

# **Appendix Q. Preliminary Wetland Mitigation Plan**



# **Wetland Mitigation Plan**



FERC Docket No. CP09-54-000

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## List of Abbreviations and Acronyms

CFR	Code of Federal Regulations
CWA	Clean Water Act
CWM	Compensatory Wetland Mitigation
E & E	Ecology and Environment, Inc.
EPA	U.S. Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
Guidelines	Mitigation Guidelines and Monitoring Requirements
M & M	Mitigation and Monitoring
NDEP	Nevada Division of Environmental Protection
NRC	National Research Council
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
ODSL	Oregon Department of State Lands
Project	Ruby Pipeline Project
Restoration Plan	Wetland, Waterbody, and Riparian Restoration Plan
ROW	right-of-way
Ruby	Ruby Pipeline, LLC
Ruby's Procedures	Wetland and Waterbody Construction and Mitigation Procedures
UDEQ	Utah Department of Environmental Quality
UDNR	Utah Department of Natural Resources
USACE	U.S. Army Corps of Engineers
WDEQ	Wyoming Department of Environmental Quality
WQC	Water Quality Certification



# 1. Introduction

This report summarizes the federal and state wetland and waterbody mitigation processes that are applicable to the Ruby Pipeline Project (Project). It includes a brief analysis of the proposed Project impacts, details the applicable federal and state mitigation requirements, proposes methodology to streamline the overall mitigation process, and provides a detailed restoration plan (Attachment L) for wetland, waterbody, and riparian habitat.

Ruby Pipeline, LLC (Ruby) has implemented all appropriate avoidance and minimization measures during the planning and design of the Project and will continue to do so in coordination with the state and federal resource agencies during the implementation of the Project. Based on field data, current Project design plans, and impact analyses, unavoidable impacts are anticipated to be temporary in nature.

Ruby intends to maximize on-site and in-kind mitigation (i.e., restoration) of temporary impacts to waterbodies and wetlands that may result from Project implementation. However, if permanent impacts occur, they would require additional, compensatory mitigation measures.

The Project will follow the federal process laid out by the U.S. Army Corps of Engineers (USACE) for all mitigation requirements in Wyoming, Utah, and Nevada. However, in Oregon, administrative rules require specific coordination with the Oregon Department of State Lands (ODSL) to meet its mitigation requirements.

## 1.1 Project Overview

The Project is composed of approximately 675.2 miles of 42-inch diameter natural gas pipeline, along with associated compression and measurement facilities, located between Opal, Wyoming and Malin, Oregon. An approximate 2.6-mile lateral, the PG&E Lateral, would also be constructed in Klamath County, Oregon.

The Project's right-of-way (ROW) would cross four states: Wyoming, Utah, Nevada, and Oregon. In addition to the existing King Compressor Station at Opal, Wyoming, Ruby proposes to install four new compressor stations for the Project: one located near the Opal Hub, one in western Utah, one near the mid-point of the Project north of Elko, Nevada, and one northwest of Winnemucca, Nevada.

Specifically, the Project pipeline facilities would consist of the following facilities:

- Approximately 675.2 miles of 42-inch diameter natural gas pipeline (Ruby Mainline);
- Approximately 2.6 miles of 42-inch-diameter natural gas pipeline lateral (PG&E Lateral);

- Ten interconnects located within four measurement facilities; and
- Forty-four mainline valves, 11 launchers, and 10 receivers.

Additionally, the design for the Project requires four compressor stations.

- Roberson Creek Compressor Station, Lincoln County, Wyoming;
- Wildcat Hills Compressor Station, Box Elder County, Utah;
- Wieland Flat Compressor Station, Elko County, Nevada.
- Desert Valley Compressor Station, Humboldt County, Nevada.

The Project would be designed in accordance with the U.S. Department of Transportation Pipeline Safety Regulations, 49 Code of Federal Regulations (CFR) Part 192.

## 1.2 Project Area Description

The Project would cross 10 counties within the states of Wyoming, Utah, Nevada, and Oregon.

Ruby will utilize a 115-foot-wide construction ROW, with additional workspace in some locations totaling up to 195-feet for installation of both the mainline and the lateral. The final ROW operational width will be 50 feet. The construction ROW through wetlands and waterbody crossings would be maintained at 75 feet wide, as feasible. This ROW width would accommodate large equipment, pipe stringing and set up, welding, the trench, and the temporary storage of topsoil and trench spoil. Aboveground facilities have been located outside of wetlands.

In addition to the pipeline ROW, the Project will require jurisdictional facilities, temporary extra workspaces, staging areas, and access roads to the ROW (See Ruby's Plan of Development, [POD]). Extra workspaces and staging areas are required for storage of topsoil, trench subsoil material, and additional equipment required at waterbody, roadway, and railroad crossings; pipeline point of intersection locations; other utilities; terrain constraints; and staging areas. The Project will use existing public and private roads to access the pipeline ROW and extra workspaces. Ruby will construct three access roads in order to access the pipeline route through National Forest lands. Further, some existing roads will be widened up to 30 feet and/or upgraded to accommodate heavy construction equipment. Some road sections may require extra grading to allow for adequate turning radius. All temporary road upgrades will be reclaimed and seeded (refer to the Restoration and Revegetation Plans prepared by Ruby, Appendix E of the POD).

As part of the routine maintenance of the Project, Ruby would monitor the condition of the pipeline ROW following pipeline installation and take corrective actions as necessary.

## 1.3 Regulatory Overview

### 1.3.1 Federal Regulation

The USACE has permitting authority over activities affecting jurisdictional waters of the U.S. Jurisdictional waters of the U.S. include surface waters, such as navigable waters and their tributaries, all interstate waters and their tributaries, natural lakes, all wetlands adjacent to other jurisdictional waters, and all impoundments of these waters.

Two federal statutes mandate USACE jurisdiction over navigable waterways and adjacent wetlands. These are Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA). Section 10 of the Rivers and Harbors Act applies to all navigable waters of the U.S. Section 404 of the CWA applies to all jurisdictional waters of the U.S., including wetlands that have significant nexus to interstate commerce. Given that the Project would not cross navigable waters, Section 404 of the CWA would be the prevailing federal regulation for this Project.

Section 404 of the CWA requires authorization from the Secretary of the Army, acting through the USACE, for the discharge of dredged or fill material into all waters of the U.S., including wetlands. Discharges of fill material generally include, without limitation, placement of fill that is necessary for the construction of any structure or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection or reclamation devices such as riprap, groins, seawalls, breakwaters, and revetments; beach nourishment; levees; fill for intake and outfall pipes and subaqueous utility lines; fill associated with the creation of ponds; and any other work involving the discharge of fill or dredged material. A USACE permit is required whether the work is permanent or temporary.

Pursuant to the Section 404(b)(1) Guidelines in 40 CFR part 230, the USACE will only issue a Section 404 permit upon a determination that the proposed discharge complies with applicable provisions of 40 CFR part 230, including those that require the permit applicant to take all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the U.S. Upon completion of these steps, compensatory mitigation for unavoidable impacts may be required to ensure that an activity requiring a Section 404 permit complies with the Section 404(b)(1) Guidelines.

USACE regulations (33 CFR Parts 325 and 332) and U.S. Environmental Protection Agency (EPA) regulations (40 CFR Part 230) define the compensatory mitigation requirements for unavoidable impacts to wetlands and other jurisdictional waters of the U.S. To assist the regulated public in interpreting these regulations, the USACE has issued formal Mitigation and Monitoring Proposal Guidelines (Attachment A). These guidelines apply to development of plans for onsite and/or offsite establishment (creation), enhancement, and restoration activities, as well as mitigation bank design.

In addition to the USACE regulations and guidelines, Ruby will implement its Wetland and Waterbody Construction and Mitigation Procedures (Attachment B) to minimize the extent and duration of Project-related disturbance on wetlands and waterbodies.

### **1.3.2 State Regulations**

Many states regulate waterways and adjacent wetlands, either through specific regulatory programs or via Section 401 of the CWA [also known as 401 Water Quality Certification (WQC)]. State regulatory programs may incorporate permitting procedures to authorize jurisdictional impacts to waterways and wetlands and may require compensatory mitigation for unavoidable impacts. In the absence of a specific regulatory program, states may utilize 401 WQC to require measures over and above those required by the USACE Section 404 permit. Section 401 allows a state to review, authorize or deny, and implement requirements additional to those of the USACE 404 permit. If a state chooses to utilize its authority under Section 401, the Section 404 permit does not go into effect until the state issues the 401 authorization.

The state agencies, authorizations, and guidance that are applicable to wetlands and waters permitting and mitigation requirements for this Project are summarized below and detailed in the following sections of this report.

#### **Wyoming**

Wyoming Department of Environmental Quality (WDEQ), Water Quality Division:

- CWA Section 401 WQC.
- Request for WQC submitted to WDEQ by USACE for Section 404 permits.
- Section 401 certification issued by WDEQ prior to federal Section 404 approval.
- March 20, 2007, the Wyoming Department of Environmental Quality (WY DEQ) certified, with certain conditions, the use of NWP 12 on all waters in Wyoming other than those designated as Class 1 waters. The Project is not crossing any Class 1 waters. Ruby will comply with the additional conditions WY DEQ included in its certification.

#### **Utah**

Utah Department of Natural Resources (UDNR), Division of Water Rights:

- Stream Channel Alteration Permit for alteration of bed or banks of a natural stream.
- State Engineer's Office has entered into a joint permitting program with the USACE to issue Section 404 approvals through the State Stream Alteration Program.
- Draft Mitigation Guidance.
- Utah Division of Water Rights, Stream Alteration Program Fact Sheet SA-5, Draft, Post Construction Establishment of Vegetation (refer to Attachment C) (UDWR 2008).

Utah Department of Environmental Quality (UDEQ), Division of Water Quality:

- CWA Section 401 WQC.
- Request for certification submitted to UDEQ by USACE for Section 404 permits.
- Section 401 certification issued by UDEQ prior to federal Section 404 approval.
- April 16, 2007, the UDEQ-DWQ certified, with conditions, the use of NWP 12 in the State of Utah. Ruby will adhere to the additional conditions identified by the DWQ.

### **Nevada**

Nevada Division of Environmental Protection (NDEP), Bureau of Water Pollution Control:

- CWA Section 401 WQC.
- Request for certification submitted to NDEP by USACE for Section 404 permits.
- Section 401 certification issued by NDEP prior to federal Section 404 approval.

### **Oregon**

Oregon Department of State Lands:

- Joint Removal-Fill Permit for removal or fill of materials in waters of the state.
- Complete Joint Permit Application Form for state removal-fill permit and Section 404 permit.
- The Oregon Department of Environmental Quality (ODEQ) receives the Joint Permit Application from ODSL. Additional mitigation regulations will apply under Oregon's Administrative Rules (refer to Attachment D).

Oregon Department of Environmental Quality:

- CWA Section 401 WQC.
- Joint Removal-Fill Permit/Section 404 application forwarded to ODEQ for certification.
- Section 401 certification to be issued prior to federal Section 404 approval.
- July 18, 2007, the Oregon Department of Environmental Quality certified, with conditions, the use of NWP 12 in the State of Oregon. Ruby will adhere to the additional conditions identified by the Oregon Department of Environmental Quality.

## **1.4 Jurisdictional Impacts**

Unavoidable impacts to jurisdictional wetlands and waterways would result from Project construction. For the purpose of this report, "jurisdictional impacts" are defined as impacts to wetlands and waterways that are regulated by federal and/or state government. These jurisdictional impacts are broken down into two main categories: (1) temporary impacts and (2) permanent impacts. The jurisdictional impacts are summarized in this report; and detailed discussions are provided in the Ruby Wetland Delineation Report (E & E 2008).

### **1.4.1 Temporary Impacts**

Temporary wetland impacts resulting from of the Project are anticipated to be limited to those activities associated with construction, including clearing of vegetation, topsoil removal, trenching, pipe installation, and backfilling. The total amount of temporarily affected wetlands is expected to be 462.3 acres (E & E 2009).

### **1.4.2 Permanent Impacts**

No potential wetland areas were identified at any of the locations for Project aboveground facilities; therefore, no permanent wetland impacts (as defined by the CWA) are anticipated from the construction or operation of those facilities. However, 0.2 acres of forested wetlands would be converted to emergent wetlands as a result of the Project (E & E 2008). The State of Oregon defines said conversion as a permanent impact. Compensatory mitigation for Oregon is being addressed with the ODSL via the Payment-in-Lieu Mitigation Program.

## **1.5 Restoration Plan Overview**

Ruby has implemented all appropriate avoidance and minimization measures during the planning and design of the Project and will continue to do so in coordination with the relevant state and federal resource agencies during the implementation of the Project. Based on field data, current Project design plans, and impact analyses, unavoidable impacts to wetlands, waterbodies, and riparian areas are anticipated to be temporary in nature.

Ruby intends to implement on-site and in-kind restoration for all temporary impacts to wetland habitat, waterbodies, and riparian areas that may result from Project construction. The restoration measures outlined in the Wetland, Waterbody, and Riparian Restoration Plan (Restoration Plan) have been prepared in coordination with the USACE, Bureau of Land Management, Bureau of Reclamation, U.S. Forest Service, and state land management agencies. Refer to Attachment L.

The Restoration Plan utilizes restoration methods developed for other large-diameter pipeline projects that were approved by the Federal Energy Regulatory Commission (FERC) (Dames and Moore 1990; Ecology and Environment, Inc. 2002). Ruby incorporated recent technical standards into the Restoration Plan and published long-term restoration monitoring information associated with similar habitats (Ecology and Environment, Inc. 2002).

The POD for the Project includes specifics regarding pipeline construction and clean-up procedures. Therefore, the Restoration Plan incorporates Ruby's Upland Erosion Control, Revegetation, and Maintenance Plan; Wetland and Waterbody Construction and Mitigation Procedures; Noxious and Invasive Weed Control Plan; and Preliminary Wetland Mitigation Plan; POD Appendices D, F, H and Q, respectively.

## 2. Federal Mitigation Requirements

### 2.1 Mitigation for Losses of Aquatic Resources

Federal mitigation requirements are outlined in the Compensatory Mitigation for Losses of Aquatic Resources that were jointly developed and issued by the USACE (33 CFR Part 332) and the EPA (40 CFR Part 230) on April 10, 2008. These regulations define the compensatory mitigation requirements for unavoidable impacts to wetlands and other jurisdictional waters of the U.S. Pursuant to the regulations, compensatory mitigation can be accomplished by restoring, enhancing, creating, or, in certain circumstances, preserving aquatic resources. However, restoration of temporary impacts should generally be the first method considered because its likelihood of success is greater.

If all appropriate avoidance and minimization measures have been achieved, and on-site restoration has been maximized (or cannot be accomplished), the USACE will consider the following five types and location options to compensate for unavoidable impacts (in order of preference):

1. Mitigation bank credits;
2. In-lieu fee program credits;
3. Permittee-responsible mitigation under a watershed approach;
4. Permittee-responsible on-site and in-kind mitigation; and
5. Permittee-responsible off-site and/or out-of-kind mitigation (USACE 2008a).

### 2.2 USACE District Guidelines

The USACE Districts are committed to improving the success of future compensatory mitigation projects. The USACE Districts have issued Mitigation Guidelines and Monitoring Requirements (Guidelines) that are designed to assist the regulated public with all aspects of the mitigation process and to provide information to ensure that future mitigation sites successfully replace lost functions and values associated with unavoidable, regulated impacts to waters of the U.S. The Guidelines utilized by the Sacramento, Portland, and the Omaha districts of the USACE outline the mitigation criteria Ruby would utilize in selecting, designing, implementing, and monitoring wetland mitigation sites.

There are no major substantive differences between the three District Guidelines. The only variation between them is that the Portland and Omaha Guidelines discuss mitigation criteria in greater detail, and the Sacramento Guidelines include ten Mitigation Principles that were developed by the National Research Council and used by the USACE and EPA in developing their mitigation guidelines.

The following is a summary of the Mitigation Principles, Mitigation Guidelines, and Monitoring Requirements that have been adopted by the USACE Districts that Ruby would follow in selecting, designing, implementing, and monitoring wetland mitigation sites.

### **2.2.1 Sacramento District**

In its report entitled “Compensating for Wetland Losses Under the Clean Water Act,” the National Research Council provided ten operational guidelines to aid in planning and implementing restoration, enhancement, and creation of aquatic resource systems. The Sacramento District adopted these ten guidelines as Mitigation Principles for District staff and the regulated public to incorporate into the review and development of mitigation projects. The ten Mitigation Principles are arranged under two headings, as outlined below.

#### **A. Basic Requirements for Success**

1. Whenever possible, choose wetland restoration over creation;
2. Avoid over-engineered structures in the wetland design;
3. Restore or develop naturally variable hydrological conditions;
4. Consider complications associated with creation or restoration in seriously degraded or disturbed Sites; and
5. Conduct early monitoring as part of adaptive management.

#### **B. Guide for Mitigation Site Selection**

1. Consider the hydrogeomorphic and ecological landscape and climate;
2. Adopt a dynamic landscape perspective;
3. Pay attention to subsurface conditions, including soil and sediment geochemistry and physics, groundwater quantity and quality, and infaunal communities;
4. Pay particular attention to appropriate planting elevation, depth soil type, and seasonal timing; and
5. Provide appropriately heterogeneous topography (USACE 2004).

The Sacramento District Mitigation and Monitoring Proposal Guidelines are provided in Attachment E.

### **2.2.2 Portland District**

The Mitigation Guidelines and Monitoring Requirements prepared by the Portland District of the USACE are intended to assist the regulated public in preparing adequate and complete Mitigation and Monitoring (M & M) plans, implementing successful mitigation projects, and monitoring them to identify and remedy any problems that can reduce long term success.

The language in the Portland District Mitigation Guidelines and Monitoring Requirements is consistent with the Federal Mitigation Requirements outlined in 33 CFR Part 332, as noted above. If after all appropriate avoidance and minimization has been achieved, and if on-site restoration can not be accomplished, the USACE will consider the five types and location options to compensate for unavoidable impacts listed above in section 2.1.

The USACE policy outlined in the Section C of the Mitigation Guidelines and Monitoring Requirements for the Portland District discusses the mitigation process succinctly and in greater detail (refer to Attachment F).

### **2.2.3 Omaha District**

The Omaha District Compensatory Mitigation Guidelines for Wyoming prepared by the Omaha District of the USACE are intended to provide applicants with projects that involve compensatory mitigation proposals. Below is an outline of information needed by the Wyoming Regulatory Office for compensatory mitigation plans. This guideline establishes the basic information required. At the request of the USACE, more extensive data and information may be required.

- Mitigation goals
- Existing condition of mitigation site
- Design of mitigation site
  - Drawings
  - Other treatments
  - Hydrology
- Monitoring
  - Success criteria/performance standards
  - Sampling protocols
  - Report content
- Additional Information Requirements
  - Contingency plans
  - Deed restrictions/conservation easements
  - Performance bonds

The Omaha District Compensatory Mitigation Guidelines for Wyoming are provided in Attachment G.

## **2.3 Ruby's Wetland and Waterbody Construction and Mitigation Procedures**

Ruby's Procedures are intended to assist applicants by identifying baseline mitigation measures for minimizing the extent and duration of Project-related disturbance on wetlands and waterbodies. Ruby's Procedures outline practical construction methods and best management practices that avoid and minimize impacts at waterbody and wetland crossings.

Ruby's Procedures are based on FERC Wetland and Waterbody Construction and Mitigation Procedures. FERC defers to the definition of waters and wetlands as outlined in the 1987 Federal Manual for Identifying and Delineating Jurisdictional Wetlands and, in effect, utilizes this definition in the specific restoration (i.e., mitigation) and post-construction maintenance, monitoring, and performance requirements prescribed in Ruby's Procedures. FERC's

prescriptive mitigation requirements are aligned with USACE mitigation guidelines and monitoring requirements and include “project-specific wetland restoration plans” as requested by FERC. Project-specific restoration plans are to include measures for re-establishing stream beds, banks, riparian and wetland herbaceous and/or woody species; controlling the invasion and spread of undesirable exotic species; and monitoring and reporting the success of the revegetation and weed control efforts.

## 3. Summary of Jurisdictional Impact

### 3.1 Stream and Wetland Crossings

Wetland and stream crossings by state are summarized in Attachment H.

#### 3.1.1 Wyoming Mitigation Requirements

The federal mitigation requirements of the USACE will prevail within the State of Wyoming. Given that all impacts are proposed to be temporary, wetland restoration will be required at a rate of 1:1 (impact:mitigation).

#### 3.1.2 Utah Mitigation Requirements

The federal mitigation requirements of the USACE would prevail within the State of Utah. Given that all impacts are proposed to be temporary, wetland restoration will be required at a rate of 1:1 (impact:mitigation). The UDNR, Division of Water Rights, has issued draft mitigation guidance to assist applicants in the preparation of mitigation plans: Utah Division of Water Rights, Stream Alteration Program Fact Sheet SA-5, Draft, Post Construction Establishment of Vegetation (refer to Attachment I) (UDWR 2008).

#### 3.1.3 Nevada Mitigation Requirements

The federal mitigation requirements of the USACE would prevail within the State of Nevada for jurisdictional waters. Because the State of Nevada takes jurisdiction over all waters in the state, including dry washes, the NDEP, Bureau of Water Pollution Control, typically requires restoration as a special condition during its CWA Section 401 WQC review process. Restoration typically requires returning a stream bed and banks to its original, pre-disturbance configuration and topography followed by revegetation. Photographic documentation of the site before and after the disturbance is also typically required to ensure the restoration requirement is met (Gentry 2008). Nevada does not typically require additional compensatory mitigation over and above that required by the USACE. Given that all impacts are proposed to be temporary, wetland restoration would be required at a rate of 1:1 (impact:mitigation).

#### 3.1.4 Oregon Mitigation Requirements

For projects where reasonably expected adverse effects to the water resources, including wetland functions, cannot otherwise be avoided or minimized, Oregon Administrative Rules (OAR) [OAR-141-085-0121(2)] require a compensatory wetland mitigation (CWM) plan to compensate for the reasonably expected adverse effects of a project by replacing the functional attributes of the wetland impacted by project development. Compensatory wetland mitigation shall be limited to replacement of the functional attributes of the lost wetland.

### 3.1.5 Oregon Mitigation Process

Several compensatory mitigation options are generally available to permit applicants in Oregon, including on- and off-site mitigation, payment in lieu, and mitigation banking. However, the ODSL recently indicated that the payment in lieu and mitigation banking options are not available for the Project. Please refer to Attachment J for the detailed State of Oregon mitigation requirements (ODSL 2008a); and to Attachment K for the Guidance on Function Assessment and Mitigation Approach for Large Linear Corridor Projects, Draft Regulation 11-19-07 (ODSL 2008).

The State of Oregon wetland and habitat mitigation are as follows.

**On-site Mitigation** is conducting the compensatory wetland mitigation project on the same parcel as the wetland impact. Often, this is the best way to replace the lost functions close to where they will be lost. Sometimes, however, on-site mitigation is not practical or would not be ecologically successful.

**Off-site Mitigation** is conducting the mitigation project somewhere other than on the development site. It may be done through a legal agreement with another landowner or by purchasing wetland mitigation credits from a mitigation bank. (Note: no banks are available in Lake or Klamath counties.) The off-site mitigation needs to be located in the same watershed and replace the same type of wetland functions that were lost.

**Mitigation for Other Waters:** Projects on streams or riverbanks may also require mitigation to offset adverse impacts to water resources and navigation, fishing, or public recreation uses on those waters. Compensatory mitigation for non-wetland waters may include on-site or off-site improvement or enhancement of water resources or compensation to a third party to conduct, monitor, and maintain such mitigation sites.

**Oregon Department of Fish and Wildlife Compliance Review:** It is the Fish and Wildlife Habitat Mitigation Policy of the Oregon Department of Fish and Wildlife (ODFW) to require or recommend, depending upon the habitat protection and mitigation opportunities provided by specific statutes, mitigation for losses of fish and wildlife habitat resulting from development actions. The ODFW shall apply the requirements of its policy when implementing its own development actions and when developing recommendations to other state, federal, or local agencies regarding development actions for which mitigation for impacts to fish and wildlife habitat is authorized or required by federal, state, or local environmental laws or land use regulations. Please refer to Attachment K (ODFW 2008) for the detailed ODFW mitigation requirements.

**Administrative Rule Revisions:** Oregon is currently in the process of revising its Administrative Rules regarding fill-removal permits and mitigation (ODSL 2008b). Some of these revisions may affect mitigation requirements for this Project.

### **3.1.6 Mitigation Ratios and Acreage**

State rules establish the following wetland replacement ratios for compensatory mitigation: 1:1 for restoration; 1.5:1 for creation; 3:1 for enhancement; and 2:1 for enhancement of cropped wetlands. However, the administrative rules governing mitigation provide some flexibility.



## 4. Wetland Mitigation Process

Ruby has implemented all appropriate avoidance and minimization measures during the planning and design of the Project and will continue to do so in coordination with the relevant state and federal resource agencies during the implementation of the Project. Based on field data, current Project design plans, and impact analyses, unavoidable impacts are anticipated to be temporary in nature.

Ruby intends to maximize on-site and in-kind mitigation (i.e., restoration) of temporary impacts to waterbodies and wetlands that may result from Project implementation. However, if permanent impacts occur, they would require additional, compensatory mitigation measures.

The Project would follow the federal process laid out by the USACE for all mitigation requirements in Wyoming, Utah, and Nevada. In Oregon, however, administrative rules require specific coordination with the ODSL to meet its mitigation requirements.

### 4.1 Federal

The federal mitigation process begins by initiating a pre-application consultation with the USACE to discuss potential mitigation requirements and information needs. Thereafter, Ruby will be required to prepare and submit a draft Restoration Plan to the USACE for review and comment. This allows Ruby to get feedback and buy-in from the USACE prior to investing in an un-vetted approach or development of final plans. Before the USACE will authorize construction to begin in jurisdictional waters or wetlands, the USACE will need to approve a final Restoration Plan. As outlined in 33 CFR Part 332, an Restoration Plan must include the following elements:

- Mitigation Objectives;
- Site Selection;
- Site Protection Instrument;
- Baseline Information;
- Determination of Credits;
- Mitigation Work Plan;
- Maintenance Plan;
- Performance Standards;
- Monitoring Requirements;
- Long-term Management Plan;
- Adaptive Management Plan;
- Financial Assurances; and
- Other information that the District Engineer may require to determine the appropriateness, feasibility, and practicability of the mitigation project (USACE 2008a).

To the extent that they are applicable and practical, these criteria must also be addressed in the preparation of Restoration Plans for restoration of sites that have been temporarily impacted during Project construction. Addressing these criteria in the manner suggested by the USACE will facilitate the review and approval of the Restoration Plan proposal. Again, note that that all wetland impacts resulting from the Project in the states of Wyoming, Utah, and Nevada to are proposed to be temporary, wetland restoration would be required at a rate of 1:1 (impact:mitigation) and would be conducted on-site at the location of construction.

## 4.2 Oregon

The Oregon mitigation process begins by initiating a pre-application consultation with the ODSL to discuss: (1) mitigation requirements and information needs; and (2) how ODSL requirements may be coordinated with those of the USACE. The discussion will specifically address the quantity and type of offsite mitigation Ruby would provide to offset the loss of functions resulting from a change in vegetative structure (e.g., wooded to herbaceous).

Following pre-application consultation, Ruby will be required to prepare and submit a draft Restoration Plan to the ODSL for review and comment. Ruby recently submitted a Wetland Restoration Plan for Oregon Department of State Lands under separate cover to support the Joint Permit Application Form – Removal-Fill Permit Application (PCN Appendix J). This submittal allows Ruby to get feedback and buy-in from the ODSL. Before the ODSL will authorize construction to begin in jurisdictional waters or wetlands, it will need to approve a final Restoration Plan. As outlined in OAR-141-085-0141, the Oregon component of the joint Restoration Plan must include the following elements, as pertinent and applicable to on-site restoration:

- CWM site information:
  - Area/size;
  - Site ownership; and
  - Legal description.
- Existing physical and biological baseline:
  - Wetland determination/delineation report;
  - Functional assessment;
  - Description of the major plant communities;
  - Description of water source, duration, frequency of inundation or saturation, depth of surface or subsurface water and approximate location of all water features (wetlands, streams, lakes) within 500 feet of the CWM site; and
  - Hydrogeomorphic and Cowardin classification of any wetlands present within the CWM site.
- CWM plan description:
  - CWM plan goals, objectives and success criteria;
  - The CWM concept:
    - How the plan will restore, reverse, minimize, or control the causes of wetland degradation; and

- Ensure that the wetland functions of the effected wetland are replaced;
- o Description of the rationale for the CWM site selection;
- o Proposed water source, duration, frequency of inundation or saturation;
- o Any known CWM site constraints or limitations;
- o Proposed Hydrogeomorphic and Cowardin classification;
- o Proposed net losses and gains of wetland functions; and
- o Description of how the applicant will maintain and protect the direct CWM site beyond the monitoring period.
- CWM construction plans including:
  - o Scaled site plan showing CWM project boundaries, existing wetlands, restoration, creation, and enhancement areas;
  - o Scaled grading plan with existing and proposed contours and cross section locations;
  - o Description of construction methods (access, equipment);
  - o Schematic of any proposed hydrological structures;
  - o Scaled cross sections showing elevations, distance;
  - o Planting plan (with species, size, number, spacing and installation methods);
  - o Monitoring plan (schedule, timetable, methods);
  - o Contingency plan for CWM failures; and
  - o Implementation schedule and construction sequence.
- Reference site, combination of reference sites, or reference data of the same hydrogeomorphic class (compare and relate the sites and/or data to the CWM goal).
- Provisions for a financial security instrument.
- Plans for vegetated buffers, if needed, to protect the viability and functions of the CWM site.
- Plans for the long-term protection of the CWM site (ODSL 2008b).

### **4.3 Wyoming, Utah, and Nevada**

The Project will follow the federal process laid out by the USACE for mitigation requirements in Wyoming, Utah, and Nevada. Ruby has initiated pre-application consultation with the appropriate state personnel to ensure that the Restoration Plan will meet their requirements.



## 5. References

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- Oregon Department of Fish and Wildlife. 2008. Division 415, Fish and Wildlife Habitat Mitigation Policy.  
[http://arcweb.sos.state.or.us/rules/OARS\\_600/OAR\\_635/635\\_415.html](http://arcweb.sos.state.or.us/rules/OARS_600/OAR_635/635_415.html)  
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- Oregon Department of State Lands. 2008a. Division 85, Administrative Rules Governing the Issuance and Enforcement of Removal-Fill Authorizations Within Waters Of Oregon Including Wetlands.  
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- \_\_\_\_\_. 2008b. Division 141-085, Proposed Rule Change Summary by Major Topic (7/17/2008), Administrative Rules Governing the Issuance and Enforcement of Removal-Fill Authorizations Within Waters Of Oregon Including Wetlands.  
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- . 2008a. Federal Register, 33 CFR Part 332, Compensatory Mitigation for Losses of Aquatic Resources. National Archives and Records Administration. April 10, 2008.
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- U.S. Army Corps of Engineers. 2004. Sacramento District Mitigation and Monitoring Proposal Guidelines.

<https://www.nwp.usace.army.mil/op/g/public.asp> (Accessed December 30, 2004.)

U.S. Environmental Protection Agency. 2008. Federal Register, 40 CFR Part 230, Compensatory Mitigation for Losses of Aquatic Resources. National Archives and Records Administration. April 10, 2008.

Utah Division of Water Rights. 2008. Post Construction Establishment of Vegetation. Stream Alteration Fact Sheet SA-5. First Edition. February 15, 2008. <http://www.waterrights.utah.gov/strmalt/whitepapers/default.asp> (Accessed November 3, 2008.)

# **A. Mitigation and Monitoring Proposal Guidelines**



## Corps of Engineers

### 33 CFR Chapter II

■ For the reasons stated in the preamble, the Corps amends 33 CFR chapter II as set forth below:

#### **PART 325—PROCESSING OF DEPARTMENT OF THE ARMY PERMITS**

■ 1. The authority citation for part 325 continues to read as follows:

**Authority:** 33 U.S.C. 401 *et seq.*; 33 U.S.C. 1344; 33 U.S.C. 1413.

■ 2. Amend § 325.1 by redesignating paragraphs (d)(7), (d)(8), and (d)(9) as paragraphs (d)(8), (d)(9), and (d)(10), respectively, and adding new paragraph (d)(7) as follows:

##### **§ 325.1 Applications for permits.**

\* \* \* \* \*

(d) \* \* \*

(7) For activities involving discharges of dredged or fill material into waters of the United States, the application must include a statement describing how impacts to waters of the United States are to be avoided and minimized. The application must also include either a statement describing how impacts to waters of the United States are to be compensated for or a statement explaining why compensatory mitigation should not be required for the proposed impacts. (See § 332.4(b)(1) of this chapter.)

\* \* \* \* \*

■ 3. Add part 332 to read as follows:

#### **PART 332—COMPENSATORY MITIGATION FOR LOSSES OF AQUATIC RESOURCES**

Sec.

332.1 Purpose and general considerations.

332.2 Definitions.

332.3 General compensatory mitigation requirements.

332.4 Planning and documentation.

332.5 Ecological performance standards.

332.6 Monitoring.

332.7 Management.

332.8 Mitigation banks and in-lieu fee programs.

**Authority:** 33 U.S.C. 401 *et seq.*; 33 U.S.C. 1344; and Pub. L. 108–136.

##### **§ 332.1 Purpose and general considerations.**

(a) *Purpose.* (1) The purpose of this part is to establish standards and criteria for the use of all types of compensatory mitigation, including on-site and off-site permittee-responsible mitigation, mitigation banks, and in-lieu fee mitigation to offset unavoidable impacts to waters of the United States authorized through the issuance of

Department of the Army (DA) permits pursuant to section 404 of the Clean Water Act (33 U.S.C. 1344) and/or sections 9 or 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 401, 403). This part implements section 314(b) of the 2004 National Defense Authorization Act (Pub. L. 108–136), which directs that the standards and criteria shall, to the maximum extent practicable, maximize available credits and opportunities for mitigation, provide for regional variations in wetland conditions, functions, and values, and apply equivalent standards and criteria to each type of compensatory mitigation. This part is intended to further clarify mitigation requirements established under U.S. Army Corps of Engineers (Corps) and U.S. Environmental Protection Agency (U.S. EPA) regulations at 33 CFR part 320 and 40 CFR part 230, respectively.

(2) This part has been jointly developed by the Secretary of the Army, acting through the Chief of Engineers, and the Administrator of the Environmental Protection Agency. From time to time guidance on interpreting and implementing this part may be prepared jointly by U.S. EPA and the Corps at the national or regional level. No modifications to the basic application, meaning, or intent of this part will be made without further joint rulemaking by the Secretary of the Army, acting through the Chief of Engineers and the Administrator of the Environmental Protection Agency, pursuant to the Administrative Procedure Act (5 U.S.C. 551 *et seq.*).

(b) *Applicability.* This part does not alter the regulations at § 320.4(r) of this title, which address the general mitigation requirements for DA permits. In particular, it does not alter the circumstances under which compensatory mitigation is required or the definitions of “waters of the United States” or “navigable waters of the United States,” which are provided at parts 328 and 329 of this chapter, respectively. Use of resources as compensatory mitigation that are not otherwise subject to regulation under section 404 of the Clean Water Act and/or sections 9 or 10 of the Rivers and Harbors Act of 1899 does not in and of itself make them subject to such regulation.

(c) *Sequencing.* (1) Nothing in this section affects the requirement that all DA permits subject to section 404 of the Clean Water Act comply with applicable provisions of the Section 404(b)(1) Guidelines at 40 CFR part 230.

(2) Pursuant to these requirements, the district engineer will issue an individual section 404 permit only upon

a determination that the proposed discharge complies with applicable provisions of 40 CFR part 230, including those which require the permit applicant to take all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the United States. Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. Compensatory mitigation for unavoidable impacts may be required to ensure that an activity requiring a section 404 permit complies with the Section 404(b)(1) Guidelines.

