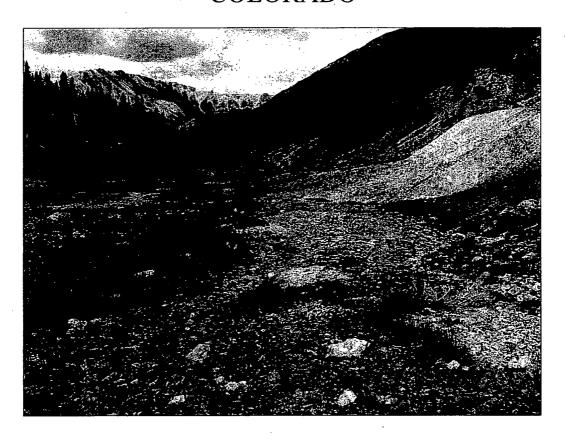
FINAL REPORT



START 3 - CEMENT CREEK 000001 WETLAND AND SENSITIVE HABITAT FINDINGS REPORT

SAN JUAN COUNTY COLORADO



Prepared for: URS Operating Services 1099 18th Street, Suite 710 Denver, Colorado 80202-8080

January 2012

URS

8181 East Tufts Avenue Denver, Colorado 80237 260A3



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The Animas River basin has been the site of intense mining since the first claims to mineral deposits in the Animas Basin in 1873. Over a century of gold, silver, zinc, and lead extraction has resulted in tens of thousands of tons of waste material and thousands of abandoned mines in the basin. Cement Creek, a perennial stream in the upper Animas basin, is naturally high in mineral deposits from the Silverton caldera through which it flows. However, abandoned mines along the creek have leached dissolved and colloidal metals into it, causing creek flow to become very highly acidic.

Initial reconnaissance of the basin was performed by the Colorado Department of Public Health and Environment, Water Quality Control Division (CDPHE) in 1991, 1992, and 1993 (Russell 2000). Subsequent water chemistry testing was conducted to the end of decade. A great deal of chemical data has been collected to date that concludes that creek water poses a health hazard. but little is known about the ecological implications to natural habitats influenced by the creek.

The purpose of this report is to present the results of wetland delineations and sensitive species habitat assessments along Cement Creek extending from the Grand Mogul Mine to Ohio Gulch. The purpose of the Study is to identify wetlands that qualify under the Environmental Protection Agency (EPA) Hazard Ranking System (HRS), and other sensitive habitats surrounding Cement Creek. The HRS criteria follows the Army Corps of Engineers (USACE) definition of a wetland under 40 CFR 230.3 (45 FR 85344, Dec. 24, 1980, as amended at 58 FR 45037, August 25, 1993), which defines a wetland as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions". Under this definition, more than 50 percent of the dominant plant species must be characterized (wetland indicator status) as obligate, facultative wet, or facultative species to qualify as a wetland. Wetland indicator status denotes the probability of individual species of vascular plants occurring in wetlands in the United States. The Hazard Ranking System is discussed in more detail in Section 4.

This information will be compiled with chemical, hydrological, and other environmental information to be used in preparing a decision to recommend that the Cement Creek Mine complex, comprised of five abandoned mine point sources, be included on the National Priorities List. This action would make these sites eligible for remediation under the Comprehensive Environmental Response, Compensation and Liability Act, also known as Superfund.

The Study Area is located entirely within San Juan County, Colorado. The Study Area ranges in altitude from 9,964 to 10,439 feet in elevation and is located within the Alpine Zone and Volcanic Subalpine Forests ecoregions of Colorado (Chapman et al. 2006). These ecoregions include glaciated high mountainous areas with steep slopes and high gradient streams. The Alpine Zone occurs above timberline and is characterized by exposed rocky peaks surrounded by alpine meadows, headwater streams, and glacial lakes. The Volcanic Subalpine Forest occurs directly below the Alpine Zone and is characterized by high altitude coniferous forest.

Primary land use in the area includes mining and recreation. The narrow gauge Silverton Gladstone and Northerly Railroad branch of the Silverton Railroad was constructed in 1899 to transport miners between Silverton and Gladstone (Evans 2010). A portion of the historic rail bed is still visible in places.

Figures of the Study Area are included in Appendix A.

3.1 SOILS

Much of the soils in the Study Area contain a high percentage of rock as is typical for soils in high mountain areas. The most frequently encountered soils series in the Study Area are Needleton stony loam, 30 to 65 percent slopes, Whitecross-Rock Outcrop, 45 to 75 percent slopes, and Quazar very cobbly loam, 5 to 25 percent slopes (NRCS 2011).

Hydric soils within the Project include Whitecross-Rock Outcrop, 45 to 75 percent slopes, and Cryaquolls-Typic Cryaquents complex, 1 to 5 percent slopes. Cryaquolls-Typic Cryaquents complex is an alluvial soil complex, found on floodplain and valley floors. It occurs primarily in an aggradized reach of Cement Creek above Tiger Gulch, an area described in more detail in Section 3.2. Whitecross-Rock Outcrop is found predominantly above Gladstone. The Whitecross component of this complex is comprised of alluvium and colluvium, deposits transported downslope by water.

3.2 HYDROLOGY AND HYDROGEOMORPHOLOGY

The Study Area occurs within the Animas Watershed, Hydrologic Unit Code 14080104 (USGS 1974). The largest hydrologic feature within the Study Area is Cement Creek. The Animas River watershed extends from the mountainous terrain above Silverton, Colorado, south into the San Juan River in northern New Mexico, draining an area of approximately 1,357 square miles (Church et al. 1997). Cement Creek occurs within the northern portion of the watershed.

The Animas River Watershed is representative of a typical high-altitude stream system in the Rocky Mountain region. Three major tributaries of the Animas River flow together near the town of Silverton, Colorado: the Upper Animas converges with Cement Creek in the northeast part of town, with Mineral Creek forming a confluence with the Animas River just downstream of Silverton. While the Upper Animas and Mineral Creek flow through ring-faulted (circular faults) areas circling the ancient Silverton volcanic caldera, Cement Creek flows through the middle of the caldera, which was hydrothermally altered, fractured, and mineralized several million years after its formation (Church et al.1997). Of the three streams in the watershed, Cement Creek has the lowest flow and therefore the highest concentrations of metals.

Much of Cement Creek is a typical, highly incised, high mountain stream. However, terracing (accumulations of alluvium above downcutting portions of the stream channel) is common where the valley widens or in areas where the accumulation from side channels was greater than the stream could remove. The bulk of the deposits in the prominent terrace along Cement Creek represent channel and flood-plain aggradation, followed by stream incision, creating a convex longitudinal profile (Vincent et al. 2007). The largest gaining reach occurs upstream of Tiger Gulch and Georgia Gulch and has resulted in a substantial fen complex including an accumulation of iron rich deposits which have been cemented into ferricrete by surfacing groundwater, producing iron fens. Iron fens are explained in more detail later in Section 3.3.4.

3.3 **VEGETATION**

Six vegetative communities occur within the Project. These include alpine meadow, subalpine meadow, subalpine forest, wetlands, and disturbed/barren. A complete list of plant species recorded is included in Appendix D.

3.3.1 Alpine Meadow

Alpine meadow vegetative communities occur in the uplands above the treeline and are comprised of predominantly low-growing herbaceous species, usually with forbs comprising the majority of cover. The composition of alpine meadows varies with aspect and the amount of moisture received in a particular area, generally occurring from laminar flow over the rock substrate. Dominant species within alpine meadow communities include Ross's avens (Acomastylis rossii), black and white sedge (Carex albonigra), sublapine fleabane (Erigeron peregrinus), splitleaf groundsel (Packera dimorphophylla), American bistort (Polygonum bistortoides), and creeping sibbaldia (Sibbaldia procumbens).

Subalpine Meadow 3.3.2

Subalpine meadow vegetative communities occur in gulches, clearings, and old disturbed areas below treeline. Herbaceous species comprise most of the community, although some seedling conifers may also be present. Some species, such as woodland strawberry, have large ranges and overlap into lower elevation alpine meadow communities. Dominant species in subalpine meadow communities include beautiful cinquefoil, woodland strawberry, common yarrow (Achillea lanulosa), umber pussytoes (Antennaria umbrinella), fringed brome (Bromopsis ciliata), Bromopsis frondosa, blackroot sedge (Carex elynoides), owl's-claws (Dugaldia hoopesii), Thurber's fescue (Festuca thurberi), Richardson's geranium (Geranium richardsonii), nodding groundsel (Ligularia bigelovii), pleated gentian (Pneumonanthe affinis), mountain gentian (Pneumonanthe parryi), beautiful cinquefoil (Potentilla pulcherrima), Rocky Mountain goldenrod (Solidago multiradiata), Fendler's meadow-rue (Thalictrum fendleri), and dwarf bilberry (Vaccinium cespitosum).

Subalpine Forest 3.3.3

Subalpine forests occur on upland slopes and mesic terraces within the Study Area. This vegetation community is dominated by Engelmann spruce (Picea engelmannii) which can also occur along stream banks or bordering wetlands. Understory species within subalpine forests include woodland strawberry, dwarf bilberry, and various mosses.

3.3.4 Wetlands

Two distinct types of wetlands occur within the Study Area and include fringe wetlands and fens. These communities may be comprised of similar plant species, but they differ in their source of hydrology and composition of soils.

Fringe wetlands abut Cement Creek throughout the Study Area and are composed of hydrophytic herbaceous or scrub-shrub vegetation. However, within these classes, species composition is highly influenced by the source of hydrology. Many fringe wetlands have a groundwater component. The portions of the wetland where groundwater is the primary source of hydrology tend to develop a vegetative composition similar to fens in the area. Despite this, soils within fringe wetlands maintain a high mineral content due to the influence of the creek.

Fens are wetlands with saturated organic soils (peat or muck) and sustained by perched groundwater. Fens are considered regionally important because they take thousands of years to develop, are generally not replaceable, and have important hydrological and water quality functions (USFWS 1999). They are protected under guidance and regulations of the U.S. Fish and Wildlife Service (USFWS), USACE, and EPA.

Fens within the Study Area occur as two types: soligeneous peatlands (slope fens) and iron fens, or iron bogs, as they are sometimes referred to, although no true bogs occur within the Southern Rocky Mountains (Rocchio 2005).

Slope fens form within a terrace at the base of a slope or other geomorphological feature where ground water is detained, or perched, leading to perennially saturated conditions. The saturated soils and cool temperatures normal for subalpine regions slow the decomposition of plant material to the point that productivity exceeds decomposition, resulting in an accumulation of organic matter, or peat. Only wetlands with constant soil saturation or a water table within 30 centimeters of the surface will accumulate peat (Rocchio 2005).

Iron fens differ from slope fens in that an iron-based conglomerate-type ferricrete has formed within the underlying substrate. Ferricrete is formed out of sediments cemented together from the oxidation of percolating solutions of iron salts within groundwater at the surface of a fen, resulting in a hardened crust. Areas within fens where ferricrete has formed are usually barren or support only mosses. Accumulation of peat around these ferricrete masses is common and typically sustains bog birch (Betula glandulosa), water sedge (Carex aquatilis), bilberry, and small willows (Salix spp.). Mosses such as Sphagnum spp. are associated with iron fens.

3.3.5 Disturbed/Barren

Disturbed and barren areas include land devoid of vegetation from natural processes, such as landslides or colluvial deposition, and areas mechanically cleared of vegetation, such as roads, parking lots, etc. Barren areas may have sparse vegetative cover (under 10 percent), and due to elevation, species composition is predominantly native. Areas where deposited mine tailings have permanently eliminated the native vegetation are also included in this vegetative community. These areas are colloquially known as "dead fens" (Appendix A, Figures A1-6 and A1-8).

4.1 WETLAND SURVEYS

000010

Wetland delineations along Cement Creek were conducted by USACE certified URS wetland delineators between August 22 and August 27, 2011. Wetlands were identified within 10 feet of the Ordinary High Water Mark of Cement Creek on properties with previously granted access between the Grand Mogul Mine (northern terminus) and the confluence of Ohio Gulch (southern terminus).

Prefield research included accessing National Wetlands Inventory data (USFWS 2010), regional soil surveys (USDA 2011), and topographic maps of the area (USGS 1955, USGS 1972). Prior to conducting surveys, 1:200 scale field maps using aerial photographs were created.

Areas below five EPA identified point source contamination areas were prioritized in the survey. These areas included the Grand Mogul, North Mogul, Mogul, Red and Bonita, and Upper Gold King mines.

Aquatic features must be wetlands that meet the United States Corps of Engineers definition of a wetland as stated in 40 CFR 230.3. Under the EPA Hazard Ranking System (HRS), only wetlands with hydrophytic vegetative characteristics qualified for consideration (as opposed to features such as unvegetated shorelines, which are also considered special aquatic sites by the USACE). For the purposes of this survey, wetlands abutting Cement Creek over 150 feet of continuous stream frontage were formally delineated. Smaller wetlands qualify under the HRS rule as wetlands based upon the vegetation alone; therefore, the locations and approximate lengths of all hydrophytic vegetation observed within the Study Area and meeting the USACE vegetation criteria were manually mapped on aerial photographs. As these wetlands were not formally delineated, verification of hydric soils or hydrology was not conducted.

A gap in hydrophytic vegetation larger than 25 feet was considered to be the wetland terminus: however, vegetation was determined to be continuous if the break was 25 feet or less or appeared to be due to a recent event (e.g., a recently fallen tree or rockslide activity). Islands were not included in surveys.

Wetlands were formally delineated using the Routine Determination protocol (Environmental Laboratory 1987), the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coasts Region Version 2.0 (Environmental Laboratory 2010), and the minimum requirements for wetland delineations in the USACE Sacramento District (USACE 2001). Wetlands were delineated in the field as areas having positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation.

All delineated wetlands were given a unique identifier. Individual identifiers were assigned based on the field map number and the direction in which surveys occurred. Fens were labeled based on their hydrologic connection to wetlands. Iron fens were recorded in consecutive order from south to north. For example, the first wetland delineated on the fifth field map was labeled WL 5-1. An adjacent fen with a hydrologic connection to the delineated wetland was labeled Fen 5-1.

During field surveys, wetlands were classified using the Cowardin classification system (Cowardin et al. 1979). The wetlands were classified into three groups: PEM, PSS, and PEM/PSS.

PEM wetlands, as defined by Cowardin et al. (1979), are those wetlands dominated by erect. rooted, herbaceous plants. Plant species commonly found in PEM wetlands within high elevation Colorado wetlands are sedges (Carex spp.), rushes (Juncus spp.), forbs such as arrowleaf ragwort (Senecio triangularis), and wetland grasses such as bluejoint (Calamogrostis canadensis) and rough bentgrass (Agrostis scabra).

PSS wetlands, as defined by Cowardin et al. (1979), are dominated by woody vegetation less than 20 feet tall. Willows (Salix spp.) and bog birch occur most commonly in these communities.

Wetlands were designated PEM/PSS if they contained at least 5 percent of either PEM or PSS, occurring in distinctly separate vegetative communities within the portion of the wetland falling within the Study Area boundaries.

Plant species were identified using Weber and Wittmann (2001) and other references relevant to the region. Standardized scientific names, common names, and wetland plant indicators were taken from the United States Department of Agriculture (USDA) Plants Database (USDA 2012).

4.2 SENSITIVE SPECIES AND HABITATS SURVEYS

Field surveys to evaluate the presence of sensitive habitats and species were conducted from August 22 to 27, 2011. The Study Area extended along Cement Creek and included the adjacent valley floor and lower slopes and point sources including Grand Mogul, North Mogul, Mogul, Red and Bonita, and Upper Gold King mines. The Study Area included public lands managed by BLM and areas of private land where access had been obtained. Prior to the field survey, available information on potential rare and sensitive species and habitats was obtained from the Colorado Natural Heritage Program(CNHP), USFWS, Colorado Parks and Wildlife, Colorado Natural Diversity Information Source, and San Juan Public Lands (BLM).

Survey techniques included walking the Study Area, observations of plant and animal species, and manual mapping of habitats. Numerous photographs were taken.

Soil composition in potential fen areas was assessed using shovel tests. After surveys were completed, soil samples for fens where organic matter content could not be visually determined were sent to the Colorado State University Soil laboratory for analysis.

4.3 **DATA ANALYSIS**

After surveys were complete, all GPS data were clipped for errors and overlain on 1:200 aerial photographs of the Study Area (Source: Google Earth 2011). All identified but not delineated wetlands recorded in the Study Area were labeled using the identifier of the nearest delineated wetland and a unique alphabetic suffix.

Point Sources were modified after surveys to encompass reaches below the Grand Mogul, Mogul, Red and Bonita, and Gold Hill Level 7 mines, and the American Tunnel. Stream lengths were calculated for all continuous wetlands on both sides of Cement Creek. Stream lengths were not calculated for patchy wetland vegetation (shown as dashed lines in the figures). These features did not exhibit greater than 50 percent wetland vegetation cover within their respective reaches and cannot considered wetlands under the USACE criteria.

5.1 WETLANDS . 000012

A total of 72 wetlands were identified or delineated in the Study Area, with an approximate cumulative length of 2.57 miles, or 13,571 linear feet. Of these, nineteen wetlands were formally delineated totaling approximately 1.90 miles (10,046 linear feet) in length. These wetlands qualify under both the HRS and the USACE vegetation criteria. Seven delineated wetlands exceed 0.10 mile each of cumulative length. These are discussed in more detail in Section 4.4.1.

Fifty three wetlands were identified and mapped but not formally delineated totaling approximately 0.67 mile (3,525 feet) in length. The 53 wetlands qualify under the USACE vegetation definition of a wetland; which is sufficient to qualify as HRS eligible wetlands under the vegetation criteria. It is presumed that these aquatic features exhibit characteristics similar to formally delineated wetlands in the Study Area.

Table 1 includes the lengths of all identified and delineated wetlands in the Study Area.

Table 1
Wetlands Within the Study Area

Wetland ID	Length (linear feet)	Length (mile)	Identified/ Delineated	
Wetlands Below the Grand Mogul Mine Point Source				
WL 11-1-SP3	53	0.01	Delineated	
WL 11-1-SP4	498	0.09	Delineated	
Subtotal Delineated Wetlands	551	0.10		
Subtotal Identified Wetlands	0	0.00		
Subtotal Wetlands Below Grand Mogul Point Source	551	0.10		
Subtotal Wetlands All Upstream Point Sources	551	0.10		
Wetlands Below the Mogul Mine Point Source				
WL10-1	1,531	0.29	Delineated	
WL 9-3a	63	0.01	Identified	
WL 9-3b	34	0.006	Identified	
WL 9-3c	13	0.002	, Identified	
WL 9-3d	15	0.003	Identified	
WL 9-3e	. 28	0.005	Identified	
WL 9-3f	28	0.005	Identified	
WL 9-2	582	0.11	Delineated	
WL 9-2a	60	0.01	Identified	
WL 9-2b	51	0.01	Identified	
WL 9-2c	59	0.01	Identified	
WL 9-2c1	62	0.01	Identified	
WL 9-2d	18	0.003	Identified	



Wetland ID	Length (linear feet)	Length (mile)	ldentified/ Delineated
WL 9-1	752	0.14	Delineated
WL 9-1a	68	0.01	Identified
WL 9-1b	50	0.01	Identified
WL 9-1c	61	0.01	Identified
WL 9-1d	79	0.02	Identified
WL 9-1e	31	0.006	Identified
Subtotal Delineated Wetlands	2,865	0.54	
Subtotal Identified Wetlands	720	0.13	
Subtotal Wetlands Below Mogul Point Source	3,585	0.67	
Subtotal Wetlands All Upstream Point Sources	4,136	0.78	
Wetlands Below Red and Bonita Mine Poi	nt Source		
WL 9-1f	37	0.01	Identified
WL 9-1g	42	0.01	Identified
WL 9-1h	30	0.006	Identified
Subtotal Delineated Wetlands	0	0.00	
Subtotal Identified Wetlands	109	0.02	
Subtotal Wetlands Below Red and Bonita Mine Point Source	109	0.02	
Subtotal Wetlands All Upstream Point Sources	4,245	0.80	
Wetlands Below the Gold King 7 Level Mi	ne Point Source		
WL 7-1a	43	0.01	Identified
Subtotal Delineated Wetlands	0	0.00	
Subtotal Identified Wetlands	43	0.01	
Subtotal Wetlands Below Gold King 7 Level Point Source	43	0.01	
Subtotal Wetlands All Upstream Point Sources	4,288	0.81	
Wetlands Below the American Tunnel Poir	ıt Source		
WL 6-1a	25	0.005	Identified
WL 6-1b	31	0.006	Identified
WL 6-1c	180	0.03	Identified
WL 6-1d	36	0.01	Identified
· WL 6-1e	50	0.01	Identified
WL 6-1f	80	0.02	Identified

Identified/ Length Length Wetland ID (linear feet) (mile) Delineated WL 5-2 455 0.09 Delineated WL 5-2a 45 Identified 0.01 Identified WL 5-2b 95 0.02 WL 5-2c 34 0.006 Identified Identified WL 5-2d 89 0.02 WL 5-2e 129 0.02 Identified WL 5-2f 52 0.01 Identified Identified WL 5-2g 27 0.005 WL 5-2h 65 0.01 Identified WL 5-2i 117 0.02 Identified WL 5-1 232 Delineated 0.04 36 0.007 Identified WL 5-1a WL 5-1b Identified 53 0.01 WL 5-1c 117 0.02 Identified WL 5-1d 139 0.03 Identified WL 4-1 604 0.11 **Delineated** WL 4-1a 0.005 Identified 27 WL 4-1b 0.005 29 Identified WL 4-1c 93 0.02 Identified WL 4-1d 272 0.05 Identified WL 4-2 396 0.08 Delineated WL 4-2a 110 0.02 Identified WL 4-3 360 0.07 Delineated WL 4-4 323 0.06 Delineated WL 4-4a Identified 49 0.01 WL 4-4b 59 0.01 Identified WL 4-4c 44 0.01 Identified WL 4-4d 54 0.01 Identified WL 4-4e Identified 95 0.02 WL 3-4 384 0.07 Delineated Identified WL 3-4a 74 0.01 .WL 3-5 245 0.05 Delineated WL 3-1 266 0.05 Delineated **WL 3-2W** 293 0.06 Delineated WL 3-2Wa 153 0.03 Identified WL 3-3A 595 0.11 Delineated WL 3-3B 491 0.09 Delineated WL 2-1 1,396 0.26 **Delineated**

000014

Wetland ID	Length (linear feet)	Length (mile)	Identified/ Delineated
WL 2-1a	194	0.04	Identified •
WL 2-2	590	0.11	Delineated
Subtotal Delineated Wetlands	6,630	1.25	
Subtotal Identified Wetlands	2,653	0.50	
Subtotal Wetlands Below American Tunnel Point Source	9,283	1.76	
Total Wetlands All Upstream Point Sources	13,571	2.57	

Note: Bolded wetlands exceed 0.10 mile each of cumulative length.

The longest cumulative wetland length within a segment occurs below the American Tunnel (9,283 linear feet or 1.76 miles of cumulative length). The shortest cumulative wetland length within a segment in the Study Area occurs below the Gold King 7 Level Point Source (43 linear feet or 0.01 mile of cumulative length). Additional wetlands are present outside of the Study Area and within portions of Cement Creek where access was not granted.

5.1.1 **Delineated Wetlands**

As stated previously, 19 wetlands were formally delineated totaling 1.90 miles (10,046 linear feet) in length. Of these, seven delineated wetlands exceed lengths of 0.10 mile. These include WL 2-1, WL 2-2, WL 3-3a, WL 4-1, WL 9-1, WL 9-2, and WL 10-1. The longest wetland in the Study Area is WL 10-1 (1,531 linear feet or 0.29 mile). Extensive wetlands were observed beyond the WL10-1 Study Area, but were not delineated.

Alpine wetlands (WL 10-1 and WL 11-1-SP3 and WL 11-SP4) were classified as PEM (Cowardin et al. 1979). Dominant vegetation within these wetlands included black alpine sedge (Carex nigicans), tufted hair grass (Deschampsia cespitosa), and Parry's rush.

Vegetation in subalpine fringe wetlands occurring at elevations below the Red and Bonita Mine is predominantly PEM/PSS as classified by Cowardin et al. (1979). Dominant species within these features include blueioint, silvery sedge (Carex canescens), rough bentgrass, Parry's rush (Juncus parryi), park willow (Salix monticola), diamondleaf willow (Salix planifolia), and bog birch.

Primary or secondary indicators of hydrology were observed in all wetlands. The most commonly observed hydrologic indicators included inundation, saturation, or a high water table.

Wetland soils were determined to be problematic and/or atypical in eight wetlands. A restrictive rock layer was present in the top 8 inches within 12 wetlands. Where soils pits could be excavated, soils had a high mineral content and were often stained from precipitated iron in the water. Wetlands having the highest concentrations of soil staining included WL 3-4, WL 5-1, and WL 5-2 (wetlands occurring below the American Tunnel); WL 9-1 and WL 9-2 (wetlands occurring below the Mogul Mine).

Information regarding delineated wetlands within the Study Area is included in Table 2. Wetlands exceeding lengths of 0.10 mile are bolded in the table. Maps, photographs, and individual data forms are included in Appendices A, B, and C, respectively. Wetland plant species observed are included in Appendix D1a. Wetland field data are included in Appendix E.

Table 2 **Delineated Wetlands Within the Study Area**

. 000016

Wetland ID	Length (linear feet)	Length (mile)	Classification ¹	Figure Number	Photograph Number
WL 11-1-SP3	53	0.01	PEM	A1-10	24
WL 11-1-SP4	498	0.09	PEM	A1-10	25
WL10-1	1,531	0.29	PEM	A1-9	21, 22, 23
WL 9-2	. 582	0.11	PEM	A1-8	20
WL 9-1	752	0.14	PEM	A1-8	19
WL 5-2	455	0.09	PEM	A1-5	18
WL 5-1	232	0.04	PEM/PSS	A1-4	17
WL 4-1	604	0.11	PEM/PSS	A1-3, A1-4	12, 13
WL 4-2	396	0.08	PEM	A1-3	. 14
WL 4-3	360	0.07	PEM/PSS	A1-3	15
WL 4-4	323	0.06	PEM/PSS	A1-3	16
WL 3-4	384	0.07	PEM/PSS	A1-2	10
WL 3-5	245	0.05	PEM	A1-2	11
WL 3-1	266	0.05	PEM/PSS	A1-2	5
WL 3-2W	293	0.06	PEM	A1-2	. 6
WL 3-3A	595	0.11	PEM/PSS	A1-1, A1-2	7,8
WL 3-3B	491	0.09	PEM	A1-1, A1-2	7, 9
WL 2-1	1,396	0.26	PEM/PSS	A1-1	1, 2
WL 2-2	590	0.11	PEM/PSS	A1-1	3, 4
Total	10,046	1.90			

¹As classified by Cowardin et al. (1979)

5.2 **SENSITIVE SPECIES AND HABITATS**

5.2.1 Fens

Seventeen fens were recorded within the Study Area and several additional fens were observed in adjacent areas of private land that were not included in the Study Area. Fens occur on floodplain terraces within the Study Area that have developed at a height of approximately 5.0 to 11.5 feet higher than the streambed. The largest fens occur below the Mogul Mine (Fen 10-1) (Appendix A1, Figure A1-9), below the American Tunnel in the center of the Study Area above Georgia Gulch and Tiger Gulch (Appendix A1, Figures A1-4 and A1-5), and at the southern Study Area extent near Grassy Gulch (Appendix A1, Figures A1-1 and A1-2).

Fens were either saturated to the surface or inundated during surveys and groundwater could be seen surfacing in many locations. Locations of all observed fens are included in Appendix A and photographs are included in Appendix B2. Results of organic matter soil tests are included in Appendix F.

5.2.2 Iron Fens

Seven iron fens were observed in the Study Area. Several iron fens were observed from the road on private lands with no access. Of the seven iron fens, six had cemented ferricrete and/or red sediments. Most iron fens had formed on terraces, but one (IF 7-1) had developed along a steep slope adjacent to County Road 110 (Appendix A1-1, Figure A1-6). Small iron fens were observed throughout the center of the Study Area, many occurring along the roadside. Near iron fen IF 6-2, small limonite ledges had developed below springs near the roadway.

Like other fens in the Study Area, iron fens are supported by groundwater and do not appear to be supported by stream flow. Where they are located adjacent to streams, there are limonite terraces and aprons with seepage toward the stream, along with extensive areas of moss and small amounts of sedges (predominantly Carex aquatilis) and other wetland vegetation. Locations of all observed iron fens are included in Appendix A. Photographs are included in Appendix B2.

5.2.3 Canada lynx

Canada lynx (Lynx canadensis) is a federally threatened species. The Cement Creek Valley is located within the San Juan Mountains core area, where Colorado Parks and Wildlife began releasing lynx in 1999 with the hope of reestablishing a population. Canada lynx occur primarily in subalpine forests, and riparian areas are considered to be secondary habitat.

No Canada lynx or sign was observed in the Study Area. Open areas such as subalpine meadows do not directly support Canada lynx. Some of the wetlands along Cement Creek may be used by lynx but are probably relatively unimportant for Canada lynx survival. Wetlands most likely to be used have high shrub cover and are adjacent to large areas of forest or shrub habitat. Wetlands with low shrub cover and that are adjacent to subalpine meadows are less likely to be used. The wetlands immediately adjacent to Cement Creek occupy a very small area relative to the home ranges of individual lynx. While Canada lynx are likely to occur in the Study Area, water quality in Cement Creek and its adjacent wetlands does not appear to be a significant factor in their occurrence or habitat quality.

Other Threatened, Endangered or Sensitive Species 5.2.4

In addition to Canada lynx, there are seven other federally listed or candidate endangered or threatened species that may occur or be affected by activities in San Juan County. None of them are expected to occur in the Cement Creek Study Area. The Study Area has no habitat for yellow-billed cuckoo (Coccyzus americanus) or Uncompangre fritillary butterfly (Boloria acrocnema), and the Study Area is outside the range of the Rio Grande cutthroat trout (Oncorhynchus clarki virginalis). There is suitable habitat for southwestern willow flycatcher (Empidonax traillii extimus), but there are no records of this species in or near the Study Area, and it primarily occurs at lower elevations. Colorado pikeminnow (Ptychocheilus lucius) and razorback sucker (Xyrauchen texanus) occur downstream of Cement Creek in the San Juan

River, but not within or near the Study Area. Wolverine (Gulo gulo), a candidate species could occur at higher elevations in the watershed but are not known to be present in the San Juan Mountains.

Colorado Parks and Wildlife maintains a list of state endangered, threatened, or special concern species, some of which are the same as the federal list. Several of these species have a low potential for occurrence in the Study Area and were not observed during the field survey, including boreal toad (Bufo boreas boreas), northern leopard frog (Rana pipiens), American peregrine falcon (Falco peregrinus anatum), and Colorado River cutthroat trout (Oncorhynchus clarki pleuriticus). There are no records of boreal toad or northern leopard frog in the Study Area. Cement Creek is identified as historic habitat for Colorado River cutthroat trout in a range-wide status review (Hirsch et al 2005).

Several BLM sensitive species may occur in the Study Area but were not observed. Northern goshawk (Accipiter gentilis) occurs in upland conifer and aspen forests, and is not likely to regularly occur along the creek. Black swift (Cypseloides niger) nests at waterfalls and forages high in the air and has no nexus with Cement Creek. Three sensitive plant species have a low potential for occurrence and were not observed in the Study Area, including green sedge (Carex viridula), slender rock-brake (Cryptogramma stelleri), and slender cottongrass (Eriophorum gracile). Green sedge and slender cottongrass occur in fens, while slender rock-brake is associated with cliffs and waterfalls. The habitats in which these species occur do not have an important nexus with the creek and its adjacent wetlands.

In 2003, the Colorado Natural Heritage Program and Colorado State University produced the San Juan County Biological Assessment, which addresses natural communities, rare and imperiled plants and animals, and identifies potential conservation areas. The Study Area includes only one plant community that is considered to be rare in this document, (Picea engelmanii)/Betula glandulosa/Carex aquatilis/Sphagnum angustifolium (iron fen), which is discussed above. None of the rare and imperiled plant species addressed in this document were observed and most occur in habitats that are not present along Cement Creek and its adjacent wetlands. One rare and imperiled animal species, boreal owl (Aegolius funereus), is likely to occur in forests in the Cement Creek Valley but would not be specifically be associated with the creek or its wetlands.

The EPA provided the location of a sphagnum moss Sphagnum obtusum that was recently found by Rodney A. Chimner, Ph.D., Assistance Professor in the School of Forest Resources and Environmental Science at Michigan Technological University. The species was discovered near Gladstone, outside of the Study Area. Sphagnum obtusum has not previously been found in Colorado and is not included in the recently published Bryophytes of Colorado: Mosses, Liverworts and Hornworts (Weber and Wittman, 2007). It occurs primarily in Canada. The site reported by Chimmer is a fen upgradient from the North Fork of Cement Creek. This site was visited by URS during the field survey to gain a search image for this species. The only sphagnum species observed in the Study Area was Sphagnum angustifolium, which was present in many of the fens, and Sphagnum fimbriata, which was observed along a portion of Cement Creek above Gladstone. Neither of these species is considered sensitive.

6.1 SENSITIVE SPECIES AND HABITATS

6.1.1 Fens

Because fens are primarily supported by groundwater, they occur above the stream OHWM and are unlikely to be influenced by normal stream flows. As stated previously, where they border the stream, there can be wetlands adjacent to the stream supported hydrologically by both stream flow and seepage from the fen. However, it was observed that these streamside wetlands have mineral soils from sediment deposition during high flows. Where organic soils extend to the stream edge, there is usually a drop-off of 2 feet or more between the bottom of the fen and the edge of the stream.

Although stream flow does not appear to influence fens that are directly adjacent to it, discharge from mines on the valley slopes has affected several fens that are located between the mine and Cement Creek. Fens that are influenced by mine discharge include those below the Mogul Mine, the Adams Mine, and Red and Bonita Mines. There are areas of deposited sediment within the Mogul Mine fen, but water from mine discharge appears to intermingle with other sources of water extending over about 60% of the fen. Below the other two sites, there are areas of live fen interspersed with large areas of bare organic and mineral soils. Much of the bare area appears to be former fen. Mine discharge appears to have reduced the size of the fens by erosion, alteration of hydrology (due to flows being diverted to the eroded bare areas), and potentially by toxic discharges, including large amounts of oxidized pyrite (von Guerard et al. 2007).

6.1.2 Iron Fens

According to the Colorado Natural Heritage Program, iron fens have only been reported in Colorado. Although it is possible that fens with this unique composition occur elsewhere, the name 'iron fen' appears to be unique to this state.

Iron fens are unique in that they have acidic water, high ion concentrations, and feature limonite (bog iron) terraces. Of the 15 iron fens or fen complexes in Colorado, five are located in San Juan County. The CNHP considers all of Cement Creek valley floor from near Gladstone to below Topeka Gulch to be part of the Cement Creek Iron Fen Potential Conservation Area, with the most prominent examples present at Tiger Gulch and Topeka Gulch. The Tiger Gulch site occurs on private land outside the Study Area, but was observable from the road and extends into the Study Area; while the Topeka Gulch site appears to be on private land and is not visible from the road.

The natural iron in the area has combined with ferricrete formations to form iron fens along the creek. These unique aquatic features exist in the presence of iron but do not appear to be negatively influenced by creek flows. Additionally, there does not appear to be any correlation between the existence of ferricrete and wetlands.

Vincent et al. (2007) conclude that fens and wet ferricrete in Cement Creek were formed during various times and unlikely related to mining. The chemistry and mineralogy of the inter-peat silt in iron fens is significantly different from those of modern streambed sediment in Cement Creek. Their research shows that only three iron fens were formed by the aggradation of Cement Creek and that in the majority of cases overbank flows did not supply floodplain sediment nor the water required to sustained these features.

They conclude that both wetlands and wet ferricrete result from the perennial emergence of ground water that originated in tributary sub-basins, rather than from Cement Creek itself. They also conclude that iron fens in settings like Cement Creek accumulated independently from stream processes, and that they are an indicator that ground water seeping from the valley sides was the source of water in prehistoric times.

A total of 73 wetlands totaling 13,571 linear feet or 2.57 cumulative miles in length were identified along Cement Creek. Nineteen of these wetlands were formally delineated and conform to the USACE and HRS criteria for wetlands. An additional 53 wetlands were identified within the Study Area as areas with predominantly hydrophytic vegetation. These areas were not formally delineated, but are presumed to exhibit similar characteristics to delineated wetlands. Of the 73 wetlands, five had cumulative lengths of greater than 0.10 mile.

Primary or secondary evidence of hydrology was observed in all delineated wetlands. Hydric soils in were considered atypical or problematic in eight wetlands due to restrictive layers or because iron in the water discolored soils to the extent that hydric characteristics were not discernable.

Seventeen fens along with seven iron fens were recorded in the Study Area. These features occur on terraces and slopes well above Cement Creek and appear to be supported by groundwater. Where iron fens form adjacent to the creek, they do not appear to be negatively impacted by it.

Most listed sensitive species do not occur or have potential habitat in the Cement Creek Valley. There is potential habitat for three listed species (Canada lynx, Northern goshawk, and boreal owl), but they are unlikely to have a direct nexus to Cement Creek. No individuals were observed during surveys. There is a recorded location of the rare sphagnum moss *Sphagnum obtusum* upgradient of the North Fork of Cement Creek, but it was not observed in the Study Area.

The following individuals contributed to the preparation of this report:

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Barry Hayhurst, Project Manager, UOS Jeffrey Dawson, Principal Ecologist, URS Corporation Susan Hall, Senior Ecologist, URS Corporation Amber Ballman, Ecologist, URS Corporation Joseph Rigley, GIS Specialist, URS Corporation

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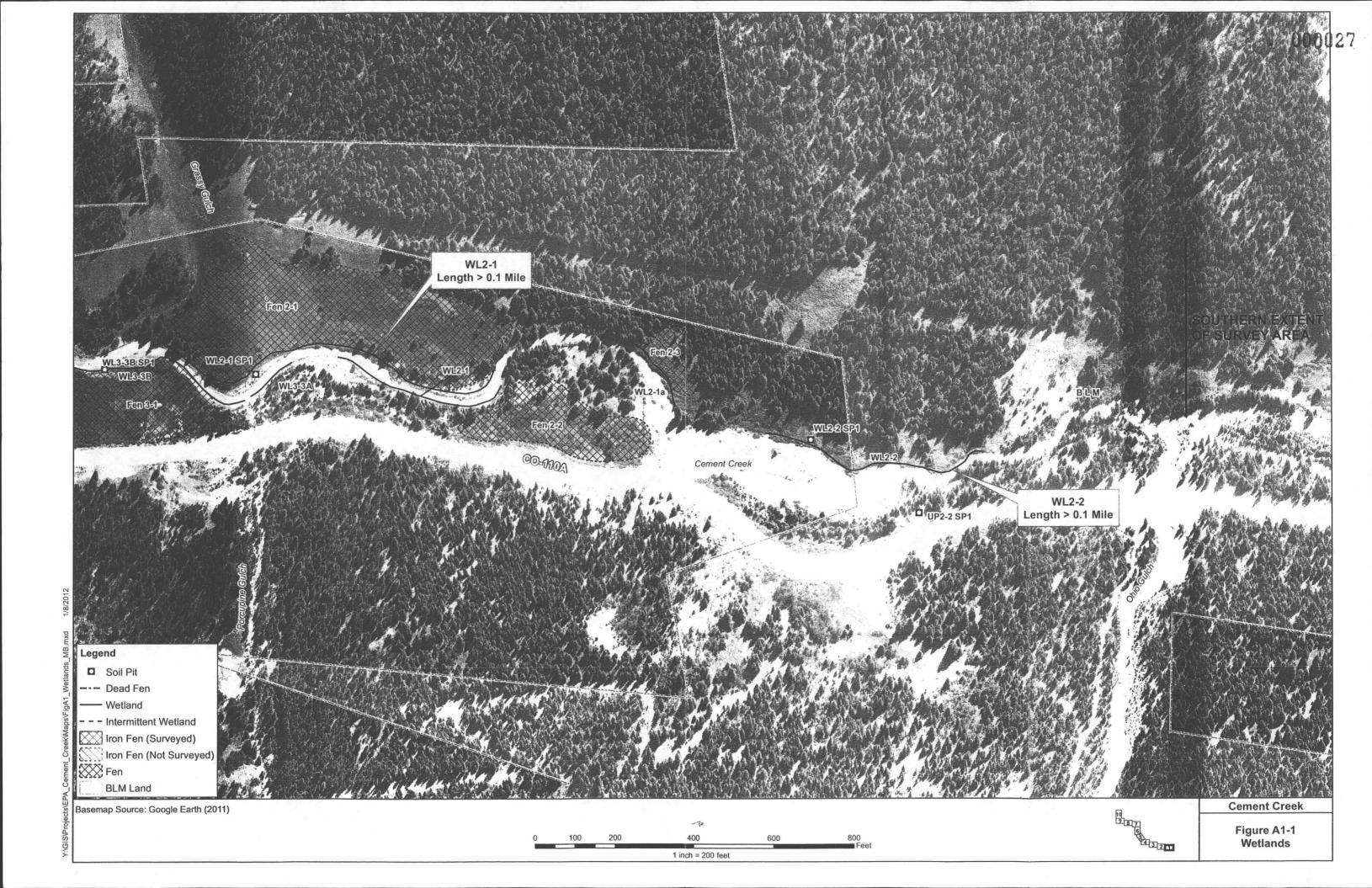
. 1972. 7.5 Minute Quadrangle: Ironton, Colorado

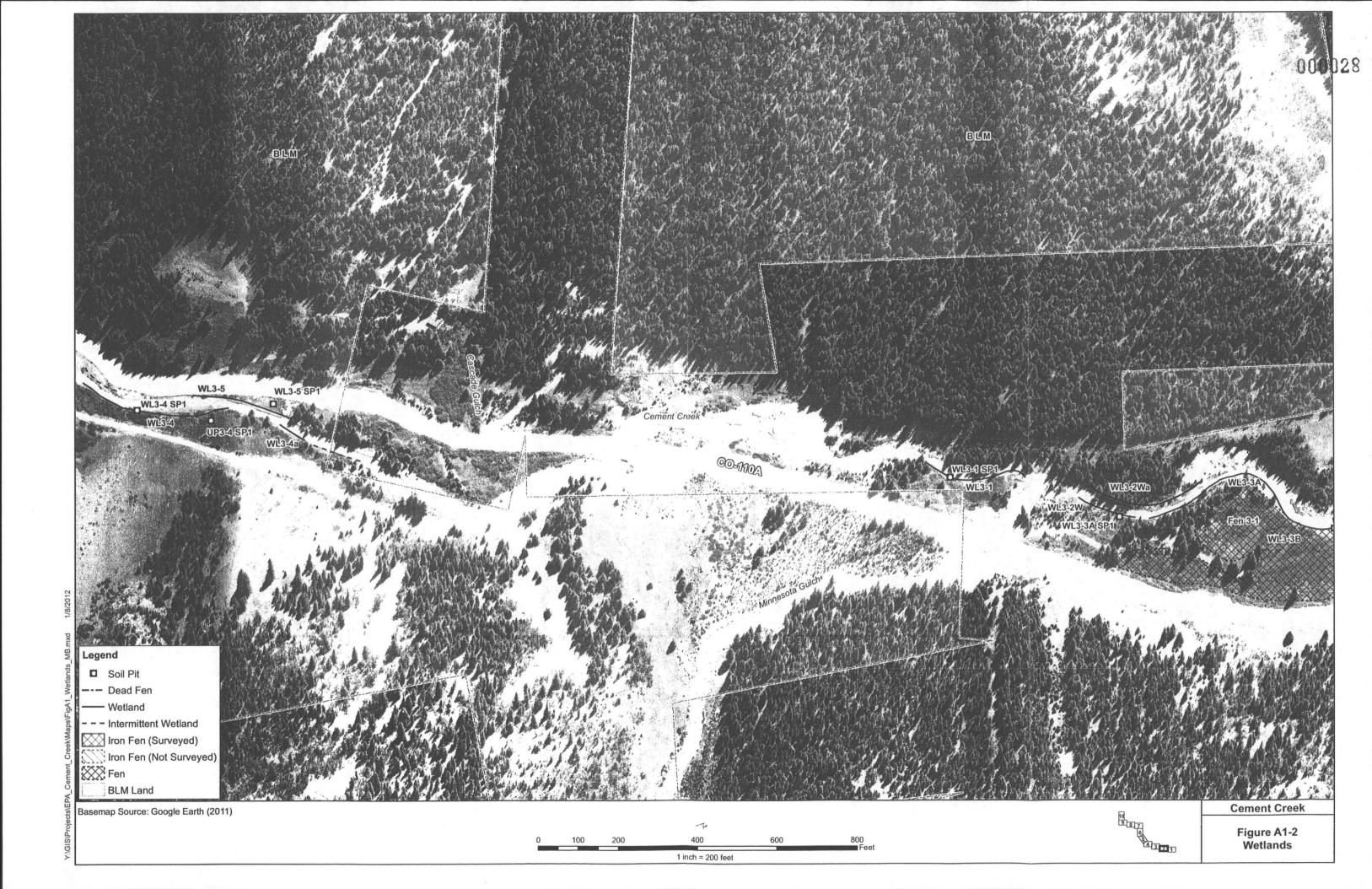
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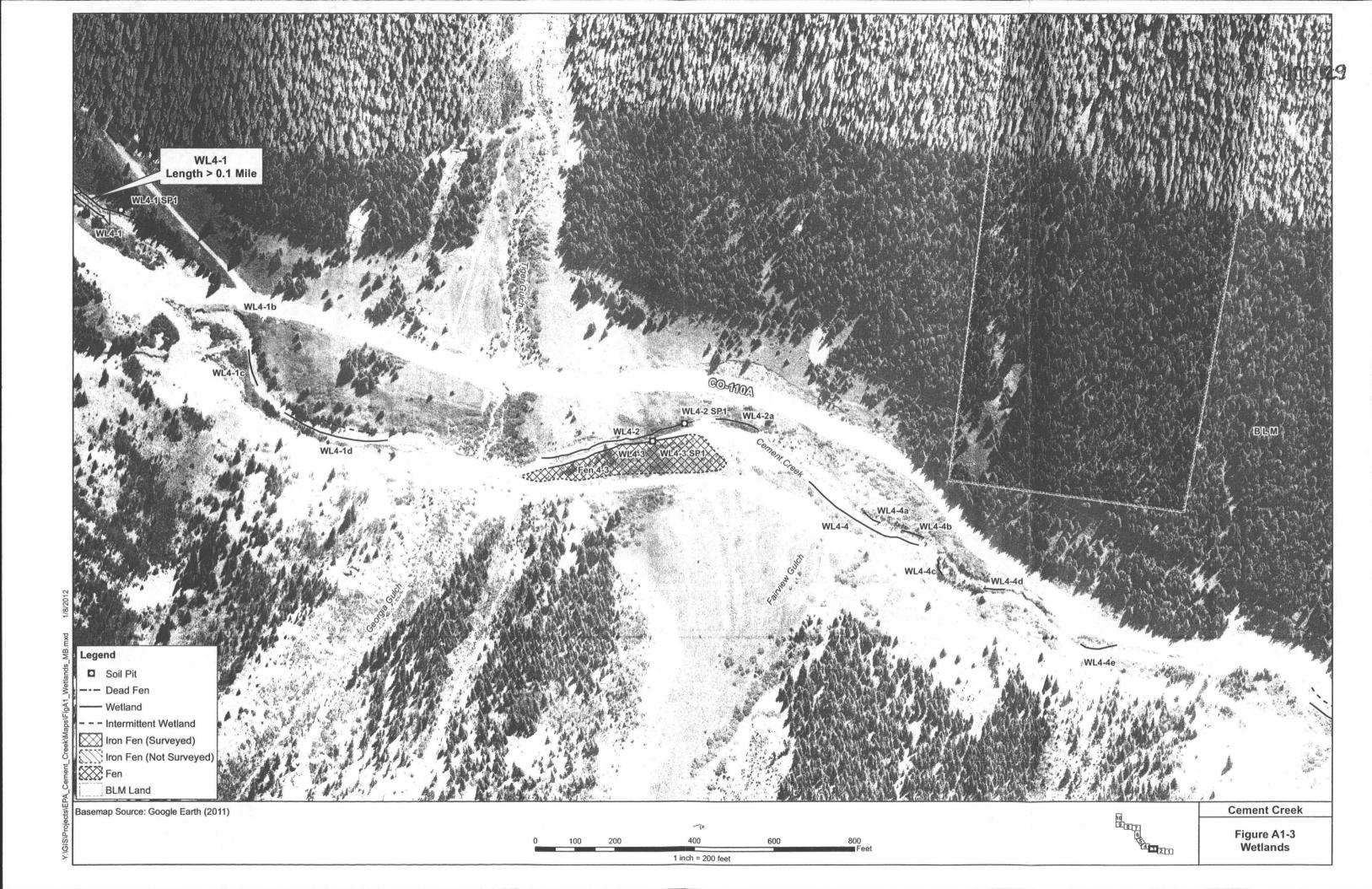
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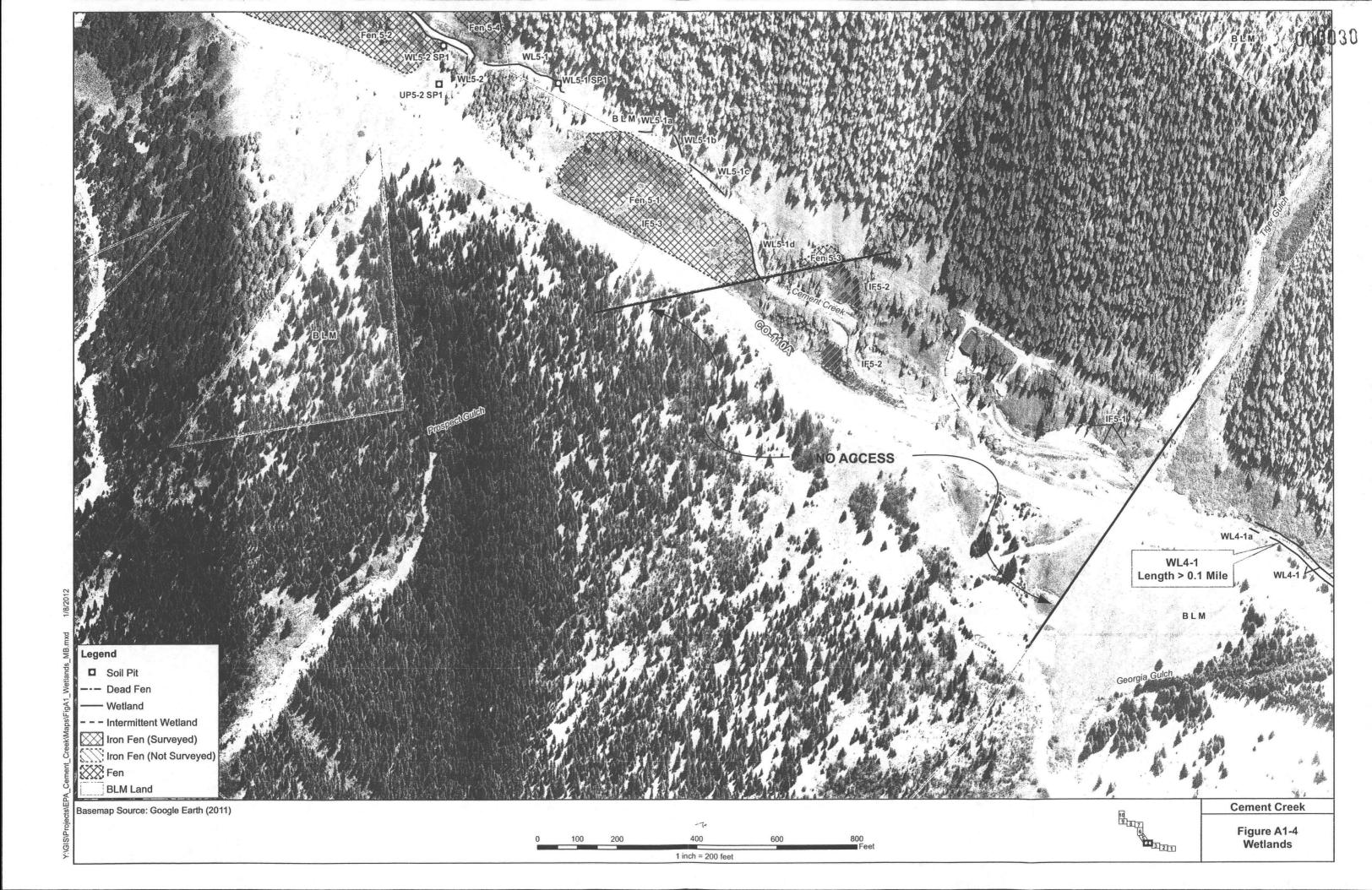
Appendix A Figures

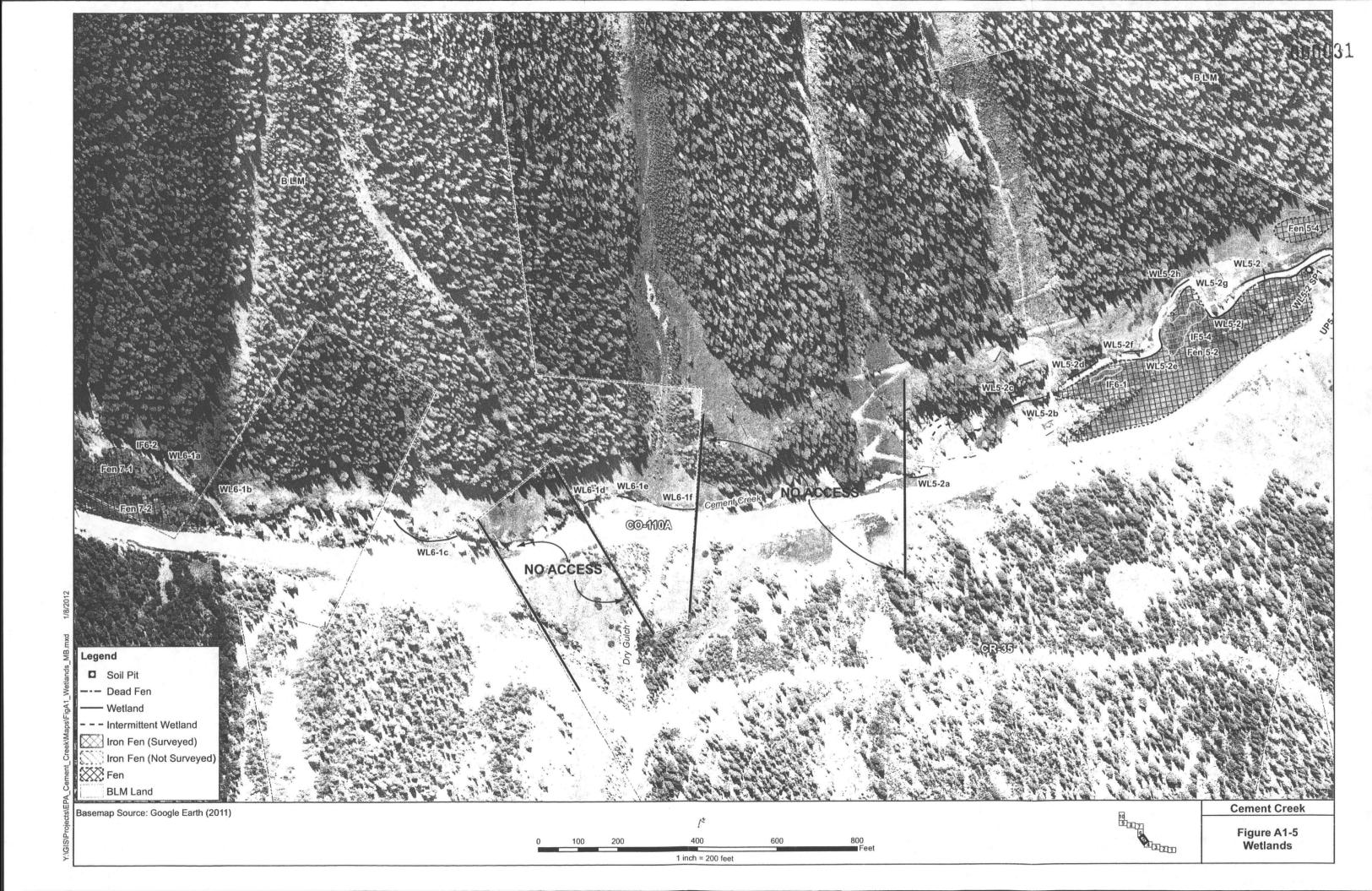
Appendix A1 Wetland and Sensitive Habitat Maps

