.

While seep fed wet meadows and a perennial stream channel with frequently flooded areas occur on Site, the Site also has a history of being heavily grazed, contains areas of elevated noxious/invasive weeds, and has an extensive prairie dog colony in the abutting upland habitats. All of this indicates that Ute Ladies'-tresses are unlikely to occur on the Site, and potential impacts from proposed mitigation actions are low to non-existent.

Given that the listed flowering species and fish species are not present in the pre-existing areas, it is unlikely that they will establish in the post-mitigation areas. Even if biodiversity on Site increases, it is unlikely that the listed bird and insect species would occur post-mitigation actions given the surrounding anthropogenic activities.

2.4 Sufficient Water Rights and Assurances

During a permit application for a ground water well in 2019, it was documented that Pete Lien was allowed access to the groundwater from the Laramie-Fox Hills, Arapahoe, and Denver aquifers underlying the Site property. While the well was never developed and the permit expired in 2020, the water rights remain intact. This ensures that the groundwater hydrology is protected and remains intact to support wetlands within the bank property. Public notice of this is provided in Appendix F.

Furthermore, all the surface water associated with this bank is part the Upper Black Squirrel Designated Basin Water Management District and is inherently protected by Colorado water law. Therefore, no user can negatively impact other users without a

substitute water supply plan which reduces the likelihood that the Site-level water supply for both groundwater and surface water would be affected by future development or use. All property rights documents are included in Appendix F.

2.5 Baseline Documentation

2.5.1 Ecoregion

Level 3 Ecoregion - SOUTHWESTERN TABLELANDS

The southwestern Tablelands flank the High Plains with red hued canyons, mesas, badlands, and dissected river breaks. Unlike most adjacent Great Plains ecological regions, little of the Southwestern Tablelands is in cropland. Much of this region is in sub-humid grassland and semiarid range land. The potential natural vegetation is grama-buffalo grass with some mesquite-buffalo grass in the southeast, juniper-scrub oak-midgrass savanna on escarpment bluffs, and shinnery (midgrass prairie with open low and shrubs) along the Canadian River.

Level 4 Ecoregion – FOOTHILL GRASSLANDS

The foothill grasslands of the Southwestern Tablelands exists between 5,900-7,000 feet (50-200 feet) on dissected and irregular plains. Surface geology in this region is quaternary alluvium, tertiary and Cretaceous arkosic conglomerate, sandstone, claystone, and shale. Soil series within the region are Bresser, Truckton, Ellicott, Stapleton, Columbine, Cushman, and Ascalon. Primariy land use and cover are grassland, rangeland, some scattered woodland and cropland. There is Increasing urban and residential development throughout the region. Annual precipitation is between 14-20 inches.

The natural vegetation communities are foothill prairies with a scattering of pine woodlands. Dominant species include yellow Indiangrass (*Sorgastrum nutans*), big and little bluestem (*Andropogon gerardii* and *A. scoparius*, respectively), switchgrass (*Panicum virgatum*), fescues (*Festuca* spp.), mountain muhly (Muhlenbergia montana), Junegrass (*Koeleria macrantha*), bluebunch wheatgrass (*Pseudoroegneria spicata*), needle-and-thread (*Hesperostipa comata*), slender wheatgrass (*Elymus trachycaulus*), Western wheatgrass (*Pascopyrum smithii*), sideoats grama (*Bouteloua curtipendula*), and

galleta grass (*Hilaria* spp.). Ponderosa pine (*Pinus ponderosa*), mountain mahogany (*Cercocarpus montanus*), Gambel oak (*Quercus gambelii*), Western serviceberry (*Amelanchier alnifolia*), and chokecherry (*Prunus virginiana*) are also found in small, scattered pockets.

2.5.2 Hydrology

The National Hydrography Dataset (NHD) indicates that there are two un-named intermittent streams crossing the Site and an associated pond that is intermittently flooded. These un-named streams merge approximately 23 nautical miles downstream of the Site and are tributaries to the Black squirrel Creek, which feeds into the Chico Creek, and ultimately the Arkansas River before moving out of the Upper Arkansas River Basin (Figure 3). The Western stream (Tributary-West) crosses in the southwest corner of the Site and is functioning as an ephemeral drainage which has upstream diversions and impoundment to re-direct and alters flows. The stream enters the Site via a culvert under Stapleton Rd and flows southeast into the roadside ditch (South Ditch) paralleling Judge Orr Rd. There is no culvert where Tributary-West intersects Judge Orr Rd. Rather, two loose-rock water bars help to control and re-direct surface flows into the stormwater drainage system. An open grate is located further east along the Site's property line, which could be an underground portion of the stormwater detention system, but this has not been confirmed. Surface connection to the downstream portion of the stream could not be determined. There is a single wetland located along the downstream side of the concrete-rock water bar which has been augmented enough to retain a small area of surface water. OHWM indicators are inconsistent along Tributary-West. Tributary-West was dry during all three field surveys and does not intersect the bank property (Figure 7).

The Eastern stream (Tributary-East) crosses through the northeast corner of the property and is ponded at the eastern boarder of the bank property before leaving the Site. Based on field observations the stream and pond contained water throughout most of the year and would be more accurately categorized as perennial. The stream enters the Site through the fence line and flows over an earthen water bar and into the pond. The pond is artificial and maintained by the earthen dam that restricts surface water. The stream has eroded a channel through the water bar. Most of the water exits the pond under the dam to continue off Site or through evaporation, but there is also an overflow

outlet where surface water is directed further on Site southwest along the dam. Max water depth in the channel varies, with upstream depths around 0.5 inches and downstream depths around 2 inches with a low flow rate of approximately 37.6 cubic inch/sec. Tributary-East has continuous OHWM indicators which continue along the defined channel and around the pond. Max depth of the pond is estimated to be less than 2 ft. There are no OHWM indicators along the overflow outlet. Tributary-East supports a portion of the wetlands on the bank property (Figure 7).

NHD does not list any seeps/springs on or around the Site, however observations indicate that there is a seepage spring supporting most of the wetlands on the bank property. The seepage area is dispersed across the northeast corner of the bank property and is denoted by hydrophytic vegetation semi-permanently inundated to a max depth of 0.5 inches and a healthy stand of coyote willows (Figure 7). Site observations indicate that the seep is a developed perennial helocrene spring emerging into a wet meadow with a max water depth of 0.5 inches but no open water. There are no diversions or regulation, but historic grazing has disturbed the spring through soil disturbance (hoof shears) and increased noxious weeds. No aquatic or semi-aquatic fauna were observed within the spring. It is possible that the seepage area extends to the north of the Site, but due to access restrictions, this was not confirmed during the field surveys. While most of the seep's water likely leaves through infiltration and evapotranspiration, it is expected that any remaining water is emptying into the Tributary-East stream system.

While surface connectivity between Tributary-East and other waters of the U.S., is confirmed, there are several impoundments and diversions used for local industrial/agricultural purposes both up and downstream of the Site which affect the stream's functionality. Surface connectivity between Tributary-West and other waters of the U.S. is unconfirmed by the field observations Neither tributary is navigable, and no interstate or foreign commerce is supported at or upstream of the Site. According to the EPA's evaluation of the Chico Creek tributaries in 2020, aquatic life is impaired due to elevated ammonia levels.

2.5.3 Geology/Topography

The Site elevation ranges between 6,800 ft. in the northwest corner and 6,740 ft in the southeast corner with a consistently low gradient (Figure 4). It is relatively flat, as reflected by the 60 ft. change in elevation. There are no slopes over 20% within the property boundary except for those associated with the earthen dam and the roadside ditches.

2.5.4 Soils

The USDA Web Soil Survey lists two soil series as present within the project (Figure 5). Most upland areas within the project boundary exist on Columbine gravelly sandy loam which have a very low surface runoff potential and consist of well-draining soils with a 2% rating for hydric components, making them highly suitable for warm season grasses, mat forming forbs, and low statured shrubs/subshrubs. These soils have historically supported native prairies but have since been converted to rangeland. Most wetlands and proposed mitigation activities within the project boundary exist on Fluvaquentic Haplaqolls which are poorly drained and have a very high surface runoff potential when thoroughly wet, with a 99% rating for hydric components, making them highly suitable to wetland establishment and/or re-establishment.

The delineated wetland boundary (Figure 7) follows closely to the WSS boundary for Fluvaquentic Haplaqolls soils on Site (Figure 5). The change between these two soils is distinct and readily observed in the field observations. Soil profiles were evaluated in the uplands and delineated wetlands to provide comparison data. While hydric indicators were found predominantly within areas indicated as Fluvaquentic Haplaqolls soils, thus supporting the WSS determination of hydric soils within the bank property, the WSS mapping is still generalized. Meaning, some samples collected in Fluvaquentic Haplaqolls as shown on Figure 5 lacked hydric indicators or consisted of characteristics more in line with Columbine gravelly sandy loam and vice versa.

While all samples collected within the delineated wetland contain hydric indicators for soil, it is important to note that the lack of hydric indicators does not necessarily indicate that the soils are not hydric; vegetation and hydrology was also assessed during the delineation of wetlands within the bank property to help determine if hydric soils are present. There are some areas where hydric indicators were observed or assumed which lack either dominant

hydric vegetation or wetland hydrology. These areas were excluded from the pre-existing wetland delineation but are largely targeted for establishment mitigation actions.

Field observations of the Fluvaquentic Haplaqolls soils consisted of a dark surface layer between 11 and 32 inches thick followed immediately by a much lighter, depleted layer throughout the remaining sample. Redox features consisting of depletions and/or prominent and distinct concentrations as soft masses and pore linings were regularly observed within the dark surface of the hydric soils and were less frequently observed within the lower profiles. Generally, the surface layers consisted of clay/loam textures with varying degrees of sand while the depleted layers consisted of coarser sandy material. A shallow O-Horizon was sometimes observed between 2 and 4 inches thick, but most of the samples consisted of mineral soils. Field observations of the Columbine gravelly sandy loam soils consist of lighter soils without depletions or redox features. Generally, these soils consist of a single layer or layers denoted by a change in texture. These soils typically have a loamy/sandy texture with varying degrees of clay appearing in the profiles.

3.0 SITE INVENTORY

The 92.5-acre Site containing the proposed bank property (48.4 ac) is generally comprised of three pre-existing areas; uplands, wetlands, and open water (Figure 7). The wetlands include all areas which exhibit all three characteristics of a wetland (vegetation, soils, and hydrology) as defined by USACE. The open water includes inundated areas with little to no rooted vegetation and is restricted to the OHWM associated with the pond. The uplands include all remaining areas of the Site where vegetation communities are dominated by upland species. Most of the uplands lack all three characteristics of a wetland, but there are some areas within the uplands which exhibit one or two of the required USACE wetland characteristics. There are 4 potential WOTUS located on Site, two tributaries (including associated wetlands), one pond, and one seep (including associated wetlands). The details of the aquatic resources associated with the Site are listed in Table 2 below.

Field verification and identification of OHWM associated with potential waters of the U.S. (WOTUS) within the Site were conducted on May 18, 2022. Initial wetland delineations were conducted in May and June 2021 and additional samples were collected in support of this delineation on May 19 and June 29, 2022. All findings have been revised as of July 2022 to reflect the definition of WOTUS as defined in the current Implementation of Waters of the United States (EPA, Pre-2015 Regulatory definition and practice). No jurisdictional determination has been made regarding the wetlands and waters of the U.S. on site.

There are several grass-lined "furrows" located within the upland and occasionally intersecting the pre-existing wetlands. There are four water bars on Site located along the tributaries formed from several materials including earth (earthen water bar), loose stacked rocks (loose-rock water bar), and rocks which have been concreted in place (concrete-rock water bar). There are two roadside ditches which are part of the stormwater detention system, but these ditches do not intersect the Site boundary (Figure 6). Photo locations of the map features including the wetlands and waters are shown on Figure 6.

Table 2. Aquatic Resource Inventory

Aquatic Resource ID	Bank Property	Cowardian Code	Area (ac.)	Length x Width (ft.)	Flow Frequency	Connectivity
Tributary-East	In Bank	PEM1Hh	0.26	687 x 22	Perennial	Black Squirrel Creek --> Chico Creek --> Arkansas River
Wetland-4	In Bank	PEM1D	1.66	---	Perennial	Tributary-East
Pond	In Bank	PUB3	0.39	181 x 134	Perennial	Tributary-East
Tributary-West[1]	Out of Bank	---	---	1,164 x 15	Ephemeral	Tributary-East --> Black Squirrel Creek --> Chico Creek --> Arkansas River
Wetland-5	Out of Bank	PEM1F	0.03	---	Perennial	Tributary-West
Seep[2]	In Bank	PEM1F	---	350 x 158	Perennial	Tributary-East
Wetland-1	In Bank	PEM1B	14.91	---	Perennial	Tributary-East
Wetland-2	In Bank	PSS1B	0.10	---	Perennial	Tributary-East
Wetland-3	In Bank	PEM1B	1.69	---	Perennial	Tributary-East

[1]Length measurements include portions distinguishable from the roadside ditch; Width measurements were collected where OHWM is present. Downstream connectivity was undetermined during site surveys. OHWM and Wetland-5 are outside of the Bank Property.

[2]Measurments include max dimensions of inundated areas in the bank property at the seep's origin which overlaps portions of Wetland-1 and Wetland-2.

Cross sections of the tributaries were documented at 6 representative points to assess the potential waters of the US and document any OHWM indicators (Figure 7). Anthropogenic influences, vegetation characteristics, OHWM indicators, dimensions, and a field drawing of the cross section were all collected at these points. These field sheets are provided in Appendix B.

Climate data from nearby Colorado Springs indicates that the area is in a drought. Annual precipitation hasn't been well above average (15.97 inches) since 2015, when a record high of 25.25 inches were accumulated. Annual precipitation between 2016 and 2018 were around average with a low of 14.35 inches and a high of 18.44 inches. Annual precipitation in 2019 was 11.75 and 2020 had the lowest record precipitation, 9.89 inches, since 2012. 2021 had a slight increase in annual precipitation to 14.46 inches but remained below average and the current precipitation accumulation in 2022 (0.82 inches) is also below average for January through June (1.19 inches).

This ongoing drought was observed on Site as well. The extent of surface water and saturated soils extended further out towards the delineated wetland boundary during initial site visits in 2020 and 2021. The Eastern tributary and pond contained water at or above the OHWM during the initial site visits as well. As of the most recent site visit in late June 2022, surface water levels have dropped to below the OHWM in the Eastern tributary and pond and is only present in measurable amounts around the seepage area in Wetland-1. Saturation

within the soil profile and water table depths were also notably different between the initial observations in 2021 and the supplemental soil sampling which occurred in 2022. Redox features within the dark surface layer were more readily identified in 2022 versus 2021 given that the soils were saturated further down the profiles, leaving the upper layers in a "dryer" state.

3.1 Wetland Inventory

The USFWS National Wetland Inventory (NWI) lists two types of wetlands within the project boundary; Riverine wetlands which are located along the western stream and Freshwater Emergent Wetlands which are located along the eastern stream (including the ponded section). Field observations indicate that the NWI boundaries are not accurate for this Site. There is one small, localized wetland (Wetland-5) located in Tributary-West and one continuous wetland (Wetland-4) located along Tributary-East. Wetland-4 and the pond along Tributary-East have the HGM Classification of RIVERINE: freshwater, flood plain, ponded; *Herbaceous*. The three remaining wetlands (Wetland-1, Wetland-2, and Wetland-3) are located between the seep and the southeast corner of the bank property. These wetlands have the HGM Classification of SLOPE: groundwater discharge, saturated; *herbaceous, shrub*. Wetalnd-3 is located between the "Riverine" and "Slope" wetlands and is likely supported by both systems to some degree.

A total of 19.0 acres were delineated on May 14 and June 4 in 2021, within the bank property. An additional 0.03 acres of wetlands were delineated outside of the bank property on May 19, 2022. Additional soils data were collected on May 19 and June 29 in 2022. No changes were made to the pre-existing wetland boundaries within the bank property after May 19, 2022. Individual characteristics for each of the delineated wetlands are provided in Table 3 below. Wetland delineation and sampling work for the wetlands on the property were completed using the methods and techniques specified for "routine on-site delineations" in the publication, *Corps of Engineers Wetlands Delineation Manual* (USACE 1987), and supplemented by the document, *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region, Version 2.0* (USACE 2010). A summary of these results is found in Table 4 below. Soil profile photos are presented in Appendix A and field forms are presented in Appendix C.

Table 3. Wetland Inventory Summary

Wetland ID	Acres	Vegetation
Wetlands Supported by the Seep		
1	14.91	Vegetation near the seep is dominated by Nebraska sedge, clustered field sedge, and common three-square. Mountain rush and switchgrass become more dominant further from the seep, but the sedges remain prevalent throughout the wetland. Canada thistle and musk thistle are more concentrated near the seep, were observed through the wetland.
2	0.10	Vegetation is dominated by coyote willows in the shrub stratum with clustered field sedge, mountain rush, and Nebraska sedge present in the herb stratum. Canada thistle is also prevalent in the understory.
3	1.69	Vegetation is dominated by mountain rush in the herb stratum. Shrub stratum is minimal (<2% of the aerial extent) but Wood's rose and Western snowberry were also observed. Canada thistle is present in low densities.
Wetlands Supported by Tributary-East		
4	1.66	Vegetation is dominated by common three-square, mountain rush, and clustered field sedge.
Perennial Stream	0.26	Vegetation below the OHWM is dominated by Nebraska sedge, softstem bullrush, and broadleaf cattails.
Pond	0.39	Little to no rooted vegetation is present (<10% of the aerial extent). Broadleaf cattails and softstem bullrush are present near the upstream inlet and along a portion of the shoreline.
Wetlands Supported by Tributary-West		
5	0.03	Vegetation is dominated by common spikerush, goldenrod species, and softstem bullrush in the herb stratum. Shrub stratum is minimal (<2% of the aerial extent) but coyote willows were also observed. A few willows and a single cottonwood sapling were growing out of the concrete-rock water bar above the wetland.

Wetland-1, Wetland-2, and Wetland-3 are located on the gradual slope fed by a spring where groundwater is discharged to the surface creating an area with saturated overflow and no channel formation. These wetlands occur on a slight southeastern gradient of 1.7% which intergrades into the riverine wetlands downstream of the earthen dam. The predominant source of water is groundwater and interflow discharging at the land surface. Precipitation is a secondary contributing source of water. Hydrodynamics are dominated by downslope unidirectional water flow. These wetlands lose water primarily through saturated subsurface flows and by evapotranspiration. Wetland-1 contains the seep and extends towards the southeast corner of the bank property. Soils are continuously saturated and frequently inundated (approximately 0.5 inches) near the seepage area. Soils further from the seepage area appear to be seasonally saturated, with saturation appearing lower in the soil profile. Wetland-2 is located within the seepage area. Soils appear to be seasonally saturated, with saturation appearing lower in the soil profile. Wetland-3 is located between

Wetland-1 and Wetland-4 along the eastern bank property boundary. Soils appear to be seasonally saturated, with saturation appearing lower in the soil profile.

Wetland-4 and the Pond are associated with Tributary-East. Dominant water sources are overbank flow from the channel or subsurface hydraulic connections between the stream channel and wetlands. Additional sources are interflow, overland flow from adjacent uplands, and precipitation. When overbank flow occurs, surface flows down the floodplain may dominate hydrodynamics. These wetlands lose surface water through the return of floodwater to the channel after flooding and through surface flow to the channel during rainfall events. They lose subsurface water by discharge to the channel and evaporation. These wetlands are dominated by herbaceous species. Wetland-4 is located along Tributary-East, constrained by local relief. Water flows at or below the OHWM year-round and is dominated by persistent emergent vegetation. Soils above OHWM are continuously saturated to temporarily flooded. The artificial pond is located where Tributary-East exits the bank property along the eastern boundary. It is part of the same palustrine system as Wetland-4 but lacks the emergent vegetation and consists of a muddy unconsolidated bottom below the OHWM.

Wetland-5 is associated with Tributary-West. Dominant water sources are precipitation and overland flow from adjacent uplands. Wetland-5 is located immediately downstream of a concrete-rock water bar in Tributary-West. A small portion contained surface water and soils appear to be seasonally saturated to intermittently flooded. It is likely that this wetland is artificial and wouldn't exist without the water bar retaining water in the channel.

Table 4. USACE Wetland Delineation Sample Point Summary

Sample Point	Associated Map Features	Dominant Species/Wetland Designation	% Cover	Hydric Vegetation Present	Hydric Soils Present	Hydrology Present
SP-1	Upland (UEN-3)	Juncus arcticus ssp. littoralis - FACW	30	Yes	No	Yes
SP-2	Wetland-1 (WEN-1)	Carex praegracilis - FACW	40	Yes	Yes	Yes
		Carex nebrascensis - OBL	35			
SP-3	Wetland-1 (WEN-1)	Schoenoplectus pungens - OBL	40	Yes	Yes	Yes
		Carex praegracilis - FACW	15			
SP-4	Upland (WES-4)	Elymus lanceolatus spp. lanceolatus - UPL	35	No	No - Lacking Redox	Yes
		Bromopsis inermis - UPL	15			
		Pascopyrum smithii - UPL	15			
SP-5	Wetland-4 (WEN-3)	Schoenoplectus pungens - OBL	45	Yes	Yes	Yes
		Juncus arcticus ssp. littoralis - FACW	30			
SP-6	Upland (UEN-1)	Artemisia frigida - UPL	15	No	No*	No
		Erigeron spp. - UPL	10			
		Pascopyrum smithii - FACU	10			
SP-7	Wetland-1 (WEN-1)	Carex nebrascensis - OBL	25	Yes	Yes	Yes
		Juncus arcticus ssp. littoralis - FACW	15			
		Salix exigua - FACW	3			
SP-8	Wetland-1 (WEN-1)	Juncus arcticus ssp. littoralis - FACW	18	Yes	Yes	Yes
		Cirsium arvense - FACU	12			
SP-9	Wetland-1 (WEN-1)	Panicum c.f. virgatum - FAC	30	Yes	Yes	Yes
		Juncus arcticus ssp. littoralis - FACW	15			
		Rosa woodsii - FACU	2			
SP-10	Upland (UEN-3)	Bouteloua gracilis - UPL	25	No	Yes	No
		Artemisia frigida - UPL	8			
		Yucca glauca - UPL	5			
SP-11	Wetland-3 (WEN-2)	Juncus arcticus ssp. littoralis - FACW	35	Yes	Yes	Yes
		Rosa woodsii - FACU	1			
		Symphoricarpos occidentalis - UPL	1			
SP-12	Upland (WES-6)	Elymus lanceolatus spp. lanceolatus - UPL	25	No	Yes+	Yes
		Carex stenophylla - UPL	15			
SP-13	Upland (UEN-1)	Hetertheca villosa - UPL	25	No	No	No
		Carex stenophylla - UPL	8			
		Elymus lanceolatus spp. lanceolatus - UPL	8			
		Artemisia frigida - UPL	8			
SP-14	Wetland-1 (WEN-1)	Carex praegracilis - FACW	45	Yes	Yes	Yes
		Schoenoplectus pungens - OBL	30			
SP-15	Upland (UEN-1)	Elymus lanceolatus spp. lanceolatus - UPL	25	No	No	No
		Bromopsis inermis - UPL	15			
SP-16	Perennial Stream (OWEN-2)	Schoenoplectus tabernaemontani - OBL	35	Yes	Yes*	Yes
		Typha latifolia - OBL	25			
SP-17	Wetland-4 (WEN-4)	Carex praegracilis - FACW	40	Yes	Yes	Yes
		Schoenoplectus pungens - OBL	30			

*No soil profile collected.

+Soils initially observed in 2021 or May 2022. Assumed Hydric based on representative characteristics observed during the secondary sampling in June 2022.

Table 4. USACE Wetland Delineation Sample Point Summary (Cont'd)

Sample Point	Associated Wetland	Dominant Species/Wetland Designation	% Cover	Hydric Vegetation Present	Hydric Soils Present	Hydrology Present
SP-18	Upland (UEN-2)	Bouteloua gracilis - UPL	30	No	No	No
		Elymus lanceolatus spp. lanceolatus - UPL	20			
SP-19	Upland (WES-2)	Bouteloua gracilis - UPL	40	No	Yes+	No
SP-20	Upland (WES-3)	Elymus lanceolatus spp. lanceolatus - UPL	40	No	Yes	Yes
		Juncus arcticus ssp. littoralis - FACW	20			
SP-21	Upland (WES-1)	Pascopyrum smithii - UPL	40	No	Yes+	Yes
		Elymus lanceolatus spp. lanceolatus - UPL	20			
SP-22	Wetland-1 (WEN-1)	Carex nebrascensis - OBL	80	Yes	Yes	Yes
SP-23	Upland (WES-6)	Bouteloua dactyloides - FACU	45	No	No	No
		Elymus lanceolatus spp. lanceolatus - UPL	15			
SP-24	Upland (WES-5)	Schizachyrium scoparium - FACU	30	No	Yes	No
		Elymus lanceolatus spp. lanceolatus - UPL	15			
SP-25	Upland (UEN-1)	Elymus lanceolatus spp. lanceolatus - UPL	15	No	No	No
		Hetertheca villosa - UPL	15			
		Schizachyrium scoparium - FACU	10			
		Solidago sp. - UPL	10			
SP-26	Wetland-2 (WP-1)	Salix exigua - FACW	80	Yes	Yes	Yes
SP-27	Upland (UEN-3)	Bouteloua gracilis - UPL	10	No	Yes	No
		Cirsium arvense - FACU	10			
		Pascopyrum smithii - UPL	10			
		Elymus lanceolatus spp. lanceolatus - UPL	25			
SP-28	Upland (UEN-3)	Elymus lanceolatus spp. lanceolatus - UPL	20	No	No	No
		Pascopyrum smithii - UPL	10			
SP-29	Upland (WES-7)	Schizachyrium scoparium - FACU	30	No	Yes	Yes
		Juncus arcticus ssp. littoralis - FACW	20			
SP-30	Upland (UEN-3)	Elymus lanceolatus spp. lanceolatus - UPL	20	No	No	No
		Juncus arcticus ssp. littoralis - FACW	15			
		Bouteloua gracilis - UPL	15			
SP-31	Upland (WES-1)	Bouteloua gracilis - UPL	15	No	Yes	Yes
		Carex praegracilis - FACW	10			
		Hesperstipa comata - UPL	10			
		Juncus arcticus ssp. littoralis - FACW	10			
SP-32	Wetland-5 (No Action)	Schoenoplectus tabernaemontani - OBL	15	Yes	Yes	Yes
		Eleocharis palustris - OBL	15			
		Solidago sp. - UPL	15			
SP-33	Upland (No Action)	Bouteloua dactyloides - FACU	10	No	No	No
		Solidago sp. - UPL	10			
		Unknown Annual Forb - UPL	8			
SP-34	Wetland-1 (WEN-1)	Juncus arcticus ssp. littoralis - FACW	60	Yes	Yes	Yes
		Calamovilfa longifolia - UPL	20			
SP-35	Upland (UEN-1)	Bouteloua dactyloides - FACU	10	No	No*	No
		Pascopyrum smithii - UPL	8			

*No soil profile collected.

+ Soils initially observed in 2021 or May 2022. Assumed Hydric based on representative characteristics observed during the secondary sampling in 2022.

3.2 Upland Vegetation

There is a total of 73.5 acres of upland on the Site. The existing upland vegetation has been "thinned" due to the presence of an extensive prairie dog colony. Cover in the uplands is relatively short and sparce throughout the property, but notably increases with the proximity to the wetlands. Dominant species within the upland area are: Western wheatgrass, thick spike wheatgrass (*Elymus lanceolatus* spp. *lanceolatus*), blue grama (*Bouteloua gracilis*), fringed sage (*Artemisia frigida*), and soapweed (*Yucca glauca*).

Areas within the upland which exhibit some wetland characteristics have a greater potential for the wetlands to establish in these areas after the mitigation efforts have occurred, thereby increasing the post-mitigation wetland acreage within the bank. Vegetation within these areas are dominated with these same upland species but hydric species such as mountain rush (*Juncus arcticus* ssp. *littoralis*), Nebraska sedge (*Carex nebrascensis*), and switchgrass (*Panicum virgatum*) are also common.

3.3 Invasive Species

Noxious and invasive species were observed on the property in 2021 and 2022. The B list noxious weeds, Canada thistle (*Cirsium arvensis*) and musk thistle (*Carduus nutans*) were observed within both wetland and upland vegetation. The C list noxious weeds, Common mullein (*Verbascum thapsus*) and cheatgrass (*Bromus tectorum*) were observed within the upland vegetation. Various invasive annuals such as Russian thistle (*Salsola tragus*) and tall tumbleweed mustard (*Sisymbrium altissimum*) were also observed in the upland.

4.0 BANK ESTABLISHMENT

4.1 Bank Protection Instrument

Pete Lien owns the Site and bank property outright, so grazing rights, easement establishment, and development decisions can all be made in the best interest of the bank. The property is currently zoned A-35, Agricultural (35-acres). If approved, the Bank mitigation property will be placed under a permanent conservation easement in favor of a certified land trust. The conservation easement will be recorded in the El Paso County deed records and will not only prohibit cattle grazing and commercial development but also restrict any Site activities and disturbance that do not support the functional objectives of the Project. The Site will be monitored annually by the land trust to ensure that these easement restrictions are followed. The conservation easement will include the USACE's rights to enforce the easement and the right to comment on any modifications that could occur at the Bank.

4.2 Determination of Credits

Functional credit determination will be outlined in detail in the Bank Development Plan and will follow the standardized compensatory mitigation procedures for quantifying compensatory mitigation found in the Colorado Mitigation Procedures (USACE 2020). This methodology will evaluate existing and potential wetland conditions and allow for the determination of credit types and mitigation ratios. These functions include short- and/or long-term surface water storage, subsurface water storage, modernization of groundwater flow and discharge, dissipation of energy, cycling of nutrients, removal of elements and compounds, retention of particulates, export of organic carbon, and maintenance of plant and animal communities.

Pre-existing areas will be protected and mitigated through the establishment, enhancement, and preservation of aquatic resources within the bank property. Each mitigation action will generate varying degrees of functional uplift for wetlands at the bank. Established and/or re-established wetlands will experience significant functional uplift to all of the aforementioned ecological functions. This transformation will also result in a net gain in wetland acreage. Enhancement activities, including weeding, native vegetation

seeding/planting, and cattle exclusion, will improve an individual or smaller suit of functions including plant and animal communities, nutrient cycling, and retention of particulates. These activities, however, will not increase the net acreage of wetlands at the bank. Preservation will not result in any functional uplift given that preservation denotes maintenance of existing function. The ratios presented on the credit estimate table below were derived from the guidance and at this time do not account for any projected uplift in the FACWet analysis. The selected ratios are typically the midpoint of the acceptable ratios in the guidance for establishment, enhancement, and preservation of aquatic resources.

Some of the pre-existing areas discussed in sections 2.0 and 3.0 above occur outside of the bank property and have no influence on the areas within the bank property. As such these areas are excluded from any mitigation actions and subsequent credit generation. Table 5 lists the features included in the mitigation bank (Figure 9), along with a suitable credit ratio (USACE 2020), and the resulting credit estimate.

Table 5. Credit Estimate

Area	Acres	Credit Ratio*	Credit Estimate
Open Water Enhancement	0.7	4:1	0.2
Wetland Establishment	6.4	1.5:1	4.3
Wetland Enhancement	18.3	4:1	4.6
Wetland Preservation	0.1	5:1	0.0
Upland Buffer Enhancement[+]	23.0	10:1	1.0
Total Acreage**	**48.4**	**---**	**10.1**

* Expressed in acres per credit

**Table acres may not sum to exact total acreage due to rounding errors.

[+] May not exceed 10% of total credits

4.3 Mitigation Work Plan

Based on preliminary field data obtained in 2020 and 2021 the following mitigation efforts are proposed. This includes an assessment of wetlands using the current version of the Functional Assessment of Colorado Wetlands (FACWet), vegetative assessment, invasive species inventory, and wildlife utility assessment. A comprehensive mitigation work plan will be presented in full in the Mitigation Banking Instrument and associated exhibits.

4.3.1 FACWet Results

During the 2020 FACWet assessment of current conditions, wetlands were divided into three areas: groundwater derived, perennial surface water derived, and ponding caused by earthen dam. Groundwater derived wetlands (Wetlands 1, 2, & 3) are shown on Figure 11. They are palustrine wetlands dominated by herbaceous species with some isolated wooded areas (i.e. willow, rose and snowberry) and comprise 16.7 acres. Perennial surface water derived wetlands are shown on Figure 11 (Tributary East and Wetland 4). consist of the riverine wetlands which contain herbaceous and shrub areas (i.e. rose and snowberry) and comprise 2.5 acres. The pond area includes the ponded portion of the riverine wetlands which also supports herbaceous and shrub areas (Figure 11). The FACWet findings are summarized here with the raw data and calculations presented in Appendix D.

Groundwater Derived Wetlands – These wetlands area covered 16.7 acres. After a FACWet analysis, this area received a composite functional capacity index (FCI) score of 0.80. The mesic wetland is considered at the low end of "Highly Functioning". The main stressors acting on this wetland are nearby roads, upgradient water usage, the upgradient and downgradient earthen dams, livestock grazing, and non-native/invasive herbaceous plant species.

Surface Water Derived Wetlands – The property contained 1.9 acres of stream wetland habitat. This wetland received a composite FCI score of 0.79, classifying it in the upper range of "Functioning". This score is mainly driven by stressors to the source water upstream, the historical presence of livestock, and the presence of non-native/invasive herbaceous plant species. Falcon High School, the athletics fields, and the surrounding housing developments 2.5 to 3 miles northwest of this property are located at the historical headwater of this drainage. This affects the source water through groundwater pumping, impermeable surface runoff, and could potentially affect water quality via fertilizers and other non-point sources.

Pond – While the pond has the smallest acreage of the analyzed wetlands, 0.4 acres, and it is the most highly modified. The FACWet analysis determined this wetland to be "Functioning Impaired" resulting in a composited FCI score of 0.69. The dominant stressors affecting this wetland include upgradient alterations to the water source, upgradient and

downgradient earthen dams, and most predominately the artificial construction of the pond itself and the adjacent dam.

4.3.2 Planned Mitigation Activities

The following mitigation activities will be applied to areas throughout the bank property (Figure 9).

- Establishment Activities – To be applied to upland areas abutting pre-existing wetlands which contain hydric soil indicators but are lacking dominant hydric vegetation and/or wetland hydrology.
- Enhancement Activities – To be applied to pre-existing wetlands, open water and upland areas within the bank property to increase functionality.
- Preservation Activities – To be applied to areas where no mitigation action is occurring but will ensure the current level of functionality is maintained.

4.3.3 Establishment

Wetland establishment in the bank property involves vegetation management, seeding/planting of desirable wetland species, and the continued exclusion of livestock. Minor earthwork may be required to ensure consistent hydrodynamics in isolated areas where partially elevated swales and grass lined "furrows" have formed.

4.3.4 Enhancement

Wetland and open water enhancement in the bank property will involve vegetation management, seeding/planting of desirable wetland species, and the continued exclusion of livestock. It is expected that existing willow patches will naturally expand however, planting willow whips from different species or sourced from other locations in the area will improve genetic diversity and resilience.

Upland buffer enhancement in the bank property will involve prairie dog management, vegetation management, seeding/planting of native upland species, and the continued exclusion of livestock. Enhancing the native grasslands in the bank property will drastically improve this habitat.

4.3.5 Preservation

Preservation of WL-2 in the seepage area and Tributary-East (below OHWM) will require no immediate actions as the entire Site is fenced and no grazing is to occur on Site. Should it be considered beneficial to the bank, a fence may be placed to separate the western portion of the Site from the bank property. These measures will ensure degradation of functionality is limited naturally occurring events.

4.3.6 Invasive Species Management

Noxious weeds will be managed throughout the bank property. The sponsor will develop an eradication plan for noxious weeds on the bank property. This will involve the use of environmentally approved herbicide. Remediation efforts should include the following:

1) Control
2) Biomass Reduction
3) Seeding of desirable Species
4) Monitoring
5) Long-Term Maintenance

4.3.7 Ecological Uplift

The Southwestern Tablelands ecoregion is dominated by semi-arid rangeland, situated between the Great Plains and the Southern Rocky Mountains. The ecological characteristics of this region have given rise to a unique array of wildlife and aquatic resources.

The semi-arid climate and intermittent hydrology of the region makes these wetlands an important resource for wildlife. Wetlands are vital for a host of migratory birds and small mammals who depend on wetlands for breeding, foraging and rest stops. Native perennial grasslands are another habitat that have been disappearing across the United States, making uplands which support native grasses an important resource.

The mitigation efforts discussed above will improve the quality of the current wetland area and is likely to establish new wetlands in the abutting areas which could potentially

create a much-needed habitat for migratory birds and other small mammals. Preservation of the pond and enhancement of the shoreline is particularly beneficial in the semi-arid climate.

4.4 Permitting Requirements

The proposed restoration activities at the bank property are likely to have little to no impact on the potential jurisdictional wetlands and waters located within the bank property. Should the aquatic resources be determined jurisdictional, and mitigation activities are determined to have an impact on these resources, a Section 404 Nationwide Permit issued through the USACE may be required. Other state or local permits may be required for grading activities and will be obtained as necessary.

5.0 PROPOSED SERVICE AREA

In-line with the watershed approach, the proposed service area would cover most of the Upper Arkansas River basin (110200). Given the different hydrologic, climactic, and biological conditions between ecoregions, the service area is limited to the Southwest Tablelands ecoregion within the Colorado boarder of the Upper Arkansas River basin, to ensure future credits are representative of the functional wetlands on the bank property. The proposed service area is shown on Figure 10. The watersheds within the proposed service area are listed in Table 6 below.

The USACE South Pacific Divison's (SPD) Mitigation and Monitoring Guidelines issued January 12, 2015, states that a bank's service area includes, at minimum, the HUC-10 watershed containing the bank property. Additional watersheds requiring minimal justification include: 1) HUC-10 watersheds within the HUC-8 sub-basin containing the bank property, 2) watersheds abutting the HUC-10 watershed containing the bank property, and 3) areas within the same ecoregion as the bank property. All other areas included in the proposed service area will require substantial justification for their inclusion.

Table 6. Service Area Watershed Summary

Watershed Name[1]	HCU-10	Watershed Name[1]	HCU-10
Outlet Fourmile Creek	1102000202	**Muddy Creek**	**1102000904**
Hardscrabble Creek	1102000203	**Headwaters Rule Creek**	**1102000905**
Eightmile Creek-Arkansas River	1102000204	**Outlet Rule Creek**	**1102000906**
Beaver Creek	1102000205	**John Martin Reservoir-Arkansas Rive**	**1102000907**
Red Creek-Arkansas River	1102000206	**Caddoa Creek**	**1102000908**
Turkey Creek	1102000207	**Mud Creek**	**1102000909**
Pueblo Reservoir-Arkansas River	1102000208	**Dry Creek-Arkansas River**	**1102000910**
Dry Creek-Arkansas River	**1102000209**	**Salt Lake**	**1102000911**
Greenhorn Creek	1102000210	Kiowa Creek	1102000912
Headwaters Saint Charles River	1102000211	**Clay Creek**	**1102000913**
Saint Charles River-Arkansas River	**1102000212**	**Neenoshe Reservoir-Arkansas River**	**1102000914**
Monument Creek	1102000301	Buffalo Creek-Arkansas River	1102000915
Upper Fountain Creek	1102000302	**Wolf Creek**	**1102000916**
Middle Fountain Creek	1102000303	Granada Creek-Arkansas River	1102000917
Lower Fountain Creek	1102000304	Cheyenne Creek-Arkansas River	1102000919
Brackett Creek-Black Squirrel Creek*	**1102000401**	Chicosa Arroyo	1102001005
Black Squirrel Creek*	**1102000402**	Frijole Creek-Purgatoire River	1102001006
Chico Creek*	**1102000403**	San Francisco Creek	1102001007
Haynes Creek	**1102000501**	Trinchera Creek	1102001008
Kramer Creek	**1102000502**	Trementina Creek	1102001009
Chicosa Creek-Arkansas River	**1102000503**	**Van Bremer Arroyo**	**1102001010**
Lake Meredith	**1102000504**	**Luning Arroyo-Purgatoire River**	**1102001011**
Dry Creek	**1102000505**	**Taylor Arroyo**	**1102001012**
Timpas Creek	**1102000506**	**Perly Canyon-Purgatoire River**	**1102001013**
Dye Reservoir-Arkansas River	**1102000507**	**Plum Creek**	**1102001014**
Crooked Arroyo	**1102000508**	Chacuaco Creek	1102001015
Anderson Arroyo-Arkansas River	**1102000509**	**Lockwood Arroyo-Purgatoire River**	**1102001016**
Dog Springs Arroyo-Huerfano River	1102000603	**Smith Canyon**	**1102001017**
Upper Cucharas River	1102000604	**Jack Canyon-Purgatoire River**	**1102001018**
Middle Cucharas River	1102000605	**Outlet Purgatoire River**	**1102001019**
Sandy Arroyo	**1102000606**	**Headwaters Big Sandy Creek**	**1102001101**
Lower Cucharas River	**1102000607**	Lake Creek-Big Sandy Creek	1102001102
Apache Creek-Huerfano River	1102000608	Barron Creek-Big Sandy Creek	1102001103
Huerfano Lake-Huerfano River	**1102000609**	Sevenmile Creek-Big Sandy Creek	1102001104
Headwaters Apishapa River	1102000701	Outlet Big Sandy Creek	1102001109
Upper Apishapa River	1102000702	Long Branch	1102001201
Middle Apishapa River	**1102000703**	**South Rush Creek**	**1102001202**
Lower Apishapa River	**1102000704**	**Headwaters Rush Creek**	**1102001203**
Steels Fork	**1102000801**	Upper Rush Creek	1102001204
Upper Horse Creek	**1102000802**	Middle Rush Creek	1102001205
Breckenridge Creek	**1102000803**	Lower Rush Creek	1102001206
Middle Horse Creek	**1102000804**	Upper Two Butte Creek	1102001301
Lower Horse Creek	**1102000805**	Middle Two Butte Creek	1102001302
Mustang Creek	**1102000901**	**Plum Creek**	**1102001303**
Headwaters Adobe Creek	**1102000902**	Lower Two Butte Creek	1102001304
Outlet Adobe Creek	**1102000903**		

*Watersheds are within the same sub-basin (HCU-8) as the bank property

[1]Watersheds listed in bold are entirelly within the survice area, all others overlap the service area.

5.1 Watershed Containing the Bank Property

The bank property is located within the Black Squirrel Creek watershed (1102000402), which is part of the Chico sub-basin (11020004). Based on the SPD guidance this watershed is automatically included in the service area. The Brackett Creek-Black Squirrel Creek (1102000401) and Chico Creek (1102000403) watersheds abut the Black Squirrel Creek watershed that contains the bank property and area also contained within the Chico sub-basin and the Southwestern Tablelands ecoregion. Given their ecological and hydrological similarities to the watershed containing the bank property and the SPD guidance, these watersheds are included in the service area and require no further justification.

5.2 Additional Watersheds

All these watersheds are within the Upper Arkansas (110200) hydrologic basin and contain the Southwestern Tablelands ecoregion (whole or in part). These watersheds extend south, east, and west of the bank property and are justified for inclusion in the service area due to the similarity of aquatic resource types that exist throughout the ecoregion encompassing these watersheds.

In addition to the ecological similarity and hydrologic connectivity, these watersheds are critical to the economic viability of the bank. The lands surrounding the bank and extending east to southeast are primarily agricultural lands with limited annual impacts. The greater Colorado Springs area to the west and Pueblo to the southwest, however have experienced significant growth in the last 30 years. These areas have a strong commercial economy, particularly in the technology sector. There are also several large military installations including the U.S. Air Force Academy and U.S. Air Force Space Command in the greater Colorado Springs area. This area has also increased in popularity as a destination for outdoor recreationalists. It is thus important for the watersheds along the western edge of the ecoregion be included in the bank's service area. Since the 2008 USACE final mitigation rule established a hierarchy expressing the Corps' preference for mitigation banks over other types of compensatory mitigation, including these watersheds in the bank's service area is providing a preferred mitigation alternative in these regions.

6.0 NEED AND TECHNICAL FEASIBILITY OF THE BANK

6.1 General Need

The entire state of Colorado only has a handful of approved mitigation banks, with only one servicing the southeastern portion of the state. Given that mitigation banks are still the most preferred compensatory mitigation option (over in-lieu fee programs and permittee-responsible mitigation), Judge Orr Mitigation Bank would provide a superior mitigation option for permittees in the southeastern Colorado region. According to the Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS), there are 5 banks with overlapping service areas, but two are single-client banks, and two are pending private commercial banks. Thus, only the Maria Lake Mitigation Bank is providing credits to southwest Colorado, with 9 credits available as of December 2021.

Between 2010 and 2020, Colorado seen nearly 15% increase in population growth (approximately 750,000 people) making it the 6th fastest growing state by population according to the 2020 census data. El Paso County, where the bank is located, saw a growth of 17.4% between 2010 and 2020, with an estimated population of 730,395 people as of April 1, 2020.

In addition to the increased urban and industrial development in this region, poor grazing management in the slower developing areas continues to threaten the ecological integrity and sustainability of biological resources, including wetlands and native grasslands, in the region. This creates the need for wetland mitigation, protection, and enhancement of these valuable resources.

6.2 Technical Feasibility

The bank property can be accessed by vehicle from Stapleton Rd. The bank property has never been used as a mitigation previously, and there are no current easements or encumbrances on the bank property. It is subject to development by the supervisor and there are no leases attached to the Site, meaning that grazing can be prohibited indefinitely. The sponsor has the right to place appropriate conservation easement on the property to ensure protection in perpetuity. As discussed in Section 2.4, sufficient stream flows, springs, and hydrology exist to support the establishment and long-term sustainability of the bank.

The mitigation and management methods proposed for the bank are standard activities that have been conducted on similar wetland mitigation sites and have been shown to be effective. There will be no operable control structures within the bank property that will require management in perpetuity. Performance standards will be in place to evaluate the success of proposed mitigation actions, and an adaptive management and adaptive monitoring plan will provide ability to detect problems and devise specific solutions if they arise.

A Class I File Search conducted by Centennial Archaeology LLC indicates that there are three potential historic resources within the project area, and several in the greater file search area. Resources in the greater file search area, which is the subject property as well as a 0.5-mile-wide buffer extending in all directions from the project area, consist of roadways, dams, reservoirs, a ranch, and two buildings. Historic resources specific to the project area are an unnamed two-track road that extends generally north from Judge Orr Road to the Gieck Ranch, an unnamed reservoir, and a dam associated with the reservoir. These resources date to at least 1940 as they are shown on the 1940 Falcon 1:24,000-scale USGS topographic map. The Colorado Division of Water Resources (DWR) does not list the reservoir or dam on their online database for water-control features and structures. No previously documented sites or surveys were on file with the Colorado Office of Archaeology and Historic Preservation (OAHP) Compass and General-Purpose Viewer (GPV) web applications within the file search area, and no previously documented cultural resources will be impacted by the proposed project. No buildings are present on the subject parcel and, based on El Paso County Assessor's record, it is currently designated as agricultural grazing land. It should be noted that the file search data mainly reflect prior investigations. A comprehensive field inventory (Class III) would be required to identify and appropriately document and assess resources within the boundaries of the project area.

7.0 BANK OPERATIONS

7.1 Sponsor Qualifications

Founded in 1944, Pete Lien has an extensive history with sourcing minerals and contributing to industrial construction. Pete Lien has operated in Colorado since the mid-sixties. Throughout the history of the company, the Lien's core business has been acquiring key agricultural lands and enhancing some by harvesting additional resources, primarily limestone, sand and gravel, to grow the business to land management & mining. The original quarry that Pete bought from his supplier has been mined and reclaimed. The company has purchased thousands of acres, mostly ranches, while accumulating 100's of years of mineral reserves and currently has active mines in northern Colorado, western South Dakota, and eastern Wyoming.

Founded in 1982, Cedar Creek is a practical and specialized ecological consulting firm based in Ft. Collins, Colorado. Providing biological, soil, and risk assessment services to support environmental permitting and planning, regulatory compliance, and closure requirements. Clientele include energy and mineral extraction companies, land developers and land management groups, and other clients whose projects disturb the land surface. Specializing in project-specific soils, vegetation, and wildlife solutions as well as arid landscape reclamation design, projects are located throughout the U.S. and internationally.

8.0 MANAGEMENT STRATEGY

8.1 Ownership Arrangements

The Judge Orr Mitigation Bank and underlying bank property will be owned and operated by Pete Lien as its sponsor. Portions of the Site not included in the bank property are subject to future development at the sponsors digression. There are no mineral/subsurface reservations to third parties or other similar site encumbrances that will interfere with bank establishment.

8.2 Interim Management

The interim management strategy for the bank will focus on construction of the mitigation bank and implementation of establishment, enhancement, and preservation of aquatic resources. During this period, the sponsor will conduct performance monitoring to measure success compared with clearly defined criteria and deploy adaptive management strategies to ensure that the ecological uplift goals of the bank are met.