(3) Compensatory mitigation for unavoidable impacts may be required to ensure that an activity requiring a section 404 permit complies with the Section 404(b)(1) Guidelines. During the 404(b)(1) Guidelines compliance analysis, the district engineer may determine that a DA permit for the proposed activity cannot be issued because of the lack of appropriate and practicable compensatory mitigation options.

(d) *Public interest.* Compensatory mitigation may also be required to ensure that an activity requiring authorization under section 404 of the Clean Water Act and/or sections 9 or 10 of the Rivers and Harbors Act of 1899 is not contrary to the public interest.

(e) *Accounting for regional variations.* Where appropriate, district engineers shall account for regional characteristics of aquatic resource types, functions and services when determining performance standards and monitoring requirements for compensatory mitigation projects.

(f) *Relationship to other guidance documents.* (1) This part applies instead of the “Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks,” which was issued on November 28, 1995, the “Federal Guidance on the Use of In-Lieu Fee Arrangements for Compensatory Mitigation Under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act,” which was issued on November 7, 2000, and Regulatory Guidance Letter 02–02, “Guidance on Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899” which was issued on December 24, 2002. These guidance documents are no longer to be used as compensatory mitigation policy in the Corps Regulatory Program.

(2) In addition, this part also applies instead of the provisions relating to the amount, type, and location of compensatory mitigation projects,

including the use of preservation, in the February 6, 1990, Memorandum of Agreement (MOA) between the Department of the Army and the Environmental Protection Agency on the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines. All other provisions of this MOA remain in effect.

### § 332.2 Definitions.

For the purposes of this part, the following terms are defined:

*Adaptive management* means the development of a management strategy that anticipates likely challenges associated with compensatory mitigation projects and provides for the implementation of actions to address those challenges, as well as unforeseen changes to those projects. It requires consideration of the risk, uncertainty, and dynamic nature of compensatory mitigation projects and guides modification of those projects to optimize performance. It includes the selection of appropriate measures that will ensure that the aquatic resource functions are provided and involves analysis of monitoring results to identify potential problems of a compensatory mitigation project and the identification and implementation of measures to rectify those problems.

*Advance credits* means any credits of an approved in-lieu fee program that are available for sale prior to being fulfilled in accordance with an approved mitigation project plan. Advance credit sales require an approved in-lieu fee program instrument that meets all applicable requirements including a specific allocation of advance credits, by service area where applicable. The instrument must also contain a schedule for fulfillment of advance credit sales.

*Buffer* means an upland, wetland, and/or riparian area that protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine, and estuarine systems from disturbances associated with adjacent land uses.

*Compensatory mitigation* means the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

*Compensatory mitigation project* means compensatory mitigation implemented by the permittee as a requirement of a DA permit (i.e., permittee-responsible mitigation), or by

a mitigation bank or an in-lieu fee program.

*Condition* means the relative ability of an aquatic resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region.

*Credit* means a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic functions is based on the resources restored, established, enhanced, or preserved.

*DA* means Department of the Army.

*Days* means calendar days.

*Debit* means a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the loss of aquatic functions at an impact or project site. The measure of aquatic functions is based on the resources impacted by the authorized activity.

*Enhancement* means the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

*Establishment* (creation) means the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions.

*Fulfillment of advance credit sales of an in-lieu fee program* means application of credits released in accordance with a credit release schedule in an approved mitigation project plan to satisfy the mitigation requirements represented by the advance credits. Only after any advance credit sales within a service area have been fulfilled through the application of released credits from an in-lieu fee project (in accordance with the credit release schedule for an approved mitigation project plan), may additional released credits from that project be sold or transferred to permittees. When advance credits are fulfilled, an equal number of new advance credits is restored to the program sponsor for sale or transfer to permit applicants.

*Functional capacity* means the degree to which an area of aquatic resource performs a specific function.

*Functions* means the physical, chemical, and biological processes that occur in ecosystems.

*Impact* means adverse effect.

*In-kind* means a resource of a similar structural and functional type to the impacted resource.

*In-lieu fee program* means a program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation requirements for DA permits. Similar to a mitigation bank, an in-lieu fee program sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu program sponsor. However, the rules governing the operation and use of in-lieu fee programs are somewhat different from the rules governing operation and use of mitigation banks. The operation and use of an in-lieu fee program are governed by an in-lieu fee program instrument.

*In-lieu fee program instrument* means the legal document for the establishment, operation, and use of an in-lieu fee program.

*Instrument* means mitigation banking instrument or in-lieu fee program instrument.

*Interagency Review Team (IRT)* means an interagency group of federal, tribal, state, and/or local regulatory and resource agency representatives that reviews documentation for, and advises the district engineer on, the establishment and management of a mitigation bank or an in-lieu fee program.

*Mitigation bank* means a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by DA permits. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor. The operation and use of a mitigation bank are governed by a mitigation banking instrument.

*Mitigation banking instrument* means the legal document for the establishment, operation, and use of a mitigation bank.

*Off-site* means an area that is neither located on the same parcel of land as the impact site, nor on a parcel of land contiguous to the parcel containing the impact site.

*On-site* means an area located on the same parcel of land as the impact site,

or on a parcel of land contiguous to the impact site.

*Out-of-kind* means a resource of a different structural and functional type from the impacted resource.

*Performance standards* are observable or measurable physical (including hydrological), chemical and/or biological attributes that are used to determine if a compensatory mitigation project meets its objectives.

*Permittee-responsible mitigation* means an aquatic resource restoration, establishment, enhancement, and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility.

*Preservation* means the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

*Re-establishment* means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

*Reference aquatic resources* are a set of aquatic resources that represent the full range of variability exhibited by a regional class of aquatic resources as a result of natural processes and anthropogenic disturbances.

*Rehabilitation* means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

*Release of credits* means a determination by the district engineer, in consultation with the IRT, that credits associated with an approved mitigation plan are available for sale or transfer, or in the case of an in-lieu fee program, for fulfillment of advance credit sales. A proportion of projected credits for a specific mitigation bank or in-lieu fee project may be released upon approval of the mitigation plan, with additional credits released as milestones specified in the credit release schedule are achieved.

*Restoration* means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

*Riparian areas* are lands adjacent to streams, rivers, lakes, and estuarine-marine shorelines. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality.

*Service area* means the geographic area within which impacts can be mitigated at a specific mitigation bank or an in-lieu fee program, as designated in its instrument.

*Services* mean the benefits that human populations receive from functions that occur in ecosystems.

*Sponsor* means any public or private entity responsible for establishing, and in most circumstances, operating a mitigation bank or in-lieu fee program.

*Standard permit* means a standard, individual permit issued under the authority of section 404 of the Clean Water Act and/or sections 9 or 10 of the Rivers and Harbors Act of 1899.

*Temporal loss* is the time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site. Higher compensation ratios may be required to compensate for temporal loss. When the compensatory mitigation project is initiated prior to, or concurrent with, the permitted impacts, the district engineer may determine that compensation for temporal loss is not necessary, unless the resource has a long development time.

*Watershed* means a land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean.

*Watershed approach* means an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs. A landscape perspective is used to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by DA permits. The watershed approach may involve consideration of landscape scale, historic and potential aquatic

resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements for DA permits.

*Watershed plan* means a plan developed by federal, tribal, state, and/or local government agencies or appropriate non-governmental organizations, in consultation with relevant stakeholders, for the specific goal of aquatic resource restoration, establishment, enhancement, and preservation. A watershed plan addresses aquatic resource conditions in the watershed, multiple stakeholder interests, and land uses. Watershed plans may also identify priority sites for aquatic resource restoration and protection. Examples of watershed plans include special area management plans, advance identification programs, and wetland management plans.

### § 332.3 General compensatory mitigation requirements.

(a) *General considerations.* (1) The fundamental objective of compensatory mitigation is to offset environmental losses resulting from unavoidable impacts to waters of the United States authorized by DA permits. The district engineer must determine the compensatory mitigation to be required in a DA permit, based on what is practicable and capable of compensating for the aquatic resource functions that will be lost as a result of the permitted activity. When evaluating compensatory mitigation options, the district engineer will consider what would be environmentally preferable. In making this determination, the district engineer must assess the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed, and the costs of the compensatory mitigation project. In many cases, the environmentally preferable compensatory mitigation may be provided through mitigation banks or in-lieu fee programs because they usually involve consolidating compensatory mitigation projects where ecologically appropriate, consolidating resources, providing financial planning and scientific expertise (which often is not practical for permittee-responsible compensatory mitigation projects), reducing temporal losses of functions, and reducing uncertainty over project success. Compensatory mitigation requirements must be commensurate with the amount and type of impact that is associated with a particular DA permit. Permit applicants are responsible for proposing an

appropriate compensatory mitigation option to offset unavoidable impacts.

(2) Compensatory mitigation may be performed using the methods of restoration, enhancement, establishment, and in certain circumstances preservation. Restoration should generally be the first option considered because the likelihood of success is greater and the impacts to potentially ecologically important uplands are reduced compared to establishment, and the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation.

(3) Compensatory mitigation projects may be sited on public or private lands. Credits for compensatory mitigation projects on public land must be based solely on aquatic resource functions provided by the compensatory mitigation project, over and above those provided by public programs already planned or in place. All compensatory mitigation projects must comply with the standards in this part, if they are to be used to provide compensatory mitigation for activities authorized by DA permits, regardless of whether they are sited on public or private lands and whether the sponsor is a governmental or private entity.

(b) *Type and location of compensatory mitigation.* (1) When considering options for successfully providing the required compensatory mitigation, the district engineer shall consider the type and location options in the order presented in paragraphs (b)(2) through (b)(6) of this section. In general, the required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services, taking into account such watershed scale features as aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources (including the availability of water rights), trends in land use, ecological benefits, and compatibility with adjacent land uses. When compensating for impacts to marine resources, the location of the compensatory mitigation site should be chosen to replace lost functions and services within the same marine ecological system (e.g., reef complex, littoral drift cell). Compensation for impacts to aquatic resources in coastal watersheds (watersheds that include a tidal water body) should also be located in a coastal watershed where practicable. Compensatory mitigation projects should not be located where they will increase risks to aviation by attracting

wildlife to areas where aircraft-wildlife strikes may occur (e.g., near airports).

(2) *Mitigation bank credits.* When permitted impacts are located within the service area of an approved mitigation bank, and the bank has the appropriate number and resource type of credits available, the permittee's compensatory mitigation requirements may be met by securing those credits from the sponsor. Since an approved instrument (including an approved mitigation plan and appropriate real estate and financial assurances) for a mitigation bank is required to be in place before its credits can begin to be used to compensate for authorized impacts, use of a mitigation bank can help reduce risk and uncertainty, as well as temporal loss of resource functions and services. Mitigation bank credits are not released for debiting until specific milestones associated with the mitigation bank site's protection and development are achieved, thus use of mitigation bank credits can also help reduce risk that mitigation will not be fully successful. Mitigation banks typically involve larger, more ecologically valuable parcels, and more rigorous scientific and technical analysis, planning and implementation than permittee-responsible mitigation. Also, development of a mitigation bank requires site identification in advance, project-specific planning, and significant investment of financial resources that is often not practicable for many in-lieu fee programs. For these reasons, the district engineer should give preference to the use of mitigation bank credits when these considerations are applicable. However, these same considerations may also be used to override this preference, where appropriate, as, for example, where an in-lieu fee program has released credits available from a specific approved in-lieu fee project, or a permittee-responsible project will restore an outstanding resource based on rigorous scientific and technical analysis.

(3) *In-lieu fee program credits.* Where permitted impacts are located within the service area of an approved in-lieu fee program, and the sponsor has the appropriate number and resource type of credits available, the permittee's compensatory mitigation requirements may be met by securing those credits from the sponsor. Where permitted impacts are not located in the service area of an approved mitigation bank, or the approved mitigation bank does not have the appropriate number and resource type of credits available to offset those impacts, in-lieu fee mitigation, if available, is generally preferable to permittee-responsible

mitigation. In-lieu fee projects typically involve larger, more ecologically valuable parcels, and more rigorous scientific and technical analysis, planning and implementation than permittee-responsible mitigation. They also devote significant resources to identifying and addressing high-priority resource needs on a watershed scale, as reflected in their compensation planning framework. For these reasons, the district engineer should give preference to in-lieu fee program credits over permittee-responsible mitigation, where these considerations are applicable. However, as with the preference for mitigation bank credits, these same considerations may be used to override this preference where appropriate. Additionally, in cases where permittee-responsible mitigation is likely to successfully meet performance standards before advance credits secured from an in-lieu fee program are fulfilled, the district engineer should also give consideration to this factor in deciding between in-lieu fee mitigation and permittee-responsible mitigation.

(4) *Permittee-responsible mitigation under a watershed approach.* Where permitted impacts are not in the service area of an approved mitigation bank or in-lieu fee program that has the appropriate number and resource type of credits available, permittee-responsible mitigation is the only option. Where practicable and likely to be successful and sustainable, the resource type and location for the required permittee-responsible compensatory mitigation should be determined using the principles of a watershed approach as outlined in paragraph (c) of this section.

(5) *Permittee-responsible mitigation through on-site and in-kind mitigation.* In cases where a watershed approach is not practicable, the district engineer should consider opportunities to offset anticipated aquatic resource impacts by requiring on-site and in-kind compensatory mitigation. The district engineer must also consider the practicability of on-site compensatory mitigation and its compatibility with the proposed project.

(6) *Permittee-responsible mitigation through off-site and/or out-of-kind mitigation.* If, after considering opportunities for on-site, in-kind compensatory mitigation as provided in paragraph (b)(5) of this section, the district engineer determines that these compensatory mitigation opportunities are not practicable, are unlikely to compensate for the permitted impacts, or will be incompatible with the proposed project, and an alternative,

practicable off-site and/or out-of-kind mitigation opportunity is identified that has a greater likelihood of offsetting the permitted impacts or is environmentally preferable to on-site or in-kind mitigation, the district engineer should require that this alternative compensatory mitigation be provided.

(c) *Watershed approach to compensatory mitigation.* (1) The district engineer must use a watershed approach to establish compensatory mitigation requirements in DA permits to the extent appropriate and practicable. Where a watershed plan is available, the district engineer will determine whether the plan is appropriate for use in the watershed approach for compensatory mitigation. In cases where the district engineer determines that an appropriate watershed plan is available, the watershed approach should be based on that plan. Where no such plan is available, the watershed approach should be based on information provided by the project sponsor or available from other sources. The ultimate goal of a watershed approach is to maintain and improve the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites.

(2) *Considerations.* (i) A watershed approach to compensatory mitigation considers the importance of landscape position and resource type of compensatory mitigation projects for the sustainability of aquatic resource functions within the watershed. Such an approach considers how the types and locations of compensatory mitigation projects will provide the desired aquatic resource functions, and will continue to function over time in a changing landscape. It also considers the habitat requirements of important species, habitat loss or conversion trends, sources of watershed impairment, and current development trends, as well as the requirements of other regulatory and non-regulatory programs that affect the watershed, such as storm water management or habitat conservation programs. It includes the protection and maintenance of terrestrial resources, such as non-wetland riparian areas and uplands, when those resources contribute to or improve the overall ecological functioning of aquatic resources in the watershed.

Compensatory mitigation requirements determined through the watershed approach should not focus exclusively on specific functions (e.g., water quality or habitat for certain species), but should provide, where practicable, the suite of functions typically provided by the affected aquatic resource.

(ii) Locational factors (e.g., hydrology, surrounding land use) are important to the success of compensatory mitigation for impacted habitat functions and may lead to siting of such mitigation away from the project area. However, consideration should also be given to functions and services (e.g., water quality, flood control, shoreline protection) that will likely need to be addressed at or near the areas impacted by the permitted impacts.

(iii) A watershed approach may include on-site compensatory mitigation, off-site compensatory mitigation (including mitigation banks or in-lieu fee programs), or a combination of on-site and off-site compensatory mitigation.

(iv) A watershed approach to compensatory mitigation should include, to the extent practicable, inventories of historic and existing aquatic resources, including identification of degraded aquatic resources, and identification of immediate and long-term aquatic resource needs within watersheds that can be met through permittee-responsible mitigation projects, mitigation banks, or in-lieu fee programs. Planning efforts should identify and prioritize aquatic resource restoration, establishment, and enhancement activities, and preservation of existing aquatic resources that are important for maintaining or improving ecological functions of the watershed. The identification and prioritization of resource needs should be as specific as possible, to enhance the usefulness of the approach in determining compensatory mitigation requirements.

(v) A watershed approach is not appropriate in areas where watershed boundaries do not exist, such as marine areas. In such cases, an appropriate spatial scale should be used to replace lost functions and services within the same ecological system (e.g., reef complex, littoral drift cell).

(3) *Information Needs.* (i) In the absence of a watershed plan determined by the district engineer under paragraph (c)(1) of this section to be appropriate for use in the watershed approach, the district engineer will use a watershed approach based on analysis of information regarding watershed conditions and needs, including potential sites for aquatic resource restoration activities and priorities for aquatic resource restoration and preservation. Such information includes: current trends in habitat loss or conversion; cumulative impacts of past development activities, current development trends, the presence and

needs of sensitive species; site conditions that favor or hinder the success of compensatory mitigation projects; and chronic environmental problems such as flooding or poor water quality.

(ii) This information may be available from sources such as wetland maps; soil surveys; U.S. Geological Survey topographic and hydrologic maps; aerial photographs; information on rare, endangered and threatened species and critical habitat; local ecological reports or studies; and other information sources that could be used to identify locations for suitable compensatory mitigation projects in the watershed.

(iii) The level of information and analysis needed to support a watershed approach must be commensurate with the scope and scale of the proposed impacts requiring a DA permit, as well as the functions lost as a result of those impacts.

(4) *Watershed scale.* The size of watershed addressed using a watershed approach should not be larger than is appropriate to ensure that the aquatic resources provided through compensation activities will effectively compensate for adverse environmental impacts resulting from activities authorized by DA permits. The district engineer should consider relevant environmental factors and appropriate locally developed standards and criteria when determining the appropriate watershed scale in guiding compensation activities.

(d) *Site selection.* (1) The compensatory mitigation project site must be ecologically suitable for providing the desired aquatic resource functions. In determining the ecological suitability of the compensatory mitigation project site, the district engineer must consider, to the extent practicable, the following factors:

(i) Hydrological conditions, soil characteristics, and other physical and chemical characteristics;

(ii) Watershed-scale features, such as aquatic habitat diversity, habitat connectivity, and other landscape scale functions;

(iii) The size and location of the compensatory mitigation site relative to hydrologic sources (including the availability of water rights) and other ecological features;

(iv) Compatibility with adjacent land uses and watershed management plans;

(v) Reasonably foreseeable effects the compensatory mitigation project will have on ecologically important aquatic or terrestrial resources (e.g., shallow sub-tidal habitat, mature forests), cultural sites, or habitat for federally- or

state-listed threatened and endangered species; and

(vi) Other relevant factors including, but not limited to, development trends, anticipated land use changes, habitat status and trends, the relative locations of the impact and mitigation sites in the stream network, local or regional goals for the restoration or protection of particular habitat types or functions (e.g., re-establishment of habitat corridors or habitat for species of concern), water quality goals, floodplain management goals, and the relative potential for chemical contamination of the aquatic resources.

(2) District engineers may require on-site, off-site, or a combination of on-site and off-site compensatory mitigation to replace permitted losses of aquatic resource functions and services.

(3) Applicants should propose compensation sites adjacent to existing aquatic resources or where aquatic resources previously existed.

(e) *Mitigation type.* (1) In general, in-kind mitigation is preferable to out-of-kind mitigation because it is most likely to compensate for the functions and services lost at the impact site. For example, tidal wetland compensatory mitigation projects are most likely to compensate for unavoidable impacts to tidal wetlands, while perennial stream compensatory mitigation projects are most likely to compensate for unavoidable impacts to perennial streams. Thus, except as provided in paragraph (e)(2) of this section, the required compensatory mitigation shall be of a similar type to the affected aquatic resource.

(2) If the district engineer determines, using the watershed approach in accordance with paragraph (c) of this section that out-of-kind compensatory mitigation will serve the aquatic resource needs of the watershed, the district engineer may authorize the use of such out-of-kind compensatory mitigation. The basis for authorization of out-of-kind compensatory mitigation must be documented in the administrative record for the permit action.

(3) For difficult-to-replace resources (e.g., bogs, fens, springs, streams, Atlantic white cedar swamps) if further avoidance and minimization is not practicable, the required compensation should be provided, if practicable, through in-kind rehabilitation, enhancement, or preservation since there is greater certainty that these methods of compensation will successfully offset permitted impacts.

(f) *Amount of compensatory mitigation.* (1) If the district engineer determines that compensatory

mitigation is necessary to offset unavoidable impacts to aquatic resources, the amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functional or condition assessment or other suitable metric is not used, a minimum one-to-one acreage or linear foot compensation ratio must be used.

(2) The district engineer must require a mitigation ratio greater than one-to-one where necessary to account for the method of compensatory mitigation (e.g., preservation), the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site. The rationale for the required replacement ratio must be documented in the administrative record for the permit action.

(3) If an in-lieu fee program will be used to provide the required compensatory mitigation, and the appropriate number and resource type of released credits are not available, the district engineer must require sufficient compensation to account for the risk and uncertainty associated with in-lieu fee projects that have not been implemented before the permitted impacts have occurred.

(g) *Use of mitigation banks and in-lieu fee programs.* Mitigation banks and in-lieu fee programs may be used to compensate for impacts to aquatic resources authorized by general permits and individual permits, including after-the-fact permits, in accordance with the preference hierarchy in paragraph (b) of this section.

(h) *Preservation.* (1) Preservation may be used to provide compensatory mitigation for activities authorized by DA permits when all the following criteria are met:

(i) The resources to be preserved provide important physical, chemical, or biological functions for the watershed;

(ii) The resources to be preserved contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability

of the watershed, the district engineer must use appropriate quantitative assessment tools, where available;

(iii) Preservation is determined by the district engineer to be appropriate and practicable;

(iv) The resources are under threat of destruction or adverse modifications; and

(v) The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state resource agency or land trust).

(2) Where preservation is used to provide compensatory mitigation, to the extent appropriate and practicable the preservation shall be done in conjunction with aquatic resource restoration, establishment, and/or enhancement activities. This requirement may be waived by the district engineer where preservation has been identified as a high priority using a watershed approach described in paragraph (c) of this section, but compensation ratios shall be higher.

(i) *Buffers.* District engineers may require the restoration, establishment, enhancement, and preservation, as well as the maintenance, of riparian areas and/or buffers around aquatic resources where necessary to ensure the long-term viability of those resources. Buffers may also provide habitat or corridors necessary for the ecological functioning of aquatic resources. If buffers are required by the district engineer as part of the compensatory mitigation project, compensatory mitigation credit will be provided for those buffers.

(j) *Relationship to other federal, tribal, state, and local programs.* (1) Compensatory mitigation projects for DA permits may also be used to satisfy the environmental requirements of other programs, such as tribal, state, or local wetlands regulatory programs, other federal programs such as the Surface Mining Control and Reclamation Act, Corps civil works projects, and Department of Defense military construction projects, consistent with the terms and requirements of these programs and subject to the following considerations:

(i) The compensatory mitigation project must include appropriate compensation required by the DA permit for unavoidable impacts to aquatic resources authorized by that permit.

(ii) Under no circumstances may the same credits be used to provide mitigation for more than one permitted activity. However, where appropriate, compensatory mitigation projects, including mitigation banks and in-lieu fee projects, may be designed to

holistically address requirements under multiple programs and authorities for the same activity.

(2) Except for projects undertaken by federal agencies, or where federal funding is specifically authorized to provide compensatory mitigation, federally-funded aquatic resource restoration or conservation projects undertaken for purposes other than compensatory mitigation, such as the Wetlands Reserve Program, Conservation Reserve Program, and Partners for Wildlife Program activities, cannot be used for the purpose of generating compensatory mitigation credits for activities authorized by DA permits. However, compensatory mitigation credits may be generated by activities undertaken in conjunction with, but supplemental to, such programs in order to maximize the overall ecological benefits of the restoration or conservation project.

(3) Compensatory mitigation projects may also be used to provide compensatory mitigation under the Endangered Species Act or for Habitat Conservation Plans, as long as they comply with the requirements of paragraph (j)(1) of this section.

(k) *Permit conditions.* (1) The compensatory mitigation requirements for a DA permit, including the amount and type of compensatory mitigation, must be clearly stated in the special conditions of the individual permit or general permit verification (see 33 CFR 325.4 and 330.6(a)). The special conditions must be enforceable.

(2) For an individual permit that requires permittee-responsible mitigation, the special conditions must:

(i) Identify the party responsible for providing the compensatory mitigation;

(ii) Incorporate, by reference, the final mitigation plan approved by the district engineer;

(iii) State the objectives, performance standards, and monitoring required for the compensatory mitigation project, unless they are provided in the approved final mitigation plan; and

(iv) Describe any required financial assurances or long-term management provisions for the compensatory mitigation project, unless they are specified in the approved final mitigation plan.

(3) For a general permit activity that requires permittee-responsible compensatory mitigation, the special conditions must describe the compensatory mitigation proposal, which may be either conceptual or detailed. The general permit verification must also include a special condition that states that the permittee cannot commence work in waters of the United

States until the district engineer approves the final mitigation plan, unless the district engineer determines that such a special condition is not practicable and not necessary to ensure timely completion of the required compensatory mitigation. To the extent appropriate and practicable, special conditions of the general permit verification should also address the requirements of paragraph (k)(2) of this section.

(4) If a mitigation bank or in-lieu fee program is used to provide the required compensatory mitigation, the special conditions must indicate whether a mitigation bank or in-lieu fee program will be used, and specify the number and resource type of credits the permittee is required to secure. In the case of an individual permit, the special condition must also identify the specific mitigation bank or in-lieu fee program that will be used. For general permit verifications, the special conditions may either identify the specific mitigation bank or in-lieu fee program, or state that the specific mitigation bank or in-lieu fee program used to provide the required compensatory mitigation must be approved by the district engineer before the credits are secured.

(l) *Party responsible for compensatory mitigation.* (1) For permittee-responsible mitigation, the special conditions of the DA permit must clearly indicate the party or parties responsible for the implementation, performance, and long-term management of the compensatory mitigation project.

(2) For mitigation banks and in-lieu fee programs, the instrument must clearly indicate the party or parties responsible for the implementation, performance, and long-term management of the compensatory mitigation project(s). The instrument must also contain a provision expressing the sponsor's agreement to assume responsibility for a permittee's compensatory mitigation requirements, once that permittee has secured the appropriate number and resource type of credits from the sponsor and the district engineer has received the documentation described in paragraph (l)(3) of this section.

(3) If use of a mitigation bank or in-lieu fee program is approved by the district engineer to provide part or all of the required compensatory mitigation for a DA permit, the permittee retains responsibility for providing the compensatory mitigation until the appropriate number and resource type of credits have been secured from a sponsor and the district engineer has received documentation that confirms that the sponsor has accepted the

responsibility for providing the required compensatory mitigation. This documentation may consist of a letter or form signed by the sponsor, with the permit number and a statement indicating the number and resource type of credits that have been secured from the sponsor. Copies of this documentation will be retained in the administrative records for both the permit and the instrument. If the sponsor fails to provide the required compensatory mitigation, the district engineer may pursue measures against the sponsor to ensure compliance.

(m) *Timing.* Implementation of the compensatory mitigation project shall be, to the maximum extent practicable, in advance of or concurrent with the activity causing the authorized impacts. The district engineer shall require, to the extent appropriate and practicable, additional compensatory mitigation to offset temporal losses of aquatic functions that will result from the permitted activity.

(n) *Financial assurances.* (1) The district engineer shall require sufficient financial assurances to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with applicable performance standards. In cases where an alternate mechanism is available to ensure a high level of confidence that the compensatory mitigation will be provided and maintained (e.g., a formal, documented commitment from a government agency or public authority) the district engineer may determine that financial assurances are not necessary for that compensatory mitigation project.

(2) The amount of the required financial assurances must be determined by the district engineer, in consultation with the project sponsor, and must be based on the size and complexity of the compensatory mitigation project, the degree of completion of the project at the time of project approval, the likelihood of success, the past performance of the project sponsor, and any other factors the district engineer deems appropriate. Financial assurances may be in the form of performance bonds, escrow accounts, casualty insurance, letters of credit, legislative appropriations for government sponsored projects, or other appropriate instruments, subject to the approval of the district engineer. The rationale for determining the amount of the required financial assurances must be documented in the administrative record for either the DA permit or the instrument. In determining the assurance amount, the district engineer shall consider the cost of providing

replacement mitigation, including costs for land acquisition, planning and engineering, legal fees, mobilization, construction, and monitoring.

(3) If financial assurances are required, the DA permit must include a special condition requiring the financial assurances to be in place prior to commencing the permitted activity.

(4) Financial assurances shall be phased out once the compensatory mitigation project has been determined by the district engineer to be successful in accordance with its performance standards. The DA permit or instrument must clearly specify the conditions under which the financial assurances are to be released to the permittee, sponsor, and/or other financial assurance provider, including, as appropriate, linkage to achievement of performance standards, adaptive management, or compliance with special conditions.

(5) A financial assurance must be in a form that ensures that the district engineer will receive notification at least 120 days in advance of any termination or revocation. For third-party assurance providers, this may take the form of a contractual requirement for the assurance provider to notify the district engineer at least 120 days before the assurance is revoked or terminated.

(6) Financial assurances shall be payable at the direction of the district engineer to his designee or to a standby trust agreement. When a standby trust is used (e.g., with performance bonds or letters of credit) all amounts paid by the financial assurance provider shall be deposited directly into the standby trust fund for distribution by the trustee in accordance with the district engineer's instructions.

(o) *Compliance with applicable law.* The compensatory mitigation project must comply with all applicable federal, state, and local laws. The DA permit, mitigation banking instrument, or in-lieu fee program instrument must not require participation by the Corps or any other federal agency in project management, including receipt or management of financial assurances or long-term financing mechanisms, except as determined by the Corps or other agency to be consistent with its statutory authority, mission, and priorities.

#### **§ 332.4 Planning and documentation.**

(a) *Pre-application consultations.* Potential applicants for standard permits are encouraged to participate in pre-application meetings with the Corps and appropriate agencies to discuss potential mitigation requirements and information needs.

(b) *Public review and comment.* (1) For an activity that requires a standard DA permit pursuant to section 404 of the Clean Water Act, the public notice for the proposed activity must contain a statement explaining how impacts associated with the proposed activity are to be avoided, minimized, and compensated for. This explanation shall address, to the extent that such information is provided in the mitigation statement required by § 325.1(d)(7) of this chapter, the proposed avoidance and minimization and the amount, type, and location of any proposed compensatory mitigation, including any out-of-kind compensation, or indicate an intention to use an approved mitigation bank or in-lieu fee program. The level of detail provided in the public notice must be commensurate with the scope and scale of the impacts. The notice shall not include information that the district engineer and the permittee believe should be kept confidential for business purposes, such as the exact location of a proposed mitigation site that has not yet been secured. The permittee must clearly identify any information being claimed as confidential in the mitigation statement when submitted. In such cases, the notice must still provide enough information to enable the public to provide meaningful comment on the proposed mitigation.

(2) For individual permits, district engineers must consider any timely comments and recommendations from other federal agencies; tribal, state, or local governments; and the public.

(3) For activities authorized by letters of permission or general permits, the review and approval process for compensatory mitigation proposals and plans must be conducted in accordance with the terms and conditions of those permits and applicable regulations including the applicable provisions of this part.

(c) *Mitigation plan.* (1) *Preparation and Approval.* (i) For individual permits, the permittee must prepare a draft mitigation plan and submit it to the district engineer for review. After addressing any comments provided by the district engineer, the permittee must prepare a final mitigation plan, which must be approved by the district engineer prior to issuing the individual permit. The approved final mitigation plan must be incorporated into the individual permit by reference. The final mitigation plan must include the items described in paragraphs (c)(2) through (c)(14) of this section, but the level of detail of the mitigation plan should be commensurate with the scale and scope of the impacts. As an

alternative, the district engineer may determine that it would be more appropriate to address any of the items described in paragraphs (c)(2) through (c)(14) of this section as permit conditions, instead of components of a compensatory mitigation plan. For permittees who intend to fulfill their compensatory mitigation obligations by securing credits from approved mitigation banks or in-lieu fee programs, their mitigation plans need include only the items described in paragraphs (c)(5) and (c)(6) of this section, and the name of the specific mitigation bank or in-lieu fee program to be used.

(ii) For general permits, if compensatory mitigation is required, the district engineer may approve a conceptual or detailed compensatory mitigation plan to meet required time frames for general permit verifications, but a final mitigation plan incorporating the elements in paragraphs (c)(2) through (c)(14) of this section, at a level of detail commensurate with the scale and scope of the impacts, must be approved by the district engineer before the permittee commences work in waters of the United States. As an alternative, the district engineer may determine that it would be more appropriate to address any of the items described in paragraphs (c)(2) through (c)(14) of this section as permit conditions, instead of components of a compensatory mitigation plan. For permittees who intend to fulfill their compensatory mitigation obligations by securing credits from approved mitigation banks or in-lieu fee programs, their mitigation plans need include only the items described in paragraphs (c)(5) and (c)(6) of this section, and either the name of the specific mitigation bank or in-lieu fee program to be used or a statement indicating that a mitigation bank or in-lieu fee program will be used (contingent upon approval by the district engineer).

(iii) Mitigation banks and in-lieu fee programs must prepare a mitigation plan including the items in paragraphs (c)(2) through (c)(14) of this section for each separate compensatory mitigation project site. For mitigation banks and in-lieu fee programs, the preparation and approval process for mitigation plans is described in § 332.8.

(2) *Objectives.* A description of the resource type(s) and amount(s) that will be provided, the method of compensation (i.e., restoration, establishment, enhancement, and/or preservation), and the manner in which the resource functions of the compensatory mitigation project will address the needs of the watershed,

ecoregion, physiographic province, or other geographic area of interest.

(3) *Site selection.* A description of the factors considered during the site selection process. This should include consideration of watershed needs, on-site alternatives where applicable, and the practicability of accomplishing ecologically self-sustaining aquatic resource restoration, establishment, enhancement, and/or preservation at the compensatory mitigation project site. (See § 332.3(d).)

(4) *Site protection instrument.* A description of the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the compensatory mitigation project site (see § 332.7(a)).

(5) *Baseline information.* A description of the ecological characteristics of the proposed compensatory mitigation project site and, in the case of an application for a DA permit, the impact site. This may include descriptions of historic and existing plant communities, historic and existing hydrology, soil conditions, a map showing the locations of the impact and mitigation site(s) or the geographic coordinates for those site(s), and other site characteristics appropriate to the type of resource proposed as compensation. The baseline information should also include a delineation of waters of the United States on the proposed compensatory mitigation project site. A prospective permittee planning to secure credits from an approved mitigation bank or in-lieu fee program only needs to provide baseline information about the impact site, not the mitigation bank or in-lieu fee project site.

(6) *Determination of credits.* A description of the number of credits to be provided, including a brief explanation of the rationale for this determination. (See § 332.3(f).)

(i) For permittee-responsible mitigation, this should include an explanation of how the compensatory mitigation project will provide the required compensation for unavoidable impacts to aquatic resources resulting from the permitted activity.

(ii) For permittees intending to secure credits from an approved mitigation bank or in-lieu fee program, it should include the number and resource type of credits to be secured and how these were determined.

(7) *Mitigation work plan.* Detailed written specifications and work descriptions for the compensatory mitigation project, including, but not limited to, the geographic boundaries of the project; construction methods,

timing, and sequence; source(s) of water, including connections to existing waters and uplands; methods for establishing the desired plant community; plans to control invasive plant species; the proposed grading plan, including elevations and slopes of the substrate; soil management; and erosion control measures. For stream compensatory mitigation projects, the mitigation work plan may also include other relevant information, such as planform geometry, channel form (e.g., typical channel cross-sections), watershed size, design discharge, and riparian area plantings.

(8) *Maintenance plan.* A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed.