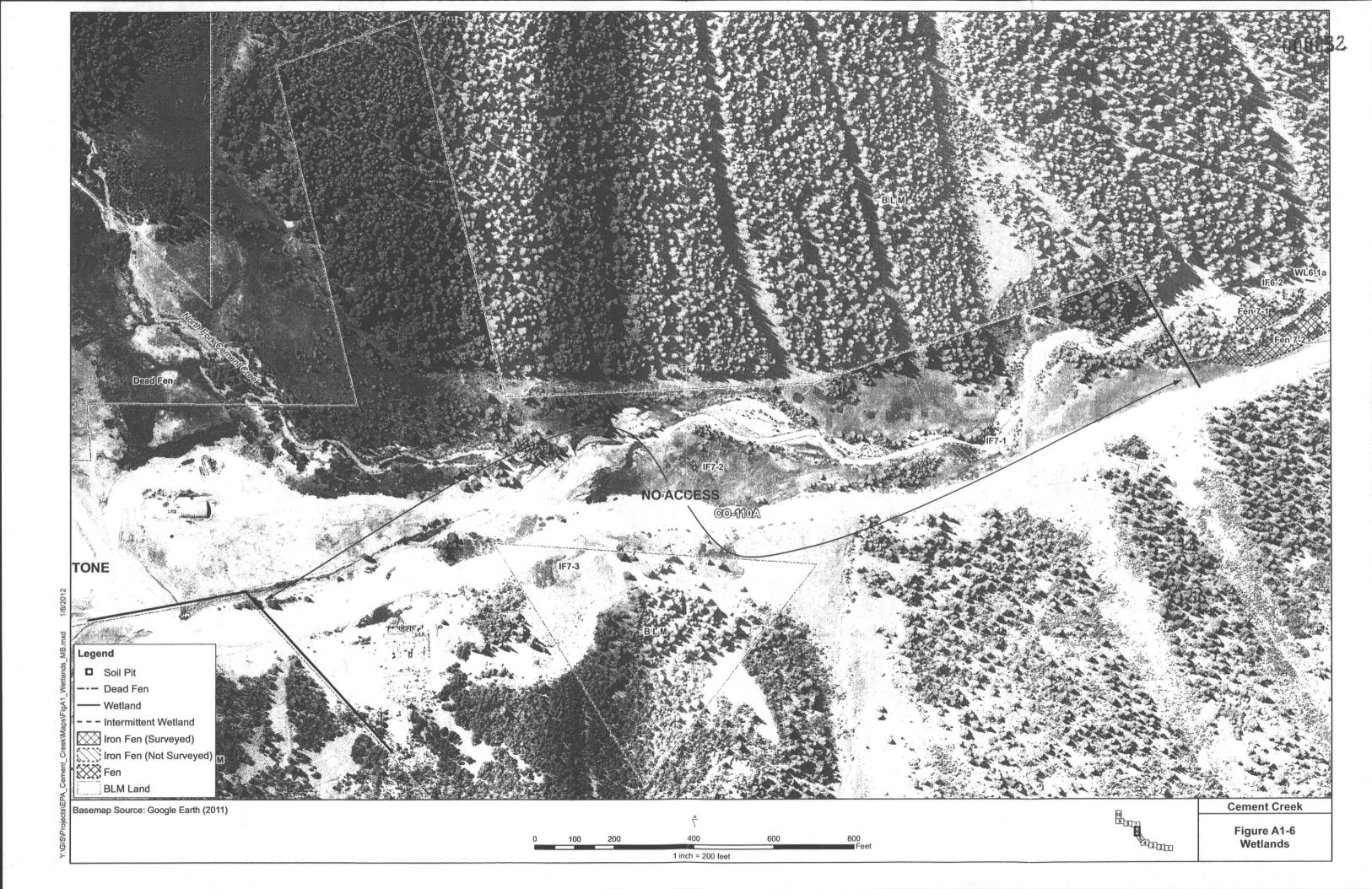


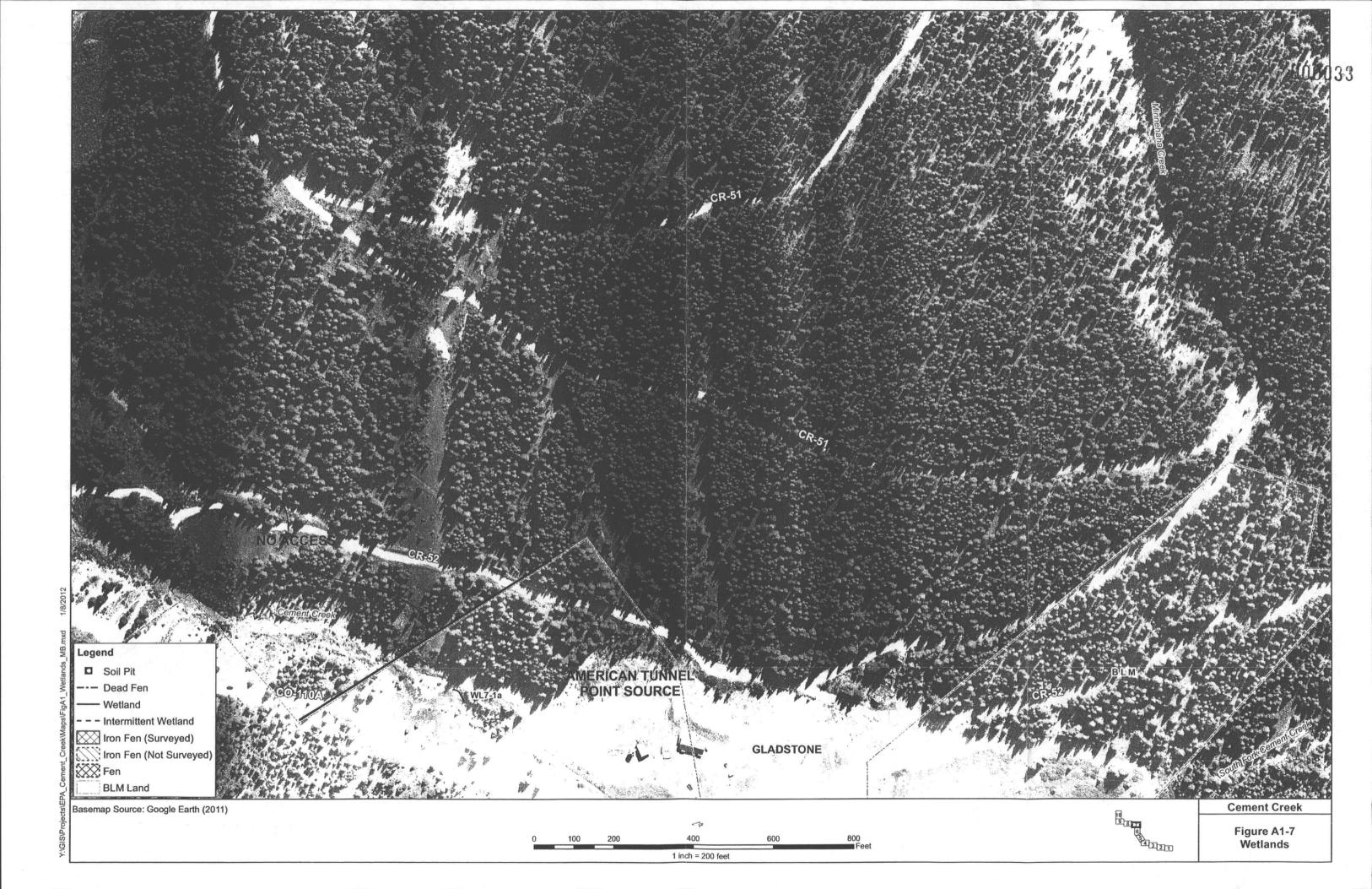


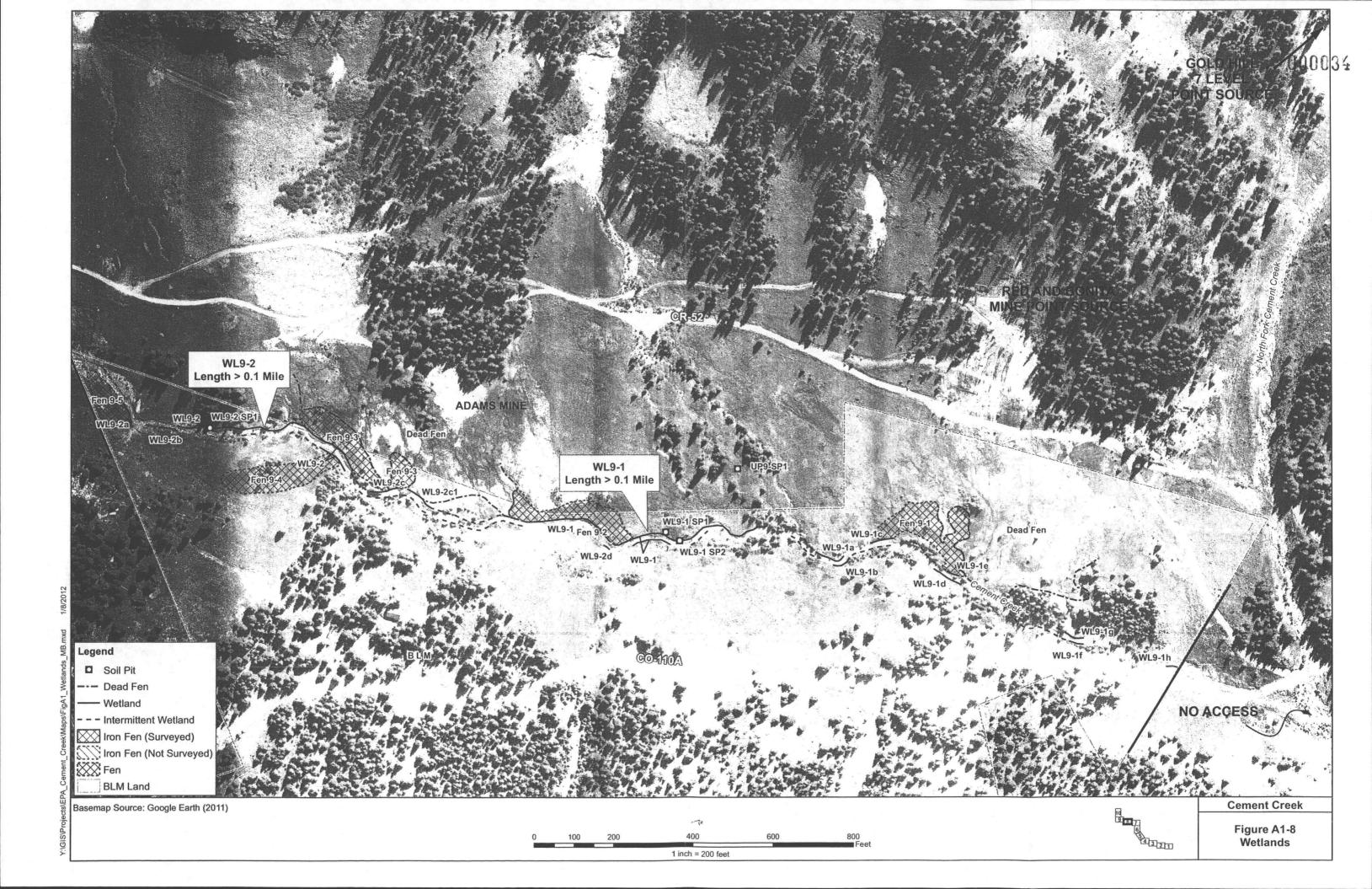


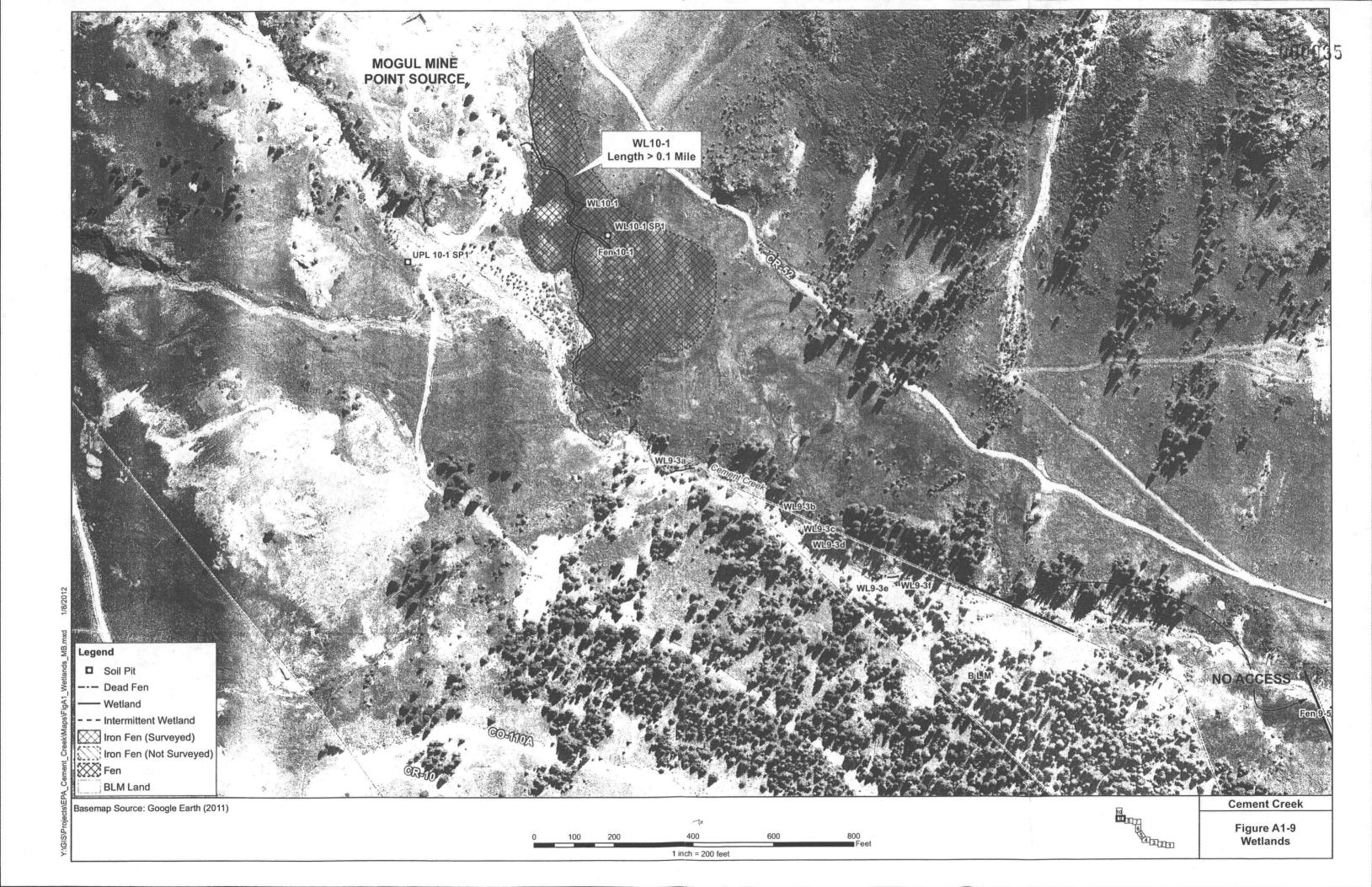


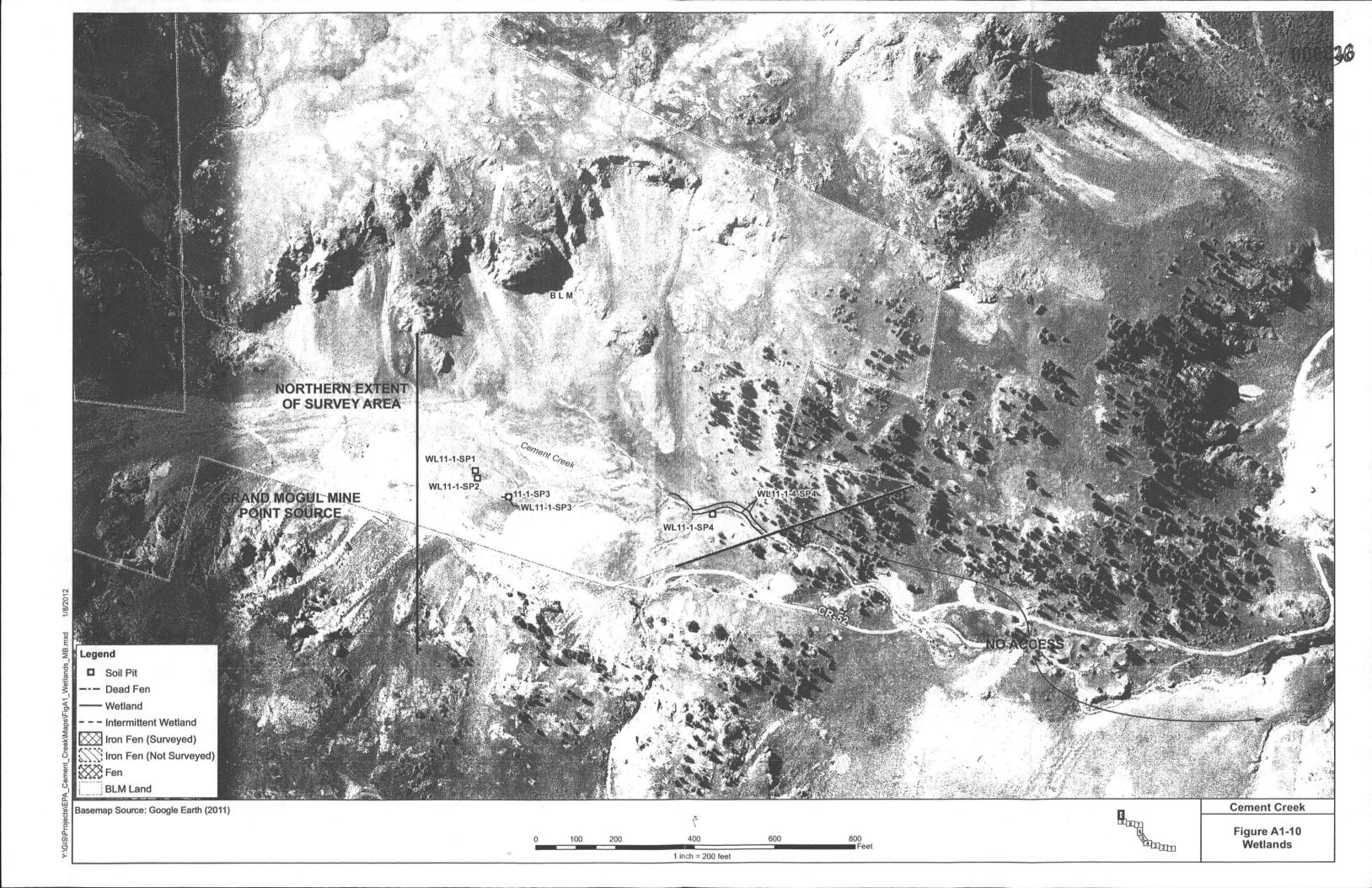




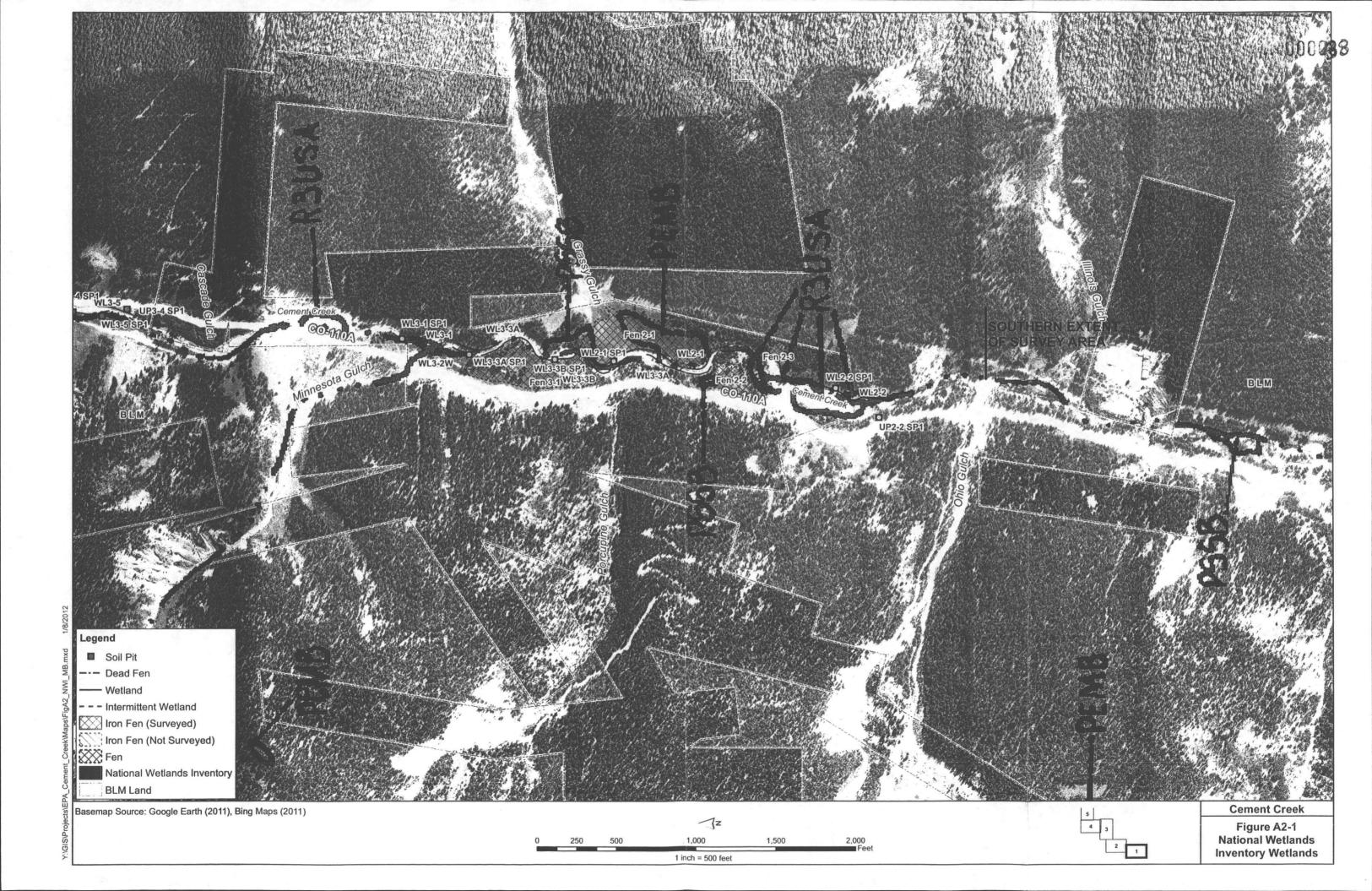


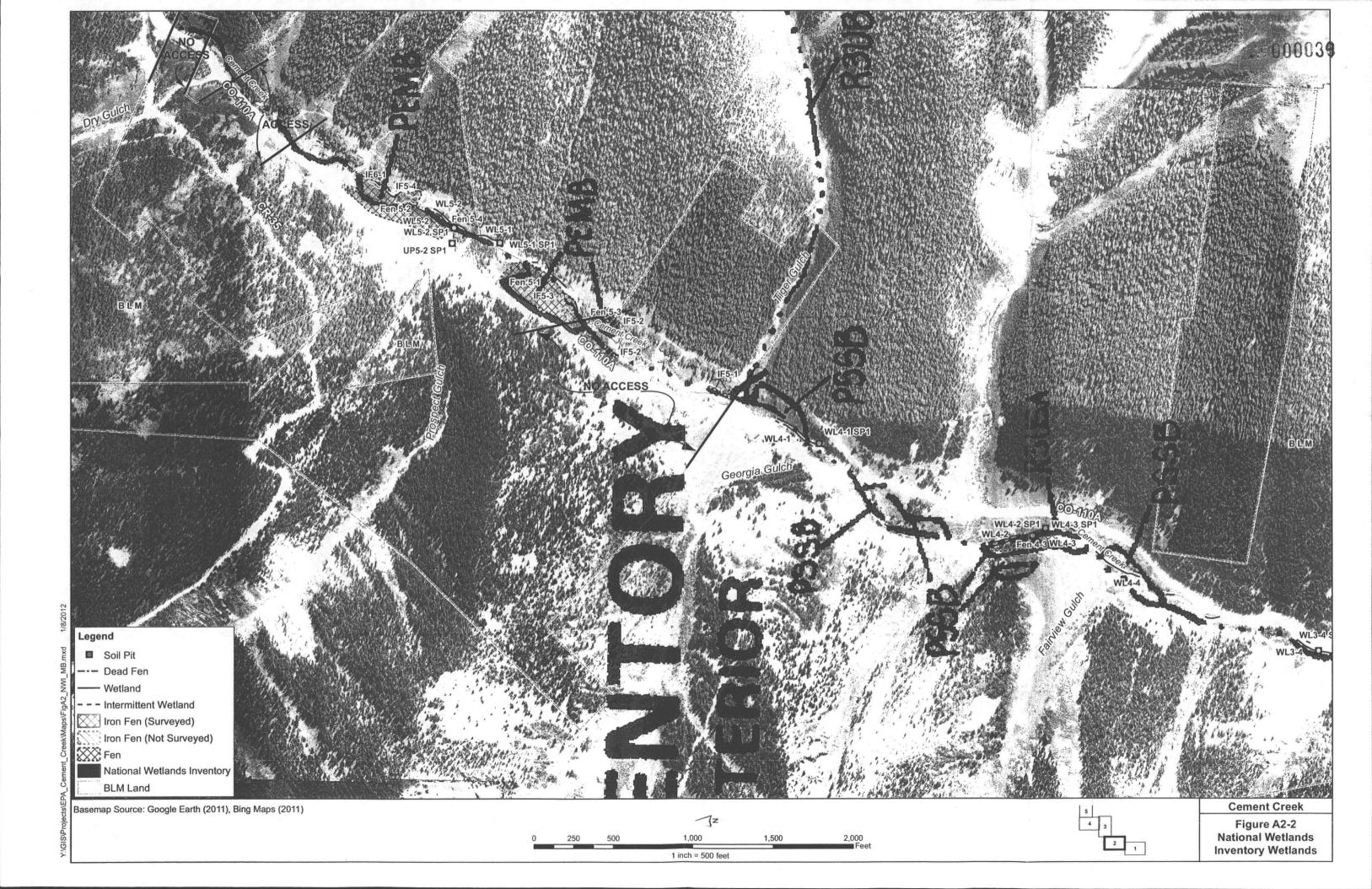


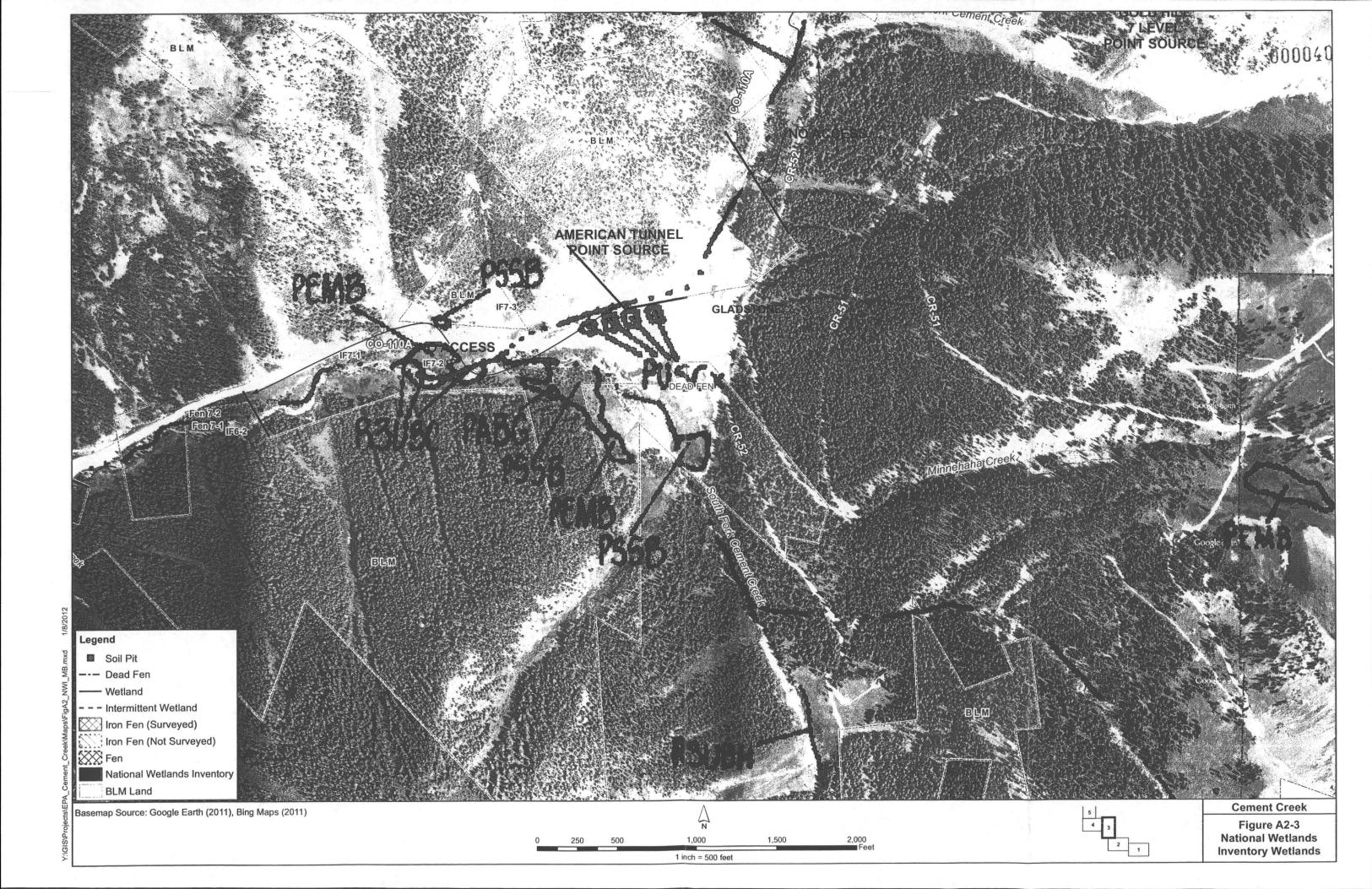


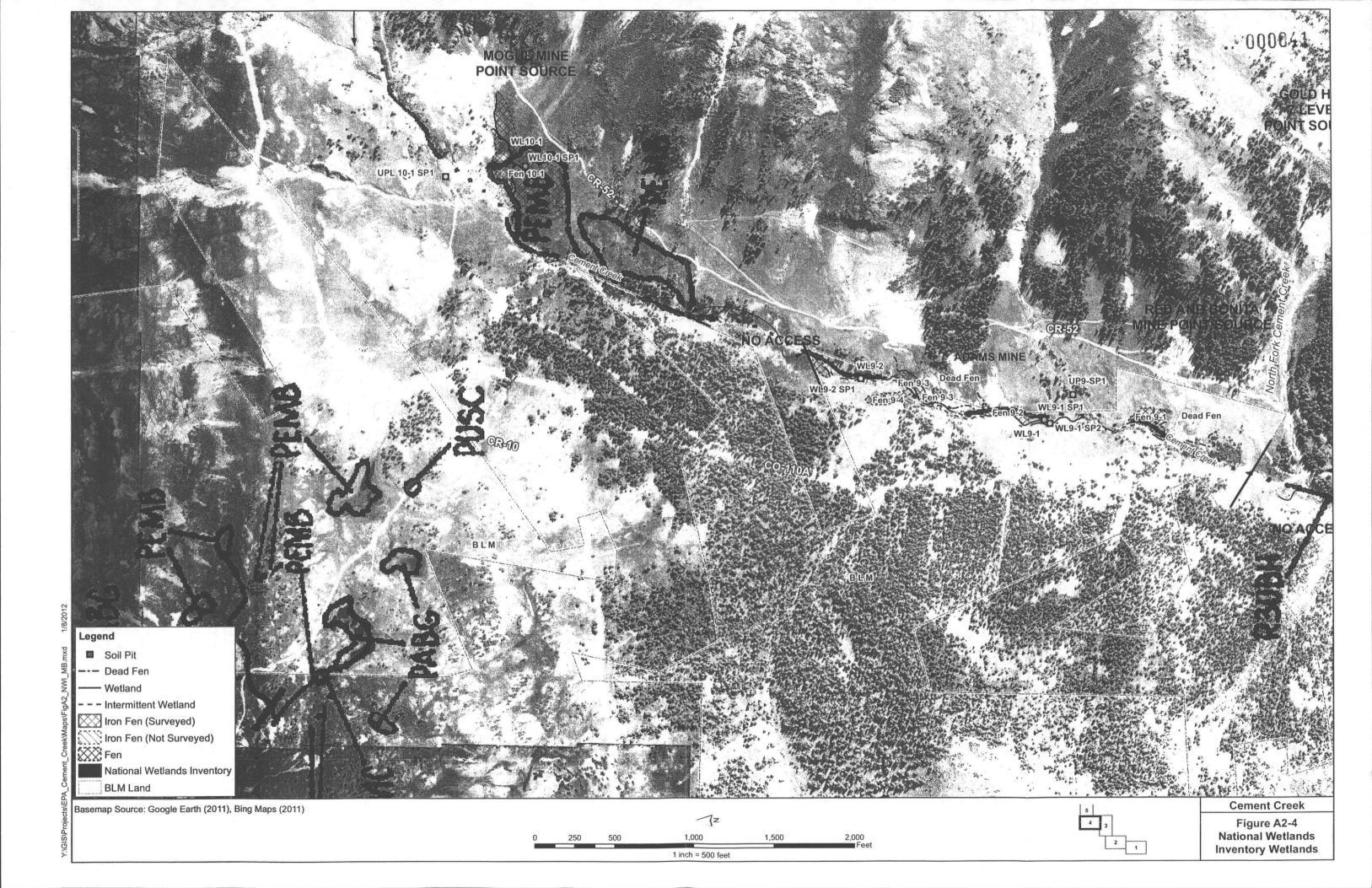


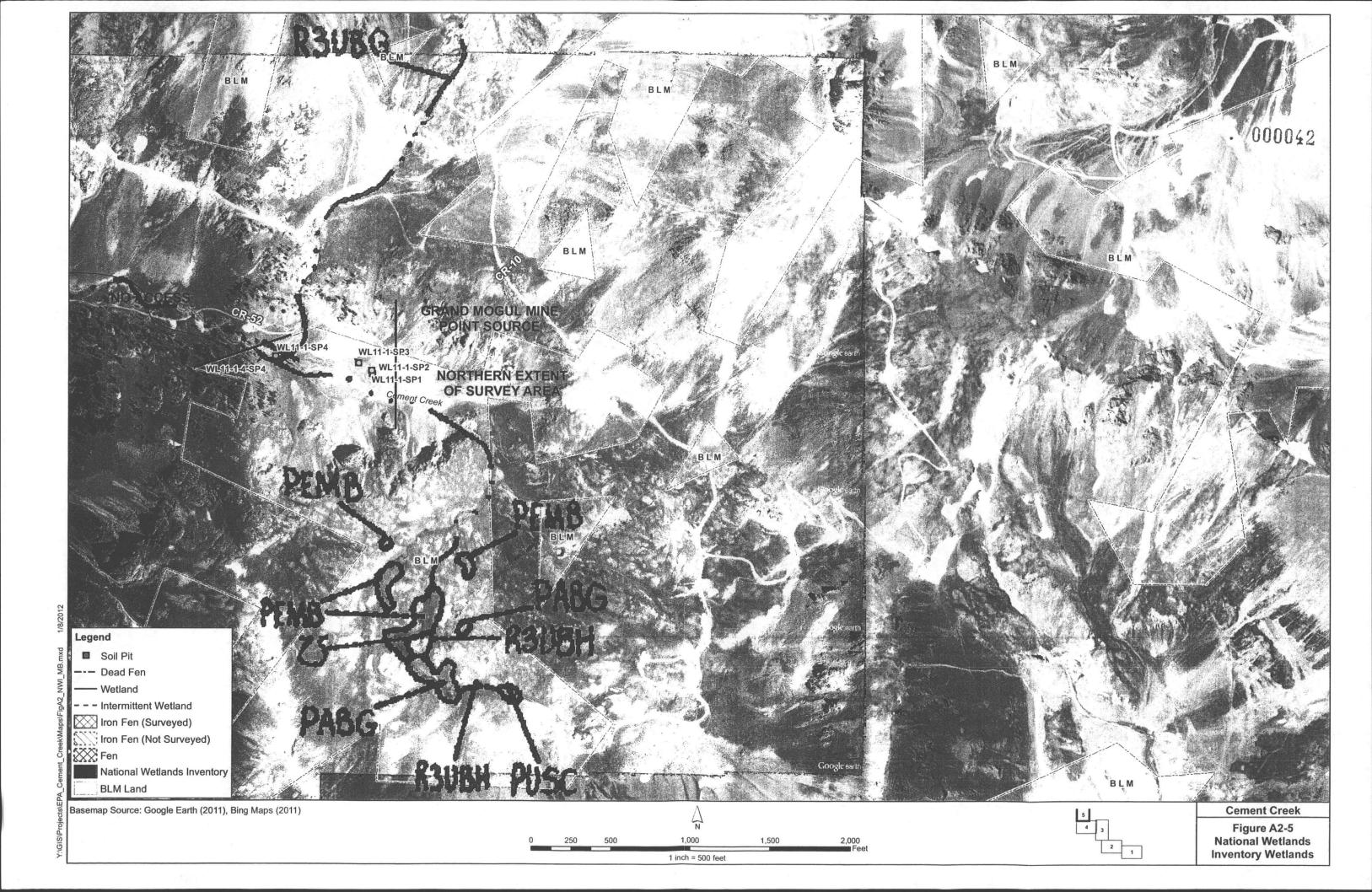
Appendix A2
National Wetlands Inventory Maps



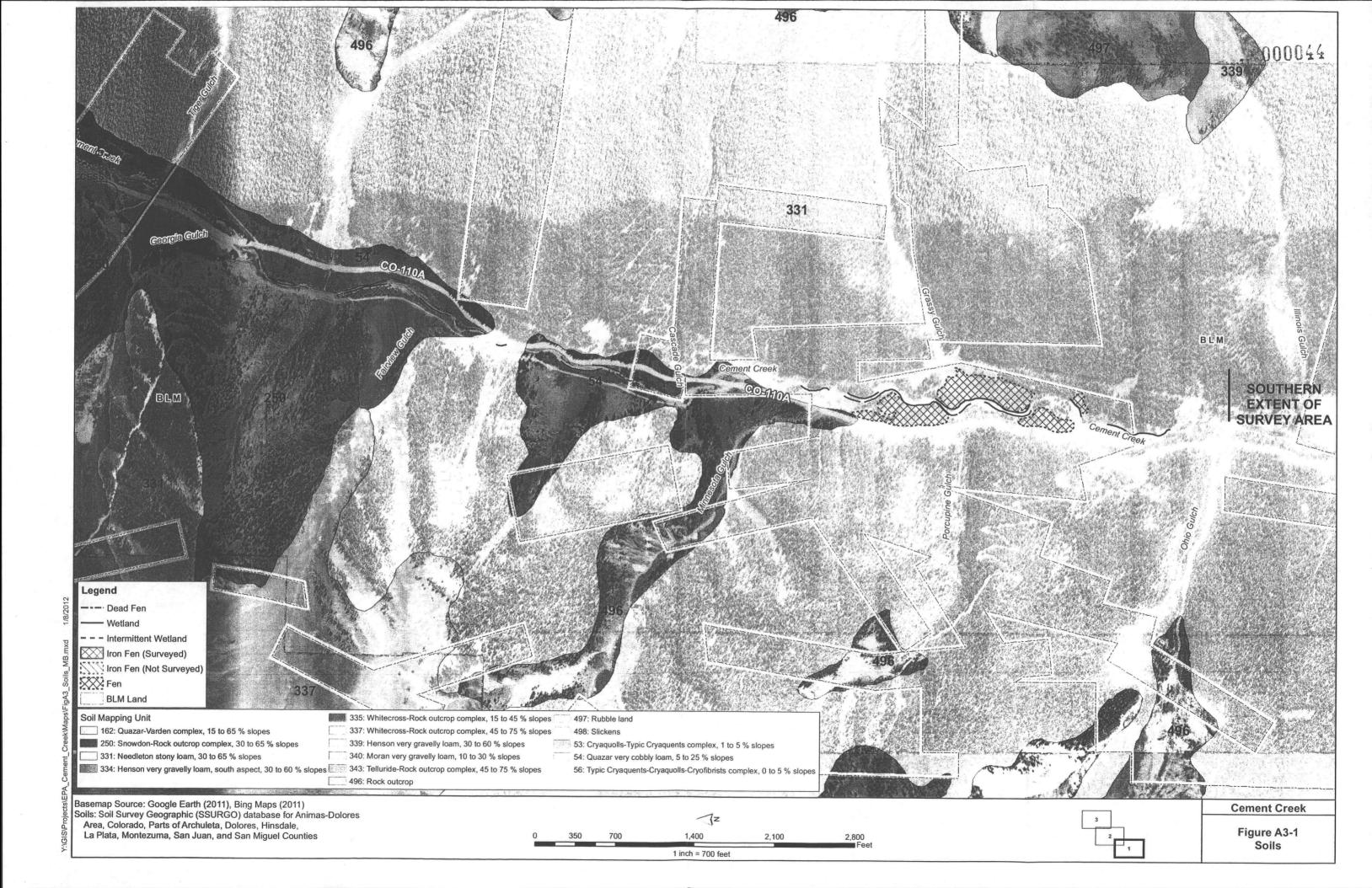


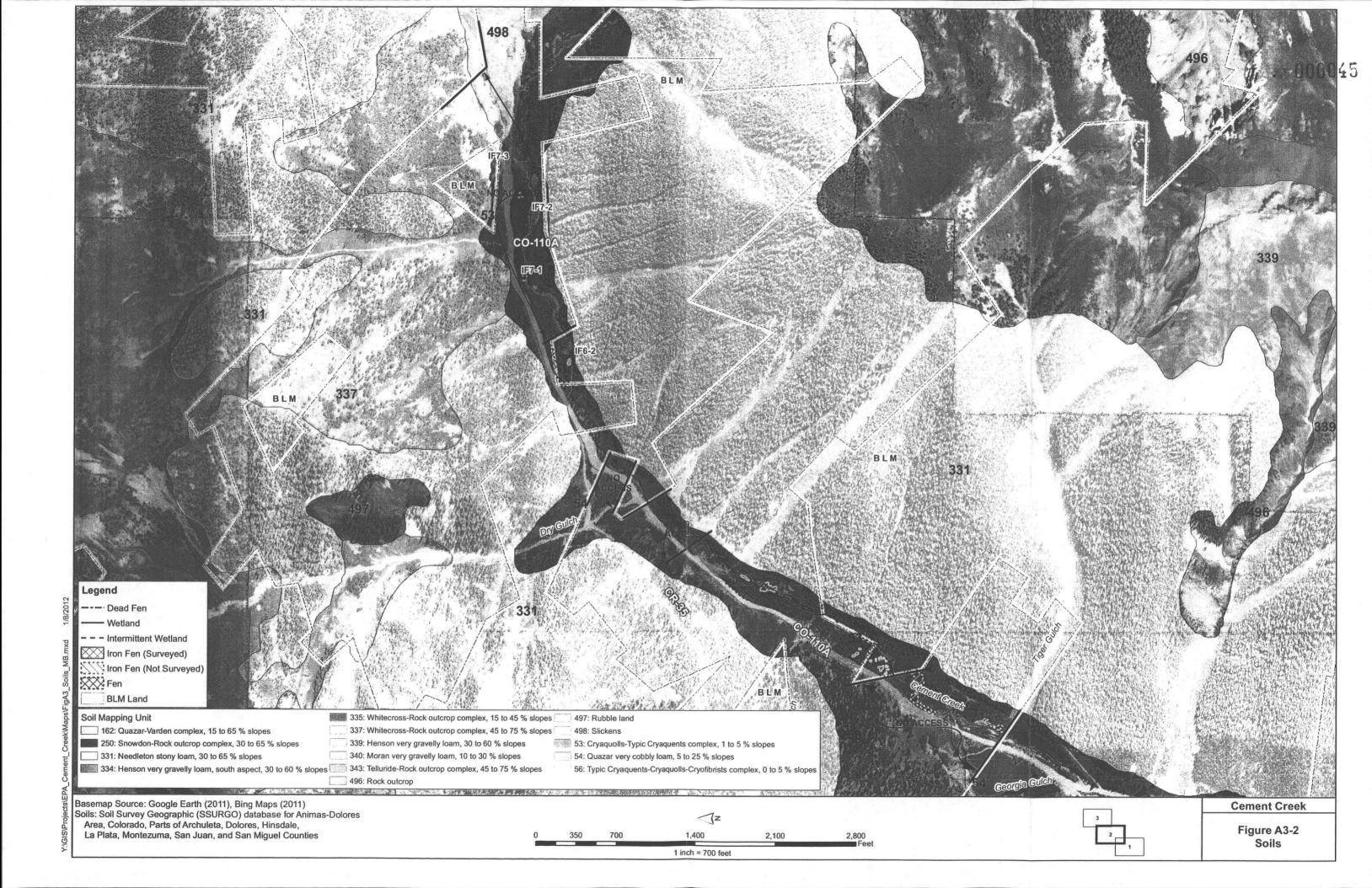


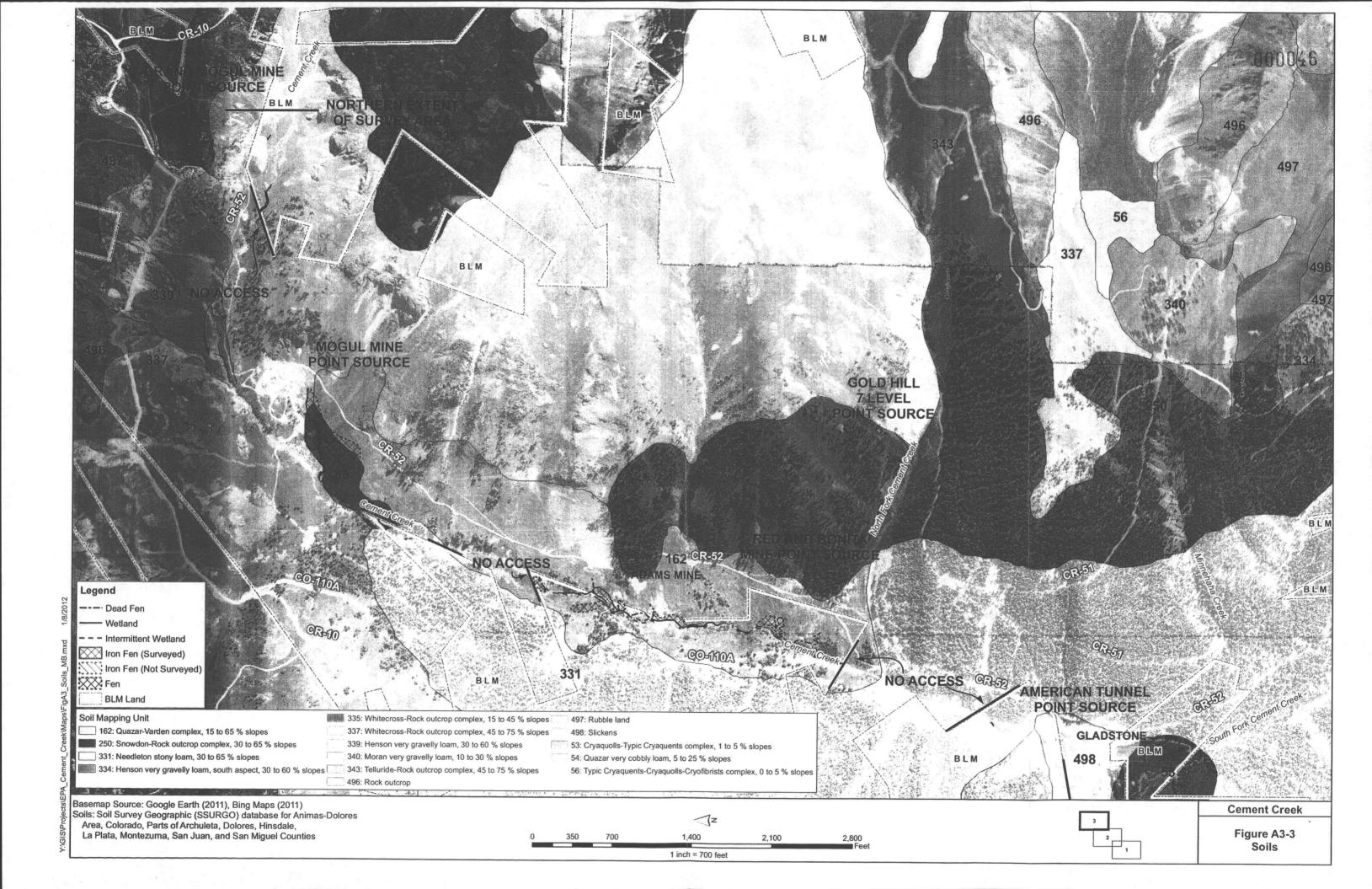




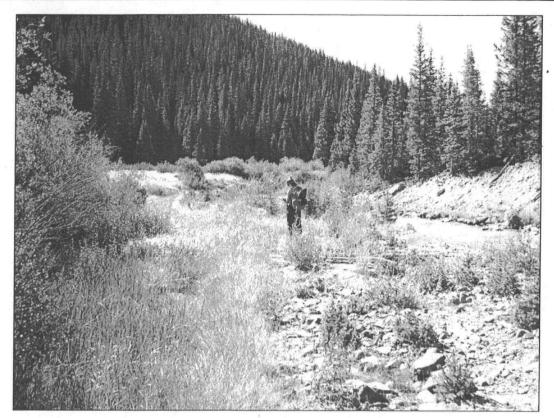
Appendix A3 Soil Maps



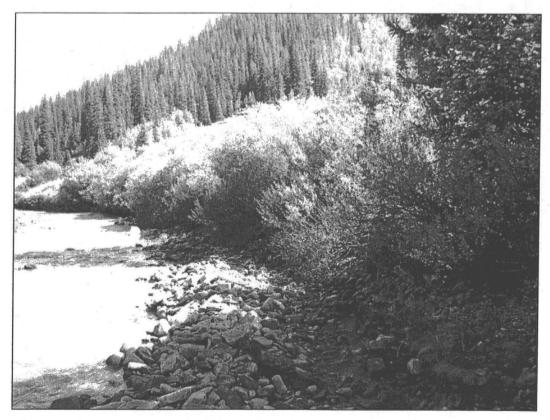




Appendix B Photographs Appendix B1
Wetland Photographs



Photograph 1.To Southeast – View of PEM portion of wetland WL 2-1.

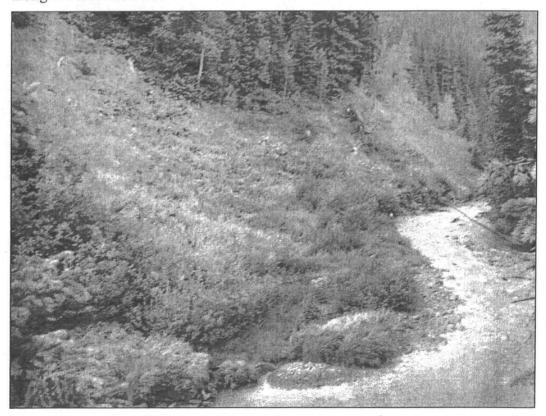


Photograph 2.To Northwest – View of PSS portion of wetland WL 2-1.

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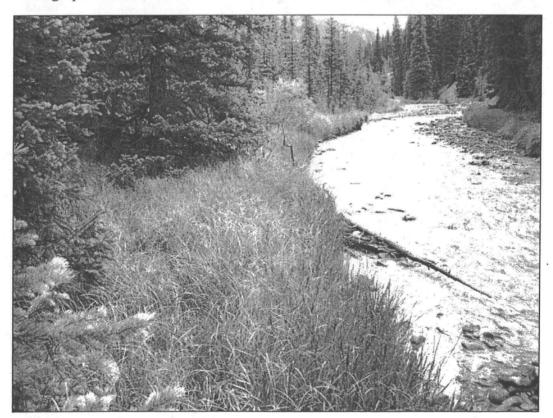
Photograph 3.To Southeast – View of the north end of PEM/PSS wetland WL 2-2 along the old channel.



Photograph 4.To East – View of the southern portion of PEM/PSS wetland WL 2-2.



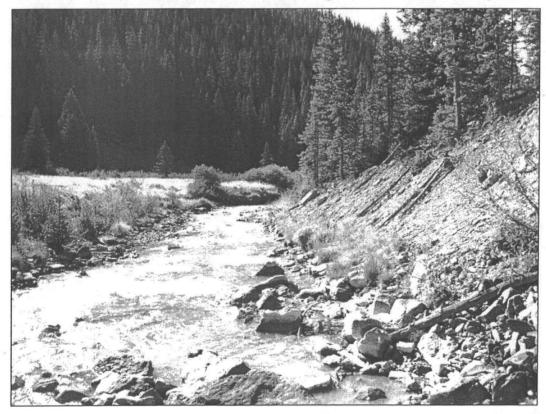
Photograph 5.To Northeast – View of PEM/PSS wetland WL 3-1.



Photograph 6.To North – View of PEM wetland WL 3-2W.



Photograph 7.To Northeast – Overview of PSS portion of wetland WL 3-3a and PEM wetland WL 3-3a. WL 3-3b occurs in foreground, WL 3-3a in background.



Photograph 8.To Southwest – View of PEM portion of wetland WL 3-3a at Porcupine Gulch.

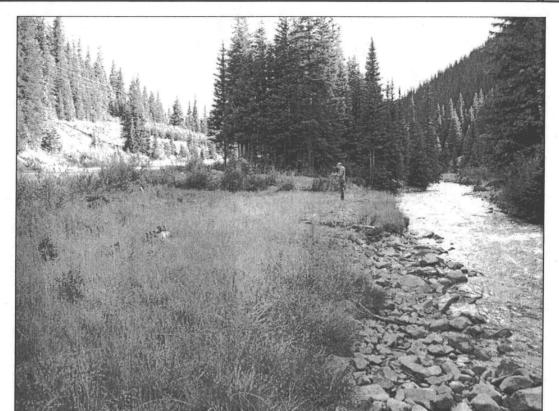


Photograph 9.To Northeast - View of PEM wetland WL 3-3b.



Photograph 10.To North – View of PEM/PSS wetland WL 3-4.



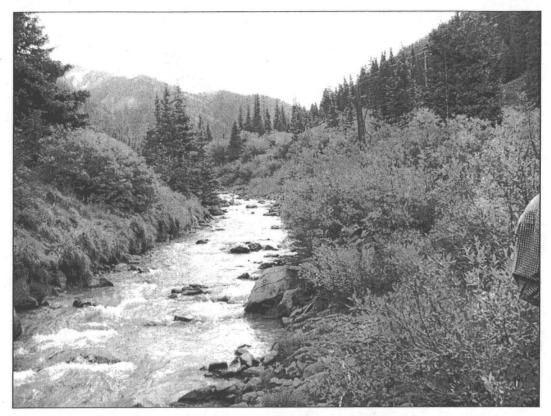


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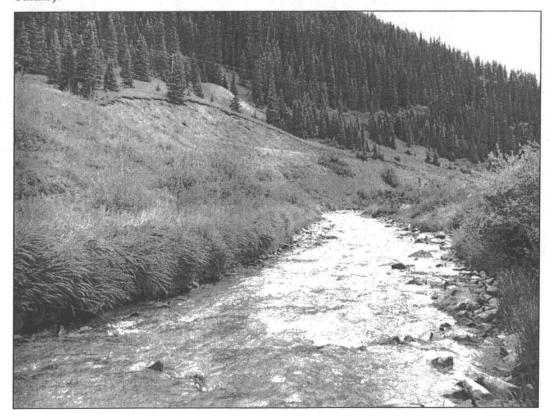
Photograph 11.To Southeast – View of PEM wetland WL 3-5 looking downstream.



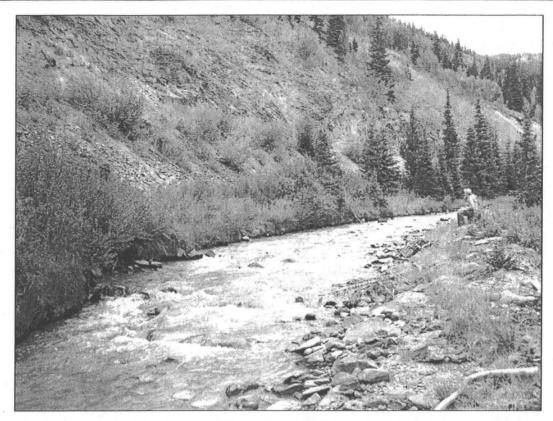
Photograph 12.To Southwest – View of PEM/PSS wetland WL 4-1 (both banks).



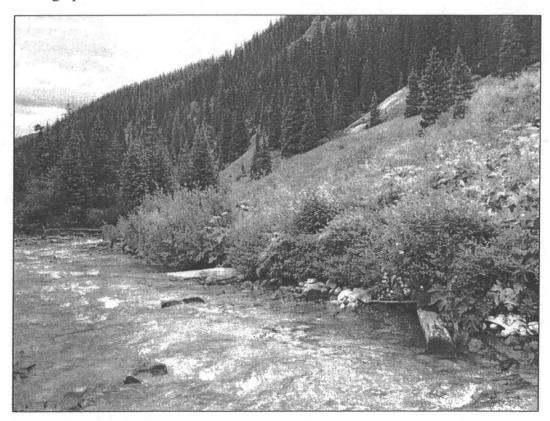
Photograph 13.To Northeast – View of wetland WL 4-1, PSS component (both banks).



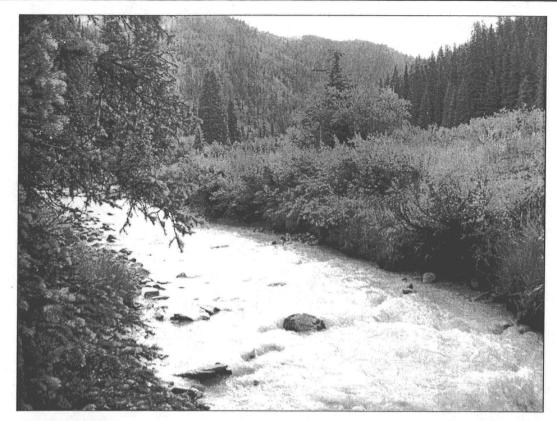
Photograph 14.To Southeast – View of PEM wetland WL 4-2 (left bank).



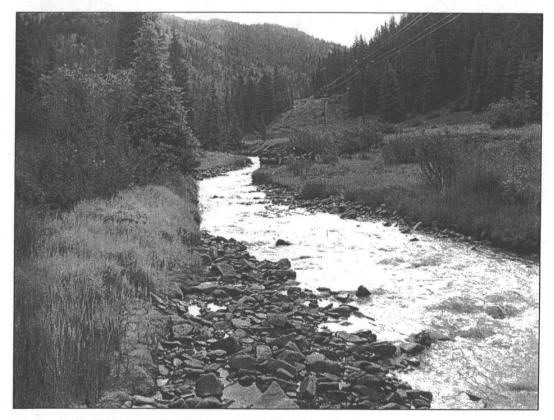
Photograph 15.To Northwest – View of PEM/PSS wetland WL 4-3.



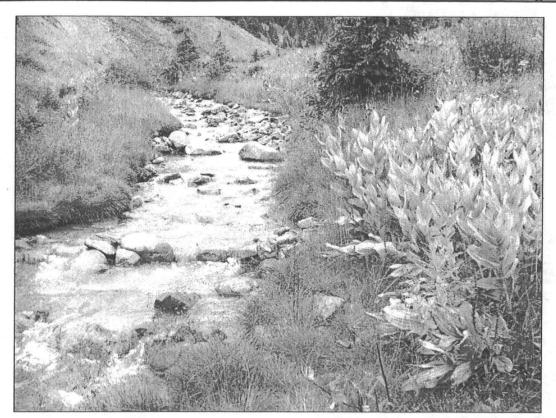
Photograph 16.To Southwest – View of PEM/PSS wetland WL 4-4.



