I-70B WEST

I-70B West

Wetland Finding

Prepared For:
Colorado Department of Transportation

Prepared by:

Carter:Burgess
707 17th Street, Suite 2300
Denver, CO 80202

February 8, 2008

Table of Contents

List of Tables:

List of Figures:

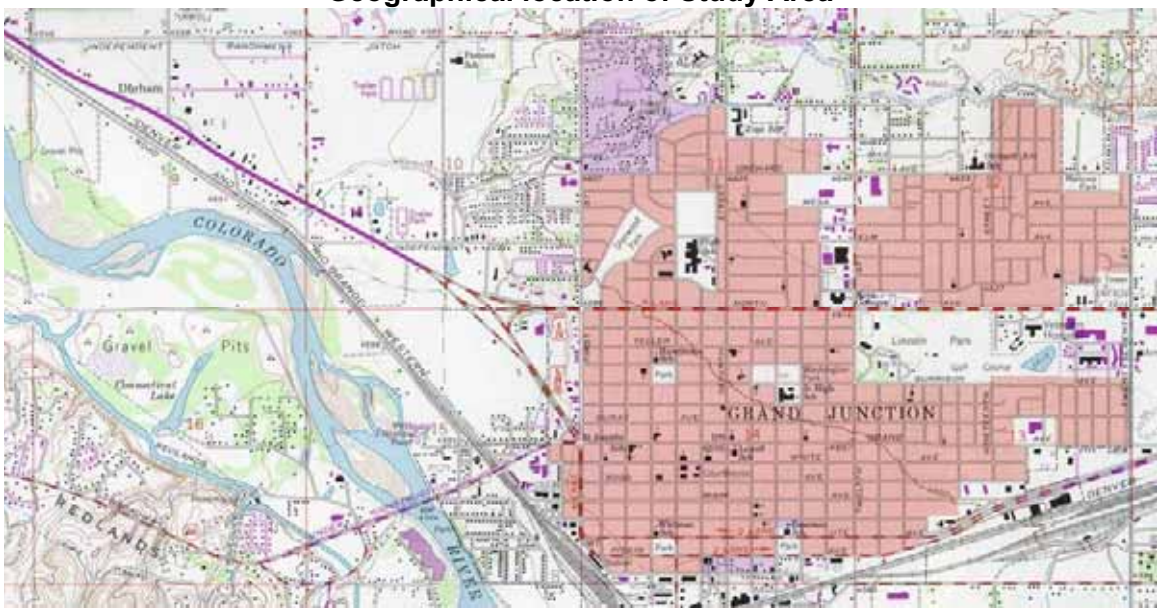

I-70 BUSINESS WEST

INTRODUCTION

The following is a wetland finding for the I-70B West Project (Project NH 0701-166 (14932)) in Mesa County, Colorado that has been written in compliance with Executive Order 11990, "Protection of Wetlands," and is in accordance with 23 CFR 771, 23 CFR 777, and Technical Advisory T6640.8A.

The Colorado Department of Transportation (CDOT) is proposing improvements to the I-70 Business Loop through Grand Junction from 24 Road (MM 2.42) to 15th Street (MM 6.59). The proposed project is located in Mesa County. The legal location is Township 1 South, Range 1 West, in Sections 9, 10, southwest 1/8 of 13, south ¼ of 14, and northeast ¼ of 15 of the USGS Grand Junction quadrangle (See **Figure 1**).

Figure 1:
Geographical location of Study Area



(USGS, 1962)

An Environmental Assessment (EA) for the I-70B West project is underway and a Preferred Alternative design has been identified (*Draft I-70B West Environmental Assessment*, 2007). The Preferred Alternative would provide 6 lanes of through travel throughout the I-70B West study corridor. The section of I-70B from 24 Road to Rimrock Avenue would be widened, additional turn lanes would be provided where warranted, and access

would be controlled to improve through traffic operations and safety. The North Avenue interchange would be improved to provide additional through capacity, better traffic operations, access to businesses west of I-70B, and improved safety. The 1st & Grand intersection would be reconfigured and improved to include additional through capacity and turn lanes. The 1st/2nd/Ute/Pitkin area would be improved to upgrade operations to accommodate the third lane in each direction and improve safety. The 4th/5th/Ute/Pitkin area would be converted to one-way 4th and 5th streets with additional turn lanes added to reduce vehicle conflicts and improve traffic operations. **Figure 2** shows the study corridor.

Figure 2:
Study Corridor

Impacts to wetlands were considered during the design process and potential impacts to wetlands associated with the Ligrani Drain would be avoided by placement of the ramp and sidewalk fill slope outside of the wetland boundary. As widening of the roadway would be a necessary component of the project, impacts to wetlands in the drainage ditches adjacent to I-70B could not be avoided. In the case of these permanent impacts, a suitable mitigation plan will be applied.

Land within the study area is fully developed and urban in nature. The Union Pacific Railroad and Colorado River parallels the southern boundary of the study area, creating a defining break in land uses. At the western end of the study area, both sides of I-70B have been developed with retail and commercial uses, including large retail associated with the Mesa Mall and "big box" establishments such as Office Depot and Wal-Mart. Industrial uses are found along the south side of I-70B backed by a few isolated single-family residential structures along River Road near 25 Road. Land uses around the I-70B and North Avenue (US 6) interchange include mostly light industrial with some general retail and commercial services found directly adjacent to the interchange. South of this interchange to the intersection at 1st Street and Grand Avenue, land uses consist primarily of strip commercial development on either side of the highway.