8.2.1 Performance Standards

The overall performance standards and success criteria for wetland compensation will center on demonstrable ecological lift within the bank property using guidelines set forth by the *SPD Uniform Performance Standards for Compensatory Mitigation Requirements* (USACE 2012). This lift will be measured using physical, hydrological, and biological metrics where applicable. Specific standards and monitoring schedule will be outlined in the Bank Development Plan following approval from the District Engineers.

8.2.2 Monitoring Requirements

In addition to the functional assessment, performance monitoring will be conducted for all areas within the bank where credits will be generated. In the development plan, specific performance criteria for each type of wetland will be established based on the uniform performance standards developed by the USACE SPD. The uniform performance standards provide measurable targets for ecological functions including hydrology, native vegetation cover, invasive vegetation cover, water quality, and species richness. Associated with each target is also an allowable timeframe to achieve the stated target if performance standard is

not met by the established deadline, adaptive management actions will be undertaken, and credit releases may be delayed. Monitoring will be conducted by Cedar Creek for five years or until the District Engineers determines the project is completed. The data will be collected and analyzed annually to ensure success criteria and performance standards are being met.

In addition to the performance monitoring required under the development plan, any additional monitoring, maintenance, and management activities will be specified in the LTMP. This will further ensure the success of the aquatic resources at the bank.

8.3 Long Term Management

The long-term management strategy for the bank will center on monitoring, boundary maintenance, and site protection. Additionally, the sponsor will ensure an adequate long term funding mechanism for the management activities. The sponsor will be the designated long-term steward unless the sponsor designates at is option and subject to USACE approval, an alternative third-party assignee ("Third-Party Steward") to be the bank's long-term steward. A Long-Term Management Plan (LTMP) will be included with the banking instrument, which will detail management needs, performance standards, costs, and funding mechanism consistent with 33 CFR 332.7(d). The LTMP will also include a weed abatement management plan and will be developed to ensure perpetual maintenance of the Bank property after all success criteria have been met and all credits released. The Sponsor, or its heirs, assigns, or purchasers, shall be responsible for protecting the Bank in perpetuity. The Long-Term Management Plan will be recorded as an attachment to the conservation easement deed, and an escrow account will be established by Pete Lien to assure funding for these long-term management goals. The long-term management activities will initially be conducted by Pete Lien. At a later date, and with approval from the USACE, Pete Lien plans to nominate a permanent long- term steward.

Minor issues such as trash, fence damage, and change in vegetation or invasive species which can be addressed by the sponsor. More complex issues such as extensive plant mortality or noticeable reduction in available water, the USACE should be notified and presented with corrective measures and a schedule for remediation. If USACE determines that performance standards have not been met or the area is not on track to meet the respective standards, then the monitoring period may be extended. USACE may also revise

monitoring requirements when additional remediation is required. In the event that success criteria have not been met, remedial action will be taken within 90 days of USACE approval.

8.4 Assurances

Financial assurances will be provided by Pete Lien following the guidelines set forth in *Implementing Financial Assurances for Mitigation Project Success* (USACE 2016). As such, short-term financial assurances will be used to ensure completion of the mitigation provider's obligations to implement a required mitigation project and meet specified ecological performance standards in the event that the mitigation provider proves unable or unwilling to meet those obligations. Long-term protection will be provided through conservation easements and endowment funds to ensure protection of the mitigation site from encroachment or degradation. Since long-term management may include active management measures such as posting property boundaries, repair and replacement of fencing, control of invasive species, and other management activities, both long-term protection and long-term management of the mitigation project may necessitate the mitigation provider to establish funding mechanisms that provide the sponsor (or some other entity that is charged with maintaining the site) with the resources needed for these activities. The details of the proposed construction, performance, interim, and long-term management assurances will be presented in the Mitigation Banking Instrument, as necessary.

9.0 PROJECT REPRESENTATIVES

Bank Sponsor and Land Owner: Pete Lien and Sons, Inc.

Contact Name: Danielle Wiebers

Address: 3370 Drennan Industrial Loop North Colorado Springs, CO 80910

Email: DWiebers@petelien.com

Phone Number: (605) 939-2686

Bank Agent: Cedar Creek Associates, Inc.

Address: PO Box 252150 Fort Collins, CO 80526

Contact 1: Jesse Dillon, Principal

Email: jdillon@cedarcreek.app

Phone Number: (970) 988-3106

Contact2: Gloria Sargent, Plant Ecologist

Email: gsargent@cedarcreek.app

Phone Number: (540) 968-1655

10.0 CITATIONS

Johnson, J. Bradley, Mark Beardsley, and Jessica Doran. 2010. The Functional Assessment of Colorado Wetlands (FACWet) Methodology. Retrieved from: http://rydberg.biology.colostate.edu/FACWet/

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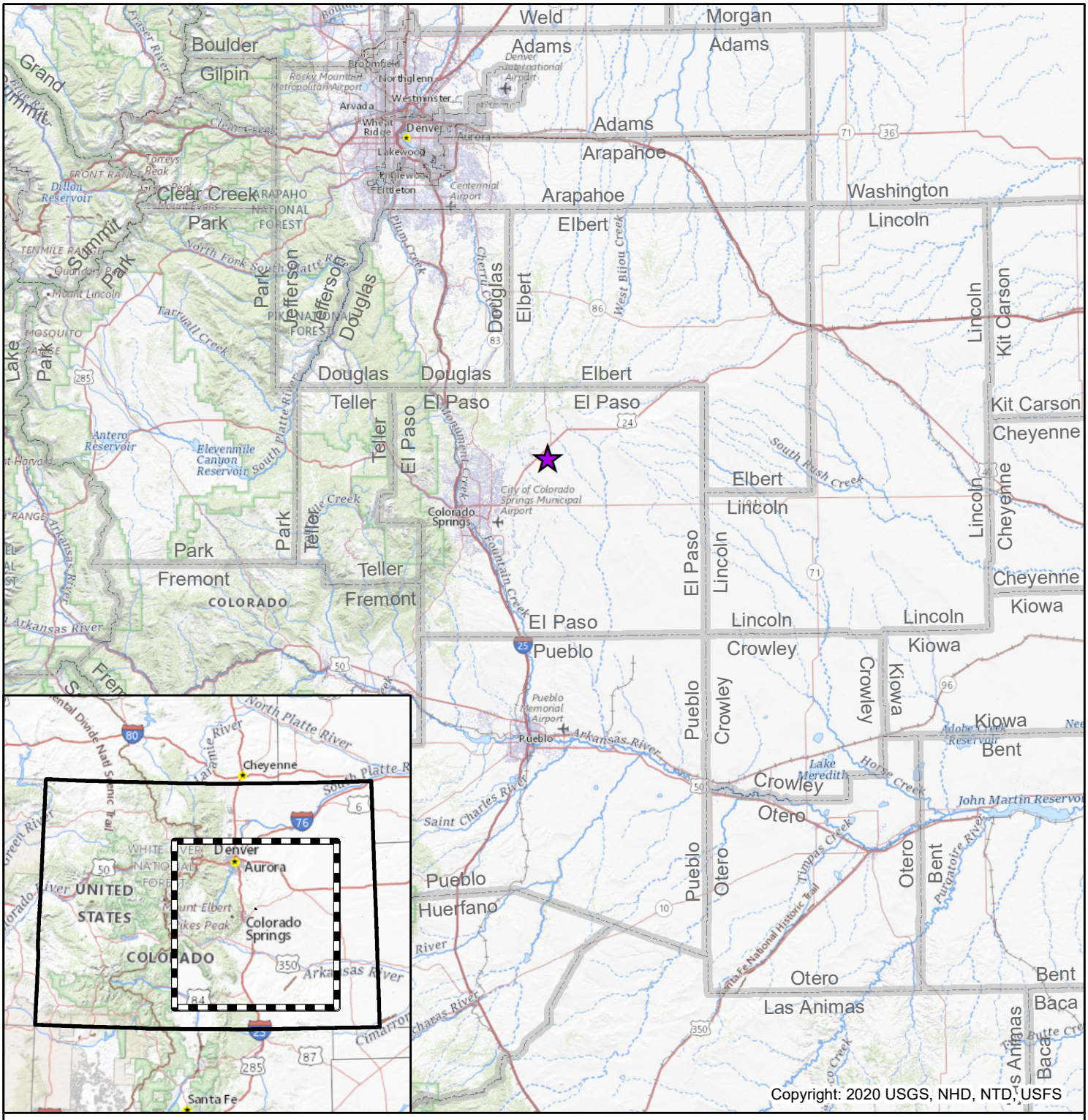


Map Legend

- Bank Property
- Colorado State Boundary
- County Line

0 10 20 40 Miles

1 in = 24 miles

N S E W

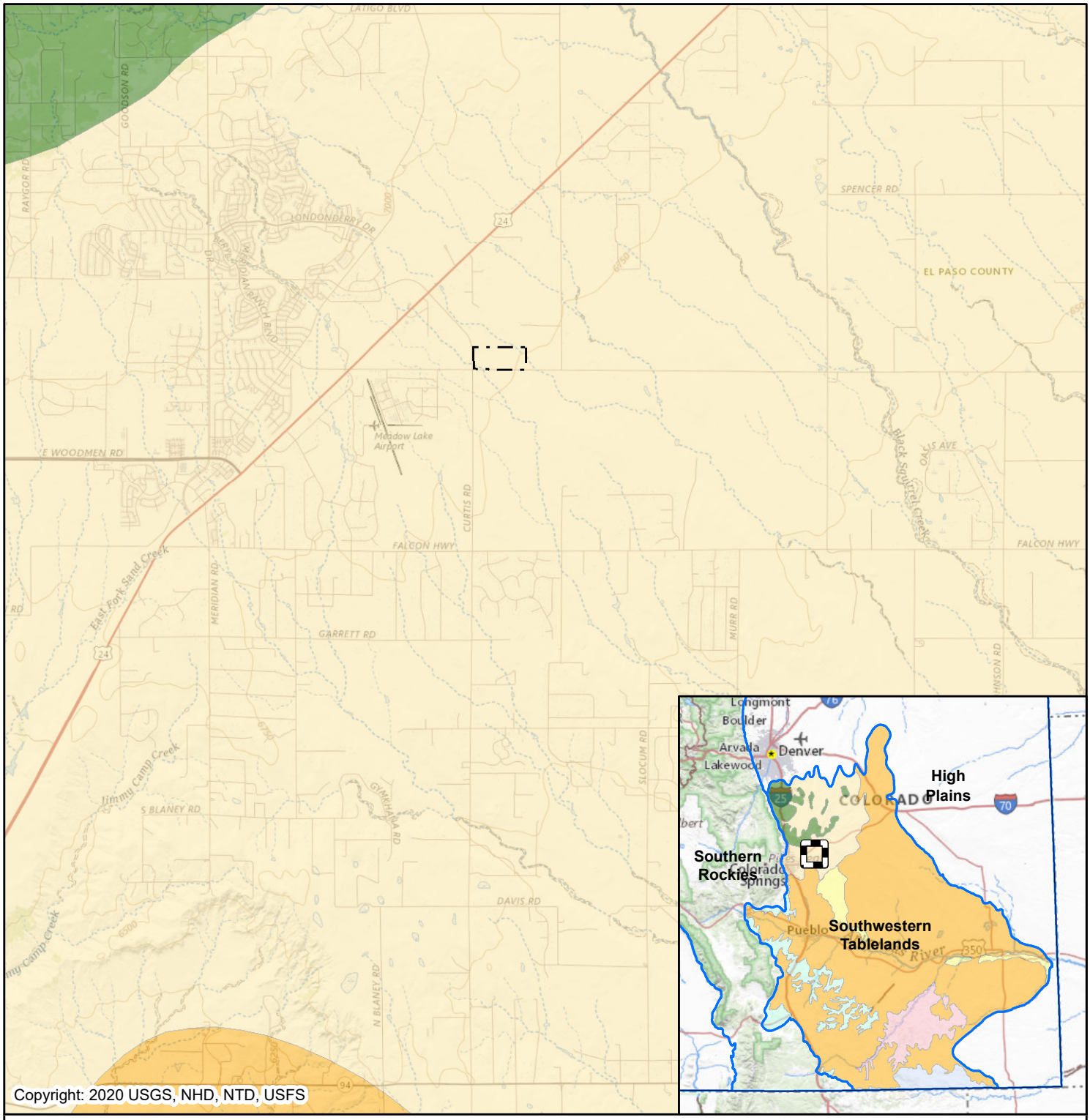
Created on March 04, 2022
Revised on May 26, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

Figure 1.
Site Location

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps-USGS Topo (7.5- minute quadrangle); 2020 Colorado Census Data
Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016

Judge Orr Mitigation Bank
Peyton, CO



Map Legend

- Ecoregion Level 3
- **Ecoregion Level 4**
  - Foothill Grasslands
  - Mesa de Maya/Black Mesa
  - Piedmont Plains and Tablelands
  - Pine-Oak Woodlands
  - Pinyon-Juniper Woodlands and Savannas
  - Purgatoire Hills and Canyons
  - Sandsheets
- Site Boundary (92.5 ac.)
- Colorado State Boundary
- County Line

0 0.5 1 2 Miles

1 in = 2 miles

N W E S

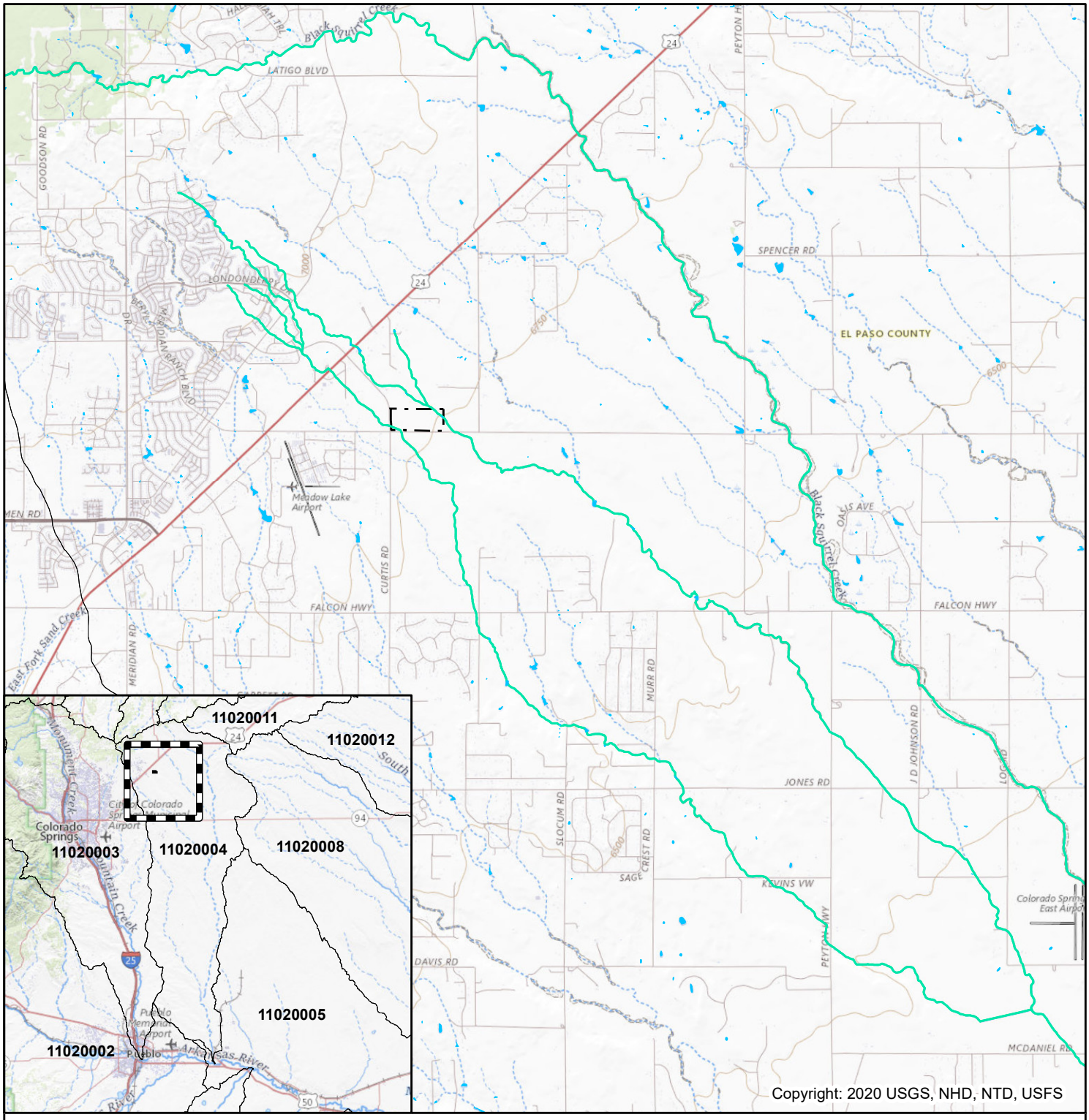
Created on March 04, 2022
Revised on May 26, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

Figure 2. Ecoregions

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps-USGS Topo (7.5- minute quadrangle); 2021 EPA Ecoregions; 2020 Colorado Census Data
Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016

Judge Orr Mitigation Bank
Peyton, CO



Map Legend

- NHD Flowlines Associated with the Site
- Site Boundary (92.5 ac.)
- NHD Waterbody
- NHD Watershed Boundary Dataset (HU-8)

Miles
0 0.5 1 2
1 in = 2 miles

N W E S

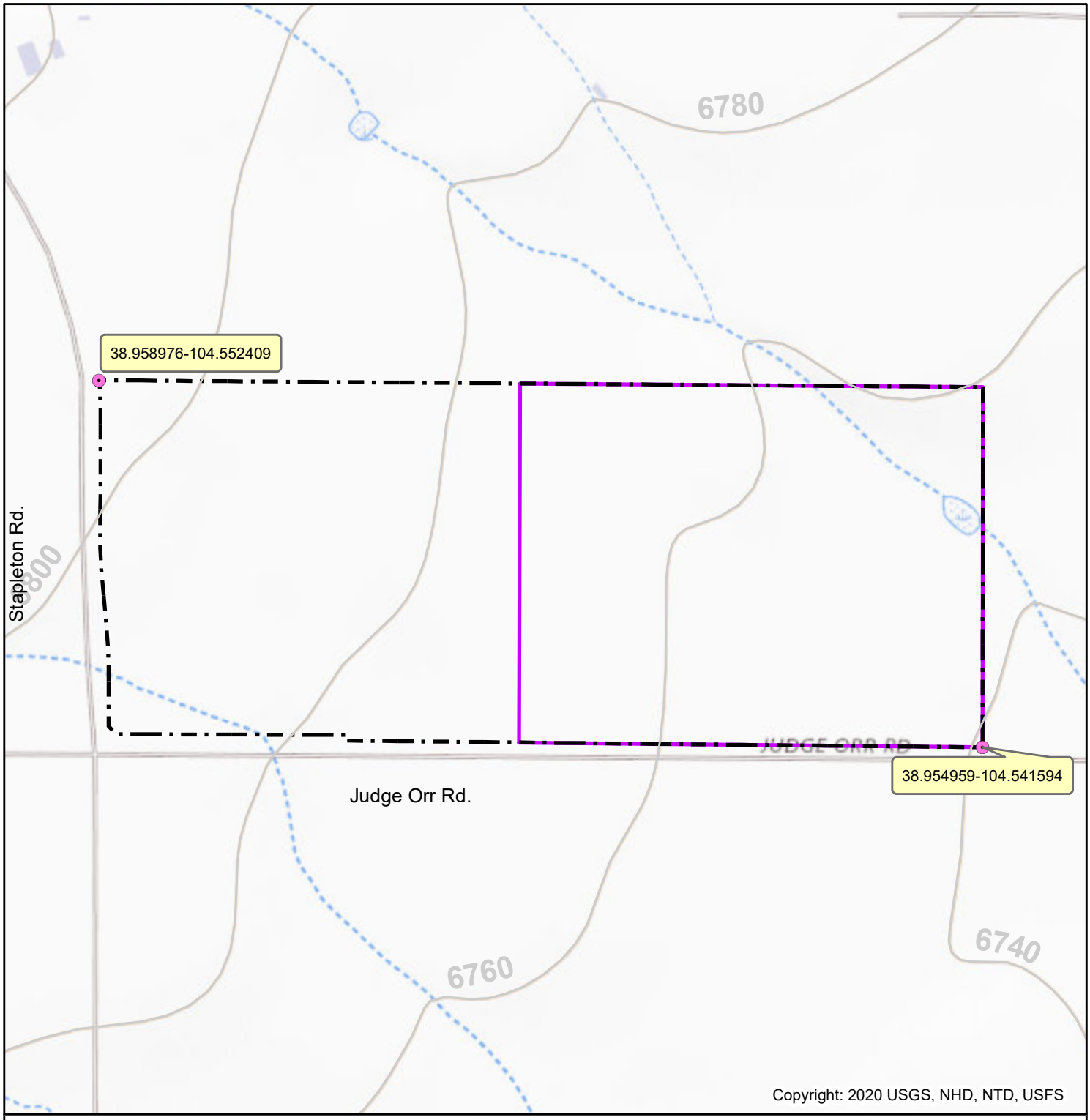
Created on March 04, 2022
Revised on May 26, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

Figure 3. Hydrology

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps-USGS Topo (7.5- minute quadrangle); 2021 National Hydrography Dataset (NHD)
Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016

Judge Orr Mitigation Bank
Peyton, CO



Map Legend

- Site Boundary (92.5 ac.)
- Bank Property (48.4 ac)
- Topography (20-ft Contour Interval)
- Map Reference Point

0 225 450 900 Feet

1 in = 500 feet

N W E S

Created on March 04, 2022
Revised on May 26, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

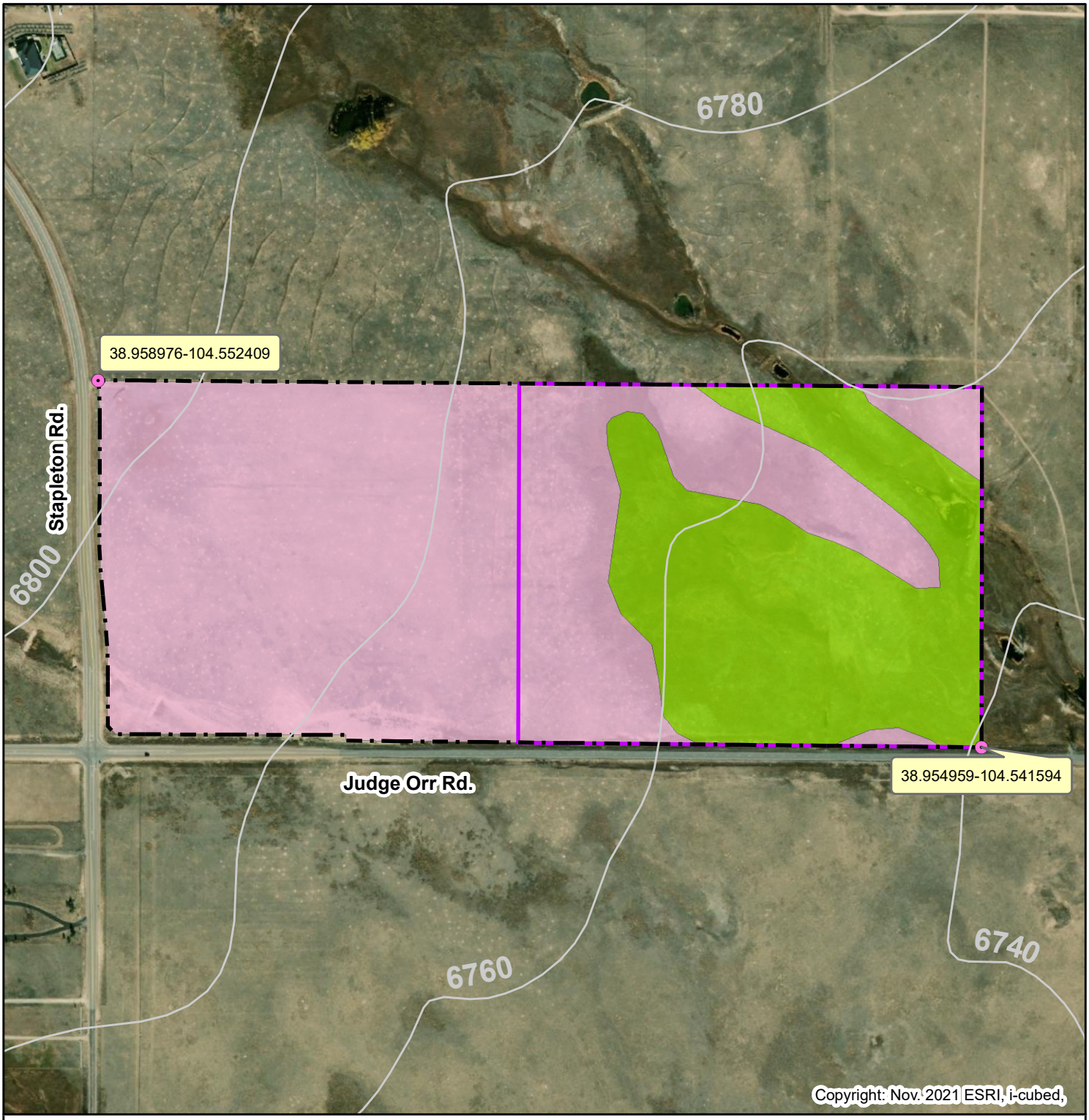
Figure 4.
Topography

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps-USGS Topo (7.5- minute quadrangle)

Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016

Judge Orr Mitigation Bank
Peyton, CO



Map Legend

- Site Boundary (92.5 ac.)
- Bank Property (48.4 ac.)
- Topography (20-ft Contour Interval)
- Map Reference Point

WSS Soil Series

- Columbine gravelly sandy loam (64.6 ac.)
- Fluvaquentic Haplaqolls (27.9 ac.)

0 225 450 900 Feet

1 in = 500 feet

N W E S

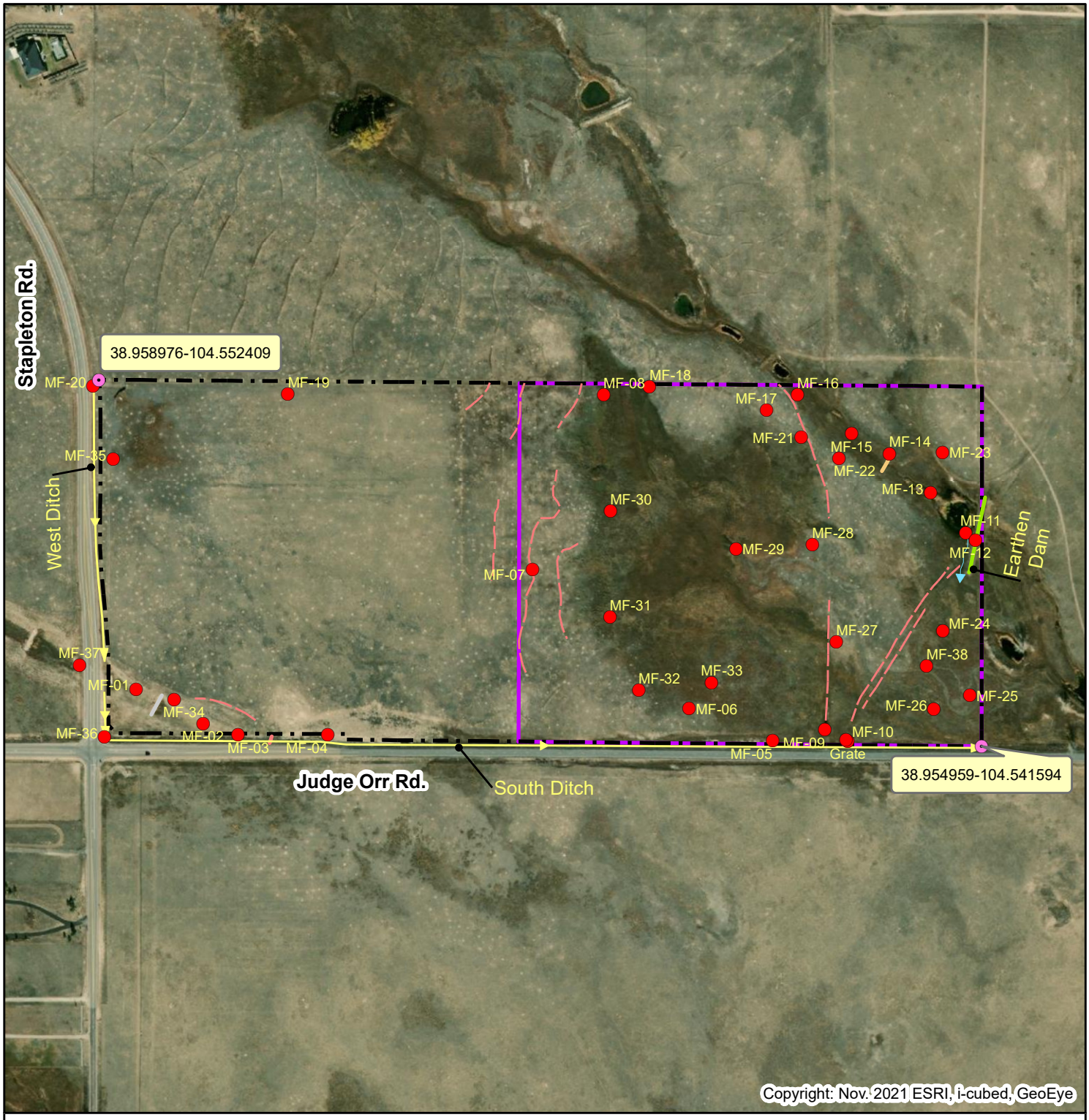
Created on March 04, 2022
Revised on May 26, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

Figure 5.
Soils

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps-Aerial Imagery 2021; 2021 WRCS Web Soil Survey (WSS)
Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016

Judge Orr Mitigation Bank
Peyton, CO



Map Legend

- Site Boundary (92.5 ac.)
- Bank Property (48.4 ac.)
- Map Reference Point
- Map Feature Photo Point

Map Features

- Dam
- Roadside Ditch
- Furrow
- Overflow
- Concrete Water Bar
- Earthen Water Bar
- Rock Water Bar

0 225 450 900 Feet

1 in = 500 feet

N W E S

Created on March 04, 2022
Revised on May 26, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

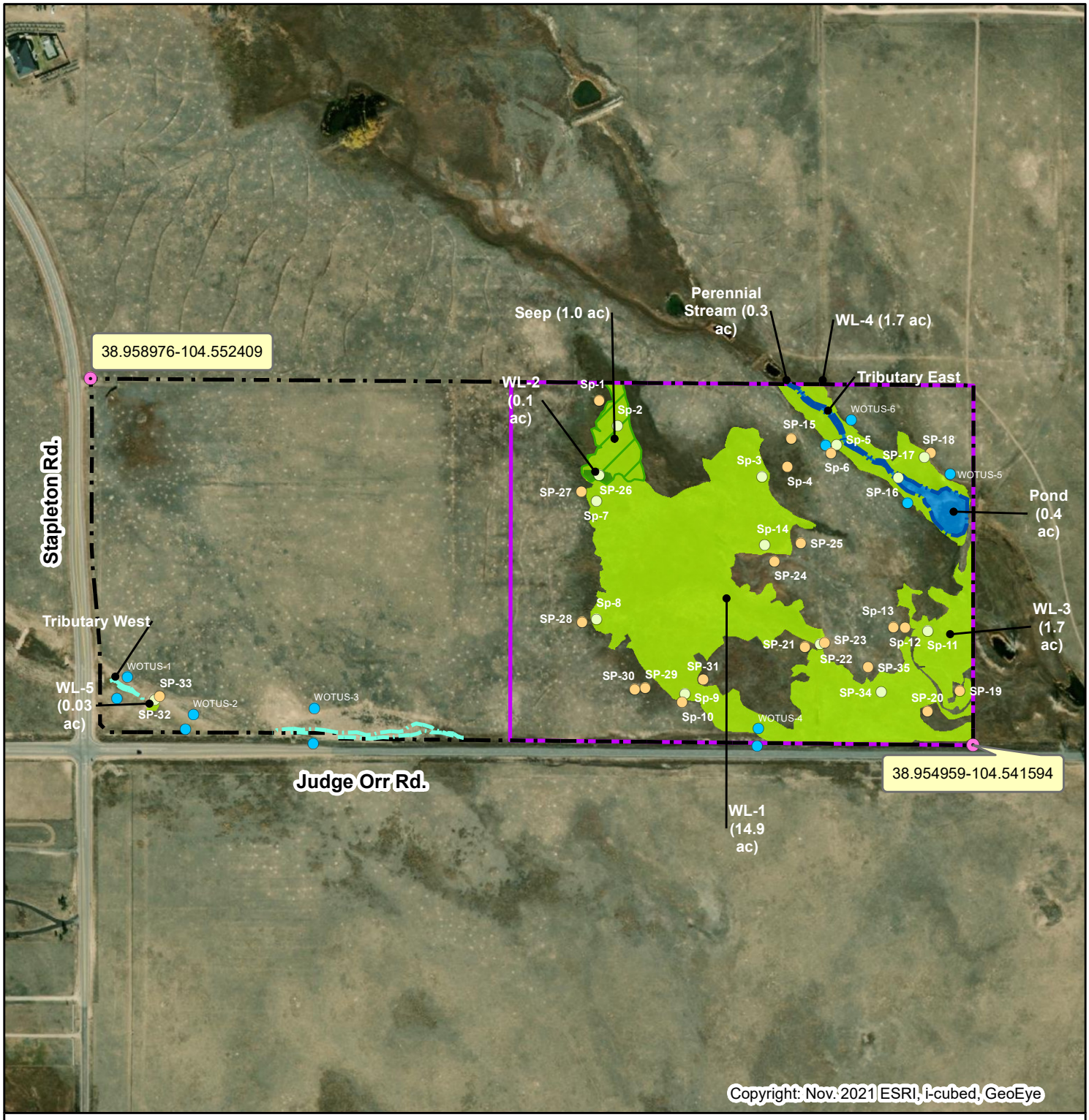
Figure 6.
Site Inventory

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps-Aerial Imagery 2021

Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016

Judge Orr Mitigation Bank
Peyton, CO



Map Legend

- Upland Sampling Point
- Wetland Sampling Point
- WOTUS Transect Point
- Seepage Area (1.0 ac.)

Wetlands (19.0 ac.)

- Wetland - Herbaceous (18.29 ac.)
- Wetland - Shrub/Scrub (0.10 ac.)
- Open Water (0.65 ac.)

Other Waters - OHWM

- Ephemeral Drainage
- Perennial Stream

- Site Boundary (92.5 ac.)
- Bank Property (48.4 ac.)
- Map Reference Point

0 225 450 900 Feet

1 in = 500 feet

N W E S

Created on March 04, 2022
Revised on May 26, 2022; June 15, 2022; September 1, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

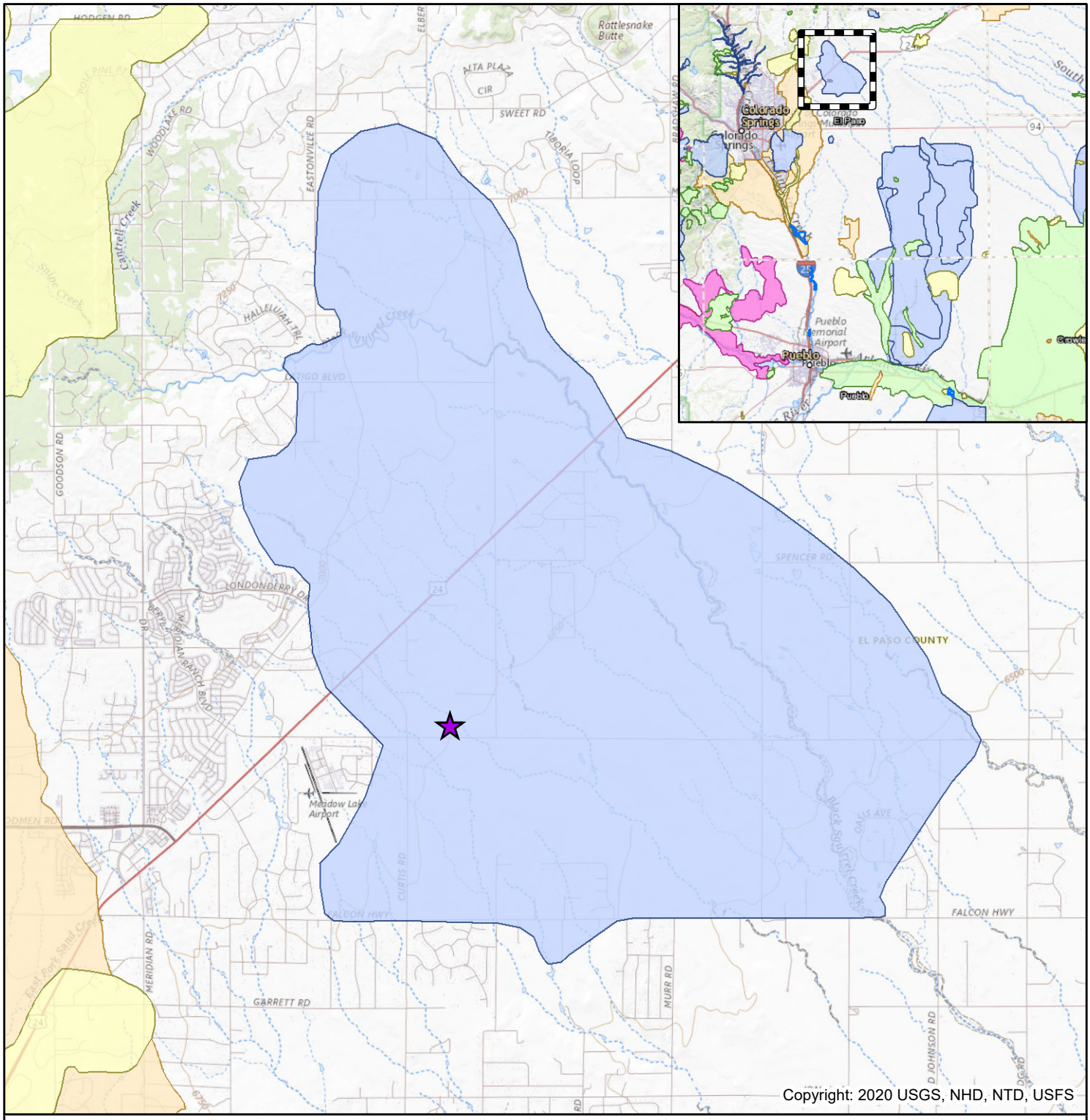
Figure 7. Wetlands and Waters

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps- Aerial Imagery 2021

Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10,

Judge Orr Mitigation Bank
Peyton, CO



Map Legend

- Conservation Easment

Potential Conservation Area

- B1: Outstanding Biodiversity Significance
- B2: Very High Biodiversity Significance
- B3: High Biodiversity Significance
- B4: Moderate Biodiversity Significance
- B5: General Biodiversity Interest
- Bank Property

0 0.5 1 2 Miles

1 in = 2 miles

N W E S

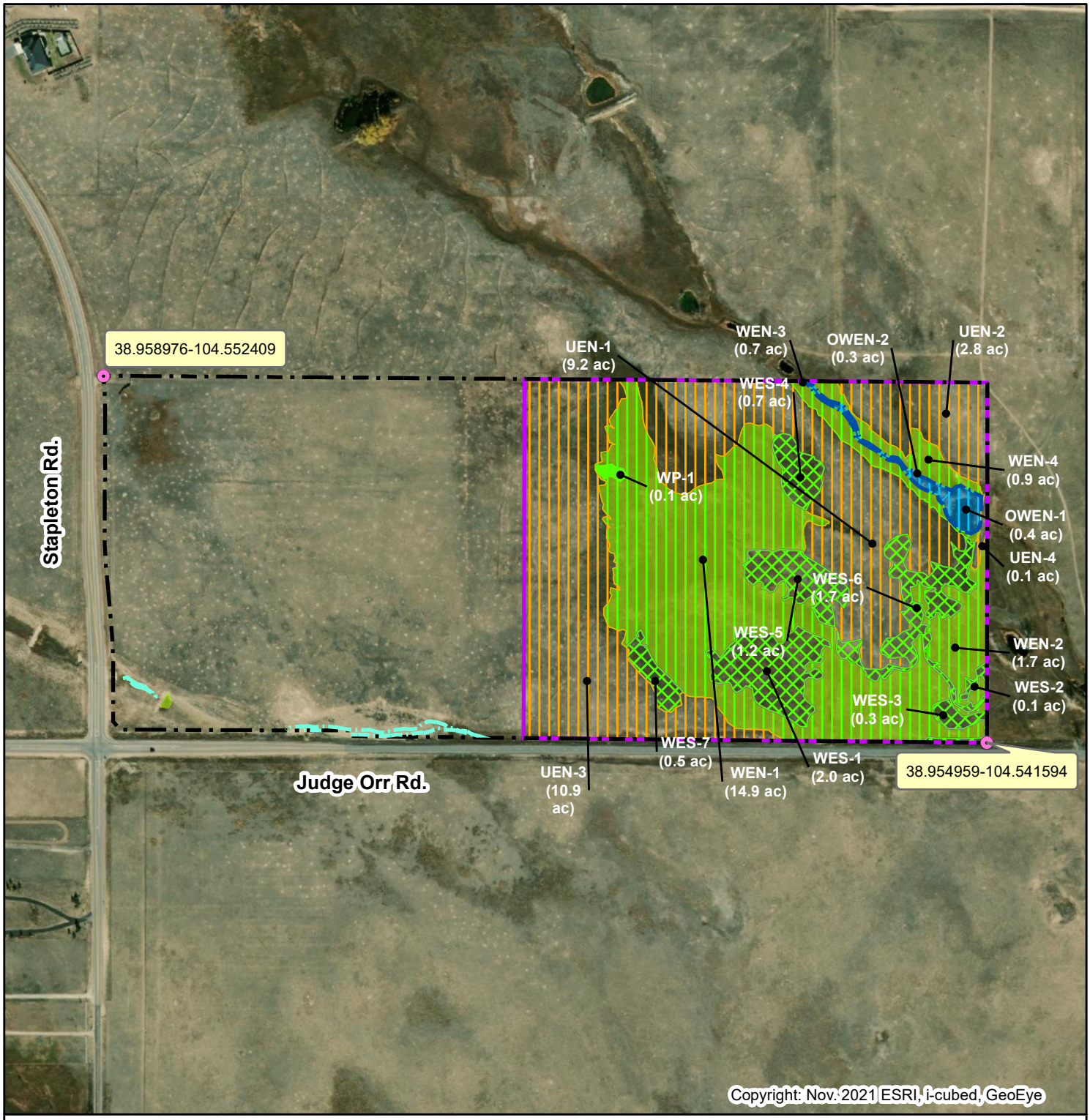
Created on March 04, 2022
Revised on May 26, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

Figure 8. Current and Potential Conservation Areas

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps-USGS Topo (7.5- minute quadrangle); 2021 EPA Conservation Easments
Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016

Judge Orr Mitigation Bank
Peyton, CO



Map Legend

Other Waters - OHWM
- Ephemeral Drainage
- Perennial Stream

Proposed Mitigation Action
- Open Water Enhancement (0.65 ac.)
- Upland Buffer Enhancement (23.04 ac.)
- Wetland Enhancement (18.25 ac.)
- Wetland Establishment (6.38 ac.)
- Wetland Preservation (0.10 ac.)

- Site Boundary (92.5 ac.)
- Bank Property (48.4 ac.)
- Map Reference Point

0 225 450 900 Feet

1 in = 500 feet

N W E S

Created on March 04, 2022
Revised on May 26, 2022; September 1, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

Figure 9. Mitigation Areas

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps- Aerial Imagery 2021

Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10,

Judge Orr Mitigation Bank
Peyton, CO

Map Legend

- Propsed Service Area
- WBD HU-8
- WBD HU-10

EPA Ecoregions L3

- AZ/NM Plateau
- High Plains
- Southern Rockies
- Southwestern Tablelands

- Bank Property
- Colorado State Boundary

0 10 20 40 Miles

1 in = 24 miles

N S E W

Created on March 04, 2022
Revised on May 26, 2022
Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

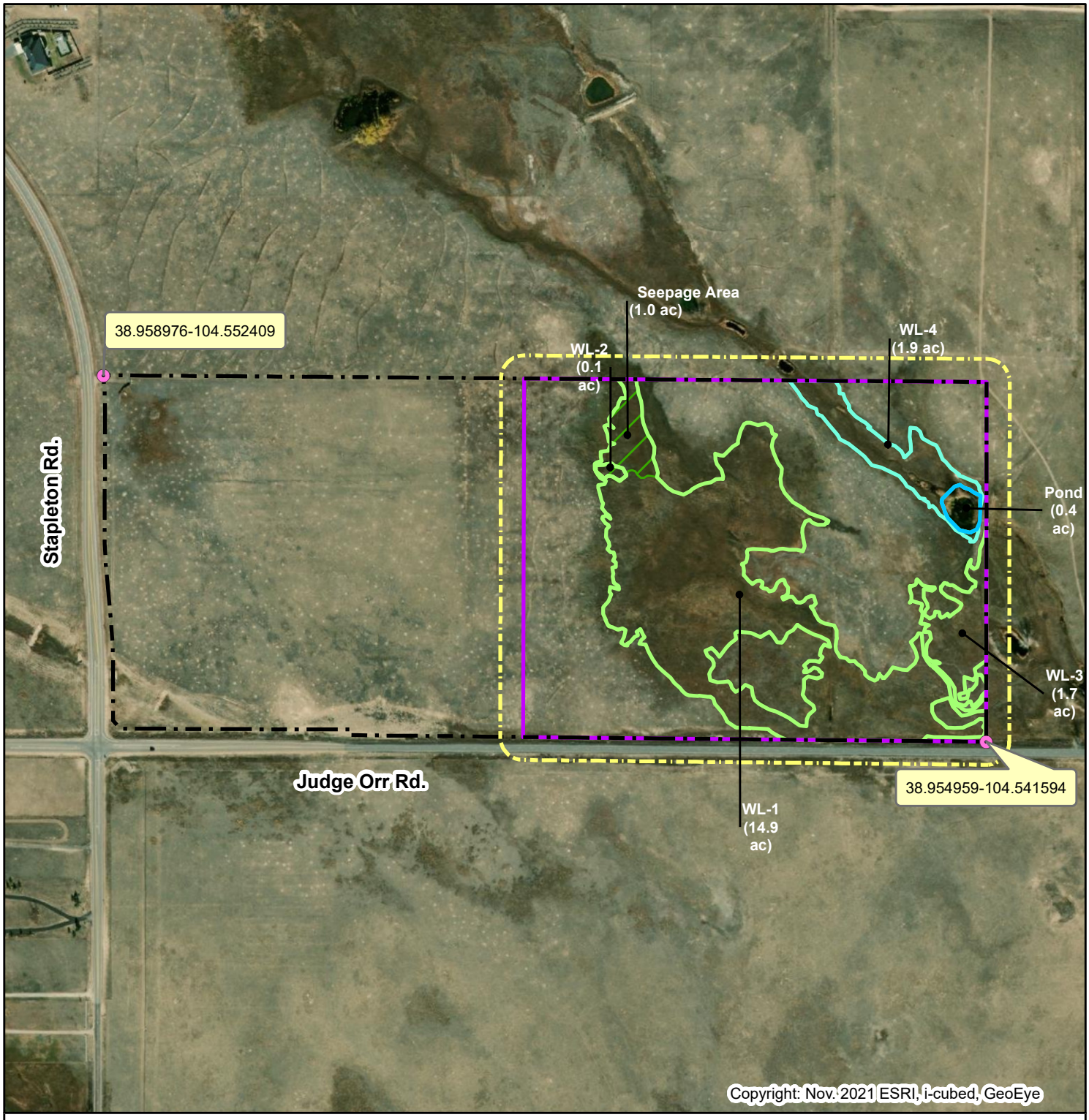
Figure 10.
Service Area

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: 2021 EPA Ecoregions; 2021 NHD Database

Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016

Judge Orr Mitigation Bank
Peyton, CO



Map Legend

- Assessment Area (48.4 ac.)
- Area of Interest: 25m Buffer (59.9 ac.)
- Seepage Area (1.0 ac.)

FACWet Assessment Area

- Wetland - Groundwater Derived (16.7 ac.)
- Wetland - Surface Water Derived (1.9 ac.)
- Pond (0.4 ac.)

- Site Boundary (92.5 ac.)
- Map Reference Point

0 225 450 900 Feet

1 in = 500 feet

N W E S

Created on May 31, 2022

Created by Gloria Sargent, Sr. Plant Ecologist, Cedar Creek Associates, Inc.

Figure 11.
FACWet Assessment Area

CEDAR CREEK ASSOCIATES, INC.