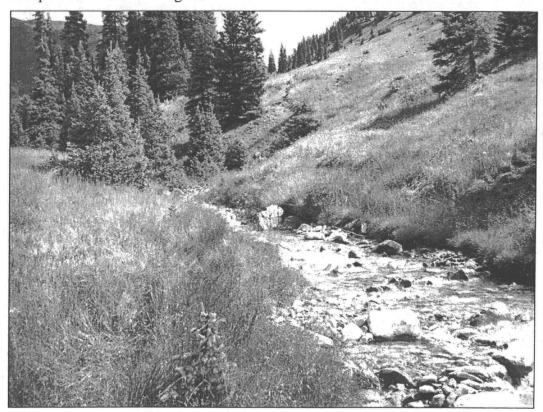
Photograph 17.To North – View of PEM/PSS wetland WL 5-1 (right bank).



Photograph 18.To North – View of PEM/PSS wetland WL 5-2 (both banks).



Photograph 19.To North – View of PEM wetland WL 9-1 (both banks). PSS component scattered along reach.



Photograph 20.To North – View of PEM wetland WL 9-2 (both banks). PSS component scattered along reach.



Photograph 21.To Southwest – Overview across PEM wetland WL10-1 from the Mogul Mine.

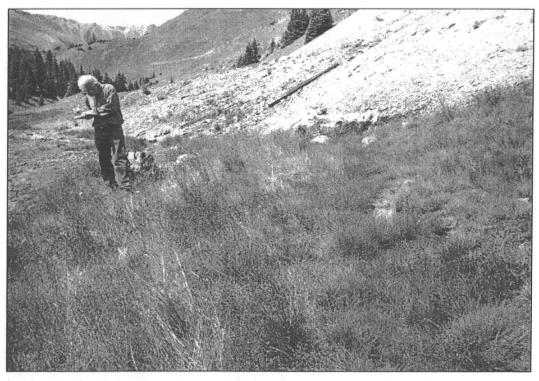


Photograph 22.To Northeast – View of PEM wetland WL 10-1 from the approximate center of site. Mogul Mine appears to the left in photograph.





Photograph 23.To East – View of PEM wetland WL 10-1 from Cement Creek confluence. Mogul Mine appears in upper right side of photograph.



Photograph 24.To Southwest – View of PEM wetland WL 11-1-SP3 looking downstream.



Photograph 25.To West – View of PEM wetland WL 11-1-SP4 looking downstream.

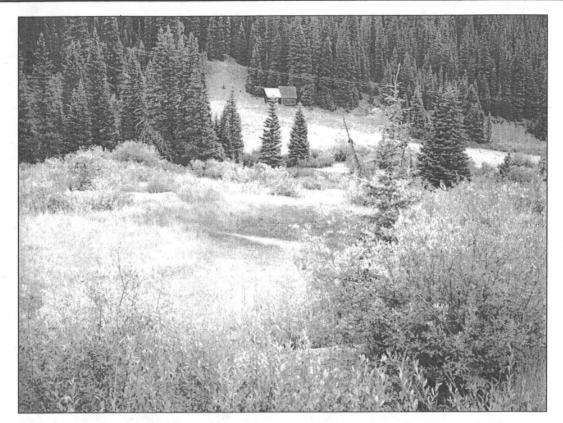
Appendix B2 Sensitive Habitat Photographs



Photograph 1.To South - View of Fen 2-1.



Photograph 2.To South – View of Fen 2-3 seep area. Vegetation occurring on the bank overhang is typical of fens abutting Cement Creek.



Photograph 3.To southeast – View of the red soils portion of Fen 3-1. Grassy Gulch appears in the background.

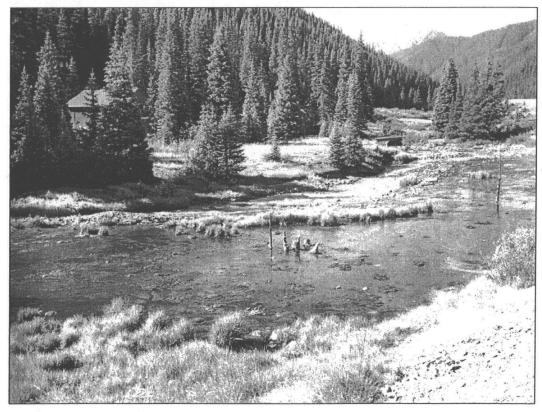


Photograph 4.To South – View of upper portion of Fen 4-3 from BLM road.

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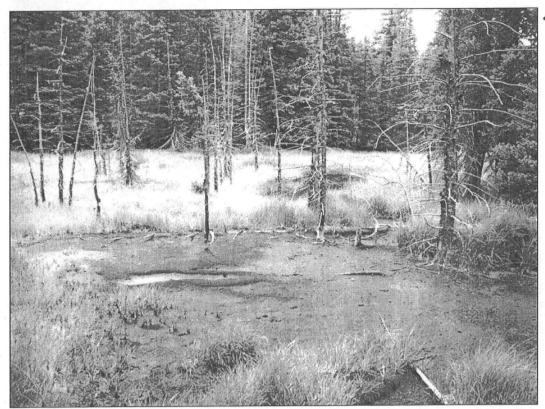


Photograph 5.To Northeast – View of Iron Fen IF5-1.

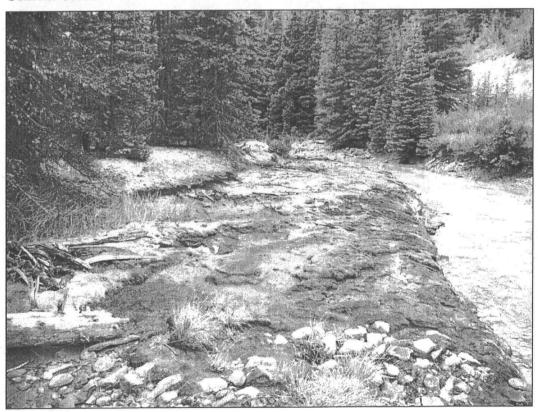


Photograph 6.To South – View of a portion of Iron Fen IF5-2 near County Road 110.

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Photograph 7.To South – View of a portion of Iron Fen IF5-2 on the east side of Cement Creek.



Photograph 8.To Southwest – View of Iron Fen IF5-2 along the banks of Cement Creek.



Photograph 9.To Southeast – View of the largest limonite ledge within Iron Fen IF5-3.



Photograph 10.To Southwest – Overview of Fen 5-1 with iron fen components.



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Photograph 11.To North-northwest - View of northern end of Fen 5-2.



Photograph 12.To South – View of IF5-4 near Cement Creek. Note the limonite ledge forming the stream bank in the photograph background.



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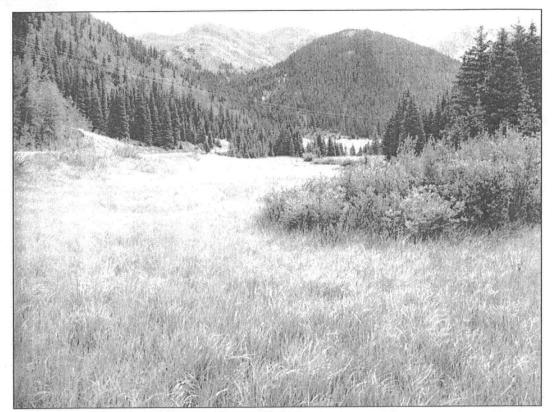


Photograph 13.To Southwest – View of Iron Fen IF6-1.



Photograph 14.To North – View of Fen 7-1.

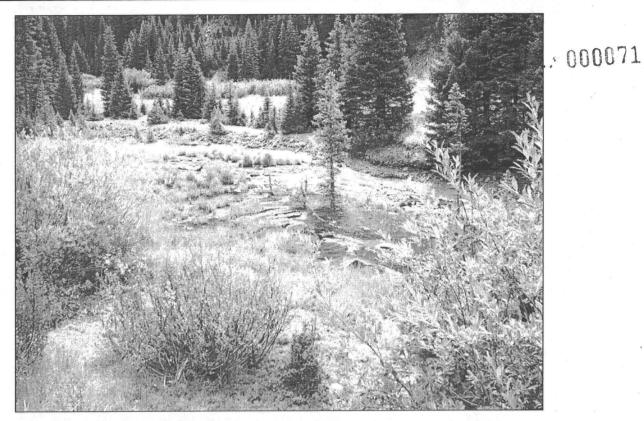
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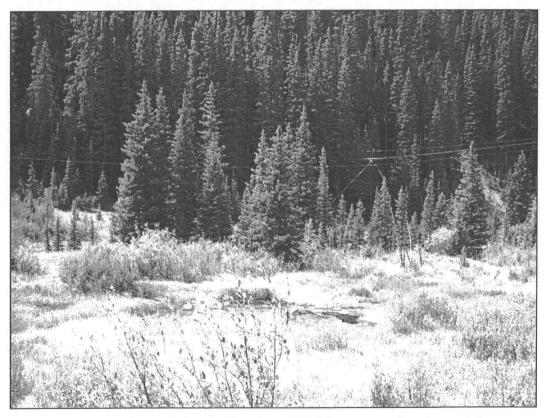
Photograph 15.To North-northwest - Overview of Fen 7-2.



Photograph 16.To West – Close up of limonite in Iron Fen IF6-2 near creek bank.



Photograph 17.To East – View of Iron Fen IF7-1 from County Road 110.

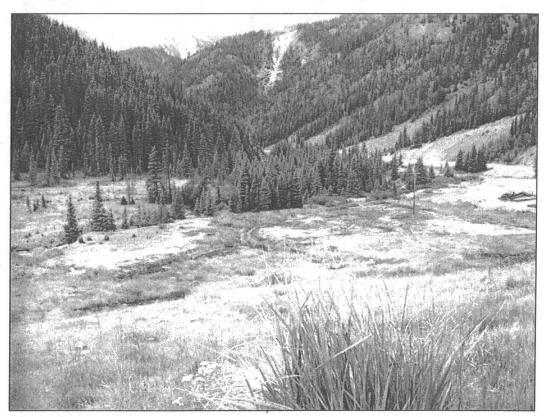


Photograph 18.To East – View of Iron Fen IF7-2 in center of unmapped fen occurring on private property.





Photograph 19.To Northwest – View of the unique slope Iron Fen IF7-3.



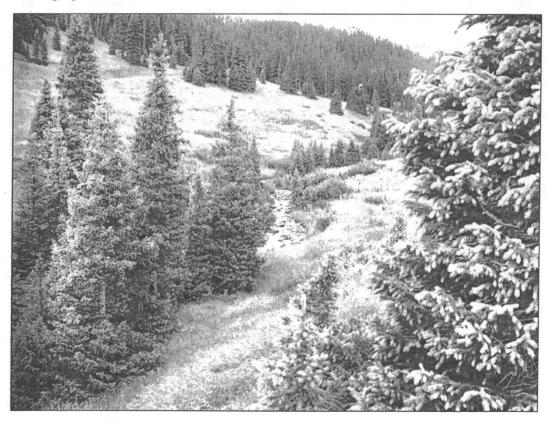
Photograph 20.To South - View of a 'dead fen' at Gladstone.





. 000073

Photograph 21. To East – View of the 'dead fen' below the Red and Bonita Mine.



Photograph 22. To North – View of Fen 9-1.





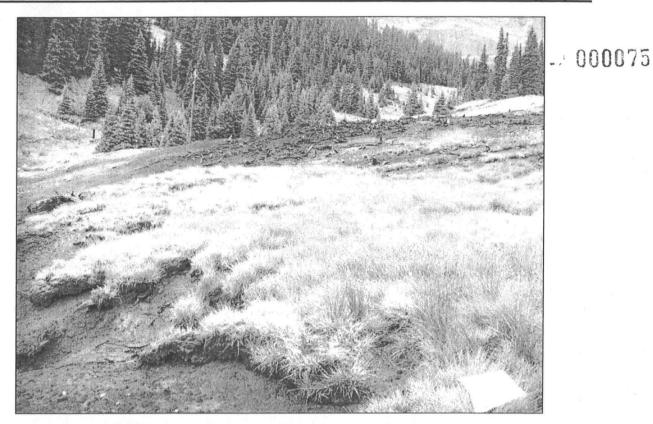
.. 000074

Photograph 23. To South – View of Fen 9-2 (left side of the stream bed).

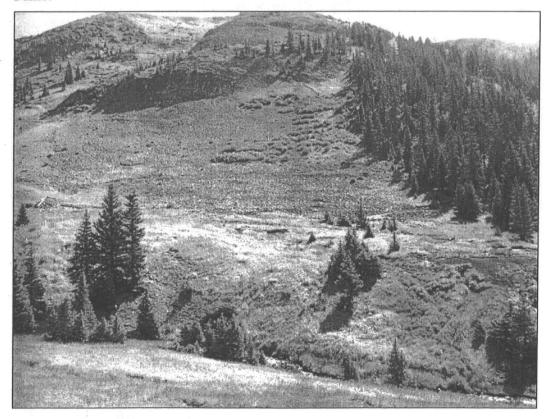


Photograph 24.To North - View of 'dead fen' below Adams Mine.



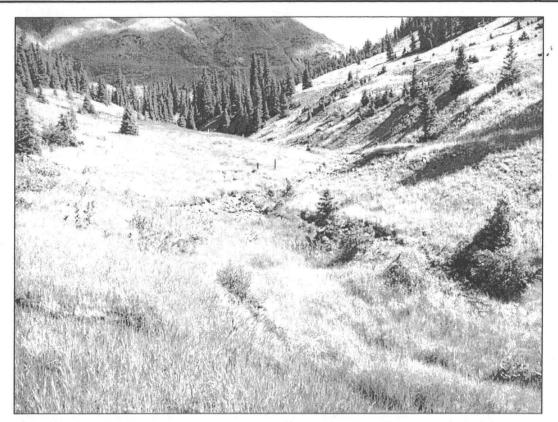


Photograph 25.To Northeast – Interface of Fen 9-2 and a 'dead fen' below Adams Mine.



Photograph 26.To East – View of Fen 9-3 below Adams Mine.





000076

Photograph 27.To North – View of Fen 9-5, occurring to the left of the stream bed.



Photograph 28.To Southwest – Overview of Fen 10-1. Fen appears in the center of the photograph beyond the stream bed.





Photograph 29.To Southwest – Closeup of cottongrass (*Eriophorum augustifolium*) community within Fen 10-1.

Appendix C Individual Wetland Data Forms

Project/Site: START 3 - Cement Creek		City/C	county: San Ju	an .	Sampling D	ate: 8-24-	2011
Applicant/Owner: Environmental Protection Agency		•		State:CO	Sampling P		
Investigator(s): S. Hall, A. Ballman, J. Dawson		Section	on, Township, F	Range: N/A			
Landform (hillslope, terrace, etc.): Low terrace		Local	relief (concave	e, convex, none):Concave		Slope (%)): 2-3
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	.8583		Long: -107.6762		Datum: N	AD 83
Soil Map Unit Name: Needleton Stony Loam, 30 to 65	percent sl	opes		NWI classific	ation: PEM	B	
Are climatic / hydrologic conditions on the site typical for th	-		es 💽 No				
<u> </u>	significantly			e "Normal Circumstances" p	•	· (6)	No C
	naturally pr			needed, explain any answer		14,5	10 (
SUMMARY OF FINDINGS - Attach site map			,			•	es. etc.
	% C		Is the Sample within a Wetl		No C		
	10 O	1	within a weti	ano? res (🐑	NO ()		·
Remarks: PEM/PSS wetland occurring on both sid	· • • • • • • • • • • • • • • • • • • •	nent C	reek, downsle	ope of fen and directly w	est of Gras	sv Gulch	Only
east side of creek is delineated. Wetland							
that is sustained by Cement Creek durin							
VEGETATION - Use scientific names of plan	ts.						
T OLD PLASE	Absolute		nant Indicator				
Tree Stratum Plot size:	% Cover	Speci	ies? Status	Dominance Test works			
1	· · · · · ·			 Number of Dominant Sp That Are OBL, FACW, or 	ecies r FAC		Ţ,
3.				- (excluding FAC-):		3.	(A)
4.				 Total Number of Domina Species Across All Strat 			(B)
		= Total	Cover	- ·		35	(B)
Sapling/Shrub Stratum Plot size: 1,396 x 10	200		00.01	Percent of Dominant Sp That Are OBL, FACW, o		100.0 %	(A/B)
1. Salix geyeriana	35	Yes		Prevalence Index work		i Thitalanaire)	
2. Betula glandulosa	30	Yes		Total % Cover of:		ultiply by:	
3. Salix planifolia	$\frac{3}{2}$	No		OBL species	, n ·	147	
4. Salix monticola 5.		No	OBL	FACW species	x2=	4	
5.	70	= Total	Cover	FAC species	x3=	. 3	
Herb Stratum Plot size 1,396 x 10	7.0	- rotai	Covei	FACU species	x 4 =	∀0 :	
1. Carex canescens	67	Yes	OBL	UPL species	x 5 =	.0	× 1,000
2. Calamagrostis canadensis	8	No	OBL	Column Totals: 15	0 (A)	154	4 (B)
3. Carex aquatilis	2	No	OBL	Prevalence Index	≆0 D/A	100	à.
4. Deschampsia cespitosa	2	No	FACW	Hydrophytic Vegetation		1.03	3,
5. Agrostis scabra		No	FAC	1 - Rapid Test for H			
6. Juncus parryi	<u><1</u>	No	FAC	2 - Dominance Test			
7. Juncus mertensianus	<u> </u>	No	OBL	3 - Prevalence Index	(is ≤3.0 ¹	•	
8. Phleum alpinum	<u> </u>	No	FAC	4 - Morphological Acdata in Remarks	laptations ¹ (P	rovide supp	porting
9.		•		5 - Wetland Non-Va			
10.	80	= Total	Cover	Problematic Hydropl	nytic Vegetat	tion¹ (Explai	
Woody Vine Stratum Plot size:	:99/	Total	00101	**Indicators of hydric soil			must
1.	 -			be present, unless distu	bed of prob	emauc.	
2	200000000000000000000000000000000000000		·	Hydrophytic Vegetation Yes	⑥ No	• C	
		= Total (Cover	Present?	4.ie	- me	
% Bare Ground in Herb Stratum 7 %							
Remarks: Bare Ground = sediment deposits mostly							
PEM portion of wetland is located within the southern end of the wetland.	tne swale	at the	northern end	of the wetland. PSS por	tion of wet	land is loc	ated at
the southern end of the wettand.				•			

SOIL

			th needed to document th			ine absonies or i	
Depth	Matrix		Redox Featu				
(inches)	Color (moist)	%	Color (moist) %	Type ¹	Loc ²	Texture	Remarks
SP1 0-1	10 YR 5/4	100				Fine sand	
SP1 1-3	10 YR 5/4	75	7.5 YR 5/8 25	RM	M	Fine sand	
	-						
·							
							10 10
							
				- 			
				-			
¹ Type: C=Co	ncentration, D=Depletion	on, RM=Reduc	ced Matrix, CS=Covered or Coa	ted Sand Grain	s		² Location: PL=Pore Lining, M=Matrix
Hydric Soil	Indicators: (Applica	ble to all LRI	Rs, unless otherwise noted.)		Indicators for F	roblematic Hydric Soils ³ :
Histoso			Sandy Redox (S5)			2 cm Muc	
	pipedon (A2)		Stripped Matrix (S6)				nt Material (TF2)
<u> </u>	listic (A3)		Loamy Mucky Miner		pt MLRA1)	=	low Dark Surface (TF12)
Hydrog	en Sulfide (A4)		Loamy Gleyed Matr		•		lain in Remarks)
Deplete	ed Below Dark Surface	ce (A11)	Depleted Matrix (F3)			,
Thick D	ark Surface (A12)		Redox Dark Surface	: (F6)		3 1	and the second of the second
	Mucky Mineral (S1)		Depleted Dark Surfa	• •			of hydrophytic vegetation and ydrology must be present.
Sandy (Gleyed Matrix (S4)		Redox Depressions	(F8)			sturbed or problematic.
Restrictive	Layer (if present):						
Type: C	obbles and Rocks				·	Hydric Soil Pre	sent? Yes 💽 No 🤇
Depth (in	ches): 3		· · · · · · · · · · · · · · · · · · ·			_	
7 7	· 	ile based or	n the predominance of O	BL or EACY	W vegetat	ion and the pre	sence of primary hydrologic
Remarks: A	dicators Soils an	near to be c	seesonally flooded and c	omnoced of	river codi:	ments. Soil ni	could not dug lower than 3
	iches due to depos	•	seasonarry moducu and c	omposed of	iivei seun	ments. Son pi	could not dug tower than 3
111	iches due to depos	ALLICHII.					
	•						• •
	· · · · · · · · · · · · · · · · · · ·						
)GY						
	OGY drology Indicators	· · · · · · · · · · · · · · · · · · ·				·	
Wetland Hy Primary Indica	DGY drology Indicators ators (minimum of one r	· · · · · · · · · · · · · · · · · · ·					ndicators (minimum of two required)
Wetland Hy Primary Indica Surface	drology Indicators ators (minimum of one r	· · · · · · · · · · · · · · · · · · ·	Water-Stained Lea	` ' '	ept	Water-	Stained Leaves (B9) (except
Wetland Hy Primary Indica Surface High Wa	drology Indicators: ators (minimum of one r Water (A1) ater Table (A2)	· · · · · · · · · · · · · · · · · · ·	Water-Stained Lea	` ' '	ept	Water-	Stained Leaves (B9) (except 1, 2, 4a, and 4b)
Wetland Hy Primary Indica Surface High Wa Saturati	drology Indicators: ators (minimum of one r Water (A1) ater Table (A2) on (A3)	· · · · · · · · · · · · · · · · · · ·	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11)	d 4b) ()	ept	Water- MLRA Draina	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10)
Wetland Hy Primary Indica Surface High Wa Saturati Water M	or (A1) ater Table (A2) on (A3) flarks (B1)	· · · · · · · · · · · · · · · · · · ·	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra	d 4b) ()	ept	Water-MLRA Draina	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2)
Wetland Hy Primary Indica Surface High Wa Saturati Water M X Sedimet	drology Indicators: ators (minimum of one r Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)	· · · · · · · · · · · · · · · · · · ·	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11)	d 4b) ()	ept	Water- MLRA Drainag Dry-Se Saturat	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9)
Wetland Hy Primary Indica Surface High Wa Saturati Water M X Sedimet	or (A1) ater Table (A2) on (A3) flarks (B1)	· · · · · · · · · · · · · · · · · · ·	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra	d 4b) (1) tes (B13) Odor (C1)		Water- MLRA Drainag Dry-Se Satural Geomo	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2)
Wetland Hy Primary Indica Surface High Wa Saturati Water M Sedimel Drift Del Algai Ma	drology Indicators: ators (minimum of one r Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	· · · · · · · · · · · · · · · · · · ·	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduce	d 4b) (ces (B13) Odor (C1) Deres on Living Ced Iron (C4)	g Roots (C3	Water- MLRA Drainag Dry-Se Saturat Geomo	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3)
Wetland Hy Primary Indica Surface High Wa Saturati Water M Sedimel Drift Del Algai Ma	drology Indicators: ators (minimum of one r Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3)	· · · · · · · · · · · · · · · · · · ·	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph	d 4b) (ces (B13) Odor (C1) Deres on Living Ced Iron (C4)	g Roots (C3	Water- MLRA Drainag Dry-Se Saturat Geomo	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2)
Wetland Hy Primary Indica Surface High Wa Saturati Water M Sedimet Drift Del Algai Ma	drology Indicators: ators (minimum of one r Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	· · · · · · · · · · · · · · · · · · ·	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduce	tes (B13) Odor (C1) Heres on Living Ced Iron (C4) tions in Tilled	g Roots (C3 Soils (C6)	Water- MLRA Drainag Dry-Se Saturat Geomo Shallov FAC-N	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3)
Wetland Hy Primary Indica Surface High Wa Saturati Water M X Sedimet X Drift Det Algai Ma Iron Det Surface	drology Indicators: ators (minimum of one r Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	: equired; checl	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosph Presence of Reduce Recent Iron Reduce Stunted or Stresse	tes (B13) Odor (C1) heres on Living ced Iron (C4) tions in Tilled d Plants (D1)	g Roots (C3 Soils (C6)	Water- MLRA Drainag Dry-Se Satural Geomo Shallov FAC-N Raised	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3) eutral Test (D5)
Wetland Hy Primary Indica Surface High Wa Saturati Water M Sedimen Algai Ma Iron Det Surface Inundati	drology Indicators: ators (minimum of one recommendations) atter Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6)	equired; check	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide of Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse	tes (B13) Odor (C1) heres on Living ced Iron (C4) tions in Tilled d Plants (D1)	g Roots (C3 Soils (C6)	Water- MLRA Drainag Dry-Se Satural Geomo Shallov FAC-N Raised	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3) eutral Test (D5) Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indica Surface High Wa Saturati Water M Sedimen Algai Ma Iron Det Surface Inundati	drology Indicators: ators (minimum of one research (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial of Vegetated Concave	equired; check	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide of Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse	tes (B13) Odor (C1) heres on Living ced Iron (C4) tions in Tilled d Plants (D1)	g Roots (C3 Soils (C6)	Water- MLRA Drainag Dry-Se Satural Geomo Shallov FAC-N Raised	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3) eutral Test (D5) Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indica Surface High Wa Saturati Water M Sedimel Algai Ma Iron Der Surface Inundati Sparsely	drology Indicators: ators (minimum of one r Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial (y Vegetated Concave vations:	equired; check lmagery (B7) e Surface (B	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide of Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse	tes (B13) Odor (C1) heres on Living ced Iron (C4) tions in Tilled d Plants (D1)	g Roots (C3 Soils (C6)	Water- MLRA Drainag Dry-Se Satural Geomo Shallov FAC-N Raised	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3) eutral Test (D5) Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indica Surface High Wa Saturati Water M Sedimen Algai Ma Iron Der Surface Inundati Sparsely	drology Indicators: ators (minimum of one research (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial of the vertice of vertice of the vertice of	equired; check	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduction Recent Iron Reduction Stunted or Stresse Other (Explain in Fig. 8)	tes (B13) Odor (C1) heres on Living ced Iron (C4) tions in Tilled d Plants (D1)	g Roots (C3 Soils (C6) (LRR A)	Water- MLRA Drainag Dry-Se Saturat Geomo Shallov FAC-N Raised Frost-H	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3) eutral Test (D5) Ant Mounds (D6) (LRR A)
Wetland Hy Primary Indica Surface High Wa Saturati Water M Sedimet Algai Ma Iron Det Surface Inundati Sparsely Field Obser Surface Water	drology Indicators: ators (minimum of one research (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial (by Vegetated Concave vations: er Present?	equired; check lmagery (B7) e Surface (B es (Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide of Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse Other (Explain in Fig.) Openth (inches): Depth (inches):	tes (B13) Odor (C1) heres on Living ced Iron (C4) tions in Tilled d Plants (D1)	g Roots (C3 Soils (C6) (LRR A)	Water- MLRA Drainag Dry-Se Saturat Geomo Shallov FAC-N Raised Frost-H	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3) eutral Test (D5) Ant Mounds (D6) (LRR A) leave Hummocks (D7) (LRR F)
Wetland Hy Primary Indica Surface High Wa Saturati Water N Sedimel Algai Ma Iron Det Surface Inundati Sparsely Field Obser Surface Wat Water Table Saturation P (includes cal	drology Indicators: ators (minimum of one research (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial It y Vegetated Concave vations: er Present? Present? Y resent? y resent? y resent?	equired; check Imagery (B7) e Surface (B) fes (Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosph Presence of Reduce Recent Iron Reduce Stunted or Stresse Other (Explain in Files) Opepth (inches): Depth (inches): Depth (inches):	tes (B13) Odor (C1) heres on Living ced Iron (C4) tions in Tilled d Plants (D1) temarks)	g Roots (C3 Soils (C6) (LRR A)	Water- MLRA Drainag Dry-Se Satural Shallov FAC-N Raised Frost-H	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3) eutral Test (D5) Ant Mounds (D6) (LRR A) leave Hummocks (D7) (LRR F)
Wetland Hy Primary Indica Surface High Wa Saturati Water N Sedimel Algai Ma Iron Det Surface Inundati Sparsely Field Obser Surface Wat Water Table Saturation P (includes cal Describe Re	drology Indicators: ators (minimum of one research (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial It y Vegetated Concave vations: er Present? Present? Y resent?	equired; check Imagery (B7) e Surface (B) fes (Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide of Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse Other (Explain in Fig.) Openth (inches): Depth (inches):	tes (B13) Odor (C1) heres on Living ced Iron (C4) tions in Tilled d Plants (D1) temarks)	g Roots (C3 Soils (C6) (LRR A)	Water- MLRA Drainag Dry-Se Satural Shallov FAC-N Raised Frost-H	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3) eutral Test (D5) Ant Mounds (D6) (LRR A) leave Hummocks (D7) (LRR F)
Wetland Hy Primary Indica Surface High Wa Saturati Water M Sedimen Algai Ma Iron Dep Surface Inundati Sparsely Field Obser Surface Wat Water Table Saturation P (includes cap Describe Re Aerial phot	drology Indicators: ators (minimum of one r Water (A1) ater Table (A2) on (A3) Marks (B1) Int Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial of Vegetated Concaverations: er Present? Present? Y Pre	equired; check magery (B7) e Surface (B) es C N es C N es C N es C N	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosph Presence of Reduct Recent Iron Reduct Stunted or Stresse Other (Explain in File) Opepth (inches): Depth (inches): Depth (inches): Depth (inches):	tes (B13) Odor (C1) heres on Living ced Iron (C4) tions in Tilled d Plants (D1) temarks)	g Roots (C3 Soils (C6) (LRR A)	Water- MLRA Drainag Dry-Se Satural Shallov FAC-N Raised Frost-H	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) rphic Position (D2) v Aquitard (D3) eutral Test (D5) Ant Mounds (D6) (LRR A) leave Hummocks (D7) (LRR F)
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Project/Site: START 3 - Cement Creek		City/0	County: San Jua	an	Sampling Da	nte: 8-25-11
Applicant/Owner: Environmental Protection Agency		_		State:CO	Sampling Po	int: WL 2-2
Investigator(s): S. Hall, J. Dawson		Secti	on, Township, R	ange: N/A		
Landform (hillslope, terrace, etc.): Hillslope		– Loca	al relief (concave,	, convex, none):Concave		Slope (%): <1
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 3	 7.8545		Long: -107.6767		Datum: NAD 83
Soil Map Unit Name: Needleton stony loam, 30 to 65 p					ation: None	
Are climatic / hydrologic conditions on the site typical for th			/es (●) No (-	
. <u> </u>	significant	-	W	"Normal Circumstances" p	•	(©) No C
	naturally p	•		•		-
Are Vegetation Soil or Hydrology SUMMARY OF FINDINGS - Attach site map			•	needed, explain any answe locations, transects.		•
	No C					
	No ()		is the Sample within a Wetla		No C	
I	No (within a wetta	mar res (e)	NO C	
Remarks: Well developed PEM/PSS slope wetland	*	side of	Cement Creek.	typical of spring fed w	etlands with	in the study area
Some creek influence as evidenced by th						
springs. Floodplain widens considerably						
VEGETATION - Use scientific names of plan	ts.				-	
	Absolute		inant Indicator			
Tree Stratum Plot size:	% Cove	r Spec	cies? Status	Dominance Test works		
1.		_		Number of Dominant Sp That Are OBL, FACW, o		
2.				(excluding FAC-):		(A)
3.				Total Number of Domina		1.0gg/peccory* :
4.				Species Across All Strat		(B)
Sapling/Shrub Stratum Plot size: 10 x 590		= rota	l Cover	Percent of Dominant Sp That Are OBL, FACW, or		100.0 % (A/B)
1. Salix planifolia	30	Yes	OBL			100.0 % (A/B)
2. Salix monticola	30	Yes	OBL	Prevalence Index work		
3. Picea engelmannii	<1	No	FACU-	Total % Cover of:	******	Itiply by:
4.				1484	0 x1=	90
5				FACW species	6741 ·	20
Herb Stratum Plot size 10 x 590	60	= Total	Cover	FAC species FACU species	x3 =	*U
1. Calamagrostis canadensis	15	Yes	OBL	UPL species)	o.
2. Senecio triangularis	10	Yes	OBL	Column Totals:	MCC.	0 110 (B)
3. Mertensia ciliata	5	Yes	OBL	Column Totals.	<i>)</i> (^)	13.0 (B)
4. Mimulus guttatus	<1	No	OBL	Prevalence Index	= B/A =	1.10
5. Deschampsia cespitosa		No	FACW	Hydrophytic Vegetation		
6. Cardamine cordifolia	5	No	FACW+	1 - Rapid Test for H		getation
7. Heracleum maximum (H. sphondylium)	3	No	FACW-	2 - Dominance Test 3 - Prevalence Index		
8.				4 - Morphological Ac		ovide supporting
9.				data in Remarks	or on a separa	ate sheet)
10.				5 - Wetland Non-Va		_
Woody Vine Stratum Plot size:	40	= Total	Cover	Problematic Hydrop	and wetland	hydrology must
1.				be present, unless distu	noed or proble	mauc.
2.	- obdosci i			Hydrophytic Vegetation Yes	No	0
·		= Total	Cover	Present?		~
% Bare Ground in Herb Stratum 0 %	-	,				
Remarks: PEM/PSS wetland fringe on the east side						
broader and narrows to south where side	slope stee	epens.	Some sub-alpi	ne meadow vegetation a	ilso present.	Deer tracks
observed.					•	

Color (mois SP1 0-4 7.5YR 4/6	rix		Redo	x Feature	es	•			*	
		Colo	or (moist)	%	Туре	Loc ²	Texture	<u> </u>	Re	marks
	99	7.5	YR 6/8	1	RM	<u>M</u>	Silty s	and		
SP1 4-12 10YR 5/2	. 65	10	YR 2/1	20	RM	M	Silty c	lay		
SP1 4-12			7/10Y	10	RM	_ <u></u>	Silty c	lay		
SP1 4-12		7.5	YR 6/8	5	RM	PL	Silty c	lay		
						·				
				·						·
Type: C=Concentration, D=De	oletion, RM=R	educed Matr	ix, CS=Covere	ed or Coat	ed Sand G	rains			ion: PL=Pore	Lining, M=Matrix
lydric Soil Indicators: (App	licable to all	LRRs, unle	ess otherwise	e noted.)		·	Indicate	ors for Probler		
Histosol (A1)			Sandy Redox				_	m Muck (A10	•	
Histic Epipedon (A2)			Stripped Ma					d Parent Mate	•	
Black Histic (A3)			Loamy Muck	. ,	al (F1) (ex	cent MI RA	. =	ry Shallow Da	• •	/TE12\
Hydrogen Sulfide (A4)			Loamy Gley	-		op: meio	· —	ner (Explain in		(11-12)
Depleted Below Dark S	urface (A11)		Depleted Ma					ioi (Expialii III	i Nemaiks)	
Thick Dark Surface (A1:		نت	Redox Dark							
Sandy Mucky Mineral (\$							³ In	dicators of hyd	drophytic ve	getation and
= ' '			Depleted Da		, ,		W	etland hydrolo	gy must be	present,
Sandy Gleyed Matrix (S			Redox Depre	essions ((FO) 	*4.	ur	less disturbed	d or problem	atic.
estrictive Layer (if presen	t):								v. 6	
Type:								oil Present?	Yes (●)	No 🦳
							nyunc 3			1.12
Depth (inches): 12 emarks: Restrictive layer	= cobble.	The colo	r of the upp	per 4 inc	ches of s	oil is influe				
emarks: Restrictive layer	= cobble.	The colo	r of the upp	per 4 inc	ches of s	oil is influe				
Permarks: Restrictive layer POROLOGY Vetland Hydrology Indicate	ors:			per 4 inc	ches of s	oil is influe	enced by i	ron in the cr	eek.	
Permarks: Restrictive layer POROLOGY Petland Hydrology Indicate imary Indicators (minimum of comments)	ors:		apply)				enced by i	on in the cr	eek. rs (minimum c	
Permarks: Restrictive layer POROLOGY Petland Hydrology Indicate rimary Indicators (minimum of constitution) Surface Water (A1)	ors:			ned Leav	res (B9) (enced by i	ron in the cr	rs (minimum c	
Permarks: Restrictive layer Portional Hydrology Indicate imary Indicators (minimum of company Indicators (Minimum of compan	ors:		apply)	ned Leav	res (B9) (enced by i	ondary Indicato	rs (minimum c d Leaves (B 4a, and 4b)	
PERPORT PROLOGY Vetland Hydrology Indicate rimary Indicators (minimum of company Indicators (A1) Surface Water (A1) High Water Table (A2)	ors:		apply)] Water-Stair MLRA 1, 2	ned Leav 2 , 4a, and (B11)	res (B9) (d		enced by i	ondary Indicato Water-Staine	rs (minimum c d Leaves (B 4a, and 4b) terns (B10)	9) (except
POROLOGY Vetland Hydrology Indicate rimary Indicators (minimum of Carlotte Water (A1) High Water Table (A2) Saturation (A3)	ors:		apply)] Water-Stair MLRA 1, 2] Salt Crust] Aquatic Inv	ned Leav 2, 4a, and (B11) vertebrate	res (B9) (« d 4b) es (B13)		enced by i	ondary Indicato Water-Staine MLRA 1, 2, 4 Drainage Pat Dry-Season V	rs (minimum c d Leaves (B 4a, and 4b) terns (B10) Vater Table	9) (except
Permarks: Restrictive layer POROLOGY Petland Hydrology Indicate imary Indicators (minimum of of a surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	ors:		apply)] Water-Stair MLRA 1, 2] Salt Crust Aquatic Inv	ned Leav 2, 4a, and (B11) vertebrate Sulfide C	res (B9) (d 1 4b) es (B13) Odor (C1)	except	second by i	ondary Indicato Water-Staine MLRA 1, 2, 4 Drainage Pat Dry-Season V Saturation Vis	rs (minimum od d Leaves (B 4a, and 4b) terns (B10) Water Table sible on Aeri	9) (except (C2) al Imagery (C9)
Permarks: Restrictive layer Petland Hydrology Indicate rimary Indicators (minimum of of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	ors:		apply)] Water-Stair MLRA 1, 2] Salt Crust Aquatic Inv Hydrogen 3] Oxidized R	ned Leav 2, 4a, and (B11) vertebrate Sulfide C	res (B9) (d 1 4b) es (B13) Odor (C1) eres on Li	except	second by i	ondary Indicato Water-Staine MLRA 1, 2, 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I	rs (minimum of d Leaves (B 4a, and 4b) terns (B10) Water Table sible on Aeri Position (D2	9) (except (C2) al Imagery (C9)
Permarks: Restrictive layer Portional Hydrology Indicate imary Indicators (minimum of comparing Indicators (Management Pable (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algai Mat or Crust (B4)	ors:		apply)] Water-Stair MLRA 1, 2] Salt Crust of the control of th	ned Leav 2, 4a, and (B11) vertebrate Sulfide C thizospho of Reduc	res (B9) (d d 4b) es (B13) odor (C1) eres on Li ed Iron (C	except ving Roots (second by i	ondary Indicato Water-Staine MLRA 1, 2, 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit	rs (minimum of Leaves (B 14a, and 4b) terns (B10) Water Table sible on Aeri Position (D2 tard (D3)	9) (except (C2) al Imagery (C9)
POROLOGY Vetland Hydrology Indicate inmary Indicators (minimum of control of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algai Mat or Crust (B4) Iron Deposits (B5)	ors: one required; c		apply) Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence c Recent Iror	ned Leav 2, 4a, and (B11) vertebrate Sulfide C thizospho of Reduct	res (B9) (d d 4b) es (B13) Odor (C1) eres on Li ed Iron (Cions in Til	except ving Roots (C4) led Soils (C6	Sec	ondary Indicato Water-Staine MLRA 1, 2, 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral	rs (minimum of d Leaves (B 4a, and 4b) terns (B10) Water Table sible on Aeri Position (D2 tard (D3) Test (D5)	9) (except (C2) al Imagery (C9)
Property of the property of th	ors: one required; c	check all that	apply) Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence co Recent Iror Stunted or	ned Leav 2, 4a, and (B11) vertebrate Sulfide C thizospho of Reduct Stressec	res (B9) (d 1 4b) es (B13) odor (C1) eres on Li ed Iron (C ions in Til d Plants (I	except ving Roots (Sec	ondary Indicato Water-Staine MLRA 1, 2, 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M	rs (minimum of d Leaves (B 4a, and 4b) terns (B10) Water Table sible on Aeri Position (D2 tard (D3) Test (D5) founds (D6)	9) (except (C2) al Imagery (C9)
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PROLOGY Vetland Hydrology Indicate inmary Indicators (minimum of control of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algai Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Ae Sparsely Vegetated Conteled Observations:	ors: one required; of rial Imagery cave Surface	theck all that	apply)] Water-Stair MLRA 1, 2] Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence 0 Recent Iror Stunted or Other (Exp	ned Leav , 4a, and (B11) vertebrate Sulfide C thizospho of Reduct Stressed lain in Re	res (B9) (d 1 4b) es (B13) odor (C1) eres on Li ed Iron (C ions in Til d Plants (I	except ving Roots (C4) led Soils (C6	Sec	ondary Indicato Water-Staine MLRA 1, 2, 4 Drainage Pat Dry-Season V Saturation Vis Geomorphic I Shallow Aquit FAC-Neutral Raised Ant M	rs (minimum of d Leaves (B 4a, and 4b) terns (B10) Water Table sible on Aeri Position (D2 tard (D3) Test (D5) founds (D6)	9) (except (C2) al Imagery (C9)
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WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast City/County:San Juan Project/Site: START 3 - Cement Creek Sampling Date: 8-25-11 Applicant/Owner: Environmental Protection Agency State:CO Sampling Point: UP 2-2 Investigator(s): S. Hall, J. Dawson Section, Township, Range: N/A Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): <1 Subregion (LRR): E - Rocky Mountain Forests and Rangeland Lat: 37.8538 Long: -107.6774 Datum: NAD 83 Soil Map Unit Name: Needleton stony loam, 30 to 65 percent slopes NWI classification: N/A Are climatic / hydrologic conditions on the site typical for this time of year? Yes No C (If no, explain in Remarks.) Are Vegetation significantly disturbed? Soil or Hydrology Are "Normal Circumstances" present? Yes No C Are Vegetation Soil naturally problematic? (If needed, explain any answers in Remarks.) or Hydrology SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Yes C Hydrophytic Vegetation Present? No (Is the Sampled Area (Hydric Soil Present? Yes \mathbf{C} No No (within a Wetland? Yes C Wetland Hydrology Present? \mathbf{C} (Remarks: Upland soil pit location for WL 2-1 and WL 2-2. VEGETATION - Use scientific names of plants. Absolute Dominant Indicator % Cover Species? Status Tree Stratum Plot size: Dominance Test worksheet: 1. **Number of Dominant Species** That Are OBL, FACW, or FAC 2. ∕0 ∗ (A) (excluding FAC-): 3. **Total Number of Dominant** 4. Species Across All Strata: (B) = Total Cover Percent of Dominant Species Sapling/Shrub Stratum Plot size: 25 x 25 That Are OBL, FACW, or FAC: 0.0 % (A/B) 2 1 Vaccinium cespitosum No **FAC** Prevalence Index worksheet: Total % Cover of: 3. **OBL** species x1 =0 4. **FACW** species 0 . 0 x2 =5. **FAC** species x3 =- 6 12 = Total Cover Herb Stratum Plot size 25 x 25 **FACU** species x4 =16 1. Bromus porteri 25 **UPL** species Yes Not Listed x5 =220 2. Potentilla ovina 4 No Not Listed Column Totals: 242 (B) 50 (A) 3. Swertia perennis <1 No FACW-Prevalence Index = B/A = 4.84 2 4. Solidago simplex No FACU-**Hydrophytic Vegetation Indicators:** 5. Fragaria vesca Not Listed 10 Yes 1 - Rapid Test for Hydrophytic Vegetation 6. Campanula rotundifolia <1 No FACU 2 - Dominance Test is >50% 2 7. Achillea lanulosa No **FACU** 3 - Prevalence Index is ≤3.0 ¹ 8. Senecio wootonii 4 No Not Listed 4 - Morphological Adaptations (Provide supporting 9. Antennaria sp. <1 No data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants 10. Pseudocymopterus montanus 1 No Not Listed Problematic Hydrophytic Vegetation¹ (Explain) 48 = Total Cover Woody Vine Stratum Plot size: Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. **Hydrophytic** 2 Vegetation \mathbf{C} No (Yes = Total Cover Present? % Bare Ground in Herb Stratum 50 % Remarks: Forest opening above Cement creek. Bare ground = moss and gravel.

Sampling	Point:	UP	2-2

Profile Description:							
Depth	Matrix		Features	1 2	T4	D	00000/
	(moist) %	Color (moist)	%Type¹	Loc ²	Texture	* *	4000084
SP1 0-6 10Y	<u>(R 4/3 100</u>				Silty loam	Gravels	·
		•					
				 			
						-	
					-		·
'Type: C=Concentration	, D=Depletion, RM=R	educed Matrix, CS=Covered	or Coated Sand Grains	\$		² Location: PL=Pore Li	ning M=Matrix
Hydric Soil Indicators	: (Applicable to all	LRRs, unless otherwise	noted.)		Indicators for	Problematic Hydric S	oils³:
Histosol (A1)		Sandy Redox			2 cm Mu	ck (A10)	
Histic Epipedon (A2)	Stripped Matr	` '		Red Par	ent Material (TF2)	
Black Histic (A3)		· · ·	Mineral (F1) (excer	ot MLRA1)		allow Dark Surface (T	F12)
Hydrogen Sulfide	•	Loamy Gleye			Other (Ex	kplain in Remarks)	,
	Dark Surface (A11)						
Thick Dark Surface	•	Redox Dark S	, ,		3 Indicato	rs of hydrophytic vege	tation and
Sandy Mucky Mir			k Surface (F7)		wetland	hydrology must be pr	esent,
Sandy Gleyed Ma	atrix (34)	Redox Depre	ssions (F8)		unless d	isturbed or problemat	ic.
Restrictive Layer (if p	oresent):						
Type:				Н	lydric Soil Pr	esent? Yes 🖯	No 📵
Depth (inches): 6		· 	•			•	
Remarks: Rock at six	x inches		***************************************			₩ 13.	
Nomano.		-					
	*						
				•			
HADBOI OGA				•			
	ndiastora	- 					
Wetland Hydrology I		theck all that apply)			Secondary	Indicators (minimum of	wo required)
Wetland Hydrology I Primary Indicators (minim	num of one required; c		ed Leaves (RQ) (ave	nnt .		Indicators (minimum of	
Wetland Hydrology I Primary Indicators (minim Surface Water (A	num of one required; c	Water-Stain	ed Leaves (B9) (exce 4a, and 4b)	ept	Water	Indicators (minimum of tractions) -Stained Leaves (B9) A.1, 2, 4a, and 4b)	
Wetland Hydrology I Primary Indicators (minim Surface Water (A: High Water Table	num of one required; c	Water-Staine MLRA 1, 2,	4a, and 4b)	ept	Water MLR	-Stained Leaves (B9) A 1, 2, 4a, and 4b)	
Wetland Hydrology I Primary Indicators (minim Surface Water (A High Water Table Saturation (A3)	num of one required; c 1) (A2)	Water-Staine MLRA 1, 2, Salt Crust (I	4a, and 4b) 311)	ept	Water MLR	r-Stained Leaves (B9) A.1, 2, 4a, and 4b) age Patterns (B10)	(except
Wetland Hydrology I Primary Indicators (minim Surface Water (A High Water Table Saturation (A3) Water Marks (B1)	num of one required; c 1) (A2)	Water-Staine MLRA 1, 2, Salt Crust (I	4a, and 4b) 311) ertebrates (B13)	ept	Water MLR Drain	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (C	(except
Primary Indicators (minimum Surface Water (A High Water Table Saturation (A3) Water Marks (B1) Sediment Deposit	num of one required; c 1) (A2) s (B2)	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve	4a, and 4b) B11) ertebrates (B13) ulfide Odor (C1)	•	Water MLR Drain Dry-S Satur	r-Stained Leaves (B9) A.1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial	(except
Wetland Hydrology II Primary Indicators (minim Surface Water (A High Water Table Saturation (A3) Water Marks (B1) Sediment Deposit Drift Deposits (B3)	num of one required; c 1) (A2) s (B2)	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh	4a, and 4b) B11) ertebrates (B13) ulfide Odor (C1) nizospheres on Living	•	Water MLR Drain Dry-S Satur Geom	r-Stained Leaves (B9) A.1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial norphic Position (D2)	(except
Wetland Hydrology II Primary Indicators (minim Surface Water (A: High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Algai Mat or Crust	num of one required; c 1) (A2) s (B2)) t (B4)	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh	4a, and 4b) B11) ertebrates (B13) ulfide Odor (C1) aizospheres on Living Reduced Iron (C4)	g Roots (C3)	Water MLR Drain Dry-S Satur Geom Shalld	r-Stained Leaves (B9) A.1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) ow Aquitard (D3)	(except
Wetland Hydrology II Primary Indicators (minim Surface Water (A: High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3 Algai Mat or Crust Iron Deposits (B5)	num of one required; c 1) (A2) ss (B2)) t (B4)	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron	4a, and 4b) B11) ertebrates (B13) ulfide Odor (C1) aizospheres on Living Reduced Iron (C4) Reductions in Tilled	g Roots (C3) Soils (C6)	Water MLR Drain Dry-S Satur Geom Shall FAC-	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) bw Aquitard (D3) Neutral Test (D5)	(except
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Wetland Hydrology II Primary Indicators (minim Surface Water (A: High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algai Mat or Crust Iron Deposits (B5) Surface Soil Cract Inundation Visible Sparsely Vegetate Field Observations:	num of one required; control (A2) s (B2) (B4) (ks (B6) on Aerial Imagery of the concave Surface	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S (B7) Other (Explain	4a, and 4b) B11) Britebrates (B13) Ulfide Odor (C1) Bizospheres on Living Reduced Iron (C4) Reductions in Tilled Bressed Plants (D1) Britebrates (B13) B	Roots (C3) Soils (C6) (LRR A)	Water MLR Drain Dry-S Satur Geom Shalld FAC- Raise	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial norphic Position (D2) bw Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (I	(except C2) Imagery (C9) RR A)
Wetland Hydrology II Primary Indicators (minim Surface Water (A' High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algai Mat or Crust Iron Deposits (B5) Surface Soil Cract Inundation Visible Sparsely Vegetate Field Observations: Surface Water Presen Water Table Present? Saturation Present?	is (B2) (A2) (B4) (b) (b) (c) (c) (c) (d) (d) (d) (e) (d) (e) (e) (e	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rt Presence of Recent Iron Stunted or S (B7) Other (Explain	4a, and 4b) 311) crtebrates (B13) ulfide Odor (C1) nizospheres on Living Reduced Iron (C4) Reductions in Tilled Stressed Plants (D1) ain in Remarks)	Roots (C3) Soils (C6) (LRR A)	Water MLR Drain Dry-S Satur Geom Shalld FAC- Raise	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) bw Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (Leave Hummocks (D6)	(except C2) Imagery (C9) RR A) (7) (LRR F)
Wetland Hydrology II Primary Indicators (minim Surface Water (A' High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algai Mat or Crust Iron Deposits (B5) Surface Soil Cract Inundation Visible Sparsely Vegetate Field Observations: Surface Water Present Water Table Present? Saturation Present? (includes capillary fring	is (B2) (A2) (B4) (b) (b) (c) (c) (c) (c) (c) (d) (d) (d	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Explaine (B7) Depth (inch No Depth (inch	4a, and 4b) 311) artebrates (B13) ulfide Odor (C1) aizospheres on Living Reduced Iron (C4) Reductions in Tilled Stressed Plants (D1) ain in Remarks) aes):	Soils (C3) (LRR A) Wetland	Water MLR Drain Dry-S Satur Georr Shallo FAC- Raise Frost	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) bw Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (Leave Hummocks (D6)	(except C2) Imagery (C9) RR A) (7) (LRR F)
Wetland Hydrology II Primary Indicators (minim Surface Water (A' High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algai Mat or Crust Iron Deposits (B5) Surface Soil Cract Inundation Visible Sparsely Vegetate Field Observations: Surface Water Present Water Table Present? Saturation Present? (includes capillary fring	is (B2) (A2) (B4) (b) (b) (c) (c) (c) (c) (c) (d) (d) (d	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S Other (Explaine) (B7) Depth (inch	4a, and 4b) 311) artebrates (B13) ulfide Odor (C1) aizospheres on Living Reduced Iron (C4) Reductions in Tilled Stressed Plants (D1) ain in Remarks) aes):	Soils (C3) (LRR A) Wetland	Water MLR Drain Dry-S Satur Georr Shallo FAC- Raise Frost	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) bw Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (Leave Hummocks (D6)	(except C2) Imagery (C9) RR A) (7) (LRR F)
Wetland Hydrology II Primary Indicators (minim Surface Water (A High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits (B3 Algai Mat or Crust Iron Deposits (B5) Surface Soil Cract Inundation Visible Sparsely Vegetate Field Observations: Surface Water Present Water Table Present? Saturation Present? (includes capillary fring Describe Recorded Date	s (B2) (A2) (B4) (b) (b) (c) (c) (d) (d) (d) (e) (e) (e) (e) (f) (f) (f) (f	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S (B7) Other (Explaine (B8) No Depth (inch No Depth (inch No Depth (inch Mo Depth (inch Mo Depth (inch Mo Monormonitoring well, aerial ph	4a, and 4b) 311) artebrates (B13) ulfide Odor (C1) aizospheres on Living Reduced Iron (C4) Reductions in Tilled Stressed Plants (D1) ain in Remarks) aes):	Soils (C3)	Water MLR Drain Dry-S Satur Georr Shallo FAC- Raise Frost	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) bw Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (Leave Hummocks (D6)	(except C2) Imagery (C9) RR A) (7) (LRR F)
Wetland Hydrology II Primary Indicators (minim Surface Water (A' High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits (B3) Algai Mat or Crust Iron Deposits (B5) Surface Soil Cract Inundation Visible Sparsely Vegetate Field Observations: Surface Water Present Water Table Present? Saturation Present? (includes capillary fring	s (B2) (A2) (B4) (b) (b) (c) (c) (d) (d) (d) (e) (e) (e) (e) (f) (f) (f) (f	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S (B7) Other (Explaine (B8) No Depth (inch No Depth (inch No Depth (inch Mo Depth (inch Mo Depth (inch Mo Monormonitoring well, aerial ph	4a, and 4b) 311) artebrates (B13) ulfide Odor (C1) aizospheres on Living Reduced Iron (C4) Reductions in Tilled Stressed Plants (D1) ain in Remarks) aes):	Soils (C3)	Water MLR Drain Dry-S Satur Georr Shallo FAC- Raise Frost	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) bw Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (Leave Hummocks (D6)	(except C2) Imagery (C9) RR A) (7) (LRR F)
Wetland Hydrology I Primary Indicators (minim Surface Water (A High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits (B3 Algai Mat or Crust Iron Deposits (B5) Surface Soil Cract Inundation Visible Sparsely Vegetate Field Observations: Surface Water Present Water Table Present? Saturation Present? (includes capillary fring Describe Recorded Date	s (B2) (A2) (B4) (b) (b) (c) (c) (d) (d) (d) (e) (e) (e) (e) (f) (f) (f) (f	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S (B7) Other (Explaine (B8) No Depth (inch No Depth (inch No Depth (inch Mo Depth (inch Mo Depth (inch Mo Monormonitoring well, aerial ph	4a, and 4b) 311) artebrates (B13) ulfide Odor (C1) aizospheres on Living Reduced Iron (C4) Reductions in Tilled Stressed Plants (D1) ain in Remarks) aes):	Soils (C3)	Water MLR Drain Dry-S Satur Georr Shallo FAC- Raise Frost	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) bw Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (Leave Hummocks (D6)	(except C2) Imagery (C9) RR A) 17) (LRR F)
Wetland Hydrology I Primary Indicators (minim Surface Water (A High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits (B3 Algai Mat or Crust Iron Deposits (B5) Surface Soil Cract Inundation Visible Sparsely Vegetate Field Observations: Surface Water Present Water Table Present? Saturation Present? (includes capillary fring Describe Recorded Date	s (B2) (A2) (B4) (b) (b) (c) (c) (d) (d) (d) (e) (e) (e) (e) (f) (f) (f) (f	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S (B7) Other (Explaine (B8) No Depth (inch No Depth (inch No Depth (inch Mo Depth (inch Mo Depth (inch Mo Monormonitoring well, aerial ph	4a, and 4b) 311) artebrates (B13) ulfide Odor (C1) aizospheres on Living Reduced Iron (C4) Reductions in Tilled Stressed Plants (D1) ain in Remarks) aes):	Soils (C3)	Water MLR Drain Dry-S Satur Georr Shallo FAC- Raise Frost	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) bw Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (Leave Hummocks (D6)	(except C2) Imagery (C9) RR A) 17) (LRR F)
Wetland Hydrology I Primary Indicators (minim Surface Water (A High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits (B3 Algai Mat or Crust Iron Deposits (B5) Surface Soil Cract Inundation Visible Sparsely Vegetate Field Observations: Surface Water Present Water Table Present? Saturation Present? (includes capillary fring Describe Recorded Date	s (B2) (A2) (B4) (b) (b) (c) (c) (d) (d) (d) (e) (e) (e) (e) (f) (f) (f) (f	Water-Staine MLRA 1, 2, Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S (B7) Other (Explaine (B8) No Depth (inch No Depth (inch No Depth (inch Mo Depth (inch Mo Depth (inch Mo Monormonitoring well, aerial ph	4a, and 4b) 311) artebrates (B13) ulfide Odor (C1) aizospheres on Living Reduced Iron (C4) Reductions in Tilled Stressed Plants (D1) ain in Remarks) aes):	Soils (C3)	Water MLR Drain Dry-S Satur Georr Shallo FAC- Raise Frost	r-Stained Leaves (B9) A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (Cation Visible on Aerial horphic Position (D2) bw Aquitard (D3) Neutral Test (D5) ed Ant Mounds (D6) (Leave Hummocks (D6)	(except C2) Imagery (C9) RR A) 17) (LRR F)