From the 1st Street and Grand Avenue intersection and along Ute and Pitkin Avenues to 11th Street, land use consists of a mix of commercial, residential, and civic uses. Development along this area is more consistent with the historic grid of the downtown area. Auto related businesses (oil and lube, car wash, auto repair) are the predominant commercial enterprises within this portion of the study area. There are also numerous pawn shops and building supply companies. Civic uses along 1st Avenue include the Two Rivers Convention Center, and along Ute and Pitkin Avenues include the Whitman Education Center, Museum of the West, Grand Junction Fire and Police stations, a Greyhound Bus Station, and two community parks, Whitman and Emerson.

From 12th Street to the project terminus at 15th Street, commercial uses are present along the north side of the study area, with mixed commercial and light industrial uses found along the south side of the roadway.

The study area is located in the Colorado Plateau Ecoregion and the Shale Deserts and Sedimentary Basins sub-ecoregion. In the western retail/commercial and central portions of the study area, the dominant vegetation types include landscaped areas, saltgrass areas associated with I-70B and North Avenue (US 6) interchange, and weedy kochia and windmill grass in vegetated areas of the highway right-of-way. The eastern portion of the study area is a mix of residential, commercial and light industrial uses; except for mature street trees, landscaped areas, and lawns in parks and in front of some businesses and homes.

Based on records from Mesa County, the average annual precipitation for the area is 8.64". The study area is located within the Colorado Headwaters-Plateau watershed (Hydrologic Unit Code #14010005) east of the Colorado River and contains numerous retention ponds, drainage ditches and a CDOW pond within its boundaries.

METHODS

Wetland delineations for the I-70B West study area were conducted by Carter & Burgess, Laura Backus and Brad Stoneman, on August 31 and September 1, 2006 in accordance with the U.S. Army Corps of Engineers (USACE) 1987 Wetlands Delineation Manual and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, where for each wetland data is collected based on the presence of hydrophytic vegetation, wetland hydrology, and the presence of hydric soils (Environmental Laboratory, 1987). A wetland was determined to be present at a site if all three parameters were met. The boundaries of each wetland were then mapped on project sheets using a Trimble Geo XH Global Positioning System Receiver capable of submeter accuracy and supplemented by field measurements.

The indicator status of vegetation was derived from the National List of Plant Species That Occur in Wetlands: Intermountain (Region 8) (Reed 1988). Plant nomenclature follows Weber and Whittman (1996). Soil map unit names were collected from the National Resource Conservation Service Web Soil Survey. Wetland data forms and wetland photographs are presented in Appendix A and Appendix B.

RESULTS

Seven small roadside ditch or cross culvert pipe wetlands totaling 0.096 acre are present within the study area (see **Figure 3**). This total wetland acreage represents an extremely small portion of the entire study area. Wetlands 1, 2, and 3 are comprised of emergent vegetation (cattail, spikerush, barnyard grass) along the banks of roadside ditches which receive runoff from adjacent parking lots and I-70B. Wetlands 4 and 7 are emergent cattail wetlands located at stormwater culvert outlets. Wetlands 5 and 6 are bands of emergent vegetation (reed canarygrass, common reed) adjacent to Ligrani Drain.

Figure 3:
Wetlands within the I-70B West Study Area

Wetlands 1, 2, 3, 4, and 7 drain to cross culverts under I-70B. Wetlands 5 and 6 are associated with the Ligrani Drain, a historical drainage that was established in 1950 as a measure to lower groundwater levels in the area. Both Wetland 5 and Wetland 6 drain into the Colorado River. In events of intense precipitation, Wetland 6 also empties into the CDOW pond located north of I-70B. **Table 1** provides a summary of wetlands present in the study area.

Table 1:
Study Area Wetlands

Site ID	Acres within the Study Area	USACE Jurisdictional?	Wetland Type*	Comments
Wetland 1	0.052	Yes	Emergent	Ditch
Wetland 2	0.013	Yes	Emergent	Ditch
Wetland 3	0.010	Yes	Emergent	Ditch
Wetland 4	0.003	No	Emergent	Storm Water Detention
Wetland 5	0.007	Yes	Emergent	Ligrani Drain
Wetland 6	0.010	Yes	Emergent	Ligrani Drain
Wetland 7	0.001	Yes	Emergent	Ditch
TOTAL	**0.096**			

**Cowardin, L.M. et al., 1979. Classification of Wetland and Deepwater Habitats of the United States. United States Fish and Wildlife Service (USFWS), Biological Services Program; FWS/OBS-79/31.*

The seven wetlands present are classified as palustrine emergent (Cowardin, 1979). Completed wetland data forms are included in **Appendix A**. Wetland photographs are presented in **Appendix B**.

Plant communities represented in the wetlands consist of vegetation typical of palustrine systems according to the Cowardin classification system. Wetlands of the emergent class are typically associated with grasses, sedges, rushes, and forbs. **Table 2** displays vegetation identified in the wetlands in the study area.