Coordinate System: NAD 1983 UTM Zone 13N
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: None
Sources: ESRI Basemaps- Aerial Imagery 2021

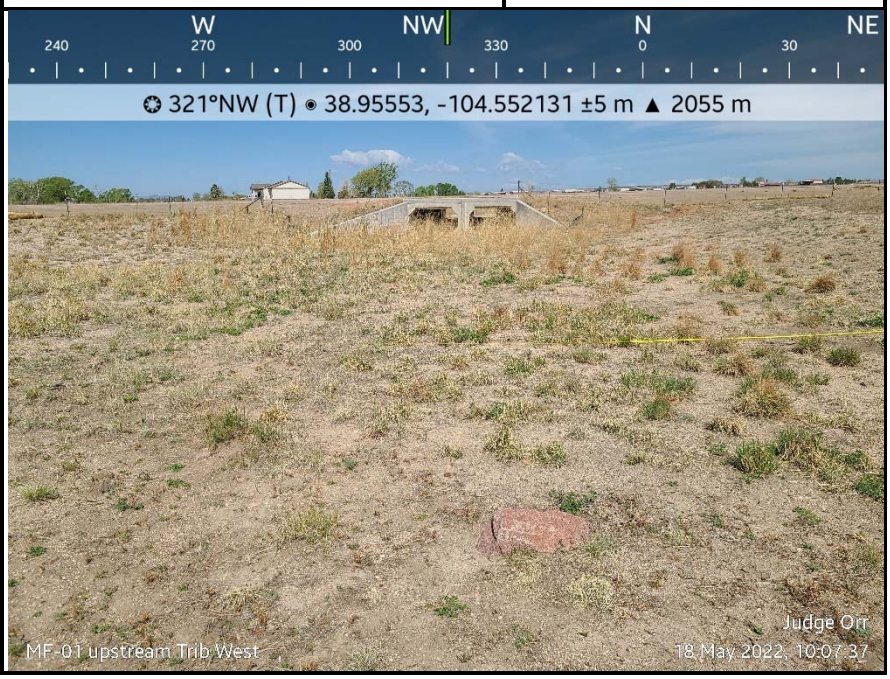
Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016

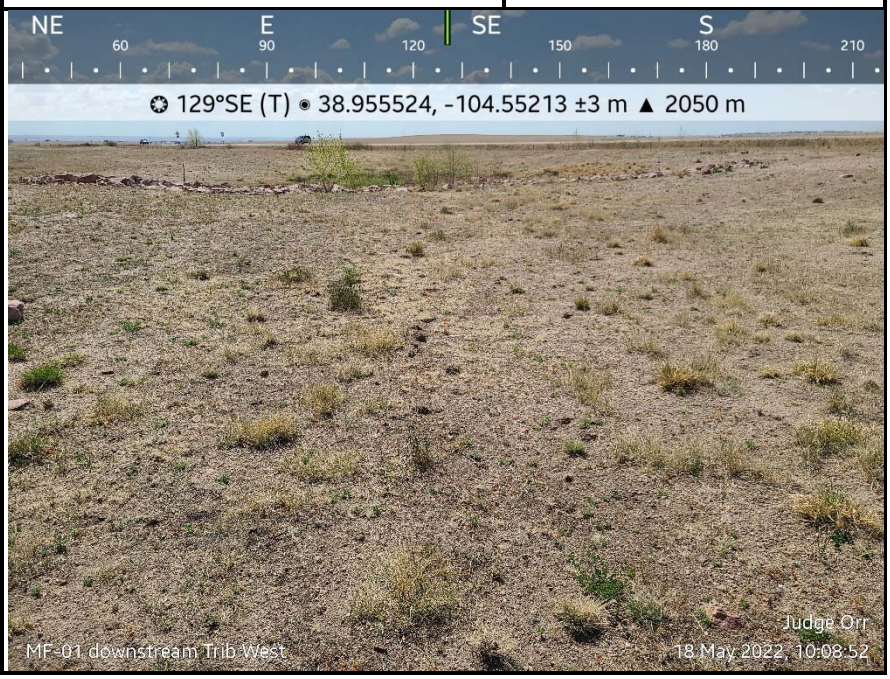
Judge Orr Mitigation Bank
Peyton, CO

Appendix A

Representative Photos

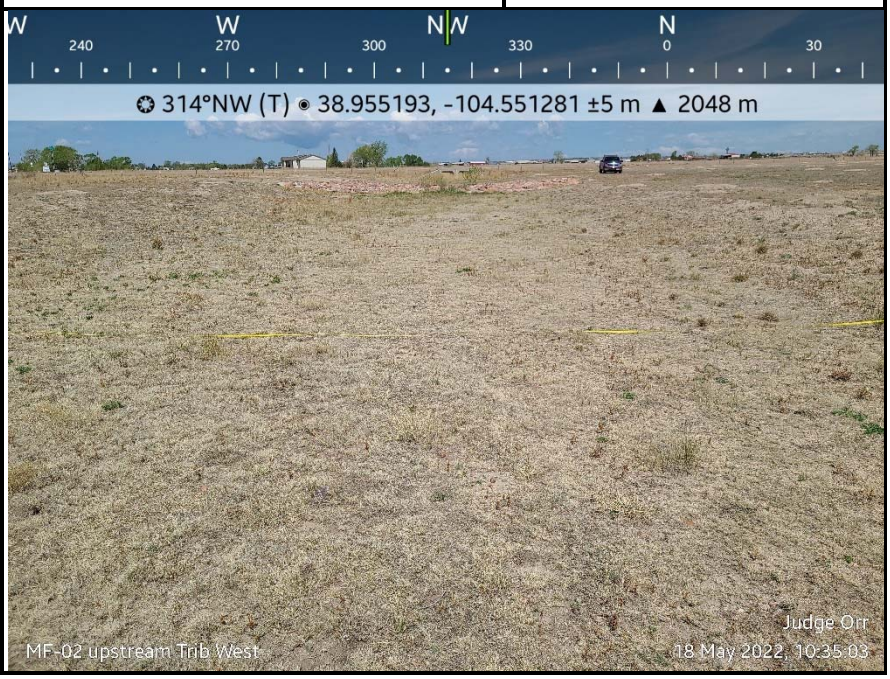
Photolog – Potential Waters of the US

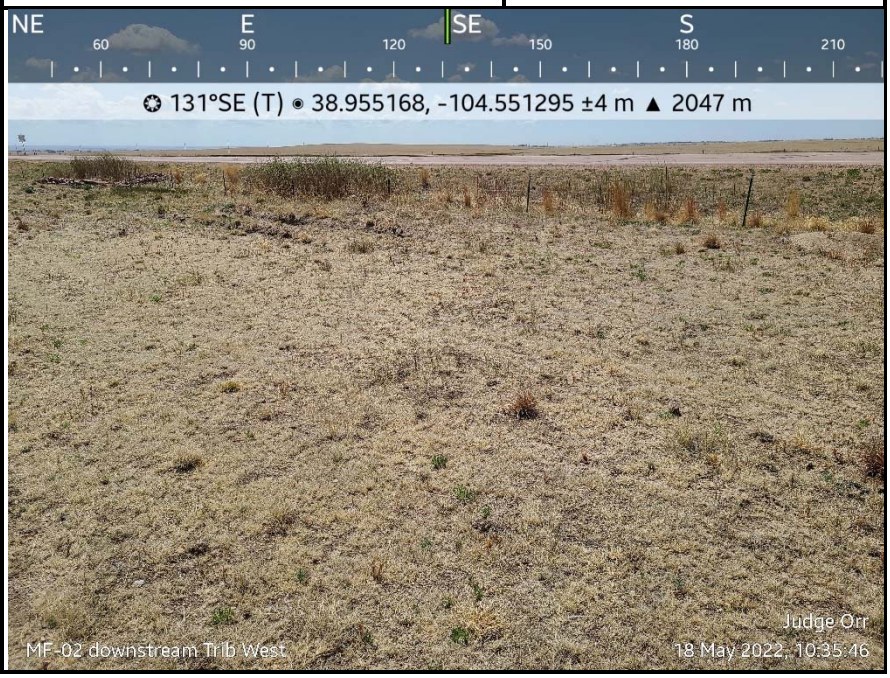
Project Name: Judge Orr Mitigation Bank		Location: El Paso County, Colorado	Project Reference: Prospectus
Photo ID Number: Photo 1. PL22-MF01-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-01 showing the upstream characteristics of Tributary-West and the culvert under Stapleton Rd. where the tributary enters the Site property. Foreground (left) shows very limited OHWM and drainage patterns within the larger relief. Tape marks the cross-section collected at WOTUS-01.			

Project Name: Judge Orr Mitigation Bank		Location: El Paso County, Colorado	Project Reference: Prospectus
Photo ID Number: Photo 2. PL22-MF01-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-01 showing the downstream characteristics of Tributary-West and the concrete-rock water bar. Foreground (right) shows very limited OHWM and drainage patterns within the larger relief.			

CEDAR CREEK ASSOCIATES, INC.

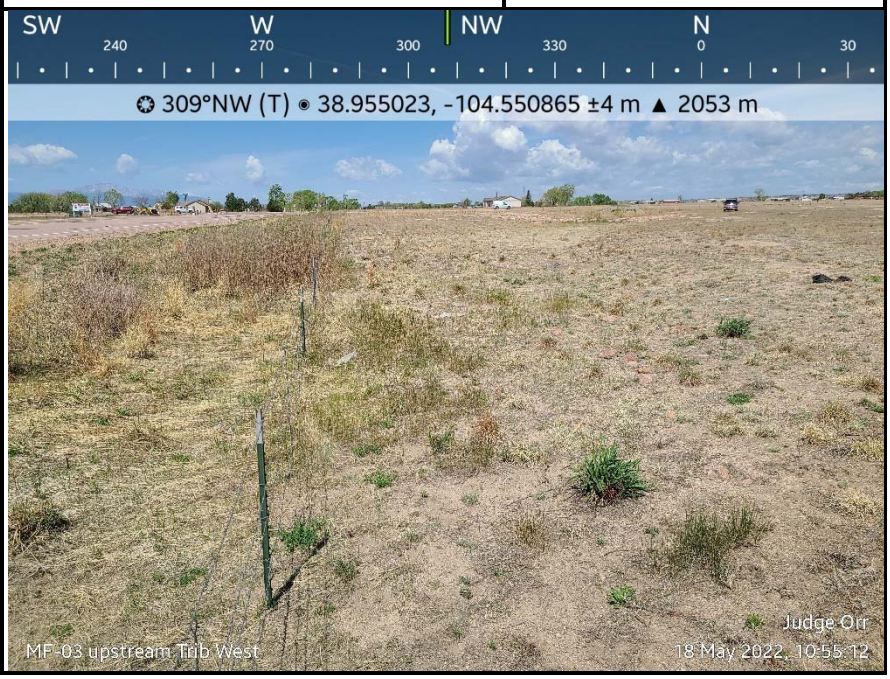
Photolog – Potential Waters of the US

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 3. PL22-MF02-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-02 showing the upstream characteristics of Tributary-West and the concrete water bar where WL-5 is located. No definitive OHWM or drainage patterns present within the larger relief. Tape marks the cross-section collected at WOTUS-02.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 4. PL22-MF02-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-02 showing the downstream characteristics of Tributary-West, Site boundary (fence), and Judge Orr Rd. No definitive OHWM or drainage patterns present within the larger relief.			

CEDAR CREEK ASSOCIATES, INC.

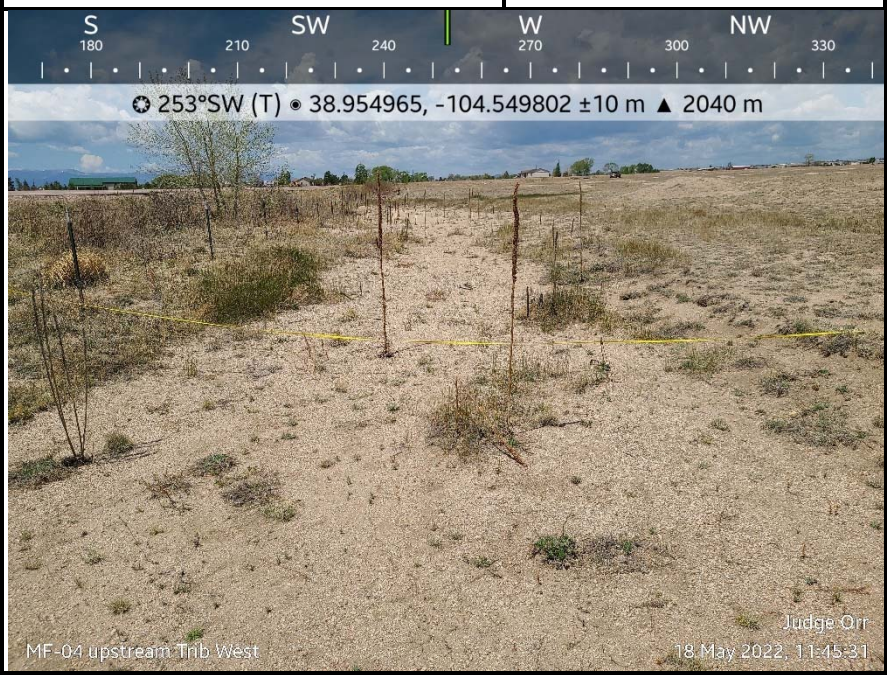
Photolog – Potential Waters of the US

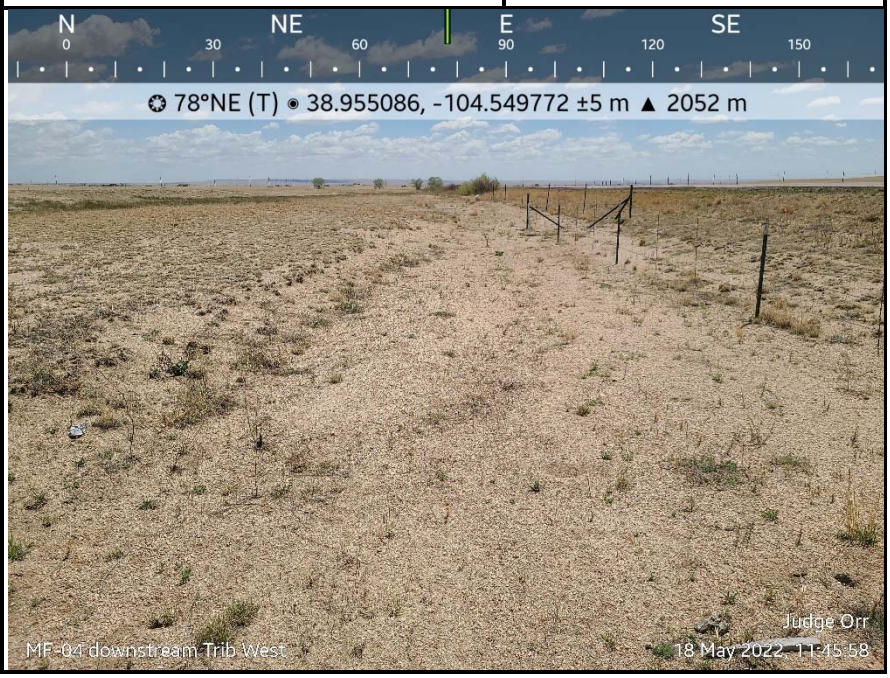
Project Name: Judge Orr Mitigation Bank		Location: El Paso County, Colorado	Project Reference: Prospectus
Photo ID Number: Photo 5. PL22-MF03-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-03 showing the upstream confluence of of Tributary-West (right), the South Ditch (left), and the Site boundary (fence). No definitive OHWM or drainage patterns present within the larger relief associated with Tributary-West. Some patches of willows and notable change in vegetation cover located in the South Ditch (off-site).			

Project Name: Judge Orr Mitigation Bank		Location: El Paso County, Colorado	Project Reference: Prospectus
Photo ID Number: Photo 6. PL22-MF03-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-03 showing the downstream characteristics of the South Ditch and assumed diversion of Tributary-West. Distinct OHWM and drainage patterns present within the larger relief. Loose-rock water bar shown in background (center).			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Potential Waters of the US

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 7. PL22-MF04-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-04 showing the upstream characteristics of the South Ditch (left) and diversion of Tributary-West (right). Distinct OHWM and drainage patterns present within the larger relief of Tributary-West, separate from the South Ditch. Tape marks the cross-section collected at WOTUS-03.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 8. PL22-MF04-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-04 showing the downstream characteristics of the South Ditch (right) and diversion of Tributary-West (left). Distinct OHWM and drainage patterns present within the larger relief of Tributary-West, occasionally merging with the South Ditch.			

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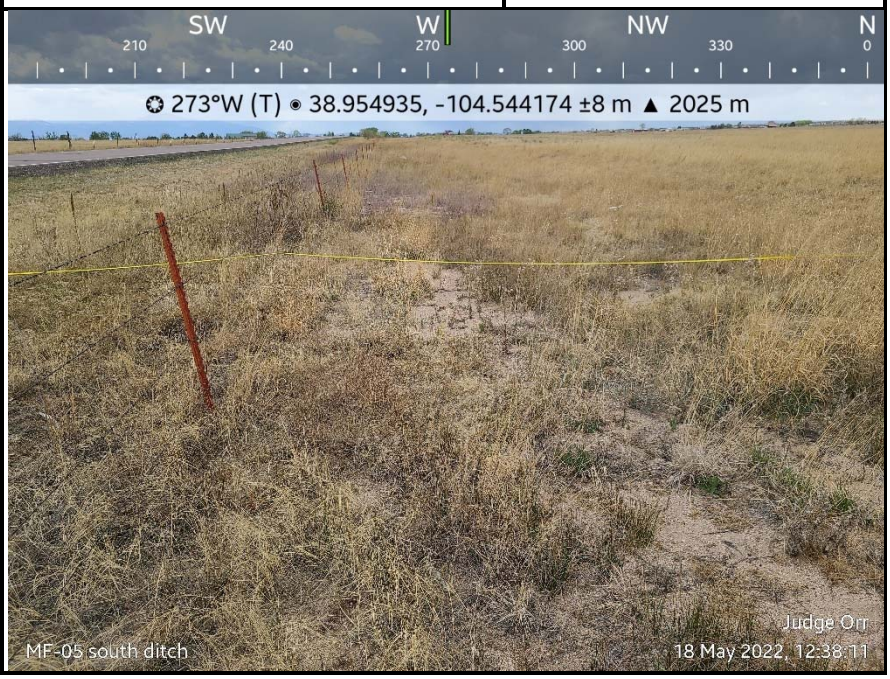
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 9. PL22-MF05-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-05 showing the upstream characteristics of the South Ditch (left) and the Site boundary (fence). No definitive OHWM or drainage patterns present within the larger relief (on-site). Tape marks the cross-section collected at WOTUS-04.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 10. PL22-MF05-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-05 showing the downstream characteristics of the South Ditch (right) and the Site boundary (fence). No definitive OHWM or drainage patterns present within the larger relief (on-site).			

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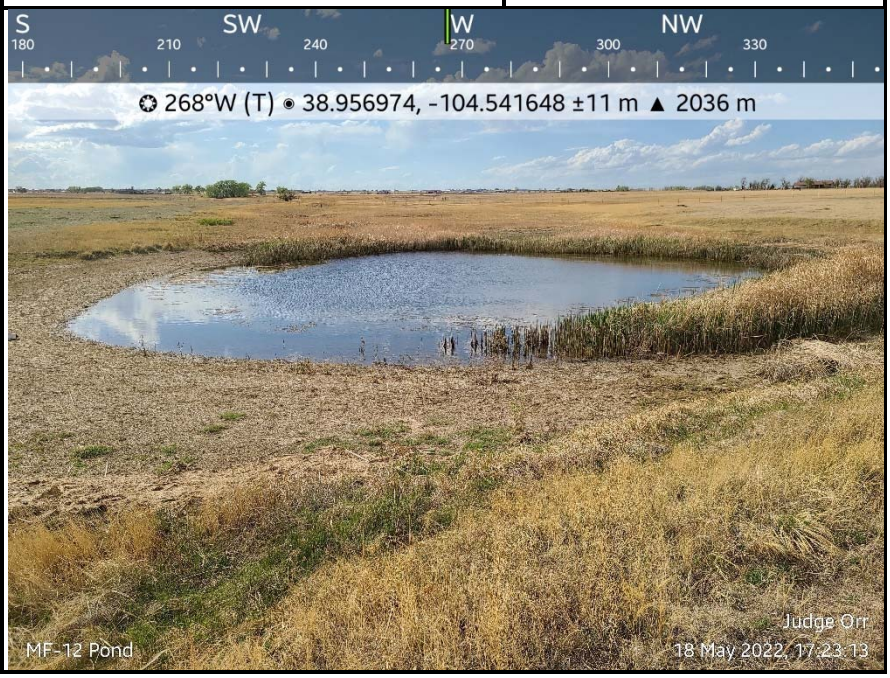
Photolog – Potential Waters of the US

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 11. PL22MF11-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-011 showing the characteristics of the pond below OHWM (left) and the Site boundary (fence). Songbirds are pictured along the fence and perched on the cattails.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 12. PL22MF12-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-012 showing the characteristics of the pond below OHWM and the inlet of Tributary-East (background, center).			

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Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 13. PL22-MF12-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-012 showing the characteristics of the earthen dam and the overflow outlet (right).			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 14. PL22-MF12-3	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-012 showing the characteristics of the earthen dam and the downstream channel (off-site). Distinct OHWM indicators and drainage patters are shown along with the continuation of dominant hydric vegetation.			

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Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 15. PL22-MF13-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-13 showing the upstream characteristics of Tributary-East. Distinct OHWM and flowing water present within the larger relief of Tributary-East. The cross-section collected at WOTUS-05 was collected in the foreground (Tape line missing).			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 16. PL22-MF13-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-13 showing the downstream characteristics of Tributary-East. Distinct OHWM and flowing water present within the larger relief of Tributary-East.			

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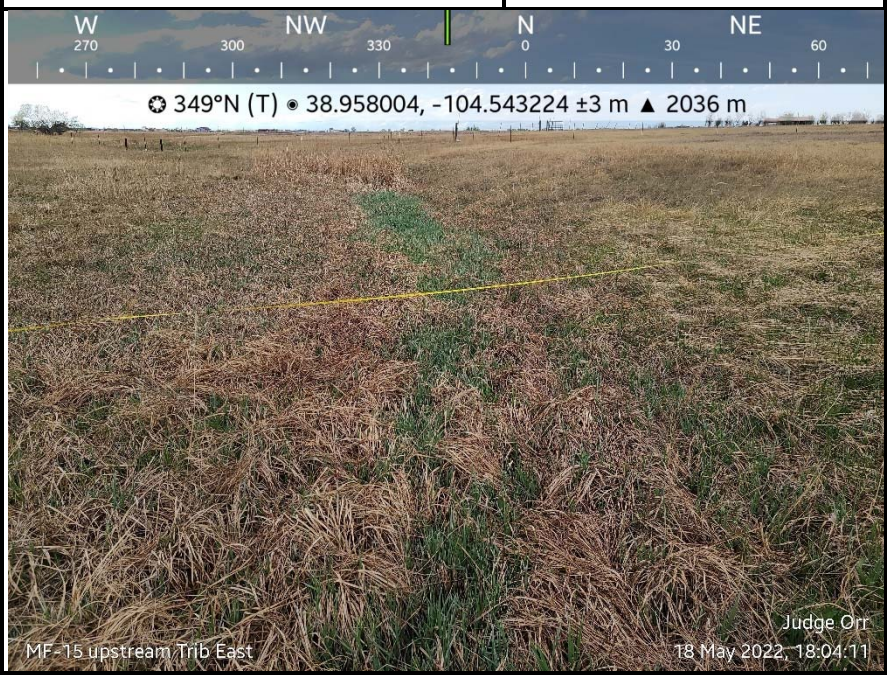
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 17. PL22-MF15-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-15 showing the upstream characteristics of Tributary-East. Distinct OHWM and flowing water present within the larger relief of Tributary-East. Tape marks the cross-section collected at WOTUS-06.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 18. PL22-MF15-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-15 showing the downstream characteristics of Tributary-East. Distinct OHWM and flowing water present within the larger relief of Tributary-East.			

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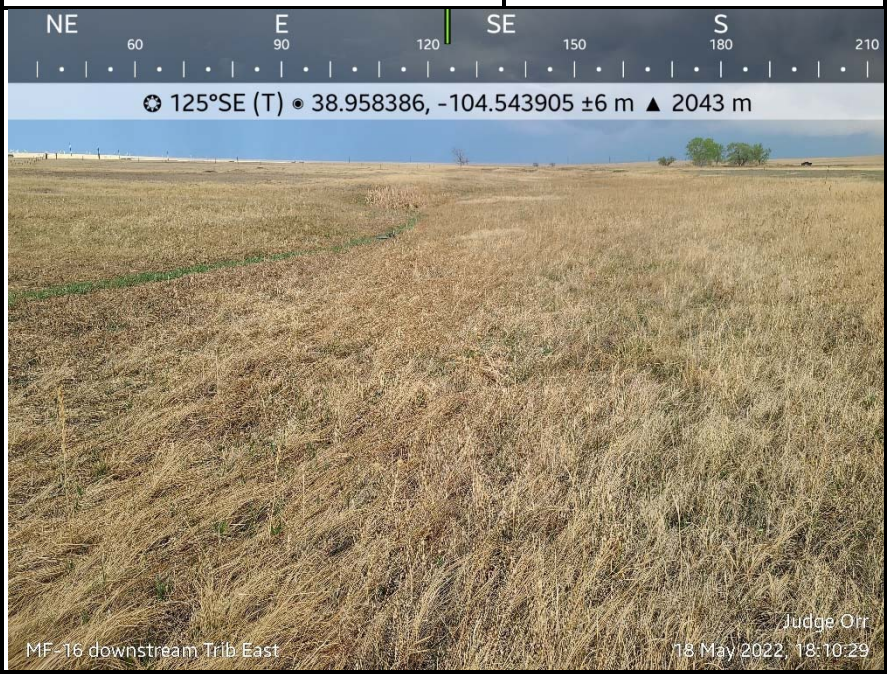
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 19. PL22-MF16-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-16 showing the upstream characteristics of Tributary-East. Distinct OHWM and flowing water present within the larger relief of Tributary-East. Shows where Tributary-East enters the site and the continuation of OHWM and associated wetlands continuing upstream of the Site boundary (fence).			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 20. PL22-MF16-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-16 showing the downstream characteristics of Tributary-East. Distinct OHWM and flowing water present within the larger relief of Tributary-East.			

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Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 21. PL22-MF14-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-14 showing the earthen water bar spanning Tributary-East at MF-14. Channel has eroded through the water bar, so flows are largely un-affected. May function as an upstream dam to keep ponding from occurring further upstream.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 22. PL22-MF10-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-10 showing the grate found along the South Ditch ad the edge of the Site boundary. Potential underground stormwater access. Unverified connectivity.			

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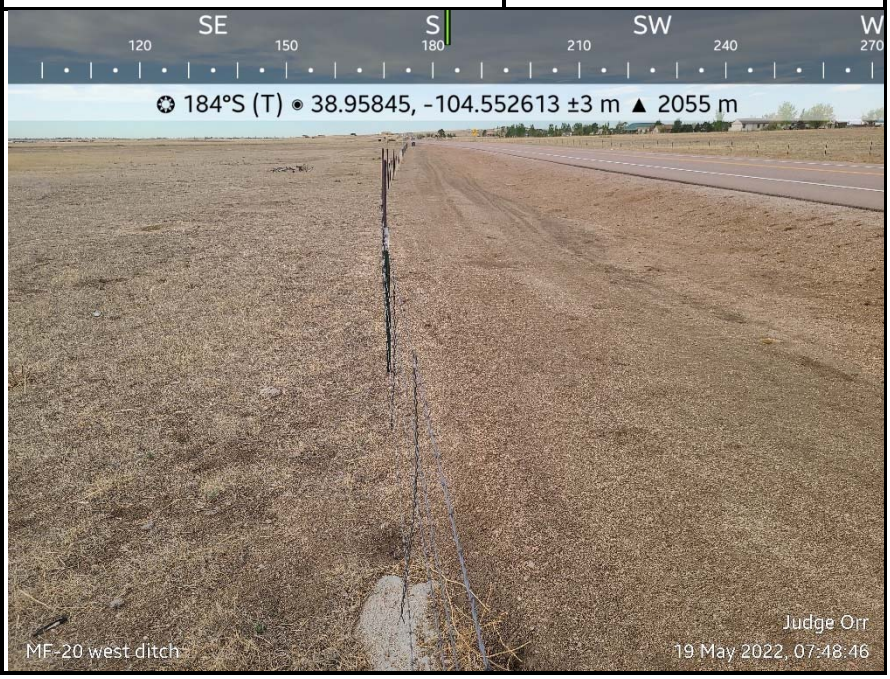
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 23. PL22-MF20-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-20 showing the West Ditch parallel to the Stie boundary (fence) and Stapleton Rd. (right). No definitive OHWM within the larger relief. Evidence of disturbance present, fresh earth work and lack of vegetation is notable within the ditch.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 24. PL22-MF36-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-36 showing the South Ditch parallel to the Stie boundary (fence) and Judge Orr Rd. (right). Notable change in vegetation cover and species present between the Site and the ditch.			

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Photolog – Potential Waters of the US

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 25. PL22-MF37-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-37 showing the upstream characteristics of Tributary-West (off-site). Distinct drainage patterns and change in vegetation species present within the larger relief of Tributary-East. Shows patches of hydrophytic vegetation in channel upstream of the Site.			

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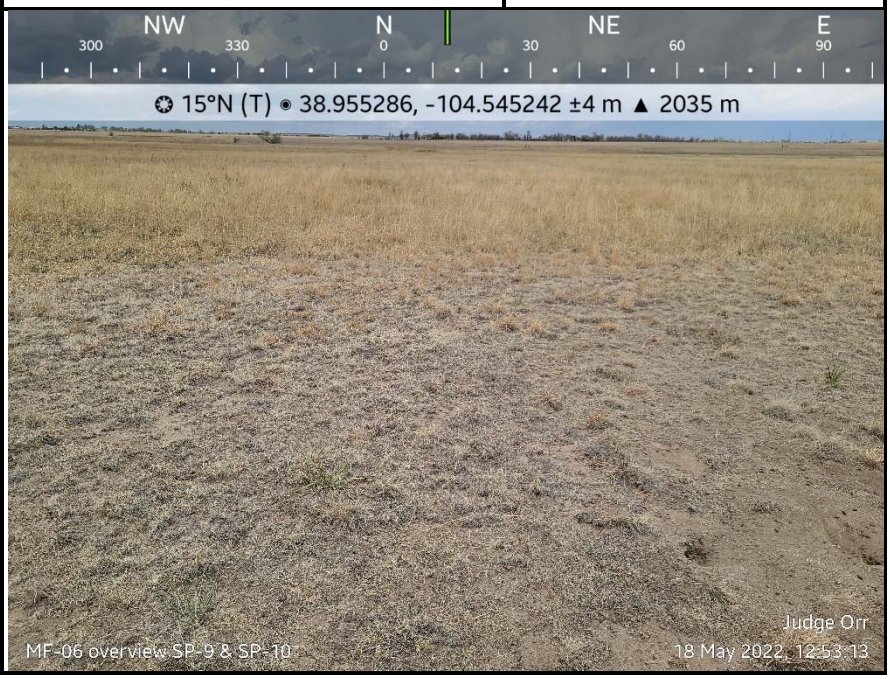
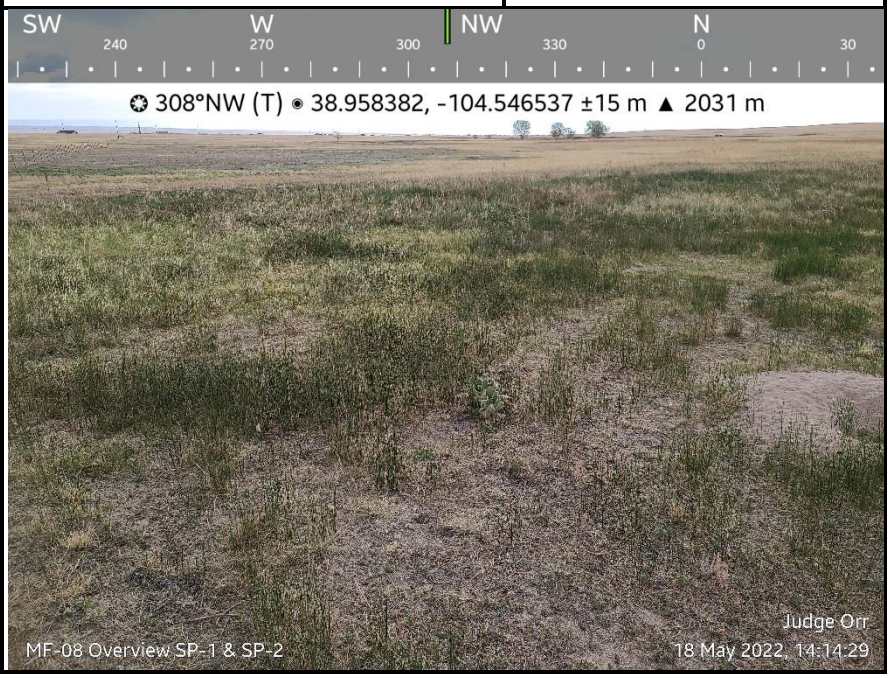
Photolog – Wetlands and Uplands

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 26. PL22-MF06-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-06 showing an overview of habitats associated with SP-9 (WL-1 background) and SP-10 (upland foreground).			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 27. PL22-MF08-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-08 showing an overview of habitats associated with SP-1 (upland foreground) and SP-2 (WL-1 and seepage area midground).			

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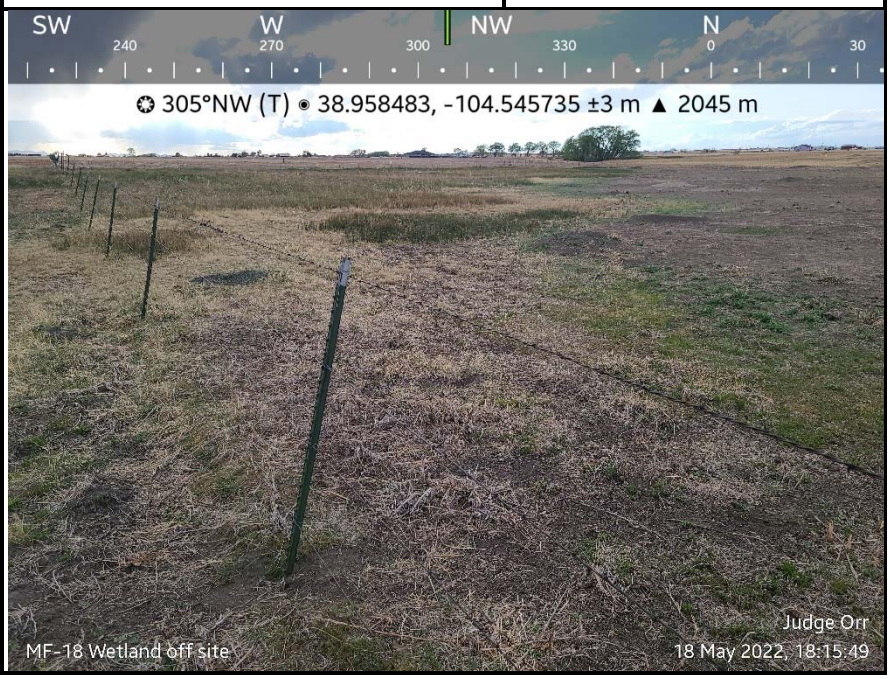
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 28. PL22-MF18-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-18 showing the continuation of WL-1 and the potential off-site seepage area located north of the Site boundary (fence).			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 29. PL22-MF21-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-21 showing an overview of habitats associated with SP-3 (WL-1 background right), SP-4 (WES-4 midground), and SP-15 (upland foreground). SP locations denoted by orange flags.			

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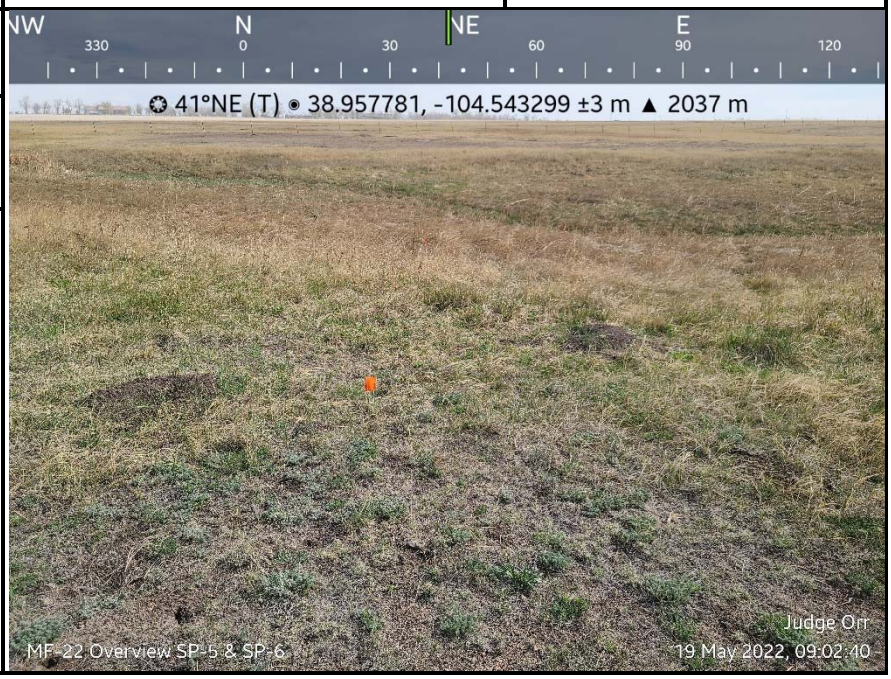
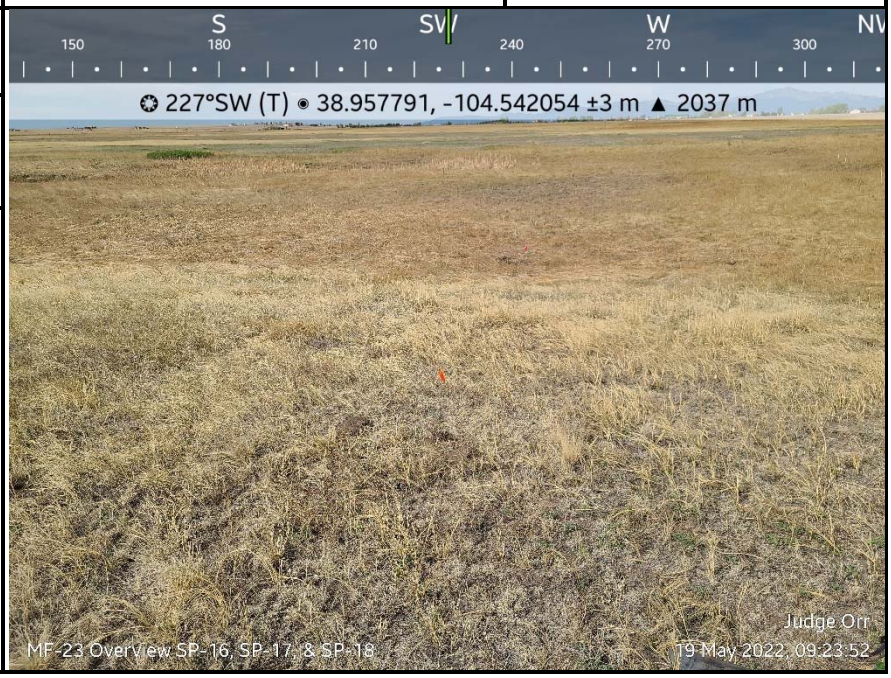
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 30. PL22-MF22-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-22 showing an overview of habitats associated with SP-5 (WL-4 background) and SP-6 (upland foreground). SP locations denoted by orange flags.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 31. PL22-MF23-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-23 showing an overview of habitats associated with SP-16 (WL-4 background left), SP-17 (WL-4 midground) and SP-18 (upland foreground). SP locations denoted by orange flags.			

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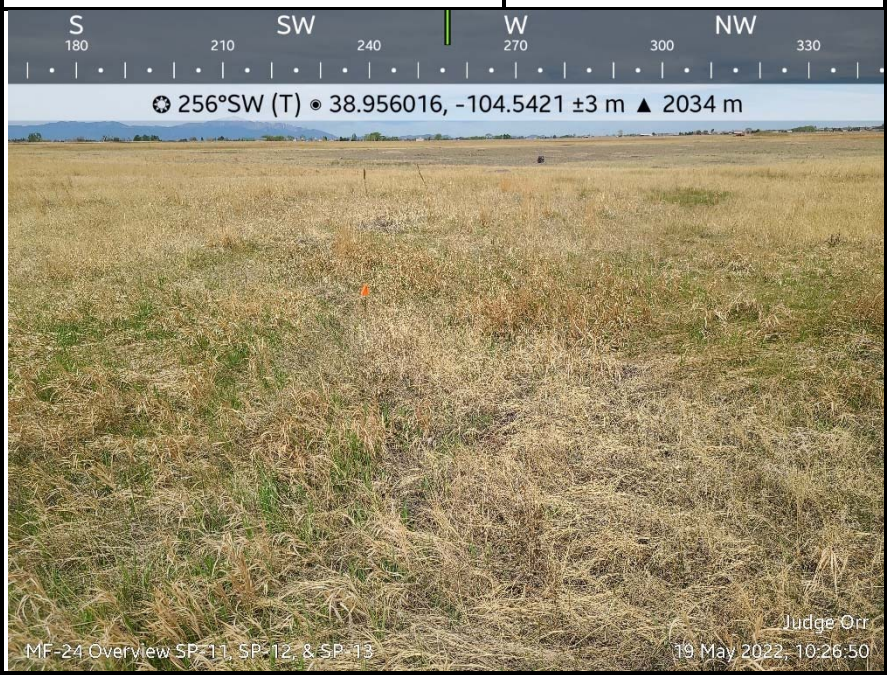
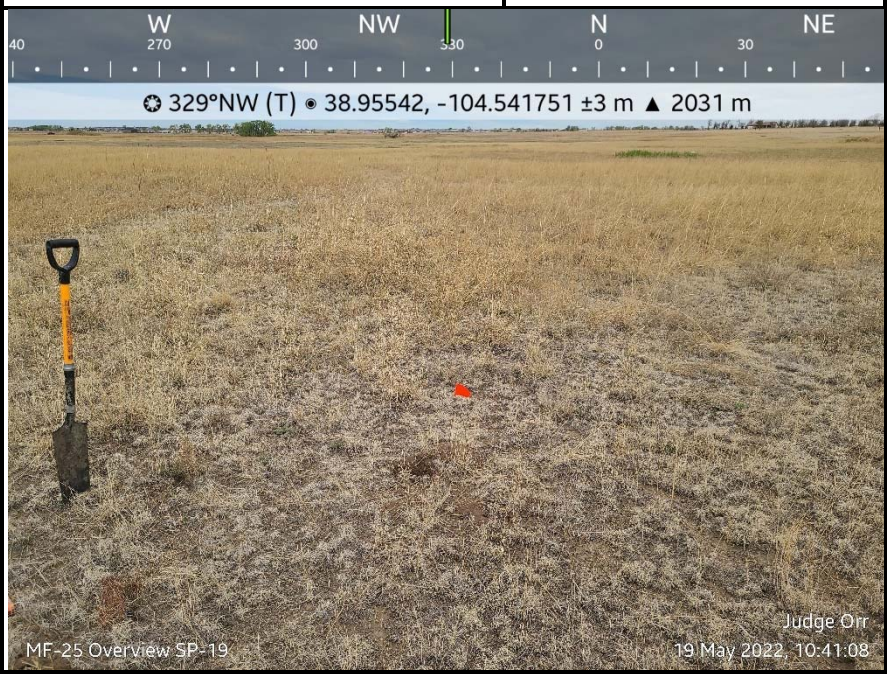
Photolog – Wetlands and Uplands

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 32. PL22-MF24-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-24 showing an overview of habitats associated with SP-11 (WL-3 foreground), SP-12 (WES-6 midground) and SP-13 (upland background). SP locations denoted by orange flags.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 33. PL22-MF25-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-25 showing an overview of habitats associated with SP-19 (WES-2 foreground) and neighboring WL-3 (background). SP locations denoted by orange flags.			

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Photolog – Wetlands and Uplands

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 34. PL22-MF26-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-26 showing an overview of habitats associated with SP-20 (WES-3 foreground) and neighboring WL-1 (background). SP locations denoted by orange flags.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 35. PL22-MF27-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-27 showing an overview of habitats associated with SP-21 (WES-1 background), SP-22 (WL-1 midground) and SP-23 (WES-6 foreground). SP locations denoted by orange flags.			

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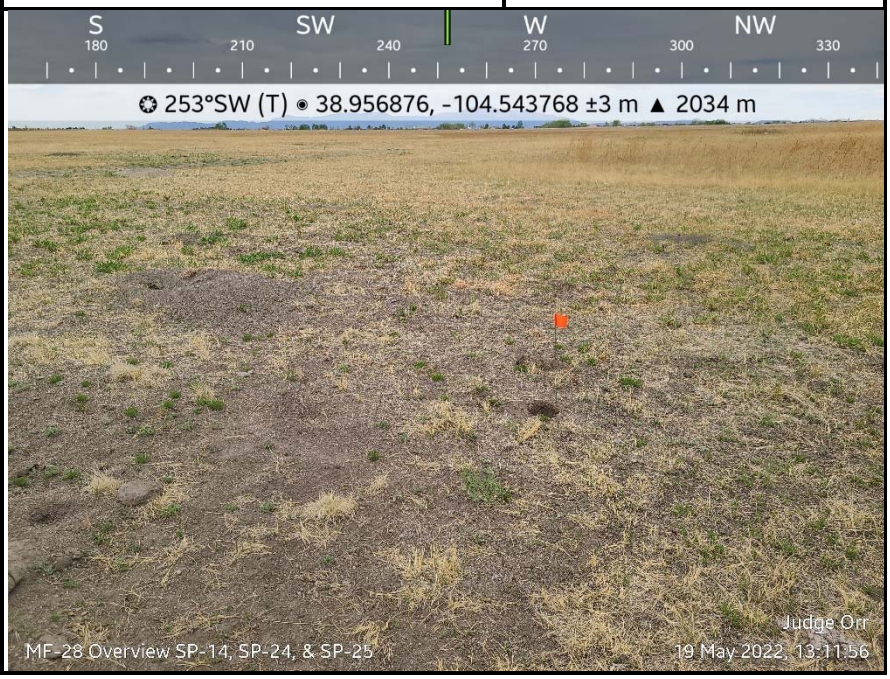
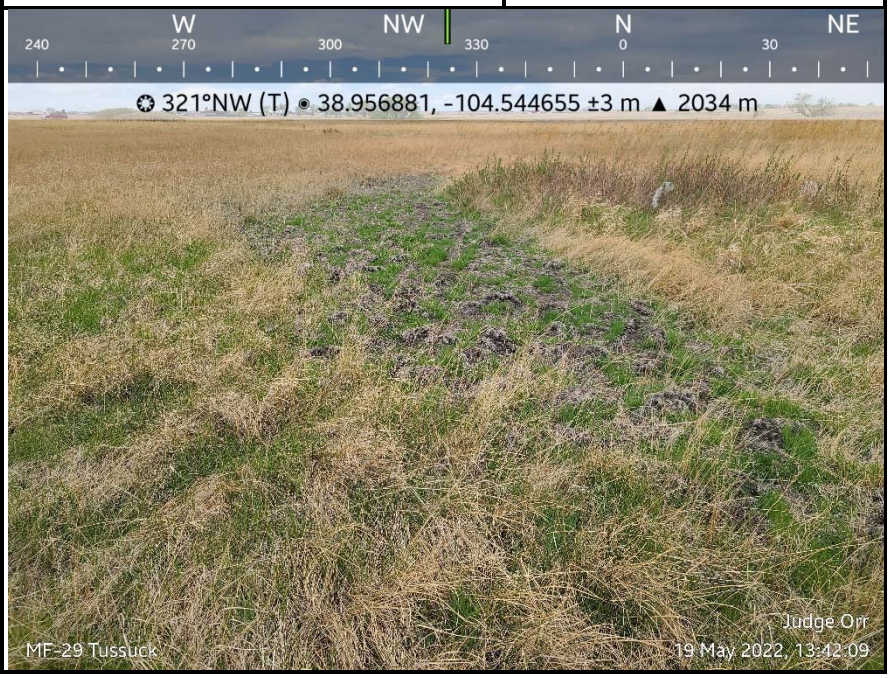
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 36. PL22-MF28-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-28 showing an overview of habitats associated with SP-14 (WL-1 background right), SP-24 (WES-4 midground right) and SP-25 (upland foreground). SP locations denoted by orange flags.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 37. PL22-MF29-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-29 showing portion of WL-1 where hoof-shears and tussocks are present.			