Project/Site: START 3 - Cement Creek		City/C	ounty: San Jua	n Sa	ampling Date: 8-23-2011
Applicant/Owner: Environmental Protection Agency			· · · · · · · · · · · · · · · · · · ·	State:CO Sa	ampling Point: WL 3-1
Investigator(s): S. Hall, A. Ballman, J. Dawson		Sectio	n, Township, Ra		
Landform (hillslope, terrace, etc.): Terrace		Local	relief (concave,	convex, none): None to Co	ncave Slope (%): 1-2
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37.	-	,	Long: -107.6759	Datum: NAD 83
Soil Map Unit Name: Needleton stony loam, 30 to 65 p				NWI classification	
Are climatic / hydrologic conditions on the site typical for the			es (•) No (
	significantly			"Normal Circumstances" pres	
				•	
Are Vegetation Soil or Hydrology SUMMARY OF FINDINGS - Attach site map	naturally pro		•	eeded, explain any answers in	•
Comment of The Into - Attach site map	Shownig	Sami	pinig point i	——————————————————————————————————————	iportant reatures, etc.
	No C		Is the Sample		
	No C		within a Wetla	nd? Yes ●	No C
. ""	No ()	<u>, 1</u>	.1	60 0 1 5	
Remarks: WL 3-1 is a PEM/PSS fringe and terrac characteristics. Those portions are most					
small portions of PSS (5%). Both Ceme	•				rem wenand (90%) with
VEGETATION - Use scientific names of plan		ara gru		aono die wedand.	
VEGETATION - 03c Scientific flames of plan	Absolute	Domir	nant Indicator		
Tree Stratum Plot size:	% Cover	Speci	es? Status	Dominance Test worksho	et:
1				Number of Dominant Speci	
2				That Are OBL, FACW, or F (excluding FAC-):	·AC (A)
3.				Total Number of Dominant	-p.sw
4			****	Species Across All Strata:	6 (B)
Sapling/Shrub Stratum Plot size: 266 x 10		= Total	Cover	Percent of Dominant Speci That Are OBL, FACW, or F	
1. Betula glandulosa	3	Yes	OBL		
2. Salix monticola	_ 1	Yes		Prevalence Index worksh	i
3. Picea pungens		Yes	FAC-	Total % Cover of: OBL species 89	Multiply by: x 1 = 89
4. Salix drummondiana	<1	No	FACW+	FACW species 5	x 2 = 10
5. Salix geyeriana	- <1	No	OBL	FAC species	x 3 = 3
Herb Stratum Plot size 266 x 10	· 5 =	Total (Cover	FACU species	x 4 = 0
1. Calamagrostis canadensis	- 30	Yes	OBL	UPL species	x 5 =
2. Carex aquatilis	30	Yes	OBL	Column Totals: 95	(A) 102 (B)
3. Carex canescens	25	Yes	OBL	[- Constitution
4. Deschampsia cespitosa	5	No	FACW-	Prevalence Index = E	
5. Juncus mertensianus	<1	No	OBL	Hydrophytic Vegetation Ir	
6. Stellaria longipes	<1	No	FACW+	1 - Rapid Test for Hydr 2 - Dominance Test is	· · •
7. Agrostis scabra	<1	No	OBL	3 - Prevalence Index is	
8. Juncus parryi	<1	No	FAC	4 - Morphological Adap	otations¹(Provide supporting
9.					on a separate sheet)
10.				5 - Wetland Non-Vascu Problematic Hydrophyti	
Woody Vine Stratum Plot size:	90 =	Total (Cover	¹ Indicators of hydric soil an	nd wetland hydrology must
1.				be present, unless disturbe	d or problematic.
2.				Hydrophytic	S N- C
	=	Total C	Cover	Vegetation Yes Present?	No C
% Bare Ground in Herb Stratum 8 %			ł		
Remarks: PEM/PSS, with a minor PSS component.	Bare Gro	und = 1	moss (~4%), r	ocks, standing water, and	flood/sediment deposits
(i.e., silt).	•		•		•
			•	•	

Profile Des	cription: (Describ	e to the c	lepth need				or confirm	n the absence of	indicators.)	, ,
Depth (inches)	Color (moist)	%	- Colo	Redo r (moist)	x Feature %	Type ¹	Loc ²	Texture	Florma	Q00086
				i (moist)		туре_			Kema	<u> </u>
SP1 0-8	2.5/10BG	$-\frac{60}{20}$		3/D 5/0				Fibrous .		
SP1 0-8	2.5Y 5/4			YR 5/8		RM_	<u>M</u>	Fibrous clay	Dual matrix	
		<u> </u>								
[†] Type: C=Co	ncentration, D=Deplet	ion, RM=R	educed Matr	ix, CS=Cover	ed or Coate	ed Sand Grai	ns		² Location: PL=Pore Lini	ng, M=Matrix
Hydric Soil	ndicators: (Applic	able to all	LRRs, unle	ss otherwis	e noted.)			Indicators for	Problematic Hydric So	ls³:
Histoso	• •			Sandy Redox				2 cm Mu		
. —	pipedon (A2) istic (A3)		<u></u>	Stripped Ma Loamy Muc	٠,,	I (E1) (over	nt MI DA	🛏	ent Material (TF2)	10)
· =	en Sulfide (A4)			Loamy Gley			pt meion	· 🖵 ′	allow Dark Surface (TF oplain in Remarks)	12)
	d Below Dark Surfa	ace (A11)	·	Depleted Ma		` '			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
1 🖳	ark Surface (A12)			Redox Dark				3 Indicator	rs of hydrophytic vegeta	ation and
I <u>—</u>	Mucky Mineral (S1)			Depleted Da					hydrology must be pres	
	Gleyed Matrix (S4)			Redox Depr	ressions (i	-8) 		unless d	isturbed or problemation	
I	.ayer (if present):									
Туре: <u></u>					r	•		Hydric Soil Pre	esent? Yes 💽	No C
Depth (inc	ne soil sample ha							<u> </u>		<u>. </u>
	ithin the wetland							ind analyze a so	il sample. Areas of	iron deposits
,	drology Indicators		· · · · · ·							
	tors (minimum of one		heck all that	apply)			•	Secondary	Indicators (minimum of tw	o required)
	Water (A1) iter Table (A2)			Water-Stai		es (B9) (exc	cept		-Stained Leaves (B9) (A 1, 2, 4a, and 4b)	except
Saturation			Г	Salt Crust	(B11)	-		Draina	age Patterns (B10)	
l 	arks (B1)			Aquatic In		es (B13)		==	eason Water Table (C2)
Sedimer	t Deposits (B2)		X	Hydrogen	Sulfide O	dor (C1)		Satura	ation Visible on Aerial II	magery (C9)
l <u>—</u>	oosits (B3)			Oxidized F	Rhizosphe	res on Livir	ng Roots (· / L	orphic Position (D2)	
	t or Crust (B4)			•		ed Iron (C4)		==	w Aquitard (D3)	•
· ·	osits (B5)		H			ons in Tilled	•	, F	Neutral Test (D5) d Ant Mounds (D6) (LF	ID A\
<u> </u>	Soil Cracks (B6) on Visible on Aerial	Imagen/	'B7\	Other (Exp		Plants (D1) (LKK A)		Heave Hummocks (D7	
	Vegetated Concav	_		0 1101 (2)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	manaj		□	ricave riaminoons (Br	, (2.00)
Field Obser	· · · · · · · · · · · · · · · · · · ·	ve Gariage	, (50)							
Surface Water	er Present?	Yes (No 💽	Depth (inc	ches):	. -				
Water Table	Present?	Yes 💽	No C	Depth (inc	ches).	0	Wetla	ınd Hydrology Pı	resent? Yes 📵	No C
Saturation Pr	•	Yes 💽	No C	Depth (inc	ches):	0				
(includes cap	illary fringe) corded Data (strear		·	well serial	nhotos er	evious inco	ections) :	f available:	All .	
Aerial phot		ii gaage, i		mon, acrial j	priows, pr	cvious ilisp	6646113 <i>)</i> , 1	i avallable.		
•	he soil pit filled v			-	_					
W	etland is sustain	ed by gro	oundwater	and Ceme	ent Creek	ζ.				
									•	
									•	
	•									

Project/Site: START 3 - Cement Creek		City/Co	ounty:	San Jua	n .	Samplin	ng Date: 8-23-	-2011
Applicant/Owner: Environmental Protection Agency			_		State:CO	Samplin	ng Point: WL 3	3-2W
Investigator(s): S. Hall, A. Ballman, J. Dawson		Section	n, Towr	nship, Ra	inge: N/A			*
Landform (hillslope, terrace, etc.): Terrace		Local	relief (c	concave,	convex, none):No	ne	Slope (%	6): 1-2
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37.	8608			Long: -107.676	52	Datum: N	NAD 83
Soil Map Unit Name: Needleton stony loam, 30 to 65 pe	ercent slop	pes			NWI	classification: No	one ·	
Are climatic / hydrologic conditions on the site typical for thi	s time of ye	ar? Ye	es 💽	No ((If no, expl	ain in Remarks.)		***
Are Vegetation Soil or Hydrology	significantly	disturb	ed?	Are	"Normal Circumsta	ances" present?	Yes 💽	No C
Are Vegetation Soil or Hydrology	naturally pro	oblemat	tic?	(If n	eeded, explain any	answers in Rem	narks.)	
SUMMARY OF FINDINGS - Attach site map	showing	samp	oling	point l	ocations, tran	sects, impor	tant featur	es, etc.
Hydrophytic Vegetation Present? Yes N	。 ()		Is the	Sampled	l Area			
Hydric Soil Present? Yes (N		- 1		a Wetla		s 🖲 No	\circ	
Wetland Hydrology Present? Yes N	• C							
Remarks: PEM wetland fringe along west side of 0				_		-	disturbances	. Area
may have experienced a past fire. Hydro	logic sour	ces in	clude g	groundv	vater and Cemen	it Creek.	•	
VEGETATION - Use scientific names of plant	he.							
VEGETATION - Use scientific names of plant	Absolute	Domin	ant Inc	dicator	1			
Tree Stratum Plot size:	% Cover	Specie	es? S	tatus	Dominance Tes	st worksheet:		
1					Number of Dom			
2.					That Are OBL, F (excluding FAC-			(A)
3					Total Number of		-C. **PROSPONOTOR** >-	
4	1343	- Total (<u> </u>	Species Across		11.3	(B)
Sapling/Shrub Stratum Plot size: 153 x 10	- 180	Total (Cover		Percent of Domi That Are OBL, F	nant Species ACW, or FAC:	100.0%	(A/B)
1. Betula glandulosa	<1	No		OBL				
2.			<u> </u>		Prevalence Ind Total % Cov		Multiply by:	
3.					OBL species	cown.	1 = 39	7
4. 5.					FACW species	10000001111111111111111111111111111111	2 = 0))
		: Total (Cover		FAC species	x:	3 = 0)
Herb Stratum Plot size 153 x 10	5 3 Y	Total	00101		FACU species	x ·	4 = 0).
1. Calamagrostis canadensis	95	Yes		DBL	UPL species	x t	5 = 0	Ď.
2. Carex aquatilis		No)BL	Column Totals:	97 (A)) 97	7 (B)
3					Prevalence	e Index = B/A =	1.0	ĵo
5.					Hydrophytic Ve	getation Indicat	T- Jeff.i,	.88*
6.						est for Hydrophyt	-	
7.		•			7h.	nce Test is >50% ice Index is ≤3.0		
8.					<u> </u>	ogical Adaptation		porting
9.					data in R	emarks or on a s	separate sheet	
10.					I <u> </u>	Non-Vascular Pl		oin)
Woody Vine Stratum Plot size:	974 =	Total C	Cover		Indicators of hy	Hydrophytic Veg	-	
1.						ess disturbed or p		
2.					Hydrophytic			
	// =	Total C	Cover		Vegetation Present?	Yes 💽	No C	
% Bare Ground in Herb Stratum 3 %	is resident.			•				
Remarks: PEM wetland fringe. Bare Ground = most	s and bare	soil.						
Vegetation is stressed in some areas.								
		•						

ampling Point: $\frac{0008}{\text{WL } 3-2\text{V}}$

(inches)				x Features				
	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
SP1 0-8	7.5YR 4/3.5	90	5YR 5/6		RM	_M	Sandy silt	
SP1 8-12	5Y 4/1	85	<u>-</u>				Sandy silt	
SP1 8-12	5Y 2.5/1	15					Sandy silt	Fibrous mainly around plant
							·	
	ncentration, D=Depletion				d Sand Grai	ins		² Location: PL=Pore Lining, M=Matrix
Hydric Soil I	ndicators: (Applicab	le to all LKI	Rs, unless otherwise Sandy Redox	-				Problematic Hydric Soils ³ :
Histic Ep Black Hi Hydroge Depleted	pipedon (A2) istic (A3) en Sulfide (A4) d Below Dark Surface	e (A11)	Stripped Mar Loamy Muck Loamy Gleye Depleted Ma	trix (S6) ky Mineral ed Matrix atrix (F3)	(F2)	ept MLRA1)	Very Sha	ok (A10) ont Material (TF2) Ilow Dark Surface (TF12) plain in Remarks)
Sandy M	ark Surface (A12) Mucky Mineral (S1) Gleyed Matrix (S4)		Redox Dark Depleted Da Redox Depre	ırk Surface	e (F7)		wetland h	s of hydrophytic vegetation and hydrology must be present, sturbed or problematic.
Restrictive L Type:	_ayer (if present):		•				Hydric Soil Pre	sent? Yes 💽 No 🦳
Depth (inc							Hyanic Jon Fre	Sentr rester Not
	•							
	GY drology Indicators: tors (minimum of one rec	quired; check	k all that apply)				Secondary	Indicators (minimum of two required)
Wetland Hyd Primary Indicat Surface	drology Indicators: tors (minimum of one red Water (A1)	quired; check	k all that apply) Water-Stair MLRA 1, 2			cept	Water-	Indicators (minimum of two required) Stained Leaves (B9) (except
Wetland Hyd Primary Indicat Surface High Wa Saturatio	drology Indicators: tors (minimum of one red Water (A1) tter Table (A2)	quired; check	Water-Stair	2 , 4a, and (B11)	4b)	cept	Water- MLRA	Stained Leaves (B9) (except
Wetland Hyc Primary Indicat Surface High Wa Saturatio Water Ma	drology Indicators: tors (minimum of one red Water (A1) hter Table (A2) on (A3)	quired; check	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv	e, 4a, and (B11) /ertebrate: Sulfide Oc	4b) s (B13) lor (C1)		Water- MLR4 Draina Dry-Se Satura	Stained Leaves (B9) (except 1, 2, 4a, and 4b) ge Patterns (B10)
Wetland Hyc Primary Indicat Surface High Wa Saturatio Water Mi Sedimen Drift Dep Algai Ma	drology Indicators: tors (minimum of one recommendation (A1) ter Table (A2) on (A3) tarks (B1) ont Deposits (B2) to or Crust (B4)	quired; check	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv	2, 4a, and (B11) /ertebrate: Sulfide Oc thizospher	4b) s (B13) lor (C1) res on Livir	ng Roots (C3	Water- MLRA Draina Dry-Se Satura Geome Shallon	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (C9 orphic Position (D2) w Aquitard (D3)
Wetland Hyc Primary Indicat Surface High Wa Saturatio Water Mi Sedimen Drift Dep Algai Ma	drology Indicators: tors (minimum of one recommendation (A1) ther Table (A2) on (A3) tarks (B1) th Deposits (B2) toosits (B3) th or Crust (B4) toosits (B5)	quired; checl	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence c Recent Iror	2, 4a, and (B11) vertebrate: Sulfide Octhizospher of Reduce in Reduction	s (B13) for (C1) res on Livir d Iron (C4) ons in Tilled	ng Roots (C3) d Soils (C6)	Water- MLRA Draina Dry-Se Satura Geome Shallon FAC-N	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (C9 orphic Position (D2) w Aquitard (D3) Neutral Test (D5)
Wetland Hyc Primary Indicat Surface I High Wa Saturatio Water Mater Mate	drology Indicators: tors (minimum of one reconstructions) that Table (A2) on (A3) tarks (B1) on Deposits (B2) to Crust (B4) to Crust (B4) to Cracks (B6)	• .	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence c Recent Iror Stunted or	2, 4a, and (B11) vertebrates Sulfide Octhizospher of Reduce n Reduction Stressed	s (B13) lor (C1) res on Livir d Iron (C4) ons in Tilled Plants (D1	ng Roots (C3) d Soils (C6)	Water- MLRA Draina Dry-Se Satura Shallon FAC-N Raiseo	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (C9 orphic Position (D2) w Aquitard (D3) Neutral Test (D5) d Ant Mounds (D6) (LRR A)
Wetland Hyc Primary Indicat Surface High Wa X Saturatic Water Mater Mate	drology Indicators: tors (minimum of one reconstructions) tors (Minimum of one reconstructions) tor (A3) tor (A3) tor (B1) tor Deposits (B2) tor Crust (B4) tor Crust (B4) tor Cracks (B6) tor Visible on Aerial In	nagery (B7)	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence c Recent Iror Stunted or Other (Exp	2, 4a, and (B11) vertebrates Sulfide Octhizospher of Reduce n Reduction Stressed	s (B13) lor (C1) res on Livir d Iron (C4) ons in Tilled Plants (D1	ng Roots (C3) d Soils (C6)	Water- MLRA Draina Dry-Se Satura Shallon FAC-N Raiseo	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (C9 orphic Position (D2) w Aquitard (D3) Neutral Test (D5)
Wetland Hyc Primary Indicat Surface High Wa X Saturatic Water Mater Mate	drology Indicators: tors (minimum of one recommendation of the rec	nagery (B7)	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence c Recent Iror Stunted or Other (Exp	2, 4a, and (B11) vertebrates Sulfide Octhizospher of Reduce n Reduction Stressed	s (B13) lor (C1) res on Livir d Iron (C4) ons in Tilled Plants (D1	ng Roots (C3) d Soils (C6)	Water- MLRA Draina Dry-Se Satura Shallon FAC-N Raiseo	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (C9 orphic Position (D2) w Aquitard (D3) Neutral Test (D5) d Ant Mounds (D6) (LRR A)
Wetland Hyc Primary Indicat Surface High Wa X Saturatio Water Management Drift Dep Algai Management Surface Su	drology Indicators: tors (minimum of one recommend of the	nagery (B7) Surface (Bi	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence c Recent Iror Stunted or Other (Exp	e, 4a, and (B11) vertebrates Sulfide Oc thizospher of Reduce on Reduction Stressed lain in Res	s (B13) lor (C1) res on Livir d Iron (C4) ons in Tilled Plants (D1	ng Roots (C3) d Soils (C6)	Water- MLRA Draina Dry-Se Satura Shallon FAC-N Raiseo	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (C9 orphic Position (D2) w Aquitard (D3) Neutral Test (D5) d Ant Mounds (D6) (LRR A)
Wetland Hyc Primary Indicat Surface High Wa Saturatio Water Mi Sedimen Drift Dep Algai Ma Iron Depo Surface S Inundatio Sparsely Field Observ	drology Indicators: tors (minimum of one reconstructions) water (A1) ther Table (A2) on (A3) tarks (B1) th Deposits (B2) to Crust (B4) to Crust (B4) to Crust (B5) Soil Cracks (B6) on Visible on Aerial Interventions: the Present? Yes	nagery (B7) Surface (Bo	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence 6 Recent Iror Stunted or Other (Exp	ches):	s (B13) lor (C1) res on Livir d Iron (C4) res in Tilled Plants (D1 marks)	ng Roots (C3) d Soils (C6)) (LRR A)	Water- MLRA Draina Dry-Se Satura Shallor FAC-N Raisec	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (C9 orphic Position (D2) w Aquitard (D3) Neutral Test (D5) d Ant Mounds (D6) (LRR A)
Wetland Hyc Primary Indicat Surface High Wa Saturatio Water Ma Sedimen Drift Dep Algai Ma Iron Dep Surface S Inundatio Sparsely Field Observ Surface Water Table I Saturation Pro (includes cap	drology Indicators: tors (minimum of one reconstructions) that Table (A2) on (A3) tarks (B1) that Deposits (B2) torsits (B3) that or Crust (B4) torsits (B5) Soil Cracks (B6) on Visible on Aerial Interventions: the Present? Present? Yesesent?	nagery (B7) Surface (Bi es () N es () N	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence c Recent Iror Stunted or Other (Exp	ches):	s (B13) lor (C1) res on Livir d Iron (C4) res in Tilled Plants (D1 marks)	ng Roots (C3) d Soils (C6)) (LRR A) Wetland	Water- MLRA Draina Dry-Se Satura Shallor FAC-N Raised Frost-I	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (C9 prepric Position (D2) w Aquitard (D3) Neutral Test (D5) d Ant Mounds (D6) (LRR A) Heave Hummocks (D7) (LRR F)
Wetland Hyc Primary Indicat Surface High Wa Saturatio Water Mi Sedimen Drift Dep Algai Ma Iron Depo Surface S Inundatio Sparsely Field Observ Surface Water Table I Saturation Profincludes cap Describe Rec Aerial photo	drology Indicators: tors (minimum of one recompositions) tors (minimum of one recompositions) tors (A3) tors (B1) tors (B2) tors (B3) tor Crust (B4) tors (B5) Soil Cracks (B6) tor Visible on Aerial Interventions: tor Present? Present? Yesent?	nagery (B7) Surface (Bees (Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence 6 Recent Iror Stunted or Other (Exp) 80 Depth (inc) Depth (inc) Depth (inc) Depth (inc)	c, 4a, and (B11) /ertebrate: Sulfide Oct thizospher of Reduce: n Reductio Stressed lain in Rer ches): ches):	s (B13) lor (C1) res on Livir d Iron (C4) res in Tilled Plants (D1 marks)	ng Roots (C3) d Soils (C6)) (LRR A) Wetland	Water- MLRA Draina Dry-Se Satura Shallor FAC-N Raised Frost-I	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (C9 prepric Position (D2) w Aquitard (D3) Neutral Test (D5) d Ant Mounds (D6) (LRR A) Heave Hummocks (D7) (LRR F)
Wetland Hyc Primary Indicat Surface High Wa Saturatio Water Mi Sedimen Drift Dep Algai Ma Iron Depo Surface S Inundatio Sparsely Field Observ Surface Water Table I Saturation Profincludes cap Describe Rec Aerial photo	drology Indicators: tors (minimum of one reconstructions) tors (minimum of one reconstructions) tor (A1) tor (A2) tor (A3) tor (B1) tor (B2) tor (B3) tor (Crust (B4) tor (B4) tor (B5) Soil (Cracks (B6) tor (Visible on Aerial Interventions) tor (Present? The Present? The Soil (B6) T	nagery (B7) Surface (Bees (Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence 6 Recent Iror Stunted or Other (Exp) 80 Depth (inc) Depth (inc) Depth (inc) Depth (inc)	c, 4a, and (B11) /ertebrate: Sulfide Oct thizospher of Reduce: n Reductio Stressed lain in Rer ches): ches):	s (B13) lor (C1) res on Livir d Iron (C4) res in Tilled Plants (D1 marks)	ng Roots (C3) d Soils (C6)) (LRR A) Wetland	Water- MLRA Draina Dry-Se Satura Shallor FAC-N Raised Frost-I	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (CS prophic Position (D2) w Aquitard (D3) Neutral Test (D5) d Ant Mounds (D6) (LRR A) Heave Hummocks (D7) (LRR F)
Wetland Hyc Primary Indicat Surface High Wa Saturatio Water Mi Sedimen Drift Dep Algai Ma Iron Depo Surface S Inundatio Sparsely Field Observ Surface Water Table I Saturation Profincludes cap Describe Rec Aerial photo	drology Indicators: tors (minimum of one recompositions) tors (minimum of one recompositions) tors (A3) tors (B1) tors (B2) tors (B3) tor Crust (B4) tors (B5) Soil Cracks (B6) tor Visible on Aerial Interventions: tor Present? Present? Yesent?	nagery (B7) Surface (Bees (Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen 3 Oxidized R Presence 6 Recent Iror Stunted or Other (Exp) 80 Depth (inc) Depth (inc) Depth (inc) Depth (inc)	c, 4a, and (B11) /ertebrate: Sulfide Oct thizospher of Reduce: n Reductio Stressed lain in Rer ches): ches):	s (B13) lor (C1) res on Livir d Iron (C4) res in Tilled Plants (D1 marks)	ng Roots (C3) d Soils (C6)) (LRR A) Wetland	Water- MLRA Draina Dry-Se Satura Shallor FAC-N Raised Frost-I	Stained Leaves (B9) (except 1, 1, 2, 4a, and 4b) ge Patterns (B10) eason Water Table (C2) tion Visible on Aerial Imagery (CS prophic Position (D2) w Aquitard (D3) Neutral Test (D5) d Ant Mounds (D6) (LRR A) Heave Hummocks (D7) (LRR F)

Project/Site: START 3 - Cement Creek		City/Co	ounty: San Jua	an	Sampling Date: 8-23-2011
Applicant/Owner: Environmental Protection Agency		•		State:CO	Sampling Point: WL 3-3A
Investigator(s): S. Hall, A. Ballman, J. Dawson		Sectio	n, Township, R	ange: N/A	-
Landform (hillslope, terrace, etc.): Terrace		Local	relief (concave,	convex, none): None	Slope (%): 1-2
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	-	,	Long: -107.6762	Datum: NAD 83
Soil Map Unit Name: Needleton stony loam, 30 to 65 p					ation: R3USA
Are climatic / hydrologic conditions on the site typical for the					
Are Vegetation Soil or Hydrology	significantly	-		"Normal Circumstances" p	
Are Vegetation Soil or Hydrology	naturally pr	roblema	tic?· (If n	eeded, explain any answer	s in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	g samı	oling point l	ocations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes	No C	ŀ	Is the Sample	d Area	
	No Ĉ	1	within a Wetla	_	No C
Wetland Hydrology Present? Yes •	No C				
Remarks: PEM/PSS wetland, part of the Wetland					
north and south, while WL 3-3B occurs				Wetland sustained by C	ement Creek and
groundwater. Vegetation has been distu	irbed by la	ındslide	es.		,
VEGETATION - Use scientific names of plan	ıts.				
Tree Stratum Plot size: 460 x 10	Absolute % Cover		nant Indicator es? Status		
1. Picea engelmannii	<1	No	FACU-	Dominance Test works	
2.			- TACO	Number of Dominant Sp That Are OBL, FACW, o	r FAC
3.				(excluding FAC-):	4 (A)
4.				Total Number of Domina	4.03999000.00.5
	0	= Total	Cover	Species Across All Strat	V. 1900-000
Sapling/Shrub Stratum Plot size: 595 x 10	•••	- Total	Oover	Percent of Dominant Sp That Are OBL, FACW, o	
1. Betula glandulosa	35	Yes	OBL		Control of the Contro
2. Salix geyeriana	20	Yes		Prevalence Index work	
3. Salix monticola	10	No	OBL_	Total % Cover of: OBL species	$\frac{\text{Multiply by:}}{\text{x 1} = 124}$
4. Salix drummondiana	5	No	FACW+	FACW species	$\begin{array}{ccc} x & x & = & 124 \\ x & x & 2 & = & 10 \end{array}$
5. <u>Salix planifolia</u>		No	OBL	FAC species	x3 = 21
Herb Stratum Plot_size 595 x 10	72	= Total	Cover	FACU species	x 4 = 8
1. Calamagrostis canadensis	40	Yes	OBL	UPL species	x5= 10
2. Carex aquatilis	15	Yes	OBL	Column Totals: 14	9.000 0.000
3. Vaccinium cespitosum	5	No	FAC		***************************************
4. Carex canescens	2	No	OBL	Prevalence Index	
5. Polygonum viviparum	2	No	FAC+	Hydrophytic Vegetation	n Indicators: ydrophytic Vegetation
6. Chamerion angustifolium	2	No	FACU	2 - Dominance Test	
7. Fragaria vesca	2	No	Not Listed	3 - Prevalence Index	
8. Antennaria corymbosa	<1	No	FACW	4 - Morphological Ac	daptations ¹ (Provide supporting
9. Viola macloskeyi	<1	No	FACW+	l ——	or on a separate sheet)
10.Pedicularis groenlandica	>1	No	OBL	5 - Wetland Non-Va	scular Plants hytic Vegetation ¹ (Explain)
Woody Vine Stratum Plot size:	68	= Total (Cover		and wetland hydrology must
1.				be present, unless distu	
2.				Hydrophytic	
		= Total (Cover	Vegetation Yes Present?	No C
% Bare Ground in Herb Stratum 30 %	· POSE:			1.10001111	
Remarks: PEM/PSS wetland fringe. Bare Ground =	= erosion	-			
Vegetation has been disturbed by landslic		iment c	leposits along	Cement creek and with	in the wetland (i.e., recent
landslide event based on aerial photograp					(,

Profile Des	cription: (Describe	to the de	oth needed to docum	nent the	indicator o	or confirm	the absence of	indicators.)
Depth	Matrix			Feature		1 2	T . (Remarks 00009
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	
SP1 0-1								Decaying roots
SP1 1-5	7.5YR 5/4		5YR 4/6		<u>RM</u>	PL	Fibrous silt	Mottles also within matrix
SP1 1-5			2.5Y 6/1	_30	<u>D</u>	<u>M</u>		
SP1 1-5	-		5YR 3/4	_40_	RM	PL	,	Mottles also within matrix
SP1 5-7	2.5Y 6/1	55	5YR 4/6	40	RM	M	Silt	
SP1 5-7	-		5YR 3/4	5	RM	M		
SP1 7-16	2.5Y 6/1	80	5YR 4/4	20	RM	M	Clay silt	
								-
¹ Type: C=Cor	centration, D=Depletio	n, RM=Red	uced Matrix, CS=Covere	d or Coate	ed Sand Grain	ns .	. ,	² Location: PL≂Pore Lining, M=Matrix
Hydric Soil	ndicators: (Applicat	ole to all Li	RRs, unless otherwise	noted.)			Indicators for	Problematic Hydric Soils ³ :
Histosol			Sandy Redox	(S5)			2 cm Mud	ck (A10)
 	oipedon (A2)		Stripped Mat					nt Material (TF2)
I 💻	stic (A3) en Sulfide (A4)		Loamy Muck Loamy Gleye	-		ept MLRA		llow Dark Surface (TF12)
	d Below Dark Surfac	e (A11)	Depleted Ma		(Г2)	•	Other (Ex	plain in Remarks)
· 🗀 ·	ark Surface (A12)		Redox Dark		F6)		21	
· — ·	lucky Mineral (S1)		Depleted Dar					s of hydrophytic vegetation and nydrology must be present,
Sandy C	Sleyed Matrix (S4)		Redox Depre	essions (I	- 8)			sturbed or problematic.
Restrictive I	.ayer (if present):							
Type:							Hydric Soil Pre	sent? Yes 💽 No 🗍
Depth (inc	· 							
			the first soil layer.				,	
	oils appear to be se			-14 4 1			241 - 1	
			yer 1-5" was diffict within the 7-16" soi		termine be	ecause of	the large amou	nt of mottles and depletions.
l		quickly v	within the 7-10 Soi	l layel.		H-1		
HYDROLO								
,	drology Indicators: fors (minimum of one re	equired; che	ck all that apply)				Secondary	Indicators (minimum of two required)
Surface	Water (A1)		Water-Stain			cept		Stained Leaves (B9) (except
Saturation	ter Table (A2)		Salt Crust (40)			ge Patterns (B10)
	arks (B1)	•	Aquatic Inv	•	s (B13)			eason Water Table (C2)
	t Deposits (B2)		Hydrogen S			•		tion Visible on Aerial Imagery (C9)
	osits (B3)		X Oxidized R			ng Roots (0	C3) Geom	orphic Position (D2)
Algai Ma	t or Crust (B4)		Presence o	f Reduce	ed Iron (C4)		Shallo	w Aquitard (D3)
	osits (B5)		Recent Iron			•		Neutral Test (D5)
	Soil Cracks (B6)		Stunted or) (LRR A)		d Ant Mounds (D6) (LRR A)
	on Visible on Aerial I	• • •	• —	aın ın Ke	marks)		☐ Frost-I	Heave Hummocks (D7) (LRR F)
Field Obser	Vegetated Concave	Surrace (B8)	•		1		
Surface Water		es 🔘	No 💽 Depth (inc	hes).	_			
Water Table		"	No (Depth (incl	· —	-	Wetla	nd Hydrology Pr	esent? Yes 🕟 No 🦳
Saturation P			No C Depth (incl		5	-	,	
(includes cap	illary fringe)						i	
		gauge, mo	onitoring well, aerial pl	hotos, pr	evious insp	ections), if	available:	
Aerial photo								
		_		nent Cre	ek. Confl	uence of	Porcupine Gulo	ch creates a break in vegetation at
	southern end of th	ie wetlan	α.					
				which he	e modific	d the atra	am channal and	wetland Portions of the wetland
Are	a has been recent	ly disturb	ed by a landslide, v					wetland. Portions of the wetland ortions of the wetland where

Project/Site: START 3- Cement Creek		City/C	ounty: San Jua	ın	Sampling E	Date: 8-24-2011	
Applicant/Owner: Environmental Protection Agency				State:CO	Sampling Point: WL 3-3B		
Investigator(s): A. Ballman, J. Dawson		Sectio	n, Township, Ra	ange: N/A			
Landform (hillslope, terrace, etc.): Terrace		Local	relief (concave,	convex, none): None	· · · · · · · · · · · · · · · · · · ·	Slope (%): 1	
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	•	,	Long: -107.6763		Datum: NAD 8	
Soil Map Unit Name: Needleton stony loam, 30 to 65 p					sification: PSSB		
Are climatic / hydrologic conditions on the site typical for th		-	no G No C				
					•		
	significantly			"Normal Circumstances	•	74.4	
	naturally pr		•	eeded, explain any ans		•	
SUMMARY OF FINDINGS - Attach site map	showing	samp	oling point le	ocations, transec	ts, importar	nt features, et	c.
Hydrophytic Vegetation Present? Yes	No C		Is the Sample	i Area	•		
Hydric Soil Present? Yes 💽	No ()		within a Wetla	nd? Yes	• No C		
Wetland Hydrology Present? Yes	Vo C∷			·			
Remarks: PEM portion within the larger WL 3-3							ng
Cement Creek near Porcupine Gulch. P				han 5 percent of the	total and is so	attered	
throughout. Wetland is sustained by gr	roundwate	r and c	reek flow.			<u> </u>	
VEGETATION - Use scientific names of plan	its.						
Tree Stratum Plot size:	Absolute		ant Indicator es? Status				
1.	78 COVEL	Shecie	es! Status	Dominance Test wo			
2.	·			Number of Dominant That Are OBL, FACV		·	
3.				(excluding FAC-):		2 (A)	
4.				Total Number of Don Species Across All S		(B)	
		= Total (Cover	Percent of Dominant		2 (B).	
Sapling/Shrub Stratum Plot size: 491 x 10	2000			That Are OBL, FACV		100.0 % (A/B)
1. Betula glandulosa		No	OBL			Ti wasanii	
2. Picea pungens		No	FAC-	Prevalence Index w Total % Cover of		ultiply by:	
3. Salix planifolia	<u> </u>	No	OBL	OBL species	.69 x1=	69	
4. Salix monticola	<1	No	OBL	FACW species	x2=	6	
5	Sec. 7 es	- T-4-1 (2	FAC species	6 x3=	18	
Herb Stratum Plot size 491 x 10	4 =	= Total (Jover	FACU species	x4=	0	
1. Carex canescens	41	Yes	OBL	UPL species	4 x5=	20	
2. Juncus mertensianus	20	Yes	OBL	Column Totals:	79 (A)	107 (B	3)
3. Agrostis scabra	5	No	FAC		**************************************		
4. Carex aquatilis	5	No	OBL	Prevalence Inde		1.35	
5. Fragaria vesca	2	No	Not Listed	Hydrophytic Vegeta 1 - Rapid Test fo			
6. Carex albo-nigra	2	No	UPL	2 - Dominance T		egetation	
7				3 - Prevalence In			
8.	·			4 - Morphologica	I Adaptations ¹ (P	rovide supporting	,
9				data in Remar	rks or on a sepa		
10.	·			Problematic Hydr			
Woody Vine Stratum Plot size:	75 =	Total C	Cover	Indicators of hydric			
1.				be present, unless di	sturbed or prob	lematic.	
2.				Hydrophytic	^	_	
		Total C	Cover	Vegetation Yes Present?	s 💿 No	• C	
% Bare Ground in Herb Stratum 20 %	dunni 37			· · · · · · · · · · · · · · · · · · ·		÷	-
Remarks: Bare Ground = moss (~10%), sediment de	eposits, and	d rock/	cobble				\dashv
Wetland occurs as a fringe above terrace.	•				•		-
Shrub species within the 3-3B wetland are	ea were sa _l	pling s	pecies (< 1 foo	ot tall).			

Depth	Matrix			Features		1 - 2	.		
(inches) Color ((moist)	%	Type ¹	_Loc ²	Texture		
	R 5/4 10				D) (Fine sar		Fibrous
	R 5/4 63		R 3/4		RM		Fine sai		Fibrous
SP1 2-10 5Y	6/1 10	3/1	10BG		D	<u>M</u> .	Fine sar	nd	Fibrous
¹ Type: C=Concentration,	D=Depletion, RM=	Reduced Matrix	c, CS=Covere	d or Coated	Sand Grai	ins			² Location: PL=Pore Lining, M=Matrix
Hydric Soil Indicators:	(Applicable to a	II LRRs. unles	ss otherwise	noted.)			Indicator	s for F	Problematic Hydric Soils ³ :
Histosol (A1) Histic Epipedon (A Black Histic (A3) Hydrogen Sulfide (Depleted Below Da Thick Dark Surface Sandy Mucky Mine Sandy Gleyed Mat	A4) ark Surface (A11 e (A12) eral (S1)) [] (] (] (] (Sandy Redox Stripped Mate Loamy Muck Loamy Gleye Depleted Mate Redox Dark Stripped Park Depleted Dark Redox Depre	rix (S6) y Mineral ed Matrix (trix (F3) Surface (F rk Surface	F2) F6) (F7)	ept MLRA1	Red Very Othe	Pare y Shal er (Exp cators land h	k (A10) nt Material (TF2) low Dark Surface (TF12) plain in Remarks) of hydrophytic vegetation and hydrology must be present,
Restrictive Layer (if pr					 	-	unie	ess als	sturbed or problematic.
Type: Cobbles and	-						Hydric So	ii Pre:	sent? Yes 💽 No 🤇
Depth (inches): 10						İ			And Same
IYDROLOGY Wetland Hydrology Inc Primary Indicators (minimu Surface Water (A1)	m of one required;		Water-Stain		` '\	cept	v	Vater-	ndicators (minimum of two required) Stained Leaves (B9) (except
High Water Table (A2)		MLRA 1, 2,		4b)				1, 2, 4a, and 4b)
Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3) Algai Mat or Crust (Iron Deposits (B5) Surface Soil Cracks	B4)		Salt Crust (I Aquatic Inve Hydrogen S Oxidized Rh Presence of Recent Iron Stunted or S	ertebrates Sulfide Od nizosphere f Reduced Reduction	or (C1) es on Livir d Iron (C4) ns in Tilled) d Soils (C6)	3)	Ory-Se Saturat Seomo Shallov FAC-N	ge Patterns (B10) ason Water Table (C2) ion Visible on Aerial Imagery (C9) irphic Position (D2) v Aquitard (D3) leutral Test (D5) l Ant Mounds (D6) (LRR A)
Inundation Visible o		/ (B7)	Other (Expl		•) (LINN A)			leave Hummocks (D7) (LRR F)
Sparsely Vegetated	٠,	` '			•		·		, ,,,
Field Observations:									
Surface Water Present?		No 📵	Depth (incl	· —	-	 		_	
Water Table Present?	Yes 💽	No C	Depth (incl		6	Wetlan	d Hydrolog	gy Pre	esent? Yes 💿 No 🔿
Saturation Present? (includes capillary fringe Describe Recorded Data		No C , monitoring v	Depth (inch		4 vious insp	ections), if a	available:		
Aerial photograph			<u> </u>						
Remarks: Main hydro	ogic sources =	groundwat	er and Cen	nent Cree	ek.				

Project/Site: START 3 - Cement Creek		City/Coun	ty: San Juai	n	Sampling Da	ate: 8-24-20	011
Applicant/Owner: Environmental Protection Agency				State:CO	 Sampling Po 	Sampling Point: WL 3-4	
Investigator(s): S. Hall, A. Ballman, J. Dawson		Section, T	ownship, Ra	nge: N/A	_		-
Landform (hillslope, terrace, etc.): Terrace		Local reli	ef (concave,	convex, none):None		Slope (%):	< 1
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 3.7.	.8675		Long: -107.6755		Datum: NA	D 83
Soil Map Unit Name: Quazar very cobbly loam, 5 to 25					fication: R3US		
Are climatic / hydrologic conditions on the site typical for thi	-		• No (·			
	significantly			"Normal Circumstances	•	C No	• (•
	naturally pro			eeded, explain any answ	•	**	2 (3)
SUMMARY OF FINDINGS - Attach site map	• •			•			s, etc.
No. 6	<u> </u>			· · · · · · · · · · · · · · · · · · ·			
The spiritual of the sp	10 () 10 ()		the Sampled	_	No C		
	10 () 10 ()	Wit	hin a Wetlar	ia? Yes 🧐	≀ NO Cy		
Remarks: PEM/PSS wetland fringe and overhang	• • • • • • • • • • • • • • • • • • • •	west bank	of Cement	Creek north of Casc	ade Gulch H	vdrology	
sustained from Cement Creek. Significa							
sediments, but color cannot be determin							
VEGETATION - Use scientific names of plan	ts.						
	Absolute		Indicator				
Tree Stratum Plot size:		Species?		Dominance Test wor			
1. Picea engelmannii	<u><1</u>	No	FACU-	Number of Dominant That Are OBL, FACW			
2.				(excluding FAC-):	,	. 3	(A)
3.				Total Number of Dom		Forest Literature	
4			· · · · · · · · · · · · · · · · · · ·	Species Across All St		3	(B)
Sapling/Shrub Stratum Plot size: 384 x 10	0 :	= Total Cov	er	Percent of Dominant : That Are OBL, FACW		100.0 %	(A/B)
1. Salix planifolia	18	Yes	OBL				(,,,,
2. Salix monticola	16	Yes	OBL	Prevalence Index wo	•		
3. Betula glandulosa	3	No	OBL	Total % Cover of:	72 E.	ıltiply by: 87⊭	_
4. Picea engelmannii	2	No_	FACU-	OBL species FACW species	87 x 1 = 8 x 2 =	16	
5. Lonicera involucrata	1	No	FAC	FAC species	7 x3=	6	•
Herb Stratum Plot size 384 x 10	40 =	= Total Cov	er	FACU species	2 x 4 =	12	
1. Calamagrostis canadensis	45	Yes	OBL	UPL species	x5=	0	
2. Deschampsia cespitosa	8	No	FACW		100 (A)	121	(B)
3. Carex canescens		No	OBL			*******	
4. Juncus parryi	1	No	FAC	Prevalence Inde		1.21	
5. Chamerion angustifolium	1 ·	No	FACU	Hydrophytic Vegetat 1 - Rapid Test for			
6.				2 - Dominance Te		egetation	
7.				3 - Prevalence inc			
8.				4 - Morphological	Adaptations ¹ (Pr	ovide suppo	orting
9.					ks or on a separ		
10.				5 - Wetland Non- Problematic Hydro		_	,
Woody Vine Stratum Plot size:	60 =	Total Cov	er	Indicators of hydric s			
1.				be present, unless dis			
2.				Hydrophytic			
		Total Cov	 er	Vegetation Yes Present?	No	\circ \circ	
% Bare Ground in Herb Stratum 4 %		. 5.2. 504	-	FICSCHILF			
Remarks: PEM/PSS fringe on west side of creek. Ba	are Group	d = cadim	ent denocité	s and rocks			
1 Livil 33 Hillge on west side of creek. Da	ac Grouli	. — SCUIIII	em achosig	unu iveks.			
		-				•	
							Ì

ł	cription: (Descri	be to the de	pth nee				confirm	the absence of indicators.)	. 00009
Depth (inches)	Color (moist)	%	Col	Redox or (moist)	<u>Feature:</u> %		Loc ²	Texture	Remarks
SP1 0-4	7.5YR 4/6	100		or (moist)				Silty sand	remarks
<u> </u>	7.31 K 4/0				· ——			Sifty Sand	
									
				•					
									,
 -									
									
1- 0.0								2,	
	centration, D=Deple					a Sana Grains			_=Pore Lining, M=Matrix
	ndicators: (Appli	cable to all L	RRs, unl					Indicators for Problematic	Hydric Soils*:
Histosol	(A1) pipedon (A2)		닏	Sandy Redox Stripped Mat				2 cm Muck (A10)	TC0\
	istic (A3)			Loamy Muck		'(E1) (eycen	+ MI RA1	Red Parent Material (Very Shallow Dark Su	
=	en Sulfide (A4)		H	Loamy Gleye			· mero-ri	X Other (Explain in Rem	, ,
	d Below Dark Sur	face (A11)	H	Depleted Ma		· -/		M outer (Explain in real	
Thick Da	ark Surface (A12)		H	Redox Dark		F6)		21 12 -1	
	lucky Mineral (S1	-		Depleted Da				³ Indicators of hydrophy wetland hydrology mu	
Sandy G	Bleyed Matrix (S4)	1		Redox Depre	essions (F	⁻ 8)		unless disturbed or pr	
	ayer (if present)	•							
Туре: <u>Со</u>	bbles, roc <u>ks</u>							Hydric Soil Present? Yes	s 🖲 No 🖯
Depth (inc	hes): 4								
Remarks: So	oils appear to be	seasonally	floode	d and comp	rised of s	sediment de	position	. Depth of soil pit restrict	ed by channel rock.
	ils are atypical	because the	ey have	been influe	nced by	iron deposi	ts in Cer	nent Creek. The soil is ve	ry orange in color but
du	e to other soil i	ndicators a	nd the p	redominanc	e of obli	igate and/or	Faculta	tive Wet vegetation, this	siol is determined to
be	hydric.								
HYDROLO	GY				-				
-	drology Indicator								
	tors (minimum of on	e required; che	ck all tha					Secondary Indicators (min	
	Water (A1)		L	J Water-Stain MLRA 1, 2		s (B9) (exce	pt	Water-Stained Lear	
	ter Table (A2)		_	_		4 0)	* %		•
Saturation M			Ļ	Salt Crust (- (D40)		Drainage Patterns	
=	arks (B1) it Deposits (B2)		L L	│ Aquatic Inv				Dry-Season Water	on Aerial Imagery (C9)
	osits (B3)	*	F	Hydrogen S		res on Living	Poets (C	=	* *
٠ نت	t or Crust (B4)		느	Presence o		-	Roots (C.	Shallow Aquitard (•
_ •	osits (B5)		누			ons in Tilled S	Soils (C6)	FAC-Neutral Test	
_	Soil Cracks (B6)		<u> </u>	_		Plants (D1) (Raised Ant Mound	•
=	n Visible on Aeria	i Imagery (B	7)	Other (Expl			,		nocks (D7) (LRR F)
لسسا	Vegetated Conca					ŕ			, , ,
Field Observ			·						
Surface Water	er Present?	Yes 🔘	No 💽	Depth (incl	hes):	-	ļ		·
Water Table	Present?	Yes 🔘	No 💽	Depth (inc	 hes):	-	Wetlan	d Hydrology Present? Ye	s 🖲 No 🔿
Saturation Pr	esent?	Yes (No C	Depth (incl	hes):	. 2	1	•	}
(includes cap							1:> :6 -		
Aerial photo	orded Data (strea ograph	m gauge, m	unituring	weii, aenai pi	notos, pre	vious inspec	iuons), if a	avanable:	•
<u> </u>									,
	ain hydrologic s						•		
. 1 he	e sediment and	mm aeposi	is occui	along the s	ueam m	eander.			
					÷				
	•								į

Project/Site: START 3 - Cement Creek		City/County: San Ju	ıan	s, and Coast OOOO Sampling Date: 8-24-2011	
Applicant/Owner: Environmental Protection Ag	zency	- July - July - Bull Ju	State:CO	Sampling Point: WL 3-5	
nvestigator(s): S. Hall, A. Ballman		Section, Township,		Odmping Form. WE 3-5	
andform (hillslope, terrace, etc.): Terrace		•	re, convex, none): None	Slope (%): < 1	
Subregion (LRR): E - Rocky Mountain Forests and Rai	ngeland Lat: 37	-	Long: -107.6754	Datum: NAD 83	
Soil Map Unit Name: Quazar very cobbly loam,				cation: R3USA	
Are climatic / hydrologic conditions on the site typic	_		(If no, explain in F	·	
Are Vegetation Soil or Hydrology			re "Normal Circumstances"		
Are Vegetation Soil or Hydrology	naturally pr	obiematic? (if	needed, explain any answe	rs in Remarks.)	
SUMMARY OF FINDINGS - Attach site	map showing	sampling point	locations, transects	, important features, etc	
Hydrophytic Vegetation Present? Yes (No C	Is the Sampl	led Area		
Hydric Soil Present? Yes (within a Wet	_	No C	
Wetland Hydrology Present? Yes (No C				
EGETATION - Use scientific names o	Absolute	Dominant Indicator			
Tree Stratum Plot size:	% Cover	Species? Status	Dominance Test work	sheet:	
1.			Number of Dominant S That Are OBL, FACW,	•	
2.			(excluding FAC-):	2 (A)	
3. 4.			Total Number of Domir		
		= Total Cover	Species Across All Stra	"39 magge"	
Sapling/Shrub Stratum Plot size: 245 x 10		- Total Cover	Percent of Dominant S That Are OBL, FACW,		
1. Picea engelmannii	<1	No FACU-	Prevalence Index wor		
2. Salix moniticola	1	No OBL	Total % Cover of:	Ksneet: Multiply by:	
3.	***************************************			54 x 1 = 64	
5			1	5 x 2 = 10	
		= Total Cover	FAC species	3 x 3 = 9.	
Herb Stratum Plot size 245 x 10	V.E.		FACU species	0 x 4 = 0	
1. Juncus parryi	6	No OBL	UPL species	x 5 = 0	
2. Juncus mertensianus		Yes OBL	_ Column Totals:	72 (A) <u>83</u> (B)	
Deschampsia cespitosa Calamagrostis canadensis		No FACW No OBL	Prevalence Index	= B/A = 1.15	
5. Carex canescens	41	Yes OBL	Hydrophytic Vegetation		
6. Agrostis scabra	3	No FAC	, —	Hydrophytic Vegetation	
7.			_		
8.			_ <u> </u>	daptations (Provide supporting	
9				s or on a separate sheet)	
10.	E #400		5 - Wetland Non-Va	ascular Plants ohytic Vegetation ¹ (Explain)	
· · · · · · · · · · · · · · · · · · ·	71	= Total Cover	¹ Indicators of hydric so	il and wetland hydrology must	
· · · · · · · · · · · · · · · · · · ·			be present, unless dist	urbed or problematic.	
Woody Vine Stratum Plot size: 1.			- Usadrombudio		
Woody Vine Stratum Plot size:			Hydrophytic	G No C	
Woody Vine Stratum Plot size: 1.		= Total Cover	- Vegetation Yes Present?	● No C	
Woody Vine Stratum Plot size: 1.		= Total Cover	- Vegetation Yes	⑥ No ℂ	

Color (moist)	Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions Redox Depressions	ated Sand Grains ated Sand Grains ated Sand Grains (a) (b) (c) (c) (c) (c) (c) (d) (excep (d) (excep (d) (excep (excep (f) (excep	PL	Indicators for P 2 cm Mucl Red Parer Very Shall Other (Exp	nt Material (TF2) ow Dark Surface (TF12) olain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
Type: C=Concentration, D=Depletion, RM=Reduc Hydric Soil Indicators: (Applicable to all LRF Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: Rock Depth (inches): 4 Remarks: Three previous soil pits attempth Soil pit color influenced by cree Primary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)	ced Matrix, CS=Covered or Co Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix Depleted Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions	ated Sand Grains i.) iral (F1) (excep rix (F2) i) e (F6) ace (F7) is (F8)	t MLRA1)	Indicators for P 2 cm Mucl Red Parer Very Shall Other (Exp	² Location: PL=Pore Lining, M=Matrix Problematic Hydric Soils ³ : k (A10) nt Material (TF2) low Dark Surface (TF12) clain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
Type: C=Concentration, D=Depletion, RM=Reduce Hydric Soil Indicators: (Applicable to all LRF Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: Rock Depth (inches): 4 Remarks: Three previous soil pits attempt Soil pit color influenced by crestrictive and the provious soil pits attempt Soil pit color influenced by crestriancy Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)	Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions Redox Depressions	c.) eral (F1) (excep rix (F2) 3) e (F6) ace (F7) s (F8)	t MLRA1)	Indicators for P 2 cm Mucl Red Parer Very Shall Other (Exp	² Location: PL=Pore Lining, M=Matrix Problematic Hydric Soils ³ : k (A10) nt Material (TF2) low Dark Surface (TF12) clain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Rock Depth (inches): 4 emarks: Three previous soil pits attempth Soil pit color influenced by crestion of the property of the pit of the property of the pit of the	Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions Redox Depressions	c.) eral (F1) (excep rix (F2) 3) e (F6) ace (F7) s (F8)	t MLRA1)	ndicators for P 2 cm Mucl Red Parer Very Shall Other (Exp 3 Indicators wetland h unless dis	roblematic Hydric Soils ³ : k (A10) It Material (TF2) ow Dark Surface (TF12) Islain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) estrictive Layer (if present): Type: Rock Depth (inches): 4 emarks: Three previous soil pits attempth Soil pit color influenced by cree //DROLOGY //etland Hydrology Indicators: imary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)	Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions Redox Depressions	c.) eral (F1) (excep rix (F2) 3) e (F6) ace (F7) s (F8)	t MLRA1)	ndicators for P 2 cm Mucl Red Parer Very Shall Other (Exp 3 Indicators wetland h unless dis	roblematic Hydric Soils ³ : k (A10) It Material (TF2) ow Dark Surface (TF12) Islain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
Hydric Soil Indicators: (Applicable to all LRF Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: Rock Depth (inches): 4 remarks: Three previous soil pits attempth Soil pit color influenced by cres POROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)	Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions Redox Depressions	c.) eral (F1) (excep rix (F2) 3) e (F6) ace (F7) s (F8)	t MLRA1)	ndicators for P 2 cm Mucl Red Parer Very Shall Other (Exp 3 Indicators wetland h unless dis	roblematic Hydric Soils ³ : k (A10) It Material (TF2) ow Dark Surface (TF12) Islain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
Hydric Soil Indicators: (Applicable to all LRF Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) restrictive Layer (if present): Type: Rock Depth (inches): 4 remarks: Three previous soil pits attempth Soil pit color influenced by cree POROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)	Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions Redox Depressions	c.) eral (F1) (excep rix (F2) 3) e (F6) ace (F7) s (F8)	t MLRA1)	ndicators for P 2 cm Mucl Red Parer Very Shall Other (Exp 3 Indicators wetland h unless dis	roblematic Hydric Soils ³ : k (A10) It Material (TF2) ow Dark Surface (TF12) Islain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
Hydric Soil Indicators: (Applicable to all LRF Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: Rock Depth (inches): 4 Temarks: Three previous soil pits attempth Soil pit color influenced by cree Type: Vetland Hydrology Indicators: Irimary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)	Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions Redox Depressions	c.) eral (F1) (excep rix (F2) 3) e (F6) ace (F7) s (F8)	t MLRA1)	ndicators for P 2 cm Mucl Red Parer Very Shall Other (Exp 3 Indicators wetland h unless dis	roblematic Hydric Soils ³ : k (A10) It Material (TF2) ow Dark Surface (TF12) Islain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
Hydric Soil Indicators: (Applicable to all LRF Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: Rock Depth (inches): 4 Temarks: Three previous soil pits attempth Soil pit color influenced by cree Type: Vetland Hydrology Indicators: Irimary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)	Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions Redox Depressions	c.) eral (F1) (excep rix (F2) 3) e (F6) ace (F7) s (F8)	t MLRA1)	ndicators for P 2 cm Mucl Red Parer Very Shall Other (Exp 3 Indicators wetland h unless dis	roblematic Hydric Soils ³ : k (A10) It Material (TF2) ow Dark Surface (TF12) Islain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
Hydric Soil Indicators: (Applicable to all LRF Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: Rock Depth (inches): 4 Temarks: Three previous soil pits attempth Soil pit color influenced by cree Type: Vetland Hydrology Indicators: Irimary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)	Rs, unless otherwise noted Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mine Loamy Gleyed Matrix (F3) Redox Dark Surfact Depleted Dark Surfact Redox Depressions Redox Depressions	c.) eral (F1) (excep rix (F2) 3) e (F6) ace (F7) s (F8)	t MLRA1)	ndicators for P 2 cm Mucl Red Parer Very Shall Other (Exp 3 Indicators wetland h unless dis	roblematic Hydric Soils ³ : k (A10) It Material (TF2) ow Dark Surface (TF12) Islain in Remarks) of hydrophytic vegetation and ydrology must be present, turbed or problematic.
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Sandy Gleyed Matrix (S4) Restrictive Layer (if present): Type: Rock Depth (inches): 4 Remarks: Three previous soil pits attempt Soil pit color influenced by cree PAPOLOGY Vetland Hydrology Indicators: Trimary Indicators (minimum of one required; check of the state of the s	Redox Depressions	s (F8)		wetland hy unless dis	ydrology must be present, turbed or problematic.
rype: Rock Depth (inches): 4 Demarks: Three previous soil pits attempted by cree Por Soil pit color influenced by cree Por Soil pit	oted before this one. All				
Type: Rock Depth (inches): 4 emarks: Three previous soil pits attempth Soil pit color influenced by cree //DROLOGY //etland Hydrology Indicators: rimary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)		too rocky to		ydric Soil Pres	sent? Yes 💽 No 🦳
Depth (inches): 4 emarks: Three previous soil pits attempth Soil pit color influenced by cree YDROLOGY Vetland Hydrology Indicators: rimary Indicators (minimum of one required; checked) Surface Water (A1) High Water Table (A2) Saturation (A3)		too rocky to			
emarks: Three previous soil pits attempth Soil pit color influenced by creating the soil pit color influenced by c		too rocky to	excavate.		
Soil pit color influenced by cre /DROLOGY /etland Hydrology Indicators: imary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)	eek.	· .			
rimary Indicators (minimum of one required; check Surface Water (A1) High Water Table (A2) Saturation (A3)					
High Water Table (A2) Saturation (A3)	all that apply)			Secondary In	ndicators (minimum of two required)
Saturation (A3)	Water-Stained Lea		pt		Stained Leaves (B9) (except
	MLRA 1, 2, 4a, aı	nd 4b)		`	1, 2, 4a, and 4b)
	Salt Crust (B11)				ge Patterns (B10)
Water Marks (B1)	Aquatic Invertebra			= -	ason Water Table (C2)
Sediment Deposits (B2)	Hydrogen Sulfide	• •	D 1: (00)		on Visible on Aerial Imagery (C9)
Drift Deposits (B3) Algai Mat or Crust (B4)	Oxidized Rhizosp	-	Roots (C3)	<u></u>	rphic Position (D2) Aquitard (D3)
Iron Deposits (B5)	Presence of Redu	, ,	Soils (C6)	<u></u>	eutral Test (D5)
Surface Soil Cracks (B6)	Stunted or Stresse				Ant Mounds (D6) (LRR A)
Inundation Visible on Aerial Imagery (B7)	=				eave Hummocks (D7) (LRR F)
Sparsely Vegetated Concave Surface (B8					
ield Observations:					
•	o Depth (inches):_				,
"	o (Depth (inches):_	-	Wetland i	Hydrology Pre	sent? Yes 📵 No 🔘
	o C Depth (inches):_	0			•
ncludes capillary fringe) Describe Recorded Data (stream gauge, mon	nitoring well, aerial photos.	previous inspec	tions), if ava	ailable:	
erial photograph	<u> </u>				
Remarks: Source of hydrology - Cement	Creek. Some hydrology	occurs from	across road	d. Culvert pre	sent. There is a small spring
across the road sustaining a tiny				F	· · · · · · · · · · · · · · · · · · ·
			•		•