(9) *Performance standards.* Ecologically-based standards that will be used to determine whether the compensatory mitigation project is achieving its objectives. (See § 332.5.)

(10) *Monitoring requirements.* A description of parameters to be monitored in order to determine if the compensatory mitigation project is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting on monitoring results to the district engineer must be included. (See § 332.6.)

(11) *Long-term management plan.* A description of how the compensatory mitigation project will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party responsible for long-term management. (See § 332.7(d).)

(12) *Adaptive management plan.* A management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project, including the party or parties responsible for implementing adaptive management measures. The adaptive management plan will guide decisions for revising compensatory mitigation plans and implementing measures to address both foreseeable and unforeseen circumstances that adversely affect compensatory mitigation success. (See § 332.7(c).)

(13) *Financial assurances.* A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standards (see § 332.3(n)).

(14) *Other information.* The district engineer may require additional

information as necessary to determine the appropriateness, feasibility, and practicability of the compensatory mitigation project.

### § 332.5 Ecological performance standards.

(a) The approved mitigation plan must contain performance standards that will be used to assess whether the project is achieving its objectives. Performance standards should relate to the objectives of the compensatory mitigation project, so that the project can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected functions, and attaining any other applicable metrics (e.g., acres).

(b) Performance standards must be based on attributes that are objective and verifiable. Ecological performance standards must be based on the best available science that can be measured or assessed in a practicable manner. Performance standards may be based on variables or measures of functional capacity described in functional assessment methodologies, measurements of hydrology or other aquatic resource characteristics, and/or comparisons to reference aquatic resources of similar type and landscape position. The use of reference aquatic resources to establish performance standards will help ensure that those performance standards are reasonably achievable, by reflecting the range of variability exhibited by the regional class of aquatic resources as a result of natural processes and anthropogenic disturbances. Performance standards based on measurements of hydrology should take into consideration the hydrologic variability exhibited by reference aquatic resources, especially wetlands. Where practicable, performance standards should take into account the expected stages of the aquatic resource development process, in order to allow early identification of potential problems and appropriate adaptive management.

### § 332.6 Monitoring.

(a) *General.* (1) Monitoring the compensatory mitigation project site is necessary to determine if the project is meeting its performance standards, and to determine if measures are necessary to ensure that the compensatory mitigation project is accomplishing its objectives. The submission of monitoring reports to assess the development and condition of the compensatory mitigation project is required, but the content and level of detail for those monitoring reports must be commensurate with the scale and scope of the compensatory mitigation

project, as well as the compensatory mitigation project type. The mitigation plan must address the monitoring requirements for the compensatory mitigation project, including the parameters to be monitored, the length of the monitoring period, the party responsible for conducting the monitoring, the frequency for submitting monitoring reports to the district engineer, and the party responsible for submitting those monitoring reports to the district engineer.

(2) The district engineer may conduct site inspections on a regular basis (e.g., annually) during the monitoring period to evaluate mitigation site performance.

(b) *Monitoring period.* The mitigation plan must provide for a monitoring period that is sufficient to demonstrate that the compensatory mitigation project has met performance standards, but not less than five years. A longer monitoring period must be required for aquatic resources with slow development rates (e.g., forested wetlands, bogs). Following project implementation, the district engineer may reduce or waive the remaining monitoring requirements upon a determination that the compensatory mitigation project has achieved its performance standards. Conversely the district engineer may extend the original monitoring period upon a determination that performance standards have not been met or the compensatory mitigation project is not on track to meet them. The district engineer may also revise monitoring requirements when remediation and/or adaptive management is required.

(c) *Monitoring reports.* (1) The district engineer must determine the information to be included in monitoring reports. This information must be sufficient for the district engineer to determine how the compensatory mitigation project is progressing towards meeting its performance standards, and may include plans (such as as-built plans), maps, and photographs to illustrate site conditions. Monitoring reports may also include the results of functional, condition, or other assessments used to provide quantitative or qualitative measures of the functions provided by the compensatory mitigation project site.

(2) The permittee or sponsor is responsible for submitting monitoring reports in accordance with the special conditions of the DA permit or the terms of the instrument. Failure to submit monitoring reports in a timely manner may result in compliance action by the district engineer.

(3) Monitoring reports must be provided by the district engineer to interested federal, tribal, state, and local resource agencies, and the public, upon request.

#### **§ 332.7 Management.**

(a) *Site protection.* (1) The aquatic habitats, riparian areas, buffers, and uplands that comprise the overall compensatory mitigation project must be provided long-term protection through real estate instruments or other available mechanisms, as appropriate. Long-term protection may be provided through real estate instruments such as conservation easements held by entities such as federal, tribal, state, or local resource agencies, non-profit conservation organizations, or private land managers; the transfer of title to such entities; or by restrictive covenants. For government property, long-term protection may be provided through federal facility management plans or integrated natural resources management plans. When approving a method for long-term protection of non-government property other than transfer of title, the district engineer shall consider relevant legal constraints on the use of conservation easements and/or restrictive covenants in determining whether such mechanisms provide sufficient site protection. To provide sufficient site protection, a conservation easement or restrictive covenant should, where practicable, establish in an appropriate third party (e.g., governmental or non-profit resource management agency) the right to enforce site protections and provide the third party the resources necessary to monitor and enforce these site protections.

(2) The real estate instrument, management plan, or other mechanism providing long-term protection of the compensatory mitigation site must, to the extent appropriate and practicable, prohibit incompatible uses (e.g., clear cutting or mineral extraction) that might otherwise jeopardize the objectives of the compensatory mitigation project. Where appropriate, multiple instruments recognizing compatible uses (e.g., fishing or grazing rights) may be used.

(3) The real estate instrument, management plan, or other long-term protection mechanism must contain a provision requiring 60-day advance notification to the district engineer before any action is taken to void or modify the instrument, management plan, or long-term protection mechanism, including transfer of title to, or establishment of any other legal claims over, the compensatory mitigation site.

(4) For compensatory mitigation projects on public lands, where federal facility management plans or integrated natural resources management plans are used to provide long-term protection, and changes in statute, regulation, or agency needs or mission results in an incompatible use on public lands originally set aside for compensatory mitigation, the public agency authorizing the incompatible use is responsible for providing alternative compensatory mitigation that is acceptable to the district engineer for any loss in functions resulting from the incompatible use.

(5) A real estate instrument, management plan, or other long-term protection mechanism used for site protection of permittee-responsible mitigation must be approved by the district engineer in advance of, or concurrent with, the activity causing the authorized impacts.

(b) *Sustainability.* Compensatory mitigation projects shall be designed, to the maximum extent practicable, to be self-sustaining once performance standards have been achieved. This includes minimization of active engineering features (e.g., pumps) and appropriate siting to ensure that natural hydrology and landscape context will support long-term sustainability. Where active long-term management and maintenance are necessary to ensure long-term sustainability (e.g., prescribed burning, invasive species control, maintenance of water control structures, easement enforcement), the responsible party must provide for such management and maintenance. This includes the provision of long-term financing mechanisms where necessary. Where needed, the acquisition and protection of water rights must be secured and documented in the permit conditions or instrument.

(c) *Adaptive management.* (1) If the compensatory mitigation project cannot be constructed in accordance with the approved mitigation plans, the permittee or sponsor must notify the district engineer. A significant modification of the compensatory mitigation project requires approval from the district engineer.

(2) If monitoring or other information indicates that the compensatory mitigation project is not progressing towards meeting its performance standards as anticipated, the responsible party must notify the district engineer as soon as possible. The district engineer will evaluate and pursue measures to address deficiencies in the compensatory mitigation project. The district engineer will consider whether the compensatory mitigation project is

providing ecological benefits comparable to the original objectives of the compensatory mitigation project.

(3) The district engineer, in consultation with the responsible party (and other federal, tribal, state, and local agencies, as appropriate), will determine the appropriate measures. The measures may include site modifications, design changes, revisions to maintenance requirements, and revised monitoring requirements. The measures must be designed to ensure that the modified compensatory mitigation project provides aquatic resource functions comparable to those described in the mitigation plan objectives.

(4) Performance standards may be revised in accordance with adaptive management to account for measures taken to address deficiencies in the compensatory mitigation project. Performance standards may also be revised to reflect changes in management strategies and objectives if the new standards provide for ecological benefits that are comparable or superior to the approved compensatory mitigation project. No other revisions to performance standards will be allowed except in the case of natural disasters.

(d) *Long-term management.* (1) The permit conditions or instrument must identify the party responsible for ownership and all long-term management of the compensatory mitigation project. The permit conditions or instrument may contain provisions allowing the permittee or sponsor to transfer the long-term management responsibilities of the compensatory mitigation project site to a land stewardship entity, such as a public agency, non-governmental organization, or private land manager, after review and approval by the district engineer. The land stewardship entity need not be identified in the original permit or instrument, as long as the future transfer of long-term management responsibility is approved by the district engineer.

(2) A long-term management plan should include a description of long-term management needs, annual cost estimates for these needs, and identify the funding mechanism that will be used to meet those needs.

(3) Any provisions necessary for long-term financing must be addressed in the original permit or instrument. The district engineer may require provisions to address inflationary adjustments and other contingencies, as appropriate. Appropriate long-term financing mechanisms include non-wasting endowments, trusts, contractual arrangements with future responsible parties, and other appropriate financial

instruments. In cases where the long-term management entity is a public authority or government agency, that entity must provide a plan for the long-term financing of the site.

(4) For permittee-responsible mitigation, any long-term financing mechanisms must be approved in advance of the activity causing the authorized impacts.

#### **§ 332.8 Mitigation banks and in-lieu fee programs.**

(a) *General considerations.* (1) All mitigation banks and in-lieu fee programs must have an approved instrument signed by the sponsor and the district engineer prior to being used to provide compensatory mitigation for DA permits.

(2) To the maximum extent practicable, mitigation banks and in-lieu fee project sites must be planned and designed to be self-sustaining over time, but some active management and maintenance may be required to ensure their long-term viability and sustainability. Examples of acceptable management activities include maintaining fire-dependent habitat communities in the absence of natural fire and controlling invasive exotic plant species.

(3) All mitigation banks and in-lieu fee programs must comply with the standards in this part, if they are to be used to provide compensatory mitigation for activities authorized by DA permits, regardless of whether they are sited on public or private lands and whether the sponsor is a governmental or private entity.

(b) *Interagency Review Team.* (1) The district engineer will establish an Interagency Review Team (IRT) to review documentation for the establishment and management of mitigation banks and in-lieu fee programs. The district engineer or his designated representative serves as Chair of the IRT. In cases where a mitigation bank or in-lieu fee program is proposed to satisfy the requirements of another federal, tribal, state, or local program, in addition to compensatory mitigation requirements of DA permits, it may be appropriate for the administering agency to serve as co-Chair of the IRT.

(2) In addition to the Corps, representatives from the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, NOAA Fisheries, the Natural Resources Conservation Service, and other federal agencies, as appropriate, may participate in the IRT. The IRT may also include representatives from tribal, state, and local regulatory and resource

agencies, where such agencies have authorities and/or mandates directly affecting, or affected by, the establishment, operation, or use of the mitigation bank or in-lieu fee program. The district engineer will seek to include all public agencies with a substantive interest in the establishment of the mitigation bank or in-lieu fee program on the IRT, but retains final authority over its composition.

(3) The primary role of the IRT is to facilitate the establishment of mitigation banks or in-lieu fee programs through the development of mitigation banking or in-lieu fee program instruments. The IRT will review the prospectus, instrument, and other appropriate documents and provide comments to the district engineer. The district engineer and the IRT should use a watershed approach to the extent practicable in reviewing proposed mitigation banks and in-lieu fee programs. Members of the IRT may also sign the instrument, if they so choose. By signing the instrument, the IRT members indicate their agreement with the terms of the instrument. As an alternative, a member of the IRT may submit a letter expressing concurrence with the instrument. The IRT will also advise the district engineer in assessing monitoring reports, recommending remedial or adaptive management measures, approving credit releases, and approving modifications to an instrument. In order to ensure timely processing of instruments and other documentation, comments from IRT members must be received by the district engineer within the time limits specified in this section. Comments received after these deadlines will only be considered at the discretion of the district engineer to the extent that doing so does not jeopardize the deadlines for district engineer action.

(4) The district engineer will give full consideration to any timely comments and advice of the IRT. The district engineer alone retains final authority for approval of the instrument in cases where the mitigation bank or in-lieu fee program is used to satisfy compensatory mitigation requirements of DA permits.

(5) *MOAs with other agencies.* The district engineer and members of the IRT may enter into a memorandum of agreement (MOA) with any other federal, state or local government agency to perform all or some of the IRT review functions described in this section. Such MOAs must include provisions for appropriate federal oversight of the review process. The district engineer retains sole authority for final approval of instruments and

other documentation required under this section.

(c) *Compensation planning framework for in-lieu fee programs.* (1) The approved instrument for an in-lieu fee program must include a compensation planning framework that will be used to select, secure, and implement aquatic resource restoration, establishment, enhancement, and/or preservation activities. The compensation planning framework must support a watershed approach to compensatory mitigation. All specific projects used to provide compensation for DA permits must be consistent with the approved compensation planning framework. Modifications to the framework must be approved as a significant modification to the instrument by the district engineer, after consultation with the IRT.

(2) The compensation planning framework must contain the following elements:

(i) The geographic service area(s), including a watershed-based rationale for the delineation of each service area;

(ii) A description of the threats to aquatic resources in the service area(s), including how the in-lieu fee program will help offset impacts resulting from those threats;

(iii) An analysis of historic aquatic resource loss in the service area(s);

(iv) An analysis of current aquatic resource conditions in the service area(s), supported by an appropriate level of field documentation;

(v) A statement of aquatic resource goals and objectives for each service area, including a description of the general amounts, types and locations of aquatic resources the program will seek to provide;

(vi) A prioritization strategy for selecting and implementing compensatory mitigation activities;

(vii) An explanation of how any preservation objectives identified in paragraph (c)(2)(v) of this section and addressed in the prioritization strategy in paragraph (c)(2)(vi) satisfy the criteria for use of preservation in § 332.3(h);

(viii) A description of any public and private stakeholder involvement in plan development and implementation, including, where appropriate, coordination with federal, state, tribal and local aquatic resource management and regulatory authorities;

(ix) A description of the long-term protection and management strategies for activities conducted by the in-lieu fee program sponsor;

(x) A strategy for periodic evaluation and reporting on the progress of the program in achieving the goals and objectives in paragraph (c)(2)(v) of this

section, including a process for revising the planning framework as necessary; and

(xi) Any other information deemed necessary for effective compensation planning by the district engineer.

(3) The level of detail necessary for the compensation planning framework is at the discretion of the district engineer, and will take into account the characteristics of the service area(s) and the scope of the program. As part of the in-lieu fee program instrument, the compensation planning framework will be reviewed by the IRT, and will be a major factor in the district engineer's decision on whether to approve the instrument.

(d) *Review process.* (1) The sponsor is responsible for preparing all documentation associated with establishment of the mitigation bank or in-lieu fee program, including the prospectus, instrument, and other appropriate documents, such as mitigation plans for a mitigation bank. The prospectus provides an overview of the proposed mitigation bank or in-lieu fee program and serves as the basis for public and initial IRT comment. For a mitigation bank, the mitigation plan, as described in § 332.4(c), provides detailed plans and specifications for the mitigation bank site. For in-lieu fee programs, mitigation plans will be prepared as in-lieu fee project sites are identified after the instrument has been approved and the in-lieu fee program becomes operational. The instrument provides the authorization for the mitigation bank or in-lieu fee program to provide credits to be used as compensatory mitigation for DA permits.

(2) *Prospectus.* The prospectus must provide a summary of the information regarding the proposed mitigation bank or in-lieu fee program, at a sufficient level of detail to support informed public and IRT comment. The review process begins when the sponsor submits a complete prospectus to the district engineer. For modifications of approved instruments, submittal of a new prospectus is not required; instead, the sponsor must submit a written request for an instrument modification accompanied by appropriate documentation. The district engineer must notify the sponsor within 30 days whether or not a submitted prospectus is complete. A complete prospectus includes the following information:

(i) The objectives of the proposed mitigation bank or in-lieu fee program.

(ii) How the mitigation bank or in-lieu fee program will be established and operated.

(iii) The proposed service area.

(iv) The general need for and technical feasibility of the proposed mitigation bank or in-lieu fee program.

(v) The proposed ownership arrangements and long-term management strategy for the mitigation bank or in-lieu fee project sites.

(vi) The qualifications of the sponsor to successfully complete the type(s) of mitigation project(s) proposed, including information describing any past such activities by the sponsor.

(vii) For a proposed mitigation bank, the prospectus must also address:

(A) The ecological suitability of the site to achieve the objectives of the proposed mitigation bank, including the physical, chemical, and biological characteristics of the bank site and how that site will support the planned types of aquatic resources and functions; and

(B) Assurance of sufficient water rights to support the long-term sustainability of the mitigation bank.

(viii) For a proposed in-lieu fee program, the prospectus must also include:

(A) The compensation planning framework (see paragraph (c) of this section); and

(B) A description of the in-lieu fee program account required by paragraph (i) of this section.

(3) *Preliminary review of prospectus.* Prior to submitting a prospectus, the sponsor may elect to submit a draft prospectus to the district engineer for comment and consultation. The district engineer will provide copies of the draft prospectus to the IRT and will provide comments back to the sponsor within 30 days. Any comments from IRT members will also be forwarded to the sponsor. This preliminary review is optional but is strongly recommended. It is intended to identify potential issues early so that the sponsor may attempt to address those issues prior to the start of the formal review process.

(4) *Public review and comment.* Within 30 days of receipt of a complete prospectus or an instrument modification request that will be processed in accordance with paragraph (g)(1) of this section, the district engineer will provide public notice of the proposed mitigation bank or in-lieu fee program, in accordance with the public notice procedures at 33 CFR 325.3. The public notice must, at a minimum, include a summary of the prospectus and indicate that the full prospectus is available to the public for review upon request. For modifications of approved instruments, the public notice must instead summarize, and make available to the public upon request, whatever documentation is appropriate for the modification (e.g., a

new or revised mitigation plan). The comment period for public notice will be 30 days, unless the district engineer determines that a longer comment period is appropriate. The district engineer will notify the sponsor if the comment period is extended beyond 30 days, including an explanation of why the longer comment period is necessary. Copies of all comments received in response to the public notice must be distributed to the other IRT members and to the sponsor within 15 days of the close of the public comment period. The district engineer and IRT members may also provide comments to the sponsor at this time, and copies of any such comments will also be distributed to all IRT members. If the construction of a mitigation bank or an in-lieu fee program project requires a DA permit, the public notice requirement may be satisfied through the public notice provisions of the permit processing procedures, provided all of the relevant information is provided.

(5) *Initial evaluation.* (i) After the end of the comment period, the district engineer will review the comments received in response to the public notice, and make a written initial evaluation as to the potential of the proposed mitigation bank or in-lieu fee program to provide compensatory mitigation for activities authorized by DA permits. This initial evaluation letter must be provided to the sponsor within 30 days of the end of the public notice comment period.

(ii) If the district engineer determines that the proposed mitigation bank or in-lieu fee program has potential for providing appropriate compensatory mitigation for activities authorized by DA permits, the initial evaluation letter will inform the sponsor that he/she may proceed with preparation of the draft instrument (see paragraph (d)(6) of this section).

(iii) If the district engineer determines that the proposed mitigation bank or in-lieu fee program does not have potential for providing appropriate compensatory mitigation for DA permits, the initial evaluation letter must discuss the reasons for that determination. The sponsor may revise the prospectus to address the district engineer's concerns, and submit the revised prospectus to the district engineer. If the sponsor submits a revised prospectus, a revised public notice will be issued in accordance with paragraph (d)(4) of this section.

(iv) This initial evaluation procedure does not apply to proposed modifications of approved instruments.

(6) *Draft instrument.* (i) After considering comments from the district engineer, the IRT, and the public, if the

sponsor chooses to proceed with establishment of the mitigation bank or in-lieu fee program, he must prepare a draft instrument and submit it to the district engineer. In the case of an instrument modification, the sponsor must prepare a draft amendment (e.g., a specific instrument provision, a new or modified mitigation plan), and submit it to the district engineer. The district engineer must notify the sponsor within 30 days of receipt, whether the draft instrument or amendment is complete. If the draft instrument or amendment is incomplete, the district engineer will request from the sponsor the information necessary to make the draft instrument or amendment complete. Once any additional information is submitted, the district engineer must notify the sponsor as soon as he determines that the draft instrument or amendment is complete. The draft instrument must be based on the prospectus and must describe in detail the physical and legal characteristics of the mitigation bank or in-lieu fee program and how it will be established and operated.

(ii) For mitigation banks and in-lieu fee programs, the draft instrument must include the following information:

(A) A description of the proposed geographic service area of the mitigation bank or in-lieu fee program. The service area is the watershed, ecoregion, physiographic province, and/or other geographic area within which the mitigation bank or in-lieu fee program is authorized to provide compensatory mitigation required by DA permits. The service area must be appropriately sized to ensure that the aquatic resources provided will effectively compensate for adverse environmental impacts across the entire service area. For example, in urban areas, a U.S. Geological Survey 8-digit hydrologic unit code (HUC) watershed or a smaller watershed may be an appropriate service area. In rural areas, several contiguous 8-digit HUCs or a 6-digit HUC watershed may be an appropriate service area. Delineation of the service area must also consider any locally-developed standards and criteria that may be applicable. The economic viability of the mitigation bank or in-lieu fee program may also be considered in determining the size of the service area. The basis for the proposed service area must be documented in the instrument. An in-lieu fee program or umbrella mitigation banking instrument may have multiple service areas governed by its instrument (e.g., each watershed within a state or Corps district may be a separate service area under the instrument); however, all

impacts and compensatory mitigation must be accounted for by service area;

(B) Accounting procedures;

(C) A provision stating that legal responsibility for providing the compensatory mitigation lies with the sponsor once a permittee secures credits from the sponsor;

(D) Default and closure provisions;

(E) Reporting protocols; and

(F) Any other information deemed necessary by the district engineer.

(iii) For a mitigation bank, a complete draft instrument must include the following additional information:

(A) Mitigation plans that include all applicable items listed in § 332.4(c)(2) through (14); and

(B) A credit release schedule, which is tied to achievement of specific milestones. All credit releases must be approved by the district engineer, in consultation with the IRT, based on a determination that required milestones have been achieved. The district engineer, in consultation with the IRT, may modify the credit release schedule, including reducing the number of available credits or suspending credit sales or transfers altogether, where necessary to ensure that all credit sales or transfers remain tied to compensatory mitigation projects with a high likelihood of meeting performance standards;

(iv) For an in-lieu fee program, a complete draft instrument must include the following additional information:

(A) The compensation planning framework (see paragraph (c) of this section);

(B) Specification of the initial allocation of advance credits (see paragraph (n) of this section) and a draft fee schedule for these credits, by service area, including an explanation of the basis for the allocation and draft fee schedule;

(C) A methodology for determining future project-specific credits and fees; and

(D) A description of the in-lieu fee program account required by paragraph (i) of this section.

(7) *IRT review.* Upon receipt of notification by the district engineer that the draft instrument or amendment is complete, the sponsor must provide the district engineer with a sufficient number of copies of the draft instrument or amendment to distribute to the IRT members. The district engineer will promptly distribute copies of the draft instrument or amendment to the IRT members for a 30-day comment period. The 30-day comment period begins 5 days after the district engineer distributes the copies of the draft instrument or amendment to the IRT.

Following the comment period, the district engineer will discuss any comments with the appropriate agencies and with the sponsor. The district engineer will seek to resolve issues using a consensus based approach, to the extent practicable, while still meeting the decision-making time frames specified in this section. Within 90 days of receipt of the complete draft instrument or amendment by the IRT members, the district engineer must notify the sponsor of the status of the IRT review. Specifically, the district engineer must indicate to the sponsor if the draft instrument or amendment is generally acceptable and what changes, if any, are needed. If there are significant unresolved concerns that may lead to a formal objection from one or more IRT members to the final instrument or amendment, the district engineer will indicate the nature of those concerns.

(8) *Final instrument.* The sponsor must submit a final instrument to the district engineer for approval, with supporting documentation that explains how the final instrument addresses the comments provided by the IRT. For modifications of approved instruments, the sponsor must submit a final amendment to the district engineer for approval, with supporting documentation that explains how the final amendment addresses the comments provided by the IRT. The final instrument or amendment must be provided directly by the sponsor to all members of the IRT. Within 30 days of receipt of the final instrument or amendment, the district engineer will notify the IRT members whether or not he intends to approve the instrument or amendment. If no IRT member objects, by initiating the dispute resolution process in paragraph (e) of this section within 45 days of receipt of the final instrument or amendment, the district engineer will notify the sponsor of his final decision and, if the instrument or amendment is approved, arrange for it to be signed by the appropriate parties. If any IRT member initiates the dispute resolution process, the district engineer will notify the sponsor. Following conclusion of the dispute resolution process, the district engineer will notify the sponsor of his final decision, and if the instrument or amendment is approved, arrange for it to be signed by the appropriate parties. For mitigation banks, the final instrument must contain the information items listed in paragraphs (d)(6)(ii), and (iii) of this section. For in-lieu fee programs, the final instrument must contain the information items listed in paragraphs

(d)(6)(ii) and (iv) of this section. For the modification of an approved instrument, the amendment must contain appropriate information, as determined by the district engineer. The final instrument or amendment must be made available to the public upon request.

(e) *Dispute resolution process.* (1) Within 15 days of receipt of the district engineer's notification of intent to approve an instrument or amendment, the Regional Administrator of the U.S. EPA, the Regional Director of the U.S. Fish and Wildlife Service, the Regional Director of the National Marine Fisheries Service, and/or other senior officials of agencies represented on the IRT may notify the district engineer and other IRT members by letter if they object to the approval of the proposed final instrument or amendment. This letter must include an explanation of the basis for the objection and, where feasible, offer recommendations for resolving the objections. If the district engineer does not receive any objections within this time period, he may proceed to final action on the instrument or amendment.

(2) The district engineer must respond to the objection within 30 days of receipt of the letter. The district engineer's response may indicate an intent to disapprove the instrument or amendment as a result of the objection, an intent to approve the instrument or amendment despite the objection, or may provide a modified instrument or amendment that attempts to address the objection. The district engineer's response must be provided to all IRT members.

(3) Within 15 days of receipt of the district engineer's response, if the Regional Administrator or Regional Director is not satisfied with the response he may forward the issue to the Assistant Administrator for Water of the U.S. EPA, the Assistant Secretary for Fish and Wildlife and Parks of the U.S. FWS, or the Undersecretary for Oceans and Atmosphere of NOAA, as appropriate, for review and must notify the district engineer by letter via electronic mail or facsimile machine (with copies to all IRT members) that the issue has been forwarded for Headquarters review. This step is available only to the IRT members representing these three federal agencies, however other IRT members who do not agree with the district engineer's final decision do not have to sign the instrument or amendment or recognize the mitigation bank or in-lieu fee program for purposes of their own programs and authorities. If an IRT member other than the one filing the original objection has a new objection

based on the district engineer's response, he may use the first step in this procedure (paragraph (e)(1) of this section) to provide that objection to the district engineer.

(4) If the issue has not been forwarded to the objecting agency's Headquarters, then the district engineer may proceed with final action on the instrument or amendment. If the issue has been forwarded to the objecting agency's Headquarters, the district engineer must hold in abeyance the final action on the instrument or amendment, pending Headquarters level review described below.

(5) Within 20 days from the date of the letter requesting Headquarters level review, the Assistant Administrator for Water, the Assistant Secretary for Fish and Wildlife and Parks, or the Undersecretary for Oceans and Atmosphere must either notify the Assistant Secretary of the Army (Civil Works) (ASA(CW)) that further review will not be requested, or request that the ASA(CW) review the final instrument or amendment.

(6) Within 30 days of receipt of the letter from the objecting agency's Headquarters request for ASA(CW)'s review of the final instrument, the ASA(CW), through the Director of Civil Works, must review the draft instrument or amendment and advise the district engineer on how to proceed with final action on that instrument or amendment. The ASA(CW) must immediately notify the Assistant Administrator for Water, the Assistant Secretary for Fish and Wildlife and Parks, and/or the Undersecretary for Oceans and Atmosphere of the final decision.

(7) In cases where the dispute resolution procedure is used, the district engineer must notify the sponsor of his final decision within 150 days of receipt of the final instrument or amendment.

(f) *Extension of deadlines.* (1) The deadlines in paragraphs (d) and (e) of this section may be extended by the district engineer at his sole discretion in cases where:

(i) Compliance with other applicable laws, such as consultation under section 7 of the Endangered Species Act or section 106 of the National Historic Preservation Act, is required;

(ii) It is necessary to conduct government-to-government consultation with Indian tribes;

(iii) Timely submittal of information necessary for the review of the proposed mitigation bank or in-lieu fee program or the proposed modification of an approved instrument is not accomplished by the sponsor; or

(iv) Information that is essential to the district engineer's decision cannot be reasonably obtained within the specified time frame.

(2) In such cases, the district engineer must promptly notify the sponsor in writing of the extension and the reason for it. Such extensions shall be for the minimum time necessary to resolve the issue necessitating the extension.

(g) *Modification of instruments.* (1) *Approval of an amendment to an approved instrument.* Modification of an approved instrument, including the addition and approval of umbrella mitigation bank sites or in-lieu fee project sites or expansions of previously approved mitigation bank or in-lieu fee project sites, must follow the appropriate procedures in paragraph (d) of this section, unless the district engineer determines that the streamlined review process described in paragraph (g)(2) of this section is warranted.

(2) *Streamlined review process.* The streamlined modification review process may be used for the following modifications of instruments: changes reflecting adaptive management of the mitigation bank or in-lieu fee program, credit releases, changes in credit releases and credit release schedules, and changes that the district engineer determines are not significant. If the district engineer determines that the streamlined review process is warranted, he must notify the IRT members and the sponsor of this determination and provide them with copies of the proposed modification. IRT members and the sponsor have 30 days to notify the district engineer if they have concerns with the proposed modification. If IRT members or the sponsor notify the district engineer of such concerns, the district engineer shall attempt to resolve those concerns. Within 60 days of providing the proposed modification to the IRT, the district engineer must notify the IRT members of his intent to approve or disapprove the proposed modification. If no IRT member objects, by initiating the dispute resolution process in paragraph (e) of this section, within 15 days of receipt of this notification, the district engineer will notify the sponsor of his final decision and, if the modification is approved, arrange for it to be signed by the appropriate parties. If any IRT member initiates the dispute resolution process, the district engineer will so notify the sponsor. Following conclusion of the dispute resolution process, the district engineer will notify the sponsor of his final decision, and if the modification is approved, arrange

for it to be signed by the appropriate parties.

(h) *Umbrella mitigation banking instruments.* A single mitigation banking instrument may provide for future authorization of additional mitigation bank sites. As additional sites are selected, they must be included in the mitigation banking instrument as modifications, using the procedures in paragraph (g)(1) of this section. Credit withdrawal from the additional bank sites shall be consistent with paragraph (m) of this section.

(i) *In-lieu fee program account.* (1) The in-lieu fee program sponsor must establish a program account after the instrument is approved by the district engineer, prior to accepting any fees from permittees. If the sponsor accepts funds from entities other than permittees, those funds must be kept in separate accounts. The program account must be established at a financial institution that is a member of the Federal Deposit Insurance Corporation. All interests and earnings accruing to the program account must remain in that account for use by the in-lieu fee program for the purposes of providing compensatory mitigation for DA permits. The program account may only be used for the selection, design, acquisition, implementation, and management of in-lieu fee compensatory mitigation projects, except for a small percentage (as determined by the district engineer in consultation with the IRT and specified in the instrument) that can be used for administrative costs.

(2) The sponsor must submit proposed in-lieu fee projects to the district engineer for funding approval. Disbursements from the program account may only be made upon receipt of written authorization from the district engineer, after the district engineer has consulted with the IRT. The terms of the program account must specify that the district engineer has the authority to direct those funds to alternative compensatory mitigation projects in cases where the sponsor does not provide compensatory mitigation in accordance with the time frame specified in paragraph (n)(4) of this section.

(3) The sponsor must provide annual reports to the district engineer and the IRT. The annual reports must include the following information:

- (i) All income received, disbursements, and interest earned by the program account;
- (ii) A list of all permits for which in-lieu fee program funds were accepted. This list shall include: The Corps permit number (or the state permit number if

there is no corresponding Corps permit number, in cases of state programmatic general permits or other regional general permits), the service area in which the authorized impacts are located, the amount of authorized impacts, the amount of required compensatory mitigation, the amount paid to the in-lieu fee program, and the date the funds were received from the permittee;

(iii) A description of in-lieu fee program expenditures from the account, such as the costs of land acquisition, planning, construction, monitoring, maintenance, contingencies, adaptive management, and administration;

(iv) The balance of advance credits and released credits at the end of the report period for each service area; and

(v) Any other information required by the district engineer.

(4) The district engineer may audit the records pertaining to the program account. All books, accounts, reports, files, and other records relating to the in-lieu fee program account shall be available at reasonable times for inspection and audit by the district engineer.

(j) *In-lieu fee project approval.* (1) As in-lieu fee project sites are identified and secured, the sponsor must submit mitigation plans to the district engineer that include all applicable items listed in § 332.4(c)(2) through (14). The mitigation plan must also include a credit release schedule consistent with paragraph (o)(8) of this section that is tied to achievement of specific performance standards. The review and approval of in-lieu fee projects will be conducted in accordance with the procedures in paragraph (g)(1) of this section, as modifications of the in-lieu fee program instrument. This includes compensatory mitigation projects conducted by another party on behalf of the sponsor through requests for proposals and awarding of contracts.

(2) If a DA permit is required for an in-lieu fee project, the permit should not be issued until all relevant provisions of the mitigation plan have been substantively determined, to ensure that the DA permit accurately reflects all relevant provisions of the approved mitigation plan, such as performance standards.

(k) *Coordination of mitigation banking instruments and DA permit issuance.* In cases where initial establishment of the mitigation bank, or the development of a new project site under an umbrella banking instrument, involves activities requiring DA authorization, the permit should not be issued until all relevant provisions of the mitigation plan have been substantively determined. This is to

ensure that the DA permit accurately reflects all relevant provisions of the final instrument, such as performance standards.

(1) *Project implementation.* (1) The sponsor must have an approved instrument prior to collecting funds from permittees to satisfy compensatory mitigation requirements for DA permits.

(2) Authorization to sell credits to satisfy compensatory mitigation requirements in DA permits is contingent on compliance with all of the terms of the instrument. This includes constructing a mitigation bank or in-lieu fee project in accordance with the mitigation plan approved by the district engineer and incorporated by reference in the instrument. If the aquatic resource restoration, establishment, enhancement, and/or preservation activities cannot be implemented in accordance with the approved mitigation plan, the district engineer must consult with the sponsor and the IRT to consider modifications to the instrument, including adaptive management, revisions to the credit release schedule, and alternatives for providing compensatory mitigation to satisfy any credits that have already been sold.

(3) An in-lieu fee program sponsor is responsible for the implementation, long-term management, and any required remediation of the restoration, establishment, enhancement, and/or preservation activities, even though those activities may be conducted by other parties through requests for proposals or other contracting mechanisms.

(m) *Credit withdrawal from mitigation banks.* The mitigation banking instrument may allow for an initial debiting of a percentage of the total credits projected at mitigation bank maturity, provided the following conditions are satisfied: the mitigation banking instrument and mitigation plan have been approved, the mitigation bank site has been secured, appropriate financial assurances have been established, and any other requirements determined to be necessary by the district engineer have been fulfilled. The mitigation banking instrument must provide a schedule for additional credit releases as appropriate milestones are achieved (see paragraph (o)(8) of this section). Implementation of the approved mitigation plan shall be initiated no later than the first full growing season after the date of the first credit transaction.