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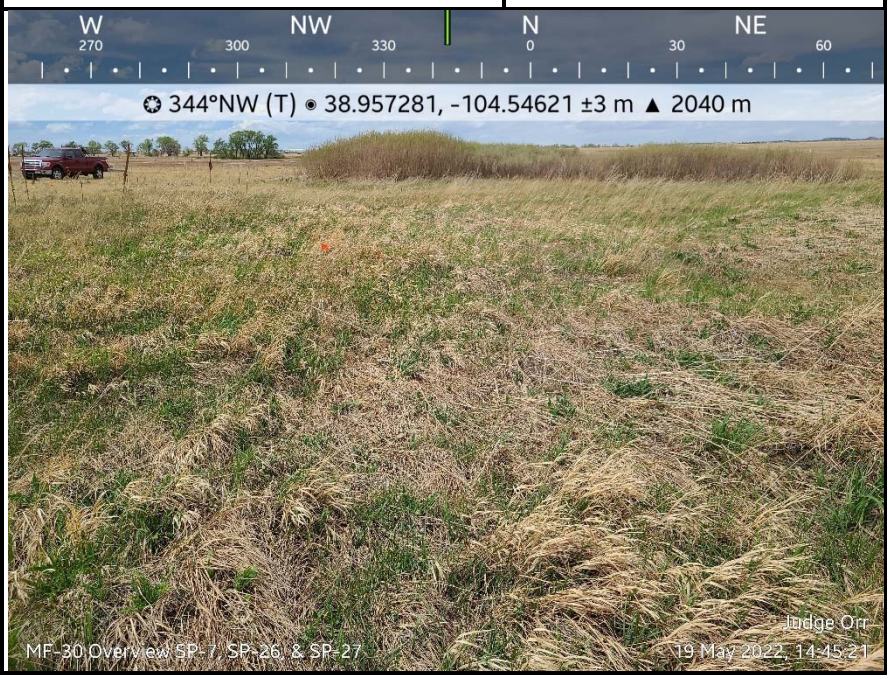
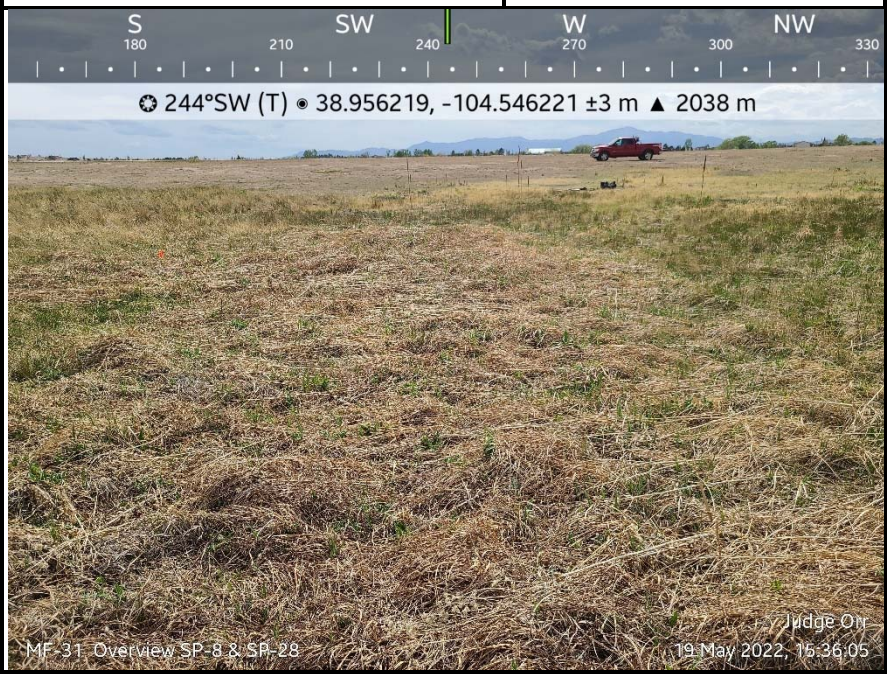
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 38. PL22-MF30-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-30 showing an overview of habitats associated with SP-7 (WL-1 foreground), SP-26 (WL-2 background willows) and SP-27 (upland background left). SP locations denoted by orange flags.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 39. PL22-MF31-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-31 showing an overview of habitats associated with SP-8 (WL-1 foreground) and SP-28 (upland background). SP locations denoted by orange flags.			

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Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 40. PL22-MF32-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-32 showing an overview of habitats associated with SP-29 (WES-7 background) and SP-30 (upland foreground). SP locations denoted by orange flags.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 41. PL22-MF33-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-33 showing an overview of habitats associated with SP-31 (WES-1 foreground) and neighboring WL-1 (background). SP locations denoted by orange flags.			

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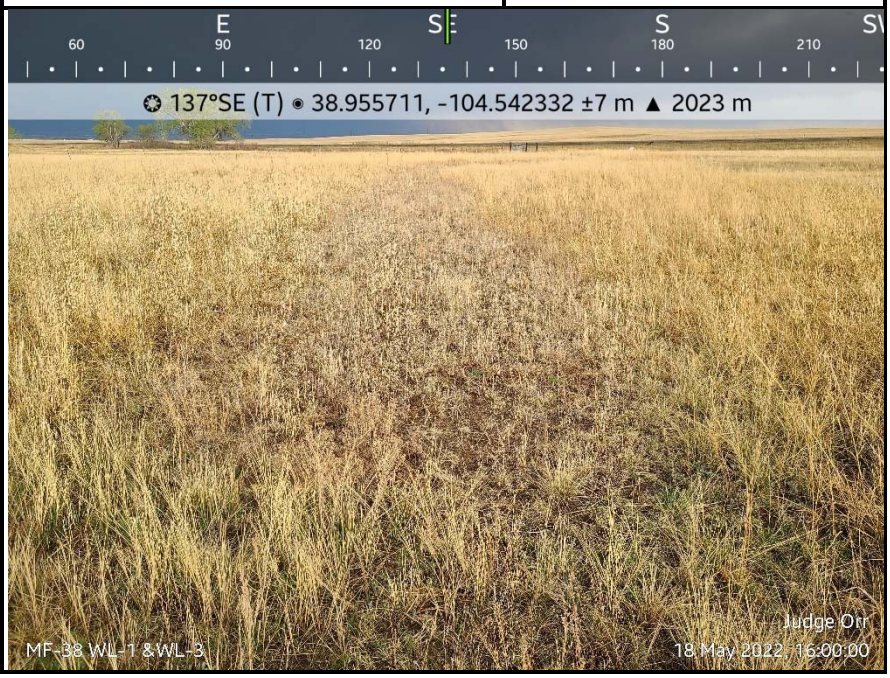
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 42. PL22-MF34-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-34 showing an overview of habitats associated with SP-32 (WL-5 midground) and SP-33 (upland foreground). SP locations denoted by orange flags.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 43. PL22-MF38-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-38 showing an overview of WES-6 (center) as it separates WL-1 (right) and WL-3 (left).			

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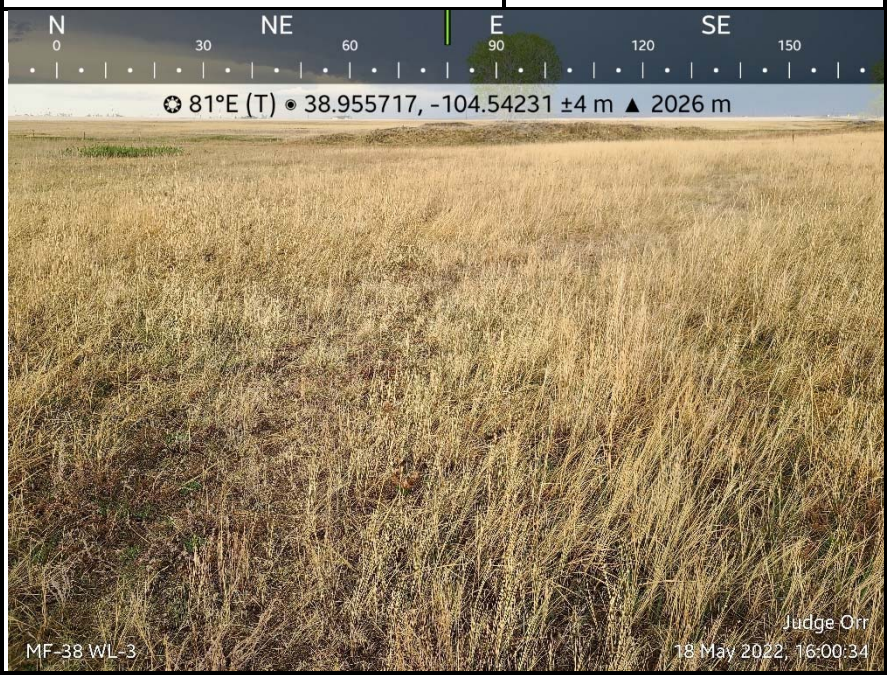
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 44. PL22-MF38-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-38 showing an overview of WES-6 (foreground) and WL-3 (background).			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 45. PL22-MF38-3	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-38 showing an overview of WL-1 (foreground) and neighboring uplands (background).			

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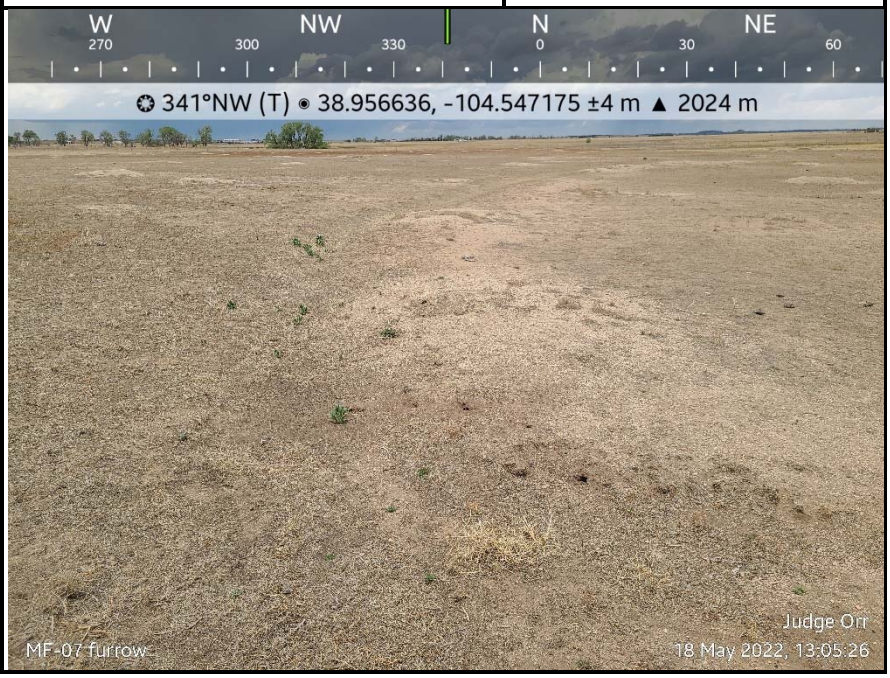
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 46. PL22-MF09-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-09 showing an overview a grass-lined furrow intersecting WL-1.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 47. PL22-MF07-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-07 showing a grass-lined furrow within the upland.			

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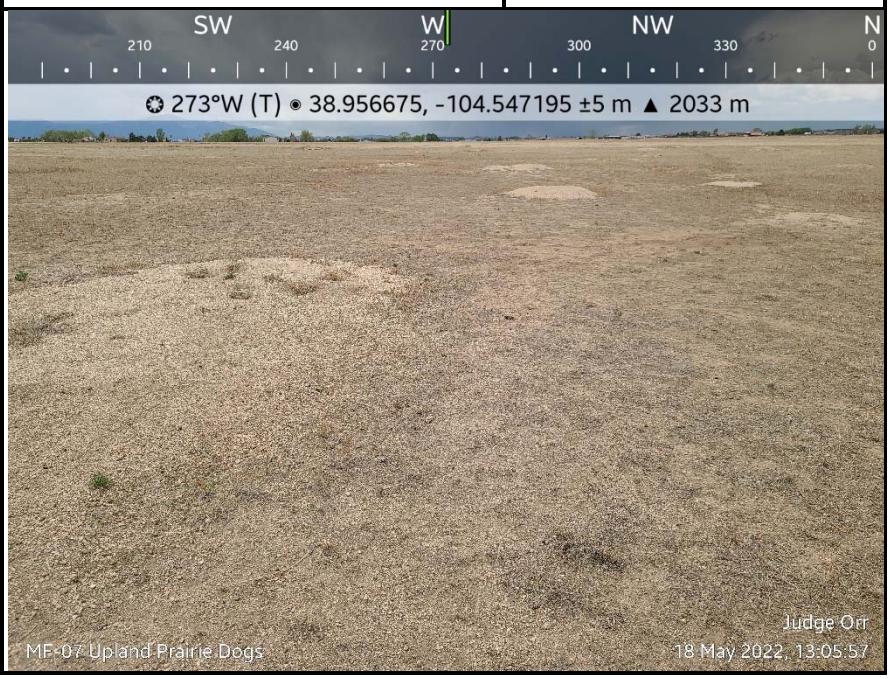
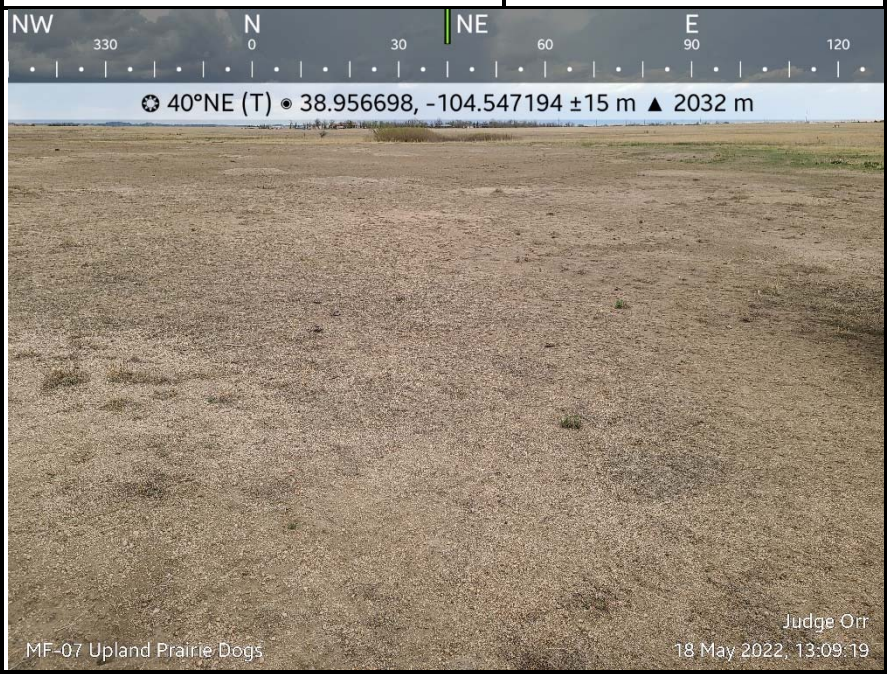
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 48. PL22-MF07-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-07 showing a grass-lined furrow, prairie dog colony, and "thinning" effect of vegetation within the upland.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 49. PL22-MF07-3	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-07 showing the prairie dog colony and "thinning" effect of vegetation within the upland.			

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Photolog – Wetlands and Uplands

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 50. PL22-MF17-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-17 showing upland vegetation transition between "thin" areas (left) affected by prairie dogs and historic grazing to elevated cover neighboring the delineated wetlands (right).			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 51. PL22-MF17-2	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-17 showing upland vegetation transition between "thin" areas (right) affected by prairie dogs and historic grazing to elevated cover neighboring the delineated wetlands (left).			

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Photolog – Wetlands and Uplands

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 52. PL22-MF19-1	**Date:** 05/18/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-19 showing upland vegetation transition that has less impact from "thinning".			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 53. PL22-MF35-1	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Photo collected at MF-35 showing upland vegetation transition that has less impact from "thinning".			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 54. PL21-SP1	**Date:** 05/14/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-1.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 55. PL21-SP2	**Date:** 05/14/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-2. Expanded profile to 26 inches (6/29/22): 			

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 56. PL21-SP3	**Date:** 05/14/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-3.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 57. PL21-SP4	**Date:** 05/14/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-4. Expanded profile to 20 inches (6/29/22): 			

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 58. PL21-SP5	**Date:** 05/14/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-5. Expanded profile to 28 inches (6/29/22): 			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 59. PL21-SP7	**Date:** 06/04/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-7. Expanded profile to 38 inches (6/29/22): 			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 60. PL21-SP8	**Date:** 06/04/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-8.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 61. PL21-SP9	**Date:** 06/04/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-9. Expanded profile to 21 inches (6/29/22): 			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 62. PL21-SP10	**Date:** 06/04/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-10.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 63. PL21-SP11	**Date:** 06/04/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-11. Expanded profile to 26 inches (6/29/22): 			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 64. PL21-SP12	**Date:** 06/04/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-12.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 65. PL21-SP13	**Date:** 06/04/21		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-13.			

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Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 66. PL22-SP15	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-15.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 67. PL22-SP17	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-17. Expanded profile to 30 inches (6/29/22): 			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 68. PL22-SP18	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-18.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 69. PL22-SP19	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-19.			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

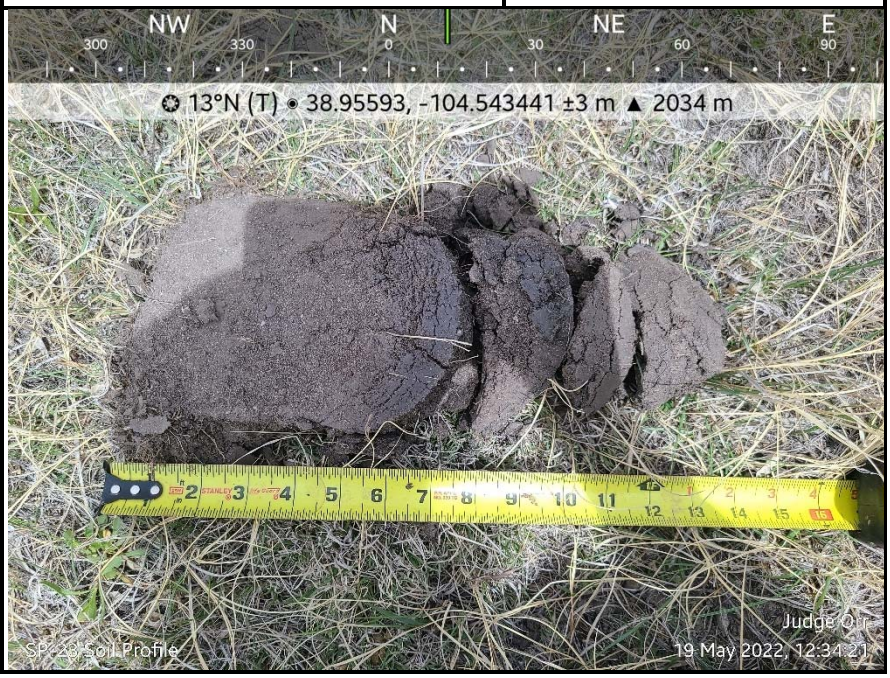
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 70. PL22-SP20	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-20. Expanded profile to 26 inches (6/29/22): 			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 71. PL22-SP21	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-21.			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 72. PL22-SP22	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-22. Expanded profile to 25 inches (6/29/22): 			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 73. PL22-SP23	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-23.			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

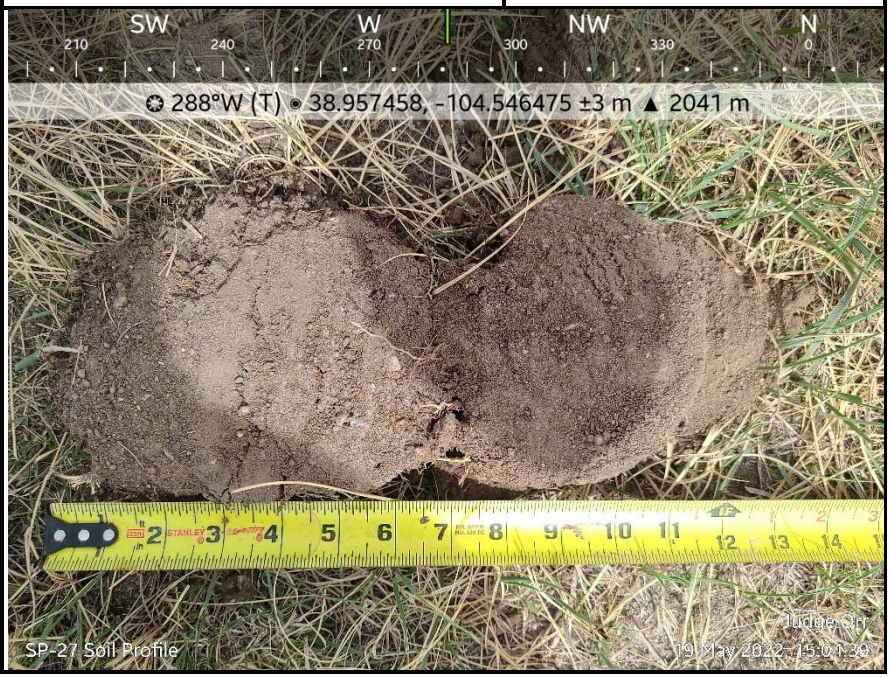
Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 74. PL22-SP24	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-24. Expanded profile to 26 inches (6/29/22): 			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 75. PL22-SP25	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-25.			

CEDAR CREEK ASSOCIATES, INC.

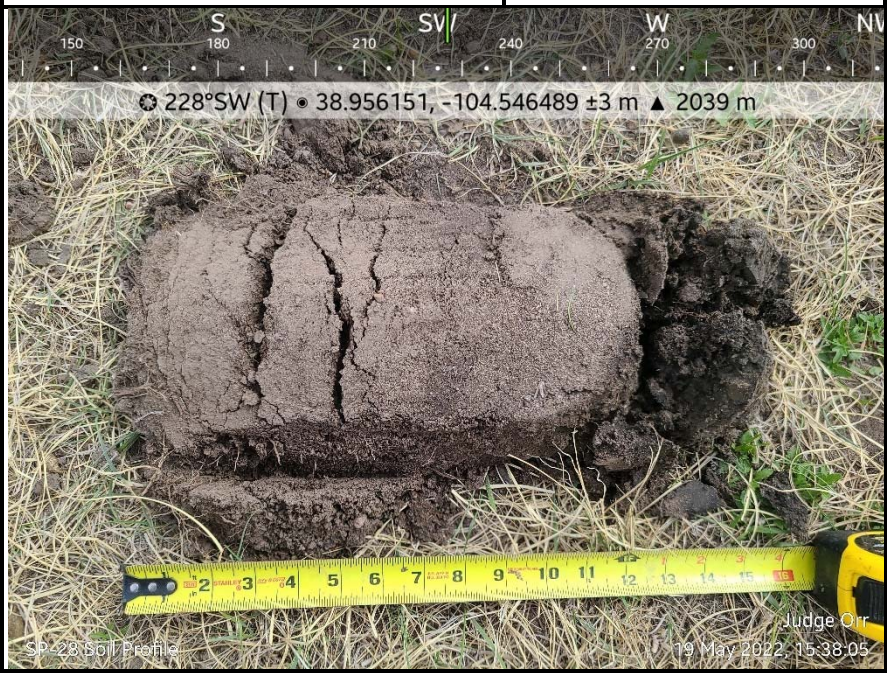
Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 76. PL22-SP26	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-26. Expanded profile to 26 inches (6/29/22): 			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 77. PL22-SP27	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-27.			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 78. PL22-SP28	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-28.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 79. PL22-SP29	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-29. Expanded profile to 26 inches (6/29/22): 			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 80. PL22-SP30	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-30.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 81. PL22-SP31	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-31. Expanded profile to 28 inches (6/29/22): 			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 82. PL22-SP32	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-32.			

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 83. PL22-SP33	**Date:** 05/19/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-33.			

CEDAR CREEK ASSOCIATES, INC.

Photolog – Soil Profiles

Project Name: Judge Orr Mitigation Bank		**Location:** El Paso County, Colorado	**Project Reference:** Prospectus
Photo ID Number: Photo 84. PL22-SP14	**Date:** 06/29/22		
Site ID: Pete Lien, Judge Orr Site			
Description: Soil profile collected at SP-14. Sample not to scale in photo, expanded due to use of auger to achieve appropriate depth of 21 inches.			

Note: Photo of soil profile at sample SP-34 was not collected due to camera malfunction.

Appendix B

OWUS and OHWM Identification Forms

Waters of the US Inventory and OHWM Identification Datasheet

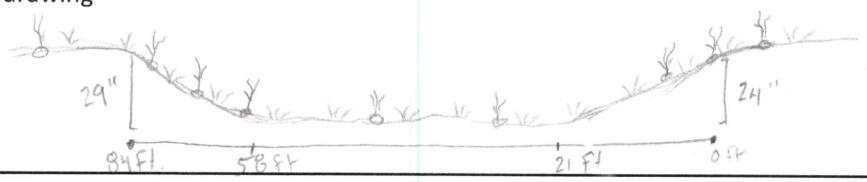
Project/Site: Indigo Ave Mitigation Bank **Investigator(s):** Gloria Sargent
Applicant/Owner: Rete Loeme **Date:** 5/18/22
Do normal circumstances exist on the site? Yes **Is the Site Significantly disturbed?** No

Feature ID: Tributary - west **Sample Point:** WOTUS-1 **Landform/Local relief:** Channel / concave

Potential anthropogenic influences on the channel system:
Culvert upstream at Stapleton Road, water bar (Rock) down stream on site.

Site description (Are Wetland Indicators Present?): Wide, shallow channel dom by upland veg. Dry Secondary Hydrology ind present due to channel morphology, no hydric soils or veg

Cross section drawing



* And sco, Ery lan lan, mel off - dom
* Bas sco more prevalent on slopes + Terrace

Characterstics

		Community Age	
Avg. Sediment texture	Fines w/ Alluvial gravel		N/A
Tree Cover (%)	0		Early (Herb/Seedling)
Shrub Cover (%)	2 %	X	Mid (Herb/Shrub/Sapling)
Herb Cover (%)	40 %		Late (Herb/Shrub/Mature Trees)
Total Cover (%)	42 %		
Max Water Depth (in.) and Flow Rate	0 in no standing or flowing water		

Indicators

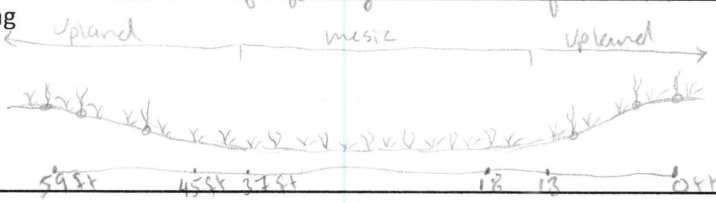
	Mudcracks		Benches		Change in veg species / community
	Ripples		Soil development		Change in veg cover
	Drifts and/or debris	X	surface relief	X	Change in character of soil
	Bed and bank		Break in bank slope		Other:
	Other:		Other:		Other:

Feature ID: Tributary - west **Sample Point:** WOTUS-2 **Landform/Local relief:** Channel / concave

Potential anthropogenic influences on the channel system:
Water bar (rock) + culvert upstream, Roadside ditch & water bars down streams

Site description (Are Wetland Indicators Present?): Wide shallow channel dom by upland veg?? Sun but minimal + secondary hydrology indicators present no hydric soils or veg (dom)

Cross section drawing



And sco, Bou gra, Bou sim - dom channel
Bas sco, And sco, Ery lan lan, Het Vil - dom upland banks terrace

Characterstics

		Community Age	
Avg. Sediment texture	Fines w/ Alluvial gravel		N/A
Tree Cover (%)	0		Early (Herb/Seedling)
Shrub Cover (%)	0	X	Mid (Herb/Shrub/Sapling)
Herb Cover (%)	55		Late (Herb/Shrub/Mature Trees)
Total Cover (%)	55		
Max Water Depth (in.) and Flow Rate	0 in no standing or flowing water		

Indicators

	Mudcracks		Benches	X	Change in veg species (Bou sim in channel)
	Ripples		Soil development	X	Change in veg cover (increased in channel)
	Drifts and/or debris	X	surface relief		Change in avg. sediment texture
	Bed and bank		Break in bank slope		Other:
	Other:		Other:		Other:

Waters of the US Inventory and OHWM Identification Datasheet

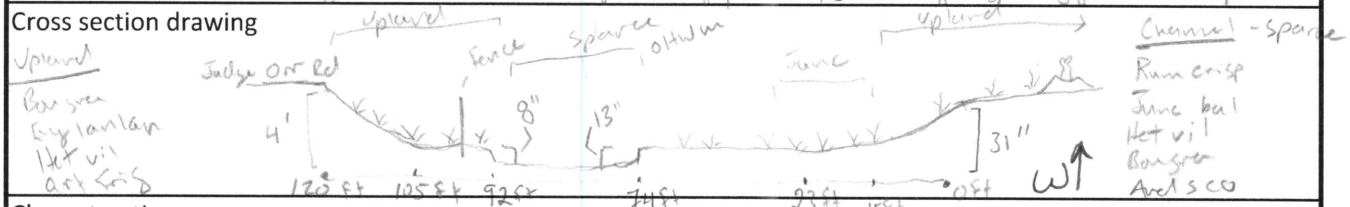
Project/Site: Judge Orr Mitigation Bank **Investigator(s):** Gloria Sargent
Applicant/Owner: Pete Irene **Date:** 5/18/22
Do normal circumstances exist on the site? Yes **Is the Site Significantly disturbed?** No

Feature ID: Tributary - west **Sample Point:** WOTUS-3 **Landform/Local relief:** channel / concave

Potential anthropogenic influences on the channel system:
Roadside ditch parallel, Rock bar diversions upstream

Site description (Are Wetland Indicators Present?): Wide shallow channel w/ sparse veg below OHWM. Remaining channel dom by upland veg. some hydric veg present, secondary hydrology indicators present.

Cross section drawing



Characterstics

Avg. Sediment texture	Fines w/ Alluvial Gravel	Community Age	
Tree Cover (%)	0	☐	N/A
Shrub Cover (%)	0	☒	Early (Herb/Seedling)
Herb Cover (%)	10	☐	Mid (Herb/Shrub/Sapling)
Total Cover (%)	10	☐	Late (Herb/Shrub/Mature Trees)
Max Water Depth (in.) and Flow Rate	0 in no standing or flowing water		

Indicators

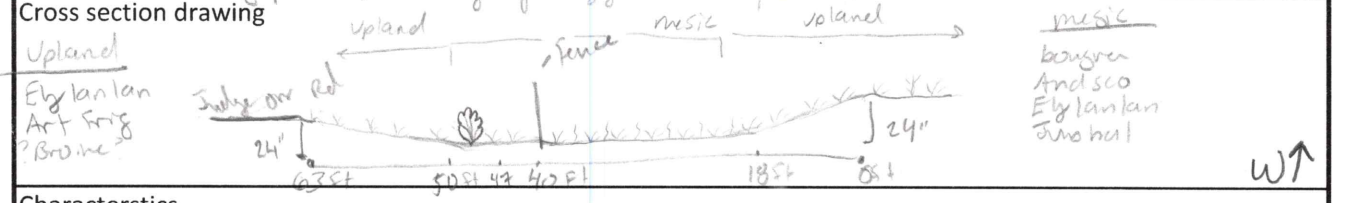
☐	Mudcracks	☒	Benches	☒	Change in veg species
☐	Ripples	☐	Soil development	☒	Change in veg cover
☐	Drifts and/or debris	☒	surface relief	☒	Change in avg. sediment texture, larger gravel present below OHWM.
☒	Bed and bank	☒	Break in bank slope	☒	Other: Soil sorting
☐	Other:	☐	Other:	☐	Other:

Feature ID: Southern Ditch **Sample Point:** WOTUS-4 **Landform/Local relief:** channel / concave

Potential anthropogenic influences on the channel system:
Roadside ditch parallel, Fence through drainage

Site description (Are Wetland Indicators Present?): Wide shallow channel dom by upland veg. with some Some wetland veg present, Secondary Hydrology indicators present. Juncs + willow along the low spots.

Cross section drawing



Characterstics

Avg. Sediment texture	Fines w/ alluvial gravel	Community Age	
Tree Cover (%)	0 %	☐	N/A
Shrub Cover (%)	2 %	☐	Early (Herb/Seedling)
Herb Cover (%)	70 %	☒	Mid (Herb/Shrub/Sapling)
Total Cover (%)	72 %	☐	Late (Herb/Shrub/Mature Trees)
Max Water Depth (in.) and Flow Rate	0 in no standing or flowing water		

Indicators – Few + sparatic, not prevalent enough to delineate

☐	Mudcracks	☐	Benches	☒	Change in veg species (Junc willow in channel)
☐	Ripples	☐	Soil development	☐	Change in veg cover
☒	Drifts and/or debris	☒	surface relief	☐	Change in avg. sediment texture
☐	Bed and bank	☐	Break in bank slope	☐	Other:
☐	Other:	☐	Other:	☐	Other:

Waters of the US Inventory and OHWM Identification Datasheet

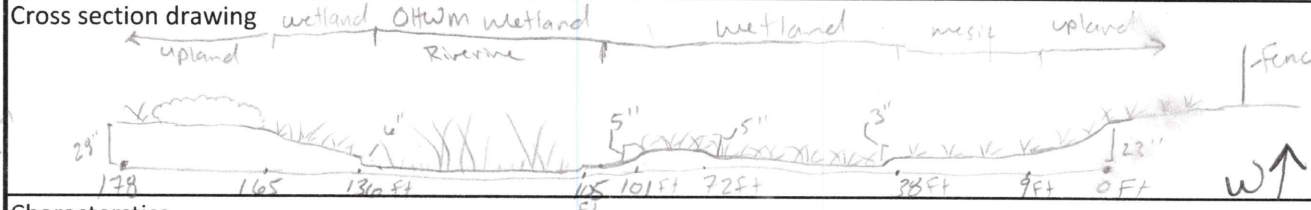
Project/Site: Judge Orr mitigation Bank
Applicant/Owner: Pete Lien
Do normal circumstances exist on the site? Yes
Investigator(s): Gloria Sargent
Date: 5/18/22
Is the Site Significantly disturbed? NO

Feature ID: Tributary - East **Sample Point:** WOTUS-5 **Landform/Local relief:** Riverine/concave

Potential anthropogenic influences on the channel system: Impoundments / diversions up + down stream, historic grazing

Site description (Are Wetland Indicators Present?): Perennial Riverine System flowing SE through property
Some Asclep in wetland areas, Transitions from upland to wetland to upland

Cross section drawing



Upland: Passmi, Elylan, Aster sp., Bar gra, Art fri, Sym rot

wetland: Shenpun, Junbal, Carnob, Lycorish, mesic, Elylan, Junbal

Channel: Softstem, elio lit, Typ lat, Ulva aquatic Algea

Characterstics	Upland	WL	Channel Fines
Avg. Sediment texture			
Tree Cover (%)	0	0	0
Shrub Cover (%)	5%	0	0
Herb Cover (%)	40%	98%	85%
Total Cover (%)	45%	98	85
Max Water Depth (in.) and Flow Rate			

Community Age
- [ ] N/A
- [x] Early (Herb/Seedling) - channel
- [x] Mid (Herb/Shrub/Sapling) - WL / Upland
- [ ] Late (Herb/Shrub/Mature Trees)

2 in (20 sec / 25 ft, 39.58 / 25, 43.94 / 25, 54.30 / 25) avg. 39.6 sec. / 2 feet 124 in³

Indicators

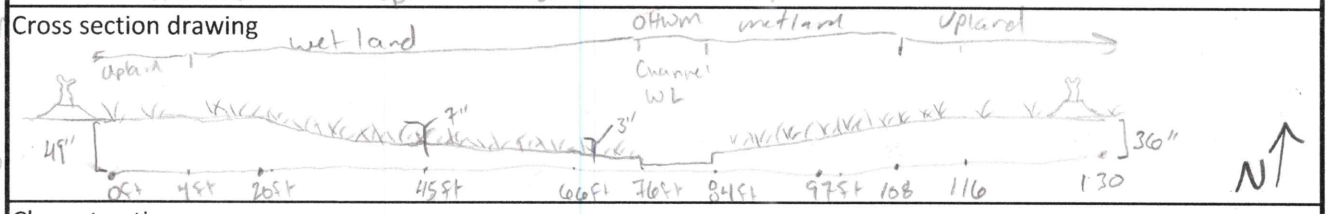
[ ] Mudcracks	[x] Benches	[x] Change in veg species / community
[ ] Ripples	[x] Soil development	[x] Change in veg cover
[x] Drifts and/or debris	[x] surface relief	[x] Change in character of soil
[x] Bed and bank	[x] Break in bank slope	[ ] Other:
[ ] Other:	[ ] Other:	[ ] Other:

Feature ID: Tributary - East **Sample Point:** WOTUS-6 **Landform/Local relief:** Riverine/concave

Potential anthropogenic influences on the channel system: Impoundments up + down stream

Site description (Are Wetland Indicators Present?): Perennial Riverine system flowing SE through prop.
Transition from Upland to wetland to upland.

Cross section drawing



Upland: Vertha, Eyranlan, Bargra, Hordi, Art frig

Channel: Unk aqu forb, Carex neb, duckweed

wetland: Carex neb, Phy amund, Junbal, Shen pung

Characterstics	Upland	WL	Channel Fines
Avg. Sediment texture			
Tree Cover (%)	1	0	0
Shrub Cover (%)	1	0	0
Herb Cover (%)	40	98%	90%
Total Cover (%)	40	98%	90%
Max Water Depth (in.) and Flow Rate			

Community Age
- [ ] N/A
- [x] Early (Herb/Seedling)
- [ ] Mid (Herb/Shrub/Sapling)
- [ ] Late (Herb/Shrub/Mature Trees)

0.5 in Unmeasurable

Indicators

[ ] Mudcracks	[x] Benches	[x] Change in veg species
[ ] Ripples	[x] Soil development	[ ] Change in veg cover
[x] Drifts and/or debris	[x] surface relief	[x] Change in avg. sediment texture
[x] Bed and bank	[x] Break in bank slope	[ ] Other:
[ ] Other:	[ ] Other:	[ ] Other:

Appendix C

USACE Wetland Delineation Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 5/14/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-1

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-1

Subregion (LRR): G Lat: 38.958324 Long: -104.546236 Datum: NAD83 z13

Soil Map Unit Name: Columbine gravelly sandy loam, 0 to 3 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100sq.m.)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100sq.m.)			
1. Juncus arcticus ssp. littoralis	30	X	FACW
2. Carex duriscula	10		UPL
3. Elymus elymoides	2		UPL
4. Pascopyrum smithii	10		FACU
5. Achillea millefolium	1		FACU
6. Aster sp.	3		UPL
7. Verbascum thapsus	1		UPL
8.			
9.			
10.			
	57	= Total Cover	
Woody Vine Stratum (Plot size: 100sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 43

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	96	5YR 3/4	2	C	PL	Sandy Loam	
	10YR 2/2	2						
3-7	10YR 3/3	98	5YR 4/6	2	C	PL	Sandy Loam	
7-14	10YR 4/3	98	5YR 5/8	2	C	M	Loamy sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 5/14/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-2

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR): G Lat: 38.958075 Long: -104.54601 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: PEM1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Area not mapped as a wetland in the NWI database. Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100 sq.m.)			
1. Carex nebrascensis	35	X	OBL
2. Carex praegracilis	40	X	FACW
3. Juncus arcticus ssp. littoralis	5		FACW
4. Cirsium arvense	1		FACU
5. Panicum c.f. virgatum	1		FAC
6.			
7.			
8.			
9.			
10.			
	82	= Total Cover	
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 18

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Sandy Loam	
4-18	10YR 2/1	98	5YR 3/4	2	C	PL	Sandy Loam	
18-26	10YR 4/2	100	5YR 5/8	2	C	M	Loamy Sand	gravel

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Re-visited in June 2022 to collect soil depths 14-26"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): >14"

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 2

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Water table present at 25" in June 2022

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 5/14/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-3

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): G Lat: 38.95757 Long: -104.544201 Datum: NAD83z13

Soil Map Unit Name: Columbine gravelly sandy loam, 0 to 3 percent NWI classification: PEM1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Area not mapped as a wetland in the NWI database. Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100 sq.m.)			
1. Schoenoplectus pungens	40	X	OBL
2. Iris missouriensis	1		FACW
3. Panicum c.f. virgatum	5		FAC
4. Carex praegracilis	15	X	FACW
5. Aster sp.	1		UPL
6. Koeleria macrantha	1		UPL
7.			
8.			
9.			
10.			
	63	= Total Cover	
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 37

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					Sandy Clay	
5-14	2.5Y 2.5/1	98	10YR 5/6	2	C	M	Silty clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 2

Water Table Present? Yes ___ No X Depth (inches): ___

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

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 5/14/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-4

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): G Lat: 38.957666 Long: -104.543884 Datum: NAD83z13

Soil Map Unit Name: Columbine gravelly sandy loam, 0 to 3 percent NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100 sq.m.)			
1. Pascopyrum smithii	15	X	FACU
2. Elymus lanceolatus spp. lanceolatus	35	X	UPL
3. Bromopsis inermis	15	X	UPL
4. Achillea millefolium	1		FACU
5. Cirsium arvense	5		FACU
6. Erigeron spp.	1		UPL
7.			
8.			
9.			
10.			
	72	= Total Cover	
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 28

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	7.5YR 2.5/1	100					Clay Loam	
7-16	5Y 3/1	60					Clay Loam	
	7.5YR 2.5/1	30						
	5Y 5/2	10						
16-20	5Y 6/2	70					Sandy Clay Loam	
	2.5Y 6/4	10						
	2.5Y 6/2	20						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Re-visited in June 2022 to collect soil depths 14-20" depleted matrix under a thick dark surface, but NO Redox Observed

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 10

Wetland Hydrology Present? Yes X No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 5/14/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-5

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): 2-3

Subregion (LRR): G Lat: 38.95788 Long: -104.543266 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: PEM1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Area not mapped as a wetland in the NWI database. Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100 sq.m.)			
1. Juncus arcticus ssp. littoralis	30	X	FACW
2. Schoenoplectus pungens	45	X	OBL
3. Iris missouriensis	1		FACW
4. Panicum c.f. virgatum	5		FAC
5. Cirsium arvense	3		FACU
6. Carex nebrascensis	5		OBL
7. onopordum acanthium	1		UPL
8.			
9.			
10.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Vegetation in abutting channel is dominated by Nebraska sedge, speedwell, narrowleaf cattails and algae.

SOIL

Sampling Point: SP-5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Clay Loam	
3-7	10YR 2/1	100	7.5YR 4/6	2	C	M	Sandy Clay Loam	
7-20	10YR 2/1	100					Sandy Clay Loam	
20-28	2.5Y 4/1	65					Loamy Sand	
	2.5Y 6/2	20						
	2.5Y 5/1	15						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Re-visited in June 2022 to collect soil depths 14-28"
Presence of water table may be altering soil color / Redox below 20"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes X No ____ Depth (inches): 11

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 6

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Abutting channel contains app. 3" of flowing water
water table is at 24" in June 2022.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 5/14/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-6

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): G Lat: 38.957798 Long: -104.543339 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1. Artemisia frigida	15	X	UPL
2.			
3.			
4.			
5.			
	15	= Total Cover	
Herb Stratum (Plot size: 100 sq.m.)			
1. Astragalus spp.	5		UPL
2. Erigeron spp.	10	X	UPL
3. Poa secunda	5		FACU
4. Allium spp.	1		UPL
5. Pascopyrum smithii	10	X	FACU
6. Carex duriuscula	5		UPL
7. Antennaria parvifolia	1		UPL
8.			
9.			
10.			
	37	= Total Cover	
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 63

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** X

Remarks:

No soil profile required. Vegetation is entirely upland and FACU species and there are no wetland hydrology indicators present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ **No** X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/04/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-7

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 1-2

Subregion (LRR): G Lat: 38.957338 Long: -104.54628 Datum: NAD83z13

Soil Map Unit Name: Columbine gravelly sandy loam, 0 to 3 percent slopes NWI classification: PEM1

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1. Salix exigua	3	X	FACW
2.			
3.			
4.			
5.			
	3 = Total Cover		
Herb Stratum (Plot size: 100 sq.m.)			
1. Carex nebrascensis	25	X	OBL
2. Juncus arcticus ssp. littoralis	15	X	FACW
3. Bromus inermis	5		UPL
4. Poa palustris	10		FACW
5. Carex praegracilis	1		FACW
6. Cirsium arvense	3		FACU
7. Taraxacum officinale	1		FACU
8. Senecio multilobatus	1		UPL
9. Iris missouriensis	3		FACW
10.			
	64 = Total Cover		
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 36

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP-7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Sandy Loam	
3-24	10YR 2/2	95	7.5YR 4/6	5	C	PL	Sandy Loam	gravel
24-32	7.5YR 2.5/1	60	10YR 4/6	3	C	M	Clay loam	
	2.5Y 4/2	37						
32-38	5Y 5/2	90	10YR 5/4	10	C	M	Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Re-visited in June 2022 to collect soil depths 14-38"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 12

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/04/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-8

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): G Lat: 38.956183 Long: -104.546284 Datum: NAD83z13

Soil Map Unit Name: Columbine gravelly sandy loam, 0 to 3 percent slopes NWI classification: PEM1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100 sq.m.)			
1. Cirsium arvense	12	X	FACU
2. juncus arcticus ssp. littoralis	18	X	FACW
3. Carex stenophylla	3		UPL
4. Trifolium spp.	1		UPL
5. Muhlenbergia c.f. asperifolia	10		FACW
6. Achillea millefolium	1		FACU
7. Carex nebrascensis	5		OBL
8. Pascopyrum smithii	5		FACU
9. Cryptantha spp.	1		UPL
10. Plantago major	1		FAC
	57	= Total Cover	
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 43

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	28	x 2 =	56
FAC species	1	x 3 =	3
FACU species	18	x 4 =	72
UPL species	5	x 5 =	25
Column Totals:	57 (A)		161 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	98	5YR 3/4	2	C	PL	Sandy Clay Loam	
8-14	10YR 2/1	100					Sandy Clay Loam	
								gravel 12-14"

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/04/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-9

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): G Lat: 38.955447 Long: -104.545182 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: PEM1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1. Rosa woodsii	2	X	FACU
2.			
3.			
4.			
5.			
	2	= Total Cover	
Herb Stratum (Plot size: 100 sq.m.)			
1. Achillea millefolium	5		FACU
2. Penstemon albidus	5		UPL
3. Panicum c.f. virgatum	30	X	FAC
4. Juncus arcticus ssp. littoralis	15	X	FACW
5. Bromus inermis	5		UPL
6. Cirsium arvense	10		FACU
7. Elymus elymoides	1		UPL
8. Comandra umbellata	1		UPL
9.			
10.			
	72	= Total Cover	
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 28

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	98	10YR 3/6	2	C	M	clay loam	
5-11	10YR 2/1	60					Sandy Clay Loam	
	10YR 4/3	40						
11-14	2.5Y 6/3	92	7.5YR 5/8	8	C	M	Sandy Clay Loam	
14-21	2.5Y 6/3	40	7.5YR 5/8	30	C	M	Loamy Sand	
	2.5Y 6/2	30						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Re-visited in June 2022 to collect soil depths 14-21"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 14

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/04/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-10

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): G Lat: 38.955368 Long: -104.545219 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1. Artemisia frigida	8	X	UPL
2. Yucca glauca	5	X	UPL
3.			
4.			
5.			
	13 = Total Cover		
Herb Stratum (Plot size: 100 sq.m.)			
1. Penstemon albidus	4		UPL
2. Bouteloua gracilis	25	X	UPL
3. Elymus elymoides	5		UPL
4. dalea purpurea	1		UPL
5. Panicum c.f. virgatum	1		FAC
6. Dalea c.f. tenuifolia	1		UPL
7. pascopyrum smithii	5		FACW
8. chenopodium album	1		FACU
9. physaria acutifolia	1		UPL
10.			
	44 = Total Cover		
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 56

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP-10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	95	5YR 4/6	5	C	PL	Sandy clay loam	
5-11	2.5Y 4/3	60	7.5YR 5/8	40	C	M	Sandy Loam	
11-14	2.5Y 5/2	96	5YR 5/8	4	C	M	Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/04/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-11

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Hilslope Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): G Lat: 38.956055 Long: -104.542137 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: PEM1

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1. Rosa woodsii	1	X	FACU
2. Symphoricarpos occidentalis	1	X	UPL
3.			
4.			
5.			
	2 = Total Cover		
Herb Stratum (Plot size: 100 sq.m.)			
1. Juncus arcticus spp. littoralis	35	X	FACW
2. Rumex crispus	5		FAC
3. Cirsium arvense	2		FACU
4. Elymus lanceolatus spp. lanceolatus	8		FACU
5. Achillea millefolium	3		FACU
6. Bromus inermis	5		UPL
7. Schizachyrium scoparium	1		UPL
8. Pascopyrum smithii	1		FACU
9. Orobanche spp.	2		UPL
10.			
	62 = Total Cover		
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 38

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species	9	x 5 =	45
Column Totals:	64 (A)		190 (B)

Prevalence Index = B/A = 2.97

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP-11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-15	7.5YR 2.5/1	100					Sandy Clay Loam	gravel
15-20	10YR 2/1	93	10YR 7/2	5	D	M	Sandy Clay	
			7.5YR 3/4	2	C	M		
20-26	10YR 8/1	60	2.5Y 4/2	2	D	M	Sandy Clay	
	10YR 2/1	38						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Re-visited in June 2022 to collect soil depths 14-26"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 4

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/04/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-12

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Terrace/Swale Local relief (concave, convex, none): Convex Slope (%): 1-2

Subregion (LRR): G Lat: 38.956088 Long: -104.542421 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100 sq.m.)			
1. Pascopyrum smithii	5		FACU
2. Elymus lanceolatus spp. lanceolatus	25	X	FACU
3. Lithospermum incisum	5		UPL
4. Carex stenophylla	15	X	UPL
5. Orobanche spp.	1		UPL
6. Juncus arcticus spp. littoralis	10		FACW
7. Elymus elymoides	1		UPL
8. Bouteloua gracilis	5		UPL
9. Penstemon albidus	1		UPL
10. Melilotus officinalis	1		FACU
	69	= Total Cover	
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 31

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	31	x 4 =	124
UPL species	28	x 5 =	140
Column Totals:	69 (A)		284 (B)

Prevalence Index = B/A = 4.12

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL Sampling Point: SP-12

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/2	100					Sandy Loam	
4-9	10YR 2/2	98	7.5YR 3/4	2	C	M	Sandy Loam	
9-14	10YR 2/2	53	7.5YR 3/4	2	C	M	Sandy Clay Loam	
	10YR 2/1	45						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks: Dark surface. likely hydric soil but Redox under estimated in 2021. Assumed hydric based on 2022 Results & location.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 10

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Redox likely observed by saturation in 2021.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/04/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-13

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 1-2

Subregion (LRR): G Lat: 38.956092 Long: -104.542564 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1. Artemisia frigida	8	X	UPL
2.			
3.			
4.			
5.			
	8	= Total Cover	
Herb Stratum (Plot size: 100 sq.m.)			
1. Hetertheca villosa	25	X	UPL
2. Dalea c.f. tenuifolia	1		UPL
3. Carex stenophylla	8	X	UPL
4. Pascopyrum smithii	5		FACU
5. Lithospermum incisum	1		UPL
6. Penstemon albidus	5		UPL
7. Bouteloua gracilis	5		UPL
8. Aristida purpurea	3		UPL
9. Senecio multilobatus	1		UPL
10. Elymus lanceolatus spp. lanceolatus	8	X	FACU
	62	= Total Cover	
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 38

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/3	100					Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/04/21

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-14

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): G Lat: 38.9569 Long: -104.544174 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: PEM1

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Annual precipitation was below average from 2018-2020 for the region. Precipitation from Jan 2021 to survey date has been at or above average for the region.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 sq.m.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100 sq.m.)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 100 sq.m.)			
1. Carex praegracilis	45	X	FACW
2. Iris missouriensis	1		FACW
3. Schoenoplectus pungens	30	X	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	76 = Total Cover		
Woody Vine Stratum (Plot size: 100 sq.m.)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 24

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					silty clay	[redacted]
6-13	2.5Y 4/1	60	7.5Y 4/4	10	C	M	silty clay	
	2.5Y 3/1	25	10YR 8/1	5	D	M		
13-21	5Y 6/2	80	2.5Y 5/6	15	D	M	sandy clay	
			2.5Y 5/1	5				

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Re-visited in June 2022 to collect soil depths 0-21"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 1

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

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

Remarks:

no surface water in June 2022 when soil profile was collected. Saturation present at 16" in June 2022.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso County Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-15

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.957944 Long: -104.548343 Datum: NAD83213

Soil Map Unit Name: Columbine gravelly sandy loam, 0-3% slope NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100m²)			
1. Gut sar	5		UPL
2. Art Frig	5		UPL
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 100m²)			
1. Ely lan lan	25	X	UPL
2. Bro ine	15	X	UPL
3. Jut vil	5		UPL
4. Iks com	2		UPL
5. Cast cino	1		UPL
6. mel off	1		FACU
7. Pas smi	5		UPL
8. Cir Arv	3		FACU
9. Nas vir	2		UPL
10.			
	59 = Total Cover		
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 41

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 3/2.5	100					Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pelz Lien & Sons State: CO Sampling Point: SP-16

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR): G Lat: 38.957551 Long: -104.542493 Datum: NAD83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: PEMI H

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Annual Precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 100m²)			
1. Typha latifolia	25	X	OBL
2. Eleocharis palustris	35	X	OBL
3. Algae	10		OBL
4. Eleocharis palustris	5		OBL
5. Schoenoplectus pungens	5		OBL
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 20% (water)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

No soil profile collected; saturated w/ obl vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes X No ____ Depth (inches): 2-6 in.