Table 2:
Vegetation Summary Table for Wetlands in the I-70 B West Study Area

Common Name	Scientific Name *	Wetland Indicator Status**
Showy milkweed	*Asclepias speciosa*	FACW
Plumeless thistle	*Carduus nutans*	NI

Table 2:
Vegetation Summary Table for Wetlands in the I-70 B West Study Area
(continued)

Common Name	Scientific Name *	Wetland Indicator Status**
Wooly sedge	*Carex lanuginosa*	OBL
Field bindweed	*Convolvulus arvensis*	NI
Inland saltgrass	*Distichlis spicata*	FAC
Barnyard grass	*Echinochloa crusgalli*	FACW
Creeping spikerush	*Eleocharis palustris*	OBL
Kochia	*Kochia scoparia*	FACU
Lady's thumb	*Persicaria maculata*	FACW
Reed canarygrass	*Phalaroides arundinacea*	OBL
Common reed	*Phragmites australis*	FACW
Buttercup	*Ranunculus spp.*	NI
Curly dock	*Rumex crispus*	FACW
Softstem bulrush	*Schoenoplectus lacustris validus*	OBL
Narrowleaf cattail	*Typha angustifolia*	OBL
Chinese elm	*Ulmus pumila*	NI

**Scientific Names based on nomenclature provided by Weber and Whittman, 1996.*
***Wetland indicators based on Reed 1998 (Region 8) Intermountain Wetland Species Indicator List.*

Wetland 1

Wetland 1 is a 0.052 acre emergent wetland dominated by cattail with minor cover by lady's thumb, bulrush, barnyard grass, sedges, and buttercup. The wetland is comprised of three separate areas; all are in the ditch between business parking lots and the northern side of I-70B.

Hydrology is primarily provided to this area by parking lot drainages from several adjacent commercial restaurant locations. Additionally, the side slopes are landscaped and have bluegrass sod that is watered by overhead sprinklers, which adds to the hydrology of the ditch.

All vegetation observed in Wetland 1 is classified by Cowardin et al. as emergent species. The dominant wetland vegetative species for Wetland 1 is narrowleaf cattail (*Typha angustifolia*), with lesser coverages of creeping spikerush (*Eleocharis palustris*), lady's thumb (*Persicaria maculata*), softstem bulrush (*Schoenoplectus lacustris validus*), barnyard grass (*Echinochloa crusgalli*), wooly sedge (*Carex lanuginosa*), and buttercup (*Ranunculus spp.*) located throughout. The cattail, creeping spikerush, softstem bulrush, wooly sedge, and buttercup are perennial in

nature. The barnyard grass and lady's thumb have annual growth durations.

Hydrology for Wetland 1 is provided primarily by runoff from parking lots and groundwater. Much of the area surrounding the wetland is commercial landscaping and bluegrass that is irrigated throughout the growing season. Frequent recharge from these activities creates standing water in the wetland.

Soils are brown (10YR 5/3) clay with common gray (10YR 6/1) mottles. The soils show borderline colors, indicating that the soils are developing. Wetland 1 is classified by its map unit name as Sagers silty clay loam.

Wetland 2

Wetland 2 is a 0.013 acre emergent wetland dominated by creeping spikerush and narrowleaf cattail. The wetland is located in the ditch between business parking lots and the northern side of I-70B. This wetland is very similar to Wetland 1 in both position in the landscape and the hydrology.

The vegetation observed in Wetland 2 is perennial in nature and classified by Cowardin et al. as emergent species. The dominant wetland vegetative species for Wetland 2 is creeping spikerush (*Eleocharis palustris*), with coverage of narrowleaf cattail (*Typha angustifolia*) also present.

Hydrology for Wetland 2 is provided primarily by runoff from parking lots and groundwater. Much of the area surrounding the wetland is commercial landscaping and turfgrass that is irrigated throughout the growing season. Frequent recharge from these activities creates standing water in the wetland. Wetland 2 drains into Wetland 1.

Soils are dark grayish brown (10YR 4/2) with dark gray (10YR 4/1) mottles commonly associated with developing soils. Wetland 2 is classified by its map unit name as Sagers silty clay loam.

Wetland 3

Wetland 3 is a 0.010 acre emergent wetland dominated by barnyard grass. This wetland is also a roadside ditch but is not surrounded by

bluegrass sod like Wetlands 1 and 2. It receives runoff from a large paved parking lot and the westbound lanes of I-70B.

The vegetation observed in Wetland 3 is annual in nature and classified by Cowardin et al. as emergent species. The dominant wetland vegetative species for Wetland 3 is barnyard grass (*Echinochloa crusgalli*).

Hydrology for Wetland 3 is provided primarily by runoff from parking lots and culverts at its east and west ends from I-70B. Hydrology was very faint at the time of survey and appears to occur only during short, seasonal intervals.

At the time of the wetland survey the soils were damp at the surface. A sandy clay loam soil displayed a gleyed or low chroma condition. At a depth of 12 inches, the soil is a dark grayish brown (10YR 4/2) with common mottles exhibiting yellowish red (5YR 4/6) color. Wetland 3 is classified by its map unit name as Green River clay loam.

Wetland 4

Wetland 4 is a 0.003 acre emergent wetland dominated by narrowleaf cattail. Wetland 4 is a small stormwater catchment in a cobblerock covered median area. It does not appear to have an actual outlet pipe and acts as a detention basin.

The vegetation observed in Wetland 4 is perennial in nature and classified by Cowardin et al. as an emergent species. The dominant wetland vegetative species for Wetland 4 is narrowleaf cattail (*Typha angustifolia*).

Hydrology for Wetland 4 is provided primarily by runoff from parking lots and culverts at its east and west ends and from I-70B. Much of the area surrounding the wetland is commercial landscaping and turfgrass that is irrigated throughout the growing season. Frequent recharge from these activities creates standing water in the wetland and there is no apparent outlet associated with Wetland 4.

No soil sample was collected for this site due to a restrictive surface layer. Soils are assumed to be hydric based on the dominance of obligate vegetation with a distinct, sharp boundary. Wetland 4 is classified by its map unit name as Green River clay loam.