(n) *Advance credits for in-lieu fee programs.* (1) The in-lieu fee program instrument may make a limited number of advance credits available to

permittees when the instrument is approved. The number of advance credits will be determined by the district engineer, in consultation with the IRT, and will be specified for each service area in the instrument. The number of advance credits will be based on the following considerations:

(i) The compensation planning framework;

(ii) The sponsor's past performance for implementing aquatic resource restoration, establishment, enhancement, and/or preservation activities in the proposed service area or other areas; and

(iii) The projected financing necessary to begin planning and implementation of in-lieu fee projects.

(2) To determine the appropriate number of advance credits for a particular service area, the district engineer may require the sponsor to provide confidential supporting information that will not be made available to the general public. Examples of confidential supporting information may include prospective in-lieu fee project sites.

(3) As released credits are produced by in-lieu fee projects, they must be used to fulfill any advance credits that have already been provided within the project service area before any remaining released credits can be sold or transferred to permittees. Once previously provided advance credits have been fulfilled, an equal number of advance credits is re-allocated to the sponsor for sale or transfer to fulfill new mitigation requirements, consistent with the terms of the instrument. The number of advance credits available to the sponsor at any given time to sell or transfer to permittees in a given service area is equal to the number of advance credits specified in the instrument, minus any that have already been provided but not yet fulfilled.

(4) Land acquisition and initial physical and biological improvements must be completed by the third full growing season after the first advance credit in that service area is secured by a permittee, unless the district engineer determines that more or less time is needed to plan and implement an in-lieu fee project. If the district engineer determines that there is a compensatory mitigation deficit in a specific service area by the third growing season after the first advance credit in that service area is sold, and determines that it would not be in the public interest to allow the sponsor additional time to plan and implement an in-lieu fee project, the district engineer must direct the sponsor to disburse funds from the in-lieu fee program account to provide

alternative compensatory mitigation to fulfill those compensation obligations.

(5) The sponsor is responsible for complying with the terms of the in-lieu fee program instrument. If the district engineer determines, as a result of review of annual reports on the operation of the in-lieu fee program (see paragraphs (p)(2) and (q)(1) of this section), that it is not performing in compliance with its instrument, the district engineer will take appropriate action, which may include suspension of credit sales, to ensure compliance with the in-lieu fee program instrument (see paragraph (o)(10) of this section). Permittees that secured credits from the in-lieu fee program are not responsible for in-lieu fee program compliance.

(o) *Determining credits.* (1) *Units of measure.* The principal units for credits and debits are acres, linear feet, functional assessment units, or other suitable metrics of particular resource types. Functional assessment units or other suitable metrics may be linked to acres or linear feet.

(2) *Assessment.* Where practicable, an appropriate assessment method (e.g., hydrogeomorphic approach to wetlands functional assessment, index of biological integrity) or other suitable metric must be used to assess and describe the aquatic resource types that will be restored, established, enhanced and/or preserved by the mitigation bank or in-lieu fee project.

(3) *Credit production.* The number of credits must reflect the difference between pre- and post-compensatory mitigation project site conditions, as determined by a functional or condition assessment or other suitable metric.

(4) *Credit value.* Once a credit is debited (sold or transferred to a permittee), its value cannot change.

(5) *Credit costs.* (i) The cost of compensatory mitigation credits provided by a mitigation bank or in-lieu fee program is determined by the sponsor.

(ii) For in-lieu fee programs, the cost per unit of credit must include the expected costs associated with the restoration, establishment, enhancement, and/or preservation of aquatic resources in that service area. These costs must be based on full cost accounting, and include, as appropriate, expenses such as land acquisition, project planning and design, construction, plant materials, labor, legal fees, monitoring, and remediation or adaptive management activities, as well as administration of the in-lieu fee program. The cost per unit credit must also take into account contingency costs appropriate to the stage of project planning, including uncertainties in

construction and real estate expenses. The cost per unit of credit must also take into account the resources necessary for the long-term management and protection of the in-lieu fee project. In addition, the cost per unit credit must include financial assurances that are necessary to ensure successful completion of in-lieu fee projects.

(6) *Credits provided by preservation.* These credits should be specified as acres, linear feet, or other suitable metrics of preservation of a particular resource type. In determining the compensatory mitigation requirements for DA permits using mitigation banks or in-lieu fee programs, the district engineer should apply a higher mitigation ratio if the requirements are to be met through the use of preservation credits. In determining this higher ratio, the district engineer must consider the relative importance of both the impacted and the preserved aquatic resources in sustaining watershed functions.

(7) *Credits provided by riparian areas, buffers, and uplands.* These credits should be specified as acres, linear feet, or other suitable metrics of riparian area, buffer, and uplands, respectively. Non-aquatic resources can only be used as compensatory mitigation for impacts to aquatic resources authorized by DA permits when those resources are essential to maintaining the ecological viability of adjoining aquatic resources. In determining the compensatory mitigation requirements for DA permits using mitigation banks and in-lieu fee programs, the district engineer may authorize the use of riparian area, buffer, and/or upland credits if he determines that these areas are essential to sustaining aquatic resource functions in the watershed and are the most appropriate compensation for the authorized impacts.

(8) *Credit release schedule.* (i) *General considerations.* Release of credits must be tied to performance-based milestones (e.g., construction, planting, establishment of specified plant and animal communities). The credit release schedule should reserve a significant share of the total credits for release only after full achievement of ecological performance standards. When determining the credit release schedule, factors to be considered may include, but are not limited to: The method of providing compensatory mitigation credits (e.g., restoration), the likelihood of success, the nature and amount of work needed to generate the credits, and the aquatic resource type(s) and function(s) to be provided by the mitigation bank or in-lieu fee project. The district engineer will determine the

credit release schedule, including the share to be released only after full achievement of performance standards, after consulting with the IRT. Once released, credits may only be used to satisfy compensatory mitigation requirements of a DA permit if the use of credits for a specific permit has been approved by the district engineer.

(ii) For single-site mitigation banks, the terms of the credit release schedule must be specified in the mitigation banking instrument. The credit release schedule may provide for an initial debiting of a limited number of credits once the instrument is approved and other appropriate milestones are achieved (see paragraph (m) of this section).

(iii) For in-lieu fee projects and umbrella mitigation bank sites, the terms of the credit release schedule must be specified in the approved mitigation plan. When an in-lieu fee project or umbrella mitigation bank site is implemented and is achieving the performance-based milestones specified in the credit release schedule, credits are generated in accordance with the credit release schedule for the approved mitigation plan. If the in-lieu fee project or umbrella mitigation bank site does not achieve those performance-based milestones, the district engineer may modify the credit release schedule, including reducing the number of credits.

(9) *Credit release approval.* Credit releases for mitigation banks and in-lieu fee projects must be approved by the district engineer. In order for credits to be released, the sponsor must submit documentation to the district engineer demonstrating that the appropriate milestones for credit release have been achieved and requesting the release. The district engineer will provide copies of this documentation to the IRT members for review. IRT members must provide any comments to the district engineer within 15 days of receiving this documentation. However, if the district engineer determines that a site visit is necessary, IRT members must provide any comments to the district engineer within 15 days of the site visit. The district engineer must schedule the site visit so that it occurs as soon as it is practicable, but the site visit may be delayed by seasonal considerations that affect the ability of the district engineer and the IRT to assess whether the applicable credit release milestones have been achieved. After full consideration of any comments received, the district engineer will determine whether the milestones have been achieved and the credits can be released. The district engineer shall

make a decision within 30 days of the end of that comment period, and notify the sponsor and the IRT.

(10) *Suspension and termination.* If the district engineer determines that the mitigation bank or in-lieu fee program is not meeting performance standards or complying with the terms of the instrument, appropriate action will be taken. Such actions may include, but are not limited to, suspending credit sales, adaptive management, decreasing available credits, utilizing financial assurances, and terminating the instrument.

(p) *Accounting procedures.* (1) For mitigation banks, the instrument must contain a provision requiring the sponsor to establish and maintain a ledger to account for all credit transactions. Each time an approved credit transaction occurs, the sponsor must notify the district engineer.

(2) For in-lieu fee programs, the instrument must contain a provision requiring the sponsor to establish and maintain an annual report ledger in accordance with paragraph (i)(3) of this section, as well as individual ledgers that track the production of released credits for each in-lieu fee project.

(q) *Reporting.* (1) *Ledger account.* The sponsor must compile an annual ledger report showing the beginning and ending balance of available credits and permitted impacts for each resource type, all additions and subtractions of credits, and any other changes in credit availability (e.g., additional credits released, credit sales suspended). The ledger report must be submitted to the district engineer, who will distribute copies to the IRT members. The ledger report is part of the administrative record for the mitigation bank or in-lieu fee program. The district engineer will make the ledger report available to the public upon request.

(2) *Monitoring reports.* The sponsor is responsible for monitoring the mitigation bank site or the in-lieu fee project site in accordance with the approved monitoring requirements to determine the level of success and identify problems requiring remedial action or adaptive management measures. Monitoring must be conducted in accordance with the requirements in § 332.6, and at time intervals appropriate for the particular project type and until such time that the district engineer, in consultation with the IRT, has determined that the performance standards have been attained. The instrument must include requirements for periodic monitoring reports to be submitted to the district engineer, who will provide copies to other IRT members.

(3) *Financial assurance and long-term management funding report.* The district engineer may require the sponsor to provide an annual report showing beginning and ending balances, including deposits into and any withdrawals from, the accounts providing funds for financial assurances and long-term management activities. The report should also include information on the amount of required financial assurances and the status of those assurances, including their potential expiration.

(r) *Use of credits.* Except as provided below, all activities authorized by DA permits are eligible, at the discretion of the district engineer, to use mitigation banks or in-lieu fee programs to fulfill compensatory mitigation requirements for DA permits. The district engineer will determine the number and type(s) of credits required to compensate for the authorized impacts. Permit applicants may propose to use a particular mitigation bank or in-lieu fee program to provide the required compensatory mitigation. In such cases, the sponsor must provide the permit applicant with a statement of credit availability. The district engineer must review the permit applicant's compensatory mitigation proposal, and notify the applicant of his determination regarding the acceptability of using that mitigation bank or in-lieu fee program.

(s) *IRT concerns with use of credits.* If, in the view of a member of the IRT, an issued permit or series of issued permits raises concerns about how credits from a particular mitigation bank or in-lieu fee program are being used to satisfy compensatory mitigation requirements (including concerns about whether credit use is consistent with the terms of the instrument), the IRT member may notify the district engineer in writing of the concern. The district engineer shall promptly consult with the IRT to address the concern. Resolution of the concern is at the discretion of the district engineer, consistent with applicable statutes, regulations, and policies regarding compensatory mitigation requirements for DA permits. Nothing in this section limits the authorities designated to IRT agencies under existing statutes or regulations.

(t) *Site protection.* (1) For mitigation bank sites, real estate instruments, management plans, or other long-term mechanisms used for site protection must be finalized before any credits can be released.

(2) For in-lieu fee project sites, real estate instruments, management plans, or other long-term protection mechanisms used for site protection

must be finalized before advance credits can become released credits.

(u) *Long-term management.* (1) The legal mechanisms and the party responsible for the long-term management and the protection of the mitigation bank site must be documented in the instrument or, in the case of umbrella mitigation banking instruments and in-lieu fee programs, the approved mitigation plans. The responsible party should make adequate provisions for the operation, maintenance, and long-term management of the compensatory mitigation project site. The long-term management plan should include a description of long-term management needs and identify the funding mechanism that will be used to meet those needs.

(2) The instrument may contain provisions for the sponsor to transfer long-term management responsibilities to a land stewardship entity, such as a public agency, non-governmental organization, or private land manager.

(3) The instrument or approved mitigation plan must address the financial arrangements and timing of any necessary transfer of long-term management funds to the steward.

(4) Where needed, the acquisition and protection of water rights should be secured and documented in the instrument or, in the case of umbrella mitigation banking instruments and in-lieu fee programs, the approved mitigation site plan.

(v) *Grandfathering of existing instruments.* (1) *Mitigation banking instruments.* All mitigation banking instruments approved on or after July 9, 2008 must meet the requirements of this part. Mitigation banks approved prior to July 9, 2008 may continue to operate under the terms of their existing instruments. However, any modification to such a mitigation banking instrument on or after July 9, 2008, including authorization of additional sites under an umbrella mitigation banking instrument, expansion of an existing site, or addition of a different type of resource credits (e.g., stream credits to a wetland bank) must be consistent with the terms of this part.

(2) *In-lieu fee program instruments.* All in-lieu fee program instruments approved on or after July 9, 2008 must meet the requirements of this part. In-lieu fee programs operating under instruments approved prior to July 9, 2008 may continue to operate under those instruments for two years after the effective date of this rule, after which time they must meet the requirements of this part, unless the district engineer determines that circumstances warrant

an extension of up to three additional years. The district engineer must consult with the IRT before approving such extensions. Any revisions made to the in-lieu fee program instrument on or after July 9, 2008 must be consistent with the terms of this part. Any approved project for which construction was completed under the terms of a previously approved instrument may continue to operate indefinitely under those terms if the district engineer determines that the project is providing appropriate mitigation substantially consistent with the terms of this part.

Dated: March 28, 2008.

**John Paul Woodley, Jr.,**  
*Assistant Secretary of the Army, (Civil Works),  
Department of the Army.*

## Environmental Protection Agency

### 40 CFR Chapter I

■ For the reasons stated in the preamble, the Environmental Protection Agency amends 40 CFR part 230 as set forth below:

#### **PART 230—SECTION 404(b)(1) GUIDELINES FOR SPECIFICATION OF DISPOSAL SITES FOR DREDGED OR FILL MATERIAL**

■ 1. The authority citation for part 230 continues to read as follows:

**Authority:** Secs. 404(b) and 501(a) of the Clean Water Act of 1977 (33 U.S.C. 1344(b) and 1361(a)).

#### **§ 230.12 [Amended]**

■ 2. In § 230.12(a)(2) remove the reference “subpart H” and add in its place the reference “subparts H and J”.

#### **Subpart H—[Amended]**

■ 3. In subpart H the Note following the subpart heading is amended by adding a sentence to the end to read as follows:

#### **Subpart H—Actions To Minimize Adverse Effects**

**Note:** \* \* \* Additional criteria for compensation measures are provided in subpart J of this part.

■ 4. In § 230.75 add a new sentence after the second sentence in paragraph (d) to read as follows:

#### **§ 230.75 Actions affecting plant and animal populations.**

\* \* \* \* \*

(d) \* \* \* Additional criteria for compensation measures are provided in subpart J of this part. \* \* \*

\* \* \* \* \*

■ 5. Add Subpart J to part 230 to read as follows:

# **B. Ruby's Wetland and Waterbody Construction and Mitigation Procedures**



**RUBY PIPELINE PROJECT  
WETLAND AND WATERBODY CONSTRUCTION  
AND  
MITIGATION PROCEDURES**



FERC Docket No. CP09-54-000

June 2010



**RUBY PIPELINE PROJECT  
WETLAND AND WATERBODY CONSTRUCTION AND  
MITIGATION PROCEDURES (PROCEDURES)  
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## I. APPLICABILITY

- A. The intent of these Procedures is to assist applicants by identifying baseline mitigation measures for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies.

***Any individual measures in these Procedures Ruby Pipeline LLC (Ruby) considers unnecessary, technically infeasible, or unsuitable due to local conditions will be specified in this document and included as Appendix F of Ruby's Plan of Development. Alternative measures proposed for implementation during the construction of its Ruby Pipeline Project (Project) will be bold-faced and italicized herein.***

Once a project is certificated, further changes can be approved. Any such changes from the measures in these Procedures (or the applicant's approved procedures) will be approved by the Director of the Office of Energy Projects (Director), upon the applicant's written request, if the Director agrees that an alternative measure:

1. provides equal or better environmental protection;
2. is necessary because a portion of these Procedures is infeasible or unworkable based on project-specific conditions; or
3. is specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Project-related impacts on non-wetland areas are addressed in the Ruby's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

## B. DEFINITIONS

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:
  - a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing;
  - b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing; and

c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of crossing.

2. "Wetland" includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current Federal methodology for identifying and delineating wetlands.

## II. PRECONSTRUCTION FILING

A. The following information shall be filed with the Secretary prior to the beginning of construction:

1. the hydrostatic testing information specified in section VII.B.3. and a wetland delineation report as described in section VI.A.1., if applicable; and
2. a schedule identifying when trenching or blasting would occur within each waterbody greater than 10 feet wide, or within any designated coldwater fishery. The project sponsor shall revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice.

B. The following site-specific construction plans required by these Procedures must be filed with the Secretary for the review and written approval by the Director:

1. plans for extra work areas that would be closer than 50 feet from a waterbody or wetland;
2. plans for major waterbody crossings;
3. plans for the use of a construction right-of-way greater than 75 feet wide in wetlands; and
4. plans for horizontal directional drill (HDD) "crossings" of wetlands or waterbodies.

## III. ENVIRONMENTAL INSPECTORS

A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.

- B. The Environmental Inspector's responsibilities are outlined in the Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

#### IV. PRECONSTRUCTION PLANNING

- A. A copy of the Stormwater Pollution Prevention Plan (SWPPP) prepared for compliance with the U.S. Environmental Protection Agency's (EPA) National Stormwater Program General Permit requirements must be available in the field on each construction spread. The SWPPP shall contain Spill Prevention and Response Procedures that meet the requirements of state and Federal agencies.

1. It shall be the responsibility of the project sponsor and its contractors to structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. The project sponsor and its contractors must, at a minimum, ensure that:

- a. all employees handling fuels and other hazardous materials are properly trained;
- b. all equipment is in good operating order and inspected on a regular basis;
- c. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;
- d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary, within 200 feet of any water supply well or spring, or within 500 feet from a waterbody or in an upland area at least 500 feet from a wetland boundary on land managed by the BLM. ***These activities can occur closer only if the Environmental Inspector finds, in advance, no reasonable alternative and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill.***

***Specifically, in certain instances, refueling or fuel storage may be unavoidable due to site-specific conditions or unique construction requirements (e.g., continuously operating pumps, or refueling within wetlands). The following precautions will be taken when refueling within 100 feet of wetlands or waterbodies, 200 feet of***

**water supply well or spring and within 500 feet of streams, wetlands, or other waterbodies on land managed by the BLM:**

- **Adequate amounts of absorbent materials and containment booms must be kept on hand by each construction crew to enable the rapid cleanup of any spill which may occur.**
  - **If fuel must be stored within wetlands or near streams for refueling of continuously operating pumps, secondary containment must be provided.**
  - **Secondary containment structures must be lined with suitable plastic sheeting, provide a containment volume of at least 150 percent of the storage vessel, and allow for at least one foot of freeboard.**
  - **Provide for adequate lighting of these locations and activities**
  - **Provide drip pans for vehicles parked overnight or longer;**
- e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland (150 in Oregon), waterbody, or designated municipal watershed area **or within 200 feet of a water supply well or spring**, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas; and
- f. concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, **or within 200 feet of a water supply well or spring**, unless the location is an existing industrial site designated for such use.
2. The project sponsor and its contractors must structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, the project sponsor and its contractors must:
- a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills;
  - b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;

- c. know the contact names and telephone numbers for all local, state, and Federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and
- d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

**B. AGENCY COORDINATION**

The project sponsor must coordinate with the appropriate local, state, and Federal agencies as outlined in these Procedures and in the Certificate.

**V. WATERBODY CROSSINGS**

**A. NOTIFICATION PROCEDURES AND PERMITS**

- 1. Apply to the U.S. Army Corps of Engineers (COE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.
- 2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody, or as otherwise specified by that authority.
- 3. Apply for state-issued waterbody crossing permits and obtain individual or generic section 401 water quality certification or waiver.
- 4. Notify appropriate state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in state permits.

**B. INSTALLATION**

- 1. Time Window for Construction

The Project would adhere to in-water work windows as required by individual state fisheries agencies or FERC, described below:

#### Wyoming

- July 1–August 31 for coldwater fisheries (WGFD)
- July 1–November 15 for coolwater and warmwater fisheries (WGFD)

#### Utah

- July 16–February 28 for Bonneville cutthroat trout fisheries (UDWR)
- June 1–September 30 for other cold water fisheries (FERC)
- June 1–November 30 for coolwater and warmwater fisheries (FERC)

#### Nevada

- June 1–August 31 for Spring and Fall spawning – specific fisheries (NDOW)
- June 1–December 31 for Spring spawning – specific fisheries (NDOW)
- July 1–December 31 for streams containing Lahontan cutthroat trout (USFWS)
- March 1–September 30 Fall spawning – specific fisheries (NDOW)

#### Oregon

- July 15–September 30 for Warner Valley tributaries (ODFW)
- July 15–September 30 for Goose Lake and tributaries (ODFW)
- July 1–January 31 for Lost River above Bonanza (ODFW)
- July 1–March 31 for Lost River below Bonanza (ODFW)
- October 15–March 31 for Bureau of Reclamation facilities

Ruby is proposing to cross all waterbodies that could contain special status species during the state-specified in-water work window and has committed to using a dry open-cut crossing method. Ruby is proposing to cross the Hams Fork River, the Bear River East, and the Bear River West (contain special status species) using a horizontal directional drill.

In the unlikely event that Ruby determines that construction through a waterbody is required outside of an in-water work window, Ruby would consult with the appropriate state and federal agencies to obtain clear, written authorization for such activities. This coordination may include close approximations of both beginning and completion dates of expected work, method of construction, potential impacts, and mitigation measures to minimize impacts. If such an action were to be approved, Ruby would ensure that all agency-required mitigation measures were incorporated into the construction sequence.

## 2. Extra Work Areas

- a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.
  - b. The project sponsor shall file with the Secretary for review and written approval by the Director, a site-specific construction plan for each extra work area with a less than 50-foot setback from the water's edge, (except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback. ***Ruby has provided this site-specific list to FERC.***
  - c. Limit clearing of vegetation between extra work areas and the edge of the waterbody to the certificated construction right-of-way.
  - d. Limit the size of extra work areas to the minimum needed to construct the waterbody crossing.
3. General Crossing Procedures
- a. Comply with the COE, or its delegated agency, permit terms and conditions.
  - b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.
  - c. If the pipeline parallels a waterbody, attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way.
  - d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.
  - e. Maintain adequate flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.
  - f. Waterbody buffers (extra work area setbacks, refueling restrictions, etc.) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

4. Spoil Pile Placement and Control

- a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas as described in section V.B.2.
- b. Use sediment barriers to prevent the flow of spoil or heavily silt-laden water into any waterbody.

5. Equipment Bridges

- a. Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment.
- b. Construct equipment bridges to maintain unrestricted flow and to prevent soil from entering the waterbody. Examples of such bridges include:
  - (1) equipment pads and culvert(s);
  - (2) equipment pads or railroad car bridges without culverts;
  - (3) clean rock fill and culvert(s); and
  - (4) flexi-float or portable bridges.

Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. Do not use soil to construct or stabilize equipment bridges.

Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.

Design and maintain equipment bridges to prevent soil from entering the waterbody.

Remove equipment bridges as soon as possible after permanent seeding unless the COE, or its delegated agency, authorizes it as a permanent bridge.

If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove equipment bridges as soon as possible after final cleanup.

6. Dry-Ditch Crossing Methods

- a. Unless approved otherwise by the appropriate state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries.
- b. Dam and Pump
  - (1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.
  - (2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:
    - (i) use sufficient pumps, including on-site backup pumps, to maintain downstream flows;
    - (ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
    - screen pump intakes;
    - (iv) prevent streambed scour at pump discharge; and
    - (v) monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

c. Flume Crossing

The flume crossing method requires implementation of the following steps:

- (1) install flume pipe after blasting (if necessary), but before any trenching;
- (2) use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required in to achieve an effective seal);
- (3) properly align flume pipe(s) to prevent bank erosion and streambed scour;
- (4) do not remove flume pipe during trenching, pipelaying, or backfilling activities, or initial streambed restoration efforts; and
- (5) remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

d. Horizontal Directional Drill (HDD)

To the extent they were not provided as part of the pre-certification process, for each waterbody or wetland that would be crossed using the HDD method, provide a plan that includes:

- (1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;
- (2) a description of how an inadvertent release of drilling mud would be contained and cleaned up; and
- (3) a contingency plan for crossing the waterbody or wetland in the event the directional drill is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

## 7. Crossings of Minor Waterbodies

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

- a. except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours. Streambanks and unconsolidated streambeds may require additional restoration after this period;
- b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and
- c. equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in section V.B.5.

## 8. Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

- a. complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;
- b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and
- c. all other construction equipment must cross on an equipment bridge as specified in section V.B.5.

## 9. Crossings of Major Waterbodies

Before construction, the project sponsor shall file with the Secretary for the review and written approval by the Director a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing (the scaled drawings are not required for any offshore portions of pipeline projects). This plan should be developed in consultation with the appropriate state and Federal agencies and should include

extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues.

The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

#### 10. Temporary Erosion and Sediment Control

Install sediment barriers (as defined in section IV.F.2.a. of the Plan) immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan; however, the following specific measures must be implemented at stream crossings:

- a. install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. In the travel lane, these may consist of removable sediment barriers or driveable berms. Removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;
- b. where waterbodies are adjacent to the construction right-of-way, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way; and
- c. use trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

#### 11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as possible after the completion of dewatering activities.

### C. RESTORATION

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries.
2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.
3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.
4. Application of riprap for bank stabilization must comply with COE, or its delegated agency, permit terms and conditions.
5. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.
6. Revegetate disturbed riparian areas with conservation grasses and legumes or native plant species, preferably woody species.
7. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.
8. Sections V.C.3. through V.C.6. above also apply to those perennial or intermittent streams not flowing at the time of construction.

#### D. POST-CONSTRUCTION MAINTENANCE

1. Limit vegetation maintenance adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in a herbaceous state. In addition, trees that are located within 15 feet of the pipeline that are greater than 15 feet in height may be cut and removed from the permanent right-of-way.

2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.
3. **Conduct five years of annual monitoring, along with extended monitoring at locations where continued restoration is needed.**

## VI. WETLAND CROSSINGS

### A. GENERAL

1. The project sponsor shall conduct a wetland delineation using the current Federal methodology and file a wetland delineation report with the Secretary before construction. This report shall identify:
  - a. by milepost all wetlands that would be affected;
  - b. the National Wetlands Inventory (NWI) classification for each wetland;
  - c. the crossing length of each wetland in feet; and
  - d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

The requirements outlined in this section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.
3. Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process the project sponsor is encouraged to identify site-specific areas

where existing soils lack adequate unconfined compressive strength that would result in excessively wide ditches and/or difficult to contain spoil piles.

4. Wetland boundaries and buffers must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.
5. Implement the measures of sections V. and VI. in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of sections V. and VI. cannot be met, the project sponsor must file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan shall address at a minimum:
  - a. spoil control;
  - b. equipment bridges;
  - c. restoration of waterbody banks and wetland hydrology;
  - d. timing of the waterbody crossing;
  - e. method of crossing; and
  - f. size and location of all extra work areas.
6. Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

## B. INSTALLATION

1. Extra Work Areas and Access Roads
  - a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.
  - b. The project sponsor shall file with the Secretary for review and written approval by the Director, a site-specific construction plan for each extra work area with a less than 50-foot setback from wetland boundaries (except where adjacent upland consists of actively cultivated or rotated

cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.

***Ruby has provided a complete list of wetlands where Ruby will require additional workspace in wetlands and wetland locations where additional workspace is proposed to be closer than 50 feet from waterbodies.***

- c. Limit clearing of vegetation between extra work areas and the edge of the wetland to the certificated construction right-of-way.
- d. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats).

In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

- e. The only access roads, other than the construction right-of-way, that can be used in wetlands without Director approval, are those existing roads that can be used with no modification and no impact on the wetland.

## 2. Crossing Procedures

- a. Comply with COE, or its delegated agency, permit terms and conditions
- b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.
- c. Use "push-pull" or "float" techniques to place the pipe in the trench where water and other site conditions allow.
- d. Minimize the length of time that topsoil is segregated and the trench is open.

- e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.
  - f. Cut vegetation just aboveground level, leaving existing root systems in place, and remove it from the wetland for disposal.
  - g. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way. **Where the CI and EI authorize stump removal under this condition, the location, circumstances, and justification would be detailed in periodic construction reports sent to FERC.**
  - h. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated or frozen. Immediately after backfilling is complete, restore the segregated topsoil to its original location.
  - i. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to support equipment on the construction right-of-way.
  - j. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.
  - k. Do not cut trees outside of the approved construction work area to obtain timber for riprap or equipment mats.
  - l. Attempt to use no more than two layers of timber riprap to support equipment on the construction right-of-way.
  - m. Remove all project-related material used to support equipment on the construction right-of-way upon completion of construction.
3. Temporary Sediment Control

Install sediment barriers (as defined in section IV.F.2.a. of the Plan) immediately after initial disturbance of the wetland or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in section VI.B.3.c., maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

- a. Install sediment barriers across the entire construction right-of-way at all wetland crossings where necessary to prevent sediment flow into the wetland. In the travel lane, these may consist of removable sediment barriers or driveable berms. Removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent
- b. Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to prevent sediment flow into the wetland.
- c. Install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

#### 4. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt-laden water flowing into any wetland. Remove the dewatering structures as soon as possible after the completion of dewatering activities.

### C. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers and/or seal the trench bottom as necessary to maintain the original wetland hydrology.
2. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of a slopes greater than 5 percent where the base of the slope is less than 50 feet from the wetland,

or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

3. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate land management or state agency.
4. Consult with the appropriate land management or state agency to develop a project-specific wetland restoration plan. The restoration plan should include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of undesirable exotic species (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts. Provide this plan to the FERC staff upon request. ***The general outline for the plan is provided below:***

***Wetland Restoration Plan - Outline***

- ***Site Preparation***
  - ***Grading Plan***
  - ***Sustaining Hydrology (includes Irrigation Plan as necessary)***
  - ***Planting Plan and Schedules***
  - ***Seeding Plan and Schedules (temporary and final)***
  - ***Best Management Practices***
  - ***Construction Schedule***
5. Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).
  6. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species. ***The following range of restoration techniques would be considered at specific locations:***
    - ***Wetland sod harvesting and transplanting***
    - ***Harvesting and transplanting herbaceous plugs, shrubs and trees***
    - ***Live cutting collection, storage and planting***
    - ***Wetland soil harvesting and transplanting***
    - ***Planting of commercially grown herbaceous plugs, shrubs and trees***
    - ***Planting of commercially grown wetland sod***
    - ***Temporary or permanent/above or below ground irrigation systems***
    - ***Erosion control blankets (weed free)***
    - ***Soil enrichment (decompaction and organic/nutrient amendment)***

- **Temporary seeding (sterile or native seed for site protection or nitrogen fixing)**
  - **Permanent seeding (regional native seed or site specific harvesting)**
  - **Straw mulching (weed free)**
  - **Hydro mulching (weed free)**
  - **Cattle removal and recovery systems (fencing and control water access)**
  - **Invasive plant and weed management systems**
    - **Mechanical (mowing, tilling)**
    - **Chemical (water safe herbicides)**
    - **Biological (integrated pests)**
    - **Cultural (grazing and burning)**
7. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after upland revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VII.A.5. of the Plan.
8. Install measures to minimize wildlife depredation at all restoration areas, including but not limited to fencing/exclosures, browse protectors and other appropriate deterrent measures.

#### D. POST-CONSTRUCTION **MONITORING AND MAINTENANCE**

1. Do not conduct vegetation maintenance over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in an herbaceous state. In addition, trees within 10 feet of the pipeline greater than 15 feet in height may be selectively cut and removed from the permanent right-of-way.
2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate land management agency or state agency.
3. Monitor and record the success of wetland revegetation annually for the first **five** years after construction or until wetland revegetation is deemed successful by appropriate agencies. At the end of **five** years after construction, file a report with the Secretary identifying the status of the wetland revegetation efforts. Include the percent cover achieved and problem areas (weed invasion issues, poor revegetation, etc.). Continue to file a report annually until wetland

revegetation is successful. **Refer to Ruby's Wetland Revegetation and Monitoring Plan (Appendix Q to the Plan of Development for more information).**

4. **Maintenance measures shall be employed during the five year monitoring period to ensure successful wetland restoration, including irrigation system repair, plant replacement, non-native plant control, water structure repair, fertilization, erosion control, wildlife protection, trash removal, and/or any other related activities. Dead plants will be replaced during the growing season in which they are identified and/or immediately in the beginning of the next growing season (i.e., replacement will occur at the earliest feasible period based on seasonal limitations). All plant material will be replaced in-kind with native material; consisting of potted, nursery stock and /or native cuttings collected from local sources.**
5. Wetland revegetation shall be considered successful if the cover of herbaceous and/or woody species is at least 80 percent of the type, density, and distribution of the vegetation in adjacent wetland areas that were not disturbed by construction. If revegetation is not successful at the end of **five** years, develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate the wetland. Continue revegetation efforts until wetland revegetation is successful.

## VII. HYDROSTATIC TESTING

### A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state-issued water withdrawal permits, as required.
2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.
3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

### B. GENERAL

1. Perform non-destructive testing of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.

2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, address the operation and refueling of these pumps in the project's Spill Prevention and Response Procedures.
3. The project sponsor shall file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location.

C. INTAKE SOURCE AND RATE

1. Screen the intake hose to prevent entrainment of fish.
2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, state, and/or local permitting agencies grant written permission.
3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.
4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow.
2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, state, and local permitting agencies grant written permission.

**C. Utah Division of Water Rights,  
Stream Alteration Program Fact Sheet  
SA-5, Draft, Post Construction  
Establishment of Vegetation**



# POST CONSTRUCTION ESTABLISHMENT OF VEGETATION

## PURPOSE

This fact sheet is intended to give applicants basic information on establishing vegetation where construction activities have disturbed or removed natural stabilizing vegetation from the streamside environment. Establishment or reestablishment of vegetation adjacent to natural stream channels can be a complex process and not all projects meet with high degrees of success. This fact sheet will serve only as an introduction to the topic and refer the reader to other, more detailed publications and services that will assist in planning and initiating projects that will have high degrees of success.

## IMPORTANCE OF VEGETATION

### Background

It goes without saying that the majority of construction projects are messy. Heavy equipment such as bulldozers and trackhoes are highly effective at not only disturbing and destroying plants, but also completely changing landscapes. Stream alteration construction projects are no different in their impacts, however, these impacts become exceedingly more problematic in natural stream environments. Critical habitat loss, water quality degradation, and excessive erosion are all possible when projects involve the removal and disturbance of vegetation near streams. Therefore, it is extremely important that those planning these projects keep impacts to an absolute minimum and mitigate these impacts as soon as possible following construction activities.

Riparian areas (vegetation communities associated with natural streams) and wetland areas represent less than 2% of the total land area in the intermountain west yet provide habitat for more than 80 % of wildlife (McKinstry, et. al, 2003) and are critical for providing cool, clean

water to water users. The State of Utah through the State Engineer's Office is committed to ensuring that stream alteration projects result in minimum impacts to this important resource and will require that vegetation be reestablished in almost every stream alteration permit issued.

### Functions and Associated Values

As alluded to above, riparian and other streamside vegetation serve several important functions.

**Erosion Resistance.** Vegetation is critical in reducing surface water runoff and resultant erosion. This is accomplished via precipitation capture on leaves, creation of greater infiltration rates, and evapotranspiration. It has been estimated that naturally well-vegetated areas can reduce surface water runoff by as much as 50% as compared to areas lacking vegetation or where soils are compacted (Barr Engineering Co., 2001). Additionally, native grasses and riparian trees and shrubs often have very deep root systems that are very effective at increasing soil strength and stability. When natural streams flood and the erosive power of water is high, these root systems increase the erosional resistance of stream banks and prevent loss of soil and property. Finally, riparian vegetation inundated by floodwaters can act to reduce flow

**Improvement of Water Quality.** Aside from reducing total suspended sediment from stream flow as described above, riparian vegetation can also reduce contaminants and nutrient loading to streams via uptake and utilization through the root system. Nitrogen and phosphorous are among the contaminants that can be reduced in concentration by healthy riparian systems.