Water Table Present? Yes X No ____ Depth (inches): —

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

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Peik Lien & Sons State: CO Sampling Point: SP-17

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Flood plain Local relief (concave, convex, none): Concave Slope (%): 1%

Subregion (LRR): G Lat: 38.957749 Long: -104.542163 Datum: NAD 83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: PEMI D

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes [X] No [ ]

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

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

Hydrophytic Vegetation Present?	Yes [X]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [X] No [ ]
Hydric Soil Present?	Yes [X]	No [ ]	
Wetland Hydrology Present?	Yes [X]	No [ ]	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Carex praegracillis	40	X	FACW
2. Schoenoplectus pungens	30	X	OBL
3. Cirsium arvense	10		FACU
4. Carex nebrascensis	5		OBL
5. Juncus arcticus littoralis	10		FACW
6. Taraxacum officinale	1		FACU
7.			
8.			
9.			
10.			
	96	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 4%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes [X] No [ ]

Remarks:

SOIL

Sampling Point: SP-17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 2/1.5	100					Clay Loam	
3-8	10YR 3/1	63	7.5YR 4/6	2	C	M	silty clay	
	10YR 5/1	35					Sandy clay	
8-20	5YR 2/1	100					Sandy Loam	
20-30	2.5Y 6/1	75	2.5Y 8/1	5	D	M	Loamy Sand	
	2.5Y 5/1	20						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

8-20" is darker than card 2.2/1
Re-visited in June 2022 to collect soil depths 14-30"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 8

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-18

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.957794 Long: -104.54209 Datum: NAD83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Artemisia frigida	10		UPL
2. Elymus lanceolatus ssp.	20	X	UPL
3. Bouteloua gracilis	30	X	UPL
4. Hedeoma villosa	10		UPL
5. Juncus arcticus littoralis	5		FACW
6.			
7.			
8.			
9.			
10.			
	75	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 5	x 2 =	10
FAC species	x 3 =	
FACU species	x 4 =	
UPL species 70	x 5 =	350
Column Totals: 75 (A)		360 (B)

Prevalence Index = B/A = 4.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-18

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 3/2	100					Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No saturation Present to Obscure Redox Features

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co Sampling Date: 8/19/22

Applicant/Owner: Pete Liven State: CO Sampling Point: SP-19

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.955466 Long: -104.541737 Datum: NAD83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: NONE

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Bouteloua gracilis	40	X	UPL
2. Hesperostipa comata	10		UPL
3. Opuntia polyacantha	1		UPL
4. Helerotheca villosa	5		UPL
5. Calamagrostis stricta	1		FACW
6. Yucca glauca	1		UPL
7. Artemisia frigida	5		UPL
8.			
9.			
10.			
	63	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 37

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 1	x 2 = 2
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species 62	x 5 = 310
Column Totals: 63 (A)	312 (B)

Prevalence Index = B/A = 4.952

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-19

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 2/2	100					Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks: Dark surface. Likely depletion lower in the profile Similar to SP-20. Assumed hydric soil based on 2022 Results & Location.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

No Saturation to obscure Redox Features. 0-14"

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-20

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Field Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): G1 Lat: 38.9552606 Long: -104.542143 Datum: NAD83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Elymus lanceolatus lance	40	X	UPL
2. Juncus arcticus littoralis	20	X	FACW
3. Symphyotrichum ascendens	5		FACW
4. Bouteloua gracilis	15		UPL
5. Taraxacum officinale	2		FACW
6. Tragopogon dubius	1		UPL
7. Ambrosia psilostachya	1		FACW
8. Carex disperma	10		UPL
9.			
10.			
	94	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 6

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 20	x 2 = 40
FAC species _____	x 3 = _____
FACU species 8	x 4 = 32
UPL species 66	x 5 = 330
Column Totals: 94 (A)	402 (B)

Prevalence Index = B/A = 4.277

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-20

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	98	7.5YR 4/4	2	C	M	Loam	
8-22	10YR 3/1	85	10YR 8/1	10	D	M	clay Loam	
	2.5Y 4/3	5						
22-26	2.5Y 4/2	80	10YR 3/6	15	C	M	silty clay	
			10YR 8/1	5	D	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Re-visited in June 2022 to collect soil depths 14-26"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 14

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Mitigation Bank City/County: El Paso CO. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-21

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.955901 Long: -104.543677 Datum: NAD 83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 100m²)			
1. Pascopyrum smithii	40	X	UPL
2. Symphyotrichum ascendens	10		FACU
3. Taraxacum officinale	1		FACU
4. Ambrosia psilostachya	5		FACU
5. Eleocharis palustris	5		OBL
6. Descurainia pinnata	10		UPL
7. Carex praegracilis	5		FACW
8. Elymus lanceolatus lanceolatus	20	X	UPL
9.			
10.			
	96 = Total Cover		
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 4

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	5	x 2 =	10
FAC species		x 3 =	
FACU species	16	x 4 =	64
UPL species	70	x 5 =	350
Column Totals:	96 (A)		429 (B)

Prevalence Index = B/A = 4.469

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-21

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	98	10YR 4/6	2	C	M	Sandy Loam	
3-14	10YR 3/1	100					Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks: Dark surface. likely hydric soil but Redox under estimated in May 2022. Assumed hydric based on June 2022 Results & location.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-22

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Furrow Local relief (concave, convex, none): Concave Slope (%): 1%

Subregion (LRR): G Lat: 38.955929 Long: -104.543485 Datum: NAD83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: PEMIB

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [illegible] No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 100m²)			
1. Carex nebrascensis	80	X	OBL
2. Juncus arcticus littoralis	15		OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-22

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 2.5/1	90	2.5Y 6/2	10	D	M	Clay Loam	
5-25	2.5Y 2.5/1	98	10YR 4/6	2	C	PL	Silty clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Re-visited in June 2022 to collect soil depths 14-25"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-23

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): G Lat: 38.955942 Long: -104.543429 Datum: NAD83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes ~~No~~	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Koeleria dactyloides	45	X	FACU
2. Elymus lanceolatus lance.	15	X	UPL
3. Bouteloua gracilis	5		UPL
4. Pascopyrum smithii	3		UPL
5. Melilotus officinalis	2		FACU
6.			
7.			
8.			
9.			
10.			
	72	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 28

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species 47	x 4 =	188
UPL species 25	x 5 =	125
Column Totals: 72 (A)		313 (B)

Prevalence Index = B/A = 4.347

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP 23

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Clay Loam	
4-14	2.5Y 2.5/1	100					Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No saturation to obscure Redox features

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Wen State: CO Sampling Point: SP-24

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): G Lat: 38.956743 Long: -104.544054 Datum: NAD83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [illegible] No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100 m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 100m²)			
1. Carex praegracilis	10		FACW
2. Schizachyrium scoparium	30	X	FACU
3. Heterotheca villosa	10		UPL
4. Solidago sp	5		UPL
5. Elymus lanceolatus lance.	15	X	UPL
6. Astragalus sp	2		UPL
7. Cirsium Arvense	2		FACU
8. Bromus inermis	2		UPL
9. Gutierrezia sarothrae	5		UPL
10. Iris missouriensis	2		FACW
	83 = Total Cover		
Woody Vine Stratum (Plot size: 10m²)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 17

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	12	x 2 =	24
FAC species		x 3 =	
FACU species	32	x 4 =	128
UPL species	39	x 5 =	195
Column Totals:	83 (A)		347 (B)

Prevalence Index = B/A = 4.181

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-24

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					Clay Loam	
14-26+	2.5Y 6/2	60	10YR 6/2	1	D	M	Silty clay Loam	
	2.5Y 7/1	20						
	2.5Y 5/2	14						
	5Y 5/3	5						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Re-visited in June 2022 to collect soil depths 14-26"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-25

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.956919 Long: -104.524372 Datum: NAD83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ~~X~~	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Artemisia frigida	5		UPL
2. Sphaeralcea coccinea	2		UPL
3. Heterotheca villosa	15	X	UPL
4. Muhlenbergia asperifolia	5		UPL
5. Elymus lanceolatus lance.	15	X	UPL
6. Hesperostipa comata	5		UPL
7. Schizachyrium scoparium	10	X	FACU
8. Iris missouriensis	2		FACW
9. Solidago sp.	10	X	UPL
10.			
	69	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 31

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 2	x 2 =	4
FAC species	x 3 =	
FACU species 10	x 4 =	40
UPL species 57	x 5 =	285
Column Totals: 69 (A)		329 (B)

Prevalence Index = B/A = 4.768

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP-25

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 3/1.2	100					Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No Saturation to Obscure Redox Features

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-26

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.957591 Long: -104.541239 Datum: NAD 83

Soil Map Unit Name: Columbine gravelly sandy loam, 0-3% NWI classification: PSSIB

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 40m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 40m²)			
1. Salix exigua	20	X	FACW
2.			
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 40m²)			
1. Salix exigua	60	X	FACW
2. Cirsium arvense	10		FACU
3. Carex praegracillis	15		FACW
4. Carex nebrascensis	5		OBL
5. Juncus arcticus littoralis	8		FACW
6.			
7.			
8.			
9.			
10.			
	98	= Total Cover	
Woody Vine Stratum (Plot size: 40m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-26

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 2.5/1	100					Clay Loam	
3-16	2.5Y 2.5/1	97	5YR 4/6	1	C	M	Clay Loam	
			7.5YR 4/6	2	C	M		
16-26	2.5Y 5/3	100					Loamy Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Re-visited in June 2022 to collect soil depths 14-26"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 10

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-2F

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.957434 Long: -104.546465 Datum: NAD83

Soil Map Unit Name: Columbine gravelly sandy loam, 0-3% NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100 m²)			
1. Elymus kunceolatus lance.	25	X	UPL
2. Poa wagnum smithii	10	X	UPL
3. Juncus arcticus littoralis	5		FACW
4. Cirsium arvense	10	X	FACU
5. Verbascum thapsus	2		UPL
6. Potentilla sp.	2		UPL
7. Artemisa frigida	5		UPL
8. Boutelova gracillis	10	X	UPL
9. Boutelova dactyloides	5		UPL
10.			
	74	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 26

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	5	x 2 =	10
FAC species		x 3 =	
FACU species	10	x 4 =	40
UPL species	59	x 5 =	295
Column Totals:	74	(A)	345 (B)

Prevalence Index = B/A = 4.6662

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-27

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2.5/2	96	7.5YR 4/6	8	C	PL	clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): _____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-28

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 2%

Subregion (LRR): G Lat: 38.956158 Long: -104.546467 Datum: NAD83

Soil Map Unit Name: Columbine gravelly sandy loam, 0-3% NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Elymus lanceolatus lanceo.	20	X	UPL
2. Panicum virgatum	5		FAC
3. Cirsium arvense	8		FACU
4. Verbascum thapsus	2		UPL
5. Koeleria macrantha	10	X	UPL
6. Juncus arcticus littoralis	2		FACW
7.			
8.			
9.			
10.			
	47	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 53

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	2	x 2 =	4
FAC species	5	x 3 =	15
FACU species	8	x 4 =	32
UPL species	32	x 5 =	160
Column Totals:	47 (A)		211 (B)

Prevalence Index = B/A = 4.4189

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-28

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 5/2	95					Clay Loam	
	10YR 3/2.5	5						
2-14	10YR 3/2.5	100					Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No Saturation to obscure Redox features.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-29

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.95551 Long: -104.543679 Datum: NAD83

Soil Map Unit Name: Columbine gravelly sandy loam, 0-3% NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes ____ No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 100m²)			
1. Juncus arcticus litoralis	20	X	FACW
2. Carex praegracilis	10		FACW
3. Solidago sp.	5		UPL
4. Schizachyrium scoparium	30	X	UPL
5. Achillea millefolium	2		FACU
6. Cirsium arvense	5		FACU
7. Bouteloua gracilis	5		UPL
8. Potentilla sp.	5		UPL
9.			
10.			
	82 = Total Cover		
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 18

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 30	x 2 =	60
FAC species	x 3 =	
FACU species 7	x 4 =	28
UPL species 45	x 5 =	225
Column Totals: 82 (A)		313 (B)

Prevalence Index = B/A = 3.817

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL Sampling Point: SP-29

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/1	78	10YR 5/6	2	C	M	Loam	
	10YR 3/2	20						
2-11	10YR 3/2	98	10YR 4/6	2	C	M	Sandy Loam	
11-18	10YR 3/2	90	7.5YR 4/6	10	C	M	Sandy Loam	
18-26	2.5Y 5/2						Loamy Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Re-visited in June 2022 to collect soil depths 14-26"

F6: combined 2-11 & 11-18 because they have the same Matrix & Texture.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-30

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.955495 Long: -104.54581 Datum: NAD83

Soil Map Unit Name: Columbine gravelly sandy loam, 0-3% NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [illegible] No X (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes [illegible]	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Elymus lanceolatus lanceo.	20	X	UPL
2. Juncus arcticus littoralis	15	X	FACW
3. Gutierrezia sarothrae	5		UPL
4. Heterotheca villosa	5		UPL
5. Artemisia frigida	10		UPL
6. Solidago sp.	2		UPL
7. Bouteloua gracilis	15	X	UPL
8. Schizachyrium scoparium	10		FACU
9.			
10.			
	82	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 18

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 15	x 2 =	30
FAC species	x 3 =	
FACU species 10	x 4 =	40
UPL species 57	x 5 =	285
Column Totals: 82 (A)		355 (B)

Prevalence Index = B/A = 4.329

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-30

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 3/2	100					Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No saturation to obscure Redox features

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-31

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

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

Subregion (LRR): G Lat: 38.955589 Long: -104.544954 Datum: NAD83

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly level NWI classification: None

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

Hydrophytic Vegetation Present?	Yes ____ No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Schizachyrium scoparium	5		FACU
2. Hesperostipa comata	10	X	UPL
3. Helerotheca villosa	5		UPL
4. Sporobolus airoides	2		FAC
5. Bouteloua gracilis	15	X	UPL
6. Carex praegracillis	10	X	FACW
7. Solidago sp.	5		UPL
8. Juncus arcticus litteralis	10	X	FACW
9. Artemisia frigida	5		UPL
10.			
	67	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 33

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 20	x 2 =	40
FAC species 2	x 3 =	6
FACU species 5	x 4 =	20
UPL species 40	x 5 =	200
Column Totals: 67 (A)		266 (B)

Prevalence Index = B/A = 3.970

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP-31

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	95	10YR 4/6	5	C	M	Sandy Loam	
12-18	10YR 5/3	100					Sandy Loam	
18-28	2.5Y 6/2		7.5YR 5/8	2	C	M	Loamy sand	
			10YR 4/6	4	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks: Re-visited in June 2022 to collect soil depths 14-28"

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 12

Wetland Hydrology Present? Yes X No ____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr mitigation Bank City/County: El Paso Co Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-32

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): concave Slope (%): 4%

Subregion (LRR): G Lat: 38.955414 Long: -104.551824 Datum: NAD83

Soil Map Unit Name: Columbine gravelly sandy loam, 0-3% NWI classification: PEMJD

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
(<5 Ft.)	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1. Salix exig	2	X	FACW
2.			
3.			
4.			
5.			
	2	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Typha latifolia	10		OBL
2. Schoenoplectus tabernaem.	15	X	OBL
3. Juncus arcticus litoralis	10		FACW
4. Eleocharis palustris	15	X	OBL
5. Hordeum jubatum	2		FACW
6. Solidago sp.	15	X	UPL
7. Panicum virgatum	5		FAC
8. Stellaria calycantha	10		FACW
9.			
10.			
	82	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 18

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-32

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100					Sandy Loam	
2-14	10YR 5/1.5	85	7.5YR 4/6	15	C	M	Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 9

Wetland Hydrology Present? Yes X No ____

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

Remarks:

Standing water around cattails. ~4 ft. from soil pit.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Mitigation Bank City/County: El Paso Co. Sampling Date: 8/19/22

Applicant/Owner: Pete Lien State: CO Sampling Point: SP-33

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): relief Local relief (concave, convex, none): concave Slope (%): 4%

Subregion (LRR): G Lat: 38.955448 Long: -104.551746 Datum: NAD83

Soil Map Unit Name: Columbine gravelly sandy loam, 0-3% NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

Annual precipitation has been below average since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Heterotheca villosa	5		UPL
2. Bouteloua dactyloides	10	X	FACU
3. Bouteloua gracilis	5		UPL
4. Ambrosia psilostachya	2		FACU
5. Melilotus officinalis	2		UPL
6. Ukn. Annual forb	8	X	UPL
7. Pascopyrum smithii	2		UPL
8. Elymus lanceolatus lanceolatus	5		UPL
9. Schizachyrium scoparium	2		FACU
10. Solidago sp.	10	X	UPL
	51	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 49

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species 14	x 4 =	56
UPL species 37	x 5 =	185
Column Totals: 51 (A)		241 (B)

Prevalence Index = B/A = 4.725

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-33

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	100					Sandy Loam	
10-14	10YR 4/2	85	2.5Y 7/1.5	15	D	M	Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

No saturation to obscure Redox features.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/29/22

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-34

Investigator(s): Gilberto Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 0%

Subregion (LRR): G1 Lat: 38.95546 Long: -104.542724 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly Level NWI classification: ~~Riverine~~ PEMI

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Below average Precipitation since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 100 m²)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 100m²)			
1. Cirsium arvense	5		FACU
2. Juncus arcticus ssp. littoralis	60	X	FACW
3. Grindelia coccinea	2		UPL
4. Calamovilfa longifolia	20	X	UPL
5.			
6.			
7.			
8.			
9.			
10.			
	87 = Total Cover		
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 13

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	22	x 5 =	110
Column Totals:	87 (A)		250 (B)

Prevalence Index = B/A = 2.87

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: SP-34

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100	10YR 4/6	1	C	M	Sandy Clay Loam	
			10YR 5/8	1	C	PL		
16-30	10YR 3/1	85	10YR 5/6	5	C	M	Sandy Clay Loam	
	2.5Y 4/2	10						
30-35	2.5Y 5/3	28	10YR 4/6	10	C	M	silty clay	
	5Y 5/2	60	2.5Y 4/2	2	D	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Judge Orr Wetland Mitigation Bank City/County: El Paso County Sampling Date: 6/29/22

Applicant/Owner: Pete Lien & Sons State: CO Sampling Point: SP-35

Investigator(s): Gloria Sargent Section, Township, Range: 34, T12S R64W

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 0%

Subregion (LRR): G1 Lat: 38.955628 Long: -104.542823 Datum: NAD83z13

Soil Map Unit Name: Fluvaquentic Haplaquolls, nearly Level NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

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

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

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

Below average Precipitation since 2019.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 100 m²)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 100m²)			
1. Bouteloua gracilis	5		UPL
2. Pascopyrum Smithii	8	X	UPL
3. Bouteloua dactyloides	10	X	FACU
4. Heterotheca villosa	2		UPL
5. Gaura coccinea	5		UPL
6. Artemisia frigida	3		UPL
7.			
8.			
9.			
10.			
	33	= Total Cover	
Woody Vine Stratum (Plot size: 100m²)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 67

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: SP-35

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No soil profile collected, vegetation entirely UPL & FACU & no wetland hydrology present.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

Appendix D

Functional Assessment of Colorado Wetlands Determination Forms

ADMINISTRATIVE CHARACTERIZATION

General Information		Date of Evaluation:	**12/8/2020**
Site Name or ID:	**Wetland 1,2, & 3 - Groundwater Seepage Derived Features**	Project Name:	**Judge Orr Mitigation Bank**
404 or Other Permit Application #:		Applicant Name:	**Pete Lien & Sons**
Evaluator Name(s):	**Thomas McIntyre & Jesse D**	Evaluator's professional position and organization:	**Biologist, Ecologist/Owner**

Location Information:			
Site Coordinates (Decimal Degrees, e.g., 38.85, -104.96):	**38.956908, -104.545131**	Geographic Datum Used (NAD 83):	**NAD 83 z13N**
		Elevation	**6760 ft**
Location Information:	**Bordered by Judge Orr Rd to the South, Stapleton Rd to the West, and Elbert Rd to the East**		
Associated stream/water body name		Stream Order:	
USGS Quadrangle Map:	**Falcon Quadrangle**	Map Scale: (Circle one)	(1:24,000) 1:100,000 Other 1:
Sub basin Name (8 digit HUC):	**Chico (11020004)**	Wetland Ownership:	**Private: Pete Lien & Sons, Inc.**

Project Information:

This evaluation is being performed at: *(Check applicable box)*
- [ ] *Project Wetland*
- [X] *Mitigation Site*

Purpose of Evaluation (check all applicable):
- [ ] *Potentially Impacted Wetlands*
- [X] *Mitigation; Pre-construction*
- [ ] *Mitigation; Post-construction*
- [ ] *Monitoring*
- [ ] *Other (Describe)*

Intent of Project: *(Check all applicable)* ☑ Restoration ☑ Enhancement ☐ Creation

Total Size of Wetland Involved: (Record Area, Check and Describe Measurement Method Used)	**16.7** ac.	[X]	Measured with GIS area calculator				
		[ ]	Estimated				
Assessment Area (AA) Size (Record Area, check appropriate box. Additional spaces are used to record acreage when more than one AA is included in a single assessment)	**48.4** ac.	[X]	Measured	ac.	ac.	ac.	ac.
		[ ]	Estimated	ac.	ac.	ac.	ac.
Characteristics or Method used for AA boundary determination:	**Jurisdictional wetland boudary**						
Notes:							

ECOLOGICAL DESCRIPTION 1

Special Concerns

Check all that apply

- [ ] Organic soils including Histosols or Histic Epipedons are present in the AA (i.e., AA includes core fen habitat).
- [ ] Project will directly impact organic soil portions of the AA including areas possessing either Histosol soils or histic epipedons.
- [ ] Organic soils are known to occur anywhere within the contiguous wetland of which the AA is part.
- [ ] The wetland is a habitat oasis in an otherwise dry or urbanized landscape?
- [ ] Federally threatened or endangered species are **KNOWN** to occur in the AA? List Below.
- [X] Federally threatened or endangered species are **SUSPECTED** to occur in the AA?

  While IPAC identifies federally threatened species in the area (mentioned below), none are likely to occur in this habitat
- [ ] Species of concern according to the Colorado Natural Heritage (CNHP) are known to occur in the AA?
- [ ] The site is located within a potential conservation area or element occurrence buffer area as determined by CNHP?
- [X] Other special concerns (please describe)

  No known species occuring in AA, but possible federally threatened spp in region: Eastern black rail, Least tern, Piping plover, Whooping crane, Greenback cutthroat Trout, Pallid sturgeon, Ute ladies'-tresses, Western prairie finged orchid

HYDROGEOMORPHIC SETTING

- [X] AA wetland maintains its fundamental natural hydrogeomorphic characteristics
- [ ] AA wetland has been subject to change in HGM classes as a result of anthropogenic modification

  If the above is checked, please describe the original wetland type if discernable using the table below.
- [ ] AA wetland was created from an upland setting.

Current Conditions

Describe the hydrogeomorphic setting of the wetland by circling all conditions that apply.

HGM Setting	**Water source**	Surface flow; **(Groundwater)**; Precipitation; Unknown
	Hydrodynamics	**(Unidirectional)**; Vertical; Bi-directional
	Wetland Gradient	**(0 - 2%)**; 2-4%; 4-10%; >10%
	# Surface Inlets	Over-bank; **(0)**; 1; 2; 3; >3
	# Surface Outlets	0; **(1)**; 2; 3; >3
	Geomorphic Setting (Narrative Description. Include approx. stream order for riverine)	**Grassland plains**
	HGM class	Riverine; **(Slope)**; Depressional; Lacustrine

Historical Conditions

Previous wetland typology	**Water source**	Surface flow; **(Groundwater)**; Precipitation; Unknown
	Hydrodynamics	**(Unidirectional)**; Vertical
	Geomorphic Setting (Narrative Description)	**Groundwater fed mesic wetland on a slight slope within a grassland drainage**
	Previous HGM Class	Riverine; **(Slope)**; Depressional; Lacustrine

Notes (include information on the AA's HGM subclass and regional subclass): **Groundwater fed, outflow fans out through s**

ECOLOGICAL DESCRIPTION 2

Vegetation Habitat Description

US FWS habitat classification according as reported in Cowardin et al. (1979).

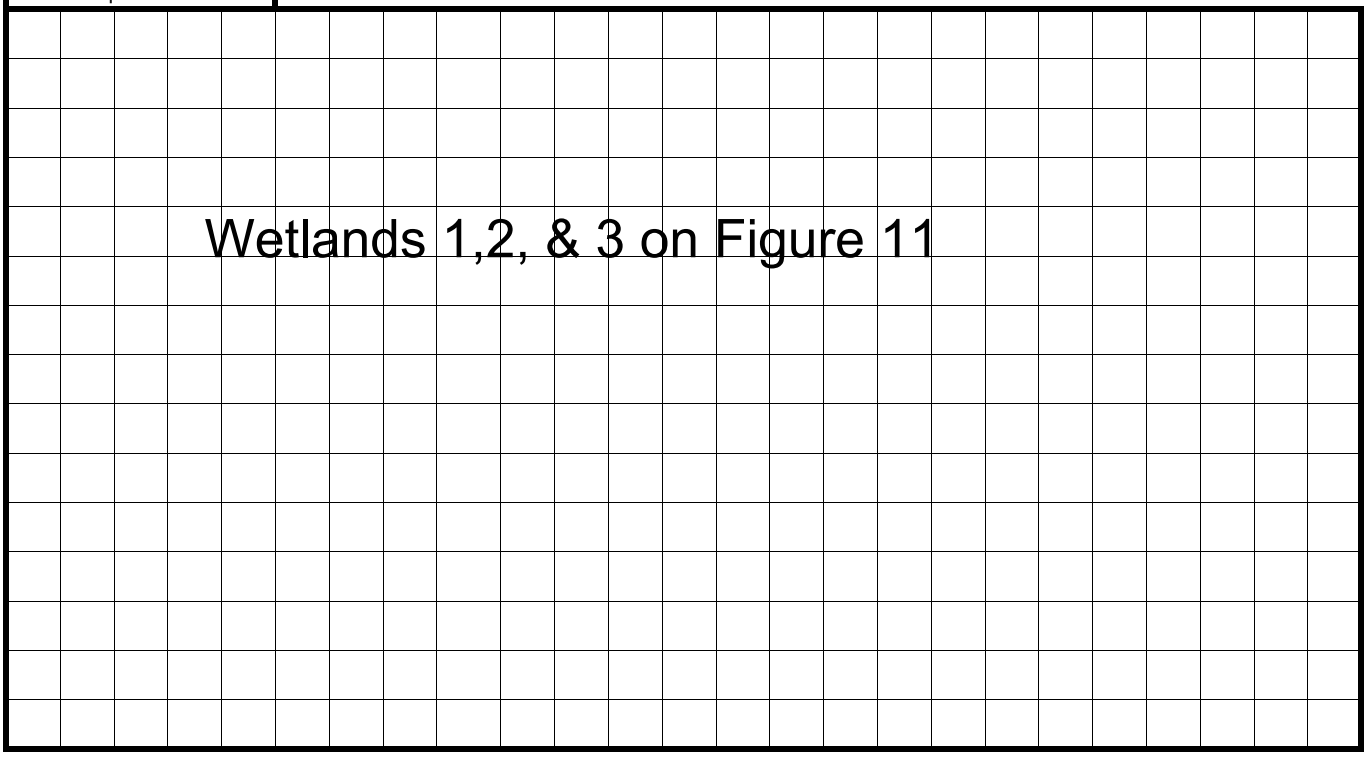
System	Subsystem	Class	Subclass	Water Regime	Other Modifiers	% AA
Palustrine	**Palustrine**	**Emergent**	**Rooted vascular**	**B / C**		**34.5%**

Lacustrine	Littoral; Limnoral	Rock Bot. (RB) Uncon Bottom(UB) Aquatic Bed(AB) Rocky Shore(RS) Uncon Shore(US) Emergent(EM) Shrub-scrub(SS) Forested (FO)	Floating vascular; Rooted vascular; Algal; Persistent; Non-Persistent; Broad-leaved deciduous; Needle-leaved evergreen; Cobble - gravel; Sand; Mud; Organic	**Examples** Temporarily flooded(A); Saturated(B); Seasonally flooded(C); Seas.-flood./sat.(E); Semi-Perm. flooded(F); Intermittently exposed(G); Artificially flooded(K); Sat./semiperm./Seas. (Y); Int. exposed/permenant(Z)	Hypersaline(7) ; Eusaline(8); Mixosaline(9); Fresh(0); Acid(a); Circumneutral(c); Alkaline/calcareous(i); Organic(g); Mineral(n); Beaver(b); Partially Drained/ditched(d); Farmed(f); Diked/impounded(h); Artificial Substrate(r); Spoil(s); Excavated(x)	
Palustrine	Palustrine					
Riverine	Lower perennial; Upper perennial; Intermittent					

Site Map

Scale: 1 sq. =

Draw a sketch map of the site including relevant portions of the wetland, AA boundary, structures, habitat classes, and other significant features.



Variable 1: Habitat Connectivity

The Habitat Connectivity Variable is described by two sub-variables – Neighboring Wetland and Riparian Habitat Loss and Barriers to Migration and Dispersal. These sub-variables were treated as independent variables in FACWet Version 2.0. The merging of these variables makes their structure more consistent with that of other composite variables in FACWet. The new variable configuration also makes this landscape variable more accurately reflect the interactions amongst aquatic habitats in Colorado's agricultural and urbanized landscapes, which have a naturally low density of wetlands. The two Habitat Connectivity Sub-variables are scored in exactly the same manner as their FACWet 2.0 counterparts, as described below. The Habitat Connectivity Variable score is simply the arithmetic average of the two sub-variable scores which is entered on the second page of the Variable 1 data form. If there is little or no wetland or riparian habitat in the Habitat Connectivity Envelope (defined below), then Sub-variable 1.1 is not scored.

SV 1.1 - Neighboring Wetland and Riparian Habitat Loss
(Do not score if few or no wetlands naturally exist in the HCE)

This sub-variable is a measure of how isolated from other naturally-occurring wetlands or riparian habitat the AA has become as the result of habitat destruction. To score this sub-variable, estimate the percent of naturally-occurring wetland/riparian habitat that has been lost (by filling, draining, development, or whatever means) within the 500-meter-wide belt surrounding the AA. This zone is called the Habitat Connectivity Envelope (HCE). In most cases the evaluator must use best professional judgment to estimate the amount of natural wetland loss. Historical photographs, National Wetland Inventory (NWI) maps, hydric soil maps can be helpful in making these determinations. Floodplain maps are especially valuable in river-dominated regions, such as the Front Range urban corridor. Evaluation of landforms and habitat patterns in the context of perceivable land use change is used to steer estimates of the amount of wetland loss within the HCE.

Rules for Scoring:

1. On the aerial photo, create a 500 m perimeter around the AA.
2. The area within this perimeter is the **Habitat Connectivity Envelope (HCE)**.
3. Within the HCE, outline the current extent of naturally occurring wetland and riparian habitat. Do not include habitats such as excavated ponds or reservoir induced fringe wetlands.
4. Outline the historical extent of wetland and riparian habitats (i.e., existing natural wetlands plus those that have been destroyed).

- Use your knowledge of the history of the area and evident land use change to identify where habitat losses have occurred. Additional research can be utilized to increase the accuracy of this estimate including consideration of floodplain maps, historical aerial photographs, soil maps, etc.

5. Calculate the area of existing and historical wetlands. Divide the area of existing wetland by the total amount of existing and historical wetland and riparian habitat, and determine the variable score using the guidelines below. Enter sub-variable score at the bottom of p.2 of the Habitat Connectivity data form.

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Very little or no loss of wetlands in the HCEor negligible.
<0.9 - 0.8	***B*** *Highly Functioning*	More than 80% of historical wetland habitat area within the HCE is still present (less than 20% of habitat area lost).
<0.8 - 0.7	***C*** *Functioning*	80 to 60% of historical wetland habitat area within the HCE is still present (20% to 40% of habitat area lost).
<0.7 - 0.6	***D*** *Functioning Impaired*	Less than 60 to 25% of historical wetland habitat area within the HCE is still present (more than 40 to 75% of habitat area lost).
<0.6	***F*** *Non-functioning*	Less than 25% of the historical wetland habitat area within the HCE still in existence (more than 70% of habitat lost).

Notes:

Variable 1: Habitat Connectivity p. 2

SV 1.2: Migration/Dispersal Barriers

This sub-variable is intended to rate the degree to which the AA has become isolated from existing neighboring wetland and riparian habitat by artificial barriers that inhibit migration or dispersal of organisms. On the aerial photograph, identify the man-made barriers within the HCE that intercede between the AA and surrounding wetlands and riparian areas, and identify them by type on the stressor list. Score this variable based on the barriers' impermeability to migration and dispersal and the amount of surrounding wetland/riparian habitat they affect.

Rules for Scoring:

1. On the aerial photo, outline **all** existing wetland and riparian habitat areas within the HCE. This includes naturally occurring habitats, as well as those purposefully created or induced by land use change.

2. Identify artificial barriers to dispersal and migration of organisms within the HCE that intercede between the AA and surrounding habitats. Mark the stressors present with a check in the first column and describe the general nature, severity and extent of each. List additional stressors in empty rows at the bottom of the table and explain.

3. Considering the composite effect of all of identified barriers to migration and dispersal (i.e., stressors), assign an overall variable score using the scoring guidelines.

Stressors = artificial barriers

✔	Stressors	Comments/description
	Major Highway	
X	Secondary Highway	2 lane Rd - Judge Orr Rd.
	Tertiary Roadway	
	Railroad	
	Bike Path	
	Urban Development	
	Agricultural Development	
X	Artificial Water Body	Earthen dams causing artificial ponds
X	Fence	Fencing surrounding Pete Lien property and
X	Ditch or Aqueduct	Ditch runs along Judge Orr Rd
X	Aquatic Organism Barriers	Earthen dams break up water flow of adjacent wetlands

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	No appreciable barriers exist between the AA and other wetland and riparian habitats in the HCE; or there are no other wetland and riparian areas in the HCE.
<0.9 - 0.8	***B*** *Highly Functioning*	Barriers impeding migration/dispersal between the AA and up to 33% of surrounding wetland/riparian habitat highly permeable and easily passed by most organisms. Examples could include gravel roads, minor levees, ditches or barbed-wire fences. More significant barriers (see "functioning category below) could affect migration to up to 10% of surrounding wetland/riparian habitat.
<0.8 - 0.7	***C*** *Functioning*	Barriers to migration and dispersal retard the ability of many organisms/propagules to pass between the AA and up to 66% of wetland/riparian habitat. Passage of organisms and propagules through such barriers is still possible, but it may be constrained to certain times of day, be slow, dangerous or require additional travel. Busy two-lane roads, culverted areas, small to medium artificial water bodies or small earthen dams would commonly rate a score in this range. More significant barriers (see "functioning impaired" category below) could affect migration to up to 10% of surrounding wetland/riparian
<0.7 - 0.6	***D*** *Functioning Impaired*	Barriers to migration and dispersal preclude the passage of some types of organisms/propagules between the AA and up to 66% of surrounding wetland/riparian habitat. Travel of those animals which can potential negotiate the barrier are strongly restricted and may include a high chance of mortality. Up to 33% of surrounding wetland/riparian habitat could be functionally isolated from the AA.
<0.6	***F*** *Non-functioning*	AA is essentially isolated from surrounding wetland/riparian habitat by impermeable migration and dispersal barriers. An interstate highway or concrete-lined water conveyance canal are examples of barriers which would generally create functional isolation between the AA and wetland/riparian habitat in the HCE.

SV 1.1 Score	0.89
SV 1.2 Score	0.75

Add SV 1.1 and 1.2 scores and divide by two to calculate variable score

Variable 1 Score 0.82

Variable 2: Contributing Area

The AA's Contributing Area is defined as the 250-meter-wide zone surrounding the perimeter of the AA. This variable is a measure of the capacity of that area to support characteristic functions of high quality wetland habitat. Depending on its condition, the contributing area can help maintain wetland condition or it can degrade it. Contributing Area condition is evaluated by considering the AA's Buffer and its Surrounding Land Use. Buffers are strips or patches of more-or-less natural upland and/or wetland habitat more than 5m wide. Buffers are contiguous with the AA boundary and they intercede between it and more intensively used lands. The AA Buffer is characterized with three sub-variables: Buffer Condition, Buffer Extent, and Average Buffer Width. The Surrounding Land Use Sub-variable considers changes within the Contributing Area that limit its capacity to support characteristic wetland functions. Many of the acute, on-site effects of land use change in the Contributing Area are specifically captured by Variables 3 - 8.

Rules for Scoring:

1. Delimit the Contributing Area on an aerial photograph as the zone within 250 meters of the outer boundary of the AA.
2. Evaluate and then rate the Buffer Condition sub-variable using the scoring guidelines. Record the score in the cell provided on the datasheet.
3. Indicate on the aerial photograph zones surrounding the AA which have ≥5m of buffer vegetation and those which do not.
4. Calculate the percentage of the AA which has a Buffer and record the value where indicated on the data sheet.
5. Rate the *Buffer Extent* Sub-variable using the scoring guidelines.
6. Determine the average Buffer width by drawing a line perpendicularly from the AA boundary to the outer extent of the buffer habitat. Measure line length and record its value on the data sheet. Repeat this process until a total of 8 lines have been sampled.
7. Calculate the average buffer width and record value on the data form. Then determine the sub-variable score using the scoring guidelines.
8. Score the Surrounding Land Use sub-variable by recording land use changes on the stressor list that affect the capacity of the landscape to support characteristic wetland functioning.
9. Enter the **lowest** of the three Buffer sub-variable scores along with the Surrounding Land Use Sub-variable score in the Contributing Area Variable scoring formula at the bottom of p. 2 of the data form. The Contributing Area Variable is the average of the two sub-variable scores.

SV 2.1 - Buffer Condition

0.86 ***SV 2.1 - Buffer Condition Score***

Subvariable Score	Condition Grade	Buffer Condition Scoring Guidelines
1.0 - 0.9	*Reference Standard*	Buffer vegetation is predominately native vegetation, human-caused disturbance of the substrate is not evident, and human visitation is minimal. Common examples: Wilderness areas, undeveloped forest and range lands.
<0.9 - 0.8	*Highly Functioning*	Buffer vegetation may have a mixed native-nonnative composition, but characteristic structure and complexity remain. Soils are mostly undisturbed or have recovered from past human disturbance. Little or only low-impact human visitation. Buffers with higher levels of substrate disturbance may be included here if the buffer is still able to maintain predominately native vegetation. Common examples: Dispursed camping areas in national forests, common in wildland parks (e.g. State Parks) and open spaces.
<0.8 - 0.7	*Functioning*	Buffer vegetation is substantially composed of non-native species. Vegetation structure may be somewhat altered, such as by brush clearing. Moderate substrate distrbance and compaction occurs, and small pockets of greater disturbance may exist. Common examples: City natural areas, mountain hay meadows.
<0.7 - 0.6	*Functioning Impaired*	Buffer vegetation is substantially composed of non-native species and vegetation structure has been strongly altered by the complete removal of one or more strata. Soil disturbance and the intensity of human visitation are generally high. Common examples: Open lands around resource extraction sites (e.g., gravel mines), clear cut logging areas, ski slopes.
<0.6	*Non-functioning*	Buffer is nearly or entirely absent.

SV 2.2 - Buffer Extent

0.78 Percent of AA with Buffer

0.84 ***SV 2.2 - Buffer Extent***

Subvariable Score	Condition Class	% Buffer Scoring Guidelines
1.0 - 0.9	*Reference Standard*	90 - 100% of AA with Buffer
<0.9 - 0.8	*Highly Functioning*	70-90% of AA with Buffer
<0.8 - 0.7	*Functioning*	51-69% of AA with Buffer
<0.7 - 0.6	*Functioning Impaired*	26-50% of AA with Buffer
<0.6	*Non-functioning*	0-25% of AA with Buffer

Variable 2: Contributing Area (p. 2)

SV 2.3 - Average Buffer Width

Record measured buffer widths in the spaces below and average.

Buffer Width (m)	*250*	*250*	*250*	*250*	*250*	*250*	*250*	*250*	**250**
Line #	1	2	3	4	5	6	7	8	**Avg. Buffer Width (m)**

1 ***SV 2.3 - Average Buffer Width Score***

Subvariable Score	Condition Grade	Buffer Width Scoring Guidelines
1.0 - 0.9	*Reference Standard*	Average Buffer width is 190-250m
<0.9 - 0.8	*Highly Functioning*	Average Buffer width is 101-189m
<0.8 - 0.7	*Functioning*	Average Buffer width is 31-100m
<0.7 - 0.6	*Functioning Impaired*	Average Buffer width is 6-30m
<0.6	*Non-functioning*	Average Buffer width is 0-5m

SV 2.4 - Surrounding Land Use

0.75 ***SV 2.4 - Surrounding Land Use Score***

Catalog and characterize land use changes in the surrounding landscape and score.

Stressors = Land Use Changes

✔	Stressors	Comments/description
	Industrial/commercial	
	Urban	
X	Residential	**2 residences ~450m N of wetland, a couple more ~ 750m E**
	Rural	
	Dryland Farming	
	Intensive Agriculture	
	Orchards or Nurseries	
X	Livestock Grazing	
X	Transportation Corridor	
	Urban Parklands	
X	Dams/impoundments	**Earthen dams to create ponds for livestock**
X	Artificial Water body	**Ponds created by dams for livestock**
	Physical Resource Extraction	
	Biological Resource Extraction	

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	No appreciable land use change has been imposed Surrounding Landscape.
<0.9 - 0.8	***B*** *Highly Functioning*	Some land use change has occurred in the Surrounding Landscape, but changes have minimal effect on the the landscape's capacity to support characteristic aquatic functioning, either because land use is not intensive, for example haying, light grazing, or low intensity silviculture, or more substantial changes occur in approximately less than 10% of the area.
<0.8 - 0.7	***C*** *Functioning*	Surrounding Landscape has been subjected to a marked shift in land use, however, the land retains much of its capacity to support natural wetland function and it is not an overt source of pollutants or sediment. Moderate-intensity land uses such as dry-land farming, urban "green" corridors, or moderate cattle grazing would commonly be placed within this scoring range.
<0.7 - 0.6	***D*** *Functioning Impaired*	Land use changes within the Surrounding Landscape has been substantial including the a moderate to high coverage (up to 50%) of impermeable surfaces, bare soil, or other artificial surfaces; considerable in-flow urban runoff or fertilizer-rich waters common. Supportive capacity of the land has been greatly diminished but not totally extinguished. Intensively logged areas, low-density urban developments, some urban parklands and many cropping situations would commonly rate a score within this range.
<0.6	***F*** *Non-functioning*	The Surrounding Landscape is essentially comletely developed or is otherwise a cause of severe ecological stress on wetland habitats. Commercial developments or highly urban landscapes generally rate a score of less than 0.6.

	Buffer Score (Lowest score)		**Surrounding Land Use**				
(	**0.84**	**+**	**0.75**	**) ÷**	2	= **Variable 2 Score**	**0.80**

Variable 3: Water Source

*This variable is concerned with **up-gradient** hydrologic connectivity. It is a measure of impacts to the AA's water source, including the quantity and timing of water delivery, and the ability of source water to perform work such as sediment transport, erosion, soil pore flushing, etc. To score this variable, identify stressors that alter the source of water to the AA, and record their presence on the stressor list. Stressors can impact water source by depletion, augmentation, or alteration of inflow timing or hydrodynamics. This variable is designed to assess water quantity, power and timing, not water quality. Water quality will be evaluated in Variable 7.*

Scoring rules:

1. Use the stressor list and knowledge of the watershed to catalog type-specific impairments of the AA's water source. Mark the stressors present with a check in the first column and describe the general nature, severity and extent of each. List additional stressors in empty rows at the bottom of the table and explain.