Applicant/Owner Environmental Protection Agency State.CO Sampling Point: W.L. 4-1 Investigator(s): S. Hall, A. Ballman, J. Dawson Section, Township, Range: N/A Long: 107.6713 Datum: NAD 83 Solid Map Unit Name: Quazar very cobbly locant, 5 to 25 percent slopes Not Casaffication: PSSB	Project/Site: START 3 - Cement Creek		City/Co	ounty: San Jua	an s	Sampling Date: 8-22-2011		
Local ralled (concave, convex, none) Concave to None Slope (%): 2.5	Applicant/Owner: Environmental Protection Agency		_		State:CO S	Sampling Point: WL 4-1		
Sold Meg Link Name: Quazar very cobbly loam, 5 to 25 percent slopes And Wegleatlon Link Termina and Remandard Latt 37.8761 Sold Meg Link Name: Quazar very cobbly loam, 5 to 25 percent slopes Are Vegetation Link Termina and the subsyciate of the time of year? Yes © No C (If no. equidin any answers in Remarks.) Are Vegetation Link Termina and the subsyciate of the time of year? Yes © No C (If no. equidin any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes © No C within a Wetland? Yes © No C Wetland Hydrology Present? Yes © No C within a Wetland? Yes © No C Wetland Hydrology Present? Yes © No C Wetland Hydrology Present? Yes © No C Wetland Hydrology Present? Yes © No C Wetland Sustained by groundwater. Significantly disturbed soils - difficult to determine true soil color due to iron in the creek, but some gleying is evident within upper 3 inches. VEGETATION - Use scientific names of plants. Troe Stratum Plot size:	Investigator(s): S. Hall, A. Ballman, J. Dawson		Section	n, Township, R	ange: N/A			
Sold Meg Link Name: Quazar very cobbly loam, 5 to 25 percent slopes And Wegleatlon Link Termina and Remandard Latt 37.8761 Sold Meg Link Name: Quazar very cobbly loam, 5 to 25 percent slopes Are Vegetation Link Termina and the subsyciate of the time of year? Yes © No C (If no. equidin any answers in Remarks.) Are Vegetation Link Termina and the subsyciate of the time of year? Yes © No C (If no. equidin any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes © No C within a Wetland? Yes © No C Wetland Hydrology Present? Yes © No C within a Wetland? Yes © No C Wetland Hydrology Present? Yes © No C Wetland Hydrology Present? Yes © No C Wetland Hydrology Present? Yes © No C Wetland Sustained by groundwater. Significantly disturbed soils - difficult to determine true soil color due to iron in the creek, but some gleying is evident within upper 3 inches. VEGETATION - Use scientific names of plants. Troe Stratum Plot size:	Landform (hillslope, terrace, etc.): Terrace		Local	relief (concave,	convex, none): Concave to	None Slope (%): 2-5		
Soil Map Unit Name: Quazar very cobbly losm, 5 to 25 percent slopes Are dimatic hydrologic conditions on the site typical for this time of year? Yes 6. No C Are Vegetation Sail or hydrology asignificantly disturbed? Are Normal Croumstances* present? Yes 6 No C Are Vegetation Soil or hydrology anaturally 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 6 No C Hydrophytic Vegetation Present? Yes 6 No C Wettand Hydrology Present? Yes 6 No C Wettand Hydrology Present? Yes 6 No C Wettand Sustained by groundwater. Significantly disturbed soils - difficult to determine true soil color due to iron in the creek, but some gleying is evident within upper 3 inches. VEGETATION - Use scientific names of plants. Tree Stratum Plot size: 1. Saitx monitoola 2. No FAC Saitx plantiplia 3. Garex canescens 6 No OBL 4. Picca pungens 2. No FAC 6. Merensia ciliata 7. Herb. Stratum Plot size: 1. Carex aqualitis 8. Yes OBL 4. Epilobium ciliatum 1. No FAC 6. Merensia ciliata 2. No OBL 7. Heracteum landatum 1. No FAC 8. Agrostis scadara 1. No FAC 9. Wedgetation Present? Yes 6 No C Prevalence Index southed by Mydrophytic Vegetation (Explain) 1. Geum macrophyllum 1. OBL 1. Concers and Stratum Plot size: 1. Folial Scover of Multicity by Colonylogophylum 2. Total Cover Folial Cov	Subregion (LRR); E - Rocky Mountain Forests and Rangeland	Lat: 37	-					
Are Vegetation Soil or Hydrology significantly disturbed? Are Normal Circumstances' present? Yes No C								
Ave Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes (*) No C Are Vegetation Soil or Hydrology significantly disturbed? (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 C Is the Sampled Area within a Wetland Hydrology Present? Yes (*) No C Wetland Sustained by groundwater. Significantly disturbed soils - difficult to determine true soil color due to iron in the creek, but some gleying is evident within upper 3 inches. VEGETATION - Use scientific names of plants. Dominant Indicator Methods of the present of Dominant Species Yes (*) No C Present of Dominant Species Yes (*) No C No C No C No C No C No C No C No C No C No C				s (No.				
Are Vegetation Sol or Hydrology neaturally 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 C within a Wetland? Yes No C wetland sustained by groundwater. Significantly disturbed soils - difficult to determine true soil color due to iron in the creek, but some gleying is evident within upper 3 inches. VEGETATION - Use scientific names of plants. VEGETATION - Use		•		VP		, <u> </u>		
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present?			•		•			
Hydrophylic Vegetation Present? Yes No C within a Wetland? Yes No C within a Wetland? Yes No C within a Wetland? Hydrology Present? Wetland sustained by groundwater. Significantly disturbed soils - difficult to determine true soil color due to iron in the creek, but some gleying is evident within upper 3 inches. VEGETATION - Use scientific names of plants. Tree Stratum Plot size: Absolute					•	,		
Hydric Soil Present? Yes	SUMMARY OF FINDINGS - Attach site map	snowing	y samp	oling point l	ocations, transects, i	mportant features, etc.		
Welland Hydrology Present?	Hydrophytic Vegetation Present? Yes 💿 🕟	10 C		Is the Sample	d Area			
Remarks: PEM/PSS WL 4-1 occurs on both banks within Georgia Gulch within BLM property (only east bank was delineated). Wetland sustained by groundwater. Significantly disturbed soils - difficult to determine true soil color due to iron in the creek, but some gleying is evident within upper 3 inches. VEGETATION - Use scientific names of plants. Tree Stratum Plot size: Absolute Dominant Indicator & Cover Species? Status. Absolute Dominant Indicator & Cover Species? Status. I. Salix monitorial Species & Cover Species? Status. Sapling/Shrub Stratum Plot size: 229 x 10 Calamagrostis canadensis 2 No FAC Carex aquatilis 8 Yes OBL Calamagrostis canadensis 2 No FAC 6 Mertensia ciliata 2 No OBL Agrostis scabra 1 No FAC 8 Agrostis scabra 1 No FAC 9 Geum macrophyllum 1 No FAC 9 Geum macrophyllum 1 No FAC 9 Geum macrophyllum 1 No OBL Woody Vine Stratum Plot size 1 Total Cover 1 Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of the creek. The concave area located adigacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PSM/PSS, and the fringe located along the west	Hydric Soil Present? Yes (N	% C		within a Wetla	nd? Yes 💽	No C		
Wetland sustained by groundwater. Significantly disturbed soils - difficult to determine true soil color due to iron in the creek, but some gleying is evident within upper 3 inches. VEGETATION - Use scientific names of plants. Iree Stratum Plot size: Absolute Dominant Indicator Scientific names of plants. I		****						
Tree Stratum Plot size: Absolute Dominant Indicator Species? Status								
VEGETATION - Use scientific names of plants.	,				icult to determine true so	il color due to iron in the		
Absolute Cover Species Status Cover Species Cover			inches.					
Tree Stratum	VEGETATION - Use scientific names of plan							
1. Salix monticola 15 Yes OBL 2. Salix planifolia 15 Yes OBL 3. Salix drummondiana 15 Yes OBL 4. Picea pungens 2 No FAC 5. Herb Stratum Plot size 229 x 10 1. Calamagrostis canadensis 20 Yes OBL 2. Carex aquatilis 3. Carex canescens 4. Epilobium ciliatum 5. No OBL 4. Epilobium ciliatua 5. Senecio triangularis 5. Senecio triangularis 6. Mertensia ciliata 7. Heracleum lanatum 1 No FAC 8. Agrostis scabra 1 No FAC 9. Geum macrophyllum 10. Woody Vine Stratum Plot size 1. Total Cover 1. No OBL 1. Regional for the size 200 Melian (Explain) (Explain) (Indicators: 1. No OBL 1. Woody Vine Stratum Plot size 1. Total Cover 1. No OBL 1. Heracleum lanatum 1 No FAC 9. Geum macrophyllum 1. No Geum macrophyllum 1. No Geum macrophyllum 1. No Geum macrophyllum 1. No OBL 1. Heracleum lanatum 1. No FAC 9. Geum macrophyllum 1. No OBL 1. Meracleum lanatum 1. No FAC 9. Geum macrophyllum 1. No OBL 1. Meracleum lanatum 1. No FAC 9. Geum macrophyllum 1. No OBL 2. Corex canescens (Indicators: 1. No OBL 2. No OBL 3. Prevalence Index = B/A = 120 4 Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) 1. No OBL 1. Calamagrostis cabra 1. No OBL 1.	Tree Stratum Plot size:				Daminanaa Taat warkah	t		
2. 3. 4. Sapling/Shrub Stratum Plot size: 229 x 10 1. Salix monticola 1. Salix planifolia 3. Salix drummondiana 1. Syes OBL Prevalence Index worksheet: Total Xover of: Multiply by: Total Number of Dominant Species Across All Strata: Species That Are OBL, FACW, or FAC: Total Now oFAC DBL FACW, or FAC: 100/10 % (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: Total		70 00 101			ı			
4. Sapling/Shrub Stratum Plot size: 229 x 10 1. Salix monticola 2. Salix planifolia 3. Salix drummondiana 4. Picea pungens 4. Picea pungens 2. No FAC-5. FACW+6-5. FACW+1014 Stratum Plot size: 229 x 10 1. Calamagrostis canadensis 2. O Yes OBL 2. Carex aquatilis 3. Carex canescens 4. Epilobium ciliatum 5. No OBL 5. Senecio triangularis 6. Mertensia ciliata 2. No FAC-6. Mertensia ciliata 2. No OBL 7. Heracleum lanatum 3. Agrostis scabra 3. Agrostis scabra 3. Agrostis scabra 3. Agrostis scabra 4. Provalence index worksheet: 1. Total Woody Vine Stratum Plot size: 1. Total Scare Canescens 3. Carex aquatilis 3. Yes OBL 6. No OBL 7. Heracleum lanatum 4. Provalence index worksheet: 1. Total Woody Vine Stratum Plot size: 1. Total Cover 4. Provalence index worksheet: 1. Total Woody Vine Stratum Plot size: 1. Total Cover 4. Provalence index worksheet: 1. Total Woody Vine Stratum Plot size: 1. Total Woody Vine Stratum Plot size: 1. Total Cover 4. Provalence index worksheet: 1. Total Woody Vine Stratum Plot size: 1. Total Cover 4. Provalence index worksheet: 1. Total Woody Vine Stratum Plot size: 1. Total Cover 4. Provalence index worksheet: 1. Total Woody Vine Stratum Plot size: 1. Total Cover 4. Provalence index worksheet: 1. Total Woody Vine Stratum Plot size: 1. Total Cover 4. Provalence index worksheet: 4. Total Woody Vine Stratum Plot size: 4. Total Cover 4. Provalence index worksheet: 4. Total Woody Vine Stratum Plot size: 4. Total Cover 4. Provalence index worksheet: 4. Total Woody Vine Stratum Plot size: 4. Total Cover 4. Provalence index worksheet: 4. Total Woody Vine Stratum Plot size: 4. Total Cover 4. Provalence index worksheet: 4. Total Woody Vine Stratum Plot size: 4. Total Cover 4. Provalence index worksheet: 4. Total Woody Vine Stratum Plot size: 4. Total Cover 4. Total Cover 4. Provalence index worksheet: 4. Total Woody Vine Stratum Plot size: 4. Total Cover 4. Total Cover 4. Total Cover 5. Total Cover 5. Total Cover 6. Multiply by: 6. OBL Provalence index worksheet: 6. Mo OBL VI 1. Take Total Cover 6. Mo						FAC		
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Sapling/Shrub Stratum Plot size: 229 x 10 1. Salix monticola 2. Salix planifolia 3. Salix drummondiana 15 Yes OBL 4. Picea pungens 5. Senecio triangularis 5. Senecio triangularis 6. No OBL 6. Mertensia ciliata 7. Heracleum lanatum 1. No FAC 8. Agrostis scabra 9. Geum macrophyllum 10. Woody Vine Stratum Plot size: 2. Wester Shrub Stratum 1. Salix monticola 15 Yes OBL 15 Yes OBL 15 Yes FACW+ 15 Yes FACW+ 16 OBL 16 Species 71 x 1 = 71 FACW species 17						SECTION CO. 4		
Sapling/Shrub Stratum Plot size: 229 x 10 1.5 Yes OBL 2.5 Salix polnifolia 1.5 Yes OBL 3.5 Salix planifolia 1.5 Yes FACW+ OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL FACW- OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: Multiply by: OBL Prevalence Index worksheet: Total % Cover of: OBL Prevalenc			= Total (Cover	1 -			
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Salix drummondiana 15 Yes FACW+	1. Salix monticola	15	Yes	OBL		- Passing of		
A. Picea pungens 2 No FAC 5. Herb Stratum Plot size 229 x 10 1. Calamagrostis canadensis 20 Yes OBL 1. Calamagrostis canadensis 20 Yes OBL 2. Carex aquatilis 3. Carex canescens 6 No OBL 4. Epilobium ciliatum 5 No OBL 5. Senecio triangularis 6. Mertensia ciliata 7. Heracleum lanatum 1 No FAC 8. Agrostis scabra 1 No FAC 9. Geum macrophyllum 10. Woody Vine Stratum Plot size: 1. Carex aquatilis 45 = Total Cover 45 Bare Ground in Herb Stratum 20 % Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the east bank of Ceremt Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west	2. Salix planifolia	15	Yes	OBL				
FACW species 15	3. Salix drummondiana	15	Yes	FACW+	1 1200	1.21.90		
Herb Stratum Plot size 229 x 10 47/2 = Total Cover FAC species 6 x 3 = 18 FACU species x 4 = 0 Total Cover FACU species x 4 = 0 Total Cover FACU species x 4 = 0 Total Cover Total Cover Total Cover FACU species x 4 = 0 Total Cover Total Cover Total Cover FACU species x 4 = 0 Total Cover Total Cover Total Cover FACU species x 4 = 0 Total Cover	4. Picea pungens	2	No	FAC-	7 (70%)	57 SECTION		
Herb Stratum Plot size 229 x 10	5.					4.038864 1.445.200a		
1. Calamagrostis canadensis 20 Yes OBL 2. Carex aquatilis 8 Yes OBL 3. Carex canescens 6 No OBL 4. Epilobium ciliatum 5 No OBL 5. Senecio triangularis 2 No FAC 6. Mertensia ciliata 2 No OBL 7. Heracleum lanatum 1 No FAC 9. Geum macrophyllum 10. Woody Vine Stratum Plot size: 1. Woody Vine Stratum Plot size: 1. Woody Vine Stratum Plot size: 1. Emarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of Cernent Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west	Horb Stratum Plat size 229 x 10	47	= Total (Cover	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3775		
2. Carex aquatilis 3. Carex canescens 6 No OBL 4. Epilobium ciliatum 5 No OBL 5. Senecio triangularis 6. Mertensia ciliata 2 No OBL 7. Heracleum lanatum 1 No FAC 8. Agrostis scabra 1 No FAC 9. Geum macrophyllum 10. Woody Vine Stratum Plot size 1. 2. The concave area located adjacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west		20	Vac	Opt	P.00267			
3. Carex canescens 4. Epilobium ciliatum 5 No OBL 5. Senecio triangularis 2 No FAC 6. Mertensia ciliata 2 No OBL 7. Heracleum lanatum 1 No FAC 8. Agrostis scabra 1 No FAC 9. Geum macrophyllum 10. Woody Vine Stratum Plot size: 1. 2. Bare Ground in Herb Stratum 20 % Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west					- 3	22.		
4. Epilobium ciliatum 5 No OBL 5. Senecio triangularis 2 No FAC 6. Mertensia ciliata 2 No OBL 7. Heracleum lanatum 1 No FAC 8. Agrostis scabra 1 No FAC 9. Geum macrophyllum 10. Woody Vine Stratum Plot size: 1. 2. Woody Vine Stratum Plot size: 1. 2. Was Bare Ground in Herb Stratum 20 % Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the east bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west					Column Totals: 92	(A) 119 (B)		
5. Senecio triangularis 2 No FAC 6. Mertensia ciliata 2 No OBL 7. Heracleum lanatum 1 No FAC 8. Agrostis scabra 1 No FAC 9. Geum macrophyllum 10. Woody Vine Stratum Plot size: 1. 2. Weep are Ground in Herb Stratum 20 % Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the east bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west					Prevalence Index =	B/A = 1.29		
6. Mertensia ciliata 2 No OBL 7. Heracleum lanatum 1 No FAC 8. Agrostis scabra 1 No OBL 10. Woody Vine Stratum Plot size: 1. 2. Total Cover Wear Ground in Herb Stratum 20 % Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of the creek. The concave area located adjacent to the southeast bank of Cement Creek is dominated by PEM/PSS, and the fringe located along the west Carex canescens. The fringe located along the west canescens. 1 No OBL 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations¹(Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants¹ □ Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Yes No C Present?					1 —			
1 No FAC 8. Agrostis scabra 1 No FAC 9. Geum macrophyllum <1 No OBL 10.					1 🚃	· · · · · · · · · · · · · · · · · · ·		
8. Agrostis scabra 9. Geum macrophyllum 10. Woody Vine Stratum Plot size: 1. 2. Was Bare Ground in Herb Stratum 20 % Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of the creek. The concave area located adjacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west					7.86			
9. Geum macrophyllum 10. Woody Vine Stratum Plot size: 1. 2. Was Bare Ground in Herb Stratum 20 % Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of the creek. The concave area located adjacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west					- 1995 ·			
10. Woody Vine Stratum Plot size: 1. 2. Was Ground in Herb Stratum 20 % Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of the creek. The concave area located adjacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west								
Woody Vine Stratum Plot size: 1.								
### Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. ###################################		45 =	= Total C	over				
## Hydrophytic Vegetation Yes No C Wegetation Yes No C Present? Wegetation Yes No C Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of the creek. The concave area located adjacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west	woody vine Stratum Plot size.	(#####*). ·						
Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of the creek. The concave area located adjacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west						ed or problematic.		
Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of the creek. The concave area located adjacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west	2.	- sattemen			1 T	● No C		
Remarks: Bare Ground = mosses (~10%), cobble, and rock. Rocks are concentrated along the southeast bank of the creek. The concave area located adjacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west	• .	=	= Total C	Cover	, -			
The concave area located adjacent to the southeast bank of Cement Creek is dominated by mosses, Carex aquatilis, and Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west					•	·		
Carex canescens. The fringe located along the east bank is predominately PEM/PSS, and the fringe located along the west								
		g the east I	oank is	predominate	y PEM/PSS, and the frin	ge located along the west		

Profile Des	cription: (Descr	be to the d	epth need	ed to docu	ment the	indicator o	or confirm	the absence of		
Depth (inches)	Matri Color (moist)	x %	Colo	Redo r (moist)	x Feature %	Type ¹	Loc ²	Texture	Pan	00009
					10	D D	M		<u> </u>	Idiks
0-3	7.5YR 4.5/4		_ <u>Gie</u>	y 1 3/N				Silty sand		
3-8	7.5YR 4/5							Sandy gravel		· · · · · · · · · · · · · · · · · · ·
-										
	:									
			_				-		-	
¹Type: C=Co	oncentration, D=Depl	etion, RM=Re	duced Matri	ix, CS=Cover	ed or Coate	ed Sand Grain	ns		² Location: PL=Pore L	ining, M=Matrix
Hydric Soil	Indicators: (Appli	cable to all l	_RRs, unle	ss otherwis	e noted.)			Indicators for	Problematic Hydric S	Soils ³ :
Histoso	· ·			Sandy Redox				2 cm Mu		
==	Epipedon (A2) Histic (A3)			Stripped Ma Loamy Muc		I /E1\ (ovce	nt MLDA1	. =	ent Material (TF2)	
l` ≔	en Sulfide (A4)			Loamy Gley			pt meroa		illow Dark Surface (T plain in Remarks)	F12)
=	ed Below Dark Su	face (A11)		Depleted Ma		(-)		X 08.01 (2x		
_	Oark Surface (A12)			Redox Dark	Surface ((F6)		3 Indicator		-4-4:
1 <u>-</u>	Mucky Mineral (S	•	لسبا	Depleted Da					s of hydrophytic vego hydrology must be po	
Sandy	Gleyed Matrix (S4)		Redox Depr	essions (I	F8)			isturbed or problema	
	Layer (if present):								
Туре: <u>В</u>	edrock							Hydric Soil Pre	esent? Yes 💽	No C
	ches):8			.					·	
ir A W	ntermixed within a large amount of vas attempted with the control of the control	n large port of cobble ha	ions of thas been d	ne 0-3" soi eposited in	l layer. N this are:	Auch of th a. Soil san	e soil was	s iron stained. e difficult to ol	etions are sporadiotain. Digging at s	•
HYDROLC		_						•		
-	rdrology Indicato ators (minimum of or		eck all that	apply)	·			Secondary	Indicators (minimum of	two required)
	Water (A1) ater Table (A2)			Water-Stail		es (B9) (exc 4b)	cept	<u></u>	-Stained Leaves (B9 A 1, 2, 4a, and 4b)) (except
★ Saturati	ion (A3)			Salt Crust	(B11)			Draina	age Patterns (B10)	
	Marks (B1)			Aquatic In			,	<u> </u>	eason Water Table (•
	nt Deposits (B2)		. 🔲	Hydrogen					ation Visible on Aeria	I Imagery (C9)
_	posits (B3)		<u>L</u> _	<u> </u>		res on Livin	-	· ' 🖳	orphic Position (D2)	
	at or Crust (B4)		<u>×</u>			ed Iron (C4)		=	w Aquitard (D3) Neutral Test (D5)	
<u> </u>	posits (B5) Soil Cracks (B6)		·	!		ons in Tilled Plants (D1)		, <u></u>	d Ant Mounds (D6) (IRR A)
	ion Visible on Aeri	al Imagery (B7) -	Other (Exp) (LIKK A)		Heave Hummocks ([•
	y Vegetated Conc			, (,		,			(-	
Field Obser			(/	_						
Surface Wat	ter Present?	Yes (No 💽	Depth (in	ches):	-		•		
Water Table	Present?	Yes 💽	No C	Depth (in	ches):	7	Wetlaı	nd Hydrology Pr	resent? Yes 💽	No C
Saturation P	resent? pillary fringe)	Yes 💽	No C	Depth (inc	ches):	0				
Describe Re Aerial phot	corded Data (stre tograph	am gauge, n	nonitoring	well, aerial p	photos, pr	evious insp	ections), if	available:		
Remarks: G	roundwater app	ears to be t	he main l	hydrologic	source.	All of the	concave a	area located ad	jacent to the south	east bank of
	ement Creek was								•	
							•			1

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast. Project/Site: START 3 - Cement Creek City/County: San Juan Sampling Date: 8-24-2011 Applicant/Owner: Environmental Protection Agency State:CO Sampling Point: WL 4-2 Investigator(s): S. Hall, A. Ballman Section, Township, Range: N/A Local relief (concave, convex, none): None Landform (hillslope, terrace, etc.): Terrace Slope (%):<1 Lat: 37.8723 Long: -107.6730 Subregion (LRR): E - Rocky Mountain Forests and Rangeland Datum: NAD 83 Soil Map Unit Name: Quazar very cobbly loam, 5 to 25 percent slopes NWI classification: R3USA Are climatic / hydrologic conditions on the site typical for this time of year? Yes No C (If no, explain in Remarks.) Are Vegetation Are "Normal Circumstances" present? Yes (significantly disturbed? Soil X or Hydrology No (Soil | naturally problematic? (If needed, explain any answers in Remarks.) Are Vegetation or Hydrology SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. (Hydrophytic Vegetation Present? Yes No \mathbf{C} Is the Sampled Area Hydric Soil Present? Yes • No 0. within a Wetland? Yes (No O Wetland Hydrology Present? (Yes No \bigcirc WL 4-2 is a PEM fringe wetland along the east bank of Cement Creek north of Fairway Gulch. Feature occurs on the bank opposite of WL 4-3. Wetland is sustained by Cement Creek and groundwater. Soil pit could not be dug due to large rocks in the upper horizon, but soils are assumed to be similar to WL 4-1. **VEGETATION** - Use scientific names of plants. Absolute **Dominant Indicator** Tree Stratum Plot size: % Cover Species? Status Dominance Test worksheet: 1. **Number of Dominant Species** That Are OBL, FACW, or FAC 2. 11. (A) (excluding FAC-): 3. **Total Number of Dominant** Species Across All Strata: (B) Total Cover Percent of Dominant Species Sapling/Shrub Stratum Plot size: 396 x 10 That Are OBL, FACW, or FAC: .100.0 % (A/B) 1. Picea engelmannii No FACU-1 Prevalence Index worksheet: 2. Betula glandulosa No OBL Total % Cover of: Multiply by: 3. **OBL** species 89 89 x1 =4. **FACW** species 8 16 x2 =5. **FAC** species x3 =6 = Total Cover Herb Stratum Plot size 396 x 10 **FACU** species x4 =4 1. Calamagrostis canadensis 73 **UPL** species Yes OBL x5 =0 15 OBL 2. Carex canescens No (B) Column Totals: 100 (A) 115 3. Deschampsia cespitosa 8 **FACW** No Prevalence Index = B/A = 1.15 2 **FAC** 4. Agrostis scabra No Hydrophytic Vegetation Indicators: OBL 5. Carex aquatilis No 1 - Rapid Test for Hydrophytic Vegetation 6. 2 - Dominance Test is >50% 7. 3 - Prevalence Index is ≤3.0 ¹ 8. 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) 9. 5 - Wetland Non-Vascular Plants 10. Problematic Hydrophytic Vegetation (Explain) = Total Cover Woody Vine Stratum Plot size: Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 1.None Hydrophytic 2 No C Vegetation Yes (= Total Cover Present? % Bare Ground in Herb Stratum Remarks: Bare Ground = rocks. Wetland was well vegetated.

Profile Description: (Desc	ribe to the depth i	needed to docume	nt the indicator or	confirm th	ne absence of indicators.)	000100
Depth Mat		Redox F			· 	
(inches) Color (moist	t)	Color (moist)	% Type ¹	Loc ²	Texture	Remarks
						···
						
		<u></u>				
		e.				
¹ Type: C=Concentration, D=Dep	oletion RM=Reduced	Matrix CS=Covered o	r Coated Sand Grains		2t ocation: PI =	Pore Lining, M=Matrix
			 			
Hydric Soil Indicators: (App	licable to all LRRs,		•		Indicators for Problematic Hy	ydric Soils":
Histosol (A1) Histic Epipedon (A2)		Sandy Redox (S Stripped Matrix	-		2 cm Muck (A10)	-0)
Black Histic (A3)		<u></u>	vineral (F1) (excep	+ MI RA1)	Red Parent Material (TF	•
Hydrogen Sulfide (A4)		Loamy Gleyed		/ III	Very Shallow Dark Surf. Other (Explain in Remar	
Depleted Below Dark Su	urface (A11)	Depleted Matrix			Guior (Explain in recinal	
Thick Dark Surface (A12	2)	Redox Dark Su			a	
Sandy Mucky Mineral (S	31)	Depleted Dark	Surface (F7)		³ Indicators of hydrophyti wetland hydrology mus	
Sandy Gleyed Matrix (S	4) .	Redox Depress	ions (F8)		unless disturbed or prol	
Restrictive Layer (if presen	t):			T		
Туре: Rock					Hydric Soil Present? Yes	● No ○
Depth (inches): 0		-				
Remarks: Presence of large	e rocks in the un	ner horizon preve	nted soil excavat	ion within	the wetland Soils were	nresumed to be
similar to WL 4-	-1 - significantly	disturbed due to	mine runoff. Hvd	fric soils a	ssumed due to the predom	inance of OBL and
		ice of a primary h				
		1 ,	, ,			
HYDROLOGY						
Wetland Hydrology Indicate	ors:					
Primary Indicators (minimum of o		that apply)			Secondary Indicators (minin	num of two required)
Surface Water (A1)		Water-Stained	Leaves (B9) (exce	ept	Water-Stained Leave	es (B9) (except
High Water Table (A2)		MLRA 1, 2, 4		•	MLRA 1, 2, 4a, and	
Saturation (A3)		Salt Crust (B1	1) .		Drainage Patterns (B	310)
Water Marks (B1)		Aquatic Invert			Dry-Season Water T	able (C2)
Sediment Deposits (B2)		==	fide Odor (C1)		Saturation Visible on	Aerial Imagery (C9)
Drift Deposits (B3)		Oxidized Rhiz	ospheres on Living	Roots (C3)) X Geomorphic Position	(D2)
Algai Mat or Crust (B4)		Presence of R	Reduced Iron (C4)		Shallow Aquitard (D3	3)
Iron Deposits (B5)		Recent Iron R	eductions in Tilled	Soils (C6)	FAC-Neutral Test (D	/5)
Surface Soil Cracks (B6))	Stunted or Str	essed Plants (D1)	(LRR A)	Raised Ant Mounds	(D6) (LRR A)
Inundation Visible on Aer	rial Imagery (B7)	Other (Explain	in Remarks)		Frost-Heave Hummo	ocks (D7) (LRR F)
Sparsely Vegetated Cond	cave Surface (B8)					·
Field Observations:						
Surface Water Present?	Yes 💽 No (Depth (inche	s):1			
Water Table Present?	Yes C No (Depth (inches	s): N/A	Wetland	Hydrology Present? Yes	● No C
Saturation Present?	Yes O No (Depth (inche	s): N/A	1		·
(includes capillary fringe)				1		
Describe Recorded Data (stree Aerial photograph	am gauge, monito	ring well, aenal phot	tos, previous insped	ctions), if av	vailable:	
Remarks: Main hydrologic	-					
No soil pit excava	ated. Spring was	observed flowing	directly into wet	tland from	the east.	
•					•	

Project/Site: START 3 - Cement Creek		City/C	ounty: San J	uan	Sampling Date: 8-24-2011
Applicant/Owner: Environmental Protection Agency		- .		State:CO	Sampling Point: WL 4-3
Investigator(s): S. Hall, A. Ballman		Sectio	n, Township,	Range; N/A	
Landform (hillslope, terrace, etc.): Hillslope		- Local	relief (concav	e, convex, none):None	Slope (%): 1-3
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	- 7:8725		Long: -107.6731	Datum: NAD 83
Soil Map Unit Name: Quazar very cobbly loam, 5 to 2.		slopes			ation: PSSB
Are climatic / hydrologic conditions on the site typical for the	nis time of y	ear? Y	es 📵 No	(If no, explain in R	emarks.)
Are Vegetation Soil or Hydrology	significanti		***	re "Normal Circumstances" p	<u> </u>
Are Vegetation Soil or Hydrology	naturally p	roblema		needed, explain any answei	
SUMMARY OF FINDINGS - Attach site map				•	•
Hydrophytic Vegetation Present? Yes (No (Is the Samp	ed Area	
	No C		within a Wet		No C
Wetland Hydrology Present? Yes	No 🗍				,
Remarks: PEM/PSS WL 4-3 is part of a large fen	complex	that be	gins upslope	of Cement Creek south of	of Georgia Gulch. Feature
lies within BLM property. Wetland is s				and Cement Creek. Signif	icantly disturbed soils -
cannot determine true soil color due to	iron in the	creek.			
VEGETATION - Use scientific names of plan	nts.				
To Charles District	Absolute		nant Indicator	1	
Tree Stratum Plot size:	% Cover	Speci	es? Status	Dominance Test works	
1				 Number of Dominant Sp That Are OBL, FACW, or 	recies or FAC
3.				(excluding FAC-):	2 (A)
4.			7	Total Number of Domina	11 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
4.		= Total		Species Across All Strat	*** departed to the second of
Sapling/Shrub Stratum Plot size: 360 x 10		- 10tai	Cover	Percent of Dominant Sp That Are OBL, FACW, o	
1. Betula glandulosa	38	Yes	OBL		- Alming Security
2. Salix drummondiana	2	No	FACW+		
3. Picea engelmannii	3	No	FACU-	Total % Cover of:	Multiply by:
4.				OBL species 8 FACW species	Section 1
5				· · · · · · · · · · · · · · · · · · ·	5 x 2 = 12
Herb Stratum Plot size 360 x 10	43	= Total	Cover	FAC species	5 x 3 = 15 x 4 = 12
1. Carex aquatilis	40	Yes	OBL	UPL species	
2. Carex canescens	- 8	No	OBL	-	
3. Juncus parryi		No	FAC	- Column Totals.)3 (A) 128 (B)
4. Calamagrostis canadensis	3	No	OBL	- Prevalence Index	= B/A = 1.24
5. Viola macloskeyi	2	No	FACW+	Hydrophytic Vegetation	
6. Deschampsia cespitosa	2	No	FACW-	ant.	ydrophytic Vegetation
7. Juncus mertensianus	<1	No	OBL	2 - Dominance Test	
8.					daptations ¹ (Provide supporting
9.				data in Remarks	or on a separate sheet)
10.				5 - Wetland Non-Va	
Woody Vine Stratum Plot size:	60	= Total	Cover	, -	hytic Vegetation¹ (Explain) and wetland hydrology must
1.				be present, unless distu	
2.				Hydrophytic	
		= Total (Cover	- Vegetation Yes	● No C
% Bare Ground in Herb Stratum 4 %		· Jan		Present?	
Remarks: Bare Ground = moss and rocks. Viola ide	ntified L-	1 1100-4-	tivo sha	oristias	·
Daie Giound – moss and focks. Viola ide	annea by	vegeta	mve charact	ensues.	
·			,	44	
				•	

Contract Con	Matrix	Δ/	Redox Features	
(inches)	Color (moist)	%	Color (moist) % Type ¹ L	Loc ² Texture Remarks
SP1 0-4	7.5YR 4/6_			Silty sand
	-			
 -				
	<u> </u>			
				
<u>. </u>				
pe: C=Conc	entration, D=Deple	tion, RM=Re	educed Matrix, CS=Covered or Coated Sand Grains	² Location: PL=Pore Lining, M=Matri
dric Soil In	dicators: (Applic	able to all I	LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
Histosol (A1)		Sandy Redox (S5)	2 cm Muck (A10)
	pedon (A2)		Stripped Matrix (S6)	Red Parent Material (TF2)
Black His	• •		Loamy Mucky Mineral (F1) (except	
	i Sulfide (A4) Below Dark Surf	ace (Δ11)	Loamy Gleyed Matrix (F2)	X Other (Explain in Remarks)
	'k Surface (A12)	auc (A11)	Depleted Matrix (F3) Redox Dark Surface (F6)	4
	ucky Mineral (S1) ·	Depleted Dark Surface (F7)	³ Indicators of hydrophytic vegetation and
-	eyed Matrix (S4)		Redox Depressions (F8)	wetland hydrology must be present, unless disturbed or problematic.
trictive I =	yer (if present):	<u></u>		dinoss distarbed of problematic.
	bles and Rocks			Hydric Soil Present? Yes ⑥ No ℂ
Depth (inch			 	7,7,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5,5
		googene 11	y flooded and composed of demosities of	Soil color heavily influenced by the iron in the cree
				ydric.
				yarıc.
tland Hydr	FY rology Indicator rs (minimum of one			ydric. Secondary Indicators (minimum of two required)
tland Hydr nary Indicato Surface W	rology Indicator rs (minimum of one Vater (A1)			Secondary Indicators (minimum of two required)
tland Hydr nary Indicato Surface W	rology Indicator rs (minimum of one Vater (A1) er Table (A2)		neck all that apply) Water-Stained Leaves (B9) (exception of the MLRA 1, 2, 4a, and 4b)	Secondary Indicators (minimum of two required) TWater-Stained Leaves (B9) (except
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Project/Site: START 3 - Cement Creek		City/C	ounty: San Jua	an	Sampling Date: 8-24-11
Applicant/Owner: Environmental Protection Agency		-		State:CO	Sampling Point: WL 4-4
Investigator(s): S. Hall, A. Ballman		Section	n, Township, Ra	ange: N/A	-
Landform (hillslope, terrace, etc.): Hillslope		- Local	relief (concave,	convex, none): Slope	Slope (%): 5
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	_	(,	Long: -107.6738	Datum: NAD 83
Soil Map Unit Name: Quazar very cobbly loam, 5 to 2					ication: PSSB
Are climatic / hydrologic conditions on the site typical for the		-	oo 🚱 No (
				•	
Are Vegetation Soil or Hydrology	significantl	•		"Normal Circumstances"	
Are Vegetation Soil X or Hydrology	naturally p	roblema	itic? (If n	eeded, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	g sam	pling point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes	No (Is the Sample	d Area	
1	No C		within a Wetla		No C
Wetland Hydrology Present? Yes	No C	ĺ			· · · · · · · · · · · · · · · · · · ·
Remarks: Hillside PEM/PSS wetland around con	fluence of	Fairvi	ew Gulch. Hig	gh forb composition in	vegetation. Soils are naturally
problematic - delineaters were unable t			e to rocks. Hy	ydrology primarily fro	m groundwater, some
influence from Fairview gulch and Cen	nent Creel	c.			
VEGETATION - Use scientific names of plan	nts.				
T 0	Absolute		nant Indicator		
Tree Stratum Plot size:	% Cover	Speci	es? Status	Dominance Test work	
1				Number of Dominant S That Are OBL, FACW,	
3.				(excluding FAC-):	3 (A)
4.			· · · · · · · · · · · · · · · · · · ·	Total Number of Domi	
4.		= Total	Cover	Species Across All Str	**************************************
Sapling/Shrub Stratum Plot size: 323 x 10		- Totai	Cover	Percent of Dominant S That Are OBL, FACW,	
1. Salix planifolia	30	Yes	OBL		Communication (Communication)
2. Betula glandulosa	1	No	OBL	Prevalence Index wo	
3. Salix geyeriana	- 5	No	OBL	Total % Cover of:	Multiply by:
4. Salix monticola	11	No	OBL	1 '	70 x 1 = 70
5				1	28 x 2 = 56
Herb Stratum Plot size 323 x 10	37	= Total	Cover	FAC species FACU species	1 x 3 = 3 x x 4 = 32
1. Heracleum maximum (H. sphondylium)	25	Ves	FACW-	in	
2. Chamerion angustifolium	$-\frac{23}{8}$	No No	FACU	1	x5 = 0 07 (A) 161 (B)
3. Senecio triangularis		No	OBL	Column rotals.	(b) (c)
4. Carex canescens	25	Yes	OBL	Prevalence Index	: = B/A = 1.50
5. Epilobium ciliatum	1	No	FAC	Hydrophytic Vegetation	
6. Deschampsia cespitosa	3	No	FACW		Hydrophytic Vegetation
7. Calamagrostis canadensis	<1	No	OBL	2 - Dominance Te	
8. Mimulus guttatus	2	No	OBL	707	Adaptations¹(Provide supporting
9. Mertensia ciliata	1	No	OBL	data in Remark	s or on a separate sheet)
10.				5 - Wetland Non-V	
Woody Vine Stratum Plot size:	70	= Total	Cover		phytic Vegetation¹ (Explain)
				be present, unless dist	bil and wetland hydrology must turbed or problematic.
12.				Hydrophytic	
	R. 1987.			Vegetation Yes	● No C
Of Bone Consumed in 11-th Checkum		= Total (Cover	Present?	
% Bare Ground in Herb Stratum 4 %					
Remarks: Bare ground = moss, rocks					
					,

Depth	cription: (Descri Matri	x		Redox	c Features	ذ						-100	11 1
(inches)	Color (moist)	%	Colo	r (moist)	%	Type ¹	_Loc²	Textu	ле		Rė	marks 0	ULU
					- <u></u> ,								
													,
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				·									
													
¹ Type: C=Cone	centration, D=Deple	etion, RM=Re	duced Matri	ix, CS=Covered	d or Coated	d Sand Grain	ns		² L	ocation	: PL=Pore I	_ining, M=N	√atrix
_	ndicators: (Appli	cable to all I	.RRs, unle	ss otherwise	noted.)			Indica	ators for Pro	blema	tic Hydric	Soils ³ :	
Histosol				Sandy Redox					2 cm Muck (
	oipedon (A2)			Stripped Mati			151 DA4	. =	Red Parent i		. ,		
Black His	stic (A3) n Sulfide (A4)			Loamy Mucky	-		ept MLKA1	· 🗀 ·	Very Shallov			TF12)	
	in Sultide (A4) d Below Dark Sur	face (A11)		Loamy Gleye Depleted Mat		(F2)		\Box	Other (Explai	in in K	emarks)		
=	ark Surface (A12)			Redox Dark S		F6)							
	lucky Mineral (S1			Depleted Dar	·-	•			Indicators of				nd
	Gleyed Matrix (S4)			Redox Depre		` '			wetland hyd unless distu				
	ayer (if present)								Unicoo u.c.c	IDEG C	r problem	auc.	
Type: Roc		•					1	Hvdric	Soil Prese	nt?	Yes (●	No (~ ;
IVne: Not							· 1	113	00	11		•••	2
	roel. ()												
Depth (incl	hes): 0 oil pit could not d FACW veget	_						d to be	hydric due	e to th	e predon	ninance (
Depth (incl Remarks: So and	il pit could not d FACW veget	ation and t						d to be	hydric due	e to th	e predon	ninance (
Depth (incl Remarks: So and HYDROLOG Wetland Hyd	il pit could not d FACW veget	ation and t	he preser	nce of prima					hydric due			· · · · · · · · · · · · · · · · · · ·	of OBL
Depth (incl Remarks: So and HYDROLOG Wetland Hyd Primary Indicate Surface V	il pit could not d FACW veget GY Irology Indicator	ation and t	he preser	nce of prima	ary hydro	ologic ind	dicators.		econdary Indi	icators (minimum o	f two requir	of OBL
Depth (incl Remarks: So and HYDROLOG Wetland Hyd Primary Indicate Surface V	il pit could not d FACW veget GY Irology Indicator ors (minimum of one Water (A1) ter Table (A2)	ation and t	he preser	apply) Water-Stain	ary hydro	ologic ind	dicators.	s	econdary Indi Water-Sta MLRA 1, Drainage	icators (ained L, 2, 4a,	(minimum o Leaves (BS and 4b) ns (B10)	f two requir	of OBL
Depth (incl Remarks: So and AYDROLOG Wetland Hyd Primary Indicate Surface V High Wat	GY Irology Indicator ors (minimum of one Water (A1) ter Table (A2) in (A3)	ation and t	he preser	apply) Water-Stain MLRA 1, 2,	ary hydroned Leave, 4a, and (B11)	ologic ind s (B9) (exc 4b)	dicators.	s	econdary Indi Water-Sta MLRA 1, Drainage Dry-Seas	icators (ained L , 2, 4a, Patter on Wa	minimum o eaves (BS and 4b) ns (B10) ter Table (f two require) (except	of OBI
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Project/Site: START 3 - Cement Creek		City/C	ounty: San Jua	an	Sampling D	ate: 8-24-	11
Applicant/Owner: Environmental Protection Agency				State:CO	Sampling Po	oint: UP 3	-4
Investigator(s):S. Hall, J. Dawson		Sectio	n, Township, R	ange: N/A	-	-	
Landform (hillslope, terrace, etc.): Hillslope		 Local	relief (concave.	convex, none): None		Slope (%): 3-5
Subregion (LRR): E - Rocky Mountain Forests and Rangelan	d Lat: 3	7.8671		Long: -107.6756		Datum: NA	
Soil Map Unit Name: Needleton stony loam, 30 to 65				NWI classifi		Datum, 11/2	10 05
			G N- /	_			
Are climatic / hydrologic conditions on the site typical for		-	· · · ·	• • •	· ·	•	
Are Vegetation Soil or Hydrology	significan	-		"Normal Circumstances"	-		№ ○
Are Vegetation Soil or Hydrology	naturally (problema	tic? (If n	eeded, explain any answe	ers in Remark	s.)	
SUMMARY OF FINDINGS - Attach site ma	p showin	ıg samı	pling point l	ocations, transects	, importan	t feature	s, etc.
Hydrophytic Vegetation Present? Yes	No 📵		Is the Sample	d Area			
Hydric Soil Present? Yes	No (within a Wetla	_	. No (•)		
Wetland Hydrology Present? Yes	No (ŀ	·		. 110 (5/		
Remarks: Upland soil pit for WL 3-4, WL 3-5, V	WL 4-1, W	/L 4-2, \	WL 4-3, and V	VL 4-4.			·····
					•		
VEGETATION - Use scientific names of pla	ints.	¢					
Tree Stratum Plot size:	Absolute % Cove	e Domir r Speci	nant Indicator es? Status				
1.	70 COVE	_ opec	cs: Status	Number of Dominant S			
2.				That Are OBL, FACW,	or FAC	ringerorea.	
3.				(excluding FAC-):	•	0	(A)
4.		 -		Total Number of Domir Species Across All Stra		2	/D)
		= Total	Cover	Percent of Dominant S		. 2	(B)
Sapling/Shrub Stratum Plot size:	CAZE		•	That Are OBL, FACW,	•	0.0 %	(A/B)
1. Vaccinium ceaspitosum	1	No	NI ·	Prevalence Index wor			
2.		_		Total % Cover of:		ultiply by:	
3.				OBL species	1 x1=	- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10	-
5.	 	<u> </u>		FACW species	x 2 =	0	
J		= Total	Cover	FAC species	x3=	0	2) ().
Herb Stratum Plot size 25 x 25	1	- rotar	OUVEI	FACU species	10 x 4 =	40	
1. Festuca thurberi	50	Yes	Not Listed	UPL species	31 × 5 =	405	5
2. Carex elynoides	25	Yes	Not Listed	Column Totals:	92 (A)	446	(B)
3. Calamagrostis canadensis	1	No	OBL	Prevalence Index	- D/A	4.8	ř
4. Solidago multiradiata	3	No	FACU	Hydrophytic Vegetation		TI WE'S ASSESSED	<u></u>
5. Thalictrum fendleri	4	No	UPL	1 - Rapid Test for I			
6. Chamerion angustifolium	_ 4	No	FACU	2 - Dominance Tes			
7. Geranium richardsonii	3	No	FACU	3 - Prevalence Inde	ex is ≤3.0 ¹		
8. Potentilla hippiana	- 1	No	Not Listed	4 - Morphological A			
9.				data in Remarks 5 - Wetland Non-Va			
10.	91	= Total (COVER	Problematic Hydror			in)
Woody Vine Stratum Plot size:	21	- Total C	30V C 1	¹ Indicators of hydric so			must
1				be present, unless dist	urbed or probl	lematic.	<u> </u>
2				Hydrophytic Vegetation Yes	O No	•	
		= Total (Cover	Present?	C. NC	• N##	
% Bare Ground in Herb Stratum 10 %				! 			
Remarks: Dry meadow.							
				\$			
			•				

D 4h	cription: (Describ	e to the c	lepth need	ded to docu	ment the in	ndicator	or confirm	the al	bsence of	indicators.)	0001
Depth	Matrix			Redo	x Features			_		,		
(inches)	Color (moist)	%_	_ Cold	or (moist)	%	Type ¹	_Loc ²	Tex	dure	-	Rema	rks
0-5	7.5YR 4/3			• •	- -	<u></u>			Silt			<u>. </u>
												
										~		
						·-··				-		
											-	
Type: C=Con	ncentration, D=Deplet	tion, RM=R	educed Mat	rix, CS=Covere	ed or Coated	Sand Grai	ins			² Location: P	L=Pore Lini	ng, M=Matrix
	ndicators: (Application	able to all	LRRs, uni					Indi		Problematic	Hydric So	ils³:
Histosol	(A1) pipedon (A2)			Sandy Redox Stripped Ma				Щ	2 cm Mu		(T EO)	
Black Hi	• •		H	Loamy Mucl		(F1) (exc	ent MI RA	,, H		ent Material (allow Dark Si		12\
=	en Sulfide (A4)		H	Loamy Gley			opt me.o.	' -		plain in Ren	•	12)
Depleted	d Below Dark Surfa	ace (A11)	H	Depleted Ma	atrix (F3)	ŕ			,,		,	
_	ark Surface (A12)			Redox Dark	•	•			3 Indicator	s of hydroph	vitio vogoti	ation and
=	Mucky Mineral (S1)			Depleted Da						hydrology m		
_ Sandy G	Gleyed Matrix (S4)		· LJ	Redox Depr	essions (F	3)				isturbed or p		
	ayer (if present):											
Type: Roc	ck											~
туро								Hydr	ic Soil Pr	esent? Ye	÷5 ι	No 💽
Depth (inc	hes): 5						· .	Hydr	ic Soil Pro	esent? Ye	25 (<u></u>	No (•)
Depth (inc		Festuca	thurberi.					Hydr	ic Soil Pro	esent? Ye		No (●)
Depth (inc	hes): 5	Festuca	thurberi.		-			Hydr	ic Soil Pro	esent? Ye	······································	No (●)
Depth (inc	hes): 5	Festuca	thurberi.					Hydr	ic Soil Pro	esent? Ye		No (●)
Depth (inc	hes): 5	Festuca	thurberi.					Hydr	ic Soil Pro	esent? Ye	25 (<u>.</u>	No (•)
Depth (incl emarks: Ve	thes): 5 egetation at pit -	Festuca	thurberi.					Hydr	ic Soil Pro	esent? Ye		No (•)
Depth (inclemarks: Veryprole) YDROLOG Vetland Hyd	ches): 5 egetation at pit - GY drology Indicators				· · · · · · · · · · · · · · · · · · ·			Hydr		· · · · · · · · · · · · · · · · · · ·		
Depth (inclements: Verification) DROLOG Vetland Hydrimary Indicate	egetation at pit - GY drology Indicators tors (minimum of one	s: required; d	heck all that					Hydr	Secondary	Indicators (mi	nimum of tw	o required)
Depth (inclease Very VDROLOG Vetland Hydrimary Indicate Very High Wall	GY drology Indicators (minimum of one Water (A1) ter Table (A2)	s: required; d	heck all that	Water-Stair	2, 4a, and 4		cept	Hydr	Secondary Water MLR	Indicators (mi -Stained Lea A 1, 2, 4a, ar	nimum of tw aves (B9) (nd 4b)	o required)
Depth (inclements: Very Very Very Very Very Very Very Very	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3)	s: required; d	heck all that	Water-Stair MLRA 1, 2 Salt Crust	!, 4a, and 4 (B11)	lb)	cept	Hydr	Secondary Water MLR	Indicators (mi -Stained Lea A 1, 2, 4a, ar age Patterns	nimum of tw aves (B9) (nd 4b) (B10)	o required) except
Depth (incleanance) DROLOG Vetland Hydrimary Indicate Surface V High Wall Saturatio Water Ma	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1)	s: required; d	heck all that	Water-Stain MLRA 1, 2 Salt Crust Aquatic Inv	., 4a, and 4 (B11) /ertebrates	(B13)	cept	Hydr	Secondary Water MLR. Draina	Indicators (mire-Stained Lea A 1, 2, 4a, au age Patterns eason Water	nimum of tw aves (B9) (nd 4b) (B10) r Table (C2	o required) except
Depth (inclemarks: Veremarks: Ver	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2)	s: required; d	heck all that	Water-Stair MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen	!, 4a, and 4 (B11) /ertebrates Sulfide Odd	(B13) or (C1)			Secondary Water MLR Draina Dry-S Satura	Indicators (mi -Stained Lea A 1, 2, 4a, ar age Patterns eason Water ation Visible	nimum of tw aves (B9) (nd 4b) (B10) r Table (C2 on Aerial I	o required) except
Depth (inclements: Very Very Very Very Very Very Very Very	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1) tt Deposits (B2) rosits (B3)	s: required; d	heck all that	Water-Stain MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen Oxidized F	, 4a, and 4 (B11) vertebrates Sulfide Odo Rhizosphere	(B13) or (C1) es on Livir	ng Roots (6		Secondary Water MLR. Draina Dry-S Satura Geom	Indicators (mi -Stained Lea A 1, 2, 4a, au age Patterns eason Water ation Visible orphic Positi	nimum of tw aves (B9) (nd 4b) (B10) r Table (C2 on Aerial I	o required) except
Depth (incleand Notes) Proposition of the content	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1) ot Deposits (B2) osits (B3) t or Crust (B4)	s: required; d	heck all that	Water-Stain MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen Oxidized F Presence	de the second of	(B13) or (C1) es on Livir Iron (C4)	ng Roots ((C3)	Secondary Water MLR Draina Dry-S Satura Geom	Indicators (mi -Stained Lea A 1, 2, 4a, ar age Patterns eason Water ation Visible or orphic Positi	nimum of twaves (B9) (and 4b) (B10) Table (C2on Aerial Inion (D2)	o required) except
Depth (incomercial property) PROLOGIC Petland Hydrimary Indicate North Water March Water March Sediment Drift Depote Algai Mater North Depote North Depote North	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) osits (B3) t or Crust (B4) osits (B5)	s: required; d	heck all that	Water-Stain MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iron	d. 4a, and 4 (B11) vertebrates Sulfide Odo thizosphere of Reduced n Reduction	(B13) or (C1) es on Livir fron (C4) as in Tille	ng Roots (() d Soils (C6	C3)	Secondary Water MLR. Draina Dry-S Satura Geom Shallo	Indicators (mi -Stained Lea A 1, 2, 4a, ar age Patterns eason Water ation Visible forphic Positi w Aquitard (Neutral Test	nimum of tw aves (B9) (nd 4b) (B10) r Table (C2 on Aerial I ion (D2) D3) (D5)	except 2) magery (C9
Depth (incommerks: Veriand Hydrimary Indicate Naturatio Water Marks Sediment Drift Depth Algai Mater Surface S	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) rosits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6)	s: required; c	heck all that	Water-Stain MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iron Stunted or	de the second of	(B13) or (C1) es on Livir Iron (C4) ns in Tilled	ng Roots (() d Soils (C6	C3)	Secondary Water MLR. Draina Dry-S Satura Geom Shallo FAC- Raise	Indicators (minument) -Stained Lea A 1, 2, 4a, and age Patterns eason Water atton Visible for phic Position was Aquitard (Neutral Test d Ant Mounce	nimum of twaves (B9) (and 4b) (B10) Table (C2) on Aerial lition (D2) D3) (D5) ds (D6) (LF	o required) except 2) magery (C9
Depth (incomercial property) PROLOGY Petland Hydrimary Indicate Surface Note that the second water Martin Depth Algai Mater Note that the surface S	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) t Deposits (B2) oosits (B3) t or Crust (B4) oosits (B5) Soil Cracks (B6) on Visible on Aerial	s: required; c	heck all that	Water-Stain MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iron Stunted or	de da, and 4 (B11) vertebrates Sulfide Odo thizosphere f Reduced Reductior Stressed F	(B13) or (C1) es on Livir Iron (C4) ns in Tilled	ng Roots (() d Soils (C6	C3)	Secondary Water MLR. Draina Dry-S Satura Geom Shallo FAC- Raise	Indicators (mi -Stained Lea A 1, 2, 4a, ar age Patterns eason Water ation Visible forphic Positi w Aquitard (Neutral Test	nimum of twaves (B9) (and 4b) (B10) Table (C2) on Aerial lition (D2) D3) (D5) ds (D6) (LF	o required) except 2) magery (C9
Depth (incomercial property) PROLOGY Petland Hydrimary Indicate Surface V High Water Mater M	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) to Deposits (B2) rosits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav	s: required; c	heck all that	Water-Stain MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iron Stunted or	de da, and 4 (B11) vertebrates Sulfide Odo thizosphere f Reduced Reductior Stressed F	(B13) or (C1) es on Livir Iron (C4) ns in Tilled	ng Roots (() d Soils (C6	C3)	Secondary Water MLR. Draina Dry-S Satura Geom Shallo FAC- Raise	Indicators (minument) -Stained Lea A 1, 2, 4a, and age Patterns eason Water atton Visible for phic Position was Aquitard (Neutral Test d Ant Mounce	nimum of twaves (B9) (and 4b) (B10) Table (C2) on Aerial lition (D2) D3) (D5) ds (D6) (LF	o required) except 2) magery (C9
Depth (incomercial contents) PROLOGIVETION (Incomercial contents) Property (Incomercial contents)	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concaverations:	s: required; c	heck all that	Water-Stain MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iron Stunted or	d, 4a, and 4 (B11) vertebrates Sulfide Odd thizosphere of Reduced on Reduction Stressed F lain in Rem	(B13) or (C1) es on Livir Iron (C4) ns in Tilled	ng Roots (() d Soils (C6	C3)	Secondary Water MLR. Draina Dry-S Satura Geom Shallo FAC- Raise	Indicators (minument) -Stained Lea A 1, 2, 4a, and age Patterns eason Water atton Visible for phic Position was Aquitard (Neutral Test d Ant Mounce	nimum of twaves (B9) (and 4b) (B10) Table (C2) on Aerial lition (D2) D3) (D5) ds (D6) (LF	o required) except 2) magery (C9
Depth (incoments: Veriand Hydrimary Indicate Mater Mat	GY drology Indicators tors (minimum of one Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Aerial Vegetated Concav vations: er Present?	s: required; co	heck all that	Water-Stain MLRA 1, 2 Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iron Stunted or Other (Exp	d, 4a, and 4 (B11) vertebrates Sulfide Odd thizosphere of Reduced a Reduction Stressed F lain in Rem	(B13) or (C1) es on Livir Iron (C4) ns in Tilled	ng Roots (() d Soils (C6) (LRR A)	C3)	Secondary Water MLR. Draina Dry-S Satura Geom Shallo FAC- Raise	Indicators (minument) -Stained Lea A 1, 2, 4a, and age Patterns eason Water atton Visible for phic Position was Aquitard (Neutral Test d Ant Mounce	nimum of twaves (B9) (and 4b) (B10) Table (C2) on Aerial II ion (D2) D3) (D5) ds (D6) (LF	o required) except 2) magery (C9)

Remarks: No hydrologic indicators present.