Wetland 5

Wetland 5 is a 0.007 acre emergent wetland dominated by reed canarygrass, with curly dock, showy milkweed, and Chinese elm also present. Wetland 5 is located along the banks of the Ligrani Drain as it flows between pipes under I-70B westbound and eastbound. Due to its location in the landscape, being surrounded with steep, dry banks, the zone of influence from this drain is very limited. There are a couple of small terraces at or slightly above the water level, otherwise it is much too dry to support wetland vegetation or create hydric soil

Vegetation observed in Wetland 5 is perennial in nature and classified by Cowardin et al. as emergent species. The dominant wetland vegetative species for Wetland 5 is reed canarygrass (*Phalaroides arundinacea*), with curly dock (*Rumex crispus*), showy milkweed (*Asclepias speciosa*), and Chinese elm (*Ulmus pumila*) saplings throughout. A small patch of plumeless thistle (*Carduus nutans*) is located on the outer wetland fringe.

Hydrology for Wetland 5 is provided primarily from drainage. The wetland had water flow in the ditch at the time of survey. Wetland 5 drains to a cross culvert under I-70B and eventually empties into the Colorado River.

Soils are very dark grayish brown (10YR 3/2), a sandy clay loam with low chroma. Soils in this wetland are borderline and appear to be in transition. Wetland 5 is classified by its map unit name as Sagers-urban land complex.

Wetland 6

Wetland 6 is a 0.010 acre emergent wetland dominated by common reed, with inland saltgrass also present. Wetland 6 is also located along the banks of the Ligrani Drain. It is located along the north side of the Highway 6 frontage road and westbound I-70B, at the toe of slope.

Vegetation observed in Wetland 6 is perennial in nature and classified by Cowardin et al. as emergent species. The dominant wetland vegetative species for Wetland 6 is common reed *(Phragmites australis*), with small coverage provided by inland saltgrass (*Distichlis spicata*). Kochia and field bindweed occur as the soil becomes drier further up the slope.

Hydrology for Wetland 6 is provided by overflow from Wetland 5. Wetland 6 drains to the Colorado River, and in instances of intense precipitation, to the CDOW pond north of I-70B. Water was flowing in the ditch at the time of survey.

Soils were a dark brown (10YR 3/3) sandy loam from 0-6 inches displaying a low chroma, but absence of mottles. At 6-12 inches a value of 25 N with a sulfuric odor was observed: no mottles present in the sandy loam soil. Wetland 6 is classified by its map unit name as Sagers-urban land complex.

Wetland 7

Wetland 7 is a 0.001 acre emergent wetland dominated by cattail species with a very distinct boundary. The wetland is located at a stormwater culvert outlet in a landscaped island west of the 1st and Grand/I-70B intersection in the NW quadrant.

There is only one type of vegetation observed in Wetland 7, a cattail species (*Typha spp*.) that defines the wetland and has a very distinct boundary.

Hydrology for Wetland 7 is provided by roadway runoff and saturation was observed at the time of survey.

No soil samples were collected at Wetland 7 due to restrictive ground layer. Soils are assumed hydric based on the dominance of wetland obligate vegetation and a very distinct wetland boundary. Wetland 7 is classified by its map unit name as Sagers-urban land complex.

WETLAND FUNCTIONS AND VALUES

The functions of the wetlands in the study area are extremely limited due to their size and location within the landscape. Existing functions include sediment/toxin retention, nutrient removal/transformation, bank stabilization, and storage for surface water flows. The wetlands have no aquatic habitat function, little wildlife habitat, and offer no educational or recreational possibilities.

WETLAND JURISDICTION

All wetlands (except #4) are jurisdictional. The USACE has concurred with this determination in a letter dated February 8, 2008 – File Number SPK-2007-01602 (contained in Appendix C of the I-70B West EA). Total acreage of wetlands within the study area is 0.096 acre. **Table 1** lists wetlands present with their size, type, and predicted jurisdictional determination.

PROJECT IMPACTS

Wetland impacts are anticipated to total 0.013 acres to Wetlands 3 and 4 associated with the drainage ditch adjacent to I-70B. These wetlands are in an area planned for widening of I-70B and the addition of a sidewalk. Due to design constraints, these impacts cannot be avoided.

Impacts to Wetland 6 would be avoided by locating the ramp and sidewalk fill slope outside of the wetland boundary.

MITIGATION MEASURES

Mitigation for Temporary Impacts

All appropriate best management practices (BMP) to prevent temporary impacts to wetlands will be followed during construction. These BMPs could include:

- Wetland areas not permanently impacted by the project will be protected from construction activities by temporary and/or construction limit fencing.
- Sediment control measures will be installed where needed to prevent sediment from filling wetlands.
- Fertilizers or hydro-mulching will not be allowed within 50 feet of wetland.
- All disturbed areas will be revegetated with native grass and forb species. Seed, mulch, and mulch tackifier will be applied in phases throughout construction.

- Where permanent seeding operations are not feasible because of seasonal constraints (e.g., summer and winter months), disturbed areas will have mulch and mulch tackifier applied to prevent erosion.
- Erosion bales, erosion logs, silt fence, or other sediment control device will be used as sediment barriers and filters adjacent to wetlands, surface waterways, and at inlets where appropriate.
- Where appropriate, slope drains will be used to convey concentrated runoff from top to bottom of the disturbed slopes. Slope and cross-drain outlets will be constructed to trap sediment.
- Storm drain inlet protection will be used where appropriate to trap sediment before it enters the cross-drain.
- Check dams will be used where appropriate to slow the velocity of water through roadside ditches and in swales.