**Creation/Enhancement of Habitat.** Healthy riparian vegetation provides habitat for several threatened and/or endangered avian species throughout the state of Utah. The Southwestern willow flycatcher (*Empidonax trailii extimus*) and yellow-billed cuckoo (*Coccyzus americanus*) typically nest in riparian vegetation near perennial streams in the southern portion of Utah. Riparian vegetation also provides hiding cover for fish and shading to reduce water temperature in valuable trout fisheries.

**Esthetics.** Though a subjective function, most people enjoy healthy, well vegetated near stream environments and the wildlife that utilize them.

## PLANTING ZONES

Before embarking on any re-vegetation effort, it is important to understand that not all areas adjacent to natural streams will be subject to the same conditions. Differences in soil type, water availability, and water velocity will dictate what type or types of vegetation are most suited for a particular area adjacent to a natural stream. This section describes these areas or zones and the type of conditions that we would expect to encounter there. Please be aware that these zone classifications represent an ideal stream system. Not all of these zones may be present adjacent to a particular natural stream. All information presented below is taken from the Riparian/Wetland Project Information Series No. 16. Full references are given at the end of this fact sheet.

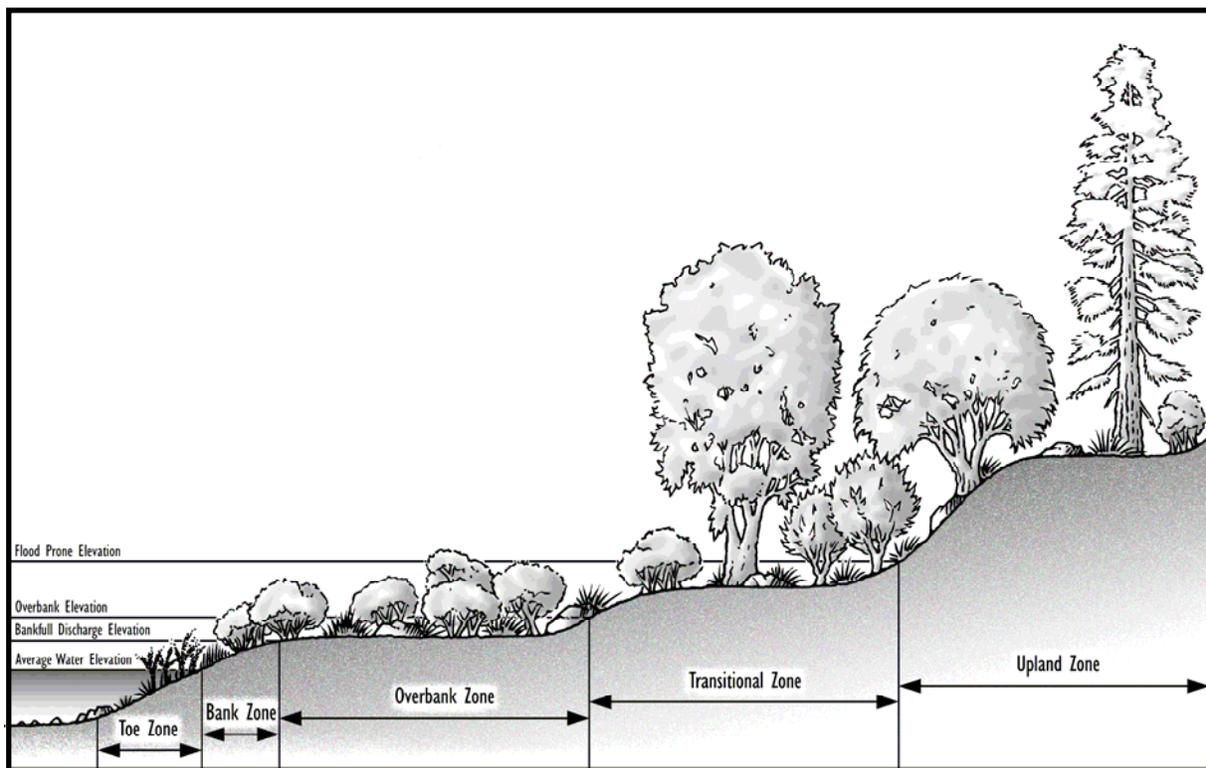


Figure 1. Riparian planting zones. From Riparian/Wetland Project Information Series No. 16.

**Toe Zone.** This zone is located below the average water elevation of the stream. In general little vegetation can exist in this area due to it being frequently inundated by water. This area is also characterized by the highest water velocities and associated erosive power. Some wetland plants will survive in these areas provided water velocities are low.

**Bank Zone.** This zone is located above average water elevation and bankfull elevation and is characterized by less frequent inundation and lower velocities than the Toe Zone. This zone will be completely submerged on an approximate average of once every 1.5 years. Typical vegetation in the Bank Zone includes supple stands of low growing willows and colonizing herbaceous species.

**Overbank Zone.** This zone exists from the bankfull discharge elevation to the overbank elevation. This zone is contemporaneous to the floodplain. Because this zone can be inundated as often as every other year, vegetation must be flood tolerant. Typical plant types in the Overbank Zone include supple, low growing willows, herbaceous vegetation, and low growing riparian, flexible stemmed shrubs. Larger

plant species with inflexible stems in this zone may hinder the stream channels ability to successfully convey flood flows.

**Transitional Zone.** This zone can be found above the overbank elevation and below the flood prone area. Flood waters may only inundate this area approximately once every 50 years. Vegetation typical in this area include riparian tree and shrub species grading into upland species toward the top of this zone.

**Upland Zone.** This zone exists above the flood prone elevation and is typified by upland vegetation species. Though not inundated by flood flow, erosion resistance from well established upland vegetation will reduce overland flow and associated sedimentation to the natural stream.

## PLANT SPECIES

Table 1 gives a sampling of the plant species that may be found in each of the planting zones listed above within the state of Utah. As climatic and elevation differences will influence different plant species, other sources should be consulted for a particular stream course.

PLANTING ZONE	TYPICAL SPECIES
Toe Zone	Hardstem bulrush ( <i>Scirpus acutus</i> ) Baltic rush ( <i>Juncus balticus</i> )
Bank Zone	Coyote willow ( <i>Salix exigua</i> ) Hardstem bulrush ( <i>Scirpus acutus</i> ) Baltic rush ( <i>Juncus balticus</i> )
Overbank Zone	Coyote willow ( <i>Salix exigua</i> ) Woods rose ( <i>Rosa Woodsii</i> ) Red-osier dogwood ( <i>Cornus stolonifera</i> ) Thinleaf alder ( <i>Alnus incana</i> )
Transition Zone	Red-osier dogwood ( <i>Cornus stolonifera</i> ) Fremont cottonwood ( <i>Populus fremontii</i> ) Narrowleaf cottonwood ( <i>Populus angustifolis</i> ) Woods rose ( <i>Rosa Woodsii</i> ) River birch ( <i>Betula occidentalis</i> )

	Peachleaf willow ( <i>Salix amygdaloides</i> ) Bigtooth maple ( <i>Acer grandidentatum</i> ) Box elder ( <i>Acer negundo</i> ) Thinleaf alder ( <i>Alnus incana</i> )
Upland Zone	Big sage ( <i>Artemisia tridentate</i> ) Thickspike wheatgrass ( <i>Elymus lanceolatus</i> ) Western wheatgrass ( <i>Pascopyrum smithii</i> ) Rubber rabbit brush ( <i>Chrysothamnus nauseosus</i> ) Gambel Oak ( <i>Quercus gambelii</i> )

**Table 1. Typical plant species associated with planting zones. Sources of plant information are listed in the references section of this fact sheet.**

## PLANTING TECHNIQUES

When seeding and planting in areas adjacent to natural streams it is necessary to consider the following:

**Time of year.** Often seeding and planting is best accomplished in the fall and early spring months when temperatures are low and soil moisture is optimum. If planting or seeding is to occur in summer months the use of temporary irrigation may be necessary to establish vegetation.

**Soil conditions.** If the disturbed area has been compacted by heavy equipment it will be necessary to loosen soils via tilling to a depth of 18 to 24 inches (Barr Engineering Co, 2001).

**Need for immediate erosion protection.** This may be a common problem in steep bank and overbank areas adjacent to streams. In these cases, it may be necessary to install temporary, biodegradable fiber mats or use mulch to minimize surface runoff. On some slopes, water bars and/or silt fencing may be needed to prevent erosion.

**Fertilization.** Fertilizer is generally not needed for establishment of native species that are already well adapted to local soils. Fertilization may actually be detrimental in that it may promote invasion by non-native plant

species and overload the nearby stream with nutrients.

**Maintenance.** For seeded areas, it is important that soils remain moist until plants are established. Long-term maintenance should involve regular inspections to ensure the majority of vegetated areas are successfully established. During these inspections non-native invasive species should be noted and removal should occur as soon as possible. The State Engineer’s Office generally recommends a monitoring and maintenance period of at least three growing seasons.

## WHERE TO GO FOR MORE INFORMATION

As mentioned before, this fact sheet is intended to serve as an introduction to post construction establishment of vegetation. Below is a listing of sources of more information and assistance for topics addressed in this fact sheet.

### Sources of plants and seeds:

- Granite Seed, Lehi, Utah
- Lone Peak Nursery, Draper, Utah
- Local nurseries specializing in native plant and seed.

Sources for additional plant species information, information on planting techniques, and bioengineering methods:

USU Extension Services. Offices are located throughout the state.

## REFERENCES

- Barr Engineering Company. 2001. *Stormwater Best Management Practices for Cold Climates*. Metropolitan Council Environmental Services. Saint Paul, MN. Section 3-85.
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## **D. Oregon's Administrative Rules**



**OREGON DEPARTMENT OF STATE LANDS**  
**DIVISION 85**  
**ADMINISTRATIVE RULES GOVERNING THE ISSUANCE AND ENFORCEMENT**  
**OF REMOVAL-FILL AUTHORIZATIONS WITHIN WATERS**  
**OF OREGON INCLUDING WETLANDS**

**Oregon Mitigation Regulations**

**141-085-0115**

**Compensatory Mitigation** (for Water Resources)

(1) The Department may require compensatory mitigation as a condition of an authorization to compensate for reasonably expected adverse effects to water resources of the state and navigation, fishing and public recreation uses on waters of this state other than freshwater wetlands or estuarine areas. Such conditions impose obligations on the permit holder beyond the expiration of the authorization.

(2) Such compensatory mitigation may include, but is not limited to:

(a) Offsite or onsite enhancement (e.g., planting or seeding riparian vegetation or exposing enclosed culverted systems) of water resources of the state;

(b) Offsite or onsite improvements to enhance navigation, fishing or public recreation uses of waters of this state; or

(c) Compensation to a third party, as approved by the Department, for the purpose of watershed health or to improve the navigation, fishing or public recreation uses of waters of this state. A permit holder, with the approval of the Department, may contract with a third party to construct, monitor or maintain the compensatory mitigation site. The permit holder remains responsible for compliance with the compensatory mitigation conditions unless the authorization is transferred to another entity in accordance with these rules.

(3) The Department may approve of compensatory mitigation for effects to waters of this state other than freshwater wetlands or estuarine areas, when the applicant demonstrates in writing that the compensatory mitigation plan will replace or provide comparable substitute for water resources of the state and/or navigation, fishing and public recreation uses lost by project development.

(4) The Department may require some form of long term protection for the compensatory mitigation site.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: LB 7-1994, f. 12-15-94, cert. ef. 1-1-95; DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 1-2003, f. & cert. ef. 7-10-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-03 thru 5-23-04; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 1-2006, f. 3-21-06, cert. ef. 3-27-06; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

## 141-085-0121

### **Freshwater Compensatory Wetland Mitigation (CWM) Applicability, General Requirements; Functional Assessments**

(1) The following rule sections, OAR-141-085-0121 to 141-085-0151, apply to removal-fill that occur within freshwater wetlands and do not apply to removal-fill:

(a) Within estuarine wetlands covered by ORS 196.830 and OAR-141-085-0240 thru 141-085-0266, except as specifically noted in the estuarine mitigation rules or where estuarine wetland restoration or enhancement is proposed to compensate for effects to freshwater wetlands; or

(b) Within areas covered by an approved Wetland Conservation Plan (WCP) authorized under ORS 196.668 to 196.692.

(2) For projects where reasonably expected adverse effects to the water resources including wetland functions cannot otherwise be avoided, or minimized, a CWM plan will be required to compensate for the reasonably expected adverse effects of the project by replacing the functional attributes of the wetland impacted by project development. Compensatory wetland mitigation shall be limited to replacement of the functional attributes of the lost wetland. The requirements to provide CWM impose obligations on the permit holder that extend beyond the expiration date of the authorization.

(3) For projects described in (2) requiring CWM and involving project development on 0.2 (two-tenths) of an acre or less of wetlands, there is a rebuttable presumption that on-site CWM is impracticable. The applicant may propose to fulfill CWM requirements through off-site CWM without first considering on-site CWM.

(4) For projects described in (2) requiring CWM involving project development effects greater than 0.2 (two-tenths) of an acre, the applicant shall first consider on-site CWM to provide the replacement of the functional attributes of the lost wetland. If on-site CWM is impracticable as documented by the applicant, off-site CWM shall be utilized. In considering off-site CWM, the applicant may create, restore, conserve or enhance a wetland or if the project development occurs within the service area of an established wetland mitigation bank, the applicant may purchase credits, if available, from the bank to fulfill CWM requirements so long as the functional attributes of the lost wetland are replaced. If no mitigation bank is available, CWM may be fulfilled through payment in lieu of mitigation as described in OAR 141-085-0131.

(5) The Department will review the CWM plan for sufficiency and compliance with these rules. The Department may make recommendations for improvements to CWM plans, at any time prior to the permit decision, based on the demonstrated success of existing CWM projects. The Department will approve the final CWM plan as a part of the individual removal-fill permit. In approving the final CWM plan, the Department may, after consulting with the applicant, require conditions necessary to ensure success of the CWM plan and to ensure the requirements in these rules are met.

(6) To the extent possible, the Department shall develop and make available to the public a listing of known compensatory wetland mitigation sites (e.g., wetland mitigation banks).

(7) The applicant shall complete and include in the application an assessment of wetland functional attributes. The assessment shall assess:

(a) Existing functional attributes of the entire wetland at the proposed project impact site;

(b) Functional attributes reasonably expected to be adversely effected, including those functional attributes decreased or lost due to the proposed project;

(c) Existing functional attributes at the proposed CWM site, if the site is currently wetland; and

(d) The projected net gain or loss of specific functional attributes at the CWM site as a result of the proposed CWM project.

(8) Wetland functional attributes to be assessed include, but are not limited to:

(a) Water quality and quantity functions;

(b) Fish and wildlife habitat functions;

(c) Native plant communities and species diversity functions; and

(d) Recreational and educational values.

(9) The Oregon Freshwater Wetland Assessment Method shall not be used to satisfy the requirements of OAR 141-085-0121(7).

(10) HGM is the preferred, but not required, functional assessment method. When HGM is used, the appropriate HGM guidebook should be used . Until the Department develops additional guidebooks or methods, the "Judgmental Method" in the Willamette Valley Guidebook may be adapted and used to assess wetland functions in other regions.

(11) If best professional judgment is used to evaluate any or all wetland functional attributes, a discussion of the basis of the conclusions is required. For example, if the water quality function is determined to be "low," a detailed rationale based upon direct measurement or observation of indicators of water quality function must be discussed.

(12) Additional assessments or data may be required by the Department if the functional assessment results, public/agency review comments, or the Department's review indicate that there may be reasonably expected adverse effects to rare or listed plant or animal species, adjoining property owners, or if the project's effects are not readily apparent.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 1-2003, f. & cert. ef. 7-10-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-03 thru 5-23-04; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 1-2006, f. 3-21-06, cert. ef. 3-27-06; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

## **141-085-0126**

### **Requirements for All CWM**

(1) CWM shall replace:

(a) Wetland habitat type(s) effected by the project, as classified per Cowardin system and class (e.g., palustrine forested);

(b) HGM class/subclass(es) effected by the project (e.g., riverine impounding), using the Oregon HGM Statewide Classification (Oregon Department of State Lands 2001); and

(c) The functional attributes of the lost wetland (effected wetland).

(2) The Department may approve exceptions to the requirements of OAR 141-085-0126(1) if the applicant demonstrates, in writing, that the alternative CWM:

(a) Is environmentally preferable;

(b) Replaces wetland functions that address problems (such as flooding) that are identified in a watershed management plan or water quality management plan approved by a watershed council or public agency;

(c) Replaces wetland types (Cowardin/HGM) and functions historically lost in the region;  
or

(d) Replaces rare or uncommon plant communities appropriate to the region, as identified in the most recent ONHP plant community classification.

(3) A permit holder, with the approval of the Department, may at any time contract with a third party to construct, monitor or maintain the CWM site. The permit holder cannot delegate responsibility for compliance with the CWM requirements unless the authorization has been transferred in accordance with OAR 141-085-0034.

(4) For linear projects (e.g., roads or utility lines with wetland effects in several watersheds), the applicant may compensate for all wetland effects at a single CWM site.

(5) CWM:

(a) Shall be completed prior to or concurrent with the authorized removal-fill project. The Department may approve non-concurrent CWM if the applicant clearly demonstrates, in writing, the reason for the delay or that there is benefit to the water resources in doing

so. The ratio of CWM required for delayed projects may be increased according to the provisions of OAR-141-085-0136;

(b) Shall include native vegetation plantings aimed at re-establishment of a dominance of native plants; and

(c) Shall not rely on features or facilities that require frequent and regular long-term maintenance and management. For example, permanent water control structures may be acceptable, whereas pumping from a groundwater well to provide hydrology is not.

(6) CWM sites may fulfill multiple purposes including storm water retention or detention provided:

(a) The requirements of OAR 141-085-0126(1) and (2) are met;

(b) No alteration is required to maintain the stormwater functions that would degrade the functional attributes; and

(c) The runoff water entering the CWM site has been pretreated to the level necessary to assure that state water quality standards and criteria are met in the mitigation area.

(7) CWM using wetland enhancement must conform to the following additional requirements. The CWM shall:

(a) Be conducted only on degraded wetlands as defined in OAR 141-085-0010;

(b) Result in a demonstrable net gain in wetland functions at the CWM site as compared to those functions lost or diminished at the wetland conversion site and those functional attributes previously existing at the CWM site;

(c) Not replace or diminish existing wetland functional attributes with different wetland functional attributes unless the applicant justifies, in writing, that it is environmentally preferable to do so;

(d) Not consist solely of the conversion of one HGM or Cowardin class of wetland to another unless the applicant can demonstrate that it is environmentally preferable to do so;

(e) Identify the causes of wetland degradation at the CWM site and the means by which the CWM plan will reverse, minimize or control those causes of degradation in order to ensure self-sustaining success; and

(f) Not consist solely of removal of non-native, invasive vegetation and replanting or seeding of native plant species.

(8) A conservation easement, deed restriction or similar legally binding instrument shall be part of a CWM plan.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 1-2003, f. & cert. ef. 7-10-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-03 thru 5-23-04; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 1-2006, f. 3-21-06, cert. ef. 3-27-06; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

## **141-085-0131**

### **Requirements for CWM Involving Wetland Mitigation Banks, Payment In Lieu of Mitigation or Conservation**

(1) The requirements in this section are in addition to the general requirements in OAR 141-085-0121.

(2) Mitigation Bank Credits. Purchase of mitigation bank credits from an appropriate and approved mitigation bank is preferable to payment in lieu of mitigation. The Department will approve the bank option only after on-site mitigation has been examined and found to be impracticable. Documentation of the purchase of the required number of mitigation bank credits must be received by the Department prior to issuance of the authorization.

(3) Payment in lieu of mitigation:

(a) The individual removal-fill permit or letter of authorization for an activity shall not be issued until payment has been made in the amount identified in the CWM plan as approved by the Department. Once an approved removal-fill permit activity has begun as proposed, the payment in lieu of mitigation payment shall be considered as non-refundable.

(b) The amount to pay to the Department to provide CWM shall be the average cost of credits available from all active mitigation banks in the state as compiled annually by the Department.

(4) Conservation:

(a) Conservation of wetlands may be used for meeting the CWM requirement when the wetland proposed for conservation:

(A) Supports a significant population of rare plant or animal species; and/or

(B) Is a rare wetland type (S1 or S2 according to the Oregon Natural Heritage Program);  
or

(C) Is a vernal pool, fen or bog.

(b) Conservation should be encouraged as the preferred CWM option when the effect site is a wetland type that is exceptionally difficult to replace, such as vernal pools, fens and bogs.

(c) There is no established ratio for CWM using conservation. The acreage needed under conservation in lieu will be determined on a case-by-case basis through negotiation between the applicant and the Department.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-03 thru 5-23-04; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 1-2006, f. 3-21-06, cert. ef. 3-27-06; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

## **141-085-0136**

### **Ratio Requirements for CWM**

(1) The purpose of CWM ratios is to:

(a) Ensure that the state's wetland resource base is maintained as required in ORS 196.672;

(b) Offset the temporal loss of wetland functions as compensatory mitigation sites mature (i.e., become fully functional replacement of the lost, effected wetland);

(c) Replace wetland functions that may be size dependent; and

(d) Compensate for the likelihood of success in the different CWM methods (creation, restoration and enhancement). The methods are techniques used to achieve the replacement of functional attributes lost from the effected wetland.

(2) Except as provided in Sections (3) through (6) of this section, the following minimum ratios shall be used in the development of CWM plans:

(a) Restoration: One (1) acre of restored wetland for one (1) acre of effected wetland.

(b) Creation: One and one-half (1.5) acres of created wetland for one (1) acre of effected wetland.

(c) Enhancement: Three (3) acres of enhanced wetland for one (1) acre of effected wetland.

(d) Enhancement of cropped wetland as determined by the Department: Two (2) acres of enhanced cropped wetland for one (1) acre of effected wetland. Cropped wetland is converted wetland that is regularly plowed, seeded and harvested in order to produce a crop for market. Pasture, including lands determined by the Natural Resources and Conservation Service to be "farmed wetland pasture," is not cropped wetland.

(e) Conservation: Variable: See OAR 141-085-0131(4).

(3) The Department shall double the minimum ratio requirements for project development effecting existing CWM sites; for example, using enhancement to

compensate for effects to an existing CWM site will require a ratio of six (6) acres enhanced for every one (1) acre effected.

(4) The Department may increase the ratios when:

(a) Mitigation is proposed to compensate for an unauthorized removal or fill activity; and/or

(b) Mitigation is not proposed for implementation concurrently with the authorized effect.

(5) At the option of the applicant, CWM may consist of any one or a combination of the following CWM ratios for commercial aggregate mining operations where both the mining operation and the CWM are conducted on converted wetlands (not including pasture):

(a) One (1) acre of wetland and open water habitat, with depths less than thirty-five (35) feet, for one (1) acre of wetland effected;

(b) Three (3) acres of wetland and open water habitat, with depths greater than thirty-five (35) feet, for one (1) acre of wetland effected;

(c) One (1) acre of a combination of restored, created or enhanced wetland and upland, comprising at least fifty percent (50%) wetland, for one (1) acre of wetland effected.

(6) The Department may also apply the following CWM measures for commercial aggregate mining operations on converted wetland (not including pasture):

(a) Allow for staged CWM or mined land reclamation required under ORS 517.700; or

(b) Based on the value the Department determines under OAR 141-085-0131(3), allow the applicant, upon approval by the Department, to pay the entire cost of CWM:

(A) On an annual basis for a period not to exceed twenty (20) years over the life expectancy of the operation, whichever is less; or

(B) On an annual basis over time at a monetary rate per cubic yard or ton of aggregate material removed annually from the site.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 1-2003, f. & cert. ef. 7-10-03; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 1-2006, f. 3-21-06, cert. ef. 3-27-06; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

**141-085-0141**

**Requirements for All CWM Plans/Application Requirements**

(1) On-site or off-site CWM involving the creation, restoration and/or enhancement of wetlands by the applicant. A CWM plan shall, at a minimum, include:

(a) CWM site information including:

(A) Area (size) of the CWM wetland proposed for effect relative to the total area of the wetland.

(B) CWM site ownership information (name, address, phone). If this is different from the applicant, copies of legal agreements granting permission to conduct the CWM and willingness of the property owner to provide long-term protection are required;

(C) Legal description (Township, Range, Quarter Section and tax lot(s)) and a USGS or similar map showing the CWM site location relative to the effected site, longitude and latitude, physical address (e.g., 512 Elm Street), and road milepost (e.g., mp 25.21).

(b) Existing physical and biological baseline information of CWM site including:

(A) A wetland determination/delineation report (OAR 141-090).

(B) A functional assessment, except when PTP or purchase of credits from a wetland mitigation bank is proposed, of any existing wetlands at the CWM site, proposed for enhancement or other alteration, including a description of the factors leading to the degraded condition of the site (OAR 141-085-0121).

(C) A description of the major plant communities and their relative distribution, including the abundance of exotic species.

(D) A general description of water source, duration, frequency of inundation or saturation, depth of surface or subsurface water and approximate location of all water features (wetlands, streams, lakes) within 500 feet of the CWM site.

(E) HGM and Cowardin classification of any wetlands present within the CWM site.

(c) CWM plan description including:

(A) CWM plan goals, objectives and success criteria.

(B) The CWM concept in general terms including a description of how the plan, when implemented, will restore, reverse, minimize or control the causes of wetland degradation and ensure that the wetland functions of the effected wetland are replaced.

(C) A description of the rationale for the CWM site selection using a method approved by the Department.

(D) Proposed water source, duration, frequency of inundation or saturation of the CWM project.

(E) Any known CWM site constraints or limitations.

(F) Proposed HGM and Cowardin classification.

(G) Proposed net losses and gains of wetland functions.

(H) A description of how the applicant will maintain and protect the direct CWM site beyond the monitoring period.

(I) CWM construction plans including:

(i) Scaled site plan showing CWM project boundaries, existing wetlands, restoration, creation and enhancement areas.

(ii) Scaled grading plan with existing and proposed contours and cross section locations.

(iii) Description of construction methods (access, equipment).

(iv) Schematic of any proposed hydrological structures.

(v) Scaled cross sections showing elevations, distance.

(vi) Planting plan (with species, size, number, spacing and installation methods).

(vii) Monitoring plan (schedule, timetable, methods).

(viii) Contingency plan for CWM failures.

(ix) Implementation schedule and construction sequence.

(J) A reference site, combination of reference sites, or reference data of the same HGM class or subclass (e.g. from the Willamette Valley HGM Guidebook) and representing a less functionally altered condition than the CWM site. Compare and relate the sites and/or data to the CWM goal.

(K) Provisions for a financial security instrument (OAR-141-085-0176), if the effect is greater than .2 (two-tenths) of an acre. The financial security instrument is not required for the application but will be required prior to permit issuance.

(L) Plans for restoration projects shall include data substantiating that the site was formerly, but is not currently, a wetland (e.g. a wetland delineation report).

(M) Plans for vegetated buffers, if needed, to protect the viability and functions of the CWM site.

(N) Plans for the long-term protection of the CWM site:

(i) Compensatory mitigation sites and compensatory wetland mitigation sites will need to be permanently protected from destruction with appropriate real estate instruments or agreements (e.g. conservation easements, deed restrictions, long-term management

agreements with land trusts or public ownership). Situations where such protection will be required include but are not limited to:

(A) When the permit holder is likely to sell the mitigation site within five (5) years of project completion;

(B) When the permit holder is an absentee owner of the mitigation site;

(C) When the permit holder is not likely to actively participate in managing and maintaining the mitigation site; or

(D) When the permit holder is not the owner of the mitigation site.

(ii) The applicant shall offer a preferred method and justification.

(iii) The Department will make the final determination for the need and type of long-term protection.

(2) Other CWM. A CWM plan using conservation in lieu must include:

(a) Written documentation that the requirements in OAR 141-085-0131(4) are met.

(b) A conservation plan that shall include:

(A) Maps showing the wetland conservation area including all delineated wetlands to be conserved;

(B) The surrounding land uses and an analysis of the probable effects of those land uses and activities on the conserved wetlands;

(C) Measures that may be necessary to minimize the effects of surrounding land uses and activities on the conserved wetlands;

(D) Identification of the party(ies) responsible for long term protection of the conserved wetlands;

(E) A legally binding long term protection instrument (e.g. conservation easement); and

(F) A long-term management plan that addresses the specific requirements of the wetlands to be conserved.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 1-2003, f. & cert. ef. 7-10-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-03 thru 5-23-04; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 1-2006, f. 3-21-06, cert. ef. 3-27-06; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

**141-085-0146**

## **Removal-Fill Authorization Conditions for CWM Plans**

(1) For permits involving CWM:

(a) The approved CWM plan shall become part of the removal fill authorization and, by reference, all portions of the CWM plan shall become conditions of the authorization.

(b) Additional compensatory mitigation conditions may be included in the authorization.

(c) All compensatory mitigation conditions shall be enforceable until the CWM is deemed successful by the Department in accordance with OAR 141-085-0151, regardless of the authorization expiration date.

(2) Conditions for authorizations shall also state:

(a) If applicable, the amount of the payment in lieu of mitigation made by the applicant and how it was calculated; and

(b) If applicable, the mitigation bank utilized; and

(c) The loss of wetland by area, Cowardin and HGM class(es), and function(s) of wetland(s) expected to be lost or impaired; and

(d) The applicant's remaining responsibility after payment in lieu of mitigation payment was made, if any, and;

(e) No removal or fill of any amount of material shall be permitted within compensatory wetland mitigation sites without prior authorization of the Department.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-03 thru 5-23-04; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

### **141-085-0151**

#### **Monitoring Requirements for CWM Plans Involving On-site or Off-site Creation, Restoration or Enhancement of Wetlands**

(1) The purpose of the CWM monitoring requirement is to provide information for the Department to:

(a) Determine if the CWM complies with the conditions of the authorization;

(b) Evaluate whether the CWM meets the goals, objectives and success criteria of the CWM plan; and

(c) Provide information for removal/fill program monitoring.

(2) The permit holder shall monitor the CWM site and provide to the Department:

(a) A post construction report demonstrating "as-built" conditions including grading and discussing any variation from the approved plan. Unless waived by the Department, the post construction report shall be submitted within ninety (90) calendar days of completing grading;

(b) An annual written monitoring report that includes all data necessary to document compliance with CWM conditions and success in meeting the CWM goals. These data may include photographs, topographic surveys, plant survival data, botanical surveys, results from functional assessment, hydrologic data and other information as required to demonstrate compliance. The report shall include the following sections:

(A) Introduction;

(B) Goals, objectives and success criteria;

(C) Methods;

(D) Results;

(E) Summary and recommendations;

(F) Figures;

(G) Appendices with data and photographs.

(3) Monitoring shall be conducted for 5 years unless otherwise specified by the Department.

(4) The Department may require modifications to the CWM plan as well as require additional monitoring any time the CWM is failing to meet the CWM goals.

(5) At the end of the five (5) year monitoring period, the Department shall determine if the mitigation project meets the CWM success criteria. If it fails to meet the success criteria, the Department may require modifications to the CWM site as well as additional site monitoring.

(6) When the CWM complies with the compensatory mitigation success criteria, as described in the approved removal-fill authorization, the Department shall notify the permit holder in writing of compliance with the authorization's conditions and that additional monitoring is not required. If the Department fails to notify the permit holder within ninety (90) calendar days of the Department's receipt of the final monitoring report, the permit shall be deemed in compliance and no further monitoring required.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-

**141-085-0156**

**Payments; Expenditure of Funds for Compensatory Wetland Mitigation Payment in lieu of Mitigation; Agency Department Accounting of Payment in lieu of Mitigation Funds and Expenditures**

- (1) The Department shall utilize the Oregon Wetlands Mitigation Revolving Fund Account authorized pursuant to ORS 196.640 et seq. to hold and disperse money collected from the program.
  - (a) The Department shall expend funds collected under the payment in lieu of mitigation option of compensatory wetland mitigation only to:
    - (A) Restore, enhance, or create wetlands (including acquisition of land or easements as necessary to conduct restoration, enhancement or creation projects) as compensatory mitigation to compensate or replace wetland functional attributes lost or diminished as result of an approved removal-fill authorization activity;
    - (B) Purchase credits from an approved wetland mitigation bank for the purpose of fulfilling the CWM requirements of an approved removal-fill authorization activity;
    - (C) Monitor the compensatory wetland mitigation; or
    - (D) Conduct site management for the compensatory mitigation project as necessary to assure that the mitigation is successful.
- (2) The Department shall expend funds collected under the payment in lieu of option of compensatory wetland mitigation only within the geographic region, as defined by OAR-141-085-0010 of these rules, in which the wetland functional attributes occur, unless the Department determines, in writing that expending the funds is not feasible or appropriate within a respective region.
- (3) The Department shall expend funds collected from specific approved removal-fill activities within two (2) years from the authorization issuance date unless the Department determines, in writing, that meeting the two year time limit is not feasible.
- (4) Third party recipients of funds collected under the payment in lieu of mitigation option of a compensatory wetland mitigation plan shall sign a written agreement provided by the Department that requires the recipient(s) to utilize the funds for specific wetland compensatory mitigation that has been reviewed and approved by the Department. Such review and approval will also be contingent on the submission of a specific monitoring program that is acceptable to the Department.
- (5) All payment-in-lieu monies collected and expended, as well as the success of the compensatory wetland mitigation, authorized by the Department in accordance with these rules, shall be recorded by the Department and shall include:

(a) A description of the compensatory wetland mitigation funded and including an evaluation of the success of these projects in meeting project goals.

(b) A description of the wetland functional attributes lost or diminished from approved removal-fill activities summarized individually and cumulatively by basin.

(c) A summary of the amount of payments collected and expended on individual compensatory wetland mitigation projects as well as cumulatively by basin.

(d) A description of the wetland functions expected to accrue as a result of compensatory wetland mitigation projects funded in accordance with these rules and summarized by basin and statewide.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-03 thru 5-23-04; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

#### **141-085-0161**

#### **Department Responsibilities Under Payment in lieu of mitigation Option**

The Department, by eliminating the applicant's responsibility for compensatory wetland mitigation by approving a removal-fill authorization including a payment in lieu of mitigation option, assumes the following responsibilities to:

(1) Defend the sufficiency of the compensatory wetland mitigation plan to compensate or replace the wetland functional attributes lost or diminished; and

(2) Monitor, manage, and otherwise assure the success of the compensatory wetland mitigation project performed by the Agency Department or designated third party(ies) under these rules.

(2) The Department, as part of an intergovernmental agreement, may transfer or extend the Department's responsibility for the compensatory wetland mitigation plan to another person or governmental agency.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-03 thru 5-23-04; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

#### **141-085-0171**

#### **Mitigation for Temporary Impacts**

Projects that do not result in the permanent loss of wetland functions and values, must, as part of the application, provide a rehabilitation plan for temporary effects, including:

(1) Plans and specifications for rehabilitating the area of temporary effects, including grading plans and planting plans, timeline and location of fill disposal areas; and

(2) Planting plans shall specify species, number and spacing. Such plans shall be designed to re-establish the pre-effect conditions of the site as rapidly as is reasonably possible.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

**141-085-0176**

### **Security Bonding and Instruments**

(1) Financial Security Instruments are required for CWM projects. DSL may waive the requirement for a financial security instrument for impacts less than two tenths of an acre where the low risk of mitigation project failure does not justify the expense of such an instrument. Financial security instruments are not required when CWM is satisfied by purchase of credits from wetland mitigation bank or payment in lieu of mitigation is utilized. To ensure compliance with CWM requirements, the Department may allow for any of the following types of financial security instruments:

(a) Surety bond;

(b) Certificate of Deposit;

(c) Irrevocable letter of Credit; or

(d) Such other financial instrument as the Department deems appropriate to secure the financial commitment of the applicant to fulfill the success of the CWM.

(2) No financial security instrument is required for projects conducted by government agencies.

(3) Financial Security Form: The applicant shall file the financial security instrument's on a form prescribed and furnished by the Department. The financial security instrument(s) shall be made payable to the Oregon Department of State Lands.

(4) Commencement of the liability period. The period of liability shall begin at the time of authorization issuance. The liability period shall be established by the Department and be clearly stated in the removal-fill authorization.