2. Considering the composite effect of stressors on the water source, rate the condition of this variable with the aid of the scoring guidelines.

✓	Stressors	Comments/description
	Ditches or Drains (tile, etc.)	
X	Dams	
	Diversions	
X	Groundwater pumping	**Several residential wells, several commercial irrigation wells**
	Draw-downs	
X	Culverts or Constrictions	**Source water crosses US 24**
	Point Source (urban, ind., ag.)	
	Non-point Source	
	Increased Drainage Area	
X	Storm Drain/Urban Runoff	**Large housing development near headwaters for adjacent wetland**
X	Impermeable Surface Runoff	**Roads, parking lots, driveways at headwaters**
X	Irrigation Return Flows	**Grounds around neighborhood at headwaters uses irrigation (base**
	Mining/Natural Gas Extraction	
	Transbasin Diversion	
	Actively Managed Hydrology	

Variable Score	Condition Grade	Depletion	Augmentation
1.0 - 0.9	***A*** *Reference Standard*	Unnatural drawdown events minor, rare or non-existent, very slight uniform depletion, or trivial alteration of hydrodynamics.	Unnatural high-water events minor, rare or non-existent, slight uniform increase in amount of inflow, or trivial alteration of hydrodynamics.
<0.9 - 0.8	***B*** *Highly Functioning*	Unnatural drawdown events occasional, short duration and/or mild; or uniform depletion up to 20%; or mild to moderate reduction of peak flows or capacity of water to perform work.	Occasional unnatural high-water events, short in duration and/or mild in intensity; or uniform augmentation up to 20%; or mild to moderate increase of peak flows or capacity of water to perform work.
<0.8 - 0.7	***C*** *Functioning*	Unnatural drawdown events common and of mild to moderate intensity and/or duration; or uniform depletion up to 50%; or moderate to substantial reduction of peak flows or capacity of water to perform work.	Common occurrence of unnatural high-water events, of a mild to moderate intensity and/or duration; or uniform augmentation up to 50%; or moderate to substantial increase of peak flows or capacity of water to perform work.
<0.7 - 0.6	***D*** *Functioning Impaired*	Unnatural drawdown events occur frequently with a moderate to high intensity and/or duration; or uniform depletion up to 75%; or substantial reduction of peak flows or capacity of water to perform work. **Wetlands with actively managed or wholly artificial hydrology will usually score in this range or lower.**	Common occurrence of unnatural high-water events, some of which may be severe in nature or exist for a substantial portion of the growing season; or uniform augmentation more than 50% or capacity of water to perform work. **Wetlands with actively managed or wholly artificial hydrology will usually score in this range or**
<0.6	***F*** *Non-functioning*	Water source diminished enough to threaten or extinguish wetland hydrology in the AA.	Frequency, duration or magnitude of unnaturally high-water great enough to change the fundamental characteristics of the wetland.

Variable 3 Score **0.82**

Variable 4: Water Distribution

This variable is concerned with hydrologic connectivity ***within*** *the AA. It is a measure of alteration to the spatial distribution of surface and groundwater within the AA. These alterations are manifested as local changes to the hydrograph and generally result from geomorphic modifications within the AA. To score this variable, identify stressors within the AA that alter flow patterns and impact the hydrograph of the AA, including localized increases or decreases to the depth or duration of the water table or surface water.*

Because the wetland's ability to distribute water in a characteristic fashion is fundamentally dependent on the condition of its water source, ***in most cases the Water Source variable score will define the upper limit Water Distribution score****. For example, if the Water Source variable is rated at 0.85, the Water Distribution score will usually have the potential to attain a maximum score of 0.85. Additional stressors within or outside the lower end of the AA effecting water distribution (e.g., ditches and levees) will reduce the score from the maximum value.*

Scoring rules:

1. Identify impacts to the natural distribution of water throughout the AA and catalog them in the stressor table.

2. Considering all of the stressors identified, assign an overall variable score using the scoring guidelines. In most cases, the Water Source variable score will set the upper limit for the Water Distribution score.

✓	Stressors	Comments/description
X	Alteration of Water Source	**Housing development at source; source water funneled through culvert under road; res**
	Ditches	
	Ponding/Impoundment	
	Culverts	
	Road Grades	
	Channel Incision/Entrenchment	
	Hardened/Engineered Channel	
	Enlarged Channel	
	Artificial Banks/Shoreline	
	Weirs	
	Dikes/Levees/Berms	
	Diversions	
	Sediment/Fill Accumulation	

Variable Score	Condition Grade	Non-riverine	Riverine
1.0 - 0.9	***A*** *Reference Standard*	Little or no alteration has been made to the way in which water is distributed throughout the wetland. AA maintains a natural hydrologic regime.	Natural active floodplain areas flood on a normal recurrence interval. No evidence of alteration of flooding and subirrigation duration and intensity.
<0.9 - 0.8	***B*** *Highly Functioning*	Less than 10% of the AA is affected by *in situ* hydrologic alteration; or more widespread impacts result in less than a 2 in. (5 cm) change in mean growing season water table elevation.	Channel-adjacent areas have occasional unnatural periods of drying or flooding; or uniform shift in the hydrograph less than typical root depth.
<0.8 - 0.7	***C*** *Functioning*	Between 10 and 33% of the AA is affected by *in situ* hydrologic alteration; or more widespread impacts result in a 4 in. (5 cm) or less change in mean growing season water table elevation.	In channel-adjacent area, periods of drying or flooding are common; or uniform shift in the hydrograph near root depth.
<0.7 - 0.6	***D*** *Functioning Impaired*	33 to 66% of the AA is affected by *in situ* hydrologic alteration; or more widespread impacts result in a 6 in. (15 cm) or less change in mean growing season water table elevation. Water table behavior must still meet jurisdictional criteria to merit this rating.	Adjacent to the channel, unnatural periods of drying or flooding are the norm; or uniform shift in the hydrograph greater than root depth.
<0.6	***F*** *Non-functioning*	More than 66% of the AA is affected by hydrologic alteration which changes the fundamental functioning of the wetland system, generally exhibited as a conversion to upland or deep water habitat.	Historical active floodplain areas are almost never wetted from overbank flooding, and/or groundwater infiltration is effectively cut off.

Variable 4 Score **0.82**

Variable 5: Water Outflow

This variable is concerned with ***down-gradient*** *hydrologic connectivity and the flow of water and water-borne materials and energy out of the AA. In particular it illustrates the degree to which the AA can support the functioning of down-gradient habitats. It is a measure of impacts that affect the hydrologic outflow of water including the passage of water through its normal low- and high-flow surface outlets, infiltration/groundwater recharge, and the energetic characteristics of water delivered to dependent habitats. In some cases, alteration of evapotranspiration rates may be significant enough of a factor to consider in scoring. Score this variable by identifying stressors that impact the means by which water is exported from the AA. To evaluate this variable focus on how water, energy and associated materials are exported out of the AA and their ability it support down-gradient habitats in a manner consistent with their HGM (regional) subclass.*

Because the wetland's ability to export water and materials in a characteristic fashion is to a very large degree dependent the condition of its water source, as with the Water Distribution variable, ***in most cases the Water Source variable score will define the upper limit Water Outflow score****.*

Scoring rules:

1. Identify impacts to the natural outflow of water from the AA and catalog them in the stressor table.

2.Considering all of the stressors identified, assign an overall variable score using the scoring guidelines. Take in to account the cumulative effect of stressors on the wetland's ability to export water and water-borne materials. In most cases the Water Source variable will set the upper limit for the Water Outflow score.

✓	Stressors	Comments/description
	Alteration of Water Source	
X	Ditches	**Roadside ditch on south side of AA redirects water east.**
X	Dikes/Levees	**Earthen dams downstream pool surface runoff.**
X	Road Grades	**Judge Orr Rd borders AA to the S.**
	Culverts	
	Diversions	
	Constrictions	
	Channel Incision/Entrenchment	
	Hardened/Engineered Channel	
	Artificial Stream Banks	
	Weirs	
	Confined Bridge Openings	

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Stressors have little to no effect on the magnitude, timing or hydrodynamics of the AA water outflow regime.
<0.9 - 0.8	***B*** *Highly Functioning*	High- or low-water outflows are mildly to moderately affected, but at intermediate ("normal") levels flow continues essentially unaltered in quantity or character.
<0.8 - 0.7	***C*** *Functioning*	High- or low-water outflows are moderately affected, mild alteration of intermediate level outflow occurs; or hydrodynamics moderately affected.
<0.7 - 0.6	***D*** *Functioning Impaired*	Outflow at all stages is moderately to highly impaired resulting in persistent flooding of portions of the AA or unnatural drainage; or outflow hydrodynamics severely disrupted.
<0.6	***F*** *Non-functioning*	The natural outflow regime is profoundly impaired. Down-gradient hydrologic connection severed or nearly so. Alterations may cause widespread unnatural persistent flooding or dewatering of the wetland system.

Variable 5 Score **0.69**

Variable 6: Geomorphology

This variable is a measure of the degree to which the geomorphic setting has been altered within the AA. Changes to the surface configuration and natural topography constitute stressors. Such stressors may be observed in the form of fill, excavation, dikes, sedimentation due to absence of flushing floods, etc. In riverine systems, geomorphic changes to the stream channel should be considered if the channel is within the AA (i.e, small is size). Alterations may involve the bed and bank (substrate embeddedness or morphological changes), stream instability, and stream channel reconfiguration. Geomorphic changes are usually ultimately manifested as changes to wetland surface hydrology and water relations with vegetation. Geomorphic alterations can also directly affect soil properties, such as near-surface texture, and the wetland chemical environment such as the redox state or nutrient composition in the rooting zone. In rating this variable, ***do not*** *include these resultant effects of geomorphic change; rather focus on the physical impacts* ***within the footprint*** *of the alteration* ***within the AA*** *– For example, the width and depth of a ditch or the size of a levee* ***within the AA*** *would describe the extent of the stressors. The secondary effects of geomorphic change are addressed by other variables. All alterations to geomorphology should be evaluated including small-scale impacts such as pugging, hoof sheer, and sedimentation which can be significant but not immediately obvious.*

Scoring Rules:

1. Identify impacts to geomorphological setting and topography within the AA and record them on the stressor checklist.

2.Considering all of the stressors identified, assign an overall variable score using the scoring guidelines.

✓		Stressors	Comments
	General	Dredging/Excavation/Mining	
X		Fill, including dikes, road grades, etc	**Small section of AA has fill placed as part of the dam.**
		Grading	
		Compaction	
		Plowing/Disking	
		Excessive Sedimentation	
		Dumping	
		Hoof Shear/Pugging	
		Aggregate or Mineral Mining	
		Sand Accumulation	
	Channels Only	Channel Instability/Over Widening	
		Excessive Bank Erosion	
		Channelization	
		Reconfigured Stream Channels	
		Artificial Banks/Shoreline	
		Beaver Dam Removal	
		Substrate Embeddedness	
		Lack or Excess of Woody Debris	

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Topography essentially unaltered from the natural state, or alterations appear to have a minimal effect on wetland functioning and condition. Patch or microtopographic complexity may be slightly altered, but native plant communities are still supported.
<0.9 - 0.8	***B*** *Highly Functioning*	Alterations to topography result in small but detectable changes to habitat conditions in some or all of the AA; or more severe impacts exist but affect less than 10% of the AA.
<0.8 - 0.7	***C*** *Functioning*	Changes to AA topography may be pervasive but generally mild to moderate in severity. May include patches of more significant habitat alteration; or more severe alterations affect up to 20 % of the AA.
<0.7 - 0.6	***D*** *Functioning Impaired*	At least one important surface type or landform has been eliminated or created; microtopography has been strongly impacted throughout most or all of the AA; or more severe alterations affect up to 50% of the AA. Evidence that widespread diminishment or alteration of native plant community exist due to physical habitat alterations. Most incidentally created wetland habitat such as that created by roadside ditches and the like would score in this range or lower.
<0.6	***F*** *Non-functioning*	Pervasive geomorphic alterations have caused a fundamental change in site character and functioning, commonly resulting in a conversion to upland or deepwater habitat.

Variable 6 Score **0.89**

Variable 7: Water and Soil Chemical Environment

This variable concerns the chemical environment of the soil and water media within the AA, including pollutants, water and soil characteristics. The origin of pollutants may be within or outside the AA. Score this variable by listing indicators of chemical stress in the AA. Consider point source and non-point sources of pollution, as well as mechanical or hydrologic changes that alter the chemical environment. Because water quality frequently cannot be inferred directly, the presence of stressors is often identified by the presence of indirect indicators. Five sub-variables are used to describe the Water and Soil Chemical Environment: Nutrient Enrichment/Eutrophication/Oxygen; Sedimentation/Turbidity; Toxic Contamination/pH; Temperature; and Soil Chemistry and Redox Potential. Utilization of web-based data mining tools is highly recommended to help inform and support variable scores.

Scoring rules:

1. Stressors are grouped into sub-variables which have a similar signature or set of causes.
2. Use the indicator list to identify each stressor impacting the chemical environment of the AA.
3. For each sub-variable, determine its score using the scoring guideline table provided on the second page of the scoring sheet. Scoring sub-variables is carried out in exactly the same way as normal variable scoring.
 -If the AA is part of a water body that is recognized as impaired or recommended for TMDL development for one of the factors, then score that sub-variable 0.65 or lower.
4. Transcribe sub-variable scores to the following variable scoring page and compute the sum.
5. The lowest sub-variable score sets the letter grade range. The composite of sub-variables influences the score within that range.

Sub-variable	Stressor Indicator	✓	Comments	Sub-variable Score
SV 7.1 Nutrient Enrichment/ Eutrophication/ Oxygen (D.O.)	Livestock	X	previous years AA had livestoc	0.88
	Agricultural Runoff			
	Septic/Sewage			
	Excessive Algae or Aquatic Veg.			
	Cumulative Watershed NPS			
	CDPHE Impairment/TMDL List			
SV 7.2 Sedimentation/ Turbidity	Excessive Erosion			1.00
	Excessive Deposition			
	Fine Sediment Plumes			
	Agricultural Runoff			
	Excessive Turbidity			
	Nearby Construction Site			
	Cumulative Watershed NPS			
	CDPHE Impairment/TMDL List			
SV 7.3 Toxic contamination/ pH	Recent Chemical Spills			0.85
	Nearby Industrial Sites			
	Road Drainage/Runoff	X	several roads in surrounding a	
	Livestock	X	No active livestock on property	
	Agricultural Runoff			
	Storm Water Runoff			
	Fish/Wildlife Impacts			
	Vegetation Impacts			
	Cumulative Watershed NPS			
	Acid Mine Drainage			
	Point Source Discharge			
	CDPHE Impairment/TMDL List			
	Metal staining on rocks and veg.			
SV 7.4 Temperature	Excessive Temperature Regime			1.00
	Lack of Shading			
	Reservoir/Power Plant Discharge			
	Industrial Discharge			
	Cumulative Watershed NPS			
	CDPHE Impairment/TMDL List			
SV 7.5 Soil chemistry/ Redox potential	Unnatural Saturation/Desaturation			1.00
	Mechanical Soil Disturbance			
	Dumping/introduced Soil			
	CDPHE Impairment/TMDL List			

Variable 7: Water and Soil Chemical Environment p.2

Sub-variable Scoring Guidelines

Variable Score	Condition Class	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Stress indicators not present or trivial.
<0.9 - 0.8	***B*** *Highly Functioning*	Stress indicators scarcely present and mild, or otherwise not occurring in more than 10% of the AA.
<0.8 - 0.7	***C*** *Functioning*	Stress indicators present at mild to moderate levels, or otherwise not occurring in more than 33% of the AA.
<0.7 - 0.6	***D*** *Functioning Impaired*	Stress indicators present at moderate to high levels, or otherwise not occurring in more than 66% of the AA
<0.6	***F*** *Non-functioning*	Stress indicators strongly evident throughout the AA at levels which apparently alter the fundamental chemical environment of the wetland system

Input each sub-variable score from p. 1 of the V7 data form and calculate the sum.

Nutrient enrichment/ Eutrophication/ Oxygen (D.O.)		Sedimentation/ Turbidity		Toxic contamination/ pH		Temperature		Soil chemistry/ Redox potential		Sum of Sub-variable Scores
0.88	+	**1.00**	+	**0.85**	+	**1.00**	+	**1.00**	=	**4.73**

Use the table to score the Chemical Environment Variable circling the applicable scoring rules.

Variable Score	Condition Grade	Scoring Rules		
		Single Factor		**Composite Score**
1.0 - 0.9	***A*** *Reference Standard*	No single factor scores < 0.9		The factor scores sum > 4.5
<0.9 - 0.8	***B*** *Highly Functioning*	Any single factor scores ≥ 0.8 but < 0.9		The factor scores sum >4.0 but ≤4.5
<0.8 - 0.7	***C*** *Functioning*	Any single factor scores ≥ 7.0 but < 0.8		The factor scores sum >3.5 but ≤ 4.0
<0.7 - 0.6	***D*** *Functioning Impaired*	Any single factor scores ≥ 0.6 but <0.7		The factor scores sum >3.0 but ≤3.5
< 0.6	***F*** *Non-functioning*	Any single factor scores < 0.6		The factor scores sum < 3.0

Variable 7 Score **0.89**

Variable 8: Vegetation Structure and Complexity

This variable is a measure of the condition of the wetland's vegetation relative to its native state. It particularly focuses on the wetland's ability to perform higher-order functions such as support of wildlife populations, and influence primary functions such as flood-flow attenuation, channel stabilization and sediment retention. Score this variable by listing stressors that have affected the structure, diversity, composition and cover of each vegetation stratum that would normally be present in the HGM (regional) subclass being assessed. For this variable, stressor severity is a measure of how much each vegetation stratum differs functionally from its natural condition or from the natural range of variability exhibited the HGM subclass or regional subclass. This variable has four sub-variables, each corresponding to a stratum of vegetation: Tree Canopy; Shrub Layer; Herbaceous Layer; and Aquatics.

Rules for Scoring:

1. Determine the number and types of vegetation layers present within the AA. Make a judgment as to whether additional layers were historically present using direct evidence such as stumps, root wads or historical photographs. Indirect evidence such as local knowledge and expert opinion can also be used in this determination.

2. Do not score vegetation layers that would not normally be present in the wetland type being assessed.

3. Estimate and record the current coverage of each vegetation layer at the top of the table.

4. Record the Reference Standard or expected percent coverage of each vegetation layer to create the sub-variable weighting factor. The condition of predominant vegetation layers has a greater influence on the variable score than do minor components.

5. Enter the percent cover values as decimals in the row of the stressor table labeled " Reference/expected Percent Cover of Layer". Note, percentages will often sum to more than 100% (1.0).

6. Determine the severity of stressors acting on each individual canopy layers, indicating their presence with checks in the appropriate boxes of the stressor table. The difference between the expected and observed stratum coverages is one measure of stratum alteration.

7. Determine the sub-variable score for each valid vegetation layer using the scoring guidelines on the second page of the scoring sheet. Enter each sub-variable score in the appropriate cell of the row labeled "Veg. Layer Sub-variable Score". If a stratum has been wholly removed score it as 0.5.

8. Multiply each layer's *Reference Percent Cover of Layer* score by its Veg. Layer Sub-variable scores and enter the products in the labled cells. These are the weighted sub-variable scores. Individually sum the *Reference Percent Cover of Layer* and *Weighted Sub-variables scores.*

9. Divide the sum of "Veg. Layer Sub-variable Scores" by the total coverage of all layers scored. This product is the Variable 8 score. Enter this number in the labeled box at the bottom of this page.

	Vegetation Layers				
Current % Coverage of Layer		1	100		
Stressor	**Tree**	**Shrub**	**Herb**	**Aquatic**	**Comments**
Noxious Weeds		**x**	**x**		
Exotic/Invasive spp.		**x**	**x**		
Tree Harvest					
Brush Cutting/Shrub Removal					
Livestock Grazing		**x**	**x**		**Not this year (limited 2020 impact)**
Excessive Herbivory					
Mowing/Haying					
Herbicide					
Loss of Zonation/Homogenization					
Dewatering					
Over Saturation					
DIFFERENCE BETWEEN CURRENT COVERAGE AND REFERENCE/EXPECTED		**0**	**0**		

Reference/Expected % Cover of Layer		+ **0.01**	+ **1.00**	+	=	**1.01**
	x	x	x	x		
Veg. Layer Sub-variable Score		**0.78**	**0.78**		÷	**See sub-variable scoring guidelines on following page**
	=	=	=	=		
Weighted Sub-variable Score		+ **0.01**	+ **0.78**	+	=	**0.7878**

Variable 8 Score **0.78**

Variable 8: Vegetation Structure and Complexity p. 2

Sub-variable 8 Scoring Guidelines:

Based on the list of stressors identified above, rate the severity of their cumulative effect on vegetation structure and complexity for each vegetation layer.

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Stressors not present or with an intensity low enough as to not detectably affect the structure, diversity or composition of the vegetation layer.
<0.9 - 0.8	***B*** *Highly Functioning*	Stressors present at intensity levels sufficient to cause detectable, but minor, changes in layer composition. Stress related change should generally be less than 10% for any given attribute (e.g., 10% cover of invasive, 10% reduction in richness or cover) if the stressor is evenly distributed throughout the wetland. Stress related change could be as high as 33% for a given attribute if stressors are confined to patches comprising less than 10% of the wetland.
<0.8 - 0.7	***C*** *Functioning*	Stressors present with enough intensity to cause significant changes in the character of vegetation, including alteration of layer coverage, structural complexity and species composition. The vegetation layer retains its essential character though. AA's with a high proportion of non-native grasses will commonly fall in this class. Stress related change should generally be less than 33% for any given attribute (e.g., 33% cover of invasive, 33% reduction in richness or cover) if the stressor is evenly distributed throughout the wetland. Stress related change could be as much as 66% for a given attribute if stressors are confined to patches comprising less than 25% of the wetland.
<0.7 - 0.6	***D*** *Functioning Impaired*	Stressor intensity severe enough to cause profound changes to the fundamental character of the vegetation layer. Stress-related change should generally be less than 66% for any given attribute (e.g., 66% cover of invasive, 66% reduction in richness or cover) if the stressor is evenly distributed throughout the wetland. Stress related change could be as much as 80% of a given attribute if stressors are confined to patches comprising less than 50% of the wetland.
<0.6	***F*** *Non-functioning*	Vegetation layer has been completely removed or altered to the extent that is no longer comparable to the natural structure, diversity and composition.

FACWet Score Card

Scoring Procedure:

1. Transcribe variable scores from each variable data sheet to the corresponding cell in the variable score table.
2. In each Functional Capacity Index (FCI) equation, enter the corresponding variable scores in the equation cells. Do not enter values in the crossed cells lacking labels.
3. Add the variable scores to calculate the total functional points achieved for each function.
4. Divide the total functional points achieved by the functional points possible. The typical number of total points possible is provided, however, if a variable is added or subtracted to FCI equation the total possible points must be adjusted
5. Calculate the Composite FCI, by adding the FCI scores and dividing by the total number of functions scored (usually 7).
6. If scoring is done directly in the Excel spreadsheet, all values will be transferred and calculated automatically.

VARIABLE SCORE TABLE

Buffer & Landscape Context	**Variable 1:**	**Habitat Connectivity (Connect)**	0.82
	Variable 2:	**Contributing Area (CA)**	0.80
Hydrology	**Variable 3:**	**Water Source (Source)**	0.82
	Variable 4:	**Water Distribution (Dist)**	0.82
	Variable 5:	**Water Outflow (Outflow)**	0.69
Abiotic and Biotic Habitat	**Variable 6:**	**Geomorphology (Geom)**	0.89
	Variable 7:	**Chemical Environment (Chem)**	0.89
	Variable 8:	**Vegetation Structure and Complexity (Veg)**	0.78

Functional Capacity Indices

Function 1 -- Support of Characteristic Wildlife Habitat

$V1_{connect}$	+	$V2_{CA}$	+	$(2 \times V8_{veg})$						Total Functional Points		FCI
0.82	+	0.80	+	1.56	+		+		=	3.18	÷ 4	= 0.79

Function 2 -- Support of Characteristic Fish/aquatic Habitat

$(3 \times V3_{source})$	+	$(2 \times V4_{dist})$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+	$V7_{chem}$						
2.46	+	1.64	+	1.38	+	0.89	+	0.89	+		=	7.26	÷ 9	= 0.81

Function 3 -- Flood Attenuation

$V2_{CA}$	+	$(2 \times V3_{source})$	+	$(2 \times V4_{dist})$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+	$V8_{veg}$			
0.80	+	1.64	+	1.64	+	1.38	+	0.89	+	0.78	=	7.13	÷ 9	= 0.79

Function 4 -- Short- and Long-term Water Storage

$V3_{source}$	+	$(2 \times V4_{dist})$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+					
0.82	+	1.64	+	1.38	+	0.89	+		+		=	4.73	÷ 6	= 0.79

Function 5 -- Nutrient/Toxicant Removal

$(2 \times V2_{CA})$	+	$(2 \times V4_{dist})$	+	$V6_{geom}$		$V7_{chem}$						
1.59	+	1.64	+	0.89	+	0.89	+		+		=	5.01	÷ 6	= 0.84

Function 6 -- Sediment Retention/Shoreline Stabilization

$V2_{CA}$	+	$(2 \times V6_{geom})$	+	$(2 \times V8_{veg})$							
0.80	+	1.78	+	1.56	+		+		=	4.14	÷ 5	= 0.83

Function 7 -- Production Export/Food Chain Support

$V1_{connect}$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+	$V7_{chem}$	+	$(2 \times V8_{veg})$					
0.82	+	1.38	+	0.89	+	0.89	+	1.56	+		=	5.54	÷ 7	= 0.79

Sum of Individual FCI Scores 5.63

Divide by the Number of Functions Scored ÷ 7

Composite FCI Score 0.80

ADMINISTRATIVE CHARACTERIZATION

General Information

		Date of Evaluation:	**12/8/2020**
Site Name or ID:	**Pond Area, caused by earthen dam**	Project Name:	**Judge Orr Mitigation Bank**
404 or Other Permit Application #:		Applicant Name:	**Pete Lien**
Evaluator Name(s):	**Thomas McIntyre** **Jesse Dillon**	Evaluator's professional position and organization:	**Biologist** **Ecologist/Owner**

Location Information:

Site Coordinates (Decimal Degrees, e.g., 38.85, -104.96):	**38.95715, -104.541853**	Geographic Datum Used (NAD 83):	**NAD 83 z13N**
		Elevation	**6747 feet**
Location Information:	**Bordered by Judge Orr Rd to the South, Stapleton Rd to the West, and Elbert Rd to the East**		
Associated stream/water body name		Stream Order:	
USGS Quadrangle Map:	**Falcon Quadrangle**	Map Scale: (Circle one)	(1:24,000) 1:100,000 Other 1:
Sub basin Name (8 digit HUC):	**Chico**	Wetland Ownership:	**Private: Pete Lien & Sons, Inc.**

Project Information:

This evaluation is being performed at: *(Check applicable box)*
- [ ] *Project Wetland*
- [X] *Mitigation Site*

Purpose of Evaluation (check all applicable):
- [ ] *Potentially Impacted Wetlands*
- [X] *Mitigation; Pre-construction*
- [ ] *Mitigation; Post-construction*
- [ ] *Monitoring*
- [ ] *Other (Describe)*

Intent of Project: *(Check all applicable)* ☑ Restoration ☑ Enhancement ☐ Creation

Total Size of Wetland Involved: (Record Area, Check and Describe Measurement Method Used)	**0.4** ac.	[X]	Measured				
		[ ]	Estimated				
Assessment Area (AA) Size (Record Area, check appropriate box. Additional spaces are used to record acreage when more than one AA is included in a single assessment)	**48.4** ac.	[X]	Measured	ac.	ac.	ac.	ac.
		[ ]	Estimated	ac.	ac.	ac.	ac.
Characteristics or Method used for AA boundary determination:	**Wetland delineation- boundaries surveyed with satelite imagery and verified in the field with GPS. A single AA holding a pond. The entire target habitat including the pond is included in the AA**						

Notes:	**This FACWet Analysis is limited to the wetlands within the Pete Lein property line. It is not a comprehensive analysis of the entire drainage of which this AA is a part**

ECOLOGICAL DESCRIPTION 1

Special Concerns

Check all that apply

- [ ] Organic soils including Histosols or Histic Epipedons are present in the AA (i.e., AA includes core fen habitat).
- [ ] Project will directly impact organic soil portions of the AA including areas possessing either Histosol soils or histic epipedons.
- [ ] Organic soils are known to occur anywhere within the contiguous wetland of which the AA is part.
- [ ] The wetland is a habitat oasis in an otherwise dry or urbanized landscape?
- [ ] Federally threatened or endangered species are **KNOWN** to occur in the AA? List Below.
- [ ] Federally threatened or endangered species are **SUSPECTED** to occur in the AA?
- [ ] Species of concern according to the Colorado Natural Heritage (CNHP) are known to occur in the AA?
- [ ] The site is located within a potential conservation area or element occurrence buffer area as determined by CNHP?
- [X] Other special concerns (please describe)

No known species occuring in AA, but possible federally threatened spp in region: Eastern black rail, Least tern, Piping plover, Whooping crane, Greenback cutthroat Trout, Pallid sturgeon, Ute ladies'-tresses, Western prairie finged orchid

HYDROGEOMORPHIC SETTING

- [ ] AA wetland maintains its fundamental natural hydrogeomorphic characteristics
- [X] AA wetland has been subject to change in HGM classes as a result of anthropogenic modification

If the above is checked, please describe the original wetland type if discernable using the table below.

- [ ] AA wetland was created from an upland setting.

Current Conditions

Describe the hydrogeomorphic setting of the wetland by circling all conditions that apply.

HGM Setting	**Water source**	(Surface flow) Groundwater Precipitation Unknown
	Hydrodynamics	Unidirectional Vertical (Bi-directional)
	Wetland Gradient	(0 - 2%) 2-4% 4-10% >10%
	# Surface Inlets	Over-bank 0 (1) 2 3 >3
	# Surface Outlets	0 1 (2) 3 >3
	Geomorphic Setting (Narrative Description. Include approx. stream order for riverine)	**Depressional wetland in a Grassland drainage.**
	HGM class	Riverine Slope (Depressional) Lacustrine

Historical Conditions

Previous wetland typology	**Water source**	(Surface flow) Groundwater Precipitation Unknown
	Hydrodynamics	(Unidirectional) Vertical
	Geomorphic Setting (Narrative Description)	**Grassland drainage, no significant pooling naturally occuring in surrounding area**
	Previous HGM Class	(Riverine) Slope Depressional Lacustrine

Notes (include information on the AA's HGM subclass and regional subclass):

Depressional Wetland - Depressional subclasses 2 and 3 (D2/3)

ECOLOGICAL DESCRIPTION 2

Vegetation Habitat Description

US FWS habitat classification according as reported in Cowardin et al. (1979).

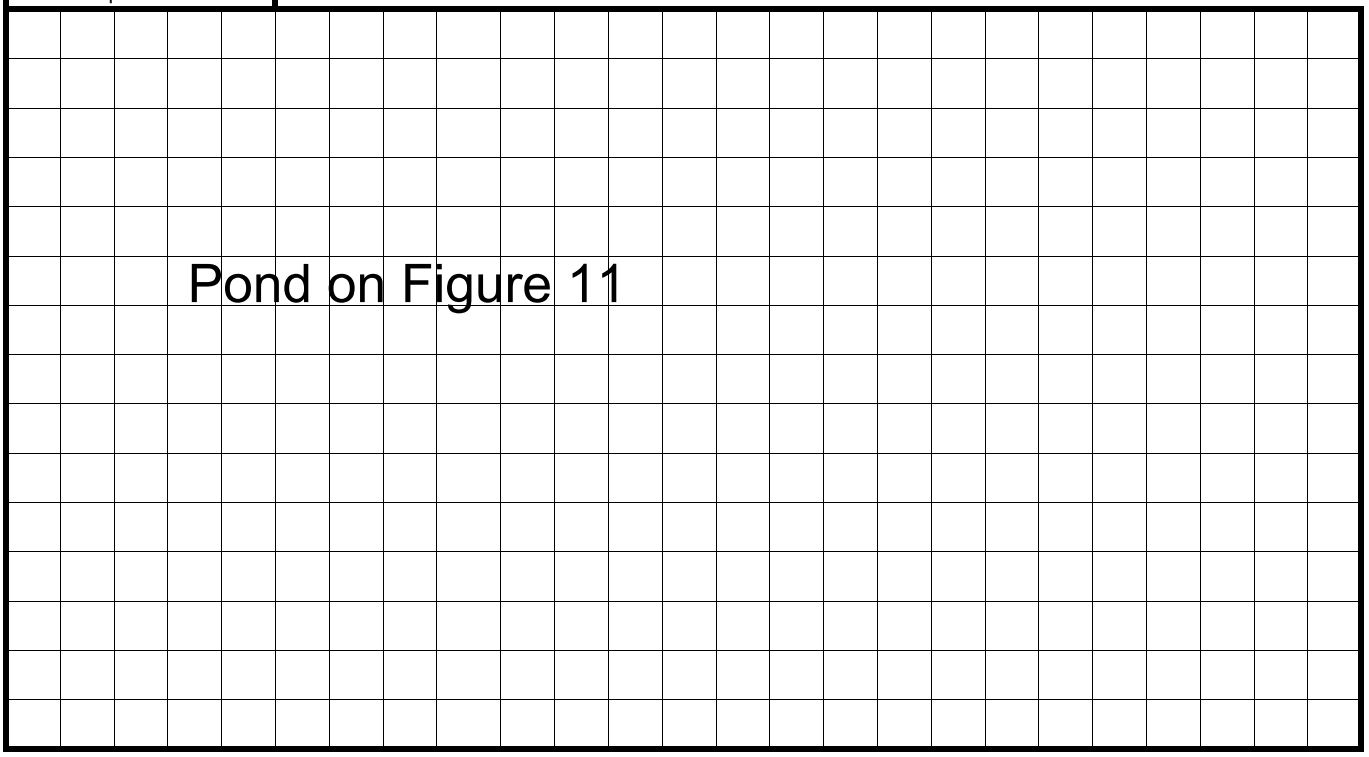
System	Subsystem	Class	Subclass	Water Regime	Other Modifiers	% AA
Riverine	**Perennial**	**Emergent**	**Rooted Vascular**	**K**	**h, x**	**0.1%**

Lacustrine	Littoral; Limnoral	Rock Bot. (RB) Uncon Bottom(UB) Aquatic Bed(AB) Rocky Shore(RS) Uncon Shore(US) Emergent(EM) Shrub-scrub(SS) Forested (FO)	Floating vascular; Rooted vascular; Algal; Persistent; Non-Persistent; Broad-leaved deciduous; Needle-leaved evergreen; Cobble - gravel; Sand; Mud; Organic	**Examples** Temporarily flooded(A); Saturated(B); Seasonally flooded(C); Seas.-flood./sat.(E); Semi-Perm. flooded(F); Intermittently exposed(G); Artificially flooded(K); Sat./semiperm./Seas. (Y); Int. exposed/permenant(Z)	Hypersaline(7) ; Eusaline(8); Mixosaline(9); Fresh(0); Acid(a); Circumneutral(c); Alkaline/calcareous(i); Organic(g); Mineral(n); Beaver(b); Partially Drained/ditched(d); Farmed(f); Diked/impounded(h); Artificial Substrate(r); Spoil(s); Excavated(x)	
Palustrine	Palustrine					
Riverine	Lower perennial; Upper perennial; Intermittent					

Site Map

Scale: 1 sq. =

Draw a sketch map of the site including relevant portions of the wetland, AA boundary, structures, habitat classes, and other significant features.



Variable 1: Habitat Connectivity

The Habitat Connectivity Variable is described by two sub-variables – Neighboring Wetland and Riparian Habitat Loss and Barriers to Migration and Dispersal. These sub-variables were treated as independent variables in FACWet Version 2.0. The merging of these variables makes their structure more consistent with that of other composite variables in FACWet. The new variable configuration also makes this landscape variable more accurately reflect the interactions amongst aquatic habitats in Colorado's agricultural and urbanized landscapes, which have a naturally low density of wetlands. The two Habitat Connectivity Sub-variables are scored in exactly the same manner as their FACWet 2.0 counterparts, as described below. The Habitat Connectivity Variable score is simply the arithmetic average of the two sub-variable scores which is entered on the second page of the Variable 1 data form. If there is little or no wetland or riparian habitat in the Habitat Connectivity Envelope (defined below), then Sub-variable 1.1 is not scored.

SV 1.1 - Neighboring Wetland and Riparian Habitat Loss
(Do not score if few or no wetlands naturally exist in the HCE)

This sub-variable is a measure of how isolated from other naturally-occurring wetlands or riparian habitat the AA has become as the result of habitat destruction. To score this sub-variable, estimate the percent of naturally-occurring wetland/riparian habitat that has been lost (by filling, draining, development, or whatever means) within the 500-meter-wide belt surrounding the AA. This zone is called the Habitat Connectivity Envelope (HCE). In most cases the evaluator must use best professional judgment to estimate the amount of natural wetland loss. Historical photographs, National Wetland Inventory (NWI) maps, hydric soil maps can be helpful in making these determinations. Floodplain maps are especially valuable in river-dominated regions, such as the Front Range urban corridor. Evaluation of landforms and habitat patterns in the context of perceivable land use change is used to steer estimates of the amount of wetland loss within the HCE.

Rules for Scoring:

1. On the aerial photo, create a 500 m perimeter around the AA.
2. The area within this perimeter is the **Habitat Connectivity Envelope (HCE)**.
3. Within the HCE, outline the current extent of naturally occurring wetland and riparian habitat. Do not include habitats such as excavated ponds or reservoir induced fringe wetlands.
4. Outline the historical extent of wetland and riparian habitats (i.e., existing natural wetlands plus those that have been destroyed).

- Use your knowledge of the history of the area and evident land use change to identify where habitat losses have occurred. Additional research can be utilized to increase the accuracy of this estimate including consideration of floodplain maps, historical aerial photographs, soil maps, etc.

5. Calculate the area of existing and historical wetlands. Divide the area of existing wetland by the total amount of existing and historical wetland and riparian habitat, and determine the variable score using the guidelines below. Enter sub-variable score at the bottom of p.2 of the Habitat Connectivity data form.

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Very little or no loss of wetlands in the HCEor negligible.
<0.9 - 0.8	***B*** *Highly Functioning*	More than 80% of historical wetland habitat area within the HCE is still present (less than 20% of habitat area lost).
<0.8 - 0.7	***C*** *Functioning*	80 to 60% of historical wetland habitat area within the HCE is still present (20% to 40% of habitat area lost).
<0.7 - 0.6	***D*** *Functioning Impaired*	Less than 60 to 25% of historical wetland habitat area within the HCE is still present (more than 40 to 75% of habitat area lost).
<0.6	***F*** *Non-functioning*	Less than 25% of the historical wetland habitat area within the HCE still in existence (more than 70% of habitat lost).

Notes: **Judge Orr Rd runs through the existing nearby wetlands and is within the 500m HCE.**

Variable 1: Habitat Connectivity p. 2

SV 1.2: Migration/Dispersal Barriers

This sub-variable is intended to rate the degree to which the AA has become isolated from existing neighboring wetland and riparian habitat by artificial barriers that inhibit migration or dispersal of organisms. On the aerial photograph, identify the man-made barriers within the HCE that intercede between the AA and surrounding wetlands and riparian areas, and identify them by type on the stressor list. Score this variable based on the barriers' impermeability to migration and dispersal and the amount of surrounding wetland/riparian habitat they affect.

Rules for Scoring:

1. On the aerial photo, outline **all** existing wetland and riparian habitat areas within the HCE. This includes naturally occurring habitats, as well as those purposefully created or induced by land use change.

2. Identify artificial barriers to dispersal and migration of organisms within the HCE that intercede between the AA and surrounding habitats. Mark the stressors present with a check in the first column and describe the general nature, severity and extent of each. List additional stressors in empty rows at the bottom of the table and explain.

3. Considering the composite effect of all of identified barriers to migration and dispersal (i.e., stressors), assign an overall variable score using the scoring guidelines.

Stressors = artificial barriers	✔	Stressors	Comments/description
		Major Highway	
	X	Secondary Highway	**2-lane paved Rd (Judge Orr Rd)**
		Tertiary Roadway	
		Railroad	
		Bike Path	
		Urban Development	
		Agricultural Development	
	X	Artificial Water Body	**Excavated ponds with Earthen dams (3)**
	X	Fence	**Surrounding property and the surrounding properties**
	X	Ditch or Aqueduct	**Ditch along the roadway**
	X	Aquatic Organism Barriers	**Dams breaking up continuous surface flow of water.**

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	No appreciable barriers exist between the AA and other wetland and riparian habitats in the HCE; or there are no other wetland and riparian areas in the HCE.
<0.9 - 0.8	***B*** *Highly Functioning*	Barriers impeding migration/dispersal between the AA and up to 33% of surrounding wetland/riparian habitat highly permeable and easily passed by most organisms. Examples could include gravel roads, minor levees, ditches or barbed-wire fences. More significant barriers (see "functioning category below) could affect migration to up to 10% of surrounding wetland/riparian habitat.
<0.8 - 0.7	***C*** *Functioning*	Barriers to migration and dispersal retard the ability of many organisms/propagules to pass between the AA and up to 66% of wetland/riparian habitat. Passage of organisms and propagules through such barriers is still possible, but it may be constrained to certain times of day, be slow, dangerous or require additional travel. Busy two-lane roads, culverted areas, small to medium artificial water bodies or small earthen dams would commonly rate a score in this range. More significant barriers (see "functioning impaired" category below) could affect migration to up to 10% of surrounding wetland/riparian
<0.7 - 0.6	***D*** *Functioning Impaired*	Barriers to migration and dispersal preclude the passage of some types of organisms/propagules between the AA and up to 66% of surrounding wetland/riparian habitat. Travel of those animals which can potential negotiate the barrier are strongly restricted and may include a high chance of mortality. Up to 33% of surrounding wetland/riparian habitat could be functionally isolated from the AA.
<0.6	***F*** *Non-functioning*	AA is essentially isolated from surrounding wetland/riparian habitat by impermeable migration and dispersal barriers. An interstate highway or concrete-lined water conveyance canal are examples of barriers which would generally create functional isolation between the AA and wetland/riparian habitat in the HCE.

SV 1.1 Score	0.89
SV 1.2 Score	0.75

Add SV 1.1 and 1.2 scores and divide by two to calculate variable score

Variable 1 Score 0.82

Variable 2: Contributing Area

The AA's Contributing Area is defined as the 250-meter-wide zone surrounding the perimeter of the AA. This variable is a measure of the capacity of that area to support characteristic functions of high quality wetland habitat. Depending on its condition, the contributing area can help maintain wetland condition or it can degrade it. Contributing Area condition is evaluated by considering the AA's Buffer and its Surrounding Land Use. Buffers are strips or patches of more-or-less natural upland and/or wetland habitat more than 5m wide. Buffers are contiguous with the AA boundary and they intercede between it and more intensively used lands. The AA Buffer is characterized with three sub-variables: Buffer Condition, Buffer Extent, and Average Buffer Width. The Surrounding Land Use Sub-variable considers changes within the Contributing Area that limit its capacity to support characteristic wetland functions. Many of the acute, on-site effects of land use change in the Contributing Area are specifically captured by Variables 3 - 8.

Rules for Scoring:

1. Delimit the Contributing Area on an aerial photograph as the zone within 250 meters of the outer boundary of the AA.
2. Evaluate and then rate the Buffer Condition sub-variable using the scoring guidelines. Record the score in the cell provided on the datasheet.
3. Indicate on the aerial photograph zones surrounding the AA which have ≥5m of buffer vegetation and those which do not.
4. Calculate the percentage of the AA which has a Buffer and record the value where indicated on the data sheet.
5. Rate the *Buffer Extent* Sub-variable using the scoring guidelines.
6. Determine the average Buffer width by drawing a line perpendicularly from the AA boundary to the outer extent of the buffer habitat. Measure line length and record its value on the data sheet. Repeat this process until a total of 8 lines have been sampled.
7. Calculate the average buffer width and record value on the data form. Then determine the sub-variable score using the scoring guidelines.
8. Score the Surrounding Land Use sub-variable by recording land use changes on the stressor list that affect the capacity of the landscape to support characteristic wetland functioning.
9. Enter the **lowest** of the three Buffer sub-variable scores along with the Surrounding Land Use Sub-variable score in the Contributing Area Variable scoring formula at the bottom of p. 2 of the data form. The Contributing Area Variable is the average of the two sub-variable scores.

SV 2.1 - Buffer Condition

0.86 ***SV 2.1 - Buffer Condition Score***

Subvariable Score	Condition Grade	Buffer Condition Scoring Guidelines
1.0 - 0.9	*Reference Standard*	Buffer vegetation is predominately native vegetation, human-caused disturbance of the substrate is not evident, and human visitation is minimal. Common examples: Wilderness areas, undeveloped forest and range lands.
<0.9 - 0.8	*Highly Functioning*	Buffer vegetation may have a mixed native-nonnative composition, but characteristic structure and complexity remain. Soils are mostly undisturbed or have recovered from past human disturbance. Little or only low-impact human visitation. Buffers with higher levels of substrate disturbance may be included here if the buffer is still able to maintain predominately native vegetation. Common examples: Dispursed camping areas in national forests, common in wildland parks (e.g. State Parks) and open spaces.
<0.8 - 0.7	*Functioning*	Buffer vegetation is substantially composed of non-native species. Vegetation structure may be somewhat altered, such as by brush clearing. Moderate substrate distrbance and compaction occurs, and small pockets of greater disturbance may exist. Common examples: City natural areas, mountain hay meadows.
<0.7 - 0.6	*Functioning Impaired*	Buffer vegetation is substantially composed of non-native species and vegetation structure has been strongly altered by the complete removal of one or more strata. Soil disturbance and the intensity of human visitation are generally high. Common examples: Open lands around resource extraction sites (e.g., gravel mines), clear cut logging areas, ski slopes.
<0.6	*Non-functioning*	Buffer is nearly or entirely absent.

SV 2.2 - Buffer Extent

1.00 Percent of AA with Buffer

1.00 ***SV 2.2 - Buffer Extent***

Subvariable Score	Condition Class	% Buffer Scoring Guidelines
1.0 - 0.9	*Reference Standard*	90 - 100% of AA with Buffer
<0.9 - 0.8	*Highly Functioning*	70-90% of AA with Buffer
<0.8 - 0.7	*Functioning*	51-69% of AA with Buffer
<0.7 - 0.6	*Functioning Impaired*	26-50% of AA with Buffer
<0.6	*Non-functioning*	0-25% of AA with Buffer

Variable 2: Contributing Area (p. 2)

SV 2.3 - Average Buffer Width

Record measured buffer widths in the spaces below and average.

Buffer Width (m)	*250*	*250*	*250*	*250*	*250*	*250*	*250*	*250*	**250**
Line #	1	2	3	4	5	6	7	8	**Avg. Buffer Width (m)**

1 ***SV 2.3 - Average Buffer Width Score***

Subvariable Score	Condition Grade	Buffer Width Scoring Guidelines
1.0 - 0.9	*Reference Standard*	Average Buffer width is 190-250m
<0.9 - 0.8	*Highly Functioning*	Average Buffer width is 101-189m
<0.8 - 0.7	*Functioning*	Average Buffer width is 31-100m
<0.7 - 0.6	*Functioning Impaired*	Average Buffer width is 6-30m
<0.6	*Non-functioning*	Average Buffer width is 0-5m

SV 2.4 - Surrounding Land Use

0.71 ***SV 2.4 - Surrounding Land Use Score***

Catalog and characterize land use changes in the surrounding landscape and score.

Stressors = Land Use Changes

✔	Stressors	Comments/description
	Industrial/commercial	
	Urban	
X	Residential	**690m N of pond are 2 residences, ~1000m E are a few more.**
	Rural	
	Dryland Farming	
	Intensive Agriculture	
	Orchards or Nurseries	
X	Livestock Grazing	**No 2020 grazing on property, but active surrounding**
X	Transportation Corridor	**Secondary road (Judge Orr Rd)**
	Urban Parklands	
X	Dams/impoundments	**Earthen dams along this wetland up and down gradient.**
X	Artificial Water body	**This and several other ponds created by excavation and dams**
	Physical Resource Extraction	
	Biological Resource Extraction	

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	No appreciable land use change has been imposed Surrounding Landscape.
<0.9 - 0.8	***B*** *Highly Functioning*	Some land use change has occurred in the Surrounding Landscape, but changes have minimal effect on the the landscape's capacity to support characteristic aquatic functioning, either because land use is not intensive, for example haying, light grazing, or low intensity silviculture, or more substantial changes occur in approximately less than 10% of the area.
<0.8 - 0.7	***C*** *Functioning*	Surrounding Landscape has been subjected to a marked shift in land use, however, the land retains much of its capacity to support natural wetland function and it is not an overt source of pollutants or sediment. Moderate-intensity land uses such as dry-land farming, urban "green" corridors, or moderate cattle grazing would commonly be placed within this scoring range.
<0.7 - 0.6	***D*** *Functioning Impaired*	Land use changes within the Surrounding Landscape has been substantial including the a moderate to high coverage (up to 50%) of impermeable surfaces, bare soil, or other artificial surfaces; considerable in-flow urban runoff or fertilizer-rich waters common. Supportive capacity of the land has been greatly diminished but not totally extinguished. Intensively logged areas, low-density urban developments, some urban parklands and many cropping situations would commonly rate a score within this range.
<0.6	***F*** *Non-functioning*	The Surrounding Landscape is essentially comletely developed or is otherwise a cause of severe ecological stress on wetland habitats. Commercial developments or highly urban landscapes generally rate a score of less than 0.6.