With proper Best Management Practices (BMP) for storm water runoff and construction disturbances, minimal sediment should ever reach any wetland area. The toes of new construction will be stabilized with silt fence or erosion logs.

Mitigation for Permanent Impacts

Section 404 permitting requirements will be discussed with the USACE. Since total permanent impacts are estimated to be 0.013 acres (0.010 acres of impacts to a jurisdictional wetland and 0.003 acres of impacts to a non-jurisdictional wetland) this project may meet the conditions of nationwide permit (NWP) #14 for linear transportation projects (awaiting USACE verification).

Three potential on-site mitigation opportunities exist within the study area including: widening and reconfiguration of the drainage ditch associated with Wetland 1, establishing shrub species at a CDOW maintained pond, and potential extension of wetlands associated with the Ligrani Drain (see **Appendix B – I-70 B Wetland Mitigation Site Options** for further details about potential mitigation sites and contingency plans). Reconfiguration of Wetland 1 may be the preferred alternative as it would be a better functional in-kind replacement for impacts to Wetlands 3 and 4. The potential for mitigation at these sites would require cooperation from either CDOW or the controlling authority of the Ligrani Drain. It may also

be necessary to establish any potential impacts to established water rights associated with these drainages.

Mitigation will be determined during final design process and the Section 404 permitting process. Dimensions of mitigation sites and placement of wetland material will be subject to a final survey in coordination with project engineers, USACE, and other stakeholders.

INDIRECT IMPACTS

It is anticipated that any indirect impacts to wetlands associated with project construction will occur from increased sediment release during construction of the project and from increased runoff potential before project completion. To minimize the amount of sediment released into the drainage ditches, the Ligrani Drain, and the CDOW pond, mitigation efforts as discussed in *Mitigation for Temporary Impacts* above, will be employed prior to, during, and after construction.

MONITORING

If a mitigation area is constructed instead of purchase of mitigation credits at a wetland bank, success of the mitigation plan will be monitored by a qualified contractor after each growing season following construction. Annual monitoring reports regarding the implementation and success of the mitigation plan will be submitted to the USACE by no later that December 31 complete with photo documentation. The monitoring report will continue until 0.013 acres of replacement wetlands have been created. The reports will contain all of the information as noted in the USACE permit including identifying any concerns associated with the site and make appropriate recommendations.

CONCLUSION

Seven wetlands totaling 0.096 acre were delineated during the summer of 2006 for the I-70B West EA study area. Six of the seven wetlands are under the jurisdiction of the USACE under Section 404 of the Clean Water Act. The Regulatory Branch of the Sacramento District of the Corps of Engineers has approved this determination in a letter dated February 8, 2008 – File Number SPK-2007-01602 (see Appendix C of the I70B West EA).

CLOSING STATEMENT

Based on the above considerations, it is determined that there are no practicable alternatives to the proposed new construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.


I-70 BWEST

REFERENCES

Ballagh, John. Grand Junction Drainage District. Telephone interview. 17 April 2007.

Carter & Burgess, Inc. 2007. Draft I-70 B West Environmental Assessment. Grand Junction, CO.

Colorado Headwaters-Plateau Watershed. Surf Your Watershed. Environmental Protection Agency. http://cfpub.epa.gov/surf/huc.cfm?huc_code=14010005.Updated June 11, 2007. Accessed June 6, 2007.

Corps of Engineers. 1987. Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station.

Corps of Engineers. 2001. Minimum Standards for Acceptance of Preliminary Wetland Delineations. Letter by Art Champ November 30, 2001. Department of the Army, U.S. Army Engineer District, Sacramento Corps of Engineers. Sacramento, California.

Corps of Engineers. 2006. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. Wetlands Regulatory Assistance Program ERDC/EL TR-06-16. U.S. Army Engineer Research and Development Center. Vicksburg, MS.

Cowardin, L.M. et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. United States Fish and Wildlife Service. Biological Services Program; FWS/OBS-79/31.

Grand Junction, CO. MapStats. FedStats. Website updated October 24, 2006. Accessed June 6, 2007. http://www.fedstats.gov/qf/states/08/0831660.html

Macbeth Division of Kollmorgen Instruments Corporation. Munsell Soil Color Charts. 1994. New Windsor, NY.

Reed, Porter B., Jr. 1988. National list of plant species that occur in wetlands: Intermountain (Region 8). Biological Report 88(26.10).

Washington D.C.: U.S. Department of the Interior, Fish and Wildlife Service. In cooperation with : National and Regional Interagency Review Panels. 135p.

U.S. Court of Appeals. 9th Circuit. Headwaters, Inc. vs. Talent Irrigation District. No. 99-35373. D.C. No. CV-98-06004-ALA. Accessed from FindLaw.com June 14, 2007. < http://laws.lp.findlaw.com/getcase/9th/case/9935373&exact=1>

U.S. Department of Agriculture, Natural Resource Conservation Service. 1998. Field Indicators of Hydric Soils in the United States, Version 4.0. G.W. Hurt, Whited, P.M., and Pringle, R.F. (eds.). USDA, NRCS, Ft. Worth, TX.

Weber, W.A. and Whittmann, R.C. 1996. Colorado Flora: Western Slope. University Press of Colorado. Niwot, Colorado.