Project/Site: START 3 - Cement Creek	City/County: San Juar			n	Sampling Date: 8-26-11		
Applicant/Owner: Environmental Protection Agency				State:CO	Sampling Point: WL 5-1		
Investigator(s): S. Hall, A.Ballman		Section	on, Township, Ra	ange: N/A			
Landform (hillslope, terrace, etc.): Terrace/bank		- Loca	I relief (concave,	convex, none):Concave	cave Slope (%):		
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	- 7.8817		Long: -107.6671	Datum: NAD 83		
Soil Map Unit Name: Cryaquolls-Typic Cryaquents cor	nplex, 0	to 5 pe	rcent slopes		cation: None		
Are climatic / hydrologic conditions on the site typical for thi				 .			
	significant			"Normal Circumstances"	·		
	naturally p	•		eeded, explain any answe	Total Control		
			•	•	,		
SUMMARY OF FINDINGS - Attach site map	SHOWIN	y Sam	ping point i		, important features, etc.		
1,,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,	lo Ō		Is the Sampled	d Area			
			within a Wetla	nd? Yes 💽	No 🔘		
			1	CNIX CONT. I	1 1 1 1 1 1		
Remarks: Fringe PEM/PSS wetland on east side of end is a point bar. Wetland sustained from			•		· ·		
water color from mine drainage tints soils							
VEGETATION - Use scientific names of plant		ica. Oi			olor due to high from staming		
VEGETATION - Ose scientific frames of plant	Absolute	Domi	nant Indicator	· 			
Tree Stratum Plot size:			ies? Status	Dominance Test work	sheet:		
1.				Number of Dominant S			
2.				That Are OBL, FACW, (excluding FAC-):	or FAC		
3.			·	Total Number of Domin	Made of State of		
4.				Species Across All Stra	1/2009057 2 1 .		
Sapling/Shrub Stratum Plot size: 232 x 10		= Total	Cover	Percent of Dominant Sp That Are OBL, FACW, of			
1. Salix planifolia	85	Yes	OBL	Prevalence Index wor	**************************************		
2. Picea engelmannii	10	No	FACU-	Total % Cover of:	Multiply by:		
3.					05 x 1 = 105		
4.			•	7365	0 x 2 = 0		
5.	95	- Total	Cover	FAC species	x 3 = 0		
Herb Stratum Plot size 232 x 10	1723	- Total	Cover	FACU species	0 x 4 = 40		
1. Calamagrostis canadensis	15	Yes	OBL	UPL species	x 5 = 0		
2 Carex canescens	5	Yes	OBL	Column Totals:	15 (A) 145 (B)		
3. Rhodiola rhodantha	<1	No	FACW+	Prevalence Index	= B/A = 1.26		
4.				Hydrophytic Vegetation	17 1878 P. C. 1		
5.				1 ' ' -	Hydrophytic Vegetation		
6.				2 - Dominance Tes	it is >50%		
7.				3 - Prevalence Inde			
8.				4 - Morphological A	daptations¹(Provide supporting or on a separate sheet)		
9.	•			5 - Wetland Non-Va			
10.	20.	= Total	Cover	_ _	phytic Vegetation ¹ (Explain)		
Woody Vine Stratum Plot size:	.20.	- Total	Cover		il and wetland hydrology must		
1.				be present, unless distu	urbed or problematic.		
2.				Hydrophytic Vegetation Yes	No ○		
		= Total	Cover	Present?	C NO ("		
% Bare Ground in Herb Stratum %				I			
Remarks: PEM /PSS east side of creek.							
	•			•	,		
·							

Sampling	Point:	WL 5	-1

SOIL

ype: C=Concentration, D=Deple ydric Soil Indicators: (Applic Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surf Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) strictive Layer (if present): Type: Depth (inches):	tion, RM=Reduced able to all LRRs,	Matrix, CS=Covered or Coated Sand Grains	Partial Remarks Sandy silt 2 Location: PL=Pore Lining, M=Matrix Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
ype: C=Concentration, D=Deple ydric Soil Indicators: (Applic] Histosol (A1)] Histic Epipedon (A2)] Black Histic (A3)] Hydrogen Sulfide (A4)] Depleted Below Dark Surf] Thick Dark Surface (A12)] Sandy Mucky Mineral (S1)] Sandy Gleyed Matrix (S4) strictive Layer (if present): Type:	tion, RM=Reduced able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	2Location: PL=Pore Lining, M=Matrix Indicators for Problematic Hydric Soils³: 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
ydric Soil Indicators: (Applications) Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfactor (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Strictive Layer (if present): Type:	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
ydric Soil Indicators: (Applications) Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfactor (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Strictive Layer (if present): Type:	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
ydric Soil Indicators: (Applications) Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surfactor (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Strictive Layer (if present): Type:	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
ydric Soil Indicators: (Application of the Control	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
ydric Soil Indicators: (Application of the National Control of the National Co	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
Histosol (A1) Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surf Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Strictive Layer (if present):	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
Indicators: (Application (Application (A1)) I Histosol (A1) I Histic Epipedon (A2) I Black Histic (A3) I Hydrogen Sulfide (A4) I Depleted Below Dark Surfactor (A12) I Sandy Mucky Mineral (S1) I Sandy Gleyed Matrix (S4) I Strictive Layer (if present): I Type:	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
Indicators: (Application (Application (A1)) I Histosol (A1) I Histic Epipedon (A2) I Black Histic (A3) I Hydrogen Sulfide (A4) I Depleted Below Dark Surfactor (A12) I Sandy Mucky Mineral (S1) I Sandy Gleyed Matrix (S4) I Strictive Layer (if present): I Type:	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
Histosol (A1) Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surf Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Strictive Layer (if present):	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
Histosol (A1) Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surf Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Strictive Layer (if present):	able to all LRRs,	unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
Histosol (A1) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surf Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) strictive Layer (if present): Type:	ace (A11)	Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	2 cm Muck (A10) Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surf Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) strictive Layer (if present): Type:)	Stripped Matrix (S6) Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	Red Parent Material (TF2) Very Shallow Dark Surface (TF12)
Black Histic (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surf Thick Dark Surface (A12) Sandy Mucky Mineral (S1 Sandy Gleyed Matrix (S4) strictive Layer (if present): Type:)	Loamy Mucky Mineral (F1) (except N Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	MLRA1) Very Shallow Dark Surface (TF12)
Hydrogen Sulfide (A4) Depleted Below Dark Surf Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) strictive Layer (if present): Type:)	Loamy Gleyed Matrix (F2) Depleted Matrix (F3)	,
Depleted Below Dark Surf Thick Dark Surface (A12) Sandy Mucky Mineral (S1 Sandy Gleyed Matrix (S4) trictive Layer (if present): Type:)	Depleted Matrix (F3)	X Other (Explain in Remarks)
Thick Dark Surface (A12) Sandy Mucky Mineral (S1 Sandy Gleyed Matrix (S4) trictive Layer (if present): ype:)		
Sandy Mucky Mineral (S1 Sandy Gleyed Matrix (S4) trictive Layer (if present): ype:		Republicant Surface (ED)	
Sandy Gleyed Matrix (S4) trictive Layer (if present): ype:		Depleted Dark Surface (F7)	³ Indicators of hydrophytic vegetation and
trictive Layer (if present): ype:		Redox Depressions (F8)	wetland hydrology must be present, unless disturbed or problematic.
уре:			diffess disturbed of problematic.
			Hydric Soil Present? Yes No
			riyunc don riesent: Tes (No ()
· · · · · · · · · · · · · · · · · · ·	1.0		olor. Hydric soils assumed due to the predominance
DROLOGY			
tland Hydrology Indicator nary Indicators (minimum of one		I that apply)	Secondary Indicators (minimum of two required)
Surface Water (A1)	· · ·	Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (except
High Water Table (A2)		MLRA 1, 2, 4a, and 4b)	MLRA 1, 2, 4a, and 4b)
Saturation (A3)		Salt Crust (B11)	Drainage Patterns (B10)
Water Marks (B1)		Aquatic Invertebrates (B13)	Dry-Season Water Table (C2)
Sediment Deposits (B2)		Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3)		Oxidized Rhizospheres on Living Ro	oots (C3) Geomorphic Position (D2)
Algai Mat or Crust (B4)		Presence of Reduced Iron (C4)	Shallow Aquitard (D3)
Iron Deposits (B5)		Recent Iron Reductions in Tilled Soil	ils (C6) FAC-Neutral Test (D5)
Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1) (LR	RR A) Raised Ant Mounds (D6) (LRR A)
Inundation Visible on Aeria	l Imagery (B7)	Other (Explain in Remarks)	Frost-Heave Hummocks (D7) (LRR F)
Sparsely Vegetated Conca	ve Surface (B8)		
d Observations:		_	
ace Water Present?	Yes 💽 No	· · · · · · · · · · · · · · · · · · ·	
er Table Present?	Yes 💽 No	Depth (inches): 9	Wetland Hydrology Present? Yes 💿 No 🔘
uration Present?	Yes 💽 No	Depth (inches): 0	
ludes capillary fringe)	m dauge monito	ring well, aerial photos, previous inspectio	one) if available:
odine vernica nara (2069	ın gauge, monit	ming well, aeriai priolos, previous irispectio	nio), ii availabie.
modes W-41	ad from C	nt Creak and wasters &	
marks: Wetland is sustain	led from Ceme	nt Creek and upslope fen.	•
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			·

Project/Site: START 3 - Cement Creek		City/C	County: San Juan	n	Sampling Date: 8-26-11
Applicant/Owner: Environmental Protection Agency		_		State:CO	Sampling Point: WL 5-2
Investigator(s): S. Hall, J. Dawson		Section	on, Township, Ra	ange: N/A	
Landform (hillslope, terrace, etc.): Terrace/bank		_ Local	I relief (concave,	convex, none): Concave	Slope (%): 0
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 3			Long: -107.6668	Datum: NAD 83
Soil Map Unit Name: Cryaquolls-Typic Cryaquents cor	— — nplex, 0	to 5 pe	rcent slopes	NWI classific	ation: R3USC
Are climatic / hydrologic conditions on the site typical for thi				_	
	significan			"Normal Circumstances" p	
	naturally	•		eeded, explain any answer	
SUMMARY OF FINDINGS - Attach site map					·
		3 54	F3 Pot		important routures, etc.
Try droping as a significant for the significa	lo ()		Is the Sample		
			within a Wetla	nd? Yes 🥑	No C
	lo ()		-4-:	· · · · · · · · · · · · · · · · · · ·	-1. TL:
Remarks: PEM fringe on both sides of Cement Cree with limonite and ledges are visible within			•		3
from mine drainage tints soils in this area		JI Udliks	s and above bar	iks. Significantly distur	Jed soils - Itoli water color
VEGETATION - Use scientific names of plant					
	Absolute	e Domi	nant Indicator		
Tree Stratum Plot size: 455 x 10	% Cove	r Spec	ies? Status	Dominance Test works	sheet:
1. Picea engelmannii	3	No	FACU-	Number of Dominant Sp	
2.				That Are OBL, FACW, of (excluding FAC-):	74 (A)
3.		-		Total Number of Domina	ant
4.	- Transfer			Species Across All Strat	ta: 4 (B)
Sapling/Shrub Stratum Plot size: 455 x 10	3	= Total	Cover	Percent of Dominant Sp That Are OBL, FACW, o	
1. Salix planifolia	2	No	OBL	<u> </u>	2.70.0000000000000000000000000000000000
2. Picea engelmanii	1 .	No	FACU-	Prevalence Index work Total % Cover of:	csneeτ: Multiply by:
3. Betula glandulosa	8	Yes	OBL	OBL species	P262
4. Salix geyeriana	3	Yes	OBL	FACW species	x 2 = 0
5.	14	= Total	0) x3= 0
Herb Stratum Plot size 455 x 10	14	= rotar	Cover	FACU species	x 4 = 8
1. Calamagrostis canadensis	45	Yes	OBL	UPL species	x5= 0
2. Carex canescens	2	No	OBL	Column Totals: 9	7 (A) 103 (B)
3. Carex aquatilis	35	Yes	OBL	1 1 2 1	and the second of the second o
4. Juncus parryi	<1	No	FAC-	Prevalence Index	There's
5. Gaultheria humifusa	. 1	No	FACU	Hydrophytic Vegetation	n Indicators: lydrophytic Vegetation
6.				2 - Dominance Test	• • • •
7.				3 - Prevalence Index	
8.					daptations¹(Provide supporting
9.		. 		data in Remarks 5 - Wetland Non-Va	or on a separate sheet)
10.				 	hytic Vegetation ¹ (Explain)
Woody Vine Stratum Plot size:	83	= Total	Cover		and wetland hydrology must
1.				Hydrophytic	roca or problematic.
2.	20000a			Vegetation Yes	No C
		= Total	Cover	Present?	
% Bare Ground in Herb Stratum 4 %					
Remarks: Bare Ground = rock/moss/bare. Wetland	predomi	nantly l	PEM with scatt	ered PSS throughout.	
·					

Name	Profile Desci	ription: (Describe	to the depth	needed to document the indicator or confir	rm the absence of indicators.)	0001
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Type: C=Concentration, D=Depletion, RM=Reduced Matrix, Uses of the review of the concentration of the reduced Sand Grains Type: C=Concentration, D=Depletion, RM=Reduced Matrix, Uses of the reduced Sand Grains Type: Sandy Redox (A1) Depleted Matrix (SS) Depleted Matrix (SS) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Gleyad Matrix (S4) Depleted Dark Surface (F2) Sandy Gleyad Matrix (S4) Depleted Dark Surface (F8) Sandy Gleyad Matrix (S4) Sandy Gleyad Matrix (S4) Depleted Dark Surface (F8) Sandy Gleyad Matrix (S4) Depleted Dark Surface (F8) Sandy Gleyad Matrix (S4) Sandy Gleyad Matrix (S4) Depleted Dark Surface (F8) Indicators value (CF1) Wey Shallow Dark Surface (F12) Vey Shallow Dark Surface (F12) Indicators value (CF1) Vey Shallow Dark Surface (F12) Vey Shallow Dark	Depth (inches)					
Type: C=Concentration, D=Depleton, RM=Reduced Matrix, CS=Covered or Coated Sand Grains *Location: PL=Pore Lining, M=Matrix -lydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)				Color (moist) 70 Type Loc		(emarks
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histic Epipedon (A2) Black Histic (A3) Depleted Matrix (S5) Sandy Redox (S5) Black Histic (A3) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (F1) (except MLRA1) Thick Dark Surface (A12) Sandy Mucky Mineral (F1) (except MLRA1) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F5) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F1) Wetland Hydrology must be present, unless disturbed or problematic. Hydric Soil Present? Yes (No No No No No No No No No N	SPI 0-10	7.5YR 4/6	100		Sandy silt	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histic Epipedon (A2) Black Histic (A3) Depleted Matrix (S5) Sandy Redox (S5) Black Histic (A3) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (F1) (except MLRA1) Thick Dark Surface (A12) Sandy Mucky Mineral (F1) (except MLRA1) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F5) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F1) Wetland Hydrology must be present, unless disturbed or problematic. Hydric Soil Present? Yes (No No No No No No No No No N						
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Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Histic Epipedon (A2) Black Histic (A3) Depleted Matrix (S5) Sandy Redox (S5) Black Histic (A3) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (F1) (except MLRA1) Thick Dark Surface (A12) Sandy Mucky Mineral (F1) (except MLRA1) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F5) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Redox Dark Surface (F1) Wetland Hydrology must be present, unless disturbed or problematic. Hydric Soil Present? Yes (No No No No No No No No No N		antestian DeDanlation		I Making CC-Coursed as Cooted Cond Corins	21 DI D	
Histosol (A1) Histosol (A2) Histosol (A2) Histoc Epipedon (A2) Stripped Matrix (S6) Black Histo (A3) Hydrogen Sulfide (A4) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Depleted Below Dark Surface (A11) Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F5) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Belot Histosol (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Bepleted Dark Surface (F7) Redox Depressions (F8) Hydric Soil Present? Type: Depth (inches): 10 emarks: Restrictive Layer is cobble. Soil orange color derived from creek water. Unable to detect parent soil color and no other hydric soil indicators were observed. Vegetation at pit Carex aquatilis. This entire section is underlain with limonite wit ledges visible at the creek banks. Hydric soils assumed due to the predominance of OBL and FACW vegetation and the presence of primary hydrologic indicators. **TOROLOGY** Vettand Hydrology Indicators: **many Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b) Water Marks (B1) Water Marks (B1) Water Marks (B1) Aquatic Invertebrates (B13) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Sediment Deposits (B3) Surface Soil Cracks (B6) Inron Deposits (B5) Surface Water Present? Yes (No Depth (inches): 1 Sparsely Vegetated Concave Surface (B8) Vegetated Concave Surface (B8) Vegetated Concave Surface (B8)		<u>:</u>				
Histic Epipedon (A2)	<u> </u>		ie io an Lixino,			ic Soils .
Black Histic (A3)		•				
Hydrogen Sulfide (A4)						(TF12)
Depleted Below Dark Surface (A11)						
Sandy Mucky Mineral (S1) Sandy Cleyed Matrix (S4) Sandy Cleyed Matrix (S4) Depleted Dark Surface (F7) Redox Depressions (F8) Hydric Soil Present? Yes No C Depth (inches): 10 Bemarks: Restrictive layer is cobble. Soil orange color derived from creek water. Unable to detect parent soil color and no other hydric soil indicators were observed. Vegetation at pit Carex aquatilis. This entire section is underlain with limonite wit ledges visible at the creek banks. Hydric soils assumed due to the predominance of OBL and FACW vegetation and the presence of primary hydrologic indicators. FDROLOGY Wetland Hydrology Indicators: Interval Water (A1) High Water (A1) High Water Table (A2) Saturation (A3) Salt Crust (B11) Water Marks (B1) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Drift Deposits (B3) Aquatic Invertebrates (B13) Dry-Season Water Table (C2) Sediment Deposits (B4) Presence of Reduced fron (C4) Saturation Visible on Aerial Imagery (C9) Surface Soil Cracks (B6) Iron Deposits (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Roll (B4) Recent Iron Reductions in Tilled Soils (C6) Surface Soil Cracks (B6) Recent Iron Reductions in Tilled Soils (C6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Cracks (B6) Cracks (B6) Cracks (B6) Cracks (B6) Coher (Explain in Remarks) Sparsely Vegetated Concave Surface (B8) Red Observations: Indeed Observations: Indeed Observations: Yes No Depth (inches): 1 Vestand Hydrology Present? Yes No Depth (inches): 9 Wetland Hydrology Present? Yes No Depth (inches): 0	Depleted	Below Dark Surface	e (A11)	Depleted Matrix (F3)	<u> </u>	
Sandy Gleyed Matrix (\$4\)				Redox Dark Surface (F6)	3 mali	
sestrictive Layer (if present): Type: Depth (inches): 10 emarks: Restrictive layer is cobble. Soil orange color derived from creek water. Unable to detect parent soil color and no other hydric soil indicators were observed. Vegetation at pit Carex aquatilis. This entire section is underlain with limonite wit ledges visible at the creek banks. Hydric soils assumed due to the predominance of OBL and FACW vegetation and the presence of primary hydrologic indicators. FOROLOGY				Depleted Dark Surface (F7)		
Depth (inches): 10 emarks: Restrictive layer is cobble. Soil orange color derived from creek water. Unable to detect parent soil color and no other hydric soil indicators were observed. Vegetation at pit Carex aquatilis. This entire section is underlain with limonite wit ledges visible at the creek banks. Hydric soils assumed due to the predominance of OBL and FACW vegetation and the presence of primary hydrologic indicators. **TOROLOGY** Vettand Hydrology Indicators:* **imary Indicators (minimum of one required; check all that apply) Surface Water (A1)	Sandy Gl	eyed Matrix (S4)		Redox Depressions (F8)		
Depth (inches): 10 emarks: Restrictive layer is cobble. Soil orange color derived from creek water. Unable to detect parent soil color and no other hydric soil indicators were observed. Vegetation at pit Carex aquatilis. This entire section is underlain with limonite wit ledges visible at the creek banks. Hydric soils assumed due to the predominance of OBL and FACW vegetation and the presence of primary hydrologic indicators. **POROLOGY** Vettand Hydrology Indicators: imany Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) High Water Table (A2) Salt Crust (B11) Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Drift Deposits (B3) Drift Deposits (B3) Iron Deposits (B5) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Cracks (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Inundation Present? Yes No Depth (inches): 9 Wetland Hydrology Present? Yes No Calculation Present? Yes No Calculation Present? Yes No Calculation Present? Yes No Calcul	Restrictive La	yer (if present):				*
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urface Water Present? Yes No Depth (inches): 1 /ater Table Present? Yes No Depth (inches): 9 /ater Table Present? Yes No Depth (inches): 0 Wetland Hydrology Present? Yes No Depth (inches): 0	emarks: Res hyd led, pre: **PROLOG** Vetland Hydronimary Indicato **Surface W** High Wate **Saturation** Water Mar **Sediment** Drift Depo **Algai Mat Iron Depo **Surface Si Inundation**	ctrictive layer is coloric soil indicators ges visible at the consence of primary six cology Indicators: rs (minimum of one recoloric (A1) er Table (A2) er (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial In	s were obser creek banks. hydrologic i quired; check al	wed. Vegetation at pit Carex aquatilis. In Hydric soils assumed due to the predor indicators. If that apply) Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots Presence of Reduced Iron (C4) Recent Iron Reductions in Tilled Soils (Care) Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks)	Secondary Indicators (minimum Water-Stained Leaves (I MLRA 1, 2, 4a, and 4b) Drainage Patterns (B10) Dry-Season Water Table Saturation Visible on Ae (C3) Geomorphic Position (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6	and no other ith limonite with etation and the of two required) B9) (except) ie (C2) rial Imagery (C9) 2)
/ater Table Present? Yes No Depth (inches): 9 Wetland Hydrology Present? Yes No Depth (inches): 0	Pemarks: Res hydical led pre- Property PROLOG Vetland Hydromary Indicator Surface W Saturation Water Ma Sediment Drift Depo Algai Mat Iron Depo Surface So Inundation Sparsely N	ctrictive layer is coloric soil indicators ges visible at the consence of primary six cology Indicators: rs (minimum of one recoloric (A1) er Table (A2) er (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial Infections	s were obser creek banks. hydrologic i quired; check al	wed. Vegetation at pit Carex aquatilis. In Hydric soils assumed due to the predor indicators. If that apply) Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots Presence of Reduced Iron (C4) Recent Iron Reductions in Tilled Soils (Care) Stunted or Stressed Plants (D1) (LRR A) Other (Explain in Remarks)	Secondary Indicators (minimum Water-Stained Leaves (I MLRA 1, 2, 4a, and 4b) Drainage Patterns (B10) Dry-Season Water Table Saturation Visible on Ae (C3) Geomorphic Position (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6	and no other ith limonite with etation and the of two required) B9) (except) ie (C2) rial Imagery (C9) 2)
aturation Present? Yes No Depth (inches): 0	Primary Indicato YDROLOG Yetland Hydrimary Indicato Y Saturation Water Mai Sediment Drift Depo Algai Mat Iron Depo Surface Si Inundation Sparsely Vield Observa	ctrictive layer is coloric soil indicators ges visible at the consense of primary six cology Indicators: crs (minimum of one recoloris (A2) cr Table (A2) cr Table (A2) cr Table (B4) cr Crust (B4) cr Crust (B4) cr Crust (B6) cr Crust (B6) cr Visible on Aerial Interpretations:	s were obser creek banks. hydrologic i quired; check al nagery (B7) Surface (B8)	wed. Vegetation at pit Carex aquatilis. It Hydric soils assumed due to the predorindicators. If that apply) Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots Presence of Reduced Iron (C4) Recent Iron Reductions in Tilled Soils (C1) Stunted or Stressed Plants (D1) (LRR A2) Other (Explain in Remarks)	Secondary Indicators (minimum Water-Stained Leaves (I MLRA 1, 2, 4a, and 4b) Drainage Patterns (B10) Dry-Season Water Table Saturation Visible on Ae (C3) Geomorphic Position (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6	and no other ith limonite with etation and the of two required) B9) (except) ie (C2) rial Imagery (C9) 2)
	Prince Section 1 Sparsely Vield Observalus of the Control of the C	ctrictive layer is coloric soil indicators ges visible at the consense of primary six cology Indicators: rs (minimum of one recoloric (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) Visible on Aerial Informations: Present? Ye	s were obsercreek banks. hydrologic i quired; check al	wed. Vegetation at pit Carex aquatilis. It hydric soils assumed due to the predorindicators. If that apply) Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots Presence of Reduced Iron (C4) Recent Iron Reductions in Tilled Soils (C1) Stunted or Stressed Plants (D1) (LRR A1) Other (Explain in Remarks)	Secondary Indicators (minimum Water-Stained Leaves (I MLRA 1, 2, 4a, and 4b) Drainage Patterns (B10) Dry-Season Water Table Saturation Visible on Ae (C3) Geomorphic Position (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	and no other ith limonite with etation and the of two required) B9) (except) ie (C2) rial Imagery (C9) 2) (LRR A) is (D7) (LRR F)
	remarks: Res hyd led pre- YDROLOG Vetland Hydromary Indicato Surface W Saturation Water Ma Sediment Drift Depo Algai Mat Iron Depo Surface S Inundation Sparsely V ield Observa	ctrictive layer is coloric soil indicators ges visible at the consence of primary six cology Indicators: rs (minimum of one recoloric (A1) er Table (A2) (A3) rks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) oil Cracks (B6) I Visible on Aerial Im (regetated Concave of titions: Present? Yesesent? Yesesent?	s were obsercreek banks. hydrologic i quired; check al	Wett Vegetation at pit Carex aquatilis. The Hydric soils assumed due to the predorindicators. If that apply) Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots Presence of Reduced Iron (C4) Recent Iron Reductions in Tilled Soils (C1) Stunted or Stressed Plants (D1) (LRR A1) Other (Explain in Remarks) C Depth (inches): 9	Secondary Indicators (minimum Water-Stained Leaves (I MLRA 1, 2, 4a, and 4b) Drainage Patterns (B10) Dry-Season Water Table Saturation Visible on Ae (C3) Geomorphic Position (D3) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) Frost-Heave Hummocks	and no other ith limonite with etation and the of two required) B9) (except) ie (C2) rial Imagery (C9) 2) (LRR A) is (D7) (LRR F)

Remarks: Wetlands are sustained from fen springs and Cement Creek.

Project/Site: START 3 - Cement Creek		City/0	County: San Jua	n ·	Sampling	Date:8-26-1	1
Applicant/Owner: Environmental Protection Agenc	у			State:CO	Sampling	Point: UP 5-	-2
Investigator(s): S. Hall, J. Dawson		Secti	on, Township, R	ange: N/A			
Landform (hillslope, terrace, etc.): Terrace/bank		— Loca	Il relief (concave	, convex, none): Cor	ncave	Slope (%)	: 0
Subregion (LRR): E - Rocky Mountain Forests and Rangelai	nd Lat: 3	 7.8826		Long: -107.6671		Datum: NA	
Soil Map Unit Name: Cryaquolls-Typic Cryaquents		to 5 ne	ercent slopes		assification: N/A		
Are climatic / hydrologic conditions on the site typical for					n in Remarks.)	<u></u>	
Are Vegetation Soil or Hydrology	significan	-		"Normal Circumstan	,	Van G .	h (C
	J	•			•	4.07	10 C
Are Vegetation Soil or Hydrology SUMMARY OF FINDINGS - Attach site ma	naturally naturally n showin		•	eeded, explain any a		·	s etc
		9 0	T		Joto, Importe		
Hydrophytic Vegetation Present? Yes () Hydric Soil Present? Yes ()	No 📵		Is the Sample		· · · ·	<u>~</u>	
Wetland Hydrology Present? Yes	No (within a Wetla	ind? Yes	C No (<u>.</u>	
Remarks: Upland soil pit for WL 5-1 and WL 5-:	-122					<u></u>	· · · · · ·
opialia son pieror w 23 r ana w 23 r	۷.						
VEGETATION - Use scientific names of pla	ants.						
	Absolute		inant Indicator				
Tree Stratum Plot size:	% Cove	r Spec	ies? Status	Dominance Test			,
1.				Number of Domin That Are OBL, FA			
2			-	(excluding FAC-):	•	1	(A)
3.				Total Number of D			
4	7 SEE 5.			Species Across A		3	(B)
Sapling/Shrub Stratum Plot size:		= Tota	l Cover	Percent of Domina That Are OBL, FA		33.3 %	(A/B)
1.						- 30.3 % 	(705)
2.				Prevalence Index			
3.				Total % Cove	. z udaleta 1 i	Multiply by:	<u>;</u>
4.				OBL species	x1	(1999) (1999)	j a
5.	\$2,000a 5			FACW species FAC species	35 x2	9.000]
Herb Stratum Plot size 20 x 20		= Total	Cover	FACU species	1 × 3	: XXX	S L
1. Ligularia amplectens (Senecio amplectens)	2	No	FACW	UPL species	7 x5	155 556 1	
2. Achillea lanulosa	20	Yes	FACU	Column Totals:	99 (A)	332	
3. Potentilla ovina	5	No	Not Listed	O GATTAL TOTAL CO.		· woulder	
4. Fragaria vesca		No	Not Listed		ndex = B/A =	3.35	5
5. Erigeron speciosus	1	No	Not Listed	Hydrophytic Veg			
6. Campanula rotundifolia	1	No	FACU	 	t for Hydrophytic e Test is >50%	vegetation	
7. Juncus balticus	33	Yes	FACW	42/4	e Index is ≤3.0 ¹		
8. Poa pratensis	35	Yes	FACU		ical Adaptations ¹		orting
9. Vaccinium cespitosum	1	No	FAC	1 — ·	marks or on a se	• • •	
10.					on-Vascular Plar lydrophytic Vege	_	n)
Woody Vine Stratum Plot size:	99	= Total	Cover	¹ Indicators of hydr	ic soil and wetla	and hydrology	
1.				be present, unless	s disturbed or pro	oblematic.	
2.				Hydrophytic Vegetation	/aa ()	No G	
		= Total	Cover	Present?	res C	No 💽	
% Bare Ground in Herb Stratum 1 %				1			
Remarks: Bare ground = rock/moss/bare. Subalp	ine meadov	v comn	nunity.				
-			-	•			
							ı

Sampling	Point:	UP	5-2

SOIL

Depth	Matrix	depth needed to docu Redo	x Features	or commi	the absence of mu	0001.
	or (moist) %		% Type ¹	_Loc2	Texture	Remarks
SP1 0-13 10	OYR 3/3 10	0			Silty loam	
				. —— .		
				·		·
		_	- · 			
		_				
				· 		, , , , , , , , , , , , , , , , , , ,
			-	· -		
			-			
¹Tuno: C=Concentrati	on D-Dodletion PM=	Reduced Matrix, CS=Cover	ed or Coated Sand Gra	ine -	21.0	cation: PL=Pore Lining, M=Matrix
		····		11115		
	ors: (Applicable to a	II LRRs, unless otherwis				plematic Hydric Soils ³ :
Histosol (A1) Histic Epipedor	. (42)	Sandy Redo	• •		2 cm Muck (A	•
Black Histic (A:		Stripped Ma	ky Mineral (F1) (exc	ent MI PA1	Red Parent N	` '
Hydrogen Sulfie	•		red Matrix (F2)	eht MEIOA	Other (Explain	Dark Surface (TF12)
<u></u>	v Dark Surface (A11				Other (Explain	·
Thick Dark Sur			Surface (F6)			•
Sandy Mucky N	•	<u> </u>	ark Surface (F7)			hydrophytic vegetation and
Sandy Gleyed	Matrix (S4)	Redox Depi	ressions (F8)			ology must be present, bed or problematic.
Restrictive Layer (i	f present):					
Type:					Hydric Soil Presen	t? Yes 🗀 No 🕞
Depth (inches): 1	.3				_	
Remarks: Restricti		and cobble				· · · · · · · · · · · · · · · · · · ·
HYDROLOGY						
Wetland Hydrology						
Primary Indicators (mir						ators (minimum of two required)
Surface Water (High Water Tab	· •		ned Leaves (B9 <u>)</u> (e) 2, 4a, and 4b)	ccept		ined Leaves (B9) (except 2, 4a, and 4b)
Saturation (A3)		Salt Crust	-		_ ` `	Patterns (B10)
Water Marks (B		• =	vertebrates (B13)			n Water Table (C2)
Sediment Depo		<u></u>	Sulfide Odor (C1)		<u></u>	Visible on Aerial Imagery (C9)
Drift Deposits (E	` '		Rhizospheres on Liv	ina Roots (C	<u></u>	ic Position (D2)
Algai Mat or Cru	•		of Reduced Iron (C4		· =	quitard (D3)
Iron Deposits (E			n Reductions in Tille	•		ral Test (D5)
Surface Soil Cra	•	= .	Stressed Plants (D			t Mounds (D6) (LRR A)
<u></u>	le on Aerial Imager	=	olain in Remarks)		Frost-Hea	ve Hummocks (D7) (LRR F)
느	ated Concave Surfa	• • ===	•			
Field Observations						
Surface Water Pres	ent? Yes 🔿	No Depth (in	ches): -	İ		
Water Table Presen		No Depth (in	ches): -	Wetlar	nd Hydrology Prese	nt? Yes 🦳 No 📵
Saturation Present?		No Depth (in			•	
(includes capillary fr	inge)					·
Describe Recorded	Data (stream gauge	, monitoring well, aerial	ohotos, previous ins	pections), if	available:	
Domorko: Ma L. J.	alagia indicatora	nragant	·			
Remarks: No hydr	ologic maicators	ргезепт.				
			•			
			•			•

Project/Site: START 3 - Cement Creek		City/C	ounty: San Jua	n	Sampling Da	ate: 8-26-1	. 1
Applicant/Owner: Environmental Protection Agency		-	-	State:CO	Sampling Po		
Investigator(s):S. Hall, J. Dawson		Section	n, Township, Ra	ange: N/A			
Landform (hillslope, terrace, etc.): Terrace		- Local	relief (concave,	convex, none): None		Slope (%)	:<1
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	7.8995	,	Long: -107.6458		Datum: NA	
Soil Map Unit Name: Quazar-Varden complex, 15 to 6.					cation: None		
Are climatic / hydrologic conditions on the site typical for th			es 📵 No (
	significant!		***	"Normal Circumstances"	,		lo 💽
- [,	_	•		eeded, explain any answe		***	IO (<u>*</u> ,
Are Vegetation Soil or Hydrology SUMMARY OF FINDINGS - Attach site map	naturally p					-	s otc
		g sam	ping point i		, importan		3, etc.
.,,	% Ö		is the Sample		_	•	
1 *	% <u>(</u>		within a Wetla	nd? Yes 💽	No C		
	10 () (1 1			· · · · · · · · · · · · · · · · · · ·
Remarks: Long PEM wetland fringe along west si Significantly disturbed wetland soils - in							
creek and upslope seep. Much of the sur						ia sustaine	a by
VEGETATION - Use scientific names of plan		, area ii		bed by mistoric mining.			
VEGETATION - Use scientific names of plan	Absolute	Domir	nant Indicator	 			
Tree Stratum Plot size:			es? Status	Dominance Test work	sheet:		
1.				Number of Dominant S	pecies		
2.				That Are OBL, FACW, (excluding FAC-):	or FAC		(A)
3.				Total Number of Domin	ont	12334	(~)
4.				Species Across All Stra		8 50	(B)
Sapling/Shrub Stratum Plot size: 520 x 10		= Total	Cover	Percent of Dominant Sp	pecies		
	0	Vaa	FACU-	That Are OBL, FACW, o	or FAC:	80.0 %	(A/B)
Picea engelmannii Salix planifolia	$\frac{8}{2}$	Yes Yes		Prevalence Index work	ksheet:		
3.		1 65	OBL	Total % Cover of:	Mı	ultiply by:	_
4				OBL species	3 x 1 =	53	
5.				FACW species	9 x 2 =	38	
	10	= Total	Cover	100	0 × 3 =	30	Č.
Herb Stratum Plot size 520 x 10	78,9999954 78,9999954			1004	8 x 4 =	₅32	
1. Calamagrostis canadensis	32	Yes	OBL	UPL species	8 x 5 =	40	
2. Carex canescens	15	Yes	OBL	Column Totals: 9	8 (A)	193	(B)
3. Deschampsia cespitosa	18	Yes	FACW	Prevalence Index	= B/A =	1.97	ī.
4. Veratrum tenuipetalum	8	No	Not Listed	Hydrophytic Vegetatio	n Indicators:	ar reduct :	-
5. Juncus parryi	10	No No	FAC FACW+	1 - Rapid Test for H	lydrophytic Vo	egetation	
6. Rhodiola rhodantha	$\frac{1}{3}$	No No	OBL	2 - Dominance Tes			
7. Senecio triangularis 8. Pedicularis groenlandica	1	No	OBL	3 - Prevalence Inde			
9. Luzula comosa	<u></u>	No	- OBL NI	4 - Morphological A data in Remarks	daptations (Pr	rovide supp rate sheet)	orting
10.				5 - Wetland Non-Va			}
		= Total (Cover	Problematic Hydrop			
Woody Vine Stratum Plot size:	- Palgadanici		•	¹ Indicators of hydric soi be present, unless distu			must
1. 2.				Hydrophytic	mocd of probl	Citiauc.	
2.	.000000.2**			Vegetation Yes	♠ . No	C	
		= Total (Cover	Present?		•	İ
% Bare Ground in Herb Stratum 5 %	•						
Remarks: Predominantly PEM. PSS component scar	ttered alo	ng banl	c.				1
•							

Profile Des	cription: (Describ	e to the dep	th needed to docu	ıment the in	dicator o	r confirm	the absence of	indicators.)	00044
Depth	Matrix			ox Features	Tomal	1 2	T	D-	00011
(inches)	Color (moist)	%	Color (moist)	%	Type 1	Loc ²	Texture		marks
SP1 0-10	See remarks						Coarse sand	Could not deter	mine
SP2 0-7	7.5YR 4/6	100					Sandy silt	-	<u> </u>
							-		
									
									
¹ Type: C=Co	 ncentration, D≐Deplet	ion, RM=Redu	ced Matrix, CS=Cove	red or Coated	Sand Grain			² Location: PL=Pore	Lining, M=Matrix
Hydric Soil	ndicators: (Applic	able to all LR	Rs, unless otherwi	se noted.)			Indicators for	Problematic Hydric	Soils ³ :
Histoso	• •	•	Sandy Redo				2 cm Mu	ck (A10)	
	pipedon (A2)		Stripped M				. 🛏	ent Material (TF2)	
	istic (A3)		· · ·	ky Mineral (i		ot MLRA1	. 🔛 ,	llow Dark Surface (TF12)
	en Sulfide (A4) d Below Dark Surfa	ace (A11)	Depleted M	yed Matrix (F latrix (F3)	-2)		X Other (Ex	plain in Remarks)	
· ·	ark Surface (A12)	.00 (/ 1/ 1/		Surface (F6	6)		_		
Sandy N	/lucky Mineral (S1)		Depleted D	ark Surface	(F7)			s of hydrophytic veg hydrology must be i	
Sandy (Sleyed Matrix (S4)		Redox Dep	ressions (F8)			sturbed or problem	
Restrictive I	ayer (if present):							<u> </u>	
Туре: Со	bble, rock						Hydric Soil Pre	esent? Yes 📵	No C
Depth (inc	ches): 10, 7								
Remarks: So	oil pits dug direc	ly adjacent	to channel. SP1	- Coarse n	nulticolor	ed mater	ial, coloration	washes off. SP2	- heavily iron
	ained. Due to pr	edominanc	e of obligate and	facultative	wet vege	tation, ar	nd the presence	of surface water	, soils are
as	sumed to be hyd	ric.							
							•		
HYDROLO	GY								
_	drology Indicators								
	tors (minimum of one	required; chec					<u> </u>	Indicators (minimum c	
High Wa	Water (A1) iter Table (A2)		L i	ined Leaves 2, 4a, and 4		ept	MLR/	-Stained Leaves (B A 1, 2, 4a, and 4b)	except
★ Saturation			Salt Crus				=	age Patterns (B10)	
	arks (B1)	•		vertebrates				eason Water Table	` '
. —	nt Deposits (B2)			Sulfide Odd			≔	tion Visible on Aeri	J , , , ,
·	oosits (B3).		<u></u>	Rhizosphere		g Roots (C	<u> </u>	orphic Position (D2)
	nt or Crust (B4) nosits (B5)	•		of Reduced on Reduction		Saile (CE)		w Aquitard (D3) Neutral Test (D5)	
· ·	Soil Cracks (B6)			r Stressed P			<u> </u>	d Ant Mounds (D6)	(LRR A)
	on Visible on Aerial	Imagery (B7	<u> </u>	plain in Rem		(LIGITA)	بسا	Heave Hummocks	· ·
<u> </u>	Vegetated Concar	• • •	,		,				(, , (,
Field Obser						1.			
Surface Wat	er Present?	Yes 💽 🛚 I	No C Depth (ir	iches):	1				
Water Table	Present?	Yes 🔘	No (Depth (ir	nches):	0	Wetlan	nd Hydrology Pr	resent? Yes 🧿	No C
Saturation P	resent?	Yes 🦲 📋	No C Depth (ir	ches):	0	7			
(includes car	oillary fringe)			nhoton prov	dava inana	otions\ if	ovoilables	· · · · · · · · · · · · · · · · · · ·	
Aerial phot	ographs		nitoring well, aerial					•	
Remarks: La	rge seep area up	slope at toe	of unnamed guld	h. 50 perce	ent creek	influence	e, 50 percent so	ep hydrology su	staining wetland.
'De	ad' fen to north.			•					
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WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Project/Site: START 3 - Cement Creek City/County: San Juan Sampling Date: 8-27-11 Applicant/Owner: Environmental Protection Agency State:CO Sampling Point: WL 9-2 Investigator(s): S. Hall, J. Dawson Section, Township, Range: N/A Local relief (concave, convex, none): None Landform (hillslope, terrace, etc.): Hillslope Slope (%): <1 Lat: 37.9026 Subregion (LRR): E - Rocky Mountain Forests and Rangeland Long: -107.6450 Datum: NAD 83 Soil Map Unit Name: Ouazar-Varden complex, 15 to 65 percent slopes NWI classification: R3UBH Are climatic / hydrologic conditions on the site typical for this time of year? Yes No C (If no, explain in Remarks.) Are Vegetation significantly disturbed? Are "Normal Circumstances" present? Yes Soil X or Hydrology No 💽 Soil [7 naturally problematic? or Hydrology (If needed, explain any answers in Remarks.) Are Vegetation SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Yes 6 No Hydrophytic Vegetation Present? \bigcirc Is the Sampled Area CHydric Soil Present? Yes 6 No within a Wetland? Yes 📵 No C Wetland Hydrology Present? Yes (No Remarks: PEM wetland fringe along east side of creek. This feature and WL 9-1 are part of the same wetland complex, broken by creek bends and other natural and manmade disturbances. Atypical wetland soils - iron water color from mine drainage tints soils in this area. Wetland sustained by creek and groundwater. Much of this area was disturbed by historic mining. **VEGETATION - Use scientific names of plants.** Absolute Dominant Indicator Tree Stratum Plot size: 582 x 10 % Cover Species? Status Dominance Test worksheet: 1. Picea engelmannii 10 Yes FACU-**Number of Dominant Species** That Are OBL, FACW, or FAC 2. (A) (excluding FAC-): 3 3. **Total Number of Dominant** 4. Species Across All Strata: (B) 10 = Total Cover Percent of Dominant Species Sapling/Shrub Stratum Plot size: 582 x 10 That Are OBL, FACW, or FAC: 60.0 % (A/B) 20 FACU-1. Picea engelmanii Yes Prevalence Index worksheet: 2. Salix planifolia 1 No OBL. Total % Cover of: Multiply by: 3 **OBL** species x1 =31 4 **FACW** species x2 =56 5. **FAC** species x3 =27 21 = Total Cover Herb Stratum Plot size 582 x 10 **FACU** species x4 =20 80 1. Calamagrostis canadensis 15 Yes OBL **UPL** species x5 =10 4 OBL 2. Carex canescens No Column Totals: (B) 204 28 3. Deschampsia cespitosa Yes **FACW** Prevalence Index = B/A = 2.27 2 4. Veratrum tenuipetalum No Not Listed Hydrophytic Vegetation Indicators: 5. Juncus parryi 8 No **FAC** 1 - Rapid Test for Hydrophytic Vegetation 11 Yes OBL 6. Senecio triangularis 2 - Dominance Test is >50% <1 No **OBL** 7. Epilobium ciliatum 3 - Prevalence Index is ≤3.0 ¹ No 8. Agrostis scabra **FAC** 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants 1 10. Problematic Hydrophytic Vegetation (Explain) = Total Cover Woody Vine Stratum Plot size: Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 1. Hydrophytic 2. Vegetation Yes No C = Total Cover Present? % Bare Ground in Herb Stratum Remarks: PEM fringe along east side of creek. PSS component scattered along fringe. One disturbance along east bank at mine

tailings. Tailings from the Adams Mine separates this wetland and WL 9-1. A very foul smell emanates from the Adams

mine tailings.

SOIL Sampling Point: WL 9-2 Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (inches) Color (moist) Color (moist) %___Type¹ Loc² **Texture** Remarks Sandy silt SP1 0-7 7.5 YR 4/6 100 ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining, M=Matrix Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) Sandy Redox (S5) 2 cm Muck (A10) Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2) Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA1) Very Shallow Dark Surface (TF12) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) X Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thick Dark Surface (A12) Redox Dark Surface (F6) 3 Indicators of hydrophytic vegetation and Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) wetland hydrology must be present, Sandy Gleyed Matrix (S4) Redox Depressions (F8) unless disturbed or problematic. Restrictive Layer (if present): Type: Cobble, rock Hydric Soil Present? Yes 💽 No C Denth (inches): 7

HYDROLOGY Wetland Hydrology Indica						
Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algai Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on A6	;)		Water-Stained Leave MLRA 1, 2, 4a, and Salt Crust (B11) Aquatic Invertebrate Hydrogen Sulfide Oc Oxidized Rhizosphei Presence of Reduce Recent Iron Reductio Stunted or Stressed Other (Explain in Rei	s (B13) dor (C1) res on Living d Iron (C4) ons in Tilled Plants (D1)	g Roots (C3) Soils (C6)	Secondary Indicators (minimum of two required) Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C) Geomorphic Position (D2) Shallow Aquitard (D3) FAC-Neutral Test (D5) Raised Ant Mounds (D6) (LRR A) Frost-Heave Hummocks (D7) (LRR F)
Sparsely Vegetated Cor Field Observations:	ncave Surface	e (B8)				
Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe)	Yes ① Yes ① Yes ①	No () No ()	Depth (inches): Depth (inches): Depth (inches):	0	Wetland H	ydrology Present? Yes 💿 No (
Describe Recorded Data (str	ream gauge,	monitoring	well, aerial photos, pre	evious inspe	ctions), if avai	lable:
Remarks: Hydrology from	creek and	upslope sp	rings.			

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Project/Site: START 3 - Cement Creek City/County: San Juan Sampling Date: 8-27-11 Applicant/Owner: Environmental Protection Agency State:CO Sampling Point: UP 9-1 Investigator(s): S. Hall, J. Dawson Section, Township, Range: N/A Local relief (concave, convex, none): None Landform (hillslope, terrace, etc.): hillslope Slope (%): 0 Subregion (LRR): E - Rocky Mountain Forests and Rangeland Lat: 37.8991 Long: -107.6452 Datum: NAD 83 Soil Map Unit Name: Quazar-Varden complex NWI classification: N/A Are climatic / hydrologic conditions on the site typical for this time of year? Yes (No ((If no, explain in Remarks.) Are Vegetation Soil | or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No C Soil 🗌 Are Vegetation 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? (e) Yes No is the Sampled Area Hydric Soil Present? Yes No (Yes 🔘 No 💽 within a Wetland? Wetland Hydrology Present? (Yes No Remarks: Upland soil pit for WL 9-1 and WL 9-2. VEGETATION - Use scientific names of plants. Absolute **Dominant Indicator** Tree Stratum Plot size: % Cover Species? Status **Dominance Test worksheet: Number of Dominant Species** That Are OBL, FACW, or FAC 2. (excluding FAC-): (A) 3. **Total Number of Dominant** 4. Species Across All Strata: (B) = Total Cover Percent of Dominant Species Sapling/Shrub Stratum Plot size: That Are OBL, FACW, or FAC: 33.3 % (A/B) 1. Picea engelmannii 2 No FACU-Prevalence Index worksheet: 2. Total % Cover of: Multiply by: 3. **OBL** species x1 =4. **FACW** species 20 x 2 = 40 5. FAC species 1 x3 =2 = Total Cover Herb Stratum Plot size 25 x 25 **FACU** species 42 x4 =168 1. Ligularia amplectens (Senecio amplectens) 20 **FACW UPL** species Yes x 5 = 2. Achillea lanulosa 25 Yes **FACU** (B) Column Totals: 100 (A) 3. Veratrum tenuipetalum 5 No Not Listed 3.96 Prevalence Index = B/A = 4. Fragaria vesca 30 Not Listed Yes Hydrophytic Vegetation Indicators: 5. Agrostis scabra 1 Nο **FAC** 1 - Rapid Test for Hydrophytic Vegetation 5 **FACU** 6. Bromus ciliatus ·No 2 - Dominance Test is >50% 7. Geranium richardsonii 10 No **FACU** 3 - Prevalence Index is ≤3.0 ¹ 2 8. Potentilla hippiana No HPI. 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) 9. 5 - Wetland Non-Vascular Plants 10. Problematic Hydrophytic Vegetation (Explain) = Total Cover Woody Vine Stratum Plot size: Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 1. Hydrophytic 2. Vegetation \circ Yes No (= Total Cover Present? % Bare Ground in Herb Stratum 2 % Remarks: Bare ground = rock/moss/bare. Subalpine meadow community.