(5) Determining the financial security instrument amount. The Department shall annually set the amount of the financial security instrument based on the greater of the statewide

average for in lieu of mitigation or the cost of mitigation bank credit(s) in the applicants' bank service area.

(6) General terms and conditions of financial security instruments.

(a) The instrument shall be in an amount determined by the Department as provided in OAR 141-085-0176(5) of these rules and be made payable to the "Oregon Department of State Lands".

(b) The financial security instrument shall be conditioned upon faithful performance of all of the requirements of these rules as well as the conditions of the removal-fill authorization.

(c) Liability period. The permit holder's liability under the financial security instrument shall be for the duration of responsibility for the CWM as set out in the approved removal-fill authorization and these rules. Except as approved by the Department, a financial security instrument shall be posted to guarantee specific phases of the required CWM provided the sum of the bonds authorized for the phases equals or exceeds the total amount required to complete the CWM. The scope of work to be guaranteed and the liability assumed under each phase of the instrument shall be specified in detail in the authorization and financial security instrument form.

(7) Surety bonds: Surety bonds shall be executed by the permit holder and a corporate surety licensed to do business in Oregon. Such surety bonds shall be not be cancelable during their term.

(8) Certificates of Deposit; certificates of deposit shall be assigned to the Department, in writing, and upon the books of the bank issuing such certificates.

(9) Letters of credit shall be subject to the following conditions:

(a) The letter may only be issued by a bank organized or authorized to do business in the state of Oregon.

(b) The letter must be irrevocable prior to release by the Department.

(c) The letter must be payable to the "Department of State Lands" in part or in full upon demand by and receipt from the Department of a notice of forfeiture issued in accordance with OAR 141-085-0176 of this rule.

(10) Financial Security Instrument Replacement. The Department may allow a permit holder to replace an existing financial security instrument with another if the total liability is transferred to the replacement. The Department shall not release an existing financial security instrument until the permit holder has submitted and the Department has approved the replacement. Replacement of a financial security instrument shall not constitute a release under OAR 141-085-0176 of these rules.

(11) Financial Security Instrument Release. The Department shall authorize release of the financial security instrument when the CWM meets the requirements of the CWM

plan and conditions of the removal-fill authorization. The permit holder shall file a request with the Department for the release of all or part of a financial security instrument. The request shall include:

- (a) The precise location of the CWM area.
- (b) The permit holder's name.
- (c) The removal-fill authorization number and the date it was approved.
- (d) The amount of the financial security instrument filed and the portion sought to be released.
- (e) The type and appropriate dates of CWM work performed.
- (f) A description of the results achieved relative to the permit holder's approved CWM plan.

(12) Forfeiture of financial security instruments. The Department shall declare forfeiture of all or part of a financial security instrument for any removal-fill authorization project area or an increment of a project area if CWM activities are not conducted in accordance with the approved CWM plan or the permit holder defaults on the conditions under which the financial security instrument was posted. The Department shall identify, in writing, the reasons for the declaration.

(13) Determination of Forfeiture Amount and Utilization of Funds. The permit holder shall forfeit the amount of the financial security instrument for which liability is outstanding and DSL shall either utilize funds collected from bond forfeiture to complete the CWM on which bond coverage applies or deposit the proceeds thereof in the Oregon Wetlands Mitigation Revolving Fund Account for use in the payment of costs associated with wetland mitigation activities.

Stat. Auth.: ORS 196.825

Stats. Implemented: ORS 196.800 - 196.990

Hist.: DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 1-2003, f. & cert. ef. 7-10-03; DSL 2-2003(Temp) f. & cert. ef. 11-26-03 thru 5-23-04; DSL 1-2004, f. & cert. ef. 5-21-04; DSL 6-2007, f. 12-13-07, cert. ef. 1-1-08

## **Freshwater Wetland Mitigation Banks**

**141-085-0400**

### **Purpose**

These rules describe when, and under what conditions, the Department will allow mitigation banking as a means of wetland compensation when fill or removal of material is proposed in wetlands regulated by the State of Oregon. Mitigation banking is used to provide larger scale compensatory wetland mitigation in advance of anticipated smaller wetland losses. These rules also specify the requirements to obtain authorization to develop a wetland mitigation bank.

Stat. Auth.: ORS 196.825 & 196.600 - 196.665

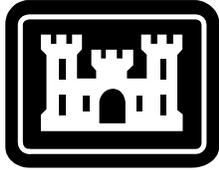
Stats. Implemented: ORS 196.600 - 196.692 & 196.800 - 196.990

Hist.: LB 2-1997, f. & cert. ef. 2-14-97; DSL 6-2002, f. 11-25-02 cert. ef. 1-15-03; DSL 1-2003, f. & cert. ef. 7-10-03; DSL 1-2004, f. & cert. ef. 5-21-04



# **E. Sacramento District Mitigation and Monitoring Proposal Guidelines**





**US Army Corps  
of Engineers®**

# **SPECIAL PUBLIC NOTICE**

*SAN FRANCISCO and SACRAMENTO DISTRICTS*

## **MITIGATION AND MONITORING PROPOSAL GUIDELINES** December 30, 2004

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### **INTRODUCTION**

The Sacramento and San Francisco Districts of the Corps are jointly publishing these Mitigation and Monitoring Proposal Guidelines to update the existing Habitat Mitigation and Monitoring Guidelines published October 25, 1996 in the Sacramento District and October of 1991 in the San Francisco District. These Guidelines have been updated based upon experience, field investigations, and public input, but retain the main elements presented in the previous Guidelines.

These Guidelines apply throughout the U.S. Army Corps of Engineers' (Corps) San Francisco District, which encompasses the coastal portions of California from northern San Luis Obispo County to the Oregon border; and the Sacramento District, which covers the Central Valley of California, Nevada, Utah and western Colorado (see Figure 1). Both the San Francisco and Sacramento Districts shall herein be referred to as the "Districts." If modifications occur to the Districts' boundaries in the future, these Mitigation and Monitoring Proposal Guidelines will apply to all areas within the revised boundaries.

### **Overview**

U.S. Army Corps of Engineers and U.S. Environmental Protection Agency (EPA) regulations (33 CFR Parts 320-331 and 40 CFR Part 230) authorize the Corps to require compensatory mitigation for unavoidable impacts to wetlands and other jurisdictional waters of the U.S. The Corps has commenced several initiatives in response to recommendations contained in the recent National Academy of Science / National Research Council publication "Compensating for Wetland Losses under the Clean Water Act," (2001) and is committed to improving the success of future compensatory mitigation projects.

After the applicant has demonstrated maximum avoidance and minimization of project impacts to waters of the U.S., Corps Districts will likely require compensatory mitigation for the remaining unavoidable impacts. While there may be other options for compensatory mitigation, these guidelines apply to development of plans for onsite and/or offsite establishment (creation), enhancement, and restoration activities, as well as mitigation bank design.

These Mitigation and Monitoring Proposal Guidelines are designed to assist the regulated public and their hired consultants with all aspects of the mitigation process. Approval of a mitigation plan is based on a demonstration that the proposed mitigation can successfully replace all lost functions and values associated with regulated impacts to waters of the U.S.

## **Changes from the December 31, 2003 Draft Guidelines**

This Public Notice finalizes the draft guidance proposed in the Public Notice issued for public comment on December 31, 2003. Based upon comments received during the one-month comment period, we have made significant revisions to the Guidelines format. Most notably, Section I of the original Public Notice included both a section of the comprehensive report entitled “Compensating for Wetland Losses Under the Clean Water Act,” from the National Research Council (NRC), and a list of ten guidelines to aid in planning and implementing successful mitigation projects (“Operational Guidelines for Creating or Restoring Wetlands that are Ecologically Self-Sustaining”; NRC, 2001). Section I, according to many commenters, created unnecessary confusion, contained too many examples of habitat types that are not represented within the boundaries of either District, and was redundant with other portions of the Public Notice. As a result, we did not include the information in this final version (however for reference, this section’s content can be found in Chapter 7 of the National Academy of Science’s report found at [http://www.usace.army.mil/inet/functions/cw/hot\\_topics/nrchottopic.htm](http://www.usace.army.mil/inet/functions/cw/hot_topics/nrchottopic.htm)). Section II has been simplified and renamed “Section I. Mitigation Planning.” Finally, we moved the annotated proposal outline from Appendix A to the main text of the final guidelines to accurately accentuate its importance in this document and mitigation planning.

## **Changes from Sacramento District’s 1996 and San Francisco District’s 1991 Guidelines**

### ***Sacramento District***

There have been a number of changes to the Sacramento District’s 1996 guidelines as a result of the adoption of these guidelines. The Corps policy section and mitigation-banking summary have been replaced, primarily, with a reference list of relevant regulations, guidance, and agreements. The section concerning different submittals for individual and nationwide permits has been removed. Contact information has been updated and enhanced by inclusion of links to the Districts’ websites. *Section I. Mitigation Planning* has been added.

Guidelines for submittal of information on both the project and mitigation sites have been updated. Requests to submit Cowardin designations for types of jurisdictional areas and discuss proposed compensation ratios and long-term goals have been added. The success criteria section has been modified to better allow for site-specific selection of success criteria. Sections on “Maintenance During Monitoring Period” and “Long-term Management” have been added. The request to identify contingency mitigation sites has been removed. Finally, an outline for monitoring reports, and a list of common Cowardin habitat types that occur within the boundaries of the two districts, are included as appendices.

### ***San Francisco District***

The primary changes from the previous SF District Proposal Guidelines include requests for Cowardin descriptor codes, slope ratios, groundwater and soil information, aquatic functions, identification of compensation ratios (by applicant), monitoring schedule, and long-term management plans. Expanded information is requested for the monitoring and report sections.

## Contact Information for Project Specific Questions:

For answers to questions regarding the interpretation of these Mitigation and Monitoring Proposal Guidelines or acceptable compensatory mitigation for a specific project, contact the Corps Project Manager responsible for your geographic area of interest:

San Francisco District Office general line	415-977-8436
Eureka Field Office general line	707-443-0855
Sacramento District Office general line	916-557-5250
Redding Office	530-223-9534
Reno Office	775-784-5304
Bountiful Office	801-295-8380
Colorado/Gunnison Basin Office	970-243-1199
Durango Office	970-375-9506
Frisco Office	970-668-9676
St. George Office	435-986-3979

## References

The documents listed below have been used in creating this guidance and pertain to Corps mitigation policy. They are available for your use on the internet at [www.gpoaccess.gov/legislative.html](http://www.gpoaccess.gov/legislative.html) or [www.usace.army.mil/inet/functions/cw/cecwo/reg/sadmin3.htm](http://www.usace.army.mil/inet/functions/cw/cecwo/reg/sadmin3.htm).

1. Clean Water Act Section 404 (33 USC Section 1344)
2. Rivers and Harbors Act of 1899 Section 10 (33 USC Sections 403 et seq.)
3. Environmental Protection Agency, Section 404 (b)(1) Guidelines (40 CFR Part 230)
4. Department of the Army Permit Regulations (33 CFR Parts 320-331)
5. *Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation under the Clean Water Act Section 404 (b)(1) Guidelines*, dated 6 Feb 1990
6. *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks*, dated 28 Nov 1995
7. *Federal Guidance on the Use of In-Lieu-Fee Arrangements for Compensatory Mitigation under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act*, dated 7 Nov 2000
8. *Guidance on Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899*, dated 26 Dec 2002 (RGL 02-02)

## Additional Information Available on the Internet

The Corps Regulatory websites also provide important information regarding Corps jurisdiction, processing of permit applications, mitigation design, vernal pools, riparian mitigation guidelines, conservation easements, operation and maintenance plans, dredging, etc.:

San Francisco District's site: [www.spn.usace.army.mil/regulatory/](http://www.spn.usace.army.mil/regulatory/)

Sacramento District's site: [www.spk.usace.army.mil/regulatory.html](http://www.spk.usace.army.mil/regulatory.html)

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**I. MITIGATION PLANNING**

Compensatory mitigation projects will proceed through several stages. There are specific issues the applicant must address at each stage in the process, to increase the probability of a successful compensatory mitigation project. The key stages in the development of a compensatory mitigation project are (A) Project Site Impact Assessment, (B) Compensatory Mitigation Site Selection, (C) Compensatory Mitigation Site Design, (D) Compensatory Mitigation Site Construction, (E) Long-Term Compensatory Mitigation Site Maintenance and Monitoring, and (F) Long-Term Site Management. Within each of these areas, the Corps has identified specific concerns that the applicant needs to consider in developing an adequate compensatory mitigation and monitoring plan.

**A. Project Site Impact Assessment**

An important aspect of any permit application is the assessment of the project site before impacts occur. An adequate assessment of site functions and values is important for determining the relative importance of the existing aquatic resources to the site and to the region or watershed. Assessment results can provide a basis for modifying pre-construction plans to avoid and/or minimize impacts to these resources. This assessment should be completed before the proposed project is designed or the proposed compensatory mitigation site is selected.

**B. Compensatory Mitigation Site Selection**

1. The selection of a site with suitable hydrologic conditions has been one of the most neglected aspects of compensatory mitigation planning. The National Research Council’s *Compensating for Wetland Losses Under the Clean Water Act* (2001) stated that hydrological conditions, including variability in water levels and flow rates, are the primary driving force influencing wetland development, structure, functioning, and persistence. Without a naturally variable source of water (e.g., stream, lake, tidal action), hydrologic processes may not function fully. Lack of a natural

water source has been the number one physical factor leading to the low rate of success of past compensatory mitigation projects. Therefore, mitigation projects that rely on artificial hydrology are generally unacceptable.

**2. Site selection should include and prioritize the following criteria:**

- a. *Natural Hydrology.* The goal should be to have the aquatic feature be supported by a self-sustaining, natural hydrologic process requiring little or no long-term maintenance. It is recommended that the applicant compare hydrologic information at the compensatory mitigation site to similar reference (i.e., high-functioning) sites in the region, as well as to the impact site for design guidance.
- b. *Wildlife Corridors.* Where possible compensatory mitigation projects should be developed adjacent to existing high-quality habitats. Even more desirable would be the construction of a compensatory mitigation site that links two or more habitats, which had been previously separated.
- c. *Soil Characteristics.* Many past compensatory mitigation projects did not address the development of suitable soils. Examination of soils at reference sites will provide important information on the target habitat. Thorough assessments of mitigation site soils should be conducted to determine the site's suitability for supporting the target habitat. In the case of in-kind compensatory mitigation for wetlands, soils from the impacted aquatic habitat can be used at the compensatory mitigation site.

**3. Generally, the physical characteristics of the sites considered determine whether establishment (i.e., creation), restoration, enhancement, or, more rarely, preservation are viable compensatory mitigation options. The categories of compensatory mitigation, as applied to wetlands and as defined in Regulatory Guidance Letter 02-02, are:**

- a. *Establishment (Creation):* The manipulation of the physical, chemical or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Establishment results in a gain in wetland acres.
- b. *Restoration:* The manipulation of the physical, chemical or biological characteristics of a site with the goal of returning natural or historic functions to a former or degraded wetland. For the purpose of tracking net gains in wetland acres, restoration is divided into:
  - i. *Re-establishment:* The manipulation of the physical, chemical or biological characteristics of a site with the goal of returning natural or historic functions to a former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres.
  - ii. *Rehabilitation:* The manipulation of the physical, chemical or biological characteristics of a site with the goal of repairing natural or historic functions of a degraded wetland. Rehabilitation results in a gain in wetland function but does not result in a gain in wetland acres.
- c. *Enhancement:* The manipulation of the physical, chemical or biological characteristics of a wetland (undisturbed or degraded) site to heighten, intensify or improve specific function(s) or to change the growth stage or composition of the

vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention or wildlife habitat. Enhancement results in a change in wetland function(s) and can lead to a decline in other wetland functions, but does not result in a gain in wetland acres. This term includes activities commonly associated with enhancement, management, manipulation and direct alteration.

*d. Protection/Maintenance (Preservation):* The removal of a threat to, or preventing the decline of, wetland conditions by an action in or near a wetland. This term includes the purchase of land or easements, repairing water control structures or fences, or structural protection such as repairing a barrier island. This term also includes activities commonly associated with the term preservation. Preservation does not result in a gain of wetland acres and will be used as mitigation only in exceptional circumstances.

### **C. Compensatory Mitigation Site Design**

1. Use a reference site to guide the design of mitigation. A reference site is a functioning aquatic system containing habitat that functions equal to or preferably better than the impact site and should be used to guide both the mitigation design and the success criteria of the final compensatory mitigation plan. The reference site may be the impact site or a similar site near the proposed mitigation site that supports the target habitat.

2. There are several important features to any successful compensatory mitigation design or plan. Each aspect of the plan must be identified in detail and explained clearly. Although there may be variation in the number of items required for a particular plan, those identified below should be assumed to be the minimum. The Corps strongly recommends that contents of written submittals follow the format provided in “Section II. Mitigation and Monitoring Proposals.”

- a. *Clearly Define the Purpose of the Compensatory Mitigation Project.* The purpose of the compensatory mitigation project shall be clearly identified and include specific statements about the type(s) of habitat (and associated functions and values) impacted by constructing the proposed project, the functions and values that would be replaced at the proposed compensatory mitigation site, and any other functions and/or values that are desired (e.g., endangered species habitat, water quality functions, etc.).
- b. *Develop a Comprehensive Hydrology Component.* For wetlands, information should be developed on depth, duration, and timing of ponding/saturation (inland areas); porosity of underlying soils; tidal ranges and frequencies (estuarine and marine areas); groundwater levels and fluctuations; mitigation site topography; and whether urban stormwater runoff is a water source. Provide information about the amount and the variability of water available to the site in an average rain year (October 1 – September 30). For channels, information should be developed on longitudinal profiles, frequency and depth of flooding (usually for 2-year, 5-year, 10-year, and 100-year storms), bank-full (channel-forming) flows under current and projected conditions, relevant cross-sections, substrate in the project/reference reach, channel history, upstream watershed conditions, and water-rights availability (if applicable).
- c. *Develop a Complete Grading Plan Making Use of the Hydrology Data.* Elevations are critical to design success; grading plans should depict no coarser than one-foot contours. Topographic variation should often be incorporated into the design to maximize aquatic habitat diversity. Examine adjacent or nearby viable habitats as a

reference.

- d. *Determine the Adequacy of the Soils to Support the Target Habitat Types.* It is important to consider whether the soils will support the target aquatic habitat. Additionally, consider whether site preparation activities will significantly alter the site's ability to support the target aquatic habitat type. Finally, determine whether soil amendments will be necessary for long-term habitat development (e.g., organic matter, nitrogen, etc.).
- e. *Develop a Draft Plant Palette Based on the Compensatory Mitigation Project Purpose, Soil Types, and Hydrology.* Identify tree, shrub, and herbaceous species to be planted, the source of the material, and the number and size of individual plants. Plant stock should be obtained from areas as near to the compensatory mitigation site as possible, to preserve the genetic integrity of the area.
- f. *Propose Realistic Success Criteria Based on the Purpose of the Compensatory Mitigation, Design of the Site, and Functional Assessment Criteria.* Develop measurable success criteria, consistent with the purpose and goals of the compensatory mitigation project, that are achievable by the end of the maintenance and monitoring period (generally five years to ten years). Success criteria in compensatory mitigation projects have included percent canopy cover, percent plant survival, plant vigor, percent of native species, period of inundation, stability of designed hydrologic features, wildlife usage and plant heights.
- g. *Develop a Specific Maintenance and Monitoring Program Including Contingency Measures.* Cover all subjects in the Guidelines that are appropriate to your project. The discussion of potential contingency measures should be brief, but acknowledge that should all or a portion of the required mitigation fail, additional measures may be necessary to fulfill the permittee's mitigation responsibility. If all feasible mitigation areas at the original mitigation location have already been used, a new off site location may be necessary to complete the mitigation.

3. In general, the Corps prefers that the compensatory mitigation site be constructed prior to or concurrently with the project construction. If compensatory mitigation will not be constructed until after project impacts, the Corps will likely increase the replacement ratio, to minimize temporal losses of functions and values associated with project impacts.

#### **D. Compensatory Mitigation Site Construction**

The permittee will not begin construction until the Corps approves the final compensatory mitigation and monitoring plan. The mitigation implementation process will normally require on-site management of construction personnel by one or more of the permittee's representatives, who have complete knowledge of the compensatory mitigation and monitoring plan and an understanding of soil science, hydrology, and botany, horticulture, or plant ecology. Sensitive areas should be staked, flagged or fenced to preclude unauthorized construction impacts. The permittee is responsible for the successful implementation of the compensatory mitigation. Any significant deviations identified during construction must be approved by the Corps. Additionally, consideration should be given to exotic species control during site preparation to minimize future maintenance and ensure successful mitigation. Personnel should consider removal of exotic species prior to grading and take invasive plant material from the site; in some circumstances, it may be necessary to remove the exotic seed banks by scraping and disposing the top few inches of soil.

## **E. Long-Term Compensatory Mitigation Site Maintenance and Monitoring**

1. Develop specifics regarding the type and timing of maintenance and monitoring. Detail how often and when it will occur.
2. After the site has been graded and planted, the maintenance and monitoring phase of the compensatory mitigation project begins immediately. There are many invasive problematic plant species that will readily colonize a recently disturbed site. A proactive program to remove these plants upon discovery is usually advisable to allow establishment of desirable vegetation. As the target vegetation becomes established, the need for invasive plant species removal will likely lessen.
3. An important aspect of the maintenance and monitoring phase of nearly all compensatory mitigation projects is ensuring the appropriate depth, duration, and timing of onsite water. It is recommended that the permittee compare hydrologic information at the compensatory mitigation site to reference (i.e., high-functioning) sites in the region.
4. Contingency measures should be considered in mitigation site design. If approved success criteria are not met, the permittee must prepare an analysis of the likely cause(s) of failure(s) and propose remedial actions for Corps approval. Consider what sources of funding will be available to ensure the required compensatory mitigation occurs successfully. Contingency measures could include selection of an alternative location.
5. Monitoring reports are required for all mitigation sites. Propose annual dates that monitoring reports will be provided to the Corps. Appendix C provides an outline of what content should be provided in the specific pages of the monitoring report. The Corps recognizes there may be cases where this outline would not be practical (for very small, large, or complex compensatory mitigation projects). Failure to submit complete and timely monitoring reports could result in suspension of the permit or requirements for additional compensatory mitigation. Non-compliance with Corps permit conditions, which can result in additional compensatory mitigation requirements, may be subject to the Corps' Enforcement Procedures (33 CFR Part 326).

## **F. Long-Term Site Management**

1. Protection of mitigation sites is usually required "in perpetuity" in keeping with the mitigation goals. The mitigation and monitoring plan must include the identification of a long-term manager/owner (usually a non-profit or a governmental agency), and should include a conservation easement or other documentation of long-term protection and a well-designed long-term management plan.
2. The permittee is usually required to provide a realistic endowment or other financial assurance to cover long-term maintenance activities.

## SECTION II. RECOMMENDED PROPOSAL CONTENTS

### A. Table of Contents

**B. Responsible Parties:** Provide names, titles, addresses, and phone numbers of responsible parties including contact persons.

1. *Applicant/Permittee:* The project proponent, not consultant, should be listed.
2. *Applicant's Designated Agent* (if any)
3. *Preparer(s) of the Proposal/Plan*

### C. Project Requiring Mitigation

1. **Location:** Describe location and provide: a) road map with site location clearly shown, and b) USGS quad map with project site and watershed outlined (clear photocopies are acceptable).

2. **Brief Summary of Overall Project:** In a few paragraphs, describe the overall project for which a permit or authorization is required. Include type of development (or other work), project size, and a brief projected schedule of project construction.

#### 3. Site Characteristics:

- a. *Jurisdictional Areas* – Identify those jurisdictional areas as shown on the approved delineation to be directly or indirectly affected by the project. Provide an appropriately sized topo base map with jurisdictional areas and impacts clearly shown (may be same map as under “1.” above). Indicate on the map whether the jurisdictional areas are wetlands and/or other waters. Also provide a table indicating acreage of wetland impacts by habitat common name with Cowardin designation, and linear feet and width of impacts to streams and/or tributaries.
- b. *Aquatic Functions* - Describe functions of aquatic features that will be lost and/or directly or indirectly impacted. This may include, but is not limited to, water filtration, sediment storage, flood retention, wildlife habitat, endangered species habitat, etc. (For further information, see <http://www.epa.gov/watertrain/wetlands/>).
- c. *Hydrology/Topography* – Describe hydrology and topography, including slope ratios of wetland features and stream banks, and identify the water’s source, frequency, duration and depth of inundation for the site. Indicate groundwater level(s), if known, and significant pollutants.
- d. *Soils/Substrate* – Describe texture, organic matter content, permeability, and presence of restrictive layers in aquatic features.
- e. *Vegetation* – The dominant plant communities, as well as special status plant species, of each stratum in the vegetated plot should be identified. Provide a map of the dominant plant communities.

- f. *Threatened/Endangered Species* – Identify any federally-listed (including proposed) species found on or near the site for which suitable habitat is present, including whether the site is within designated critical habitat.

#### **D. Mitigation Design**

**1. Location** – Describe location and provide: a) road map with site location clearly shown, and b) USGS quad map with project site outlined. Clear photocopies are acceptable.

**2. Basis for Design:** Provide a concise summary of the rationale for choosing the proposed type(s) and location(s) of mitigation.

**3. Characteristics of Design Reference Site** (if different from impact site):

- a. *Jurisdictional Areas* - Provide a jurisdictional determination of the reference site(s) with identified sample plots that are large enough to capture the desired aquatic design characteristics.
- b. *Aquatic Functions* – Describe functions of the reference aquatic site. This may include but is not limited to, water filtration, sediment storage, flood retention, wildlife habitat, endangered species habitat, etc.
- c. *Hydrology/Topography* – Describe hydrology and topography, including slope ratios of wetland features and stream banks, and identify the water’s source, frequency, duration and depth of inundation for the site. Indicate groundwater level(s) if known and significant pollutants.
- d. *Soils/Substrate* – Describe texture, organic matter content, permeability, and presence of restrictive layers in aquatic features.
- e. *Vegetation* – The dominant plant communities, as well as special status plant species, of each stratum in the vegetated plot should be identified.

**4. Proposed Mitigation Site**

- a. *Location* – Describe location, indicating distance from project site, if applicable. Provide the following maps: a) site location on a road map, and b) original or copy of USGS quad map with mitigation location outlined.
- b. *Ownership Status* – Indicate who owns the proposed mitigation site. If different from permit applicant(s), describe the property’s availability and easement history.
- c. *Jurisdictional Areas* (if any) – Provide a proposed jurisdictional map of the site. Indicate what portions of the jurisdictional areas, if any, are to be filled and/or altered under the mitigation proposal.
- d. *Aquatic Functions* (if any) – Describe expected functions and values of any existing aquatic features on the mitigation site. This may include, but is not limited to, water filtration, sediment storage, flood retention, wildlife habitat, endangered species habitat, etc.

- e. *Hydrology/Topography* – Describe the current hydrology and topography of the site, including intended water source for mitigation features.
- f. *Soils/Substrate* – Describe overall site series and existing channel substrate (if applicable).
- g. *Vegetation* – Describe and provide a map of the existing dominant plant communities, as well as any special status plant species. Also provide a table indicating approximate acreage of the habitats.
- h. *Present and Historical Uses of Mitigation Area* - Briefly describe all known present and historical uses of mitigation area. On a plan view, indicate any pipelines, power lines, roads, encroachments, or easements. Also show distance and location of nearest structures, if any, on the mitigation property or on any properties adjoining the mitigation project. Give all present and proposed zoning designations for mitigation site, including city and county.
- g. *Present and Proposed Uses of All Adjacent Areas* - Briefly describe all known present and proposed uses and zoning designations of all property sharing a common border with the proposed mitigation site.

#### **5. Created/Restored Habitat(s)**

- a. *Compensation Ratios* – Provide a table indicating the ratio(s) of impact wetland acreage and/or linear feet of channel to compensation acreage and/or linear feet of channel, both overall and by aquatic feature type.
- b. *Long-Term Goal(s)* – Describe the target habitat to be created/restored. Most mitigation designs are aimed at a habitat with certain characteristics that will not exist at the site until long after the monitoring period has ended. Please describe the projected state of the mitigation area in 10 to 30 years following implementation.
- c. *Aquatic Functions* – Describe expected functions of the compensatory aquatic features.
- d. *Hydrology/Topography* – Provide a hydrologic budget that identifies source, duration, volume and direction of water flow for the proposed mitigation feature(s) during the average climatic year. Provide information on the feature’s hydrologic connectivity to downstream tributaries and navigable waters, as applicable. If the mitigation site is targeting a saturated, flooded or ponded wetland, an estimation of the average period of saturation, ponding or flooding should be included, as well as a wetland watershed map.

Include a grading plan indicating intended slope ratios of wetlands and/or stream banks and overall area of disturbance.

- e. *Soils/Substrate* – Describe suitability of soils/substrate at intended compensation locations for creation/restoration of aquatic features.
- f. *Vegetation* – Describe target plant communities and species. Provide a proposed planting plan.

## **E. Success Criteria and Monitoring**

**1. Success Criteria** – Provide a table of success criteria. Quantifiable success criteria are used to determine completion of a permittee’s mitigation responsibilities and are proposed by the applicant for Corps approval. Meeting these criteria will indicate that the mitigation area is progressing well towards replacement of lost functions and achievement of the long-term mitigation goals. The criteria should address each major aspect of the project, including hydrological success, establishment of appropriate vegetation, and habitat establishment.

### **2. Monitoring**

- a. Methods* – Explain why each method has been chosen to evaluate progress in relation to each success criterion. The appropriateness of a method will depend on the objective it is addressing and the characteristics of the feature being surveyed. Describe sampling methods used. Include size of sample unit, number of samples. If using transects for assessment of vegetation, provide a map of the mitigation area(s) showing intended transect lines.
- b. Monitoring Schedule* – Monitoring should be tied to the appropriate growing, tidal or hydrology cycle rather than the point at which implementation happens to occur. Monitoring will generally not be considered to be “first year” monitoring until one full growing season (for vegetation) or target activity period (for hydrology/geomorphology) has passed following completion of installation. Also, although in many situations it is crucial to monitor all project components during the first five years or so, this is not necessarily true for every project. In some cases, it is not appropriate to begin quantitatively monitoring one or another component until a few years after implementation. In other cases it may be necessary to do annual monitoring for the first four to six years, and then monitor every other year for the remainder of the monitoring period. (However, in years where formal monitoring reports are not required, on-site inspections and documentation of site conditions should still occur.)
- c. Photo-Documentation* – In addition to quantitative methods, ground and/or aerial photos can be used to illustrate year-to-year progress of the overall project. Ground photos should generally be panoramic, and taken from a high point relative to the mitigation site such that photos taken in later years will not be obscured by developing vegetation. All such photos should be taken from the exact same point every year to allow for inter-annual comparison. If aerial photos are being used for measurements, they should be directly vertical and have identifiable ground-references to provide a reasonably accurate scale. Copies of color photos should be done in color.

## **F. Implementation Plan**

### **1. Site Preparation**

- a. Grading Implementation* – Describe equipment, procedures, access paths, etc., if they affect aquatic resources.
- b. Avoidance Measures* – Describe any measures used to avoid sensitive areas outside of the grading plan.

- c. *Soil Disposal* – Indicate storage location, if any, and ultimate destination of any excavated materials.
- d. *Soil Treatment* – Indicate any soil modification(s) planned for the mitigation site, including spreading of inoculum. Also indicate source, storage location, storage duration, and intended placement of any soil to be used.
- e. *Pest Plant Removal* – Describe method(s) to be used to remove any pest plants from the mitigation site.
- f. *Construction Monitor* – Provide a statement that a person/firm familiar with the mitigation/monitoring plan will supervise all site phases of mitigation construction. This person should have authority to direct equipment operators, and should submit a summary report to the Corps documenting construction observations and any problems that arose during construction.

## 2. *Planting/Seeding*

- a. *Planting Plan* – Provide a table of species to be planted and indicate geographic source of plants (should be as local as possible), type of propagules to be used, and season in which seeding/planting/transplanting is to be done. Include size and quantity of propagules and/or intended spacing.
  - b. *Nature and Source of Propagules* – Indicate types, sizes, and sources of propagules. Seeds, seedlings, canes, young plants and transplants should be from as local a stock as possible. For transplant propagules, describe method, location of harvest site, and duration of storage, if applicable
3. ***Irrigation*** - Most mitigation projects should become hydrologically self-sustaining. The function of irrigation in the early years of a project is to give new vegetation a head start at becoming established. Describe any proposed irrigation methods, including estimated frequency, and indicate month(s) in which it is to occur. Also indicate water source(s) for irrigation. In arid climates, mitigation planning should include contingency irrigation in case of drought. In most cases, irrigation is usually confined to the first 2-3 years after plant installation and success criteria are not considered met until at least two years have passed since irrigation ceased.
4. ***Implementation Schedule*** - Provide a schedule showing intended timing (by month) of site preparation, any seed/topsoil storage, seed/topsoil application, and plantings.

## G. Maintenance during Monitoring Period

### 1. *Maintenance Activities*

- a. *Overall* – Describe planned maintenance activities (e.g. inspection of irrigation system, inspection of water structure(s), erosion control, weeding, etc.). Note that irrigation-system failure is a common source of difficulties in the early years of a project. Many of these problems can be avoided by relatively frequent inspections of the system during the dry season in the first couple of years.

- b. *Pest Species Control* - Identify any pest species (plant and/or animal) that might cause problems on the site, and provide a control plan for these species if appropriate. Indicate the critical threshold of disturbance that will trigger the implementation of control methods.
2. *Maintenance Schedule* – Provide a table showing proposed schedule of frequency of maintenance inspections over the life of the project.

## H. Proposed Monitoring Reports

1. *Due Dates* - The applicant must identify an annual due date for reports (i.e., month and day).
2. *As-Builts* – A topographic survey of the as-built mitigation area should be submitted to the Corps within 6 weeks of completion of mitigation construction. The Corps will decide the appropriate scale of topographic survey on a case-by-case basis.
3. *Annual Reports*
  - a. *File Number* – Include the Corps permit/file number on the cover and title page of all reports and correspondence.
  - b. *Contents* – The required contents for annual reports is listed below:
    - i. Years of full monitoring – Appendix C describes the content of annual monitoring reports.
    - ii. Years of partial monitoring, where required - Occasionally, due to project-specific factors, it is appropriate to perform a reduced monitoring program for one or more monitoring years. The nature and extent of this monitoring would be described in permit documents, and the reporting is usually in the form of a letter.
    - iii. Final monitoring report – In the final monitoring report, include a delineation of any constructed wetlands, in addition to the normal content of a monitoring report.

## I. Potential Contingency Measures

1. *Initiating Procedures* – If an annual performance goal is not met for all or any portion of the mitigation project in any year, or if the final success criteria are not met, the permittee should prepare an analysis of the cause(s) of failure and propose remedial action for Corps approval. Remedial actions could range from replanting, to relocating the mitigation site.
2. *Contingency Funding Mechanism* - Indicate what funds will be available to pay for planning, implementation, and monitoring of any contingency procedures that may be required and present all necessary assurances that the funds will remain available until success criteria have been achieved.