Web Soil Survey. National Resources Conservation Service, U.S. Department of Agriculture. Updated May 14, 2007. Accessed June 6, 2007. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Appendix A

Wetland Delineation Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-70 B City/County: MESA Sampling Date: 8-31-06

Applicant/Owner: CDOT REGION 3 State: CO Sampling Point: 1

Investigator(s): L. BACKUS, B. STONEMAN Section, Township, Range: 009 1S 1W

Landform (hillslope, terrace, etc.): DITCH Local relief (concave, convex, none): CONCAVE Slope (%): Approx. 3%

Subregion (LRR): INTERIOR DESERTS Lat: 39°5'22.1" N Long: 108°36'12.95" W Datum: NAD 83

Soil Map Unit Name: Segers silty clay loam 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 _____

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

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

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

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Typha Spp.	80	YES	OBL
2. Eleocharis palustris	8	YES	OBL
3. Persicaria maculata	2	No	FACW
4. Schoenoplectus lacustris	2	No	OBL
5. Echinochloa crusgalli	2	No	FACW
6. Carex Spp.	2	No	
7. Ranunculus spp.	2	NO	
8.			
Total Cover:	98		
Woody Vine Stratum			
1.			
2.			
Total Cover:	98		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 90	x 1 = 90
FACW species 4	x 2 = 8
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 94 (A)	98 (B)

Prevalence Index = B/A = 1.04

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR3/1		None			M	Clay	
2-12+	10YR5/3	85	10YR6/1	15		M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Borderline colors; developing soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 6

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: Receives parking lot runoff and runoff from culverts at east & west ends.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-70 B City/County: MESA Sampling Date: 9-1-06

Applicant/Owner: CDOT Region 3 State: CO Sampling Point: 2

Investigator(s): L. BACKUS; B. STONEMAN Section, Township, Range: 009 1S 1W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): None Slope (%): Flat

Subregion (LRR): INTERIOR DESERTS Lat: 39°5'8.1" N Long: 108°35'41.34" W Datum: NAD83

Soil Map Unit Name: Sagers silty clay loam 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 ____

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

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

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

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Typha angustifolia	15	NO	OBL
2. Echinochloa crus-galli	84	YES	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover: 99			
Woody Vine Stratum			
1.			
2.			
Total Cover: 99			

% Bare Ground in Herb Stratum 1 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 99	x 1 = 99
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: 99 (A)	99 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

US Army Corps of Engineers Arid West – Version 11-1-2006

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	N/A		N/A					Root Mass
2-5	10YR 4/2	80	10YR 4/1	20		M	Sandy Clay	
5+	N/A		N/A					GRAVEL

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: GRAVEL

Depth (inches): 5"

Hydric Soil Present? Yes ✓ No ___

Remarks:

Developing Soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-70 B City/County: MESA Sampling Date: 9-1-06

Applicant/Owner: CDOT Region 3 State: CO Sampling Point: 3

Investigator(s): L. Backus; B. Stoneman Section, Township, Range: 010 1S 1W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): Approx. 2%

Subregion (LRR): Interior Desert Lat: 39°4'55.55" N Long: 108°35'10.42" W Datum: NAD 83

Soil Map Unit Name: Green River clay loam 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 ____

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

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

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

Remarks: Hydrology is very faint at time of survey and appears to only occur during short, seasonal intervals.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Echinochloa crus-galli	80	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	80		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12+	10YR 4/2	60	5YR 4/6	40		M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

* Soil is a mix of noted Matrix value throughout entire sample; Appear to be developing hydric soil conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: Soils were damp to surface; Hydrology appears to occur in short, seasonal intervals.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-70 B City/County: MESA Sampling Date: 8-31-06

Applicant/Owner: CDOT R.3 State: CO Sampling Point: 4

Investigator(s): L. Backus; B. Storeman Section, Township, Range: 010 1S 1W

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

Subregion (LRR): Interior Desert Lat: 39°4'51.07" N Long: 108°35'1.09" W Datum: NAD 83

Soil Map Unit Name: Green River clay loam 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 _____

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

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

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

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Typha angustifolia	90	YES	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 4

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Cobble stone gravel

Depth (inches): Surface

Hydric Soil Present? Yes ✓ No ___

Remarks:

No soil sample possible due to restrictive surface layer. Soils assumed hydric based on dominance of OBL vegetation with a distinct, sharp boundary.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Receives parking lot runoff from 2 culverts. No apparent outlet.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-70 B City/County: MESA Sampling Date: 9-1-06
Applicant/Owner: CDOT R.3 State: CO Sampling Point: 5
Investigator(s): L. Backus; B. Stoneman Section, Township, Range: 010 1S 1W
Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR): Interior Desert Lat: 39°4'43.1" N Long: 108°34'46.77" W Datum: NAD 83
Soil Map Unit Name: Sagers- Urban land 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 ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Ulmus pumila	10	No	NI
2.			
3.			
4.			
5.			
Total Cover: 10			
Herb Stratum			
1. Phalaroides arundinacea	55	YES	OBL
2. Rumex crispus	15	No	FACW
3. Asclepias speciosa	10	No	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover: 80			
Woody Vine Stratum			
1.			
2.			
Total Cover: 90			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 55	x 1 = 55
FACW species 25	x 2 = 50
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species 10	x 5 = 50
Column Totals: 90 (A)	155 (B)

Prevalence Index = B/A = 1.72

Hydrophytic Vegetation Indicators:
✓ Dominance Test is >50%
✓ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:
Small patch of Cardus spp. located on outter wetland fringe.