Sampling	Point:	UP 9-1	l

Depth Matrix		Redox Featur				0001
inches) Color (moist)	% Color	(moist) %	Type 1	_Loc2	Texture	Remarks
0-8 7.5YR 4/3 1	00			. _	Silt	
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						2
pe: C=Concentration, D=Depletion, RM						² Location: PL=Pore Lining, M=Matri
dric Soil Indicators: (Applicable to Histosol (A1)		•)	•		r Problematic Hydric Soils ³ :
Histic Epipedon (A2)		andy Redox (S5) Stripped Matrix (S6)	•		<u></u>	uck (A10) rent Material (TF2)
Black Histic (A3)		oamy Mucky Miner		ept MLRA1)		allow Dark Surface (TF12)
Hydrogen Sulfide (A4)	. —	oamy Gleyed Matri				xplain in Remarks)
Depleted Below Dark Surface (A1	1) 🗍 🖸	epleted Matrix (F3)		<u> </u>	•
Thick Dark Surface (A12)		Redox Dark Surface	` '		3 Indicate	rs of hydrophytic vegetation and
Sandy Mucky Mineral (S1)		epleted Dark Surfa				hydrology must be present,
Sandy Gleyed Matrix (S4)	∐ F	Redox Depressions	(F8)			disturbed or problematic.
trictive Layer (if present):						
ype:		,		,	Hydric Soil Pr	resent? Yes 🗀 No 💽
Pepth (inches): 8				·		
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PROLOGY	d; check all that a	pply)			Secondary	y Indicators (minimum of two required)
ROLOGY land Hydrology Indicators: ary Indicators (minimum of one required Surface Water (A1)		^{pply)} Water-Stained Lea MLRA 1, 2, 4a, a n		cept	Wate	y Indicators (minimum of two required) r-Stained Leaves (B9) (except A 1, 2, 4a, and 4b)
ROLOGY Iand Hydrology Indicators: ary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3)		Water-Stained Lea		cept	Wate MLR	r-Stained Leaves (B9) (except A 1, 2, 4a, and 4b) age Patterns (B10)
ROLOGY Iand Hydrology Indicators: ary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)		Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra	tes (B13)	cept	Wate MLR Drain Dry-S	r-Stained Leaves (B9) (except AA 1, 2, 4a, and 4b) age Patterns (B10) Season Water Table (C2)
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ROLOGY land Hydrology Indicators: ary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)		Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph	d 4b) tes (B13) Odor (C1) neres on Livi	ng Roots (C	Wate MLR Drain Dry-S Satur Geon	r-Stained Leaves (B9) (except A 1, 2, 4a, and 4b) lage Patterns (B10) Season Water Table (C2) lation Visible on Aerial Imagery (C
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tland Hydrology Indicators: hary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algai Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Sparsely Vegetated Concave Surface Water Present? Ide Table Present? Ves Causer Surface (B1) Ves Causer Causer (B2)	ry (B7)	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduce Recent Iron Reduce Stunted or Stresse Other (Explain in Filter Depth (inches): Depth (inches):	tes (B13) Odor (C1) teres on Livi ced Iron (C4 tions in Tille d Plants (D1 temarks)	ng Roots (C:) d Soils (C6) I) (LRR A) Wetlan	Wate MLR Drain Satur Shall FAC Raise Frost	r-Stained Leaves (B9) (except A 1, 2, 4a, and 4b) lage Patterns (B10) Season Water Table (C2) lation Visible on Aerial Imagery (Conorphic Position (D2) low Aquitard (D3) lation Test (D5) led Ant Mounds (D6) (LRR A) lation Application (LRR A) lation Application (LRR A)
tland Hydrology Indicators: ary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algai Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Sparsely Vegetated Concave Surface Water Present? Yes Couration Present? Yes Couration Present? Indees capillary fringe) Coribe Recorded Data (stream gauge	ry (B7) ace (B8) No (No () No () No ()	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduce Recent Iron Reduce Stunted or Stresse Other (Explain in Filter Depth (inches): Depth (inches):	tes (B13) Odor (C1) teres on Livi ced Iron (C4 tions in Tille d Plants (D1 temarks)	ng Roots (C:) d Soils (C6) I) (LRR A) Wetlan	Wate MLR Drain Satur Shall FAC Raise Frost	r-Stained Leaves (B9) (except A 1, 2, 4a, and 4b) lage Patterns (B10) Season Water Table (C2) lation Visible on Aerial Imagery (Conorphic Position (D2) low Aquitard (D3) lation Test (D5) led Ant Mounds (D6) (LRR A) lation Application (LRR A) lation Application (LRR A)
chand Hydrology Indicators: lary Indicators (minimum of one required Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algai Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Sparsely Vegetated Concave Surface Water Present? Tace Water Present? Table Present? Table Present? Table Present? Table Curation Present? Table Recorded Data (stream gauge)	ry (B7) ace (B8) No (No () No () No ()	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduce Recent Iron Reduce Stunted or Stresse Other (Explain in Filter Depth (inches): Depth (inches):	tes (B13) Odor (C1) teres on Livi ced Iron (C4 tions in Tille d Plants (D1 temarks)	ng Roots (C:) d Soils (C6) I) (LRR A) Wetlan	Wate MLR Drain Satur Shall FAC Raise Frost	r-Stained Leaves (B9) (except A 1, 2, 4a, and 4b) lage Patterns (B10) Season Water Table (C2) lation Visible on Aerial Imagery (Conorphic Position (D2) low Aquitard (D3) lation Test (D5) led Ant Mounds (D6) (LRR A) lation Application (LRR A) lation Application (LRR A)
High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algai Mat or Crust (B4) Iron Deposits (B5) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Sparsely Vegetated Concave Surface Water Present? Yes Content of Market Present?	ry (B7) ace (B8) No (No () No () No ()	Water-Stained Lea MLRA 1, 2, 4a, an Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide (Oxidized Rhizosph Presence of Reduce Recent Iron Reduce Stunted or Stresse Other (Explain in Filter Depth (inches): Depth (inches):	tes (B13) Odor (C1) teres on Livi ced Iron (C4 tions in Tille d Plants (D1 temarks)	ng Roots (C:) d Soils (C6) I) (LRR A) Wetlan	Wate MLR Drain Satur Shall FAC Raise Frost	r-Stained Leaves (B9) (except A 1, 2, 4a, and 4b) lage Patterns (B10) Season Water Table (C2) lation Visible on Aerial Imagery (Conorphic Position (D2) low Aquitard (D3) lation Test (D5) led Ant Mounds (D6) (LRR A) lation Application (LRR A) lation Application (LRR A)

Project/Site: START 3 - Cement Creek		City/C	ounty: San Jua	nn s	Sampling Date: 8-25-11
Applicant/Owner: Environmental Protection Agency		_		State:CO S	Sampling Point: WL 10-1
Investigator(s): S. Hall, A. Ballman		Section	on, Township, Ra	ange: N/A	
Landform (hillslope, terrace, etc.): Hillslope		Local	relief (concave,	convex, none): None	Slope (%): 6
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	- 7.9085		Long: -107.6406	Datum: NAD 83
Soil Map Unit Name: Cryaquolls-Typic Cryaquents co	mplex, 1	to 5 per	rcent slopes	NWI classification	
Are climatic / hydrologic conditions on the site typical for the				· · · · · · · · · · · · · · · · · · ·	
	significantl			"Normal Circumstances" pre	
	naturally p	-		eeded, explain any answers	
SUMMARY OF FINDINGS - Attach site map			·	•	
Hydrophytic Vegetation Present? Yes	No (Is the Sample	d Area	
	۰۰ Ö		within a Wetla		No C
Wetland Hydrology Present? Yes • 1	40 C		•		4.
Remarks: Large PEM wetland abutting stream, su Stream forms confluence with Cement	Creek dov				
VEGETATION - Use scientific names of plan	Absolute	Domi	nant Indicator		
Tree Stratum Plot size:			es? Status	Dominance Test worksh	heet:
1				Number of Dominant Spe	
2	. — 			That Are OBL, FACW, or (excluding FAC-):	FAC (A)
3				Total Number of Dominar	1386.24
4	3 98.55	<u>-</u>	 	Species Across All Strata	12007900954212
Sapling/Shrub Stratum Plot size: 1,531 x 10		= Total	Cover	Percent of Dominant Spe- That Are OBL, FACW, or	
1. Salix planifolia	1	No	OBL		Transfordation
2				Prevalence Index works Total % Cover of:	neet: Multiply by:
3.				OBL species 95	******
5.				FACW species 2	x 2 = 4
J	75184	= Total	Covor	FAC species 2	x 3 = 6
Herb Stratum Plot size 1,531 x 10	120	- Total	Cover .	FACU species	x 4 = 0
1. Carex canescens	87	Yes	OBL	UPL species	x 5 = 0
2. Carex rostrata	5	No	OBL	Column Totals: 99	(A) 105 (B)
3. Juncus parryi	11	No	FAC	Prevalence Index =	B/A = 1.06
4. Agrostis scabra	1	No	FAC	Hydrophytic Vegetation	1 20 1000 0 0
5. Calamagrostis canadensis	2	No	OBL	1 - Rapid Test for Hy	
6. Deschampsia cespitosa	2	No	FACW	2 - Dominance Test i	s >50%
7. Rhodiola rhodantha 8. Veratrum tenuipetalum	<u><1</u>	No No	FACW+	3 - Prevalence Index	
9. Unknown Carex	<u> <1</u>	No No	Not Listed	4 - Morphological Ada	aptations¹(Provide supporting r on a separate sheet)
10.				5 - Wetland Non-Vaso	
	98	= Total	Cover		ytic Vegetation¹ (Explain)
Woody Vine Stratum Plot size:	**************************************			Indicators of hydric soil a be present, unless disturt	and wetland hydrology must
1.				Hydrophytic	bed of problematic.
2.	1100000				● No C
		= Total (Cover	Present?	
% Bare Ground in Herb Stratum 1 %					
Remarks: Bare ground = moss. Well vegetated with					
Extensive moss ledges observed in stream Carex" on Line 9 could not be identified.	ı. Sanx pl	annon	a neignts are le	ess man o inches here. Pi	ka observed. "Unknown
· ·					3

Profile Des	cription: (Describe	to the depth n		he indicator or confirm	n the absence of	
Depth (inches)	Matrix Color (moist)	<u> </u>	Redox Feat		Texture	00012
SP1 0-11	10YR 2/1	100	20101 (1110100)		Silty loam	Fibrous, mucky
Hydric Soil I X Histosoi Histic E Black H X Hydroge Deplete Thick D	ndicators: (Applicat	ole to all LRRs, [[[Matrix, CS=Covered or Counless otherwise noted Sandy Redox (S5) Stripped Matrix (S6 Loamy Mucky Mine Loamy Gleyed Matrix (F Redox Dark Surface Depleted Dark Sur	d.) eral (F1) (except MLRA trix (F2) 3) se (F6)	2 cm Mu Red Pare Very Sha Other (Ex	ent Material (TF2) allow Dark Surface (TF12) cplain in Remarks) rs of hydrophytic vegetation and
	Gleyed Matrix (S4)		Redox Depression			hydrology must be present, isturbed or problematic.
Type: Depth (inc	oil pit taken at drie			be dug in inundated matter, Layer 2 cont		on CSU Soil Laboratory analysis
_	drology Indicators:	· · · · · · · · · · · · · · · · · · ·			· 	
	tors (minimum of one re	quired; check all	that apply)	·		Indicators (minimum of two required)
High Water M Sedimer Drift Der Algai Ma Iron Der Surface Inundation	Water (A1) Iter Table (A2) In (A3) Iarks (B1) In Deposits (B2) Iterior Crust (B4) In Crust (B4) In Cracks (B6) In Visible on Aerial In Iterior Vegetated Concave		MLRA 1, 2, 4a, a Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu	rates (B13) Odor (C1) Oheres on Living Roots (Luced Iron (C4) Luctions in Tilled Soils (Cl Led Plants (D1) (LRR A)	MLR/ Draina Dry-S Satura Geom Shallo FAC- Raise	-Stained Leaves (B9) (except A 1, 2, 4a, and 4b) age Patterns (B10) eason Water Table (C2) ation Visible on Aerial Imagery (C9) eorphic Position (D2) ew Aquitard (D3) Neutral Test (D5) d Ant Mounds (D6) (LRR A) Heave Hummocks (D7) (LRR F)
Field Obser						
Surface Water Water Table Saturation Pro (includes cap Describe Red Aerial photo	Present? Yeresent? Yeresent? Yeresent? Yeresent? Sorded Data (stream	es No (es No (es No (es No (es monitor	Depth (inches): Depth (inches):	N/A 9 0 previous inspections),	and Hydrology Po	resent? Yes 💿 No 🖰
a d	efined stream, flow drainage also flow	ving to the so ws to an adjac	uthwest, forming a cent fen. A majority	confluence with Cem	nent Creek down ated (2 to 4 inch	upland sources. Drainage forms astream of wetland. A portion of es throughout). Reduced iron

Project/Site: START 3 - Cement Creek		City/C	County: San Juan	n	Sampling [Date: 8-25-11
Applicant/Owner: Environmental Protection Agency		-		State:CO	- Sampling F	Point: UP 10-1
Investigator(s): J. Dawson, S. Hall, A. Ballman		Section	on, Township, Ra	ange: N/A	-	
Landform (hillslope, terrace, etc.): Hillslope		- Local	I relief (concave,	convex, none): None		Slope (%): 2
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 3'	-		Long: -107.6408		Datum: NAD 83
Soil Map Unit Name: Whitecross-Rock outcrop compl					cation: N/A	
Are climatic / hydrologic conditions on the site typical for the						
Are Vegetation Soil or Hydrology	significantl			"Normal Circumstances"	,	es 💽 No 🔘
	naturally pr	•		eeded, explain any answe	-	
SUMMARY OF FINDINGS - Attach site map			•			•
Hydrophytic Vegetation Present? Yes	No (🕞		la 4h a Cla			· · · ·
	No (e)		Is the Sample within a Wetla	_	No (e)	.
l	No (🕞		within a vvetia	nur res 💔	MO (â)	F
Remarks: Upland soil pit for WL 10-1. Located on	hillslope	northy	vest of wetland	west of Cement Cree	<u> </u>	
	•		•			
VEGETATION - Use scientific names of plan			***			
Tree Stratum Plot size:	Absolute % Cover		nant Indicator ies? Status	Daminana Tast ward	lea la ante	•
1.	<u> 70 00101</u>	<u> </u>		Number of Dominant S		•
2.				That Are OBL, FACW,		
3.				(excluding FAC-):		(A)
4.				Total Number of Domir Species Across All Stra		(B)
75 25		= Total	Cover	Percent of Dominant S		
Sapling/Shrub Stratum Plot size: 25 x 25				That Are OBL, FACW,		0.0 % (A/B
1. Picea engelmannii	<u> </u>	No	FACU+	Prevalence Index wor	ksheet:	
2.	-	·		Total % Cover of:		fultiply by:
4.				OBL species	x1=	10.21000 htt.
5.				FACW species	0 x 2 =	Ö.
	0	= Total	Cover	FAC species	x 3 =	0
Herb Stratum Plot size 25 x 25	1.41244.77			FACU species	10 x 4 =	40
1. Lupinus argenteus	35	Yes	Not Listed	UPL species	95 x 5 =	4 <i>7</i> .5
2. Frageria vesca		Yes	<u>NI </u>	Column Totals:	05 (A)	<i>515</i> (B
3. Geranium richardsonii		No	FACU	Prevalence Index	= B/A =	4.90
4. Achillea lanulosa		No	NI NI	Hydrophytic Vegetation		mannay .
5. Festuca thurberi		No	NI FACILI	1 - Rapid Test for		
6. Taraxacum officinale 7. Potentilla pulcherrima		No No	FACU+ NI	2 - Dominance Tes		
8. Rhodiola rhodantha		No	FACW+	3 - Prevalence Inde		.
9. Silene scouleri	 -	No	NI NI	4 - Morphological A data in Remarks		
10.Leucanthemum vulgare		No	Not Listed	5 - Wetland Non-V	ascular Plant	s¹
		= Total		Problematic Hydro		
Woody Vine Stratum Plot size:	346,44.2			¹ Indicators of hydric so be present, unless dist		
1.				Hydrophytic		
-	- Takes	_ T-: :		Vegetation Yes	O N	lo 🖲
N. D Constant in Under Street		= Total	Cover	Present?		
% Bare Ground in Herb Stratum 0 %		1_1_		\1 T		
Remarks: Subalpine meadow community on sunny,	, rocky nil	isiope	near Cement C	reek. Less mesic than	other areas	.
						:
						•

Sampling Point: UP 10-1

ì	cription: (Descri		epth need			or confirm	the a	bsence of	indicato	rs.)	0001	2
Depth (inches)	Color (moist)	%	Colo	Redox (r (moist)	Features % Type ¹	Loc ²	Te	xture		Reim	0001	4
SP1 0-4	10YR 4/3	100		. (silt			_
3110-4	10110 113			······································								_
										 		
			.			· · · · · · · · · · · · · · · · · · ·					· · · · · · · · · · · · · · · · · · ·	
				-, .								
				·								
	100.00.00					 ·				7.011.1		_
	ncentration, D=Deple					ains					ning, M=Matrix	_
1 🔿	ndicators: (Appli	able to all	_				Ind	_		atic Hydric S	oils³:	
Histosol	(A1) pipedon (A2)		<u></u>	Sandy Redox (S Stripped Matri	•		<u> </u>	2 cm Mu		:-! (TEO)		
1 ====	istic (A3)				Mineral (F1) (exc	ent MLRA	ո ⊢	₫	ent Mater	iai (1F2) «Surface (Ti	F12\	
<u> </u>	en Sulfide (A4)			Loamy Gleyed			" -	,	oplain in F	•		
Deplete	d Below Dark Sur	ace (A11)		Depleted Matr				. `	•	,		
l <u></u>	ark Surface (A12)		LJ	Redox Dark S	` '			3 Indicator	rs of hydr	ophytic vege	etation and	
· <u></u>	Mucky Mineral (S1			Depleted Dark				wetland	hydrology	must be pr	esent,	
	Gleyed Matrix (S4)			Redox Depres	Sions (F8)		·	unless d	isturbed o	or problemat	ic.	
	_ayer (if present)	:					l			0		
Type:							Hyd	ric Soil Pr	esent?	Yes (No 💽	
Depth (inc	ches): 4 ncountered rock									-		
						÷						
HYDROLO	GY											_
	drology Indicator	 's:										_
Primary Indica	tors (minimum of on	erequired; ch	neck all that	apply)				Secondary	Indicators	(minimum of t	wo required)	
	Water (A1) ater Table (A2)			Water-Staine MLRA 1, 2,	d Leaves (B9) (e) 4a, and 4b)	ccept				Leaves (B9) , and 4b)	(except	
Saturation	• •		. [Salt Crust (B	11)	•		Drain	age Patte	rns (B10)	•	
=	larks (B1)				rtebrates (B13)					ater Table (C	•	
	nt Deposits (B2)		<u></u>		ulfide Odor (C1)						Imagery (C9)	
	posits (B3)		Ļ		zospheres on Liv		C3)	=	•	osition (D2)		
	nt or Crust (B4)		<u> </u>		Reduced Iron (C4 Reductions in Tille	•	:1	=	ow Aquita Neutral T			
	osits (B5) Soil Cracks (B6)		.		tressed Plants (D	=	''			est (D3) unds (D6) (L	RR A)	
	on Visible on Aeria	al imagery (B7)		in in Remarks)	·/ (EIGIC A)		<u></u>		ummocks (D	•	
	Vegetated Conca	• • •		, ,	•						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Field Obser												_
Surface Wat	er Present?	Yes 🔿	No 📵	Depth (inch	es): -							
Water Table	Present?	Yes 🔘	No 📵	Depth (inch	es): -	Wetla	nd Hy	drology P	resent?	Yes 🔘	No 📵	
Saturation Projection (includes car	oillary fringe)	Yes 🔿	No 💽	Depth (inch	· 							
Describe Re- Aerial phot	corded Data (streat ographs	ım gauge, r	nonitoring	well, aerial ph	otos, previous ins	pections), if	availa	able:				
Remarks: N	o hydrologic in	licators pr	esent.									
	·•											
						,						

000123

Project/Site: START 3 - Cement Creek		City/C	County: San Jua	n	Sampling [ate:8-22-2	011
Applicant/Owner: Environmental Protection Agency	,	_		State:CO	- Sampling P	oint: WL 1	1-1-SP
Investigator(s): A. Ballman, J. Dawson		Section	on, Township, Ra	ange: N/A	•		
Landform (hillslope, terrace, etc.): Colluvial Fan		Loca	I relief (concave,	convex, none): None		Slope (%)):1-33
Subregion (LRR): E - Rocky Mountain Forests and Rangelai	nd Lat: 3	- 7.9101	,	Long: -107.6315		Datum:NA	
Soil Map Unit Name: Whitecross-Rock outcrop com			rent slones		cation: R3UI		
Are climatic / hydrologic conditions on the site typical for	<u> </u>						
	-				•	\	L (C)
	significant	•		"Normal Circumstances"			√ 0 (●)
Are Vegetation Soil Or Hydrology SUMMARY OF FINDINGS - Attach site ma	naturally p		•	eeded, explain any answe		,	is oto
30MMART OF FINDINGS - Attach site ma	ip snowing	y saiii	ping ponit i	ocations, transects	, importar		s, etc.
Hydrophytic Vegetation Present? Yes	No C		is the Sample	d Area			
Hydric Soil Present? Yes	No ()		within a Wetla	nd? Yes 🕞	No C		
Wetland Hydrology Present? Yes	No C						
Remarks: Stream terrace below seepage area.	Marginal w	etland i	indicators and	no hydric soils present	•		
	1						
VEGETATION - Use scientific names of plants	ante				**-		
VEGETATION - Use scientific flames of pie	Absolute	Domi	nant Indicator				_
Tree Stratum Plot size:	% Cover	Spec	ies? Status	Dominance Test work	sheet:		
1. <i>None</i>			· · · · · · · · · · · · · · · · · · ·	Number of Dominant S			
2				That Are OBL, FACW, (excluding FAC-):	or FAC	2	(A)
3				Total Number of Domin	ant	75-96LE35Q-135	, ,
4				Species Across All Stra	ıta:	3	(B)
Sapling/Shrub Stratum Plot size:		= Total	Cover	Percent of Dominant S		- 30200000000000000000000000000000000000	
1. Salix planifolia	1	No	OBL	That Are OBL, FACW,	or FAC:	66.7%	(A/B)
2.				Prevalence Index wor	ksheet:		
3.	-			Total % Cover of:	<u> </u>	ultiply by:	. .
4.				OBL species	1 x1=	1	ķ.
5.				12.	45 x 2 =	90	
Herb Stratum Plot size 53 x 10	1	= Total	Cover	1.73	29 x3=	87	
	20	Voc	EACW	FACU species	x4=	10	
1. Deschampsia cespitosa 2. Juncus parryi	$-\frac{30}{25}$	Yes Yes			25 x 5 =	125	
3. Carex albonigra	$-\frac{23}{20}$	Yes		Column Totals:	00 (A)	303	} (B)
4. Carex nigricans	$-\frac{20}{15}$	No No		Prevalence Index	= B/A =	3.0	3
5. Sibbaldia procumbens		No	Not Listed	Hydrophytic Vegetation			
6. Phleum alpinum		No	FAC	1 - Rapid Test for I		egetation/	
7. Polygonum viviparum	1	No	FAC+	2 - Dominance Tes		•	
8. Gentiana acuta	<1	No	FAC	4 - Morphological A		Provide supr	orting
9. Carex illota	<1	No	OBL	data in Remarks	or on a sepa	arate sheet)	9
10. Pedicularis groenlandica	<1	No	OBL	5 - Wetland Non-Va		•	
Woody Vine Stratum Plot size:	99	= Total	Cover .	Problematic Hydror Indicators of hydric so			
1.None				be present, unless dist			must !
2.				Hydrophytic		_	
		= Total	Cover	Vegetation Yes Present?	● N	• <u>C</u>	ļ
% Bare Ground in Herb Stratum 8 %				. resenti			
Remarks: Bare Ground = mostly small pockets of	pooling wa	iter: so:	me rocks and I	itter present			
Additional non-dominant, herb stratum	-	-		-	alum		
	- •		•	1			
					•		i

(inches)	Color (moist)	<u> </u>	Redox Features Color (moist) % Type	1 Loc²	Texture	Rema	00012
0-2	7.5YR 5/2	100			Fibrous loam	Many roots	
2-7	7.5YR 3/4	100			Gravelly loam		
7-9	7.5YR 3/4	100				More gravel than	roots
		·					
¹Type: C=Co	ncentration, D=Deple	etion, RM=Re	duced Matrix, CS=Covered or Coated Sand C			² Location: PL=Pore Lin	ing, M=Matrix
Histoso Histic E Black H Hydrogo Deplete Thick D Sandy I		face (A11)	RRs, unless otherwise noted.) Sandy Redox (S5) Stripped Matrix (S6) Loamy Mucky Mineral (F1) (e Loamy Gleyed Matrix (F2) X Depleted Matrix (F3) Redox Dark Surface (F6) Depleted Dark Surface (F7) Redox Depressions (F8)	xcept MLRA	2 cm Muc Red Pare Very Shal Other (Exp	nt Material (TF2) low Dark Surface (TF blain in Remarks) of hydrophytic vegel ydrology must be pre	12) ation and esent,
	Layer (if present)				unless dis	sturbed or problemation	C.
	cks/Cobble/Gra		·		Hydric Soil Pre	sent? Yes 🕞	No C
Depth (in				•			110
IYDROLO	GY .	 					
	drology Indicator						
Primary Indica Surface	drology Indicator ators (minimum of one Water (A1) ater Table (A2)		eck all that apply) Water-Stained Leaves (B9) (MLRA 1, 2, 4a, and 4b)	except	Water-	ndicators (minimum of tw Stained Leaves (B9) 1, 2, 4a, and 4b)	
Primary Indica Surface High Wa Saturatio Water M Sedimer Drift Dep Algai Ma Iron Dep Surface	water (A1) ater Table (A2) on (A3) flarks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria	e required; ch	Water-Stained Leaves (B9) (MLRA 1, 2, 4a, and 4b) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (C1) Recent Iron Reductions in Till Stunted or Stressed Plants (C1) Other (Explain in Remarks)	iving Roots (C4) lled Soils (C6 D1) (LRR A)	Water- MLRA Draina Dry-Se Satural C3) Geomo Shallov FAC-N Raised	Stained Leaves (B9)	(except 2) Imagery (C9)
Primary Indica Surface High Wa Saturation Water M Sedimer Drift Dep Algai Ma Iron Dep Surface Inundation Sparsely	water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Conca	e required; ch	Water-Stained Leaves (B9) (MLRA 1, 2, 4a, and 4b) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (C1) Recent Iron Reductions in Till Stunted or Stressed Plants (C1) Other (Explain in Remarks)	iving Roots (C4) lled Soils (C6 D1) (LRR A)	Water- MLRA Draina Dry-Se Satural C3) Geomo Shallov FAC-N Raised	Stained Leaves (B9) 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (Cition Visible on Aerial Interphic Position (D2) Aquitard (D3) leutral Test (D5) Ant Mounds (D6) (Li	(except 2) Imagery (C9) RR A)
Primary Indica Surface High Wa Saturatio Water M Sedimer Drift Dep Algai Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Water Table Saturation Primary Indicated Water Table	water (A1) Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria vegetated Concavations: er Present? Present?	e required; ch	Water-Stained Leaves (B9) (MLRA 1, 2, 4a, and 4b) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (C1) Recent Iron Reductions in Till Stunted or Stressed Plants (C1) Other (Explain in Remarks)	iving Roots (C4) lled Soils (C6 D1) (LRR A)	Water- MLRA Draina Dry-Se Satural C3) FAC-N Raised Frost-N	Stained Leaves (B9) 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (Cition Visible on Aerial Interphic Position (D2) Aquitard (D3) leutral Test (D5) Ant Mounds (D6) (Li	(except 2) Imagery (C9)
Primary Indica Surface High Wa Saturatio Water M Sedimer Drift Dep Algai Ma Iron Dep Surface Inundatio Sparsely Field Obser Surface Water Table Saturation Policincludes car	waters (minimum of one Water (A1) ater Table (A2) on (A3) Marks (B1) at Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aeria y Vegetated Concavations: er Present? Present? present? present? present? present? present? present? present? present? present? present?	al Imagery (I ave Surface Yes () Yes () Yes ()	Water-Stained Leaves (B9) (MLRA 1, 2, 4a, and 4b) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on L Presence of Reduced Iron (Recent Iron Reductions in Ti Stunted or Stressed Plants (37) Other (Explain in Remarks) (B8) No Depth (inches): -	iving Roots (C4) lled Soils (C6 D1) (LRR A)	Water- MLRA Draina Dry-Se Satural C3) Geomo Shallov FAC-N Raised Frost-H	Stained Leaves (B9) 1, 2, 4a, and 4b) ge Patterns (B10) ason Water Table (Cition Visible on Aerial Interphic Position (D2) Aquitard (D3) leutral Test (D5) Ant Mounds (D6) (Lition Heave Hummocks (D7)	(except 2) Imagery (C9) RR A) 7) (LRR F)

000125

Project/Site: START 3 - Cement Creek		City/C	ounty: San J	uan	Sampling Date:8-22-2011
Applicant/Owner: Environmental Protection Agency		<u></u>		State:CO	Sampling Point: WL 11-1-SP 4
Investigator(s): A. Ballman, J. Dawson		Section	on, Township,	Range: N/A	
Landform (hillslope, terrace, etc.): Colluvial Fan		Local	relief (concav	e, convex, none):None	Slope (%):1-2
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	7.9102		Long: -107.6333	Datum: NAD 83
Soil Map Unit Name: Whitecross-Rock outcrop compl	ex, 45 to	75 perc	ent slopes	NWI classific	cation: R3UBH
Are climatic / hydrologic conditions on the site typical for the	nis time of y	/ear? Y	es 💽 No	(If no, explain in R	lemarks.)
Are Vegetation Soil or Hydrology	significant	y disturl	bed? A	re "Normal Circumstances" p	present? Yes 💽 No 🦳
Are Vegetation Soil or Hydrology	naturally p	roblema	atic? (II	f needed, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	g sam	pling point	t locations, transects,	, important features, etc.
Hydrophytic Vegetation Present? Yes	No C		Is the Samp	led Area	
1	No C	İ	within a Wet		No C
Wetland Hydrology Present? Yes	No C	ľ			
Remarks: Soil pit 4 location on Map 10 along Cer					
Mogul mine point source. PEM fringe of and creek flow.	on both si	des of t	he creek. W	etland appears to be susta	ined by groundwater seepage
		• •		· · · · · · · · · · · · · · · · · · ·	
VEGETATION - Use scientific names of plan	Nts. Absolute	Domi	nant Indicator	.	· · · · · · · · · · · · · · · · · · ·
Tree Stratum Plot size:			ies? Status	Dominance Test work	sheet:
1. None				Number of Dominant S	pecies
2.				That Are OBL, FACW, (or FAC
3.	-			(excluding FAC-):Total Number of Domin	mre, gera.
4.	_			Species Across All Stra	- distribution
Sapling/Shrub Stratum Plot size: 498 x 10		= Total	Cover	Percent of Dominant Sp	an entropy and a second
1. Salix planifolia	<1	No	OBL	That Are OBL, FACW, o	or FAC: 100.0 % (A/B)
2.				Prevalence Index work	ksheet:
3.				Total % Cover of:	Multiply by:
4.				1/6/17	3 x1= 3
5.					90 x 2 = 180
U-+ State - 108 v 10	0	= Total	Cover	FAC species	0 x 3 = 30
Herb Stratum Plot size 498 x 10	5.5	3.7	T. 6111	FACU species	x 4 = 0
1. Carex nigricans	$-\frac{55}{35}$	Yes Yes		UPL species	x5= 0
Deschampsia cespitosa Juncus parryi	- 35 10	No	FACW FAC	_ Column Totals:	03 (A) 213 (B)
4. Senecio triangularis	$-\frac{10}{3}$	No	OBL	Prevalence Index	= B/A = 2.07
5. Phleum alpinum	- 	No	FAC	Hydrophytic Vegetation	
6.					Hydrophytic Vegetation
7.				 2 - Dominance Tes 3 - Prevalence Inde 	
8.				2000.	daptations (Provide supporting
9.				data in Remarks	or on a separate sheet)
10.				5 - Wetland Non-Va	
Woody Vine Stratum Plot size:	103	= Total	Cover		phytic Vegetation¹ (Explain) il and wetland hydrology must
1.None				be present, unless dist	
2.				Hydrophytic	
	72.23	= Total	Cover	- Vegetation Yes	● No C
% Bare Ground in Herb Stratum 12 %		. 5.01		Present?	
Remarks: Bare Ground = mostly small pockets of p	ooling w	iter and	mosses (~?	-3%): some rocks and litt	ter present
Senecio triangularis was localized along	_				. -
		J	<i>3</i>		,

Profile Des	cription: (Describe	to the dep	oth needed to	document the	e indicator	or confirm	the absence of i	ndicators.)	00012
Depth	Matrix (Section 1)	%	Colon (man	Redox Featur		Loc ²	Tankana	D-	0
(inches)	Color (moist)		Color (mo		Type ¹		Texture		marks
0-5	7.5YR 4/3		10YR 5		- RM			Mottles were als	so within matrix
5-8	2.5Y 5/4	85	10YR 5	/8 15	RM	<u>M</u>	Fibrous sand		
8-14	2.5/5B	100			·		Fibrous sandy		
	-				· · · · · · · · · · · · · · · · · · ·				
					·				
									
¹ Type: C=Cor	ncentration, D=Depletion	on, RM=Redu	iced Matrix, CS	=Covered or Coa	ted Sand Gra	ins		² Location: PL=Pore I	Lining, M=Matrix
Hydric Soil I	ndicators: (Applica	ble to all LR	Rs, unless ot	nerwise noted.)			Indicators for F	Problematic Hydric	Soils ³ :
Histosol	` '			Redox (S5)			2 cm Muc	k (A10)	
	pipedon (A2)			ed Matrix (S6)	-1 (54) 4			nt Material (TF2)	
ı = =	istic (A3) en Sulfide (A4)		<u></u>	y Mucky Minera y Gleyed Matri:		ept MLRA		low Dark Surface (' blain in Remarks)	ΓF12)
	d Below Dark Surfa	ce (A11)		ted Matrix (F3)			Other (Ext	nam in Remarks)	
· 😐 ·	ark Surface (A12)			x Dark Surface			2		
. –	Mucky Mineral (\$1)			ted Dark Surfa				of hydrophytic veg ydrology must be p	
	Gleyed Matrix (S4)		Redo	x Depressions	(F8)		unless dis	sturbed or problem	atic.
	ayer (if present):								
Type:	-h-a-\-			• •			Hydric Soil Pres	sent? Yes 💽	No C
Depth (inc	· · · · · · · · · · · · · · · · · · ·		11 105				<u></u>		
	any roots present ottles faded quick								
141	otties laded quier	ciy arter ex	sposure to o	tygen.					
								•	
HYDROLO	GY				·		,		
	drology Indicators	:							
Primary Indica	tors (minimum of one r	equired; chec	k all that apply)				Secondary I	ndicators (minimum o	f two required)
	Water (A1)			er-Stained Leav		cept		Stained Leaves (B9)) (except
	iter Table (A2)				u 4b)	•		•	
Saturation	arks (B1)			Crust (B11) atic Invertebrat	oc (P12)			ge Patterns (B10) ason Water Table ((C3)
	nt Deposits (B2)			rogen Sulfide C	` '			ion Visible on Aeria	
	oosits (B3)			lized Rhizosph		na Roots (rphic Position (D2)	
<u> </u>	t or Crust (B4)		=	sence of Reduc		-	· <u></u>	v Aquitard (D3)	
Iron Dep	osits (B5)			ent Iron Reduct	•	•) FAC-N	leutral Test (D5)	
Surface	Soil Cracks (B6)		. Stur	nted or Stressed	d Plants (D1) (LRR A)	Raised	Ant Mounds (D6)	(LRR A)
	on Visible on Aerial		<i>,</i> —	er (Explain in R	emarks)		Frost-F	leave Hummocks (D7) (LRR F)
	Vegetated Concav	e Surface (E	38)						
Field Observ		es 📵 🔞	No C Do	oth (iriohoo):	0			•	
	•			oth (inches):		- Watta	nd Usedrologic Dre	noomt? Von G	
Water Table				oth (inches):	8	- Wella	nd Hydrology Pre	esent? Yes 💽	No C
Saturation Pr (includes cap		′es ⑥ 1	No C Del	oth (inches):	. 0				
Describe Red	corded Data (stream	gauge, mo	nitoring well,	aerial photos, p	revious insp	ections), if	available:		•
Aerial photo	ograph	•							
	turation at the sur								
	rface water seepa							its were observed	I where seepage
wa	s present. Seepag	ge and iron	deposits we	re not presen	t at the soil	l sample l	location.	•	
									ļ

Project/Site: START 3 - Cement Creek		City/C	County:	San Jua	an	Sampling [Date: 8-22-2	2011
Applicant/Owner: Environmental Protection Agency		_			State:CO	Sampling F	Point:11-1-S	P 1
Investigator(s):A. Ballman, J. Dawson		Section	on, Tov	vnship, Ra	ange: N/A			
Landform (hillslope, terrace, etc.): Colluvial Fan		Loca	l relief (concave,	convex, none): None		Slope (%)	: 1-2
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 3	- 7.9100			Long: -107.6312		Datum: N.	AD 83
Soil Map Unit Name: Whitecross-Rock outcrop comple	ex, 45 to	75 perc	cent slo	opes	NWI classific	ation: None	:	
Are climatic / hydrologic conditions on the site typical for th	is time of	year? Y	′es 📵	No ((If no, explain in R	.emarks.)	·	
Are Vegetation Soil or Hydrology	significant	ly distur	bed?		"Normal Circumstances" p	=	es 💽 🗈 N	lo ()
	naturally p	•			eeded, explain any answe			
SUMMARY OF FINDINGS - Attach site map				,			,	s, etc.
Hydrophytic Vegetation Present? Yes	No. C		1- 41	0				
	vo (€			Sampleo n a Wetla	_	No (
l	Vo (€:		AMICINI	i a Welia	illur les C.,	NO (E		
Remarks: Hydric soils and wetland hydrology wer	re not pre	sent at	Samp	le Point	11-1-SP 1; therefore, th	nis area wa	s not consi	dered a
wetland. Sample point 11-1-SP 1 is loca								
subalpine meadow.							·	
VEGETATION - Use scientific names of plan	its.							
Tree Stratum Plot size:	Absolute % Cover		inant Ir	ndicator Status	B			
1.	_70 OOVE	_ Opec	<u> </u>	Status	Dominance Test work Number of Dominant Sp	•		
2.		·			That Are OBL, FACW, o	or FAC	- magazarez-	
3.					(excluding FAC-):		2	(A)
4.					Total Number of Domin Species Across All Stra		2	(B)
		= Total	Cover		Percent of Dominant Sp		- 2	(5)
Sapling/Shrub Stratum Plot size:	11 F 21 M 24 F 4 F 1		•		That Are OBL, FACW, o		100.0%	(A/B)
1.					Prevalence Index work	sheet:		
3.					Total % Cover of:		fultiply by:	
4.					OBL species	x1=	0	
5.					FACW species 6	5 x 2 =	130).
		= Total	Cover		FAC species	0 x 3 =	90	
Herb Stratum Plot size 25 x 25	PERTY.				FACU species	€ x 4 =	.0	Ž:
1. Carex nigricans	60	Yes		ACW	UPL species) x5=	0	Ž
2. Juncus parryi		Yes		FAC	Column Totals: 9	5 (A)	220	(B)
3. Deschampsia cespitosa	5	No		ACW	Prevalence Index	= B/A =	2.32	<u> </u>
4. Polygonum bistortoides 5. Carex albonigra	· <u>2</u> <1	No No		FAC	Hydrophytic Vegetatio	n Indicators	11\200 9338 .3	
6.		110		UPL	1 - Rapid Test for H	lydrophytic \	egetation/	
7.					2 - Dominance Tes			
8.					3 - Prevalence Inde 4 - Morphological A			
9.					data in Remarks	or on a sepa	arate sheet)	orung
10.					5 - Wetland Non-Va			
Woody Vine Stratum Plot size:	95	= Total	Cover		Problematic Hydrop Indicators of hydric soil			
					be present, unless distu			must
1. 2.			——		Hydrophytic			
		= Total	Cover		Vegetation Yes		o C	
% Bare Ground in Herb Stratum 5 %		· i Utal	JUVE!		Present?			
Remarks: Bare Ground = litter and rocks								
Date Glound - litter and focks								
								İ
			*					ĺ

Depth	Matrix	ix		eded to document Redox Fea	atures			maiouto.o.,	000128
(inches)	Color (moist)	%	_ Col	lor (moist)	% Type¹	Loc ²	Texture	·	Remarks
0-5	10 YR 4/4	100					Loam	Many roots	
5-16	7.5 YR 4/4	100					Gravelly loam	·	
			*						
			-						
 									
	* .							· · · · · · · · · · · · · · · · · · · 	·
								<u> </u>	·
							· · · · · · · · · · · · · · · · · · ·		
				atrix, CS=Covered or C	·	s			Pore Lining, M=Matrix
		cable to all L	_RRs, un/	less otherwise note	•			Problematic Hy	/dric Soils³:
Histosol	• •		\vdash	Sandy Redox (S5)			2 cm Muc		
	pipedon (A2) istic (A3)		۲	Stripped Matrix (S	•	-4 MI DA	$\overline{}$	ent Material (TF	•
<u></u>	istic (A3) en Sulfide (A4)		닏	Loamy Mucky Mir Loamy Gleyed Ma		Ot MLKA	, <u> </u>	illow Dark Surfa	, ,
	en Sullide (A4) d Below Dark Sur	foce (A11)	بإ	Loamy Gleyed Ma Depleted Matrix (F			∐ Otner (⊏x	plain in Remar	ks)
	ark Surface (A12)	•	 	Redox Dark Surfa					
	Mucky Mineral (S1	•	H	Depleted Dark Su					c vegetation and
	Gleyed Matrix (S4)	•	H	Redox Depression				hydrology must	
	_ayer (if present)						urness ci	isturbed or prot	olemauc.
Type:	wy	.•				,	Hydric Soil Pre	esent? Yes	O No €
Depth (inc	:hes):			•		'			•=====
		talean appre		ely 3-4 feet from (OLIVIA OF NO	-L Eark	Coment Creek		
Hy	ydric soils were	e not presen	nt at San	mple Point 11-1-S	SP 1.				
Α	large amount o	of gravel an	d some	cobble within so	il sample.				
					<u>-</u>				
HYDROLO	GY								
_	drology Indicator			-			- 1		
 _	tors (minimum of one	e requirea; cn	eck all tha						num of two required)
<u></u>	Water (A1)	÷	L	Water-Stained Le		ept		-Stained Leave A 1, 2, 4a, and	es (B9) (except
	iter Table (A2)	•	_	MLRA 1, 2, 4a,	•		·		-
Saturatio	• •		Ļ	Salt Crust (B11)				ige Patterns (B	•
	arks (B1)		Ĺ	Aquatic Inverteb				eason Water Ta	. ,
	nt Deposits (B2)		· L	Hydrogen Suifid	• •		=		Aerial Imagery (C9)
	posits (B3)		Ļ		spheres on Living	ງ Roots (ຕ	' <u>=</u>	orphic Position	
	it or Crust (B4)		Ļ	Presence of Rec	• •		=	w Aquitard (D3	
	osits (B5)			Recent Iron Red			•	Neutral Test (D	•
<u>u</u>	Soil Cracks (B6)		Ĺ	==	ssed Plants (D1)	(LRR A)	<u>—</u>	d Ant Mounds (
Inundatio	on Visible on Aeria	al Imagery (F	37)	Other (Explain in	ı Remarks)		Frost-	Heave Hummo	ocks (D7) (LRR F)
	Vegetated Conce	ave Surface	(B8)						
Field Observ		_				T	<u></u> -		
Surface Wate		Yes (No 💽	Depth (inches):					
Water Table F		Yes 🖳	No 💽	•		_ Wetlar	nd Hydrology Pr	esent? Yes	
Saturation Pro		Yes 🔿	No 💽	Depth (inches):	-				
(includes capi Describe Rec		am gauge, n	nonitoring	g well, aerial photos	s. previous inspe	Lactions), if	available:		
Aerial photo		.		,	,				
Remarks:Soi	ls were moist, b	but not satu	rated.						
	hydrology pres			nt 11-1-SP 1.					
	-		•	•					
	4								

Project/Site: START 3 - Cement Creek		City/C	County: San Jua	ın	Sampling Date: 8-22-2011
Applicant/Owner: Environmental Protection Agency				State:CO	Sampling Point: 11-1-SP 2
Investigator(s): A. Ballman, J. Dawson		Section	on, Township, Ra	ange: N/A	
Landform (hillslope, terrace, etc.): Colluvial Fan		Loca	I relief (concave,	convex, none): None	Slope (%): 1-2
Subregion (LRR): E - Rocky Mountain Forests and Rangeland	Lat: 37	7.9100		Long: -107.6313	Datum:NAD 83
Soil Map Unit Name: Whitecross-Rock outcrop compl	ex, 45 to 7	75 perc	ent slopes	NWI classifi	cation:
Are climatic / hydrologic conditions on the site typical for the	nis time of y	ear? Y	es 💿 No ((If no, explain in F	Remarks.)
Are Vegetation Soil or Hydrology	significantl	y distur	bed? Are	"Normal Circumstances"	present? Yes No C
Are Vegetation Soil or Hydrology	naturally p	roblema	atic? (If no	eeded, explain any answe	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing	g sam	pling point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes	No C		is the Sampled	d Area	
Hydric Soil Present? Yes (No 🕞		within a Wetla	nd? Yes C	No 💿
, , ,	No 🕞		. *		
Remarks: Hydric soils and wetland hydrology we wetland. Sample point 11-1-SP 2 is local	-		-		
subalpine meadow.		,			
VEGETATION - Use scientific names of plan	nts.				**************************************
Tue Olaskar Bladaina	Absolute		nant Indicator		
Tree Stratum Plot size:	% Cover	Spec	ies? Status	Dominance Test work	
2.		-		Number of Dominant S That Are OBL, FACW,	or FAC
3.				(excluding FAC-):	22 (A)
4.	-			Total Number of Domir Species Across All Stra	* **Consequences of
O. I. O. A. O. A. Blataine		= Total	Cover	Percent of Dominant S	- 180 mar 18
Sapling/Shrub Stratum Plot size:	1 .355 %			That Are OBL, FACW,	
1. None 2.				Prevalence Index wor	ksheet:
3.				Total % Cover of:	Multiply by:
4.		•		OBL species	x1= 0
5.	_			FACW species	70 x 2 = 140
		= Total	Cover	FAC species	30 x3= 90
Herb Stratum Plot size	n Generality		-	FACU species	x4= 0
1. Carex nigricans	70	Yes		UPL species	x5= 0
2. Juncus parryi 3.		Yes	FAC	Column Totals:	00 (A) 230 (B)
4				Prevalence Index	c = B/A = 2.30
5.				Hydrophytic Vegetation	· · · · · · · · · · · · · · · · · · ·
6.				1 72	Hydrophytic Vegetation
7.				2 - Dominance Tes	
8.				195	Adaptations¹(Provide supporting
9.				data in Remarks	s or on a separate sheet)
10.	 			5 - Wetland Non-V	
Woody Vine Stratum Plot size:	100	= Total	Cover		phytic Vegetation ¹ (Explain) bil and wetland hydrology must
1.None				be present, unless dist	
2.				Hydrophytic	
		= Total	Cover	Vegetation Yes Present?	● No C
% Bare Ground in Herb Stratum 5 %					
Remarks: Bare Ground = litter and rocks.		,			
				-	

Sampling Point: 11-1-SP 2

Profile Des Depth	cription: (Describ Matrix	-	oth needed to docu	ment the i		r confirm	the absence of	indicators.)	000130
(inches)	Color (moist)	%	Color (moist)	<u> %</u>	Type 1	Loc ²	Texture	Re	marks
0-5	5YR 3/3.5	100					Fibrous loam		
5-10+	10YR 5/3	100					Clay loam	·	
						 -	 		
	-								
	·			·			:		
	<u>. —;</u>							·	
								·	
				 .					
			uced Matrix, CS=Cover		J Sand Grain	s 		² Location: PL=Pore	
		able to all LR	Rs, unless otherwis					Problematic Hydric	Soils':
Histoso	DI (AT) Epipedon (A2)		Sandy Redox	• •			2 cm Mud	ck (A10) Int Material (TF2)	
	listic (A3)		Loamy Muc		(F1) (exce	pt MLRA1	. =	llow Dark Surface (TF12)
	en Sulfide (A4)		Loamy Gley					plain in Remarks)	,
<u> </u>	ed Below Dark Surfa	ace (A11)	Depleted M	٠,	-0)		•		-
)ark Surface (A12) Mucky Mineral (S1)		Redox Dark Depleted Da	•	•		3 Indicator	s of hydrophytic ve	getation and
	Gleyed Matrix (S4)	'	Redox Depr					nydrology must be p	
	Layer (if present):					— т	uniess ai	sturbed or problem	atic.
Type:	Layer (ii present).						Hydric Soil Pre	sent? Yes	No 🕞
Depth (in	ches).					1	Trydric Con i Te	Senti (CS ()	, NO (<u>G</u>)
		kan at the	edge of North For	k Coment	Creek OI	JWW		· · · · · · · · · · · · · · · · · · ·	
			at Sample Point 1			1 44 141.			
			some cobble with				•		
• • • • • • • • • • • • • • • • • •		6		· · · · · · · · · · · · · · · · · · ·					
HYDROLO	OGY		• .		· · · · · · · · · · · · · · · · · · ·				
	drology Indicators						-/		
Primary Indica	ators (minimum of one	required; chec	ck all that apply)				Secondary	Indicators (minimum o	f two required)
ليسيا	Water (A1)		Water-Stai			ept		Stained Leaves (B	9) (except
	ater Table (A2)		_	2, 4a, and	4D)		'	•	•
Saturati	•		Salt Crust	•	(D40)			ge Patterns (B10)	· · · · · · · · · · · · · · · · · · ·
	/larks (B1) nt Deposits (B2)	,	=	vertebrates Sulfide Od				eason Water Table tion Visible on Aeri	
=	posits (B3)				es on Livin	n Roots (C		orphic Position (D2)	- • • •
	at or Crust (B4)		السسا	of Reduced		9 1 10013 (0	<i>'</i> =	w Aquitard (D3)	
	posits (B5)		Recent Iro			Soils (C6)		Neutral Test (D5)	
Surface	Soil Cracks (B6)		Stunted or	Stressed I	Plants (D1)	(LRR A)	Raise	d Ant Mounds (D6)	(LRR A)
Inundati	ion Visible on Aerial	Imagery (B7	7) 🔲 Other (Exp	lain in Rer	narks)		Frost-	Heave Hummocks	(D7) (LRR F)
	y Vegetated Concar	ve Surface (E	38)			·			
Field Obser	•				•				
Surface Wat			No 💽 Depth (inc					6	
Water Table			No Depth (inc			Wetlan	d Hydrology Pr	esent? Yes (No 💽
Saturation P (includes car		Yes 🤃 I	No Depth (inc	ches):		4	-		
		m gauge, mo	nitoring well, aerial p	photos, pre	vious inspe	ections), if	available:		
Aerial phot	tograph						,		
Remarks:So	ils were moist, b	ut not satur	ated.						
No	hydrologic indic	cators prese	nt at Sample Poin	t 11-1-SP	2.				
	·								4

Appendix D
Species Observed in the Study Area

Appendix D1
Plant Species Observed in the Study Area

Appendix D1a Wetland Plant Species Observed in the Study Area

Scientific Name	Common Name	Wetland Indicator	Status	Life Form	
Agrostis scabra	Rough bentgrass	FAC	N	Perennial graminoid	
Antennaria corymbosa Flat-top pussytoes		FACW+	N	Perennial forb	
Betula glandulosa Bog birch		OBL	N	Perennial shrub	
Bromus ciliatus Fringed brome		FACU	N	Perennial forb	
Calamagrostis canadensis	Bluejoint	OBL	N	Perennial graminoid	
Campanula rotundifolia	Bluebell bellflower	FACU	N	Perennial forb	
Cardamine cordifolia	Heartleaf bittercress	FACW+	N	Perennial forb	
Caltha leptosepala	White marsh-marigold	OBL	N	Perennial forb	
Carex aquatilis	Water sedge	OBL	N	Perennial graminoid	
Carex canescens	Silvery sedge	OBL	N	Perennial graminoid	
Carex illota	Sheep sedge	OBL	N	Perennial graminoid	
Carex magellanica	Boreal bog sedge	OBL	N	Perennial graminoid	
Carex micropera	Smallwing sedge	FAC	N	Perennial graminoid	
Carex nigricans	Black alpine sedge	FACW	N	Perennial graminoid	
Carex rostrata	Beaked sedge	OBL	N	Perennial graminoid	
Chamerion angustifolium	Fireweed	FACU	N	Perennial forb	
Cirsium parryi	Parry's thistle	FACW	N	Biennial forb	
Conioselinum scopulorum	Rocky Moutntain hemlock parsley	FACW	N	Perennial forb	
Deschampsia cespitosa	Tufted hairgrass	FACW	N	Perennial graminoid	
Epilobium ciliatum	Fringed willowherb	OBL	N	Perennial forb	
Equisetum arvense	Field horsetail	FAC+	N	Perennial graminoid	
Eriophorum anagustifolium	Tall cottongrass	OBL	N	Perennial graminoid	
Gaultheria humifusa	Alpine spicywintergreen	FACU-	N	Perennial subshrub	
Gentiana acuta Autumn dwarf gentian		FAC	N	Biennial forb	
Geranium richardsonii	Richardson's FACU N		Perennial forb		
Geum macrophyllum	Largeleaf avens			Perennial forb	
Heracleum maximum Common cowparsnip		FACW-	N	Perennial forb	
Juncus balticus Baltic rush		FACW+	N	Perennial graminoid	
Juncus longistylis Longstyle rush		FAC+	N	Perennial graminoid	
Juncus mertensianus	Merten's rush	OBL	N	Perennial graminoid	
Juncus parryi	Parry's rush	FAC	N	Perennial graminoid	
Ligularia amplectens	Showy alpine ragwort	FACW+	N	Perennial forb	
Lonicera involucrata Twinberry honeysuckle		FAC	N	Perennial shrub	

Scientific Name Common Name		Wetland Indicator	Status	Life Form	
Mertensia ciliata	Tallfringed bluebells	OBL	N	Perennial forb	
Mimulus guttatus	Seep monkeyflower	OBL	N	Perennial forb	
Pedicularis groenlandica Elephanthead lousewort		OBL	N	Perennial forb	
Phleum alpinum	Alpine timothy	FAC	N	Perennial graminoid	
Phleum alpinum	Alpine timothy	FAC	N	Perennial graminoid	
Picea engelmannii	Engelmann spruce	FACU-	N	Perennial tree	
Picea pungens Blue spruce		FAC-	N	Perennial tree	
Poa pratensis Kentucky bluegrass		FACU	N	Perennial graminoid	
Polygonum bistortoides American bistort		FAC	N	Perennial Forb	
Polygonum viviparum Alpine bistort		FAC+	N	Perennial forb	
Rhodiola rhodantha	Redpod stonecrop	FACW+	N	Perennial forb	
Rorippa palustris Bog yellowcress		OBL	N	Forb	
Salix drummondiana	alix drummondiana Drummond's willow		N	Perennial shrub	
Salix geyeriana Geyer's willow		OBL	N	Perennial shrub	
Salix monticola Park willow		OBL	N	Perennial shrub	
Salix planifolia Diamondleaf willow		OBL	N	Perennial shrub	
Senecio triangularis Arrowleaf ragwort		OBL	N	Perennial forb	
Solidago simplex Mt. Albert goldenrod		FACU-	N	Perennial forb	
Stellaria longipes Longstalk starwort		FACW+	N	Perennial forb	
Swertia perennis	Felwort	FACW-	N	Perennial forb	
Vaccinium cespitosum	Dwarf bilberry	FAC	N	Perennial subshrub	
Viola macloskeyi Small white violet		FACW+	N	Perennial forb	

Plant Species Observed in the Study Area

Appendix D1b Other Plant Species Observed in the Study Area

Sciențific Name	Common Name	Status	Life Form
Achillea lanulosa Western yarrow		N	Perennial forb
Achnatherum lettermanii	Letterman's needlegrass	N	Perennial graminoid
Aconitum columbianum	Columbian monkshood	N	Perennial forb
Agoseris glauca Pale agoseris		N	Perennial forb
Agrostis variabilis	Mountain bentgrass	N	Perennial graminoid
Antennaria umbrinella	Umber pussytoes	N	Perennial forb
Aquilegia sp	Columbine	N	Perennial forb
Arabis spp.	Rockcress	N	Perennial forb
Arnica sp	Arnica	N	Perennial forb
Boechera drummondii	Drummond's rockcress	N	Perennial forb
Bromopsis frondosa	Weeping brome	N	Perennial graminoid
Bromopsis lanatipes	Woolly brome	N	Perennial graminoid
Bromopsis pubescens	Hairy woodland brome	N	Perennial graminoid
Bromus porteri	Porter brome	N	Perennial graminoid
Carex albo-nigra	Blackandwhite sedge	N	Perennial graminoid
Carex chalciolepis	Holm sedge	N	Perennial graminoid
Carex ebenea	Ebony sedge	N	Perennial graminoid
Carex egglestonii	Eggleston's sedge	N	Perennial graminoid
Carex elynoides	Blackroot sedge	N	Perennial graminoid
Castillja rhexifolia	Splitleaf Indian paintbrush	N	Perennial forb
Castilleja sulphurea	Sulphur Indian paintbrush	N	Perennial forb
Delphinium sp.	Larkspur	N	Perennial forb
Dugaldia hoopesii	Owl's-claws	N	Perennial forb
Elymus trachycaulus	Slender wheatgrass	N	Perennial graminoid
Erigeron coulteri	Large mountain fleabane	N	Perennial forb
Erigeron leiomerus	Rockslide yellow fleabane	N	Perennial forb
Erigeron peregrinus	Subalpine fleabane	N	Perennial forb
Erigeron speciosus Aspen fleabane		N	Perennial forb
Eriophorum angustifolium Tall cottongrass		N	Perennial graminoid
Festuca thurberi Thurber's fescue		N	Perennial graminoid
Fragaria vesca Woodland strawberry		N	Perennial forb
Frasera speciosa	Elkweed	N	Perennial forb
Gentianella amerella	Autumn dwarf gentian	N	Perennial forb
Geum rossii	Ross' avens	N	Perennial forb

Plant Species Observed in the Study Area

	·		
Heterotheca pumila	Heterotheca pumila Alpine false goldenaster		Perennial forb
Koeleria macrantha	Junegrass	N	Perennial graminoid
Leucanthemum vulgare Oxeye daisy		I	Perennial forb
Ligusticum porteri Porter's licorice-root		N	Perennial forb
Lupinus argenteus Silvery lupine		N	Perennial forb
Luzula comosa	Pacific woodrush	N	Perennial graminoid
Noccaea montana	Alpine pennycress	N	Perennial forb
Oreochrysum parryi	Parry's goldenrod	N	Perennial forb
Packera dimorphophylla	Splitleaf groundsel	N	Perennial forb
Penstemon whippleanus	Whipple's Penstemon	N	Perennial forb
Pneumonanthe affinis	Pleated gentian	. N	Perennial forb
Pneumonanthe parryi	Parry's gentian	N	Perennial forb
Poa alpine	Alpine bluegrass	N	Perennial graminoid
Polemonium pulcherimum	Jacob's ladder	N	Perennial forb
Potentilla hippiana	Woolly cinquefoil	N	Perennial forb
Potentilla ovina	Sheep cinquefoil	N	Perennial forb
Potentilla pulcherrima	Beautiful cinquefoil	N	Perennial forb
Pseudocymopterus montanus	Alpine false springparsley	N	Perennial forb
Salix petrophila	Alpine willow	N	Shrub
Senecio bigelovii	Hall's ragwort	N	Perennial forb
Senecio wootonii	Wooton's ragwort	N	Perennial forb
Sibbaldia procumbens	Creeping sibbaldia	N	Perennial forb
Silene scouleri	Simple campion	N	Perennial forb
Solidago multiradiata	Rocky Moutain goldenrod	N	Perennial forb
Sphagnum angustifolium	Sphagnum	N	Nonvascular
Taraxacum officinale	Dandelion	I	Biennial forb
Thalictrum fendleri	Fendler's meadowrue	N ·	Perennial forb
Tolmachevia integrifolia	Ledge stonecrop	N	Perennial forb
Trisetum spicatum	Spike trisetum	N	Perennial graminoid
Valeriana capitata	Captiate valerian	N	Perennial forb
Veratrum tenuipetalum Colorado false hellebore		N	Perennial forb

Appendix D2
Animal Species Observed in the Study Area

Animal Species Observed in the Study Area

Appendix D2 Animal Species Observed in the Study Area

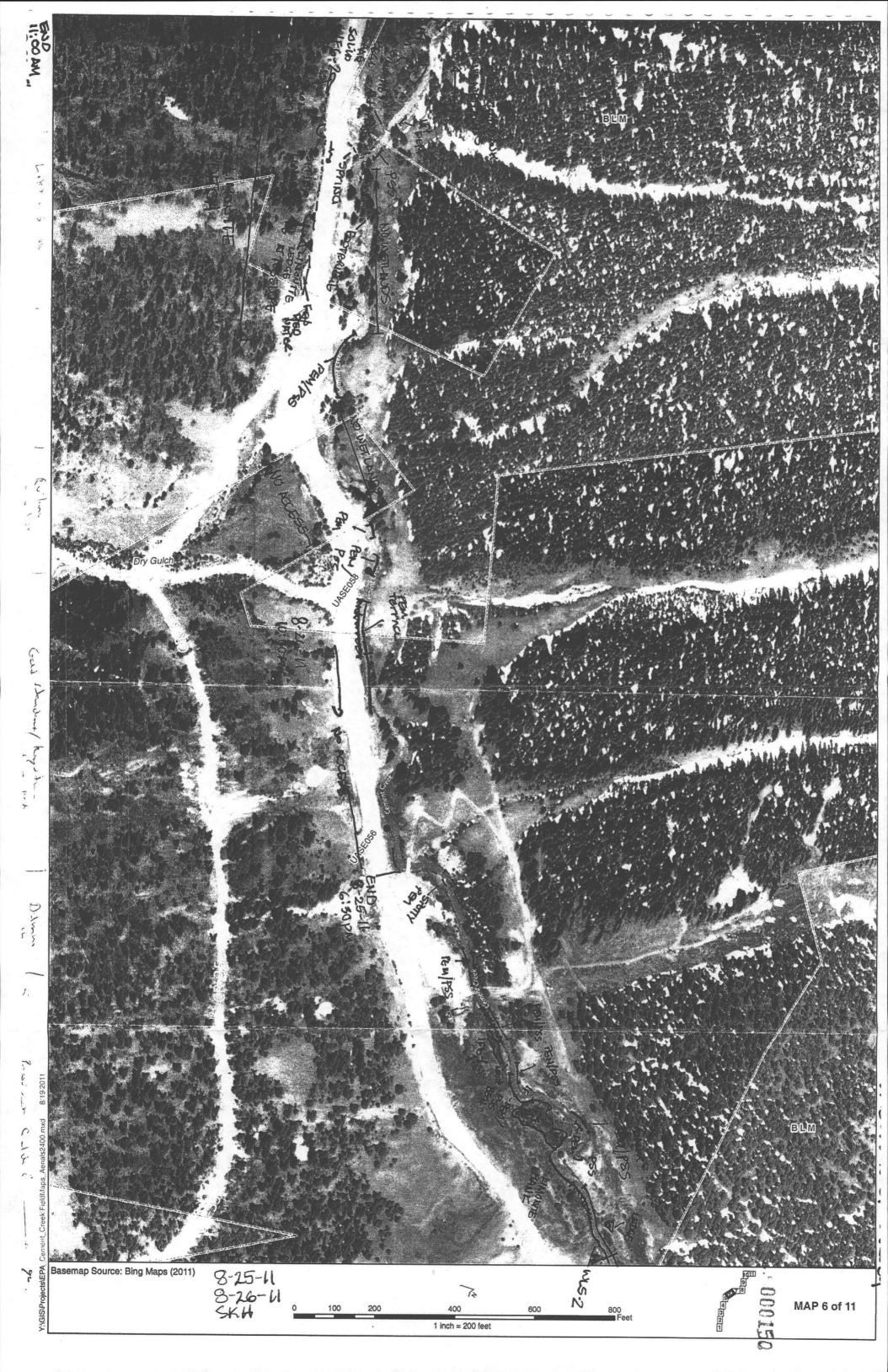
	•		
Scientific Name	Common Name		
Accipiter cooperii	Cooper's hawk		
Actitis macularius	Spotted sandpiper		
Aguila chrysaetos	Golden eagle		
Buteo jamaicensis	Red tailed hawk		
Carpodacus purpureus	Cassin's finch		
Cervus elaphus	American elk		
Dendroica coronata	Yellow-rumped warbler		
Junco hyemalis	Junco		
Marmota flaviventris	Yellow-bellied marmot		
Melospiza lincolnii	Lincoln sparrow		
Ochotona princeps	American pika		
Odocoileus hemionus	Mule deer		
Perisoreus canadensis	Gray jay		
Spermophilus lateralis	Golden-mantled ground squirrel		
Tamias quadrivittatus	Colorado chipmunk		
Turdus migratorius	American robin		
Zonotrichia albicollis	White-crowned sparrow		