## **J. Completion of Mitigation Responsibilities**

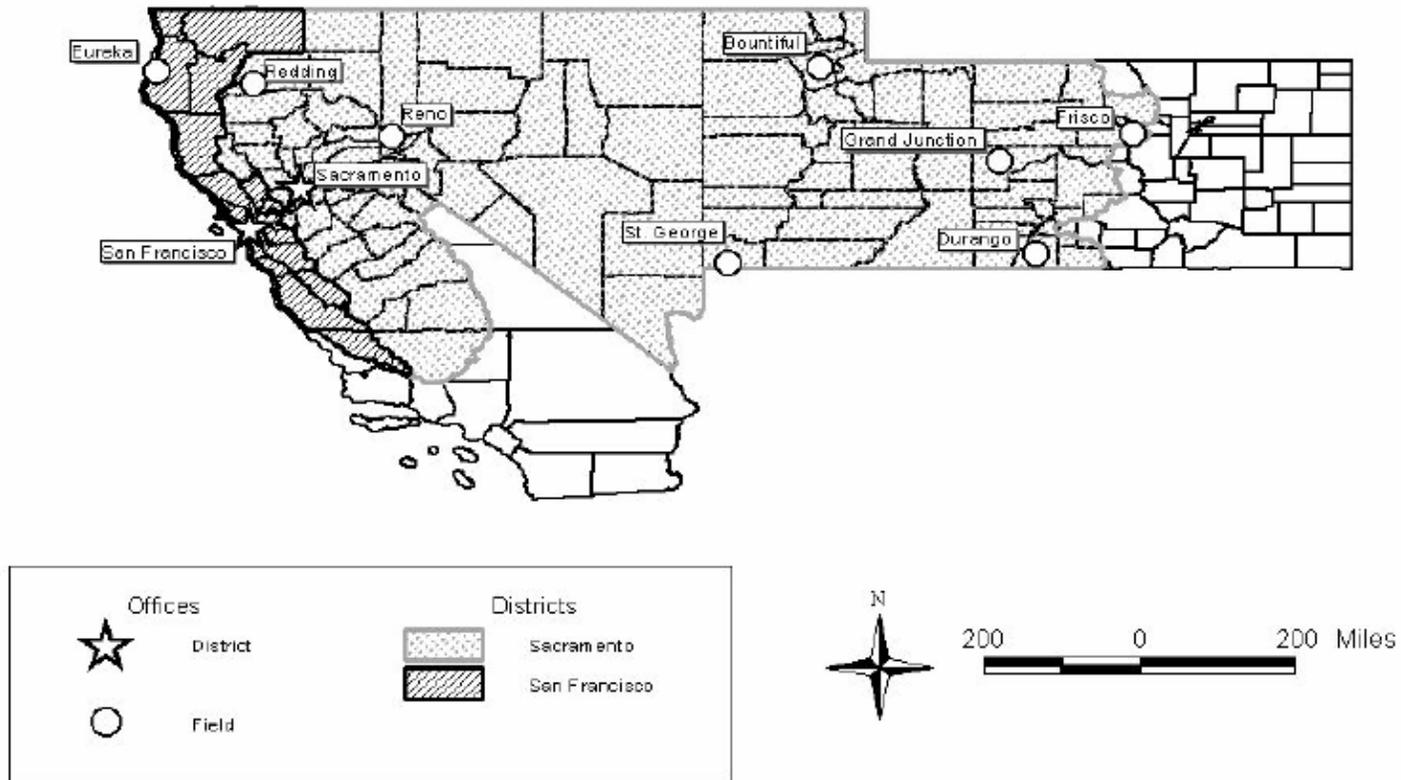
1. **Notification** – When the required monitoring period is complete and the permittee believes that the final success criteria have been met, the permittee shall notify the Corps when submitting the proposed final report. For mitigation plantings, final success criteria will not be considered met until a minimum of two years after all maintenance (e.g. irrigation, replanting, rodent control, fertilization) has ceased.
2. **Corps Confirmation** - Following receipt of the proposed final report, the Corps will either confirm the successful completion of the mitigation obligation or require additional years of monitoring. The permittee is not released from any mitigation obligation until written notice of completion is received from the Corps.

## **K. Long-Term Management**

1. **Property Ownership** - Identify the owner of the mitigation site following completion of mitigation monitoring period.
2. **Management Plan**
  - a. **Resource Manager.** Identify the entity that will provide the resource management for the site following mitigation sign-off.
  - b. **Management Approach.** The long term management plan should describe any proposed grazing, fencing, fire-management activities, provisions for public access, invasive exotic plant control program (if applicable), annual reporting, and any other proposed activities.
3. **Site Protection** - Long-term site-protection mechanism (e.g., ownership by conservation organization, conservation easement, etc.) should be included. Indicate responsible parties and funding mechanism. A Property Analysis Record (PAR) analysis or similar method should also be used to determine how much money will be needed to manage the property over the long term. The long-term manager should be in agreement with the amount provided.

# Sacramento & San Francisco District Boundaries & Offices

September 15, 2004



## **APPENDIX A1. RECOMMENDED PROPOSAL CONTENTS**

### **A. Table of Contents**

### **B. Responsible Parties**

- 1. Applicant/Permittee*
- 2. Applicant's Designated Agent*
- 3. Preparer(s) of the Proposal/Plan*

### **C. Project Requiring Mitigation**

- 1. Location*
- 2. Brief Summary of Overall Project*
- 3. Site Characteristics:*
  - a. Jurisdictional Areas*
  - b. Aquatic Functions*
  - c. Habitat Types*
  - d. Hydrology/Topography*
  - e. Soils/Substrate*
  - f. Vegetation*
  - g. Threatened/Endangered Species*

### **D. Mitigation Design**

- 1. Location*
- 2. Basis for Design*
- 3. Characteristics of Design Reference Site (if different from impact site):*
  - a. Jurisdictional Areas*
  - b. Aquatic Functions*
  - c. Hydrology/Topography*
  - d. Soils/Substrate*
  - e. Vegetation*
- 4. Proposed Mitigation Site*
  - a. Location*
  - b. Ownership Status*
  - c. Jurisdictional Areas (if any)*
  - d. Aquatic Functions (if any)*
  - e. Hydrology/Topography*
  - f. Soils/Substrate*
  - g. Vegetation*
  - h. Present and Historical Uses of Mitigation Area*
  - i. Present and Proposed Uses of All Adjacent Areas*

## **5. Created/Restored Habitat(s)**

- a. *Compensation Ratios*
- b. *Long-Term Goal(s)*
- c. *Aquatic Functions*
- d. *Hydrology/Topography*
- e. *Soils/Substrate*
- f. *Vegetation*

## **E. Success Criteria and Monitoring**

### **1. Success Criteria**

### **2. Monitoring**

- a. *Methods*
- b. *Monitoring Schedule*
- c. *Photo-Documentation*

## **F. Implementation Plan**

### **1. Site Preparation**

- a. *Grading Implementation*
- b. *Avoidance Measures*
- c. *Soil Disposal*
- d. *Soil Treatment*
- e. *Pest Plant Removal*
- f. *Construction Monitor*

### **2. Planting/Seeding**

- a. *Planting Plan*
- b. *Nature and Source of Propagules*

### **3. Irrigation**

### **4. Implementation Schedule**

## **G. Maintenance during Monitoring Period**

### **1. Maintenance Activities**

- a. *Overall*
- b. *Pest Species Control*

### **2. Maintenance Schedule**

## **H. Proposed Monitoring Reports**

- 1. Due Dates**
- 2. As-Builts**
- 3. Annual Reports**
  - a. File Number*
  - b. Contents*
    - i. Years of full monitoring
    - ii. Years of partial monitoring, where required
    - iii. Final monitoring report

## **I. Potential Contingency Measures**

- 1. Initiating Procedures**
- 2. Contingency Funding Mechanism**

## **J. Completion of Mitigation Responsibilities**

- 1. Notification**
- 2. Corps Confirmation**

## **K. Long-Term Management Plan**

- 1. Property Ownership**
- 2. Management Plan**
  - a. Resource Manager.*
  - b. Management Approach.*
- 3. Site Protection**

**APPENDIX A2. SUMMARY LIST OF MAPS, TABLES, AND SCHEDULES FOR SUBMISSION WITH PROPOSALS** (This is a minimum list. It is only necessary to submit the items that apply to your project. Add additional items as needed.)

**A. Maps**

*1. Project Requiring Mitigation*

- a. Road Map
- b. USGS Map
- c. Approved Jurisdictional Map
- d. Habitat Map

*2. Mitigation Design – Reference Site*

- a. Road Map
- b. USGS Map
- c. Proposed Jurisdictional Map for Reference Site

*3. Mitigation Design – Mitigation Site*

- a. Road Map
- b. USGS Map
- c. Proposed Jurisdictional Map
- d. Vegetation/Habitat Map
- e. Plan View Showing Distance to and Location of Nearest Structures

*4. Mitigation Design - Created/Restored Habitat*

- a. Wetland Watershed Map
- b. Grading Plan
- c. Planting Plan

**B. Tables**

- 1. Impact Acreage*
- 2. Impact vs. Mitigation Acreage/Linear Feet*
- 3. Success Criteria*
- 4. Species to Be Planted*

**C. Schedules**

- 1. Monitoring*
- 2. Implementation*
- 3. Maintenance Inspections*

## **APPENDIX B. FORMAT INFORMATION**

### **A. Reports/Proposals**

#### 1. Headings

All cover, title page, or letter headings must contain the Corps File Number and the date of the document.

#### 2. Contributor Page

List all persons who prepared plan, did monitoring, and/or wrote or edited the text.

#### 3. Distribution Page

List names, titles, and companies/agencies of all persons receiving a copy of the report.

#### 4. Binding

All reports and proposals should be single, stand-alone, separately bound documents. Except for full-size drawings, all materials submitted should be, or be folded to, 8 ½" x 11". Do not submit reports in three-ring binders as they do not work with our filing system. Please bind your final submittal with this in mind.

### **B. Figure Format**

All maps and plans submitted should be legible, complete, clear, and at the appropriate scale. Each should include the following:

#### 1. Title Block.

#### 2. Date of Preparation.

#### 3. Date(s) of any Modifications.

#### 4. 1" Margin at Top of Sheet.

#### 5. North Arrow (Plan Views).

The orientation of the map on the page (as it is read) should be the same for all maps submitted. By convention, North will normally be toward the top of the page.

#### 6. Scale.

Base topo maps should be full-sized (1 inch = 100 feet or less, 1 inch = 200 feet for very large projects).

#### 7. Datum.

Reference elevation datum must be indicated on both plan and section views.

## 8. Jurisdictional Boundaries

Tidal waters – MLLW, MHW, HTL

Non-tidal waters (stream channels) – OHW

Wetlands – boundaries

## 9. Legend

Identify all symbols, patterns or screens used. If color figures are used, information should be understandably presented in a form that is reproducible in black and white.

## APPENDIX C. MONITORING REPORT OUTLINE

### I. Monitoring Report Content

#### *A. Project Information*

1. Project name
2. Applicant name, address, and phone number
3. Consultant name, address, and phone number (if appropriate)
4. Corps permit file number
5. Acres of impact and type(s) of habitat impacted
6. Date project construction commenced
7. Indication of mitigation monitoring year (i.e. first, second, third, etc.)
8. Amount and information on any required performance bond or surety, if any

#### *B. Compensatory Mitigation Site Information*

1. Location of the site (regional map may be appropriate)
2. Specific purpose/goals for the compensatory mitigation site
3. Date mitigation site construction and planting completed
4. Dates summary of previous maintenance and monitoring visits
5. Name, address, and contact number of responsible parties for the site
6. Summary of remedial action, if any

#### *C. Location Map*

#### *D. Site Map* (usually no larger than 11 x 17 unless a different scale is requested by the project manager).

The map should include the following information:

1. Habitat types as described in the approved mitigation plan
2. Locations of any photographic record stations
3. Landmarks
4. Location of sample points

#### *E. List of Corps-Approved Success Criteria*

#### *F. Tabulated Results of Monitoring Visits, Including Previous Years, Versus Success Criteria*

#### *G. Summary of Field Data Taken to Determine Compliance with Success Criteria*

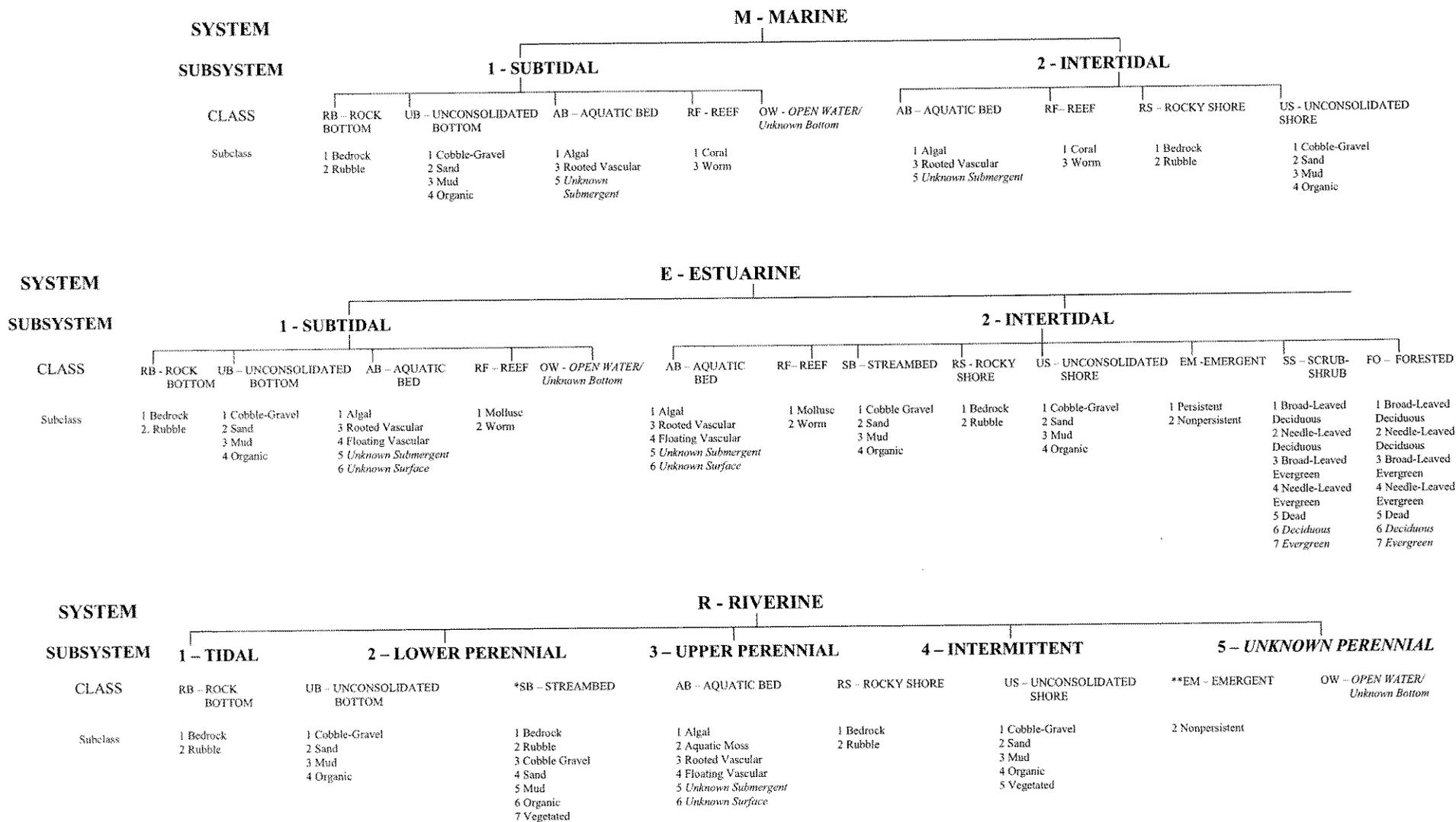
#### *H. Problems Noted and Proposed Remedial Measures*

### II. Appendices

**A. Original Data Sheets and Technical Appendices**, as required by the Corps project manager

**B. Photographic Record of the Site** during most recent monitoring visit at record stations

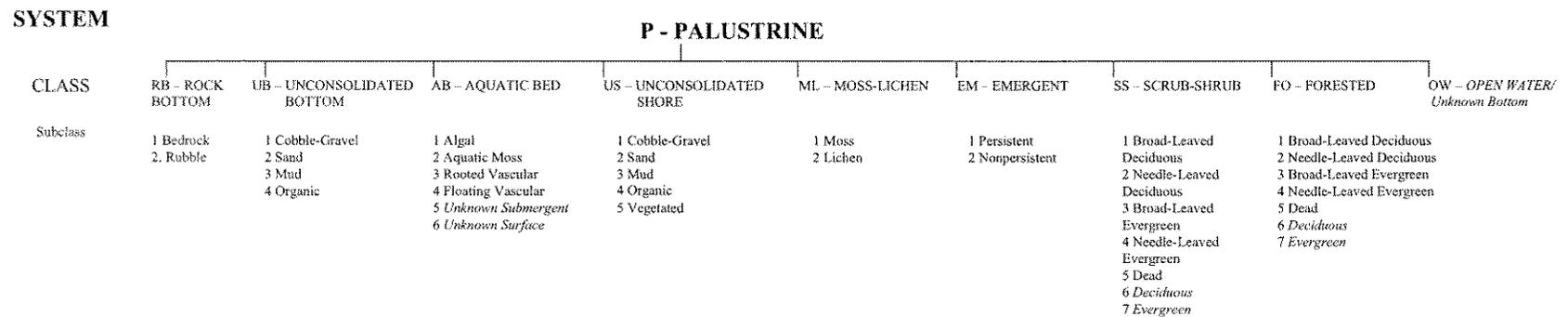
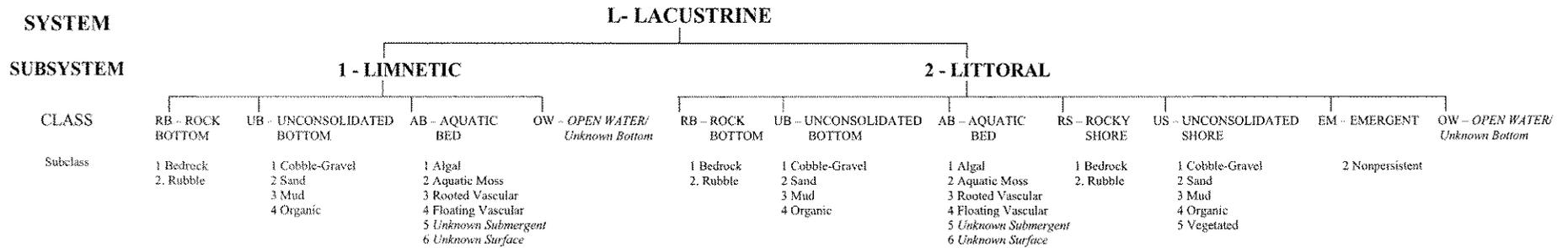
# WETLANDS AND DEEPWATER HABITATS CLASSIFICATION



\* STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.  
 \*\* EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS.

Classification of Wetlands and Deepwater Habitats of the United States  
 Cowardin ET AL. 1979 as modified for National Wetland Inventory Mapping Convention

# WETLANDS AND DEEPWATER HABITATS CLASSIFICATION



MODIFIERS									
In order to more adequately describe the wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.									
WATER REGIME			WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS		
Non-Tidal		Tidal	Coastal Salinity	Inland Salinity	pH Modifiers for all Fresh Water				
A Temporarily Flooded	H Permanently Flooded	K <i>Artificially Flooded</i>	1 Hyperhaline	7 Hypersaline	a Acid	g Organic	b <i>Beaver</i>	h <i>Diked/Impounded</i>	
B Saturated	J Intermittently Flooded	L Subtidal	2 Euthaline	8 Eusaline	1 Circumneutral	n Mineral	d <i>Partially Drained/Ditched</i>	r <i>Artificial Substrate</i>	
C Seasonally Flooded	K <i>Artificially Flooded</i>	M Irregularly Exposed	3 Mixohaline ( <i>Brackish</i> )	9 Mixosaline	i Alkaline		f <i>Farmed</i>	s <i>Spoil</i>	
D <i>Seasonally Flooded/Well Drained</i>	W Intermittently Flooded/Temporary	N Regularly Exposed	4 Polyhaline	0 Fresh				x <i>Excavated</i>	
E <i>Seasonally Flooded/Saturated</i>	Y Saturated/Semipermanent/Seasonal	P Irregularly Flooded	5 Mesohaline						
F Semipermanently Flooded	Z Intermittently Exposed/Permanent		6 Oligohaline						
G Intermittently Exposed	U <i>Unknown</i>		0 Fresh						
*These water regimes are only used in tidally influenced, freshwater systems.									

NOTE: Italicized terms were added for mapping by the National Wetlands Inventory program.



# **F. Section C of the Mitigation Guidelines and Monitoring Requirements for the Portland District**



# MITIGATION GUIDELINES AND MONITORING REQUIREMENTS

Interested parties are hereby notified the following Mitigation Guidelines and Monitoring Requirements will be applied throughout the Portland District (District) of the U.S. Army Corps of Engineers (Corps). The District encompasses the State of Oregon and State of Washington Ports located on the Columbia River from the Port of Ilwaco to Port of Klickitat.

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Corps and U.S. Environmental Protection Agency (EPA) regulations (33 CFR 320-330 and 40 CFR 230) authorize the Corps to require compensatory mitigation for unavoidable impacts to wetlands and other jurisdictional “waters of the U.S.” The Corps is aware of challenges associated with past compensatory mitigation sites and is committed to improving the success of future compensatory mitigation projects. These Mitigation Guidelines and Monitoring Requirements are designed to assist the regulated public with all aspects of the mitigation process and to provide information to ensure future compensatory mitigation sites successfully replace lost functions and values associated with regulated impacts to waters of the U.S.

These Guidelines are to be applied by the regulated public and by Regulatory Branch Project Managers for activities within the Portland District. These Guidelines were developed in conjunction with EPA, U.S. Fish and Wildlife Service (FWS), National Oceanic and Atmospheric Administration- National Marine Fisheries Service (NOAA Fisheries) and other resource agencies using experience, and field investigations. The Guidelines aim to improve the success of compensatory mitigation projects.

## I. INTRODUCTION

### A. PURPOSE

These Guidelines outline the approach the regulated public will follow in examining mitigation for project impacts, guidance on preparing compensatory mitigation and monitoring plans for unavoidable impacts to the aquatic environment including development of performance

standards and final success criteria, and the elements required to prepare monitoring reports for compensatory mitigation sites. This document is divided into two parts to address the difference between mitigation and monitoring.

The Mitigation Guidelines (Section II) have been prepared using experience of District and other federal resource agency staff and published scientific data. This information is intended to assist the regulated public in preparing adequate compensatory mitigation and monitoring plans and implementing successful compensatory mitigation projects.

The second part of the document (Section III) focuses on Monitoring Requirements. Monitoring reports will be submitted to the Corps in all cases where the Corps requires the construction of compensatory mitigation projects. A well-conceived and executed monitoring program is essential to identify and remedy problems that can reduce the success of compensatory mitigation projects. All compensatory mitigation projects will be subject to compliance inspections by Corps Project Managers.

### B. MITIGATION POLICY

The Corps and the EPA formulated policy and procedures to be used in determining the mitigation necessary to demonstrate compliance with the Clean Water Act Section 404(b)(1) Guidelines (40 CFR 230) (the Section 404(b)(1) Guidelines). This information is set forth in the “Memorandum of Agreement

(MOA) Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation under the Clean Water Act Section 404(b)(1) Guidelines,” dated February 7, 1990 (the Mitigation MOA).

The Section 404(b)(1) Guidelines limit the issuance of a permit to the activity or project design representing the least environmentally damaging practicable alternative (LEDPA) that is not contrary to the public interest. More specifically, the Section 404(b)(1) Guidelines state that no discharge of dredged or fill material shall be permitted if there is a practicable alternative available to the proposed discharge with less adverse impact on the aquatic ecosystem, if the alternative does not have other significant adverse environmental consequences. Practicability is defined in terms of cost, logistics, and existing technology in light of the overall project purpose. The burden to demonstrate compliance with the Section 404(b)(1) Guidelines rests with the permit applicant. For non-water dependent discharges into special aquatic sites, there is a presumption that less environmentally damaging practicable alternatives are available. If the applicant has complied with the Guidelines by first evaluating alternatives that would avoid impacts, and then taken appropriate and practicable steps to minimize adverse impacts to the maximum extent practicable, then compensatory mitigation is required for the unavoidable impacts.

Even in cases where a Corps-notifying General Permit (Nationwide Permit or Regional General Permit pursuant to 33 CFR 330) applies, the applicant will have to demonstrate avoidance and minimization of aquatic resource impacts. Granted, the demonstration required is typically less rigorous than for a Standard Permit. Nevertheless, if an applicant is required to notify the Corps regarding authorization under an existing General Permit, it is likely the Corps’s verification letter/notice to proceed will require compensatory mitigation. Clearly, the sequence of avoidance, minimization, and compensatory mitigation specified by the Section 404(b)(1) Guidelines and the Mitigation MOA is fundamental to the administration of the Corps' regulatory program.

### C. CORPS POLICY

As stated in the Mitigation MOA, the goal of the Clean Water Act and the Section 404(b)(1) Guidelines is to maintain and to restore the physical, chemical, and biological integrity of the Nation’s waters. The Corps strives to avoid or minimize adverse impacts to waters of the U.S., and to achieve a goal of no net loss of wetland functions and values. To achieve these goals, compensatory mitigation is generally required at a minimum 1:1 replacement ratio. In the past, the Corps has accepted acreage as a surrogate for functions and values because the former parameter is easier to measure. The proliferation of habitat assessment tools in recent years has allowed the Corps to utilize estimates of functions and values increasingly to determine replacement ratios. The replacement or mitigation ratio is often increased in consideration of a number of factors, including the scarcity and quality of the habitat to be impacted in consideration of the region or watershed, any temporal loss of aquatic habitat functions and values caused by a delay in the construction of a compensatory mitigation site, the cumulative effects of that portion of the project in the Corps’ scope of analysis in the context of past and reasonably foreseeable projects in the region or watershed, the use of a long-term irrigation strategy as a replacement for natural hydrologic processes, and the inclusion of an adequate margin of safety to reflect the expected degree of success associated with the compensatory mitigation plan.

Even with a margin of safety, compensatory mitigation often does not replace all functions and values lost at the impact site. Results from several studies as well as the experience of regulators throughout the U.S. underscore the importance of including an adequate margin of safety in determining the replacement ratio. The margin of safety included by the Corps can be reduced by completing compensatory mitigation in advance of, or concurrently with, the impact; demonstrating the success of past compensatory mitigation sites; showing the proposed compensatory mitigation will result in more overall benefit to the region or watershed to which the proposed impact site contributes; and ensuring the compensatory mitigation sites

are protected from subsequent loss or degradation (e.g., inclusion of permanent vegetated buffers around the site).

The Corps recognizes on-site compensatory mitigation is not always practicable or “best” for the aquatic resources. In many cases, sites elsewhere in the region or watershed offer higher potential gains in functions and values. The Corps’ Regulatory Branch is striving to transition from the historic paradigm of “piece-meal” or project-by-project permitting and mitigation decisions to a watershed or holistic approach. Toward this end, the Corps is more involved in working with the public to develop mitigation banks and in-lieu fee mitigation programs, which offer means of compensating for individual project impacts on a larger scale. The Corps favors the use of approved mitigation banks or in-lieu fee programs in cases where they result in more regional or watershed benefit than on-site compensatory mitigation.

The District is considering the possibility of using a fee-in-lieu program to satisfy compensatory mitigation requirements within the District. There are six existing mitigation banks approved by the District for sales of credit.

The applicant should contact the Corps as early in the project development process as possible. The applicant should never purchase sites or finalize plans before the Corps has reviewed and approved of the compensatory mitigation concept. It is important to note that payments made prior to the Corps permit decision are generally considered "sunk" costs, and regulatory guidance requires Corps Project Managers exclude these costs in the evaluation of the practicability of a project or the associated compensatory mitigation plan. Likewise, payments by developers to an Assessment District, which can be based on assumptions of the number of housing units per area, to facilitate construction of schools, roads, and other infrastructure are generally treated by the Corps as "sunk" costs in evaluating practicability of project alternatives. These assumptions are speculative and are often determined without consulting with the regulatory agencies to determine if they are permissible in consideration of the environmental resources potentially present.

Compensatory mitigation may be required for most Corps authorizations. For Standard Permit applications, the applicant can submit a conceptual mitigation plan along with the formal application materials. This plan should focus on discussing the mitigation concept(s); not providing a fully developed mitigation and monitoring plan with implementation, maintenance, and monitoring protocols. It should include a summary of how on-site impacts would be avoided and minimized, and why the applicant believes the remaining, proposed impacts would be adequately compensated. Generally, a fully developed draft compensatory mitigation and monitoring plan should not be prepared until the Corps has accepted a final jurisdictional map, which must also identify project impacts, and has agreed the conceptual mitigation plan would likely compensate for the proposed impacts. At this juncture, the Corps will typically discuss with one or more of the resource agencies the likely efficacy of the proposed compensatory mitigation. In general, the final compensatory mitigation and monitoring plan should not be submitted until after public comment period closes and the Corps has made a preliminary determination of compliance with the Section 404(b)(1) Guidelines. For Letters of Permission, the Corps may or may not require compensatory mitigation; the Corps should be contacted prior to the submittal of an application to determine if compensatory mitigation would likely be required. If an applicant requests verification of a project's authorization under an existing Nationwide Permit or a Regional General Permit, and proposes compensatory mitigation, a draft compensatory mitigation and monitoring plan must be submitted with the request for verification. The applicant should contact the Corps as soon as possible to ascertain whether compensatory mitigation will be required.

The final submittal of a compensatory mitigation and monitoring plan should be in a SINGLE document. It should contain up-to-date versions of all materials, even if other versions were submitted

earlier in the application process. It should include the preparer's identity (if not the applicant) and the date of the final submission.

#### D. PROTECTION OF COMPENSATORY MITIGATION SITES

The Corps may require in-perpetuity protection of compensatory mitigation sites. The decision whether to require in-perpetuity protection has been based on several factors, such as the quantity and quality of the resources at the impact site and the compensatory mitigation site, and their importance to the region or watershed. Regulatory Guidance Letter 02-2, issued December 24, 2002, encourages in-perpetuity protection for compensatory mitigation sites. The Corps will continue to require in-perpetuity protection for compensatory mitigation sites when appropriate. In-perpetuity protection typically occurs through the recordation transfer of title to an approved land trust, a conservation easement or a deed restriction, or in unusual cases, the recordation of a development's covenants, codes, and restrictions.

#### E. PERSONS TO CONTACT WITH QUESTIONS

For answers to questions regarding the interpretation of these Mitigation Guidelines and Monitoring Requirements or acceptable compensatory mitigation for a specific project, contact the Corps Project Manager responsible for your area of interest:

Portland District Office	(503) 808-4371 or (503) 808-4373
Eugene Field Office	(541) 465-6868
LaGrande Field Office	(541) 962-0401
Coos Bay Field Office	(541) 756-5316

The Corps Portland District Regulatory Branch website also provides important information regarding Corps jurisdiction, processing of permit applications, and mitigation:

<https://www.nwp.usace.army.mil/op/g/>

## II. MITIGATION GUIDELINES

After the applicant has demonstrated maximum practicable avoidance and minimization of project impacts to waters of the U.S., the Corps will determine whether compensatory mitigation for the unavoidable impacts is required. There are often many options for providing compensatory mitigation but the applicant should investigate and consider Corps-approved mitigation banks and in-lieu fee programs serving the area where the proposed impacts would occur. On-site compensatory mitigation could be impracticable if the established, restored, enhanced, and/or preserved habitat would be isolated, of small acreage, or experience substantial changes in hydrologic condition over the long term. With many Corps-approved mitigation banks and in-lieu fee mitigation programs, the responsible entity (e.g., conservancy) has analyzed the type(s) of habitat and location(s) benefiting the region or watershed(s) within the bank or program's service area. In these cases, the purchase of mitigation credits in existing banks or the payment of in-lieu fees could provide a more practicable option, which could also enhance the regional or watershed's aquatic resources. However, the Corps will make the final decision whether to accept purchase of credits from a Corps-approved mitigation bank or in-lieu fee mitigation program, after examining all relevant habitat considerations, including landscape-level issues such as wildlife corridors and water quality.

Compensatory mitigation will proceed through several stages if satisfying the requirement involves the construction of a compensatory mitigation project. There are specific issues the applicant must address at each stage in the process to increase the probability of a successful compensatory mitigation project. The key stages in the development of a compensatory mitigation project are:

- A. Project Site Impact Assessment
- B. Compensatory Mitigation Site Selection

- C. Compensatory Mitigation Site Design
- D. Compensatory Mitigation Site Construction
- E. Long-Term Compensatory Mitigation Site Maintenance and Monitoring

Within each of these areas, the Corps has identified concerns the applicant needs to consider when preparing draft and final compensatory mitigation and monitoring plans. The Corps strongly recommends all applicants follow the format of the attached Mitigation Plan Checklist. An Annotated Checklist is provided for additional background on what the Corps will consider during review of mitigation proposals.

#### A. Project Site Impact Assessment.

An important aspect of any permit application is the assessment of the project site before impacts occur. An adequate assessment of the current functions and values before the construction of the project is important for determining the relative importance of the aquatic resources to the site and to the region or watershed. Assessment results can provide a basis for modifying pre-construction plans to avoid and/or minimize impacts to these resources. This assessment should be completed before the proposed project is designed or the proposed compensatory mitigation site is selected.

The applicant will choose the site assessment method. A list of functional assessment methods will be available at on the Corps's Regulatory website (<https://www.nwp.usace.army.mil/op/g/>).

#### B. Compensatory Mitigation Site Selection

1. The selection of an appropriate site to construct a compensatory mitigation project has been one of the most neglected aspects of compensatory mitigation planning. In the past, many applicants have relied on project economics to choose compensatory mitigation sites, without considering the underlying physical characteristics. Site selection should include and prioritize, but not be limited to, the following criteria, which relate to aspects of the physical environment.

This guidance recognizes that in some circumstances wetlands must be actively managed to ensure their viability and sustainability. Furthermore, long-term maintenance requirements may be necessary and appropriate in some cases (e.g., to maintain fire-dependent plant communities in the absence of natural fires; to control invasive exotic plant species). Proposed mitigation techniques should be well-understood and reliable. When uncertainties surrounding the technical feasibility of a proposed mitigation technique exist, appropriate arrangements (e.g., financial assurances, contingency plans, additional monitoring) should be in place to increase the likelihood of success. Such arrangements may be phased out or reduced once the attainment of prescribed performance standards is demonstrated.

a. *Natural Hydrology.* The National Research Council's Compensating for Wetland Losses Under the Clean Water Act (2001) stated that hydrological conditions, including variability in water levels and flow rates, are the primary driving force influencing wetland development, structure, functioning, and persistence. Without a naturally variable source of water (e.g., stream, lake, tidal action), many of the hydrologic functions or processes will occur at low levels throughout the life of the habitat. Lack of a natural water source or hydrological equivalence between the impact site and the compensatory mitigation site has been the number one physical factor leading to the low rate of success of past compensatory mitigation projects.

Natural hydrology is the most important factor in the development of successful mitigation. Wetlands and other waters are very dynamic, and dependent on natural seasonal and yearly variations unlikely to be sustainable in a controlled hydrologic environment. Artificial structures and mechanisms should be used only temporarily. Complex engineering and solely artificial mechanisms to maintain water flow normally will not be acceptable in a mitigation proposal. In those sites where an artificial water source (irrigation) has been used to attempt to simulate natural hydrology there are several

problems that lead to reduced likelihood of success. First, artificial irrigation does not provide the dynamic and variable nature of water flow normally found in wetlands or riparian systems. Second, the lack of seasonal flows limits the transport of organic matter into and out of the wetland or riparian system. Without any inflow, the net result of artificial irrigation is transport of organic material out of the system. Third, depending on the timing, the use of flood or sprinkler systems on newly created or restoration sites often promotes the germination and growth of exotic plant species.

Natural hydrology can be exceedingly difficult to establish. The successful determination of proper hydrology will require analysis of existing conditions in reference sites and hydrologic testing of the possible compensatory mitigation sites. This testing may include an examination of groundwater availability, frequency of flooding, depth/duration/timing of flooding, and determination of tidal ranges in estuarine and marine areas. Modification of hydrologic characteristics should be kept to a minimum with the stated goal to have the site be hydrologically and hydraulically self-sustaining and require little or no long-term maintenance. A reliable estimate of the water budget for the site is essential.