	Buffer Score (Lowest score)		**Surrounding Land Use**				
(	**0.86**	**+**	**0.71**	**) ÷**	2	= **Variable 2 Score**	**0.79**

Variable 3: Water Source

*This variable is concerned with **up-gradient** hydrologic connectivity. It is a measure of impacts to the AA's water source, including the quantity and timing of water delivery, and the ability of source water to perform work such as sediment transport, erosion, soil pore flushing, etc. To score this variable, identify stressors that alter the source of water to the AA, and record their presence on the stressor list. Stressors can impact water source by depletion, augmentation, or alteration of inflow timing or hydrodynamics. This variable is designed to assess water quantity, power and timing, not water quality. Water quality will be evaluated in Variable 7.*

Scoring rules:

1. Use the stressor list and knowledge of the watershed to catalog type-specific impairments of the AA's water source. Mark the stressors present with a check in the first column and describe the general nature, severity and extent of each. List additional stressors in empty rows at the bottom of the table and explain.

2. Considering the composite effect of stressors on the water source, rate the condition of this variable with the aid of the scoring guidelines.

✓	Stressors	Comments/description
X	Ditches or Drains (tile, etc.)	**Culvert under US 24**
X	Dams	**Several Earthen dams up gradient to create ponds for livestock**
	Diversions	
X	Groundwater pumping	**Several residential wells, several commercial irrigation wells**
	Draw-downs	
X	Culverts or Constrictions	**Source water crosses US 24**
X	Point Source (urban, ind., ag.)	**Housing development built at headwaters**
	Non-point Source	
	Increased Drainage Area	
	Storm Drain/Urban Runoff	
X	Impermeable Surface Runoff	**Roads, parking lots, driveways at headwaters**
X	Irrigation Return Flows	**Grounds around neighborhood at headwaters uses irrigation (base**
	Mining/Natural Gas Extraction	
	Transbasin Diversion	
	Actively Managed Hydrology	

Variable Score	Condition Grade	Depletion	Augmentation
1.0 - 0.9	***A*** *Reference Standard*	Unnatural drawdown events minor, rare or non-existent, very slight uniform depletion, or trivial alteration of hydrodynamics.	Unnatural high-water events minor, rare or non-existent, slight uniform increase in amount of inflow, or trivial alteration of hydrodynamics.
<0.9 - 0.8	***B*** *Highly Functioning*	Unnatural drawdown events occasional, short duration and/or mild; or uniform depletion up to 20%; or mild to moderate reduction of peak flows or capacity of water to perform work.	Occasional unnatural high-water events, short in duration and/or mild in intensity; or uniform augmentation up to 20%; or mild to moderate increase of peak flows or capacity of water to perform work.
<0.8 - 0.7	***C*** *Functioning*	Unnatural drawdown events common and of mild to moderate intensity and/or duration; or uniform depletion up to 50%; or moderate to substantial reduction of peak flows or capacity of water to perform work.	Common occurrence of unnatural high-water events, of a mild to moderate intensity and/or duration; or uniform augmentation up to 50%; or moderate to substantial increase of peak flows or capacity of water to perform work.
<0.7 - 0.6	***D*** *Functioning Impaired*	Unnatural drawdown events occur frequently with a moderate to high intensity and/or duration; or uniform depletion up to 75%; or substantial reduction of peak flows or capacity of water to perform work. **Wetlands with actively managed or wholly artificial hydrology will usually score in this range or lower.**	Common occurrence of unnatural high-water events, some of which may be severe in nature or exist for a substantial portion of the growing season; or uniform augmentation more than 50% or capacity of water to perform work. **Wetlands with actively managed or wholly artificial hydrology will usually score in this range or**
<0.6	***F*** *Non-functioning*	Water source diminished enough to threaten or extinguish wetland hydrology in the AA.	Frequency, duration or magnitude of unnaturally high-water great enough to change the fundamental characteristics of the wetland.

Variable 3 Score **0.81**

Variable 4: Water Distribution

This variable is concerned with hydrologic connectivity ***within*** *the AA. It is a measure of alteration to the spatial distribution of surface and groundwater within the AA. These alterations are manifested as local changes to the hydrograph and generally result from geomorphic modifications within the AA. To score this variable, identify stressors within the AA that alter flow patterns and impact the hydrograph of the AA, including localized increases or decreases to the depth or duration of the water table or surface water.*

Because the wetland's ability to distribute water in a characteristic fashion is fundamentally dependent on the condition of its water source, ***in most cases the Water Source variable score will define the upper limit Water Distribution score****. For example, if the Water Source variable is rated at 0.85, the Water Distribution score will usually have the potential to attain a maximum score of 0.85. Additional stressors within or outside the lower end of the AA effecting water distribution (e.g., ditches and levees) will reduce the score from the maximum value.*

Scoring rules:

1. Identify impacts to the natural distribution of water throughout the AA and catalog them in the stressor table.

2. Considering all of the stressors identified, assign an overall variable score using the scoring guidelines. In most cases, the Water Source variable score will set the upper limit for the Water Distribution score.

✓	Stressors	Comments/description
	Alteration of Water Source	
	Ditches	
X	Ponding/Impoundment	**The pond is artificial. It was formed through excavation**
	Culverts	
	Road Grades	
	Channel Incision/Entrenchment	
	Hardened/Engineered Channel	
	Enlarged Channel	
	Artificial Banks/Shoreline	
	Weirs	
X	Dikes/Levees/Berms	**Earthen Dam abuts the pond and is within the AA.**
	Diversions	
	Sediment/Fill Accumulation	

Variable Score	Condition Grade	Non-riverine	Riverine
1.0 - 0.9	***A*** *Reference Standard*	Little or no alteration has been made to the way in which water is distributed throughout the wetland. AA maintains a natural hydrologic regime.	Natural active floodplain areas flood on a normal recurrence interval. No evidence of alteration of flooding and subirrigation duration and intensity.
<0.9 - 0.8	***B*** *Highly Functioning*	Less than 10% of the AA is affected by *in situ* hydrologic alteration; or more widespread impacts result in less than a 2 in. (5 cm) change in mean growing season water table elevation.	Channel-adjacent areas have occasional unnatural periods of drying or flooding; or uniform shift in the hydrograph less than typical root depth.
<0.8 - 0.7	***C*** *Functioning*	Between 10 and 33% of the AA is affected by *in situ* hydrologic alteration; or more widespread impacts result in a 4 in. (5 cm) or less change in mean growing season water table elevation.	In channel-adjacent area, periods of drying or flooding are common; or uniform shift in the hydrograph near root depth.
<0.7 - 0.6	***D*** *Functioning Impaired*	33 to 66% of the AA is affected by *in situ* hydrologic alteration; or more widespread impacts result in a 6 in. (15 cm) or less change in mean growing season water table elevation. Water table behavior must still meet jurisdictional criteria to merit this rating.	Adjacent to the channel, unnatural periods of drying or flooding are the norm; or uniform shift in the hydrograph greater than root depth.
<0.6	***F*** *Non-functioning*	More than 66% of the AA is affected by hydrologic alteration which changes the fundamental functioning of the wetland system, generally exhibited as a conversion to upland or deep water habitat.	Historical active floodplain areas are almost never wetted from overbank flooding, and/or groundwater infiltration is effectively cut off.

Variable 4 Score **0.7**

Variable 5: Water Outflow

This variable is concerned with ***down-gradient*** *hydrologic connectivity and the flow of water and water-borne materials and energy out of the AA. In particular it illustrates the degree to which the AA can support the functioning of down-gradient habitats. It is a measure of impacts that affect the hydrologic outflow of water including the passage of water through its normal low- and high-flow surface outlets, infiltration/groundwater recharge, and the energetic characteristics of water delivered to dependent habitats. In some cases, alteration of evapotranspiration rates may be significant enough of a factor to consider in scoring. Score this variable by identifying stressors that impact the means by which water is exported from the AA. To evaluate this variable focus on how water, energy and associated materials are exported out of the AA and their ability it support down-gradient habitats in a manner consistent with their HGM (regional) subclass.*

Because the wetland's ability to export water and materials in a characteristic fashion is to a very large degree dependent the condition of its water source, as with the Water Distribution variable, ***in most cases the Water Source variable score will define the upper limit Water Outflow score****.*

Scoring rules:

1. Identify impacts to the natural outflow of water from the AA and catalog them in the stressor table.

2.Considering all of the stressors identified, assign an overall variable score using the scoring guidelines. Take in to account the cumulative effect of stressors on the wetland's ability to export water and water-borne materials. In most cases the Water Source variable will set the upper limit for the Water Outflow score.

✓	Stressors	Comments/description
X	Alteration of Water Source	**As previously described regarding altered surface runoff and dams up gradient**
	Ditches	
X	Dikes/Levees	**Earthen Dam in AA blocking surface flow**
	Road Grades	
	Culverts	
X	Diversions	**Dam diverts water around it only during high water events**
	Constrictions	
	Channel Incision/Entrenchment	
	Hardened/Engineered Channel	
	Artificial Stream Banks	
	Weirs	
	Confined Bridge Openings	

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Stressors have little to no effect on the magnitude, timing or hydrodynamics of the AA water outflow regime.
<0.9 - 0.8	***B*** *Highly Functioning*	High- or low-water outflows are mildly to moderately affected, but at intermediate ("normal") levels flow continues essentially unaltered in quantity or character.
<0.8 - 0.7	***C*** *Functioning*	High- or low-water outflows are moderately affected, mild alteration of intermediate level outflow occurs; or hydrodynamics moderately affected.
<0.7 - 0.6	***D*** *Functioning Impaired*	Outflow at all stages is moderately to highly impaired resulting in persistent flooding of portions of the AA or unnatural drainage; or outflow hydrodynamics severely disrupted.
<0.6	***F*** *Non-functioning*	The natural outflow regime is profoundly impaired. Down-gradient hydrologic connection severed or nearly so. Alterations may cause widespread unnatural persistent flooding or dewatering of the wetland system.

Variable 5 Score **0.65**

Variable 6: Geomorphology

This variable is a measure of the degree to which the geomorphic setting has been altered within the AA. Changes to the surface configuration and natural topography constitute stressors. Such stressors may be observed in the form of fill, excavation, dikes, sedimentation due to absence of flushing floods, etc. In riverine systems, geomorphic changes to the stream channel should be considered if the channel is within the AA (i.e, small is size). Alterations may involve the bed and bank (substrate embeddedness or morphological changes), stream instability, and stream channel reconfiguration. Geomorphic changes are usually ultimately manifested as changes to wetland surface hydrology and water relations with vegetation. Geomorphic alterations can also directly affect soil properties, such as near-surface texture, and the wetland chemical environment such as the redox state or nutrient composition in the rooting zone. In rating this variable, ***do not*** *include these resultant effects of geomorphic change; rather focus on the physical impacts* ***within the footprint*** *of the alteration* ***within the AA*** *– For example, the width and depth of a ditch or the size of a levee* ***within the AA*** *would describe the extent of the stressors. The secondary effects of geomorphic change are addressed by other variables. All alterations to geomorphology should be evaluated including small-scale impacts such as pugging, hoof sheer, and sedimentation which can be significant but not immediately obvious.*

Scoring Rules:

1. Identify impacts to geomorphological setting and topography within the AA and record them on the stressor checklist.

2.Considering all of the stressors identified, assign an overall variable score using the scoring guidelines.

✓		Stressors	Comments
X	General	Dredging/Excavation/Mining	**The pond was formed through excavation**
X		Fill, including dikes, road grades, etc	**Dam bordering the pond in the AA is fill from the excavated pond**
		Grading	
		Compaction	
		Plowing/Disking	
		Excessive Sedimentation	
		Dumping	
		Hoof Shear/Pugging	
		Aggregate or Mineral Mining	
		Sand Accumulation	
	Channels Only	Channel Instability/Over Widening	
		Excessive Bank Erosion	
		Channelization	
		Reconfigured Stream Channels	
		Artificial Banks/Shoreline	
		Beaver Dam Removal	
		Substrate Embeddedness	
		Lack or Excess of Woody Debris	

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Topography essentially unaltered from the natural state, or alterations appear to have a minimal effect on wetland functioning and condition. Patch or microtopographic complexity may be slightly altered, but native plant communities are still supported.
<0.9 - 0.8	***B*** *Highly Functioning*	Alterations to topography result in small but detectable changes to habitat conditions in some or all of the AA; or more severe impacts exist but affect less than 10% of the AA.
<0.8 - 0.7	***C*** *Functioning*	Changes to AA topography may be pervasive but generally mild to moderate in severity. May include patches of more significant habitat alteration; or more severe alterations affect up to 20 % of the AA.
<0.7 - 0.6	***D*** *Functioning Impaired*	At least one important surface type or landform has been eliminated or created; microtopography has been strongly impacted throughout most or all of the AA; or more severe alterations affect up to 50% of the AA. Evidence that widespread diminishment or alteration of native plant community exist due to physical habitat alterations. Most incidentally created wetland habitat such as that created by roadside ditches and the like would score in this range or lower.
<0.6	***F*** *Non-functioning*	Pervasive geomorphic alterations have caused a fundamental change in site character and functioning, commonly resulting in a conversion to upland or deepwater habitat.

Variable 6 Score **0.4**

Variable 7: Water and Soil Chemical Environment

This variable concerns the chemical environment of the soil and water media within the AA, including pollutants, water and soil characteristics. The origin of pollutants may be within or outside the AA. Score this variable by listing indicators of chemical stress in the AA. Consider point source and non-point sources of pollution, as well as mechanical or hydrologic changes that alter the chemical environment. Because water quality frequently cannot be inferred directly, the presence of stressors is often identified by the presence of indirect indicators. Five sub-variables are used to describe the Water and Soil Chemical Environment: Nutrient Enrichment/Eutrophication/Oxygen; Sedimentation/Turbidity; Toxic Contamination/pH; Temperature; and Soil Chemistry and Redox Potential. Utilization of web-based data mining tools is highly recommended to help inform and support variable scores.

Scoring rules:

1. Stressors are grouped into sub-variables which have a similar signature or set of causes.
2. Use the indicator list to identify each stressor impacting the chemical environment of the AA.
3. For each sub-variable, determine its score using the scoring guideline table provided on the second page of the scoring sheet. Scoring sub-variables is carried out in exactly the same way as normal variable scoring.
 -If the AA is part of a water body that is recognized as impaired or recommended for TMDL development for one of the factors, then score that sub-variable 0.65 or lower.
4. Transcribe sub-variable scores to the following variable scoring page and compute the sum.
5. The lowest sub-variable score sets the letter grade range. The composite of sub-variables influences the score within that range.

Sub-variable	Stressor Indicator	✔	Comments	Sub-variable Score
SV 7.1 Nutrient Enrichment/ Eutrophication/ Oxygen (D.O.)	Livestock	X	No grazing in '20, but in previo	0.85
	Agricultural Runoff			
	Septic/Sewage			
	Excessive Algae or Aquatic Veg.			
	Cumulative Watershed NPS			
	CDPHE Impairment/TMDL List			
SV 7.2 Sedimentation/ Turbidity	Excessive Erosion			1.00
	Excessive Deposition			
	Fine Sediment Plumes			
	Agricultural Runoff			
	Excessive Turbidity			
	Nearby Construction Site			
	Cumulative Watershed NPS			
	CDPHE Impairment/TMDL List			
SV 7.3 Toxic contamination/ pH	Recent Chemical Spills			0.83
	Nearby Industrial Sites			
	Road Drainage/Runoff	X	Several rds up gradient	
	Livestock	X	No active livestock in 2020, bu	
	Agricultural Runoff			
	Storm Water Runoff			
	Fish/Wildlife Impacts			
	Vegetation Impacts			
	Cumulative Watershed NPS			
	Acid Mine Drainage			
	Point Source Discharge			
	CDPHE Impairment/TMDL List			
	Metal staining on rocks and veg.			
SV 7.4 Temperature	Excessive Temperature Regime			0.85
	Lack of Shading	X	Other less disturbed hab. have	
	Reservoir/Power Plant Discharge			
	Industrial Discharge			
	Cumulative Watershed NPS			
	CDPHE Impairment/TMDL List			
SV 7.5 Soil chemistry/ Redox potential	Unnatural Saturation/Desaturation			1.00
	Mechanical Soil Disturbance			
	Dumping/introduced Soil			
	CDPHE Impairment/TMDL List			

Variable 7: Water and Soil Chemical Environment p.2

Sub-variable Scoring Guidelines

Variable Score	Condition Class	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Stress indicators not present or trivial.
<0.9 - 0.8	***B*** *Highly Functioning*	Stress indicators scarcely present and mild, or otherwise not occurring in more than 10% of the AA.
<0.8 - 0.7	***C*** *Functioning*	Stress indicators present at mild to moderate levels, or otherwise not occurring in more than 33% of the AA.
<0.7 - 0.6	***D*** *Functioning Impaired*	Stress indicators present at moderate to high levels, or otherwise not occurring in more than 66% of the AA
<0.6	***F*** *Non-functioning*	Stress indicators strongly evident throughout the AA at levels which apparently alter the fundamental chemical environment of the wetland system

Input each sub-variable score from p. 1 of the V7 data form and calculate the sum.

Nutrient enrichment/ Eutrophication/ Oxygen (D.O.)		Sedimentation/ Turbidity		Toxic contamination/ pH		Temperature		Soil chemistry/ Redox potential		Sum of Sub-variable Scores
0.85	+	**1.00**	+	**0.83**	+	**0.85**	+	**1.00**	=	**4.53**

Use the table to score the Chemical Environment Variable circling the applicable scoring rules.

Variable Score	Condition Grade	Scoring Rules		
		Single Factor		**Composite Score**
1.0 - 0.9	***A*** *Reference Standard*	No single factor scores < 0.9		The factor scores sum > 4.5
<0.9 - 0.8	***B*** *Highly Functioning*	Any single factor scores ≥ 0.8 but < 0.9		The factor scores sum >4.0 but ≤4.5
<0.8 - 0.7	***C*** *Functioning*	Any single factor scores ≥ 7.0 but < 0.8		The factor scores sum >3.5 but ≤ 4.0
<0.7 - 0.6	***D*** *Functioning Impaired*	Any single factor scores ≥ 0.6 but <0.7		The factor scores sum >3.0 but ≤3.5
< 0.6	***F*** *Non-functioning*	Any single factor scores < 0.6		The factor scores sum < 3.0

Variable 7 Score **0.87**

Variable 8: Vegetation Structure and Complexity

This variable is a measure of the condition of the wetland's vegetation relative to its native state. It particularly focuses on the wetland's ability to perform higher-order functions such as support of wildlife populations, and influence primary functions such as flood-flow attenuation, channel stabilization and sediment retention. Score this variable by listing stressors that have affected the structure, diversity, composition and cover of each vegetation stratum that would normally be present in the HGM (regional) subclass being assessed. For this variable, stressor severity is a measure of how much each vegetation stratum differs functionally from its natural condition or from the natural range of variability exhibited the HGM subclass or regional subclass. This variable has four sub-variables, each corresponding to a stratum of vegetation: Tree Canopy; Shrub Layer; Herbaceous Layer; and Aquatics.

Rules for Scoring:

1. Determine the number and types of vegetation layers present within the AA. Make a judgment as to whether additional layers were historically present using direct evidence such as stumps, root wads or historical photographs. Indirect evidence such as local knowledge and expert opinion can also be used in this determination.

2. Do not score vegetation layers that would not normally be present in the wetland type being assessed.

3. Estimate and record the current coverage of each vegetation layer at the top of the table.

4. Record the Reference Standard or expected percent coverage of each vegetation layer to create the sub-variable weighting factor. The condition of predominant vegetation layers has a greater influence on the variable score than do minor components.

5. Enter the percent cover values as decimals in the row of the stressor table labeled " Reference/expected Percent Cover of Layer". Note, percentages will often sum to more than 100% (1.0).

6. Determine the severity of stressors acting on each individual canopy layers, indicating their presence with checks in the appropriate boxes of the stressor table. The difference between the expected and observed stratum coverages is one measure of stratum alteration.

7. Determine the sub-variable score for each valid vegetation layer using the scoring guidelines on the second page of the scoring sheet. Enter each sub-variable score in the appropriate cell of the row labeled "Veg. Layer Sub-variable Score". If a stratum has been wholly removed score it as 0.5.

8. Multiply each layer's *Reference Percent Cover of Layer* score by its Veg. Layer Sub-variable scores and enter the products in the labled cells. These are the weighted sub-variable scores. Individually sum the *Reference Percent Cover of Layer* and *Weighted Sub-variables scores.*

9. Divide the sum of "Veg. Layer Sub-variable Scores" by the total coverage of all layers scored. This product is the Variable 8 score. Enter this number in the labeled box at the bottom of this page.

	Vegetation Layers				
Current % Coverage of Layer	**0**	**0**	**90**	**10**	
Stressor	**Tree**	**Shrub**	**Herb**	**Aquatic**	**Comments**
Noxious Weeds			x		
Exotic/Invasive spp.			x		
Tree Harvest					
Brush Cutting/Shrub Removal					
Livestock Grazing			x		**Previous years. Not 2020**
Excessive Herbivory					
Mowing/Haying					
Herbicide					
Loss of Zonation/Homogenization					
Dewatering					
Over Saturation					
DIFFERENCE BETWEEN CURRENT COVERAGE AND REFERENCE/EXPECTED	**2%**	**20%**	**10%**	**0**	

Reference/Expected % Cover of Layer	**0.02**	+	**0.20**	+	**0.80**	+	**0.10**	=	**1.12**
	x		x		x		x		
Veg. Layer Sub-variable Score	**0.5**		**0.5**		**0.78**		**0.8**	÷	
	=		=		=		=		
Weighted Sub-variable Score	**0.01**	+	**0.10**	+	**0.62**	+	**0.08**	=	**0.814**

See sub-variable scoring guidelines on following page

Variable 8 Score **0.73**

Variable 8: Vegetation Structure and Complexity p. 2

Sub-variable 8 Scoring Guidelines:

Based on the list of stressors identified above, rate the severity of their cumulative effect on vegetation structure and complexity for each vegetation layer.

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Stressors not present or with an intensity low enough as to not detectably affect the structure, diversity or composition of the vegetation layer.
<0.9 - 0.8	***B*** *Highly Functioning*	Stressors present at intensity levels sufficient to cause detectable, but minor, changes in layer composition. Stress related change should generally be less than 10% for any given attribute (e.g., 10% cover of invasive, 10% reduction in richness or cover) if the stressor is evenly distributed throughout the wetland. Stress related change could be as high as 33% for a given attribute if stressors are confined to patches comprising less than 10% of the wetland.
<0.8 - 0.7	***C*** *Functioning*	Stressors present with enough intensity to cause significant changes in the character of vegetation, including alteration of layer coverage, structural complexity and species composition. The vegetation layer retains its essential character though. AA's with a high proportion of non-native grasses will commonly fall in this class. Stress related change should generally be less than 33% for any given attribute (e.g., 33% cover of invasive, 33% reduction in richness or cover) if the stressor is evenly distributed throughout the wetland. Stress related change could be as much as 66% for a given attribute if stressors are confined to patches comprising less than 25% of the wetland.
<0.7 - 0.6	***D*** *Functioning Impaired*	Stressor intensity severe enough to cause profound changes to the fundamental character of the vegetation layer. Stress-related change should generally be less than 66% for any given attribute (e.g., 66% cover of invasive, 66% reduction in richness or cover) if the stressor is evenly distributed throughout the wetland. Stress related change could be as much as 80% of a given attribute if stressors are confined to patches comprising less than 50% of the wetland.
<0.6	***F*** *Non-functioning*	Vegetation layer has been completely removed or altered to the extent that is no longer comparable to the natural structure, diversity and composition.

FACWet Score Card

Scoring Procedure:

1. Transcribe variable scores from each variable data sheet to the corresponding cell in the variable score table.
2. In each Functional Capacity Index (FCI) equation, enter the corresponding variable scores in the equation cells. Do not enter values in the crossed cells lacking labels.
3. Add the variable scores to calculate the total functional points achieved for each function.
4. Divide the total functional points achieved by the functional points possible. The typical number of total points possible is provided, however, if a variable is added or subtracted to FCI equation the total possible points must be adjusted
5. Calculate the Composite FCI, by adding the FCI scores and dividing by the total number of functions scored (usually 7).
6. If scoring is done directly in the Excel spreadsheet, all values will be transferred and calculated automatically.

VARIABLE SCORE TABLE

Buffer & Landscape Context	**Variable 1:**	**Habitat Connectivity (Connect)**	0.82
	Variable 2:	**Contributing Area (CA)**	0.79
Hydrology	**Variable 3:**	**Water Source (Source)**	0.81
	Variable 4:	**Water Distribution (Dist)**	0.70
	Variable 5:	**Water Outflow (Outflow)**	0.65
Abiotic and Biotic Habitat	**Variable 6:**	**Geomorphology (Geom)**	0.40
	Variable 7:	**Chemical Environment (Chem)**	0.87
	Variable 8:	**Vegetation Structure and Complexity (Veg)**	0.73

Functional Capacity Indices

Function 1 -- Support of Characteristic Wildlife Habitat

$V1_{connect}$	+	$V2_{CA}$	+	$(2 \times V8_{veg})$						Total Functional Points		FCI
0.82	+	0.79	+	1.45	+		+		=	3.06	÷ 4	= 0.76

Function 2 -- Support of Characteristic Fish/aquatic Habitat

$(3 \times V3_{source})$	+	$(2 \times V4_{dist})$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+	$V7_{chem}$	+					
2.43	+	1.40	+	1.30	+	0.40	+	0.87	+		=	6.40	÷ 9	= 0.71

Function 3 -- Flood Attenuation

$V2_{CA}$	+	$(2 \times V3_{source})$	+	$(2 \times V4_{dist})$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+	$V8_{veg}$				
0.79	+	1.62	+	1.40	+	1.30	+	0.40	+	0.73	=	6.23	÷ 9	= 0.69

Function 4 -- Short- and Long-term Water Storage

$V3_{source}$	+	$(2 \times V4_{dist})$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+						
0.81	+	1.40	+	1.30	+	0.40	+		+		=	3.91	÷ 6	= 0.65

Function 5 -- Nutrient/Toxicant Removal

$(2 \times V2_{CA})$	+	$(2 \times V4_{dist})$	+	$V6_{geom}$	+	$V7_{chem}$	+						
1.57	+	1.40	+	0.40	+	0.87	+		+		=	4.24	÷ 6	= 0.71

Function 6 -- Sediment Retention/Shoreline Stabilization

$V2_{CA}$	+	$(2 \times V6_{geom})$	+	$(2 \times V8_{veg})$								
0.79	+	0.80	+	1.45	+		+		=	3.04	÷ 5	= 0.61

Function 7 -- Production Export/Food Chain Support

$V1_{connect}$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+	$V7_{chem}$	+	$(2 \times V8_{veg})$	+					
0.82	+	1.30	+	0.40	+	0.87	+	1.45	+		=	4.84	÷ 7	= 0.69

Sum of Individual FCI Scores **4.83**

Divide by the Number of Functions Scored **÷ 7**

Composite FCI Score **0.69**

ADMINISTRATIVE CHARACTERIZATION

General Information			
		Date of Evaluation:	12/8/2020
Site Name or ID:	Tributary East & Wetland 4 Perennial Surface Water Derived Features	Project Name:	Judge Orr Mitigation Bank
404 or Other Permit Application #:		Applicant Name:	Pete Lein & Sons
Evaluator Name(s):	Thomas McIntyre Jesse Dillon	Evaluator's professional position and organization:	Biologist Ecologist

Location Information:			
Site Coordinates (Decimal Degrees, e.g., 38.85, -104.96):	38.957906, -104.543206	Geographic Datum Used (NAD 83):	NAD 83 z13N
		Elevation	6753 ft
Location Information:	Bordered by Judge Orr Rd to the South, Stapleton Rd to the West, and Elbert Rd to the East		
Associated stream/water body name		Stream Order:	2nd
USGS Quadrangle Map:	Falcon Quadrangle	Map Scale: (Circle one)	1:24,000 1:100,000 Other 1:
Sub basin Name (8 digit HUC):	Chico (11020004)	Wetland Ownership:	Private: Pete Lien & Sons, Inc.

Project Information:

This evaluation is being performed at: *(Check applicable box)*
- [ ] *Project Wetland*
- [X] *Mitigation Site*

Purpose of Evaluation (check all applicable):
- [ ] *Potentially Impacted Wetlands*
- [X] *Mitigation; Pre-construction*
- [ ] *Mitigation; Post-construction*
- [ ] *Monitoring*
- [ ] *Other (Describe)*

Intent of Project: *(Check all applicable)* ☐ Restoration ☑ Enhancement ☐ Creation

Total Size of Wetland Involved: (Record Area, Check and Describe Measurement Method Used)	1.9 ac.	[X]	Measured				
		[ ]	Estimated				
Assessment Area (AA) Size (Record Area, check appropriate box. Additional spaces are used to record acreage when more than one AA is included in a single assessment)	48.4 ac.	[X]	Measured	ac.	ac.	ac.	ac.
		[ ]	Estimated	ac.	ac.	ac.	ac.
Characteristics or Method used for AA boundary determination:	Wetland delineation- boundaries surveyed with satelite imagery and verified in the field with GPS. Wetland boundary within the AOI property line.						

Notes:	This FACWet Analysis is limited to the wetlands within the Pete Lein property line. It is not a comprehensive analysis of the entire drainage of which this AA is a part

ECOLOGICAL DESCRIPTION 1

Special Concerns

Check all that apply

- [ ] Organic soils including Histosols or Histic Epipedons are present in the AA (i.e., AA includes core fen habitat).
- [ ] Project will directly impact organic soil portions of the AA including areas possessing either Histosol soils or histic epipedons.
- [ ] Organic soils are known to occur anywhere within the contiguous wetland of which the AA is part.
- [ ] The wetland is a habitat oasis in an otherwise dry or urbanized landscape?
- [ ] Federally threatened or endangered species are **KNOWN** to occur in the AA? List Below.
- [X] Federally threatened or endangered species are **SUSPECTED** to occur in the AA?

  While IPAC identifies federally threatened species in the area (mentioned below), none are likely to occur in this habitat
- [ ] Species of concern according to the Colorado Natural Heritage (CNHP) are known to occur in the AA?
- [ ] The site is located within a potential conservation area or element occurrence buffer area as determined by CNHP?
- [X] Other special concerns (please describe)

  No known species occuring in AA, but possible federally threatened spp in region: Eastern black rail, Least tern, Piping plover, Whooping crane, Greenback cutthroat Trout, Pallid sturgeon, Ute ladies'-tresses, Western prairie finged orchid

HYDROGEOMORPHIC SETTING

- [X] AA wetland maintains its fundamental natural hydrogeomorphic characteristics
- [ ] AA wetland has been subject to change in HGM classes as a result of anthropogenic modification

  If the above is checked, please describe the original wetland type if discernable using the table below.
- [ ] AA wetland was created from an upland setting.

Current Conditions

Describe the hydrogeomorphic setting of the wetland by circling all conditions that apply.

HGM Setting	**Water source**	(Surface flow) Groundwater Precipitation Unknown
	Hydrodynamics	(Unidirectional) Vertical Bi-directional
	Wetland Gradient	(0 - 2%) 2-4% 4-10% >10%
	# Surface Inlets	Over-bank 0 (1) 2 3 >3
	# Surface Outlets	0 (1) 2 3 >3
	Geomorphic Setting (Narrative Description. Include approx. stream order for riverine)	**2nd order stream in a grassland drainage, low water level**
	HGM class	(Riverine) Slope Depressional Lacustrine

Historical Conditions

Previous wetland typology	**Water source**	(Surface flow) Groundwater Precipitation Unknown
	Hydrodynamics	(Unidirectional) Vertical
	Geomorphic Setting (Narrative Description)	**2nd order stream in a grassland drainage, low water level**
	Previous HGM Class	(Riverine) Slope Depressional Lacustrine

Notes (include information on the AA's HGM subclass and regional subclass):

Riverine subclass 5 (R5)

ECOLOGICAL DESCRIPTION 2

Vegetation Habitat Description

US FWS habitat classification according as reported in Cowardin et al. (1979).

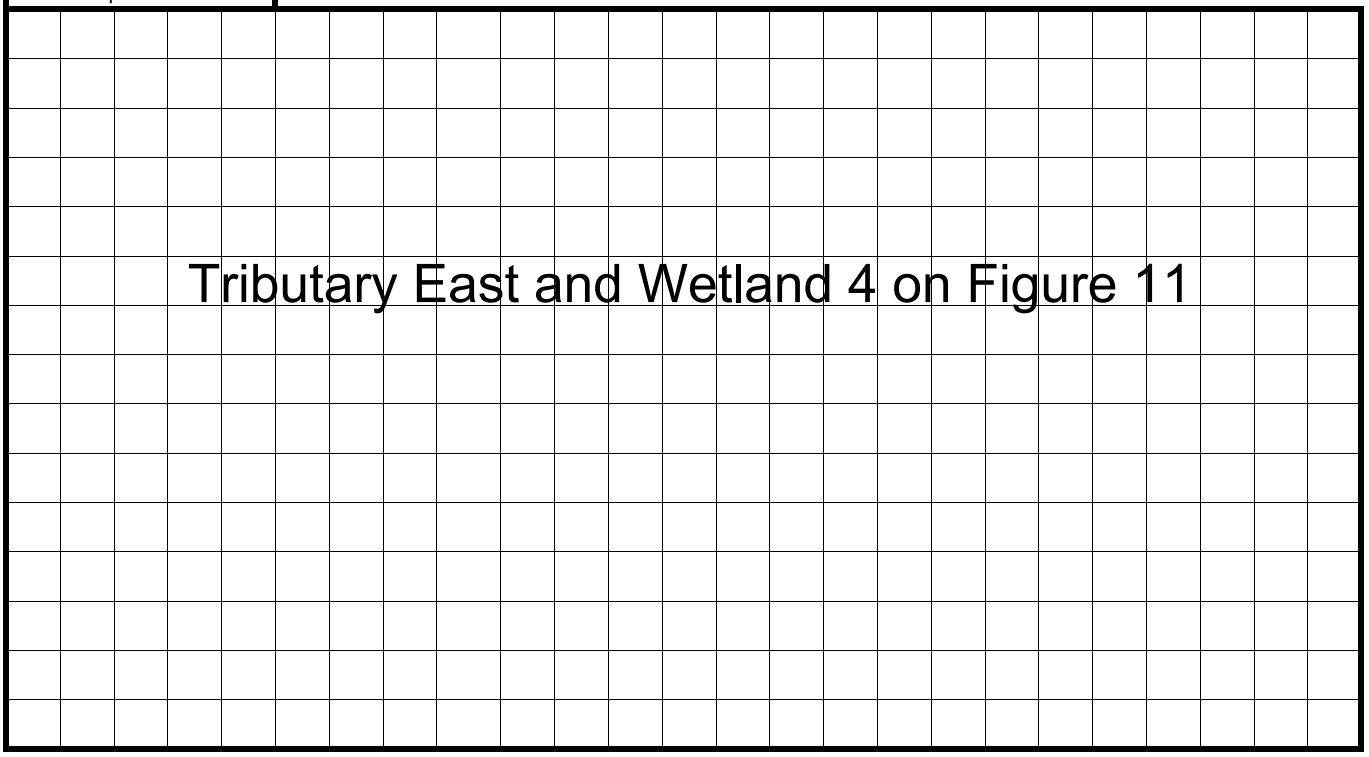
System	Subsystem	Class	Subclass	Water Regime	Other Modifiers	% AA
Riverine	**Perennial**	**Emergent**	**Rooted vascular**	**Z**	**0**	**5%**

Lacustrine	Littoral; Limnoral	Rock Bot. (RB) Uncon Bottom(UB) Aquatic Bed(AB) Rocky Shore(RS) Uncon Shore(US) Emergent(EM) Shrub-scrub(SS) Forested (FO)	Floating vascular; Rooted vascular; Algal; Persistent; Non-Persistent; Broad-leaved deciduous; Needle-leaved evergreen; Cobble - gravel; Sand; Mud; Organic	**Examples** Temporarily flooded(A); Saturated(B); Seasonally flooded(C); Seas.-flood./sat.(E); Semi-Perm. flooded(F); Intermittently exposed(G); Artificially flooded(K); Sat./semiperm./Seas. (Y); Int. exposed/permenant(Z)	Hypersaline(7) ; Eusaline(8); Mixosaline(9); Fresh(0); Acid(a); Circumneutral(c); Alkaline/calcareous(i); Organic(g); Mineral(n); Beaver(b); Partially Drained/ditched(d); Farmed(f); Diked/impounded(h); Artificial Substrate(r); Spoil(s); Excavated(x)	
Palustrine	Palustrine					
Riverine	Lower perennial; Upper perennial; Intermittent					

Site Map

Scale: 1 sq. =

Draw a sketch map of the site including relevant portions of the wetland, AA boundary, structures, habitat classes, and other significant features.



Variable 1: Habitat Connectivity

The Habitat Connectivity Variable is described by two sub-variables – Neighboring Wetland and Riparian Habitat Loss and Barriers to Migration and Dispersal. These sub-variables were treated as independent variables in FACWet Version 2.0. The merging of these variables makes their structure more consistent with that of other composite variables in FACWet. The new variable configuration also makes this landscape variable more accurately reflect the interactions amongst aquatic habitats in Colorado's agricultural and urbanized landscapes, which have a naturally low density of wetlands. The two Habitat Connectivity Sub-variables are scored in exactly the same manner as their FACWet 2.0 counterparts, as described below. The Habitat Connectivity Variable score is simply the arithmetic average of the two sub-variable scores which is entered on the second page of the Variable 1 data form. If there is little or no wetland or riparian habitat in the Habitat Connectivity Envelope (defined below), then Sub-variable 1.1 is not scored.

SV 1.1 - Neighboring Wetland and Riparian Habitat Loss
(Do not score if few or no wetlands naturally exist in the HCE)

This sub-variable is a measure of how isolated from other naturally-occurring wetlands or riparian habitat the AA has become as the result of habitat destruction. To score this sub-variable, estimate the percent of naturally-occurring wetland/riparian habitat that has been lost (by filling, draining, development, or whatever means) within the 500-meter-wide belt surrounding the AA. This zone is called the Habitat Connectivity Envelope (HCE). In most cases the evaluator must use best professional judgment to estimate the amount of natural wetland loss. Historical photographs, National Wetland Inventory (NWI) maps, hydric soil maps can be helpful in making these determinations. Floodplain maps are especially valuable in river-dominated regions, such as the Front Range urban corridor. Evaluation of landforms and habitat patterns in the context of perceivable land use change is used to steer estimates of the amount of wetland loss within the HCE.

Rules for Scoring:

1. On the aerial photo, create a 500 m perimeter around the AA.
2. The area within this perimeter is the **Habitat Connectivity Envelope (HCE)**.
3. Within the HCE, outline the current extent of naturally occurring wetland and riparian habitat. Do not include habitats such as excavated ponds or reservoir induced fringe wetlands.
4. Outline the historical extent of wetland and riparian habitats (i.e., existing natural wetlands plus those that have been destroyed).

- Use your knowledge of the history of the area and evident land use change to identify where habitat losses have occurred. Additional research can be utilized to increase the accuracy of this estimate including consideration of floodplain maps, historical aerial photographs, soil maps, etc.

5. Calculate the area of existing and historical wetlands. Divide the area of existing wetland by the total amount of existing and historical wetland and riparian habitat, and determine the variable score using the guidelines below. Enter sub-variable score at the bottom of p.2 of the Habitat Connectivity data form.

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Very little or no loss of wetlands in the HCEor negligible.
<0.9 - 0.8	***B*** *Highly Functioning*	More than 80% of historical wetland habitat area within the HCE is still present (less than 20% of habitat area lost).
<0.8 - 0.7	***C*** *Functioning*	80 to 60% of historical wetland habitat area within the HCE is still present (20% to 40% of habitat area lost).
<0.7 - 0.6	***D*** *Functioning Impaired*	Less than 60 to 25% of historical wetland habitat area within the HCE is still present (more than 40 to 75% of habitat area lost).
<0.6	***F*** *Non-functioning*	Less than 25% of the historical wetland habitat area within the HCE still in existence (more than 70% of habitat lost).

Notes: **Judge Orr Rd bisects historical wetland**

Variable 1: Habitat Connectivity p. 2

SV 1.2: Migration/Dispersal Barriers

This sub-variable is intended to rate the degree to which the AA has become isolated from existing neighboring wetland and riparian habitat by artificial barriers that inhibit migration or dispersal of organisms. On the aerial photograph, identify the man-made barriers within the HCE that intercede between the AA and surrounding wetlands and riparian areas, and identify them by type on the stressor list. Score this variable based on the barriers' impermeability to migration and dispersal and the amount of surrounding wetland/riparian habitat they affect.

Rules for Scoring:

1. On the aerial photo, outline **all** existing wetland and riparian habitat areas within the HCE. This includes naturally occurring habitats, as well as those purposefully created or induced by land use change.

2. Identify artificial barriers to dispersal and migration of organisms within the HCE that intercede between the AA and surrounding habitats. Mark the stressors present with a check in the first column and describe the general nature, severity and extent of each. List additional stressors in empty rows at the bottom of the table and explain.

3. Considering the composite effect of all of identified barriers to migration and dispersal (i.e., stressors), assign an overall variable score using the scoring guidelines.

Stressors = artificial barriers

✔	Stressors	Comments/description
	Major Highway	
X	Secondary Highway	**2-lane paved road (Judge Orr Rd)**
	Tertiary Roadway	
	Railroad	
	Bike Path	
	Urban Development	
	Agricultural Development	
X	Artificial Water Body	**Ponds created by dams**
X	Fence	**Surrounding property and more on surrounding properties**
X	Ditch or Aqueduct	**Ditch along the roadway**
X	Aquatic Organism Barriers	**Earthen dams breakup the continuous surface flow of water**

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	No appreciable barriers exist between the AA and other wetland and riparian habitats in the HCE; or there are no other wetland and riparian areas in the HCE.
<0.9 - 0.8	***B*** *Highly Functioning*	Barriers impeding migration/dispersal between the AA and up to 33% of surrounding wetland/riparian habitat highly permeable and easily passed by most organisms. Examples could include gravel roads, minor levees, ditches or barbed-wire fences. More significant barriers (see "functioning category below) could affect migration to up to 10% of surrounding wetland/riparian habitat.
<0.8 - 0.7	***C*** *Functioning*	Barriers to migration and dispersal retard the ability of many organisms/propagules to pass between the AA and up to 66% of wetland/riparian habitat. Passage of organisms and propagules through such barriers is still possible, but it may be constrained to certain times of day, be slow, dangerous or require additional travel. Busy two-lane roads, culverted areas, small to medium artificial water bodies or small earthen dams would commonly rate a score in this range. More significant barriers (see "functioning impaired" category below) could affect migration to up to 10% of surrounding wetland/riparian
<0.7 - 0.6	***D*** *Functioning Impaired*	Barriers to migration and dispersal preclude the passage of some types of organisms/propagules between the AA and up to 66% of surrounding wetland/riparian habitat. Travel of those animals which can potential negotiate the barrier are strongly restricted and may include a high chance of mortality. Up to 33% of surrounding wetland/riparian habitat could be functionally isolated from the AA.
<0.6	***F*** *Non-functioning*	AA is essentially isolated from surrounding wetland/riparian habitat by impermeable migration and dispersal barriers. An interstate highway or concrete-lined water conveyance canal are examples of barriers which would generally create functional isolation between the AA and wetland/riparian habitat in the HCE.

SV 1.1 Score	0.89
SV 1.2 Score	0.75

Add SV 1.1 and 1.2 scores and divide by two to calculate variable score

Variable 1 Score 0.82

Variable 2: Contributing Area

The AA's Contributing Area is defined as the 250-meter-wide zone surrounding the perimeter of the AA. This variable is a measure of the capacity of that area to support characteristic functions of high quality wetland habitat. Depending on its condition, the contributing area can help maintain wetland condition or it can degrade it. Contributing Area condition is evaluated by considering the AA's Buffer and its Surrounding Land Use. Buffers are strips or patches of more-or-less natural upland and/or wetland habitat more than 5m wide. Buffers are contiguous with the AA boundary and they intercede between it and more intensively used lands. The AA Buffer is characterized with three sub-variables: Buffer Condition, Buffer Extent, and Average Buffer Width. The Surrounding Land Use Sub-variable considers changes within the Contributing Area that limit its capacity to support characteristic wetland functions. Many of the acute, on-site effects of land use change in the Contributing Area are specifically captured by Variables 3 - 8.

Rules for Scoring:

1. Delimit the Contributing Area on an aerial photograph as the zone within 250 meters of the outer boundary of the AA.
2. Evaluate and then rate the Buffer Condition sub-variable using the scoring guidelines. Record the score in the cell provided on the datasheet.
3. Indicate on the aerial photograph zones surrounding the AA which have ≥5m of buffer vegetation and those which do not.
4. Calculate the percentage of the AA which has a Buffer and record the value where indicated on the data sheet.
5. Rate the *Buffer Extent* Sub-variable using the scoring guidelines.
6. Determine the average Buffer width by drawing a line perpendicularly from the AA boundary to the outer extent of the buffer habitat. Measure line length and record its value on the data sheet. Repeat this process until a total of 8 lines have been sampled.
7. Calculate the average buffer width and record value on the data form. Then determine the sub-variable score using the scoring guidelines.
8. Score the Surrounding Land Use sub-variable by recording land use changes on the stressor list that affect the capacity of the landscape to support characteristic wetland functioning.
9. Enter the **lowest** of the three Buffer sub-variable scores along with the Surrounding Land Use Sub-variable score in the Contributing Area Variable scoring formula at the bottom of p. 2 of the data form. The Contributing Area Variable is the average of the two sub-variable scores.

SV 2.1 - Buffer Condition

0.86 ***SV 2.1 - Buffer Condition Score***

Subvariable Score	Condition Grade	Buffer Condition Scoring Guidelines
1.0 - 0.9	*Reference Standard*	Buffer vegetation is predominately native vegetation, human-caused disturbance of the substrate is not evident, and human visitation is minimal. Common examples: Wilderness areas, undeveloped forest and range lands.
<0.9 - 0.8	*Highly Functioning*	Buffer vegetation may have a mixed native-nonnative composition, but characteristic structure and complexity remain. Soils are mostly undisturbed or have recovered from past human disturbance. Little or only low-impact human visitation. Buffers with higher levels of substrate disturbance may be included here if the buffer is still able to maintain predominately native vegetation. Common examples: Dispursed camping areas in national forests, common in wildland parks (e.g. State Parks) and open spaces.
<0.8 - 0.7	*Functioning*	Buffer vegetation is substantially composed of non-native species. Vegetation structure may be somewhat altered, such as by brush clearing. Moderate substrate distrbance and compaction occurs, and small pockets of greater disturbance may exist. Common examples: City natural areas, mountain hay meadows.
<0.7 - 0.6	*Functioning Impaired*	Buffer vegetation is substantially composed of non-native species and vegetation structure has been strongly altered by the complete removal of one or more strata. Soil disturbance and the intensity of human visitation are generally high. Common examples: Open lands around resource extraction sites (e.g., gravel mines), clear cut logging areas, ski slopes.
<0.6	*Non-functioning*	Buffer is nearly or entirely absent.

SV 2.2 - Buffer Extent

1.00 Percent of AA with Buffer

1.00 ***SV 2.2 - Buffer Extent***

Subvariable Score	Condition Class	% Buffer Scoring Guidelines
1.0 - 0.9	*Reference Standard*	90 - 100% of AA with Buffer
<0.9 - 0.8	*Highly Functioning*	70-90% of AA with Buffer
<0.8 - 0.7	*Functioning*	51-69% of AA with Buffer
<0.7 - 0.6	*Functioning Impaired*	26-50% of AA with Buffer
<0.6	*Non-functioning*	0-25% of AA with Buffer

Variable 2: Contributing Area (p. 2)

SV 2.3 - Average Buffer Width

Record measured buffer widths in the spaces below and average.