Appendix E Field Data Appendix E1 Field Maps

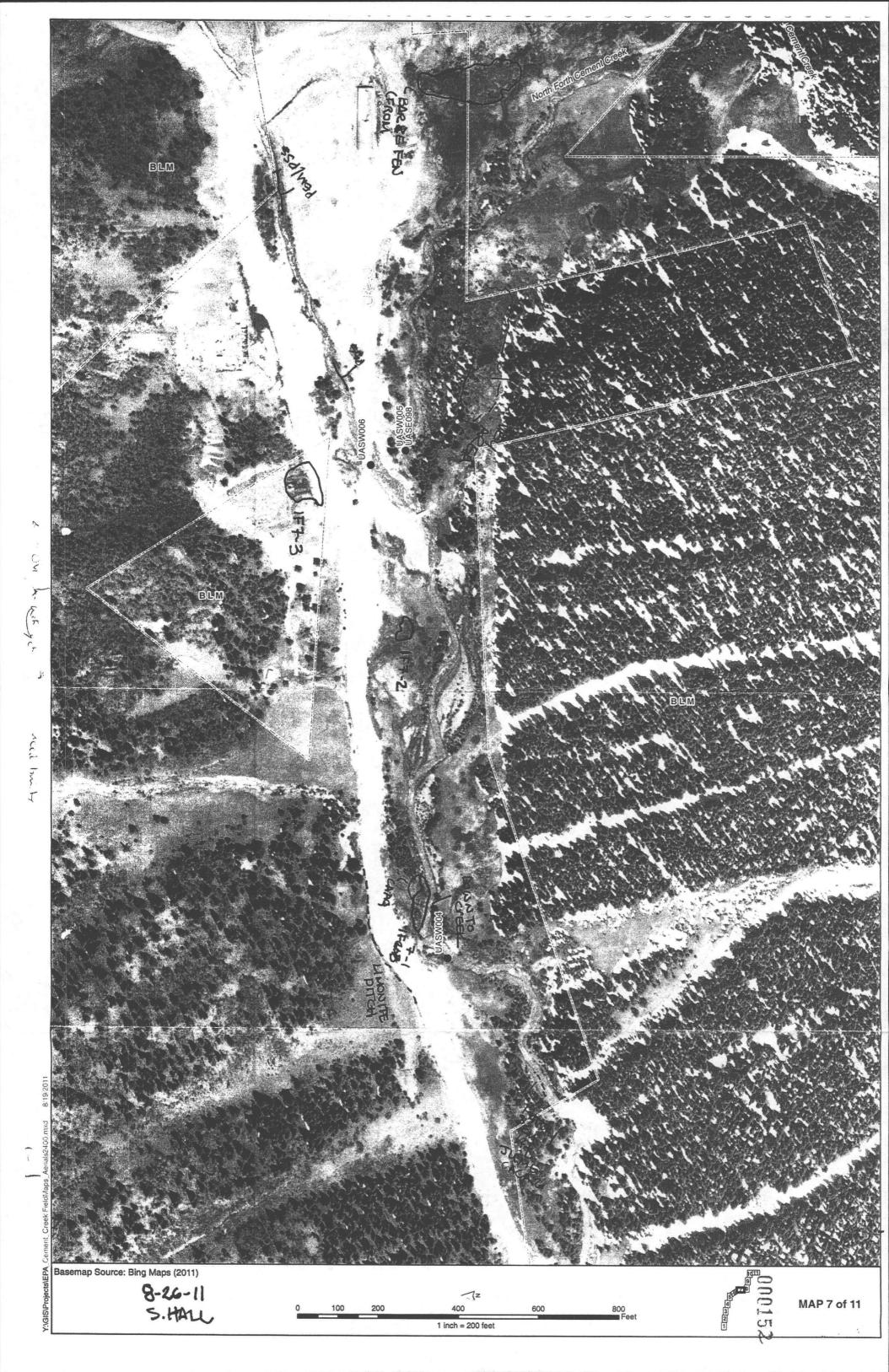






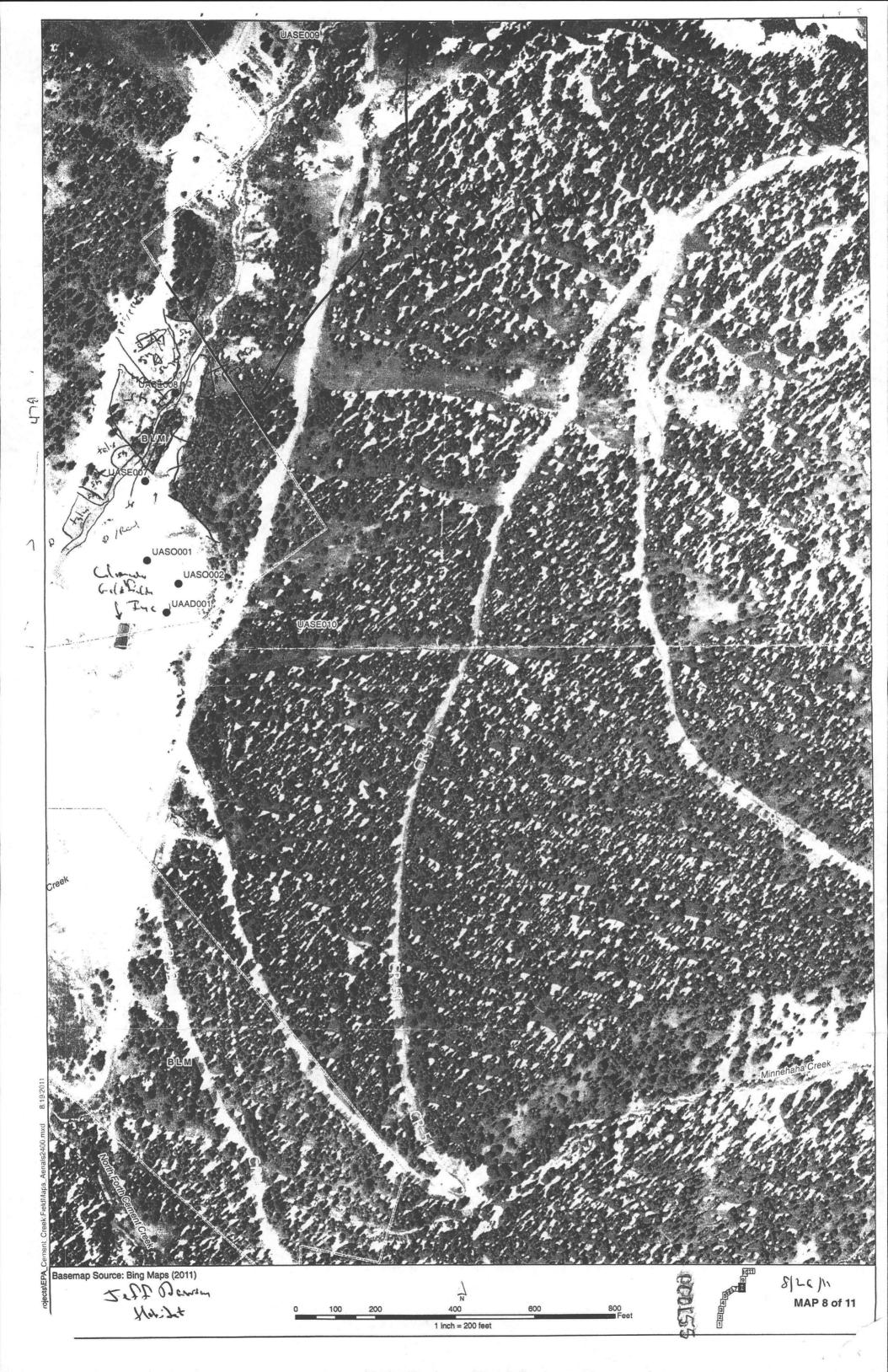




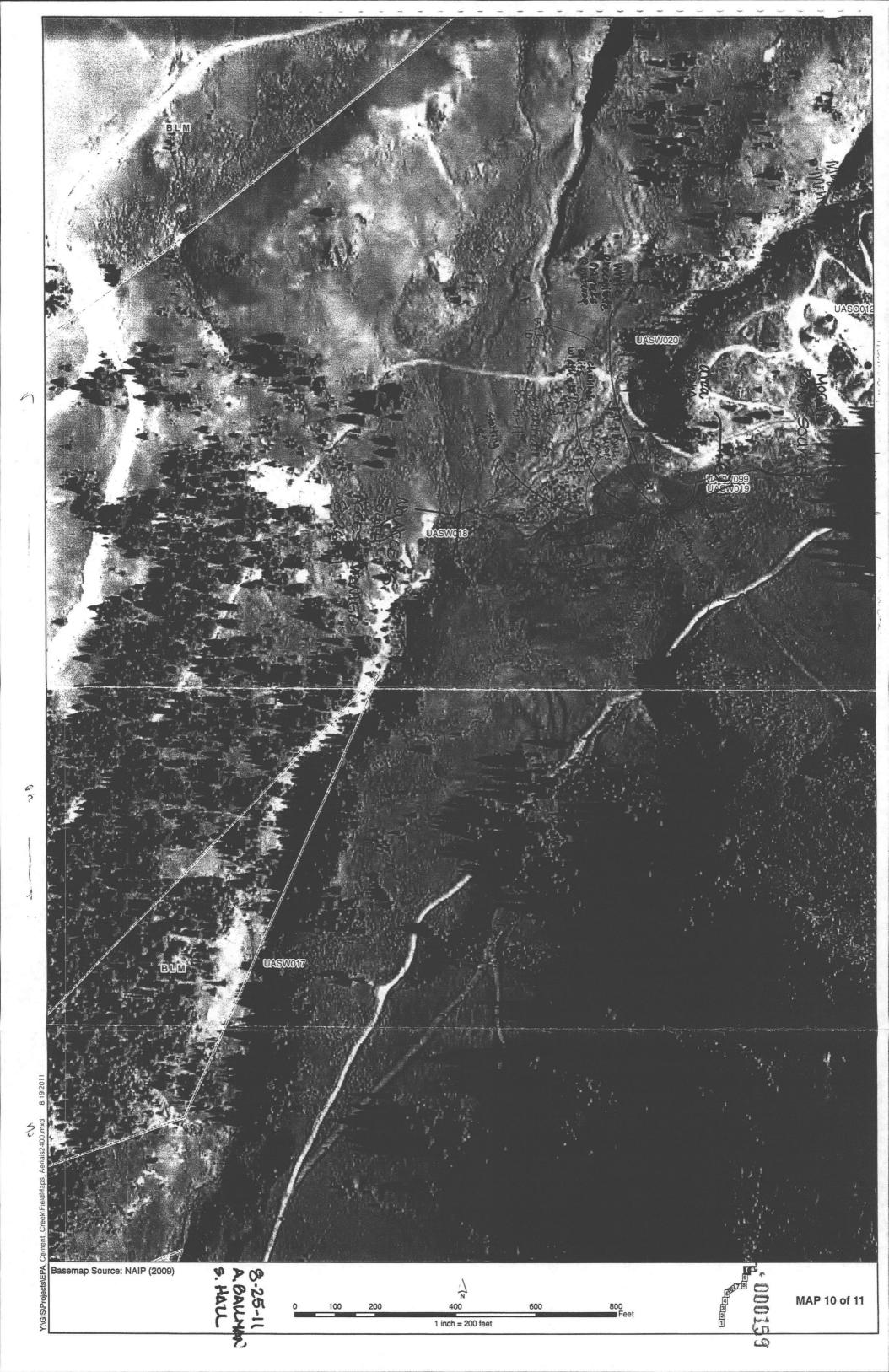




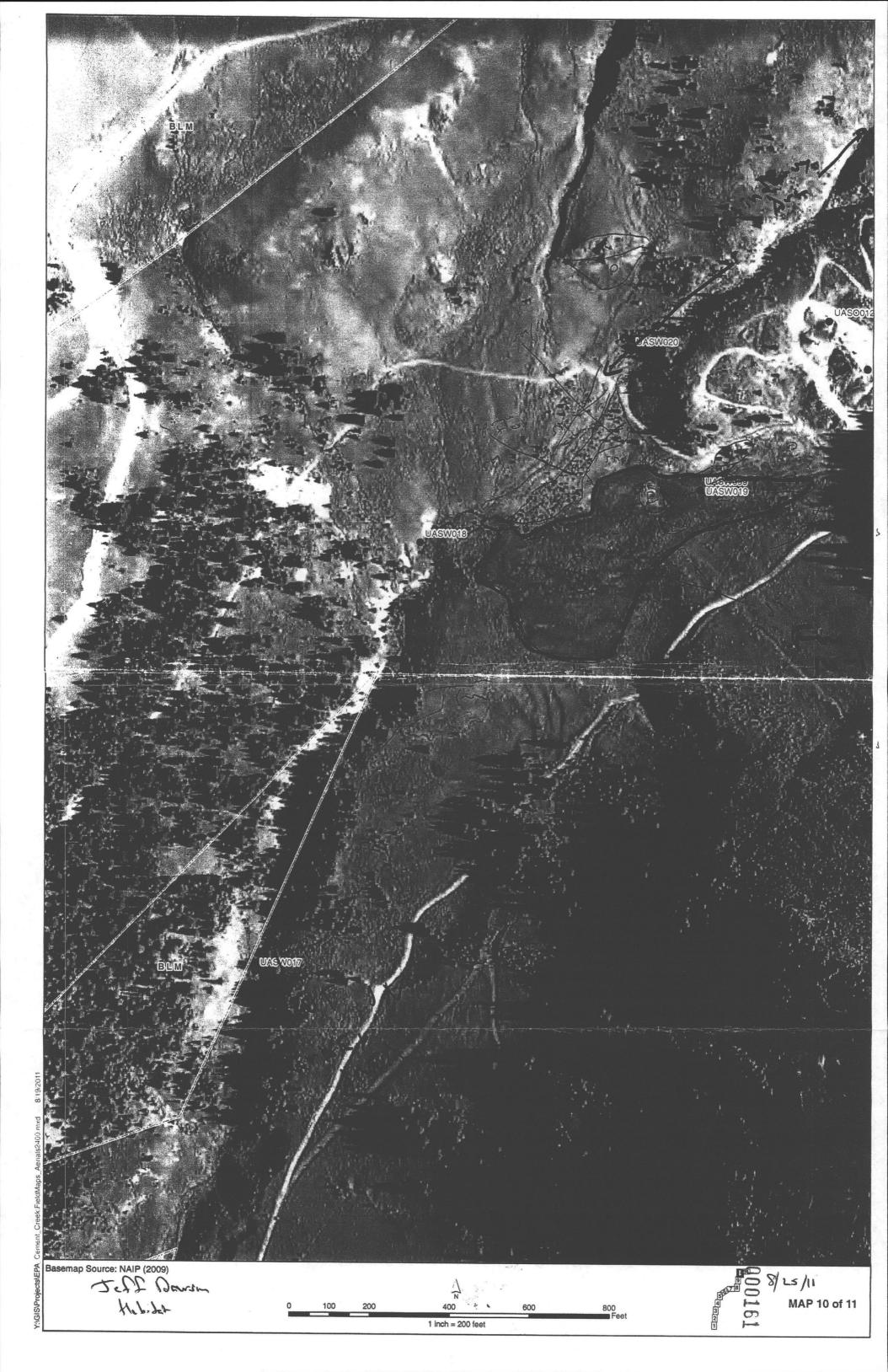


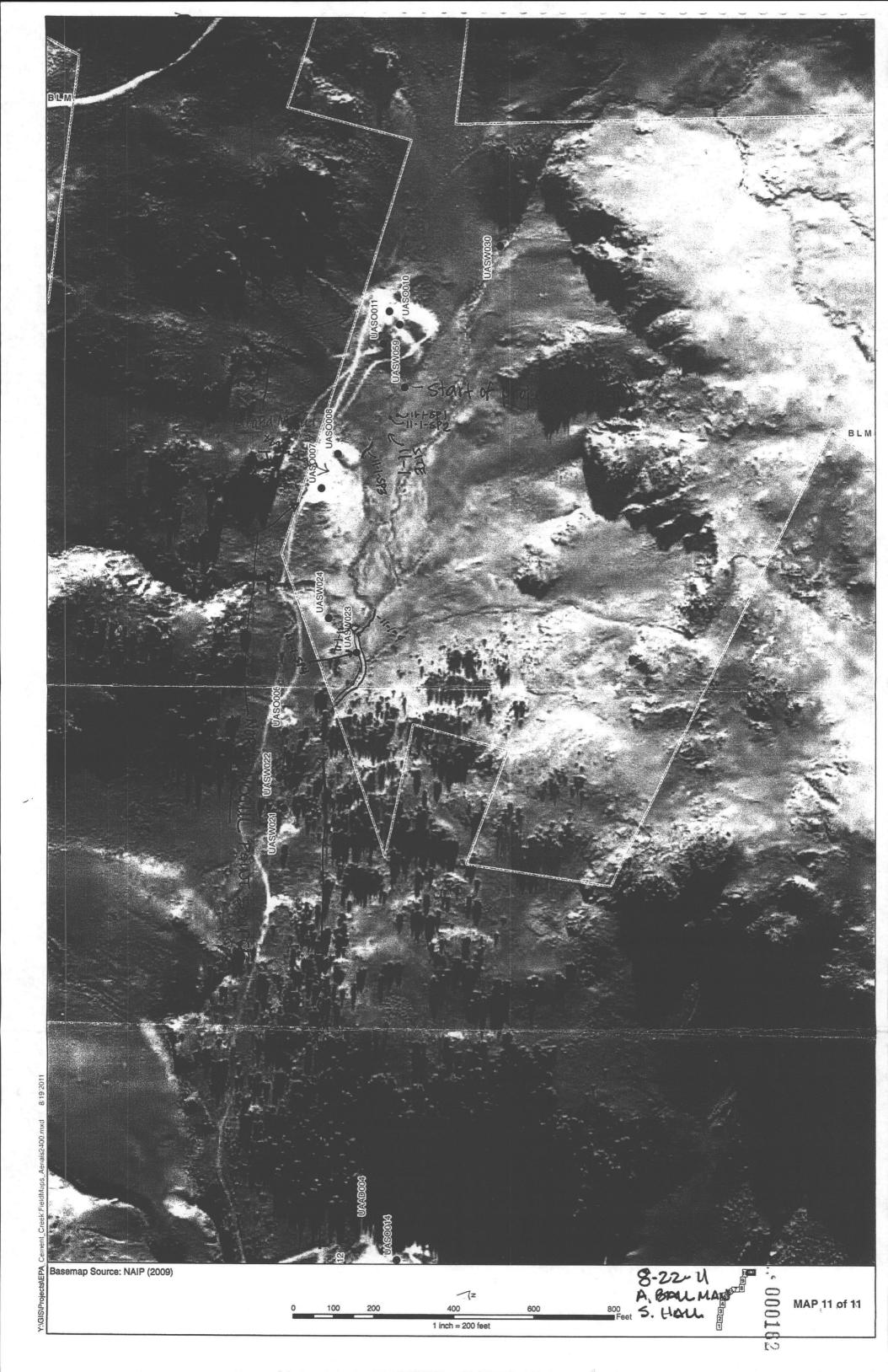


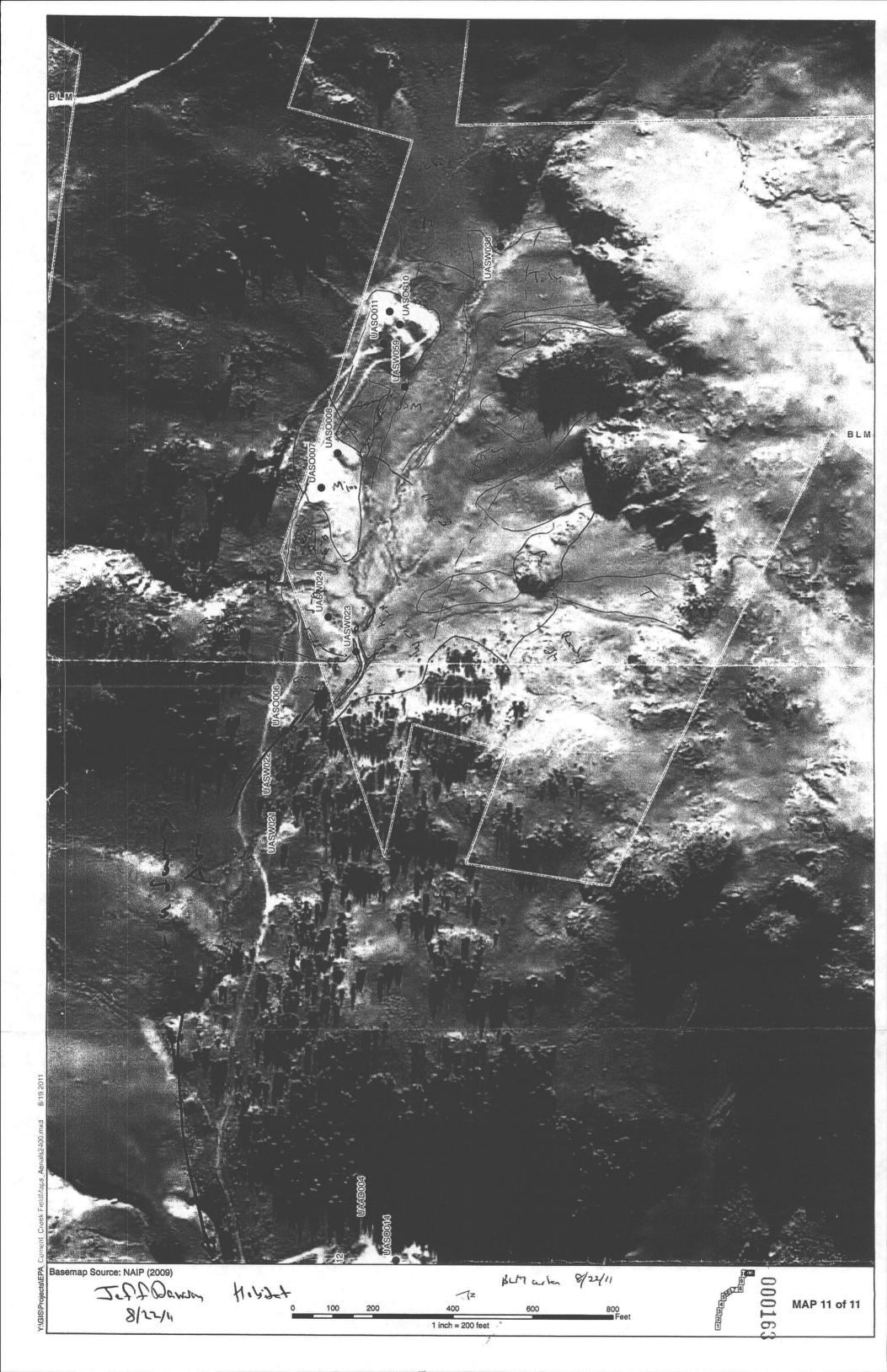












Appendix E2 Field Notes

22242471 = project

DATE <u>8-22-201</u>

PROJECT NO. <u>EPA-CEMENT Creck</u>

PAGE NO. ____ OF <u>2</u> BY _____ 000165

4:00am 55°, party cloudy-maps 10,11

WILDLIFE

JUNCO

Chipmurk, Colorado

Lincoln sparrow

Jellow-bellied Marmot

Golden-Mantled ground squirrel

price

Nhite-crowned sparrow

American robin

Yellow-rumped warder

gray jay

MULT SEER

SPOTTED SONO PIPER

PIKA

LOOK FOR SP. [HABITAT]

boreal toad -unlikely

N. leopard frog

SN Willow flychtcher-u

phan peregrive falcon

N. goshawk

black Swift

Colorado R. cutthroat

* Canada lynx

Wolverine

Uncompangre frit. muterfal

(@12,000°)

-BLM land on Map 11

DESCRIPTION AND

START/ METHOD for Site 11-1 (TIME: 11:45; NEATHER: 65°, partly cloudy)

- everything wet stained = creek other (near pt. 059)

· islands not factoring into streamside WL calculations

· GPS 11-1-5P1 7 11-1-5P2 (see datasheet) - moist calluviat fan (valley but

·NO Islands methodology approved by Barry (second bullet-item above)

· Area = dry Mesic, subalpine meadow

· C Grand Mogusi Mine (west, downstream of mine)

• GPS battery died @ 11-1-SP3 Dut GPS point taken for 11-1-SP3 (No line or netland along north side of stream bank@ 11-1-SP3 Polygon)

(see dutasheet)

·fringe wetland along stream where confluence forms main channel-see data sheet & map (11-194) wetland name

• only delineate wetlands 0.10 mile (~528 feet) in length - direction given by Barry

END 3:38 PM, overcast, storm forming to the west, 57°

DATE 8-27-2011. 000166

PROJECT NO. EPA-CEMENT (recks

PAGE NO. 2 OF 2 BY A.Ballman)

S.Hall

	J South of	3.11911
10027	Map 4 25 Tiger Gulch Area (58°, 3:58p.m., overcast, dri	zzliva)
-	(near USSW049250)	
	-according to Barry - 25 Foot gap of previous dist. can be count	ed as part of
	The second of the control of the second of t	, WL
	·WL not 0.10 mile long (N400') = WL4-IW	
	-dominated by Calablagrostis canadensis	
	· fringe wetland along west bank of cement creek	
	· main source of the 0= seepage and creek	WL4-1W
*	(more seepage observed esouthern end of WL)	
	Soil very Rocky	
	- steep ban hillside sloping east toward cheek and fringe	
	entermos y a restriction of the second commence of the second commen	
	· flood debris with welland area	
	'H2O Source = groundwater seepage from potentially upslope of creek and creek floodwaters	·
	· no fen soil characteristics win concave area of WLY-1E	WL4-1
	· soil pit taken in 4-1E	. I WOLL
	· soils difficult to acquire ble of rocks gravel very close to soil s	urface.
	· large amount of moss in wetland	
	· redalgae growing in one inuvaled portion of WL	
	· old mining debris (sm. amt.) found in WL	
		
ND	5:38, Wolo, overcast, drizzling	
	A CONTRACTOR OF THE PROPERTY O	
	6:00 PM · PLAT TIRE	· · · · · · · · · · · · · · · · · · ·
	6:56 - RETURN TO SILVERTON	
	6.66 - Headigo 75 BILVELTON	
MAR 20 1000 2001 - 2 4 1 1 1	anguerra de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition del	
		e we e
	COMMINION OF THE PARTY OF THE P	

PROJECT NO. ZZZ42471 EPA CENG PAGE NO. OF 1 BY BALLMAN HALL

-8:00 ...000167 7:00-meeting regarding land access in Silverton, co attendées: Jeff Dawson - urs denver Swan Hall - URS Denver Barry Hayhurst - urs-uos - URS-UDS 8:00 - Repair shop in Silverton, CO for tire = UNREPAIRABLE - Swan # travelled w/ tow truck per Enterprise Rental Car guidance to have carrepaired in burango, co - Amber & Jeff - key plants in silverton, co 3:45 - stopped keying plants and drove to site START 4:00 - Start - Map& 3 & 3 70, partly doudy, slight breeze -WL areas over 200 =WL delineation -WL areas less 200 -WLB-1+ portion of Wl-fen (but 10'+ from creek) = WL identificat -see datasheet for wetland details & Map -GPS Size/length 516 (121 feet) -located along coment creek-west-bank -flowing spring in partion of wetland - WL 3-2W-along west bank of creek -downstream from WL3-1 -see datasheet & Map -WL 3-2E-same sp. composition as 3-2W -fringe along east bank of creek South/downstream of 3 WL32W-recent stream deposits (baneground) -19. amt. bog birch (N5'tall) -across stream-1g:slandslide - drawage evidence à some drift deposits -deer tracks -NL3-3 has sphagnum lined concave areas

- spotted sandpiper - WL3-3 Mainly PSS w/ small romannente (mainly understory)



DATE 8.23.2011
PROJECT NO. 22242471
PAGE NO. 2 OF 2 BY AB, SH

8-23-2011 continued

END 6:53 p.m., partly cloudy, 62°

... 000168

-Start tomorrow@south end of WL3-3 -start tomorrow@Mogul Mine

-arrived in Silverton, co @ 7:00 pm

manus and the state of the stat

DATE 8-24-11

PROJECT NO. ZZZ4Z471

PAGE NO. _____ OF 2_ BY 51 AB

7:30 - Swan & Jeff met w/ Barry Hayhurst & Jeff 000169 regarding land access START 8:15mm Maps 2 & 3 clear stries, 48 - starting @ WL 3-3 blc no access @ Mosul Mines - PEM PSS (Majuly PSS) WL 3-3 = WL 3-3A - see datashee & map - Strictly PEM portion of WL 3-3 = WL 3-3B - see datashee & map

- Strictly PEM portion of WL3-3 = WL3-3B - see datasheef Emap
- WL3-3B PEM portion of WL3-3 located between PSS dominated areas
- fen area borders western portion of WL3-3 - see Jeff's notes
- algae & aquatic moss in portion of WL3-3B
- spring/seep location at north end of WL3-3B-Flowing in from
WL3-3A (see Map 2)

- south portion of WL3-3A is more PEMIPSS than northern portion located north of WL3-3B

-fen up slope of terrace wharea (who 3-34 north portion)
-small gap @ Porcupine Gulch

LND GPS points south of forcupine Gulca ble hillside bank is steep = health & safety issue- see Map 2 for boundary

-Meet Barry & Jeff @ 9:46-on-site until 10:07
-No access @ Mogul
-Access-yes-@ Bonita Mine

- Keystone & Gold Standard = Waiting for reply from Sabrina,
- Salem Minerals & San Juan Mining - no access

-Ketr Magee - no access

-WL 2-1

-located attempt east bank of creek; separated by point bar = PEM portion

-Not abusting, but directly influenced connected to creek blc of

swale coming of creek, flowing through westland, and ending e creek

-abusting creek @ PSS portion after the point bar

-see datashed & Map 2

-nowhern portion is PEM dominated; southern half is PSS dominated.
-recent disturbance win small area-downed tree(s)

END org. floodplain on Map 2, 12:30 pm, 78° raining

DATE 8-24-11
PROJECT NO. 222 42471
PAGE NO. 205 2 BY AB, SH

	··• 000T \0
START 1:00, overcast, scattered rain, 78°	@ Nav 3 along Welk - on mossile.
of the state of th	Cida of visal frage 1145 Ade 1400 STAC
and the state of t	AND OF I DAY WOM WHOLE OLD.

- Patchy 400' PEM PSS wetland-upland area along creek (Map 3)
- Engleman Spruce, 5 monticola, DECE, 5 geyeri, J. Mertensianus, J. parry.,
C-canescens, DECE, Calamugrostis canadensis, tyrostis s calora, bog birch
- upland areas are a lot of BG (E moss/rocks) & Engleman spruce

-approx. 200' PEM wetland fringe along east bank of creek (Nap 3) across stream from patchy wetland area -see map

-WL 3-4-PEM/PSS along west bank of creek (map 3 3 4)
-see datasheet

-approx. 150' patchy PEM-upland mix along east bank of creek (Mays 844)
-dominated by Calamagrostic canadensis, Carex canescers,

- BLM PORTION ON MARS 3-4. PATCHY AREAS + DELINEATED FEATURES.

SEE DATA SHEETS. MINI LIMON HE LEDGE.

FINISHED WL 3.5@ 5:35 PM FINISHED ANGLO-SAXON @ 5:48 PM.

-recorded bly Land Below anglo-saxon, will ask for clarifical finished field wark 5:57 pm.

DATE 8-25-11 PROJECT NO. 22242471 PAGE NO. OF BY

20 - Flow drops from 1st and to 2nd and to 1) F.

THET 45°, clear sties 8:36	am: Map	10 - South of Mogul Mine
	www.	
mule deer	NA NO A	Motos
pika	00,000	13 1-3:3 scenic photos
= 2 mark and district and described All and a second	·	4-Portion (upper) of this to NE
-2 mine adils wi groundwater fl	DW. TOLL.	5 overview of Mogul Mine to SW
pictures 8 \$ 9 LMogul Mine	········	6-BAD PIC
That is cheenen classical (habitan)	ic laraided.	1- same as pic 5
main stream channel (tributary). channel below main mine to	illerar from	8- Mine spoil to East
Mosul Mine	anags wort.	9-Main Mine adit w/ groundway
-Picture 8 Not a point source	e, but Mogul	10-northern WLID-1 overview to NE 11-overview of spoil pile teature in we to NE
Mine is a point source		
WL 10-1	nem company	12 - channel to perched to D table to NE (southern portion)
- wetland starts where mine to	ullings end, along	rsouth-side of week
Teas north portion of braided tribu	tany bordered by	mine tailings
- Widence (i.e, redimaterial) of a	groundwater seepa	ge from mine flow-spicture & area
-after mine tailings wetland become as sheetflow over nedvock	es. larger and appeal	rs that water is seeping from tailings
- after rock outcrop win WL (see map)	the channel splits i	nto 2 segments, with both flowing into
-as channel enters perched watertal dorange sediments present als	ble part of fen the	color is orange-ish-rusty colored
soil pit was us from channel - n	10 orange-red tint	कं इवा.
tanfluence of tributarty w/ comen	t Creek = automati	c color change of rocks to orange
-see photo	···· • • • • • • • • • • • • • • • • •	10tos continued
	13-80	ame as 12 but further north to NE
		ime as 12 at ponded area to NE
		cannel to NE
· · · · · · · · · · · · · · · · · · ·	16- FI	ow patterns from channel to NF.
	17-whe	re spring flows in Echannel around
1 1 1 1 1 1 1 1 1 1	18-10	re coring flows in 4 channel around sport plus to ENE south of 18
	19-60	ow opens into open water to NE
	•	

Page <u>3</u> of _ JOB EPACEMENTOREEL Sheet ____ of _ Project No. Description Date 3-25-1 Computed by Checked by _ Date 8.25-11 2108 PM SUGANHALL / JEFF DANSON EPA-CHUENT WETLAND 2-2 - SPYING FED FRINGS ON N SIDE OF CREEK OVEYCASY - THYGHT OF RAIN HAIL @ 3:05 RAIN@ 3:10 -

FOUND OUD PAIL BED.
FOUND OUD PAIL BED.
FEN SURVEYS MAP 5.
WINDENTIELD DELINEATION - NO ACCESS
IP5-1 ABUTTING RIVER.
3 LIMONITE LEDGES

RAIN

1F5-2 ABUTTING RIVER
LAKE FEN - VITUALLY BATTEN
ALSO FOREST I.F. NO ACCESS

IF5-3 BLM
34. SERIES OF BERRON LEDGES OF BLACK MOSS COVERED
TO SE
BETULA GHANDULOSA - 2 10" PIEN
CAYEX AQUATILIS - < 10"
BLACK MOSS
GOME WHITE HIMONITE HERE
HEALTHY ROW OF WILLOW ALONG ROAD
MINI-LEDGE OPPOSITE SIDE OF ROAD
SMALL PEM FINNIE SE BLUK OF CIEEK
CREEK NAROWS & DEEPENS, MUDDY FROM RAIN
MOSS LEDGES ON FEN SIDE

Fringe Wetlands Map 6-1 6200 FT

1 PEM

2 PEM 1 PSS

WL 5-1, WL 5-2, SEPARATED BY STRETCH OF ERODED BANK. W/
LARGE PIEN

WL 5-2 OCCOURS ON BOTH BANKS SMALL LIMONITE LEDGE ON

EAST BANK. HIGH LIMONITE BANK ON WEST SIDE NEAR 1F5-4,

FEN ON WEST SIDE WAS ORDINATE WATER. FOU CREEK, LEDGES

DOWN TO CREEK. BEGL + CAAR DOMINDANT. BLACK MOSS

FATCHY WETLANDS ON BOTH BANKS BETWEEN 1F5-4 + IFG-1 (NEAR SILVERTON MOUNTAIN SKI AREA).

SOME RAIN. 505.
PATCHY WETLANDS SOUTH OF SKI AREA,

THIS MREA. CAN'T BE SEEN BECAUSE OF SOIL + VEG.

NO ACCESS NORTH OF SKI AREA.

LEFT SITE 6:37 P.M.

Job		·	Project No.
Description _	WL10-1	Creek-fen nexus	
·····	,		Checked by

SKHAU ed by

Sheet

8-25-11 Date

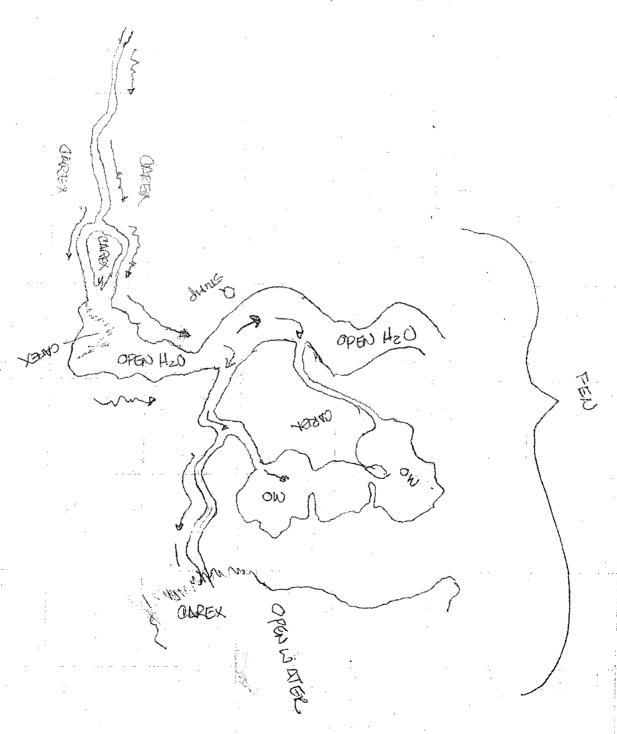
Date, nnn174

1 of 1

Reference

MOGUL FEN WATER FLOW FROM CREEK FORK INTO FEN

FROM FORK



URS		Page of
Job	Project No.	-
Description	Computed by	Sheet00017
	Checked by	Date
KEYED WETLANDS FOR EPA CEME	NT CREEK PRJ. (Z:	22424 prence
KEYED WETLANDS FOR EPA CEME Gentiana acuta - autumn dwar	fgentian WI-11-	1-873
Carex canescens - pale sedge	WLU	I-IE
Carex nigricans - black alpine sedg	e (aka.punk) WL 11-	-1 Kall we in 11-1)
Juncus parryi - Parry's sedge ruch	. WL-II	-1 all WL areas
Carex albonigra -black-and-white s	cale sedge WL 11	-(-SP1, SP3
Epilobium ciliatum - nainy willowherv	WL 4	-1
Juncus Mertensianus - Merten's rush (black ball-uke WL 11 seed nead)	-l-5P3
Agrostis scabra - rough bentgrass	WL 4-	<u>, </u>

Variate Make a small land code

Carexillota - small-head seage

(little black neads) WL11-1-583

Per Barry - Deliverables as of 8-25-11

- set of maps marked "preliminary" by
- photos of sensitive areas/ openes influenced by creek by Sept. 2nd Friday
- email outlining any sensitive species/areas

- PNEUMONOTHE PARRY 1 -

- VERONICA NUTANS SIBBALDIA PROCUMBENS - HERBACEOUS GLALICUS GROHNDCOVER TRIFOLIATE LEAVES.

PAGE NO. LOF BY SUSAN HAW

... 000176 8:33 AM - ARRIVE @ FIRST SITE 650 - MOSTLY SUNDY WL 5-1 PW5-2 - WL5-2 ON BOTH SIDES. MARGINAL LENGTHS FENS ON TERRACES ON BOTH GIDES OF CREEK. PROSPECT GUICH ON WEST. NO IRON FENS HERE. RAIL BED SPLITS FEN. RED TAIL HAWA LEFT SITE 9:52 am, FLOW HAS SLOWED & CLEARED (SOMENHOT 10:00 AM - BLM LAND NORTH OF SKI HILL (CONFLUENCE OF DRY GULCH) DV9 GULCH DRY, SMALL PEM WETLAND TERRICE, CACAL CACAL SAMO, DECE, FERRO CONCRETE LEDGE NORTH OF WEILDNO AVALANCHE CHUTE TO EAST, EVIDENCE OF LARGE MOODY DEGRIS IN CREEK VIEW PRIVATE LAND FROM ROAD - NO METLANDS 2ND STRETCH OF BLM LAND (ABJACENT TO LARGE PULL OFF) PEM PSS WEST SIDE OF CREEK, SAMO, SAPL, CAAQ, CACAI Drops out AT POINT BAY, SAUX AT WEER BEND ON LIMONITE LEDGE. SEEING MORE JUBA IN CIPLANDS GOING NORTH LOW GEOWING DARK BANKS EVODED TO NOVETH OF SECOND FOOTBRIDGE. 1F6-2 WEST SIDE OF CREER, CARD, BEGL, SMALL PIEN, BEGL TALLER MOS IN SPOTS HERE, SUBSTRATE SPONGLER IN PLACES, I AREA OF EXPOSED LIMONITE NEAR CREEK 1.5 x 1 Ft. TEST COVERED WITH LOW GROWING MOSS ON VEG ETATION. SOME OF THE LEDGE WAS DRY NO WI TO MAP & END, LARGE SUMP WITH WOODY DEBRISE IrON PIPE IN CREEK. LONG LIMONITE FEATURE (DITCH) ALONG ROAD ON WEST SIDE NUMBROUS SMALL LEDGES & HOO FLOW DOWNSTREAM, CHIVET THAT WOULD HAVE CARRIED FLOW TO CREEK IS CLOGGED, FLOWS DOWN HILL INSTEAD, EXPOSING LEDGES. 1 FEW AT TOO SLOPE WATER DARK RUST COLOR, FINISHED MAP C. 11:00 AM, OVERCAST @ 11:29 AM, WIND PICKS UP EIDUGH TO SWAY TOPS OF WILLOW BRANCHES (DON'T KNOW EXACT MPH) LEFT SITE 11:37 AM.

11:55 AN 1F7-1 - LARGER IRON FEN ON WEST SIDE OF CREEK. LEDGES TO CREEK. LIMONITE DITCH WEST SIDE OF ROAD.
11:57 IF7-2 LEDGE IN CENTER OF FEN. CAAQ, BEGL, CACAI, BARK MOSS 12:01 PM IF7-3 SLOPE IRON FEN, FIRST ONE SEEN.
12:16 PM LUNCH BEAK.



DATE <u>8-26-11</u>

PROJECT NO. _____

PAGE NO. <u>2</u> OF BY SKABLL

	12:45 PM RESUME SULVEY, AT GLADSTONE 000177 GULVEYED FOR SPHAGNUM OBTUSUM, OBSEVVED THREE TYPES THAT APPEAR TO BE EITHER DIFFERENT SPECIES OR VARIATIONS OF SIMILAR SPECIES (PER P.I.), IRON FON HABITAT MOSSES GROWING ON TOPS OF HUMMOCKS, FOUND I LIVERWORT, COLLECTED CHALL SPECIMANS OF EACH. BEGAN TO HAILE I 10 PM BEGAN RAINO 1,15 PM. LEFT MOSS SITE @ 2105 PM.
2'10 pm	FOLM LAND PIRECTLY DEOVE GLADSTONE. 1 PSG + 1 PEM (PSG 'INFILAND ON EAST SIDE OF CREEK LOJACENT TO QUANSET HUT.
2.43pm	RED & BON-ITA MINE - TEM NEXT TO ROAD/CITEK. DECE, JUPY DOMINANT PATCHY PEN/PSS DIRECTLY BELOW MINE. CONBINATION OF NATURALLY STEEL SLOPES, LIMONITE & MINE WASTE. HEAVY EROSION, ABOVE MINE - PEN BOTH SIDES, WEST SIDE A PERCHED HZO TABLE. DECE, CAAQ, PIEN, CACAI, JUPA, VETE, WETLAND RENCHES FUTTHER NORTH WITH A SHAW HEEB. FRINCE + 50 90 PIEN. PEN EAST SIDE OF CIEEK, SENECIO TRIANGULARIS, DECE, WOODRUSA, SAPL, JUPA, FALSE HELLEBORE, CACAI, ACONITON, 20 90 MOSE/ROCK, PIEN GEEDLINGS. WEST SIDE - PIEN WITH DECE FRINGE (IFT), ROCK, MOSS, > 75 90 PIEN.
	LONG, PREDOMINANTLY PEM WETLAND (WL9-1). SUBALPINE SLOPE WL'S AGOVE, 21 BANK DISTURBANCES, Q 7 FT. PEAT LEDGE, AND A BANK SLOUGH, SOME PEM ON WEST SIDE, OBSERVED NEW MOSS IN WETLAND, WEED TO FINGH REMAIN DES OF MAP 9 ON 8:27-11. M LEFT SITE.
	GENERAL NOTES THE STREAM BONKS STEEPEN ABOVE WL9-1. INVESTIGATION UPSTREAM WILL LIKELY OCCUP WITHIN A STEEP SIDED CHANNEL WITH FEW OR NO PERCHED AREAS.

PAGE NO. OF BY SKHAW

MOGILY SWINN 47° F. 8:35 M. ARRIVED PARKING AREA. HIKED UP GRAVEL ROAD TO SITE 0001' 9:10 AM ARRIVED AT NORTHERNMOST BUM SURVEY AREA + HENN'S PROPERTY. PATCHY PEM NETLANDS ALONG BOTH SIDES OF CREEK INTERMIXED WITH ROCKS. STEEP SLOPED, PIEN TO EDGE OF CREEK, SUB ALPINE GLOPE WETLANDS ON FOTH GLOPES. NO CONTINUOUS WETLAND FRINKE OF FLENN'S PROPERTY BELOW MOGUL FEN. [PATCHY, STEEP-SIDED. 10:15 AM. (SEE MAPIO)
10:70 AM WL9-2 - ORIGINALLY THOUGHT WETLAND WAS LESS THAN 200 Ft. PEM FRONDE ON E.SIDE OF CREEK., NORTHBON PONTON IS SUBALPINE MEADON. DECE DOMINANT, JUPA SETR, VETE. THIS FEATURE OUT OF THE PRIDE OF BONITA MINE TAILING SITE. THERE IS A FOUL OPON COMING FROM THE TAILINGS. ONE DISTURBANCE K2S FEET AT TAININGS CONSISTS OF TOILINGS. LARGE WOODY DEBRIS AND OUD INOU IN CREEK HERE. 12:79 PM. LEFT SURVEY AREA. 12:45 PM. JEFF SURVEYED TO PEKA GUICH IRON FEN WITHIN BUM PROPERTY. NO UNIQUE HABITATS. LEFT SILVERTON 1:10 PM.
POTENTIAL FENS 8.90-11 ADJACENT TO CREEK
- 2-1 have soil sample - 3-1? - 3-3 { determine In field - soils obviously histic - 4-1 } - 9-2 have soil sample - 10-1 have soil sample

RAA bemant break yer/11 Drue Dun to Mich 9 he show. become of and with religion 8/21" Sour 200 boulder - Il Dire news Grand Magal at 14:30 do Wally & 58 11:45 59 il on sidednange ung at for who yele when I worken , in his I me how land Share age your, Incu 800 Jul spor be someth when I glod i has Soraned by spare joiner. - male to de pl of 22 out open 12. Am de continue V.M. man our 55 2 at hohar wine. man hang has white a stang. +12 ove 55 wal word for turn party down J.DD Dawson

17 - 10 teel downed alt r Jyun Joney (~ Word here he way - how Symples / Sp Sel. Celleborz halow or oct to mhe mire pool / disheland Spor wedlite 1 = Lencie 0 Crowd Royal is & the more live Les of bind of conjumps by Spl at Spr inde and hart for knowled of algors allow of the areho willen fol mud on Mark ards Bergin and por Into your - look the west If I as to have my brands in and the dry lands him reto by ray hot a noture your me voterte, so they projectly som me L-101- 152 Jy The wall in dominate - Von - 2 pis property backwise fairy splis (Spedden Creaming) Dulan - I SP3 T Scargeye and an mit side 1. He Kroyam of D James Pacher 1 12 O James phory 110 18-4 10 month on 1800 1 3-10° vade elfore horally Januar Son (4) 2:00 Dans Jeff Daven

12th Cement Cred 8/23-24/11 Call Derdin god of rose is the Legery by bygone "Phonogime 6.11 das Brandisco Derc-11. 1 7.3 m-n 200-r-Ll. donder Bours law 0 343-1 55PEA/5PA your the sh 3-2 Ent Ust dobe sheet 3-2 Ear same Mrs Hah John - Com dela deje 3-3 60 6 Wine Comes whyle 4500 Helen D 6.the junk - Prangamenthes after main so med. spaces of 8/24/11 Heat 8:15 in Dila Dubune inderinale) Pachera dimerphy slo promounty - do um with 3000 vo may and access Say by read - (gold of sal on the star and cont a 3-36 - H Auhm meth of broom mers of fix is show the documentar willow gred Sen - Juris de sengle vod Jadr Same Sapl with anywhile mil com Successful vel Jakingh down and sul manual mone you ale so have 4. Jest Down Jeff Damen

8/L4/CI comband Comer Create bount beef 8/ 54/11 Compound Let our on I may - 918 loss of by lim and lage in we are sugle now out. - fresh - now me gipmon mung of gradient To much my they we per before they has do sill So well ved here in planty had borred - 1 min min precure up a reputer can any dy - 34 do have had my hop in this Careyon Carlot is mad and the same chungh copy - me door chy h world 21 hop the channel war cajorary of by Lot coap sakund dyp vody Low balm ret or PEH) Pur sporm, by burn an out cart of Jany sold. In approach test on out for Ten you at x - chhoose y he wined - rough to Vocal Old flow on Esta By Low Sayl many love and coas why be his vorden cap. von bet doil for - argan - or mady ned layor of day to when ety cryher hand star gad Fragy to well as goden com, Myz mhel 2nd sompt. Lobble of some pal - . B my om & Cardam we the cap much mud? Water Oorh all boursendary penched wish as even now - ho ble 6 JSD Davin 25th your

8/24/11 Confirmed check اسم ing 3 you but parameter toy 3 - North dono brown - too & coll Storm - par shya beth for Cura activit ? yelle Longel bowray lungerson The chim his brown Volcein - diffing fight dropy some force where to sale Palabile 7 below oco is down willow of burn with hailer but hired. rosall with - phy moss league 8 Jell Damen

8/27/4 Combound ... semme com 1). I uglad Febr in done femal one ende replan setter and Umbica Park of PS ? Those & dege Som de uno diamon, transcens. Lista Achillas Coal Behal O gin just de more. by where at five der (Calaria trad spann 25m? Wight - D Gen moias had craw Stellan TI Parm 9 h regain

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8/24/11 Combine. Crail creek 8/24/11 Condonuel Dre Dune Bell dan? come vish anders Vocim Wether when is I'l Bramen & chichen morey bank with cases. Company Life Lyular Later William (orth Grand John Knyllige - dellm Brethen t. englassiant In appears I be a Red to & muc! very orruse ! Jenan but everybe with (17 Cere a up side of road Now dry law land willdall to warmy will ar with whom mera measur on y to just such Bahula Jule helleton - 1-y - premjeds barnet erch wes, I harby gudil on -shot Charmer of Bens Com Tith 1.08-Cropin yan (coranic) numer (vagen's L'Ju de un Exth on the of when 5- Popullic Jell Daven

8/12/11 Condinus safter many 8/25/4 EPA Cerront Crea Boy Jule-ju 2 and how The He finds all ign proposed rody; cosin porzi Persenging ser problem elyland had so so wishy box lith a mos/1200 Sedan (as (& pass rullen langia but very year on him and After to no be below mine su for much - to me yes Um -. 0 for domination rend bill Om one lighter, Voralin givet gra Patalila Holenom Jeff Damen Jeff Dawan

CSTONA

8/25/1 and mun and some of war dering. This is Crippin We one were visibly show- Shound In soage Gebrus Slaving channels when Cery parke Soft in pant wany mander at oph brury subje. Cace on hym be are very during they Smon &u over 4 min by mount Bommed on Driver I my. Calle gare. formally by pulchemone المهنب Sporm on the L me moral of 41 a gran & moss 1 He babula Sign, ca separate rigare your for about office 14 Jest Daming

8/25/4 combined Atal Count 145/84h by we wa me was cold an work In - a thingh was hare In at Carein form Sept with him I was might containe Renders a which Some for the same he so ye done ive her de at age of with broated chandle I'm ant for ve 2.0 and hower is affect to the an award phisher which were what end in in lost. mierdinan lyled 2-2 your measure. food (17) Jeff Daven

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Umany Way 8/25/11 Com dermy Show 5 plats iven In he red your donated blow pade that day, Bedal that four kay selemon Sport Sould Sport Done for Joshuhi = Comprison In In me bedauer up on 5th the were more a Summer's for of our on meet Vacanin, must ich chendont Some dy meda plat lite on ingland LA no western do the man for at we part cably part the winds without super 25' com war support we as bow surface 16 Jeff Donan

8/25/11 Condinues comme week for 5-2. It gode sporate it f 15 very sel ment ? me ledy morely (any of Sol Corner concerns lite of aldres when it wh sum in vide in wee for 2a out of Rk for Spening Coap & Hoch with fence week links amount with Som Spran in For do le aj mile is niver Theek 8 Wh Inso Pink Cartilogi sail winner prin dylin " مراج وسا Veneron in water Clere or I have any run Ryur Dure a small gonden

TIP Paran

8/20/a fring men men mostro. Mary 8/2011 conditioned union trug white co crown of frame but Cyled 5-2 spect no 170 more part y when 5 browler a empleadeur Jan dah tint he was how Englin ferson Caco en egy today Loda mos som ten brown elex winder and so of its more Wh I langer flow Som les products Aurl No search du par pas form July begrow in the men but We have experien hant day Sidony much rodich o Polartile - agitale D Son Vaccin from he Pho misty mendels andy on jolde yle -Aux 2 mila hom hand is good probably come vot bet & By Color De pont thereton a conserpt now po function by dra Michael by south and (That's) Jeli Sh ingous in down Cores 0 John D Svanu 4 D 1 -11-8 braky Courthurs humboth craying plantin Fregue ran mee lager - I think were has 1 pro-Johnson Darke D bun and of ove larly the pour passon Conos him ling kin 18 post or calling in harasters, on ward draw Jold Doman

DIAX

triand 8/52/81 comprimed Lywhyn (da. Mit argen P Cares James but not lot of his J-1 I will hay beef place of home meny terrem saturall an way tacy and Bahale no coloque san Conthern by me age 5' with brown I wash on many dem cook viste a comple father of sphore more but , schools grad , scope bes Vary cost. Overt your in him How early on some I - M when As In is misty to about you Ran 7:23 muchy on monorch Long & Sime Com Schorates, or geets, in was no Sprague make som om accountate your asse of PSE Sql, Some Butche appoon to have his In appoint - where to Lott your

110 -009 8/26/11 Condinuer have the hood and entach In the war war and med Jed must - south end Caco demund some of Alan 11:30 cm cm secont Ivan Bord phradyput for road a you own knowings timeste diden in unbas 136. A may boar un haper In Some many of black some but by but well derry in Silvada - Flantine and Northery & Stomer Someway by why we werend by Charme to get reach image French de spier - voy dendud. by they down with much water -I were should y lets, babilly spring. Day was it comon.

Jeth Daving

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4.800 14.

8/20/4 am drawed 2:30 -5:30 Pm have be wolfer & grand marker fonds tan by the southern were liver and must were Lora Contr met indrynt arend producty with me consist ment and the dro De a hand Lugar de such Jamesman Four had no they beginn a man Sorice of when a book men des chage - church changes cornally. Neuch of love once appear to have him Jeff Davin

Cement Creek 8/27/11 Sma-Hell on Jeff Java 840 will De Bonde Muse Sica Start apper and of Eur 10 route. house my my problem y without per or way then have - as and Dene_ musy 547/58 on 1/2-Ships . Very mais a bell Englands command (carein 6.0 Jan destr of shiply the Della-Dornh lugs wom funda I man would Branch click her Gulon benjam penyam lace Dix wish popular

Jett Dawin

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Spelle Condemned 8/27/11 condemned aron Crap foot and south of in 1800 is when one hello bor Juden D wort to have met met Coer (acy can True Shader The copy D appen de la blom minue wants around not have to when y a prove the mend Brown Lichar D some on an energy was 1 but on 0-3 I change on will helm saay Helman P fragan " D Some some part 8 that of west deal own is fail Donath Portugally it a man in spine Pulmmen, not by olighy Ilm 11:30 Sum dong reflect 9-1/ 5/2 8-1 PLA SN. ZI hele do 16" al Ibray very valuly Sheet 5 won ten cert y man made mut with your gollow soul Scape madre at clasive Tipe halds Lace non spect seure sprymer ten I want how on the strend on wh Junton vola Iday Series in sand from sheet, red was don't dward the Dell - 15 yes now have in porch too War you at bother Cocy - Show you Redun de laurer JEFF Dowen Jest Dawn

000191

Appendix F Laboratory Data

Kent Alexander/UOS/URS

1099 18th St # 710 Denver CO 80202

PAP-Accredited

DATE RECEIVED: 09-30-2011 DATE REPORTED: 10-06-2011

RESEARCH SOIL ANALYSIS

Colorado State University Soil, Water and Plant Testing Laboratory Natural & Environmental Sciences Bldg - A319 Fort Collins, CO 80523-1120

(970) 491-5061 FAX: 491-2930

BILLING:

Lab #	Sample ID #	% Organic Matter *	•					
				, ·	·			
R1760	8-24-11-1	43.2					 	
R1761	8-24-11-2	23.2				•		
R1762	8-25-11-1	34.3						
R1763	8-25-11-2	29.4						
R1764	8-27-11-1	28.3						

^{*} Expressed as weight loss on ignition .