US Army Corps of Engineers Arid West – Version 11-1-2006

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2		N/A				Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: Soils are borderline and appear to be in a state of transition

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): <1

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: Water flows in ditch at time of survey.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-70 B City/County: MESA Sampling Date: 9-1-06

Applicant/Owner: CDOT Region 3 State: CO Sampling Point: 6

Investigator(s): L. Backus; B. Storeman Section, Township, Range: 015 1S 1W

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): Interior Desert Lat: 39°4'43.01" N Long: 108°34'42.4" W Datum: NAD 83

Soil Map Unit Name: Sagers-Urban land 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 ____

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

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

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

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Phragmites australis	70	YES	FACW
2. Distichlis spicata	10	NO	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	80		
Woody Vine Stratum			
1.			
2.			
Total Cover:	80		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 =
FACW species 70	x 2 = 140
FAC species 10	x 3 = 30
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 80 (A)	170 (B)

Prevalence Index = B/A = 2.12

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3		None				Sandy Loam	
6-12	2.5 N		None				Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Strong rotten egg odor present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 6

Water Table Present? Yes ✓ No ___ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: Water flowing at time of survey.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: I-70B City/County: MESA Sampling Date: 9-1-06
Applicant/Owner: CDOT R.3 State: CO Sampling Point: 7
Investigator(s): L. Backus; B. Stoneman Section, Township, Range: 015 1S 1W
Landform (hillslope, terrace, etc.): Stormwater Basin Local relief (concave, convex, none): Non Slope (%): Flat
Subregion (LRR): Inteior Desert Lat: 39°4'14.64" N Long: 108°34'17.12" W Datum: NAD 83
Soil Map Unit Name: Sagers-Urban land 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 ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Typha Spp	100	YES	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover: 100			
Woody Vine Stratum			
1.			
2.			
Total Cover: 100			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:
✓ Dominance Test is >50%
✓ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 7

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks: No pit. Soils assumed hydric based on dominance of OBL vegetation and distinct wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✓ FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: Area receives roadway runoff.

US Army Corps of Engineers

Arid West – Version 11-1-2006

Appendix B

Wetland Photos

Wetland 1: View to the Southeast

Wetland 2: View to the Southeast

Wetland 3: View to the Southeast

Wetland 4: View to the East

Wetland 5: View to the West

Wetland 6: View to the West

Wetland 7: View to the Northwest.
Wetland is to the left of the sign.

Appendix C

I-70B Wetland Mitigation Site Options

I-70 B WETLAND MITGATION SITE OPTIONS

Colorado Department of Transportation - Wetland Mitigation Site Selection Form

Project Name/No. I-70 B WETLAND FINDING REPORT Subaccount _____
Region 3 Author D. YATES Firm CARTER & BURGESS Date 10/4/07

Mitigation Options Available	(1) Mitigation bank available?	UNKNOWN
	(2) Project impacts in 1º, 2º service area?	UNKNOWN
	(3) HUC units UNKNOWN	UNKNOWN
	(4) On-site mitigation available?	YES
	(5) Off-site mitigation available?	YES-SEE CONTINGENCY PLANS
	(6) In-lieu fee arrangement? In-lieu fee sponsor?	NO IN-LIEU FEE ARRANGEMENT OR SPONSOR
	(7) Mitigation ratio(s) other than 1:1 involved? Ratio(s)	1:1 RATIO. EACH WETLAND ACRE IS REPLACED FOR EACH ACRE IMPACTED, REGARDLESS OF WETLAND JURISDICATIONAL STATUS

		Impact Site	**Mitigation Site**
Site Characteristics	(8) Geographic location.	SIX ROADSIDE WETLANDS	**SITE #1** - EXPANDS EXISTING WETLAND IN ROADSIDE DITCH.
	(9) Wetland community type and percentage.	100% PALUSTINE EMERGENT WETLANDS	EMERGENT WETLAND VEGETATION.
	(10) Functions, values	SEE ADDITIONAL INFORMATION	SEE ADDITIONAL INFORMATION.
	(11) Size of impacts, percentage of total area.	0.013 ACRES (566 SF) IMPACTED WHICH IS 13% OF PROJECT TOTAL OF 0.096 ACRES (4182 SF)	PROVIDES 0.013 ACRES OF WETLAND MITIGATION.
Wildlife and Habitat	(12) T&E species/habitat present	NONE	NONE
	(13) Species? Status?	NOT APPLICABLE	NOT APPLICABLE
	(14) Migratory Bird Treaty Act?	NOT APPLICABLE	NOT APPLICABLE
	(15) Other wildlife issues	NONE	NONE
	(16) Status of aquatic resource?	NOT APPLICABLE	NOT APPLICABLE
	(17) Special aquatic site?	NONE	NONE
	(18) Unique? Quality? Ranking?	NOT APPLICABLE	NOT APPLICABLE
	(19) Watershed, ecosystem issues?	NO WATER DEPLETION OF COLORADO RIVER.	NO WATER DEPLETION OF COLORADO RIVER.

Mitigation Site Other Issues	(20) Likelihood of success?	HIGH
	(21) Interagency agreement?	CDOT AND CITY OF GRAND JUNCTION – TO BE PREDETERMINED.
	(22) Project logistics, size/scope?	WETLAND MITIGATION CAN OCCUR AT ONE LOCATION AND AS PART OF I-70B ROAD CONSTRUCTION.
	(23) Cost considerations?	LOW COST
	(24) Buffer used:	NONE

Mitigation Site Water Issues	(25) Individual 404 permit condition?	NONE
	(26) 404(b) (1) Guidelines?	IMPACTS TO WETLANDS WERE MINIMIZED DURING DESIGN ALTERNATIVE ANALYSIS.
	(27) NWP gen., reg. conditions?	MOST LIKELY THIS PROJECT WILL MEET CONDITIONS OF NWP #14 WITH 0.010 ACRE OF IMPACT TO JURISDICTIONAL WETLANDS.
	(28) Regulatory letters?	NONE TO DATE.
	(29) S.B. 40?	NO CONSULTATION WITH THE COLORADO DIVISION OF WILDLIFE HAS BEEN MADE TO DATE.
	(30) Water rights issues?	NONE KNOWN.