Buffer Width (m)	***250***	***250***	***250***	***250***	***250***	***250***	***250***	***243***	***249***
Line #	1	2	3	4	5	6	7	8	**Avg. Buffer Width (m)**

1

SV 2.3 - Average Buffer Width Score

Subvariable Score	Condition Grade	Buffer Width Scoring Guidelines
1.0 - 0.9	*Reference Standard*	Average Buffer width is 190-250m
<0.9 - 0.8	*Highly Functioning*	Average Buffer width is 101-189m
<0.8 - 0.7	*Functioning*	Average Buffer width is 31-100m
<0.7 - 0.6	*Functioning Impaired*	Average Buffer width is 6-30m
<0.6	*Non-functioning*	Average Buffer width is 0-5m

SV 2.4 - Surrounding Land Use

0.71

SV 2.4 - Surrounding Land Use Score

Catalog and characterize land use changes in the surrounding landscape and score.

Stressors = Land Use Changes

✔	Stressors	Comments/description
	Industrial/commercial	
	Urban	
X	Residential	**~430m N of pond are 2 residences, ~745m E are a few more.**
	Rural	
	Dryland Farming	
	Intensive Agriculture	
	Orchards or Nurseries	
X	Livestock Grazing	**No 2020 grazing on property, but active surrounding**
X	Transportation Corridor	**Secondary road (Judge Orr Rd)**
	Urban Parklands	
X	Dams/impoundments	**Earthen dams along this wetland up and down gradient.**
X	Artificial Water body	**This and several other ponds created by excavation and dams**
	Physical Resource Extraction	
	Biological Resource Extraction	

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	No appreciable land use change has been imposed Surrounding Landscape.
<0.9 - 0.8	***B*** *Highly Functioning*	Some land use change has occurred in the Surrounding Landscape, but changes have minimal effect on the the landscape's capacity to support characteristic aquatic functioning, either because land use is not intensive, for example haying, light grazing, or low intensity silviculture, or more substantial changes occur in approximately less than 10% of the area.
<0.8 - 0.7	***C*** *Functioning*	Surrounding Landscape has been subjected to a marked shift in land use, however, the land retains much of its capacity to support natural wetland function and it is not an overt source of pollutants or sediment. Moderate-intensity land uses such as dry-land farming, urban "green" corridors, or moderate cattle grazing would commonly be placed within this scoring range.
<0.7 - 0.6	***D*** *Functioning Impaired*	Land use changes within the Surrounding Landscape has been substantial including the a moderate to high coverage (up to 50%) of impermeable surfaces, bare soil, or other artificial surfaces; considerable in-flow urban runoff or fertilizer-rich waters common. Supportive capacity of the land has been greatly diminished but not totally extinguished. Intensively logged areas, low-density urban developments, some urban parklands and many cropping situations would commonly rate a score within this range.
<0.6	***F*** *Non-functioning*	The Surrounding Landscape is essentially comletely developed or is otherwise a cause of severe ecological stress on wetland habitats. Commercial developments or highly urban landscapes generally rate a score of less than 0.6.

	Buffer Score (Lowest score)		**Surrounding Land Use**				
(	**0.86**	**+**	**0.71**	**) ÷**	2	= **Variable 2 Score**	**0.79**

Variable 3: Water Source

*This variable is concerned with **up-gradient** hydrologic connectivity. It is a measure of impacts to the AA's water source, including the quantity and timing of water delivery, and the ability of source water to perform work such as sediment transport, erosion, soil pore flushing, etc. To score this variable, identify stressors that alter the source of water to the AA, and record their presence on the stressor list. Stressors can impact water source by depletion, augmentation, or alteration of inflow timing or hydrodynamics. This variable is designed to assess water quantity, power and timing, not water quality. Water quality will be evaluated in Variable 7.*

Scoring rules:

1. Use the stressor list and knowledge of the watershed to catalog type-specific impairments of the AA's water source. Mark the stressors present with a check in the first column and describe the general nature, severity and extent of each. List additional stressors in empty rows at the bottom of the table and explain.

2. Considering the composite effect of stressors on the water source, rate the condition of this variable with the aid of the scoring guidelines.

✔	Stressors	Comments/description
	Ditches or Drains (tile, etc.)	**Culvert under US 24**
X	Dams	**Several Earthen dams up gradient to create ponds for livestock**
	Diversions	
X	Groundwater pumping	**Several residential wells, several commercial irrigation wells**
	Draw-downs	
X	Culverts or Constrictions	**Source water crosses US 24**
	Point Source (urban, ind., ag.)	**Housing development built at headwaters**
	Non-point Source	
	Increased Drainage Area	
X	Storm Drain/Urban Runoff	**Large housing development near headwaters for adjacent wetland**
X	Impermeable Surface Runoff	**Roads, parking lots, driveways at headwaters**
X	Irrigation Return Flows	**Grounds around neighborhood at headwaters uses irrigation (base**
	Mining/Natural Gas Extraction	
	Transbasin Diversion	
	Actively Managed Hydrology	

Variable Score	Condition Grade	Depletion	Augmentation
1.0 - 0.9	***A*** *Reference Standard*	Unnatural drawdown events minor, rare or non-existent, very slight uniform depletion, or trivial alteration of hydrodynamics.	Unnatural high-water events minor, rare or non-existent, slight uniform increase in amount of inflow, or trivial alteration of hydrodynamics.
<0.9 - 0.8	***B*** *Highly Functioning*	Unnatural drawdown events occasional, short duration and/or mild; or uniform depletion up to 20%; or mild to moderate reduction of peak flows or capacity of water to perform work.	Occasional unnatural high-water events, short in duration and/or mild in intensity; or uniform augmentation up to 20%; or mild to moderate increase of peak flows or capacity of water to perform work.
<0.8 - 0.7	***C*** *Functioning*	Unnatural drawdown events common and of mild to moderate intensity and/or duration; or uniform depletion up to 50%; or moderate to substantial reduction of peak flows or capacity of water to perform work.	Common occurrence of unnatural high-water events, of a mild to moderate intensity and/or duration; or uniform augmentation up to 50%; or moderate to substantial increase of peak flows or capacity of water to perform work.
<0.7 - 0.6	***D*** *Functioning Impaired*	Unnatural drawdown events occur frequently with a moderate to high intensity and/or duration; or uniform depletion up to 75%; or substantial reduction of peak flows or capacity of water to perform work. **Wetlands with actively managed or wholly artificial hydrology will usually score in this range or lower.**	Common occurrence of unnatural high-water events, some of which may be severe in nature or exist for a substantial portion of the growing season; or uniform augmentation more than 50% or capacity of water to perform work. **Wetlands with actively managed or wholly artificial hydrology will usually score in this range or**
<0.6	***F*** *Non-functioning*	Water source diminished enough to threaten or extinguish wetland hydrology in the AA.	Frequency, duration or magnitude of unnaturally high-water great enough to change the fundamental characteristics of the wetland.

Variable 3 Score **0.81**

Variable 4: Water Distribution

This variable is concerned with hydrologic connectivity ***within*** *the AA. It is a measure of alteration to the spatial distribution of surface and groundwater within the AA. These alterations are manifested as local changes to the hydrograph and generally result from geomorphic modifications within the AA. To score this variable, identify stressors within the AA that alter flow patterns and impact the hydrograph of the AA, including localized increases or decreases to the depth or duration of the water table or surface water.*

Because the wetland's ability to distribute water in a characteristic fashion is fundamentally dependent on the condition of its water source, ***in most cases the Water Source variable score will define the upper limit Water Distribution score****. For example, if the Water Source variable is rated at 0.85, the Water Distribution score will usually have the potential to attain a maximum score of 0.85. Additional stressors within or outside the lower end of the AA effecting water distribution (e.g., ditches and levees) will reduce the score from the maximum value.*

Scoring rules:

1. Identify impacts to the natural distribution of water throughout the AA and catalog them in the stressor table.

2. Considering all of the stressors identified, assign an overall variable score using the scoring guidelines. In most cases, the Water Source variable score will set the upper limit for the Water Distribution score.

✓	Stressors	Comments/description
X	Alteration of Water Source	**As mentioned in Variable 3**
	Ditches	
	Ponding/Impoundment	
	Culverts	
	Road Grades	
	Channel Incision/Entrenchment	
	Hardened/Engineered Channel	
	Enlarged Channel	
	Artificial Banks/Shoreline	
	Weirs	
	Dikes/Levees/Berms	
X	Diversions	**Small diversion west of channel**
	Sediment/Fill Accumulation	

Variable Score	Condition Grade	Non-riverine	Riverine
1.0 - 0.9	***A*** *Reference Standard*	Little or no alteration has been made to the way in which water is distributed throughout the wetland. AA maintains a natural hydrologic regime.	Natural active floodplain areas flood on a normal recurrence interval. No evidence of alteration of flooding and subirrigation duration and intensity.
<0.9 - 0.8	***B*** *Highly Functioning*	Less than 10% of the AA is affected by *in situ* hydrologic alteration; or more widespread impacts result in less than a 2 in. (5 cm) change in mean growing season water table elevation.	Channel-adjacent areas have occasional unnatural periods of drying or flooding; or uniform shift in the hydrograph less than typical root depth.
<0.8 - 0.7	***C*** *Functioning*	Between 10 and 33% of the AA is affected by *in situ* hydrologic alteration; or more widespread impacts result in a 4 in. (5 cm) or less change in mean growing season water table elevation.	In channel-adjacent area, periods of drying or flooding are common; or uniform shift in the hydrograph near root depth.
<0.7 - 0.6	***D*** *Functioning Impaired*	33 to 66% of the AA is affected by *in situ* hydrologic alteration; or more widespread impacts result in a 6 in. (15 cm) or less change in mean growing season water table elevation. Water table behavior must still meet jurisdictional criteria to merit this rating.	Adjacent to the channel, unnatural periods of drying or flooding are the norm; or uniform shift in the hydrograph greater than root depth.
<0.6	***F*** *Non-functioning*	More than 66% of the AA is affected by hydrologic alteration which changes the fundamental functioning of the wetland system, generally exhibited as a conversion to upland or deep water habitat.	Historical active floodplain areas are almost never wetted from overbank flooding, and/or groundwater infiltration is effectively cut off.

Variable 4 Score **0.78**

Variable 5: Water Outflow

This variable is concerned with ***down-gradient*** *hydrologic connectivity and the flow of water and water-borne materials and energy out of the AA. In particular it illustrates the degree to which the AA can support the functioning of down-gradient habitats. It is a measure of impacts that affect the hydrologic outflow of water including the passage of water through its normal low- and high-flow surface outlets, infiltration/groundwater recharge, and the energetic characteristics of water delivered to dependent habitats. In some cases, alteration of evapotranspiration rates may be significant enough of a factor to consider in scoring. Score this variable by identifying stressors that impact the means by which water is exported from the AA. To evaluate this variable focus on how water, energy and associated materials are exported out of the AA and their ability it support down-gradient habitats in a manner consistent with their HGM (regional) subclass.*

Because the wetland's ability to export water and materials in a characteristic fashion is to a very large degree dependent the condition of its water source, as with the Water Distribution variable, ***in most cases the Water Source variable score will define the upper limit Water Outflow score****.*

Scoring rules:

1. Identify impacts to the natural outflow of water from the AA and catalog them in the stressor table.

2.Considering all of the stressors identified, assign an overall variable score using the scoring guidelines. Take in to account the cumulative effect of stressors on the wetland's ability to export water and water-borne materials. In most cases the Water Source variable will set the upper limit for the Water Outflow score.

✓	Stressors	Comments/description
X	Alteration of Water Source	**Up gradient impacts**
	Ditches	
	Dikes/Levees	
	Road Grades	
	Culverts	
	Diversions	
	Constrictions	
	Channel Incision/Entrenchment	
	Hardened/Engineered Channel	
	Artificial Stream Banks	
	Weirs	
	Confined Bridge Openings	

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Stressors have little to no effect on the magnitude, timing or hydrodynamics of the AA water outflow regime.
<0.9 - 0.8	***B*** *Highly Functioning*	High- or low-water outflows are mildly to moderately affected, but at intermediate ("normal") levels flow continues essentially unaltered in quantity or character.
<0.8 - 0.7	***C*** *Functioning*	High- or low-water outflows are moderately affected, mild alteration of intermediate level outflow occurs; or hydrodynamics moderately affected.
<0.7 - 0.6	***D*** *Functioning Impaired*	Outflow at all stages is moderately to highly impaired resulting in persistent flooding of portions of the AA or unnatural drainage; or outflow hydrodynamics severely disrupted.
<0.6	***F*** *Non-functioning*	The natural outflow regime is profoundly impaired. Down-gradient hydrologic connection severed or nearly so. Alterations may cause widespread unnatural persistent flooding or dewatering of the wetland system.

Variable 5 Score **0.78**

Variable 6: Geomorphology

This variable is a measure of the degree to which the geomorphic setting has been altered within the AA. Changes to the surface configuration and natural topography constitute stressors. Such stressors may be observed in the form of fill, excavation, dikes, sedimentation due to absence of flushing floods, etc. In riverine systems, geomorphic changes to the stream channel should be considered if the channel is within the AA (i.e, small is size). Alterations may involve the bed and bank (substrate embeddedness or morphological changes), stream instability, and stream channel reconfiguration. Geomorphic changes are usually ultimately manifested as changes to wetland surface hydrology and water relations with vegetation. Geomorphic alterations can also directly affect soil properties, such as near-surface texture, and the wetland chemical environment such as the redox state or nutrient composition in the rooting zone. In rating this variable, ***do not*** *include these resultant effects of geomorphic change; rather focus on the physical impacts* ***within the footprint*** *of the alteration* ***within the AA*** *– For example, the width and depth of a ditch or the size of a levee* ***within the AA*** *would describe the extent of the stressors. The secondary effects of geomorphic change are addressed by other variables. All alterations to geomorphology should be evaluated including small-scale impacts such as pugging, hoof sheer, and sedimentation which can be significant but not immediately obvious.*

Scoring Rules:

1. Identify impacts to geomorphological setting and topography within the AA and record them on the stressor checklist.

2.Considering all of the stressors identified, assign an overall variable score using the scoring guidelines.

✓		Stressors	Comments
	General	Dredging/Excavation/Mining	
		Fill, including dikes, road grades, etc	
		Grading	
		Compaction	
		Plowing/Disking	
		Excessive Sedimentation	
		Dumping	
X		Hoof Shear/Pugging	**Hoof shear along banks of stream and within it.**
		Aggregate or Mineral Mining	
		Sand Accumulation	
	Channels Only	Channel Instability/Over Widening	
		Excessive Bank Erosion	
		Channelization	
		Reconfigured Stream Channels	
		Artificial Banks/Shoreline	
		Beaver Dam Removal	
		Substrate Embeddedness	
		Lack or Excess of Woody Debris	

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Topography essentially unaltered from the natural state, or alterations appear to have a minimal effect on wetland functioning and condition. Patch or microtopographic complexity may be slightly altered, but native plant communities are still supported.
<0.9 - 0.8	***B*** *Highly Functioning*	Alterations to topography result in small but detectable changes to habitat conditions in some or all of the AA; or more severe impacts exist but affect less than 10% of the AA.
<0.8 - 0.7	***C*** *Functioning*	Changes to AA topography may be pervasive but generally mild to moderate in severity. May include patches of more significant habitat alteration; or more severe alterations affect up to 20 % of the AA.
<0.7 - 0.6	***D*** *Functioning Impaired*	At least one important surface type or landform has been eliminated or created; microtopography has been strongly impacted throughout most or all of the AA; or more severe alterations affect up to 50% of the AA. Evidence that widespread diminishment or alteration of native plant community exist due to physical habitat alterations. Most incidentally created wetland habitat such as that created by roadside ditches and the like would score in this range or lower.
<0.6	***F*** *Non-functioning*	Pervasive geomorphic alterations have caused a fundamental change in site character and functioning, commonly resulting in a conversion to upland or deepwater habitat.

Variable 6 Score **0.85**

Variable 7: Water and Soil Chemical Environment

This variable concerns the chemical environment of the soil and water media within the AA, including pollutants, water and soil characteristics. The origin of pollutants may be within or outside the AA. Score this variable by listing indicators of chemical stress in the AA. Consider point source and non-point sources of pollution, as well as mechanical or hydrologic changes that alter the chemical environment. Because water quality frequently cannot be inferred directly, the presence of stressors is often identified by the presence of indirect indicators. Five sub-variables are used to describe the Water and Soil Chemical Environment: Nutrient Enrichment/Eutrophication/Oxygen; Sedimentation/Turbidity; Toxic Contamination/pH; Temperature; and Soil Chemistry and Redox Potential. Utilization of web-based data mining tools is highly recommended to help inform and support variable scores.

Scoring rules:

1. Stressors are grouped into sub-variables which have a similar signature or set of causes.
2. Use the indicator list to identify each stressor impacting the chemical environment of the AA.
3. For each sub-variable, determine its score using the scoring guideline table provided on the second page of the scoring sheet. Scoring sub-variables is carried out in exactly the same way as normal variable scoring.
 -If the AA is part of a water body that is recognized as impaired or recommended for TMDL development for one of the factors, then score that sub-variable 0.65 or lower.
4. Transcribe sub-variable scores to the following variable scoring page and compute the sum.
5. The lowest sub-variable score sets the letter grade range. The composite of sub-variables influences the score within that range.

Sub-variable	Stressor Indicator	✓	Comments	Sub-variable Score
SV 7.1 Nutrient Enrichment/ Eutrophication/ Oxygen (D.O.)	Livestock	X	No '20 grazing, but in previous	0.85
	Agricultural Runoff			
	Septic/Sewage			
	Excessive Algae or Aquatic Veg.			
	Cumulative Watershed NPS			
	CDPHE Impairment/TMDL List			
SV 7.2 Sedimentation/ Turbidity	Excessive Erosion			1.00
	Excessive Deposition			
	Fine Sediment Plumes			
	Agricultural Runoff			
	Excessive Turbidity			
	Nearby Construction Site			
	Cumulative Watershed NPS			
	CDPHE Impairment/TMDL List			
SV 7.3 Toxic contamination/ pH	Recent Chemical Spills			0.83
	Nearby Industrial Sites			
	Road Drainage/Runoff	X	Several rds upgradient	
	Livestock	X	No '20 grazing, but active on su	
	Agricultural Runoff			
	Storm Water Runoff			
	Fish/Wildlife Impacts			
	Vegetation Impacts			
	Cumulative Watershed NPS			
	Acid Mine Drainage			
	Point Source Discharge			
	CDPHE Impairment/TMDL List			
	Metal staining on rocks and veg.			
SV 7.4 Temperature	Excessive Temperature Regime			0.85
	Lack of Shading	X	Other less disturbed hab. have	
	Reservoir/Power Plant Discharge			
	Industrial Discharge			
	Cumulative Watershed NPS			
	CDPHE Impairment/TMDL List			
SV 7.5 Soil chemistry/ Redox potential	Unnatural Saturation/Desaturation			1.00
	Mechanical Soil Disturbance			
	Dumping/introduced Soil			
	CDPHE Impairment/TMDL List			

Variable 7: Water and Soil Chemical Environment p.2

Sub-variable Scoring Guidelines

Variable Score	Condition Class	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Stress indicators not present or trivial.
<0.9 - 0.8	***B*** *Highly Functioning*	Stress indicators scarcely present and mild, or otherwise not occurring in more than 10% of the AA.
<0.8 - 0.7	***C*** *Functioning*	Stress indicators present at mild to moderate levels, or otherwise not occurring in more than 33% of the AA.
<0.7 - 0.6	***D*** *Functioning Impaired*	Stress indicators present at moderate to high levels, or otherwise not occurring in more than 66% of the AA
<0.6	***F*** *Non-functioning*	Stress indicators strongly evident throughout the AA at levels which apparently alter the fundamental chemical environment of the wetland system

Input each sub-variable score from p. 1 of the V7 data form and calculate the sum.

Nutrient enrichment/ Eutrophication/ Oxygen (D.O.)		Sedimentation/ Turbidity		Toxic contamination/ pH		Temperature		Soil chemistry/ Redox potential		Sum of Sub-variable Scores
0.85	+	**1.00**	+	**0.83**	+	**0.85**	+	**1.00**	=	**4.53**

Use the table to score the Chemical Environment Variable circling the applicable scoring rules.

Variable Score	Condition Grade	Scoring Rules		
		Single Factor		**Composite Score**
1.0 - 0.9	***A*** *Reference Standard*	No single factor scores < 0.9		The factor scores sum > 4.5
<0.9 - 0.8	***B*** *Highly Functioning*	Any single factor scores ≥ 0.8 but < 0.9		The factor scores sum >4.0 but ≤4.5
<0.8 - 0.7	***C*** *Functioning*	Any single factor scores ≥ 7.0 but < 0.8		The factor scores sum >3.5 but ≤ 4.0
<0.7 - 0.6	***D*** *Functioning Impaired*	Any single factor scores ≥ 0.6 but <0.7		The factor scores sum >3.0 but ≤3.5
< 0.6	***F*** *Non-functioning*	Any single factor scores < 0.6		The factor scores sum < 3.0

Variable 7 Score **0.87**

Variable 8: Vegetation Structure and Complexity

This variable is a measure of the condition of the wetland's vegetation relative to its native state. It particularly focuses on the wetland's ability to perform higher-order functions such as support of wildlife populations, and influence primary functions such as flood-flow attenuation, channel stabilization and sediment retention. Score this variable by listing stressors that have affected the structure, diversity, composition and cover of each vegetation stratum that would normally be present in the HGM (regional) subclass being assessed. For this variable, stressor severity is a measure of how much each vegetation stratum differs functionally from its natural condition or from the natural range of variability exhibited the HGM subclass or regional subclass. This variable has four sub-variables, each corresponding to a stratum of vegetation: Tree Canopy; Shrub Layer; Herbaceous Layer; and Aquatics.

Rules for Scoring:

1. Determine the number and types of vegetation layers present within the AA. Make a judgment as to whether additional layers were historically present using direct evidence such as stumps, root wads or historical photographs. Indirect evidence such as local knowledge and expert opinion can also be used in this determination.

2. Do not score vegetation layers that would not normally be present in the wetland type being assessed.

3. Estimate and record the current coverage of each vegetation layer at the top of the table.

4. Record the Reference Standard or expected percent coverage of each vegetation layer to create the sub-variable weighting factor. The condition of predominant vegetation layers has a greater influence on the variable score than do minor components.

5. Enter the percent cover values as decimals in the row of the stressor table labeled " Reference/expected Percent Cover of Layer". Note, percentages will often sum to more than 100% (1.0).

6. Determine the severity of stressors acting on each individual canopy layers, indicating their presence with checks in the appropriate boxes of the stressor table. The difference between the expected and observed stratum coverages is one measure of stratum alteration.

7. Determine the sub-variable score for each valid vegetation layer using the scoring guidelines on the second page of the scoring sheet. Enter each sub-variable score in the appropriate cell of the row labeled "Veg. Layer Sub-variable Score". If a stratum has been wholly removed score it as 0.5.

8. Multiply each layer's *Reference Percent Cover of Layer* score by its Veg. Layer Sub-variable scores and enter the products in the labled cells. These are the weighted sub-variable scores. Individually sum the *Reference Percent Cover of Layer* and *Weighted Sub-variables scores.*

9. Divide the sum of "Veg. Layer Sub-variable Scores" by the total coverage of all layers scored. This product is the Variable 8 score. Enter this number in the labeled box at the bottom of this page.

	Vegetation Layers				
Current % Coverage of Layer	**0**	**0**	**90**	**10**	
Stressor	**Tree**	**Shrub**	**Herb**	**Aquatic**	**Comments**
Noxious Weeds			X		
Exotic/Invasive spp.			X		
Tree Harvest					
Brush Cutting/Shrub Removal					
Livestock Grazing		X	X		**Not this year (limited 2020 impact)**
Excessive Herbivory					
Mowing/Haying					
Herbicide					
Loss of Zonation/Homogenization					
Dewatering					
Over Saturation					
DIFFERENCE BETWEEN CURRENT COVERAGE AND REFERENCE/EXPECTED	**2%**	**20%**	**10%**	**0%**	

Reference/Expected % Cover of Layer	**0.02**	+	**0.20**	+	**0.80**	+	**0.10**	=	**1.12**
	x		x		x		x		
Veg. Layer Sub-variable Score	**0.5**		**0.5**		**0.78**		**0.94**	÷	**See sub-variable scoring guidelines on following page**
	=		=		=		=		
Weighted Sub-variable Score	**0.01**	+	**0.10**	+	**0.62**	+	**0.09**	=	**0.828**

Variable 8 Score **0.74**

Variable 8: Vegetation Structure and Complexity p. 2

Sub-variable 8 Scoring Guidelines:

Based on the list of stressors identified above, rate the severity of their cumulative effect on vegetation structure and complexity for each vegetation layer.

Variable Score	Condition Grade	Scoring Guidelines
1.0 - 0.9	***A*** *Reference Standard*	Stressors not present or with an intensity low enough as to not detectably affect the structure, diversity or composition of the vegetation layer.
<0.9 - 0.8	***B*** *Highly Functioning*	Stressors present at intensity levels sufficient to cause detectable, but minor, changes in layer composition. Stress related change should generally be less than 10% for any given attribute (e.g., 10% cover of invasive, 10% reduction in richness or cover) if the stressor is evenly distributed throughout the wetland. Stress related change could be as high as 33% for a given attribute if stressors are confined to patches comprising less than 10% of the wetland.
<0.8 - 0.7	***C*** *Functioning*	Stressors present with enough intensity to cause significant changes in the character of vegetation, including alteration of layer coverage, structural complexity and species composition. The vegetation layer retains its essential character though. AA's with a high proportion of non-native grasses will commonly fall in this class. Stress related change should generally be less than 33% for any given attribute (e.g., 33% cover of invasive, 33% reduction in richness or cover) if the stressor is evenly distributed throughout the wetland. Stress related change could be as much as 66% for a given attribute if stressors are confined to patches comprising less than 25% of the wetland.
<0.7 - 0.6	***D*** *Functioning Impaired*	Stressor intensity severe enough to cause profound changes to the fundamental character of the vegetation layer. Stress-related change should generally be less than 66% for any given attribute (e.g., 66% cover of invasive, 66% reduction in richness or cover) if the stressor is evenly distributed throughout the wetland. Stress related change could be as much as 80% of a given attribute if stressors are confined to patches comprising less than 50% of the wetland.
<0.6	***F*** *Non-functioning*	Vegetation layer has been completely removed or altered to the extent that is no longer comparable to the natural structure, diversity and composition.

FACWet Score Card

Scoring Procedure:

1. Transcribe variable scores from each variable data sheet to the corresponding cell in the variable score table.
2. In each Functional Capacity Index (FCI) equation, enter the corresponding variable scores in the equation cells. Do not enter values in the crossed cells lacking labels.
3. Add the variable scores to calculate the total functional points achieved for each function.
4. Divide the total functional points achieved by the functional points possible. The typical number of total points possible is provided, however, if a variable is added or subtracted to FCI equation the total possible points must be adjusted
5. Calculate the Composite FCI, by adding the FCI scores and dividing by the total number of functions scored (usually 7).
6. If scoring is done directly in the Excel spreadsheet, all values will be transferred and calculated automatically.

VARIABLE SCORE TABLE

Buffer & Landscape Context	**Variable 1:**	**Habitat Connectivity (Connect)**	0.82
	Variable 2:	**Contributing Area (CA)**	0.79
Hydrology	**Variable 3:**	**Water Source (Source)**	0.81
	Variable 4:	**Water Distribution (Dist)**	0.78
	Variable 5:	**Water Outflow (Outflow)**	0.78
Abiotic and Biotic Habitat	**Variable 6:**	**Geomorphology (Geom)**	0.85
	Variable 7:	**Chemical Environment (Chem)**	0.87
	Variable 8:	**Vegetation Structure and Complexity (Veg)**	0.74

Functional Capacity Indices

Function 1 -- Support of Characteristic Wildlife Habitat

$V1_{connect}$	+	$V2_{CA}$	+	$(2 \times V8_{veg})$						Total Functional Points		FCI
0.82	+	0.79	+	1.48	+		+		=	3.08	÷ 4	= 0.77

Function 2 -- Support of Characteristic Fish/aquatic Habitat

$(3 \times V3_{source})$	+	$(2 \times V4_{dist})$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+	$V7_{chem}$						
2.43	+	1.56	+	1.56	+	0.85	+	0.87	+		=	7.27	÷ 9	= 0.81

Function 3 -- Flood Attenuation

$V2_{CA}$	+	$(2 \times V3_{source})$	+	$(2 \times V4_{dist})$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+	$V8_{veg}$				
0.79	+	1.62	+	1.56	+	1.56	+	0.85	+	0.74	=	7.11	÷ 9	= 0.79

Function 4 -- Short- and Long-term Water Storage

$V3_{source}$	+	$(2 \times V4_{dist})$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$							
0.81	+	1.56	+	1.56	+	0.85	+		+		=	4.78	÷ 6	= 0.80

Function 5 -- Nutrient/Toxicant Removal

$(2 \times V2_{CA})$	+	$(2 \times V4_{dist})$	+	$V6_{geom}$		$V7_{chem}$							
1.57	+	1.56	+	0.85	+	0.87	+		+		=	4.85	÷ 6	= 0.81

Function 6 -- Sediment Retention/Shoreline Stabilization

$V2_{CA}$	+	$(2 \times V6_{geom})$	+	$(2 \times V8_{veg})$								
0.79	+	1.70	+	1.48	+		+		=	3.96	÷ 5	= 0.79

Function 7 -- Production Export/Food Chain Support

$V1_{connect}$	+	$(2 \times V5_{outflow})$	+	$V6_{geom}$	+	$V7_{chem}$	+	$(2 \times V8_{veg})$					
0.82	+	1.56	+	0.85	+	0.87	+	1.48	+		=	5.58	÷ 7	= 0.80

Sum of Individual FCI Scores 5.56

Divide by the Number of Functions Scored ÷ 7

Composite FCI Score 0.79

Appendix E

The USFWS IPaC Query Results

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

El Paso County, Colorado

Local office

Colorado Ecological Services Field Office

(303) 236-4773
(303) 236-4005

MAILING ADDRESS
Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486

PHYSICAL ADDRESS
134 Union Boulevard, Suite 670
Lakewood, CO 80228-1807

http://www.fws.gov/coloradoES
http://www.fws.gov/platteriver

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS

Eastern Black Rail Laterallus jamaicensis ssp. jamaicensis — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/10477

Piping Plover Charadrius melodus — Threatened
This species only needs to be considered if the following condition applies:
- Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska.

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/6039

Whooping Crane Grus americana — Endangered
This species only needs to be considered if the following condition applies:
- Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska.

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/758

Fishes

NAME	STATUS

Greenback Cutthroat Trout Oncorhynchus clarkii stomias — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2775

Pallid Sturgeon Scaphirhynchus albus — Endangered
Wherever found
This species only needs to be considered if the following condition applies:
- Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7162

Insects

NAME	STATUS

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Ute Ladies'-tresses Spiranthes diluvialis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2159	Threatened
Western Prairie Fringed Orchid Platanthera praeclara Wherever found This species only needs to be considered if the following condition applies: • Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1669	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

THERE ARE NO MIGRATORY BIRDS OF CONSERVATION CONCERN EXPECTED TO OCCUR AT THIS LOCATION.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds

guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid

or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix F

Real Estate Records and Assurances

BEFORE THE COLORADO GROUND WATER COMMISSION

UPPER BLACK SQUIRREL CREEK DESIGNATED GROUND WATER BASIN AND UPPER BLACK SQUIRREL CREEK GROUND WATER MANAGEMENT DISTRICT - EL PASO COUNTY

TAKE NOTICE that pursuant to Section 37-90-107(7), C.R.S., Pete Lien & Sons, Inc. (hereinafter "applicant") has applied for determinations of water right to allow the withdrawal of designated ground water from the Laramie-Fox Hills, Arapahoe and Denver aquifers underlying 92.47 acres generally described as a portion of the S1/2 of the SW1/4 and a portion of the west 528 feet of the SW1/4 of the SE1/4, all in Section 34, Township 12 South, Range 64 West, 6th P.M.. The applicant claims ownership of this land and control of the ground water in the above described aquifers under this property. The ground water from these allocations will be used on the described property for the following beneficial uses: industrial, commercial and irrigation. The maximum allowable annual amount of ground water in the aquifer underlying the described property will be allocated.

In accordance with Section 37-90-107(7), C.R.S., and the Designated Basin Rules, 2 CCR 410-1, the Colorado Ground Water Commission shall allocate ground water from the above aquifers based on ownership of the overlying land and an aquifer life of one hundred years. A preliminary evaluation of the application by the Commission Staff finds the annual amount of water available for allocation from the aquifers underlying the above-described property to be 28.4 acre-feet for the Laramie-Fox Hills aquifer, 32.2 acre-feet for the Arapahoe aquifer and 31.4 acre-feet for the Denver aquifer, subject to final staff evaluation. The estimated available annual acre-feet allocation for each aquifer may be increased or decreased by the Commission to conform to the actual aquifer characteristics, based upon site specific data.

In accordance with Rule 5.3.6 of the Designated Basin Rules, the Commission Staff's preliminary evaluation of the application finds the replacement water requirement status for the aquifers underlying the above-described property to be nontributary for the Laramie-Fox Hills aquifer, nontributary for the Arapahoe aquifer and not-nontributary (4% replacement) for the Denver aquifer.

Upon Commission approval of the determination of water right, well permits for wells to withdraw the allowed allocation shall be available upon application, subject to the conditions of the determination and the Designated Basin Rules and subject to approval by the Commission. Such wells must be completed in the aquifer and must be located on the above-described 92.47 acre property.

Any person wishing to object to the approval of these determinations of water right must do so in writing, briefly stating the nature of the objection and indicating the above applicant, property description and specific aquifers that are the subject of the objection. The objection must be accompanied by a $10 fee per aquifer and must be received by the Commission Staff, Colorado Ground Water Commission, 1313 Sherman Street, Room 821, Denver, Colorado 80203, by June 8, 2019.

VERIFICATION OF MINERAL CONSULTANT

STATE OF WYOMING)
) SS.
COUNTY OF GOSHEN)

I, James E. Wann, being of lawful age, and being first duly sworn upon my oath, depose and state that I am a Mineral Title Consultant, that I reviewed the mineral estate more particularly described on EXHIBIT "A" attached hereto and situated in El Paso County, Colorado, with the express purpose of identifying record title ownership of this estate effective November 2, 2018 that I prepared the MINERAL OWNERSHIP VERIFICATION dated November 2, 2018, attached hereto as Exhibit "A", that I am the individual stated in the MINERAL OWNERSHIP VERIFICATION, that I have read and understand the contents thereof, that I executed said instrument, and that the facts set forth in the MINERAL OWNERSHIP VERIFICATION dated November 2, 2018, are true as I verily believe.

James E. Wann

Subscribed and sworn to before me this 5th day of November, 2018, by James E. Wann.

Witness my hand and official seal.

Notary Public

My Commission Expires:

Jan 13, 2019

DONNA ATWOOD NOTARY PUBLIC GOSHEN COUNTY, WYOMING My Commission Expires Jan 13, 2019

EXHIBIT "A"

I. LEGAL DESCRIPTION

- **S1/2SW1/4 and the West 528 feet of the SW1/4SE1/4 of Section 34, Township 12 South, Range 64 West, 6th P.M. excepting therefrom those parcels conveyed to El Paso County, Colorado recorded April 28, 2015 under reception numbers 215041107 & 215041110B.**

II. MINERAL OWNERSHIP

- **Pete Lien & Sons, Inc. – 100.00%**

III. RECORDS REVIEWED

- **Office of Clerk and Recorder, El Paso County, Colorado**
- **Office of Assessor, El Paso County, Colorado**

Legal Description for Judge Orr Property

FROM THE COUNTY

S2SW4, W528.0 ft of SW4SE4 SEC 34-12-64, EX PT TO COUNTY BY REC #215041107 & 2015041108

FROM THE WARRANTY DEED

THE SOUTH HALF OF THE SOUTHWEST QUARTER AND THE WEST 528 FEET OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 12 SOUTH, RANGE 64 WEST OF THE 6TH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, EXCEPTING THEREFROM THOSE PARCELS CONVEYED TO EL PASO COUNTY RECORDED APRIL 28, 2015 UNDER RECEPTION NOS. 215041107 AND 215041108

Appendix G

Cultural Report

CENTENNIAL ARCHAEOLOGY

300 E. Boardwalk, 4-C, Fort Collins, CO 80525 | Phone 1-970-225-6575 | Fax 1-970-225-6577 | www.centennialarchaeology.com

May 25, 2022

Mr. Jesse Dillion
Cedar Creek Associates, Inc.
PO Box 272150
Fort Collins, CO 80527

Re: Class I File Search for the Proposed Judge Orr Wetland Mitigation Bank Project in El Paso County, Colorado

Dear Mr. Dillon:

The results of a Class I cultural resource investigation for the Proposed Judge Orr Wetland Mitigation Bank project are provided in this letter report. The property is situated in the Town of Falcon in El Paso County, Colorado (Figure 1). The project area (Figure 2) encompasses 92.47 acres and includes one parcel located in El Paso County. The locale is situated at the northeast corner of the intersection of Judge Orr Road and Stapleton Road. It is in the S ½ of Section 34 of Township 12 South – Range 64 West. Because project work actively involves a wetland, permitting will be required from the U.S. Army Corps of Engineers (USACE). Consideration of cultural resources is required under Section 106 of the National Historic Preservation Act due to the regulatory role of the USACE in permitting the project. Project proponents determined that a Class I (desktop literature review/file search) is needed to provide an overview of potential cultural resources (archaeological and historic) in the project area. Cedar Creek Associates, Inc. contracted Centennial Archaeology LLC (Centennial) to conduct this file search and prepare the resulting letter report.

The Class I file search area includes the subject property as well as a 0.5-mile-wide buffer extending in all directions from the project area. The study area was chosen to limit the file search results to relevant sites that might fall within or very near the property and that could, accordingly, be impacted by the proposed work. It intersects all or portions of:

- Sections 33-35 Township 12 South – Range 64 West
- Sections 2-4 of Township 13 South – Range 64 West

File search information was accessed through the Colorado Office of Archaeology and Historic Preservation (OAHP) Compass and General-Purpose Viewer (GPV) web applications; GIS shapefiles of sites and surveys were also obtained from the OAHP. The results of the file search include National Register of Historic Places (NRHP) properties and districts. The GIS shapefiles were received on May 17, 2022. Historic maps including General Land Office (GLO) survey plats

and USGS topographic maps were also inspected to identify historic trails, transportation routes, and other historic resources that, if they still exist, may intersect the study area. Supplemental data including materials on file with El Paso County, Colorado Department of Water Resources structure records, and images provided by Google Earth were also consulted. For this investigation, the standard minimum age criterion of 50 years was applied when determining if a resource meets the threshold of a historic property. For this project, it was assumed that work will be conducted in 2023 at the latest. Accordingly, the threshold for this project was set at 1973 and a built-environment feature would have to have been constructed in or before 1973 to be considered historic.

OAHP Data

Records on file with the OAHP reveal that no sites or surveys have been conducted within the larger file search area, and no sites or surveys are known to intersect the boundaries of the project area.

Assessor's Data

A review of parcel data available through the El Paso County Assessor's office shows that the project area includes one parcel. This parcel does not contain any buildings or structures, and it is designated by the county as agricultural grazing land.

Map Data

No buildings, roads, or structures are depicted within the file search study area on either the 1868 GLO Original Survey Map for Township 12 South – Range 64 West or on the 1871 GLO Original Survey Map for Township 13 South – Range 64 West. A review of historic USGS topographic quadrangle maps from 1893 through 1975 indicates that several major and minor roadways, two buildings, the Gieck Ranch, and two small and unnamed reservoirs as well as their associated dams are historic in age. The 1909 Colorado Spring 1:125,000-scale USGS topographic quadrangle map shows Judge Orr Road, Elbert Road, Curtis Road, Gieck Ranch, and a building to the south of Judge Orr Road that was likely associated with a small-scale farm or ranch in the file search area. The 1940 Falcon 1:24,000-scale USGS topographic quadrangle map continues to show the aforementioned resources as well as a small, unnamed reservoir in the greater file search area. Depicted within the project area is another small reservoir and dam placed along a small intermittent water drainage. This reservoir and dam are in the SW ¼ of the SE ¼ of Section 34 of Township 12 South – Range 64 West. Also illustrated in the project area on the 1940 Falcon topographic map is a two-track road that extends northeast approximately 0.15 mi for from Judge Orr Road to the dam. At this point, the road passes over the dam. From here, it transcends northeast for 150 m and then north once more for 0.25 mi where it ends at Gieck Ranch. The road, reservoir, and dam are all observable on current satellite images of the area available through Google Earth. No additional resources were illustrated within the file search area on the 1975 Falcon 1:24,000-scale USGS topographic map, and from 1940 to 1975, the area appears to have been largely unchanged.

Colorado Division of Water Resources (DWR)

Research conducted through the Colorado's Decisions Support Systems (CDSS) database available through the DWR produced no results. No reservoirs, ditches, named creeks, or water tributary are listed in the file search area or within the boundaries of the proposed project area.

Given the lack of information, the reservoir noted as being within the project area on the 1940 map is thought to be a minor, local structure and not a major project associated with one of the significant water control and diversion systems in the state.

It should be noted that the file search data mainly reflect prior investigations, and do not necessarily include all cultural resources in the project area. A comprehensive field survey would be necessary to identify the full range of sites.

Please contact me (egarner@centennialarch.com or 970-225-6575) if you have questions or need additional information.

Sincerely,

Eva Garner
Project Director / Historian

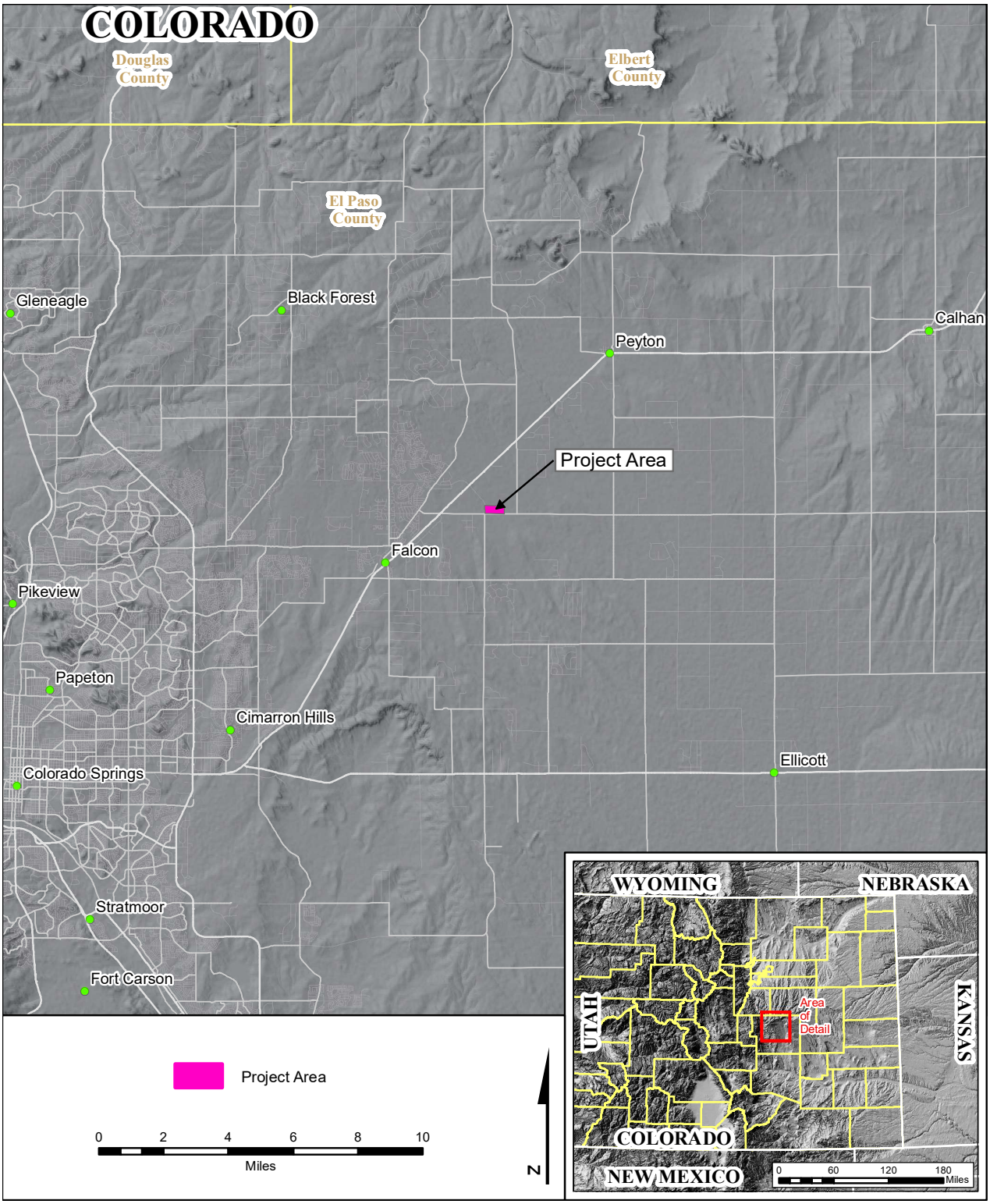

Figure 1. Map of central Colorado showing the general location of the Proposed Judge Orr Wetland Mitigation Bank project area.

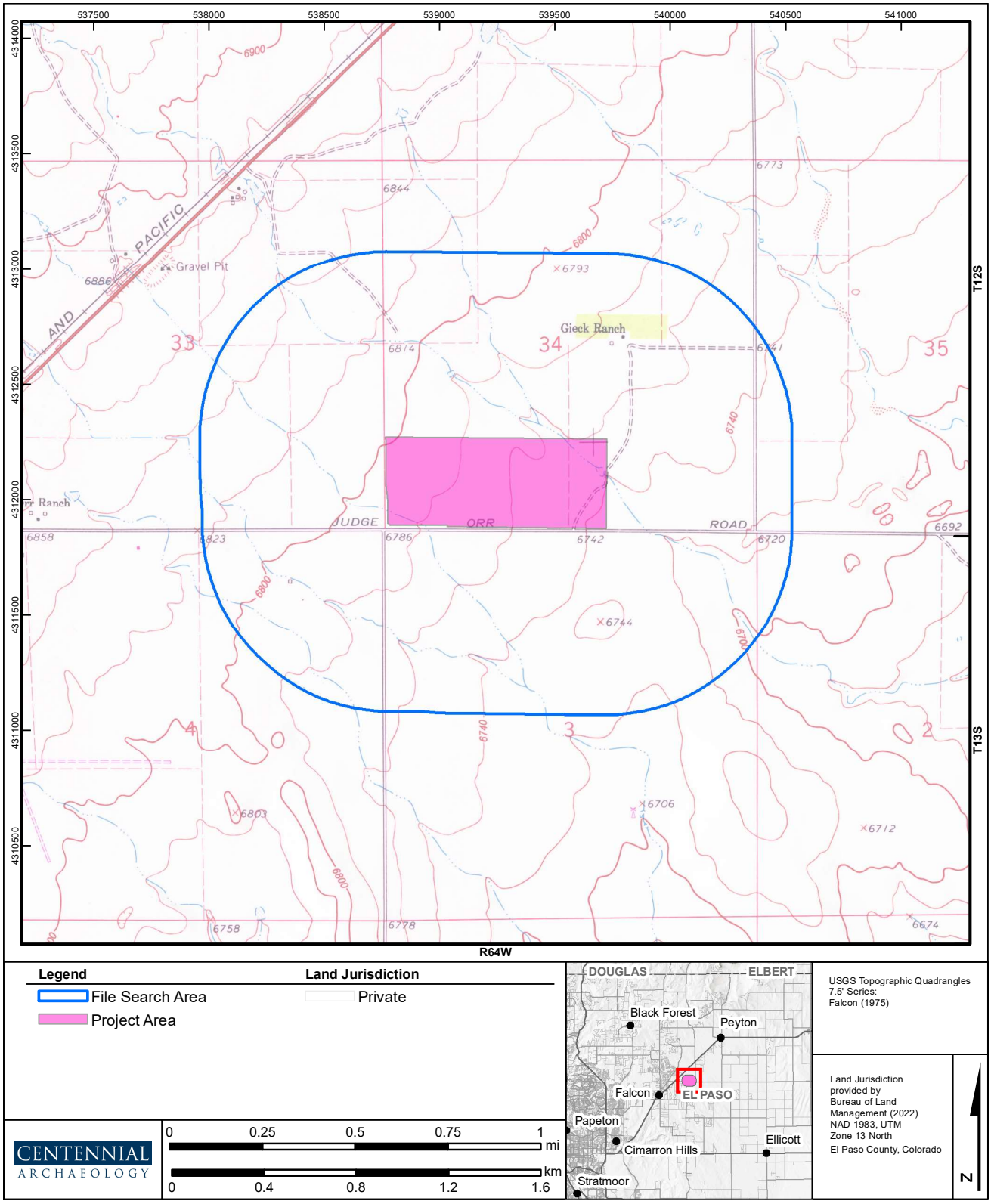

Figure 2. 1:24,000-scale map of the Proposed Judge Orr Wetland Mitigation Bank file search area.