Mitigation Site NEPA Issues	(31) Cumulative impact issues?	EPA AND USACE DID NOT IDENTIFY WETLANDS AS A RESOURCE THAT WARRANTS A CUMULATIVE EFFECT ANALYSIS.
	(32) Agency policy, input?	A FORMAL REQUEST FOR JURISDICTIONAL DETERMINATION HAS BEEN MADE TO US ARMY CORPS OF ENGINEERS, GRAND JUNCTION FIELD OFFICE, SACRAMENTO DISTRICT.
	(33) Public involvement?	WETLAND RESOURCES WERE PRESENTED AT THE ENVIRONMENTAL ASSESSMENT PUBLIC SCOPING MEETING. INFORMATION ON EXISTING WETLANDS AND IMPACTS WAS PRESENTED AT TWO PUBLIC OPEN HOUSE HELD 9/8/06 AND 1/24/07 WITH NO PUBLIC COMMENT SPECIFICALLY ON WETLAND ISSUES.

ADDITIONAL INFORMATION

(10) FUNCTIONS, VALUES:

THE FUNCTIONS AND VALUES OF THE SIX EXISTING WETLAND AREAS ARE LIMITED TO SEDIMENT AND TOXICANT RETENTION, BANK STABILIZATION, NUTRIENT REMOVAL AND TRANSFORMATION, AND STORAGE FOR SURFACE WATER FLOWS.

EXPANSION OF THE EXISTING ROADSIDE DITCH WETLAND #1 WOULD REPLACE THE FOLLOWING WETLAND FUNCTIONS LOST BY CONSTRUCTION OF THE PREFERRED ALTERNATIVE:

- SEDIMENT AND TOXICANT RETENTION,
- NUTRIENT REMOVAL AND TRANSFORMATION, AND
- STORAGE FOR SURFACE WATER FLOWS.

(34) **Basis for Decision**

[Describe those factors from the front side that are instrumental in the selection of the chosen mitigation decision.]

WETLAND MITIGATION SITE #1, ON THE NORTH SIDE OF I-70B NEXT TO MESA MALL, WOULD WIDEN AND RECONFIGURE THE ROADSIDE DITCH AND ITS ASSOCIATED EXISTING WETLAND.

THIS SITE HAS THE BEST POTENTIAL FOR FUNCTIONAL, IN-KIND REPLACEMENT. THE DITCH DESIGN CAN BE WIDENED AND THE OUTLET RECONFIGURED TO DETAIN STORM WATER FLOWS AND PROVIDE A SOURCE OF WATER TO SUPPORT WETLAND CONDITIONS. SINCE THIS SITE IS WITHIN CDOT RIGHT-OF-WAY, COORDINATION WITH OTHER AGENCIES AND PROPERTY OWNERS WOULD NOT BE NECESSARY.

(35) **Decision**

MITIGATION WILL BE DETERMINED DURING FINAL DESIGN PROCESS AND SECTION 404 PERMITTING PROCESS, AND IN CONSULTATION WITH PROJECT ENGINEERS, USACE, AND OTHER STAKEHOLDERS.

(36) **Contingency Plans**

WETLAND MITIGATION SITE #2 IS LOCATED AT THE WESTLAKE STATE WILDLIFE AREA, OWNED BY THE COLORADO DIVISION OF WILDLIFE (CDOW) AND LOCATED IMMEDIATELY NORTH OF I-70B / NORTH AVENUE INTERCHANGE. SITE #2 PROVIDES OFF-SITE, OUT-OF-KIND MITIGATION AS AN ALTERNATIVE TO SITE #1. POTENTIAL MITIGATION ACTIVITES INCLUDE PLANTING RIPARIAN SHRUBS AND TREES NEXT TO THE POND AND OTHER WILDLIFE HABITAT ENHANCEMENTS. COORDINATION WITH CDOW AND USACE WOULD BE REQUIRED TO IDENTIFY WHAT WILDLIFE HABITAT EHNANCEMENTS QUALIFY AS MITIGATION FOR I-70B IMPACTS AND ARE ACCEPTABLE TO CDOW.

WETLAND MITIGATION SITE #3 IS LOCATED ALONG THE LIGRANI DRAIN IN THE NORTH AVENUE / I-70 B INTERCHANGE WITHIN CDOT RIGHT-OF-WAY. SITE #3 OFFERS ON-SITE, IN-KIND WETLAND REPLACEMENT AS AN ALTERNATIVE TO MITIGATION SITE #1. POTENTIAL MITIGATION ACTIVITIES INCLUDE WIDENING THE DITCH BOTTOM TO INCREASE AREA OF SOIL SATURATION AND PLANTING EMERGENT WETLAND VEGETATION. COORDINATION WITH LIGRANI DRAIN OPERATORS AND USACE WOULD BE REQUIRED TO IDENTIFY ACCEPTABLE MITIGATION ACTIVITIES, AND REASSURANCES THAT THE DITCH WATER SOURCE IS DEPENDABLE AND WATER RIGHTS WOULD NOT BE IMPACTED.