The Corps does not consider compensatory mitigation projects primarily supported by long-term irrigation to be viable mitigation projects. Therefore, applicants should weigh the potential investment costs of acquiring suitable land adjacent to existing channels, lakes, or other natural water feature for restoration or enhancement relative to establishment projects in upland environments, which will likely involve higher costs (considering the additional mitigation and the risk of failing to meet the Corps' success criteria). Applicants should carefully consider expanding efforts to avoid and minimize on-site impacts and to attempt to submit plans for self-sustaining compensatory mitigation sites along natural water features, such as stream channels. Applicants must weigh the potential investment costs of acquiring land suitable for restoration versus creation projects in upland environments that will likely involve higher long-term costs and greater risks of mitigation site failure.

Because compensatory mitigation sites primarily supported by long-term irrigation tend to be less successful, the Corps strongly discourages the use of long-term irrigation as the main water source. Short term (i.e., 1-3 years) irrigation sufficient to establish plant roots is not discouraged, and is, in some circumstances (e.g. arid environments), essential to establishing vegetation.

b. *Soil Characteristics.* Many past compensatory mitigation projects did not address the development of suitable soils. This neglect is somewhat understandable due to the varied nature of soils and the past emphasis on non-wetland compensatory mitigation. Examination of existing reference sites will provide important information on the development of suitable soils for future sites. It is also critical to understand that development of suitable soils is linked to the establishment of natural hydrology. In sites with long-term irrigation as the primary source of hydrology, the placement of large amounts of relatively clean water onto the site results in the net removal of organic material without replacement. This would slow the development of organic soils, which has been noted in several compensatory mitigation sites. If a goal of the compensatory mitigation project is wetland development, organic material will be necessary to foster the development of hydric soil indicators. Mycorrhizal soil injections should be considered in some cases, particularly where establishment projects are attempted in areas without appropriate soil conditions. In the case of in-kind compensatory mitigation for wetlands, soils from the impacted aquatic habitat should be collected and used at the compensatory mitigation site. It is also essential that soils at the compensatory mitigation site not be excessively compacted; excessive compaction can drastically limit plant growth. In some cases, it might be necessary to rip or scarify the soil after cessation of grading activities.

c. *Invasive plant species.* Invasive plants can be detrimental to a mitigation site. When selecting a site, investigate neighboring properties for the presence of non-native, invasive plant species. A characteristic of invasive plants is their ability to colonize an area and out compete native species.

Invasive species must be controlled within the mitigation site. An upstream site that is heavily infested with non-native, invasive plant species may provide a consistent source of invasive species to the proposed mitigation site and make attainment of success criteria difficult to achieve.

b. *Wildlife Corridors*. The goal is development of compensatory mitigation projects adjacent to existing high-functioning habitats. Even more desirable would be the construction of a compensatory mitigation site linking two or more habitats which had been previously separated. The use of spatial analysis tools (GIS) on a regional basis could provide valuable assistance in the choice of preferable locations for compensatory mitigation sites. The distance to the nearest area of native vegetation forming a contiguous link to larger habitat complexes would be an important consideration in the width of the corridor, the value of the habitat to the local wildlife, and the final mitigation ratio.

3. Generally, the physical characteristics of the sites considered determine whether establishment (i.e., creation), restoration, enhancement, or, more rarely, preservation are viable compensatory mitigation options. The categories of compensatory mitigation, as defined by Lewis (1990) are:

*Restoration*: return to a pre-existing condition.

*Establishment (creation)*: conversion of a persistent non-wetland habitat into wetland (or other aquatic) habitat. Two subdivisions are recognized: Artificial (i.e., irrigation required) or self-sustaining.

*Enhancement*: increase in one or more functions due to intentional activities (e.g., plantings, removal of non-native vegetation, hydrologic manipulation).

*Passive Re-vegetation*: allow a disturbed area to naturally re-vegetate without plantings.

Regulatory Guidance Letter 02-2 uses the term establishment instead of creation. The former term will be used in this document for consistency with this Corps Headquarters' guidance. Restoration projects have the greatest potential of success because, in theory, the full suite of functions previously existed at the site. Establishment projects have the highest risks since establishing aquatic habitat in an area where it did not previously exist is a difficult proposition. Therefore, pure wetland creation will be evaluated using very stringent criteria before being approved for use as compensatory mitigation for project impacts. Some projects may include creation as part of an overall mitigation effort involving restoration, enhancement, and/or preservation (e.g., as in a proposed mitigation bank). In these cases, evaluation will be based on the entire proposal and its location in the watershed. Enhancement projects generally receive less compensatory mitigation credit, because enhancement targets particular functions instead of the full suite of functions performed by that habitat type. When enhancement is accepted, the Corps will require the enhancement improve as many of the functions as possible. Preservation as compensatory mitigation is rarely accepted unless it is combined with restoration, enhancement, or establishment projects sufficient to ensure "no net loss" of functions and values. Preservation is essentially avoidance, which is required under the Mitigation MOA and the Section 404(b)(1) Guidelines. Preservation is accepted on occasion, when particularly rare or valuable aquatic habitat is threatened by anthropogenic activities.

### C. Compensatory Mitigation Site Design

1. Design of the compensatory mitigation project is highly dependent on the site selected. As discussed in the previous section, interaction with a natural source of hydrology is essential to the development of a high-functioning, sustainable compensatory mitigation site. Therefore, the design should focus on ensuring this interaction emulates what is occurring at reference (i.e., high-functioning) sites for the target habitat type(s) and not interfere with existing, adjacent water systems. The factors used in the preliminary design of the compensatory mitigation site should have a functional assessment basis. If the HGM Approach is used, the applicable Regional HGM Guidebook will provide most of the critical elements (system attributes or variables and functions) that need to be addressed for that habitat type in

the compensatory mitigation plan. If the variables or functions are included in the design, it will be much easier to develop success criteria for the final compensatory mitigation project.

2. There are several important features to any successful compensatory mitigation design or plan. Each aspect of the plan must be identified in detail and explained clearly. Although there may be variation in the number of items required for a particular plan, those identified below are considered the minimum items needed in a mitigation plan. When preparing a draft or final compensatory mitigation and monitoring plan, the Corps strongly recommends the regulated public follow the general format provided in the Mitigation Plan Checklist.

a. *Clearly define the purpose of the compensatory mitigation project.* The purpose of the compensatory mitigation project must be clearly identified and include specific statements about the type(s) of habitat (and associated functions and values) to be impacted by the construction project, the functions and values to be replaced at the proposed compensatory mitigation site, and any other desired functions and/or values (e.g., habitat for federally listed threatened or endangered species). Clearly written purpose statements will provide important information for the development of useful performance standards and success criteria and the approval of the compensatory mitigation and monitoring plan.

b. *Develop a comprehensive hydrology component.* This component should include information about any existing channels, historic flow rates, surface and groundwater level fluctuations, tidal regimes (if relevant), and topography of the compensatory mitigation site (i.e., before and after any proposed grading). Clearly identify the source(s), quality, and quantity of water including temporal aspects of any irrigation plan, which may be required in the first few years (i.e., short-term irrigation) of implementing the compensatory mitigation to foster vegetation establishment. Provide information about the average amount of water and the variability of this water available to the site during a standard year. If available, include information on the depth of the water table and its variability throughout the year. Project success depends on having sufficient knowledge about the depth, duration, and timing of water delivery to the compensatory mitigation site - will the water budget at the site support the intended habitat type(s)? This issue is especially important if wetland establishment is a goal.

c. *Develop a complete grading plan making use of the hydrology data.* Evaluate the grading plan for possible areas of scour and/or deposition of sediment. In many aquatic areas, such as riverine systems, scour and deposition are fundamental and dynamic processes and should not be precluded. However, it would be illogical to plant areas actively scoured or filled, such as an active stream channel. Modify the grading plan as necessary to establish areas for planting that are progressively less subject to regular scour (i.e., higher terraces or elevations) and deposition (use adjacent, less-disturbed habitat as a reference). For riverine habitat, secondary or higher-flow channels can also be excavated on terraces closer to the active channel. For estuarine marsh compensatory mitigation sites, changes in sea level (e.g., global warming) and subsidence (e.g., metabolism of soil organic matter) are key considerations for the long-term development and success of these sites. For all habitat types, plenty of micro- and macro-topographic variation should be incorporated into the design and specified in the grading plan; this variation is important to maximizing habitat variability. Again, examine adjacent or nearby less-disturbed habitat as a reference.

d. *Determine the Adequacy of the Soils to Support the Target Habitat Types.* Identify the soil type(s) onsite before and after grading. If establishment of jurisdictional wetlands is a goal, it is important to consider whether the soils are of the appropriate texture to support wetlands. Does the NRCS Soil Survey indicate hydric soils occur at the site, or that hydric soil inclusions can occur in the soil type(s)? If not, addition of clay or silt might be necessary to reduce the soil's permeability. Determine whether other soil amendments will be necessary for long-term habitat development (e.g., organic matter, nitrogen, etc.). If amendments will be required, determine the most effective methods of nutrient delivery over the long-term.

e. *Develop a draft plant palette based on the compensatory mitigation project purpose, soil types, and hydrology.* Identify tree, shrub, and herbaceous species to be planted, the source of the material, and the number and size of individual plants. Plant stock should be obtained from areas as near to the compensatory mitigation site as possible, to preserve the genetic integrity of the area. Plant understory species during the initial site planting (typical) or at a later date when the canopy cover has reached a specified level. If the understory is planted later (atypical), it might be necessary to fell a few trees to create openings in the canopy for these new plants to survive. The Corps strongly recommends felled trees remain at the mitigation site (along the ground) to serve as a source of decaying coarse woody debris, which is important to systemic nutrient cycling. Vegetation should be planted in clusters and islands emulating regional reference (i.e., high-functioning) sites; they should not be planted in rows nor spaced at regular distances.

In addition to plant types, the proposed irrigation strategy should consider soil type(s), hydrology, and other relevant factors. Develop a plan to wean plants from irrigation (if irrigation is required to establish plants) and a monitoring scheme to maintain plant hydration. Examine the possibility of mixing lower-cost plant material (cutting of local plants) with a small number of larger container stock to develop vertical heterogeneity (strata). These recommendations are designed to avoid the establishment of tree farms (e.g., large numbers of same-age trees planted in regular rows on six-foot centers).

f. *Propose realistic success criteria based on the purpose of the compensatory mitigation, design of the site, and functional assessment criteria.* Develop measurable, realistic success criteria, consistent with the purpose and goals of the compensatory mitigation project, that are achievable by the end of the maintenance and monitoring period (generally five years after compensatory mitigation implementation, but longer periods may be required). Include measurable and realistic performance standards and what methods will be used to track progress toward achieving the approved success criteria. Commonly used success criteria in compensatory mitigation projects have included percent canopy cover, percent plant survival, percent of distinct native species, percent canopy cover of non-native species, plant heights, and occurrence/nesting of target wildlife species. Functional assessment criteria, such as HGM variables and functional algorithms, may also be used to evaluate compensatory mitigation progress and success. These criteria, when available, provide a reliable and objective means of evaluating the capacity of the area to perform ecosystem functions. Development of appropriate success criteria is the single most important element in the development of a successful compensatory mitigation monitoring program. Involve the Corps as early as possible to develop specific, measurable performance standards (to track progress during the maintenance and monitoring period) and success criteria. Example success criteria will

be posted on the Portland District Regulatory website (<https://www.nwp.usace.army.mil/op/g/>).

*g. Develop a Specific Maintenance and Monitoring Program Including Contingency Measures.* Detail how often and when the compensatory mitigation site will be monitored and by whom, and the dates monitoring reports will be provided to the Corps. Also provide specifics regarding the type and timing of maintenance activities at the compensatory mitigation site and the responsible parties. Describe the conditions that would necessitate the responsible parties to undertake contingency measures, and what sources of funding and alternate compensatory mitigation sites are available to ensure the required compensatory mitigation occurs successfully.

3. Once the applicant has developed a draft compensatory mitigation and monitoring plan using the items listed above, it should be submitted to the Corps for review. The Corps will evaluate the draft compensatory mitigation and monitoring plan for approval during permit processing. The Corps prefers the compensatory mitigation site be constructed prior to or concurrently with the project construction. If the compensatory mitigation project will not replace impacted functions and values until after project impacts, the Corps may increase the replacement ratio, to minimize temporal losses of functions and values associated with project impacts.

#### D. Compensatory Mitigation Site Construction

1. The applicant should not begin construction until the Corps approves the final compensatory mitigation and monitoring plan. Construction efforts for each individual compensatory mitigation site will be dependent on the size of the site, the type of compensatory mitigation (in general, establishment involves much more work than enhancement of existing habitat), the amount of earthwork required, and the complexity of the compensatory mitigation and monitoring plan. The major effort by the applicant during this phase of the project would be to monitor construction activities and to ensure all aspects of the compensatory mitigation and monitoring plan are completed without incident. This process will normally require on-site management of construction personnel by one or more of the applicant's representatives, who have complete knowledge of the compensatory mitigation and monitoring plan and some understanding of soil science, hydrology, botany, horticulture, or plant ecology. Sensitive areas should be staked or flagged to preclude unauthorized construction impacts. The permittee is responsible for the successful implementation of the compensatory mitigation project, and any significant deviations identified during construction must be approved by the Corps. The most important items that should be monitored include:

*a. Prior removal of exotic plant species during site preparation.* One of the major expenses during the maintenance phase of any compensatory mitigation project will be the continual battle against exotic plant species, as they invade the disturbed habitat. If the construction personnel remove the invasive plant material from the site during the initial grading instead of grading it under, there may be less need for intensive maintenance during later stages of the project.

*b. Monitor the planting strategy to ensure vegetation is not planted in linear rows at a regular distance and that onsite conditions will support the species planted over the long-term.* Many existing compensatory mitigation sites have the appearance of tree farms. These sites lack the complex habitat structure important to support a variety of wildlife and to perform hydrologic, biochemical, and habitat functions optimally. Ensure plant spacing at the compensatory mitigation site emulates what is observed at regional reference (i.e., high-functioning) sites. In addition, monitor the elevation of the different plant species and confirm these trees and shrubs are planted at the designed heights relative to the water source supporting them,

such as ground water. Confirm the plants are natural members of the surrounding community and not similar ornamental species. Confirm soil conditions (e.g., soil moisture, pH, salinity, organic matter, nitrogen, etc.) are within limits for species being planted.

*c. Monitor the construction activities to ensure habitat outside of the planned compensatory mitigation site is not impacted.* The use of heavy equipment may be needed to construct the site, and care must be taken to ensure equipment operators do not stray outside of the project boundaries. Brief the operators of heavy equipment on the location of sensitive habitat areas and the importance of avoidance.

#### E. Long-Term Compensatory Mitigation Site Maintenance and Monitoring

1. The maintenance and monitoring phase of the compensatory mitigation project begins immediately following grading and planting activities. This phase is crucial to the success of the project, as most compensatory mitigation projects do not develop as expected. Changes in hydrologic conditions, soil conditions, exotic plant species; invasions, disease or pest infestations of vegetation, wildlife browsing, and other problems can occur on newly established compensatory mitigation sites. Without a comprehensive maintenance and monitoring program, many of these minor problems can quickly spiral out of control and threaten the success of the compensatory mitigation site.

As discussed above, one of the most important issues with the maintenance and monitoring of compensatory mitigation sites is the ongoing control of invasive, non-native (or exotic) plant species. In Oregon, there are many invasive, non-native plant species that will readily colonize a recently disturbed site provided with extra water during the late spring and summer. A proactive program to remove invasive, exotic plants upon discovery would result in higher habitat functions on compensatory mitigation sites. It would also be less costly for the applicant to conduct these removal activities before the density of invasive species becomes a serious problem. Bi-weekly or monthly inspections of the site during the spring and early summer would allow removal of the immature exotic plants before reproduction and creation of a much larger problem. In many situations, the site is initially free of exotics, but an adjacent infested property acts as a source of seeds or propagules that continually invade the site.

2. An important aspect of the maintenance and monitoring phase of compensatory mitigation projects is ensuring appropriate depth, duration, and timing of water delivery to the site. For riparian compensatory mitigation sites, water availability can be monitored by noting flow in the channel, frequency and level of overbank flooding, length of soil saturation or inundation, and the groundwater levels throughout the year. For these systems, the amount of water and its seasonal availability is important to the type of habitat to be restored, enhanced, and/or established. Monthly monitoring (or even bi-weekly) of the site during the first two years may provide important information on site hydrodynamics to determine whether onsite vegetation communities will be stressed or die-off over the long term. It is recommended the applicant compare hydrologic information at the compensatory mitigation site to reference (i.e., high-functioning) sites in the region.

### III. MONITORING REQUIREMENTS

1. Monitoring reports will be required and identified as a special condition for every permit requiring compensatory mitigation. Written as formal conditions of Corps permits, monitoring reports will be subject to formal compliance efforts. Failure to submit complete and timely monitoring reports may result in an enforcement action by the Corps.

2. The permittee shall provide a baseline report to the Corps no later than December 31 of the year mitigation work is completed. The baseline report shall include “as-built” drawings depicting all

grading and plant installation in electronic format or hardcopy. The permittee shall provide annual monitoring reports to the Corps no later than December 31 of the year after the baseline report is due.

While monitoring reports will generally be required on an annual basis, a Corps Project Manager may require more frequent submittals of monitoring reports for specific projects. If a problem is identified within a monitoring report, the appropriate Corps Project Manager can schedule a site visit to determine the extent of the problem and to identify remedial measures. A sample monitoring report will be available on the Portland District Regulatory website at <https://www.nwp.usace.army.mil/op/g/>.

The Corps recommends the following outline for the monitoring report:

A. Project Information

1. Project Name;
2. Permittee name, address, and phone number;
3. Consultant name, address, and phone number (for permit application, if necessary);
4. Corps permit file number;
5. Acres of impact and type(s) of habitat impacted;
6. Monitoring year (i.e. year 2 of 5);
7. Location of the project and directions to site (including latitude/longitude or UTM coordinates);
8. Date of the report and the corresponding permit conditions pertaining to the compensatory mitigation;
9. Amount and information on any required performance bond or surety.

B. Compensatory Mitigation Site Information

1. Location and directions to the site (including latitude/longitude or UTM coordinates);
2. Maps of mitigation site, including permanent landmarks and wetland and water boundaries;
3. Size and type(s) of habitat existing at the site and proposed for restoration, enhancement, establishment (creation), and/or preservation;
4. Specific purpose/goals for the compensatory mitigation site;
5. Date site construction and planting completed (fully implemented);
6. Dates of monitoring inspections;
7. Name, address, and contact number of responsible parties for the site;
8. Name, address, and contact number for designer.

C. Brief Summary of Remedial Action(s) and Maintenance of the Compensatory Mitigation Site

D. Map of the compensatory mitigation site. The 8.5" x 11" diagram of the site should include the following:

1. Habitat types (as constructed)
2. Locations of photographic record stations
3. Landmarks
4. Inset defining location of the site

E. List of success criteria from Corps permit.

F. Table of results from the monitoring visits versus performance standards for specified target dates.

G. Photographic record of the site during most recent monitoring visit at record stations.

H. Summary of field data taken to determine compliance with performance standards and success criteria.

I. Summary of any significant events occurring on the site that may affect the ultimate success of the compensatory mitigation project.

The Corps recognizes there may be cases where this outline would not be practical (for very small, large, or complex compensatory mitigation projects). However, in the majority of cases, this outline should be followed. The Corps Project Manager processing the application can assist the applicant to determine whether deviations from the above outline are appropriate. In all cases, the completed monitoring reports should be submitted unbound to the Corps for inclusion into the official case file. Electronic copies of monitoring reports may also be submitted in place of a hardcopy.

#### IV. COMPLETION OF COMPENSATORY MITIGATION

The permittee should notify the Corps in writing when the monitoring period is complete and the success criteria from the Corps permit have been met. When applicable, a formal jurisdictional delineation of established wetlands should be submitted with the report (this delineation shall be accompanied by legible copies of all field data sheets). If wetlands are not established, a delineation of non-wetland waters of the U.S. and other areas enhanced, restored, established, or preserved as part of the compensatory mitigation program shall be submitted to the Corps.

#### V. CONTINGENCY MEASURES

There are many factors that may positively or negatively influence aquatic resources and the functions they provide, such as urbanization, farming, or grazing. Wetlands and other aquatic resources are often subject to a wide range and frequency of events such as floods, fires and ice storms. As with all natural systems, some things are beyond control. Well-crafted mitigation plans, however, recognize the likelihood of these events and attempt to plan for them, primarily through monitoring and adaptive management. In addition, it is important to realize the mobile nature of wetlands and streams. They change over time and over the landscape in response to internal and external forces.

Monitoring and adaptive management should be used to evaluate and adjust maintenance (e.g., predator control, irrigation), and design remedial actions. Adaptive management should consider changes in ecological patterns and processes, including biodiversity of the mitigation project as it evolves or goes through successional stages. Trends in the surrounding area must also be taken into account (i.e., landscape/watershed context). Being proactive helps ensure the ultimate success of the mitigation, and improvement of the greater landscape.

A brief discussion of the following items shall be part of each annual and the final compensatory mitigation monitoring report, unless the compensatory mitigation site is achieving or has achieved all articulated success criteria:

A. If one or more success criteria of the Corps permit is not met for all or any portion of the compensatory mitigation project in any year, the Corps may pursue an enforcement action pursuant to 33 CFR 326. The applicant shall prepare an analysis of the cause(s) of failure(s) and propose remedial actions for approval. The responsible party's maintenance and monitoring obligations shall continue until the Corps gives final approval the compensatory mitigation obligations have been satisfied.

B. Alternative Locations for Contingency Compensatory Mitigation. Indicate specific alternative compensatory mitigation locations available for use in the event compensatory mitigation cannot be successfully achieved at the intended compensatory mitigation site. Include current ownership information, if offsite.

C. Funding Mechanism. Indicate what funds will be available to pay for planning, implementing, maintaining, and monitoring of any contingency measures that may be required to achieve compensatory mitigation goals.

D. Responsible Parties. List names, addresses, and phone numbers of persons/entities responsible for implementing, maintaining, and monitoring contingency measures.

## VI. REFERENCES

Adamus P.R. and D. Field. 2001. Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites. I. Willamette Valley Ecoregion, Riverine Impounding and Slope/Flats Subclasses. Volume IA: Assessment Methods. Oregon Division of State Lands, Salem, OR.

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# **G.Omaha District Compensatory Mitigation Guidelines for Wyoming**



# **COMPENSATORY MITIGATION GUIDELINES FOR WYOMING**

## **I. Objective**

The intent of this guideline is to provide consistent guidance to applicants with projects which involve compensatory mitigation proposals. It is believed that this guideline will allow applicants the ability to prepare and compile adequate data and information needed to determine the acceptability of mitigation proposals. This should allow for quicker regulatory reviews as well as identification of potential problems or advantages with mitigation designs.

## **II. Basic Information Requirements for Mitigation Proposals**

While information needs vary with mitigation designs, some basic information requirements consistently need to be addressed, regardless of the proposal. This section outlines those information needs the Wyoming Regulatory Office expects to be contained in compensatory mitigation plans. Note that additional specific information needs are to be worked out during the permit review process to ensure adequate mitigation.

### **1. Mitigation Goals**

Mitigation design proposals need to include a text section which clearly specifies its goals. This discussion needs to include acreage, type (Cowardin classification), and function(s) of wetlands or other waters lost at the project site. It also needs to specify the particular attributes (acreage, type, vegetation, management strategy, etc.) of the mitigation design which are intended to offset the losses. If out-of-kind or off-site mitigation is proposed, justification is required.

### **2. Existing conditions of mitigation site**

A description of the mitigation site in terms of location, size, immediate surrounding land use, historic land use, context in relation to watershed, vegetation, soils, and hydrology is required. A copy of the applicable portion of the USGS Quadrangle and/or National Wetland Inventory map with the site identified on it must be included. Aerial photography of the site is recommended but not required.

#### **a. Delineation**

- If wetlands and other waters of the U.S. are present at the mitigation site, a delineation of these areas (conducted in accordance with November 15, 1996 Wyoming Regulatory Office guidance outlining minimal information requirements for acceptable delineations under the 1987 Corps of Engineers Wetland Delineation Manual and its revisions) is required.

## b. Baseline Functionality

- If the mitigation plan involves wetland restoration and/or enhancement, information demonstrating current **degradation** is required. Functional assessment models may be required to assist in pre-treatment determinations as well as predict and measure final results and goals. Preservation, an option of last resort, will require a detailed site assessment as well as justification of imminent development.

## **3. Design of Mitigation Site**

### a. Drawings

#### i. Scaled plan view drawings

- full size and reduced sized copies
- no smaller than 1" = 400', however, 1" = 100" preferred
- existing and proposed topography at a scale from which accurate determinations relative to hydrology and vegetative community can be readily discerned (see cross sections below). One foot contours are recommended.
- existing wetland and other waters delineation boundaries clearly identified
- spoil disposal areas
- anticipated wetland cover type (Cowardin et. al.) identified
- soil erosion and sediment control features identified
- location of cross sections
- location of monitoring transect(s) and permanent photo locations, vegetation sampling plots, piezometers or other hydrology data collection points, etc.

#### ii. Scaled cross sections

- show existing and proposed ground surfaces with elevations indicated. Placed topsoil depths must be specified.
- ordinary high water elevation and anticipated groundwater levels.
- width, depth, and bottom elevations of water supply ditches and top elevations and widths of berms, dams, etc.

## b. Other treatments

### i. Soils handling

- wetland soils at the impact site should be transported to the mitigation site for placement. Stockpiling and timing of placement of topsoil materials must be included.

### ii. Vegetation planting

- For seed mixes, designate species composition, pounds per acre, wetland indicator status, and seed source. For use of saplings, sprigs, plugs, mats, etc., identify species composition, wetland indicator status, spacing, and total numbers per species. Timing of planting must be specified.

## c. Hydrology

Adequate and reliable hydrology at the mitigation site is essential for success. Baseline data supporting proposed water supply of a mitigation site is required. The two basic categories of water supply for mitigation sites typically used in Wyoming are passive and managed. Basic hydrology information needs include:

### i. Passive

- This water supply is dependent on natural groundwater fluctuations or and/or overbank flooding with no human management techniques. Groundwater supported mitigation designs need to be correlated to site specific data gathered from the use of piezometers, soils, spring flow data, and/or other site investigation data. Much of this information can be gathered during a delineation of the site. Although several years of groundwater data is preferred, measurement of an average year's peak groundwater level is acceptable. Occasionally, site specific soils data can be used as a surrogate for this data element.

- Data is also required to document and justify overbank flooding. This typically involves detailed surveying as well as hydrologic modeling. The anticipated frequency and duration of flooding needs to be specified.

- If the mitigation area is to be supported by precipitation, a water budget will be required including identification of anticipated run off volumes and evaporation rates.

### ii. Managed

- This water supply is a controlled supply system (diversions, canals, ditches, etc.) and typically incorporates the use of impoundment features (berms, dams, dikes, etc.) with water control structures. This is the least preferred hydrology supply option due to the continual need for human activity to ensure adequate supply to the mitigation site as well as long-term maintenance.

- Construction plans and cross sections (see Section 3a) are needed for water supply elements as well as impoundment features.

- Water rights - Mitigation sites typically require an adjudicated water right. Demonstration of the right's availability and priority need to accompany the mitigation proposal for managed hydrology systems.

- A water management plan. Dates of initial inundation, draw down, and re-inundation (if proposed) must be specified. The responsible party to operate and maintain the site needs to be identified.

#### **4. Monitoring**

Section 404 permits typically require monitoring of the mitigation area as a condition with the submission of annual reports. Monitoring and report compilation must be accomplished by a qualified individual with experience in wetland mitigation. Annual reports for a period of 3 to 5 years is the normal period for monitoring, although longer periods may be required.

##### a. Success Criteria/Performance Standards

- Success criteria are typically correlated to the impacted wetland site(s) based on species composition and cover types. However, site availability, practicability, and other overriding environmental goals, such as threatened and endangered species habitat opportunities, can result in mitigation success criteria that is not correlated to the impact site. Construction of mitigation areas should be built prior to or concurrently with the loss of aquatic resources. The resulting mitigation areas must meet 1987 Corps of Engineers Delineation Manual criteria to be considered as wetlands.

##### b. Sampling protocols

- Sampling protocols and intensity for all three parameters (vegetation, soils, and hydrology) must be explicitly described in the mitigation proposal.

- Vegetation. Transect with quadrat sampling (preferred), point intercept, and other forms of vegetation assessment are acceptable. Total cover and relative cover per species is required and is to be correlated to impact wetland data, where possible. Adequate sampling intensity must be accomplished to demonstrate that proposed wetland mitigation acreage has been achieved. Agreement to a weed control plan needs to be included with a list of undesirable species (state or county weed lists) that will be managed if they comprise more than 20% of a sample area.

- Hydrology. Excavation of test pits or use of piezometers to determine groundwater levels is required. Use of staff gages in areas designed to be flooded, even

intermittently, must be included. Frequency of site visit(s) must be stipulated. Monitoring is to be done during the known or projected peak of the hydrograph and/or seasonal high groundwater. Documentation of low water period elevations may also be required.

- Soils. Excavation of soil pits and examination for redoximorphic features is required. Soil profile data is to be logged with depth of features found. While hydric soil indicators may not become evident within the required monitoring period, demonstration of how hydric soil conditions are concluded as being present or absent needs to be stated.

#### c. Report content

- Reports must clearly identify success criteria and how the mitigation site compares to those criteria. Reports need to include a comparison of actual wetland mitigation acreage to proposed acreage as well to project impact acreage. Mitigation areas need to be broken down based on type (Cowardin classification). Reports need to include author's interpretation of data and discussion as to how mitigation is determined to be demonstrating success or failure. Problems that arise need to be identified in the reports as well as corrective measures that have been implemented or proposed. Corrective actions need to be coordinated with the Corps prior to implementation.

- Routine wetland delineation data forms, or similar Corps-approved forms which contain appropriate data fields.

- Plan view map (see section 3ai above)

- Color photos of mitigation site from permanently established locations.

### **III. Additional Information Requirements**

While this guideline attempts to establish basic information requirements anticipated with typical wetland mitigation design proposals, more extensive data and information may be required, at the Corps' discretion, to ensure that regulatory requirements are complied with. Below are some additional items that may be required with mitigation plans. This is not an exhaustive list.

#### a. Contingency Plans

- It is not unusual for wetland mitigation plans to be unsuccessful. Depending on the mitigation design as well as problems that arise with mitigation site construction, formulation of a contingency plan may be required. This can include abandonment of the mitigation site and new construction at another site.

b. Deed Restrictions/Conservation Easements

- While not a mandatory item, it is not unusual for some form of easement to be placed on the mitigation site to ensure its long-term survivability. These instruments are not required for mitigation sites on Federal lands.

c. Performance Bonds

- To ensure that mitigation is accomplished that meets objectives and goals, the Corps can require that performance bonds be posted.

# **H. Wetland and Stream Crossings by State**



**Table H-1 Wyoming Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-16-007	0.60	Lincoln	WY	PEM/PSS	Flaming Gorge Reservoir (Briggs Reservoir)	5.656	1.380	0.915	0.000	0.000		0.000	0.000			41.76918	-110.3545
WW-16-008	0.73	Lincoln	WY	PEMF	Flaming Gorge Reservoir (Briggs Reservoir)	0.508	0.129	0.085	0.000	0.000		0.000	0.000			41.76725	-110.3551
WW-16-010	0.78	Lincoln	WY	PEM/PSS	Flaming Gorge Reservoir (Briggs Reservoir)	1.929	0.474	0.318	0.232	0.000		0.000	0.000			41.76661	-110.3548
WW-16-011	0.84	Lincoln	WY	PSS	Flaming Gorge Reservoir (Briggs Reservoir)	0.842	0.125	0.068	0.000	0.000		0.000	0.000			41.76586	-110.3553
WW-16-012	0.87	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.129	0.008	0.008	0.000	0.000		0.000	0.000			41.76533	-110.3549
WW-16-013	0.90	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.073	0.000	0.000	0.000	0.000		0.000	0.000			41.76494	-110.3558
WW-16-001	1.04	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	7.900	2.097	1.404	0.664	0.000		0.000	0.000			41.76288	-110.3557
WW-41-008	8.30	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.017	0.053	LW-13	2-Track	41.67719	-110.4018
WW-41-009	8.39	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.018	0.041	LW-6A	2-Track	41.67718	-110.404
WW-17-005	8.64	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.471	0.041	0.025	0.092	0.000		0.000	0.000			41.6769	-110.4087
WW-41-007	14.86	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	3.659		0.000	0.000			41.73543	-110.5616
WW-39-016	17.68	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.000	0.003	LW-23	2-Track	41.60193	-110.5475
WW-39-016A	17.68	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.013	0.028	LW-23	2-Track	41.60189	-110.5473
WW-16-002	18.81	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.068	0.018	0.012	0.028	0.000		0.000	0.000			41.58846	-110.5471
WW-16-003	19.72	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.227	0.066	0.047	0.000	0.000		0.000	0.000			41.58132	-110.5617
WW-39-017	20.14	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.000	0.002	LW-21	Good	41.58587	-110.5675
WW-16-004	20.32	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.304	0.076	0.039	0.000	0.000		0.000	0.000			41.58083	-110.5723
WW-16-005	20.46	Uinta	WY	PABFx	n/a	0.081	0.000	0.000	0.000	0.000		0.000	0.000			41.58071	-110.5749
WW-16-006	20.51	Uinta	WY	PEM	n/a	0.975	0.301	0.200	0.000	0.000		0.000	0.000			41.58084	-110.5759
WW-17-007	22.72	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	2.602	0.000	0.000	0.000	0.000		0.192	0.387	U-3	2-Track	41.56786	-110.6127
WW-17-009	23.14	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.087	0.000	0.000	0.000	0.000		0.000	0.014	U-4	2-Track	41.56625	-110.6205
WW-17-010	23.48	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.251	0.068	0.045	0.000	0.000		0.000	0.000			41.56526	-110.627
WW-17-011	23.83	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.500	0.069	0.042	0.000	0.000		0.038	0.071	U-1	Paved	41.56367	-110.6334
WW-17-012	23.92	Uinta	WY	PEM		0.068	0.062	0.029	0.000	0.000		0.000	0.000			41.56317	-110.635
WW-41-005	24.77	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.475	0.879	U-6	Good and Mostly 2-	41.56488	-110.6561
WW-26-007	26.92	Uinta	WY	PEM		0.002	0.000	0.000	0.000	0.000		0.000	0.000			41.54249	-110.6694
WW-26-008	27.11	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.078	0.020	0.009	0.000	0.000		0.000	0.000			41.54289	-110.6733
WW-26-002	27.62	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.323	0.000	0.000	0.000	0.000		0.000	0.000			41.53793	-110.6794

**Table H-1 Wyoming Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-26-003	27.99	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.229	0.086	0.035	0.000	0.000		0.010	0.030	U-6	Good and Mostly 2-	41.53343	-110.6826
WW-26-001	36.51	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.092	0.019	0.009	0.046	0.000		0.005	0.018	U-10	2-Track	41.52014	-110.837
WW-26-006	37.05	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.046	0.003	0.003	0.000	0.000		0.006	0.011	U-10	2-Track	41.52008	-110.8475
WW-41-006	37.58	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.001	0.011	U-14	2-Track	41.52161	-110.8563
WW-39-018	42.10	Uinta	WY	PEM	Bear River	0.000	0.000	0.000	0.000	0.021		0.000	0.000			41.34193	-111.0025
WW-26-005	42.28	Uinta	WY	PEM	Bear River / Bear Lake	0.115	0.035	0.018	0.033	0.000		0.000	0.000			41.53102	-110.9401
WW-39-015	44.43	Uinta	WY	PEM	Bear River	0.048	0.000	0.000	0.000	0.000		0.007	0.021	U-28	2-Track	41.53997	-110.9783
WW-34-003	44.51	Uinta	WY	PEM	Bear River / Bear Lake	0.154	0.033	0.023	0.068	0.000		0.000	0.000			41.54112	-110.9792
WW-39-024B	44.66	Uinta	WY	PEM	Bear River	0.000	0.000	0.000	0.000	0.000		0.013	0.028	U-19	Good and Partly 2-	41.56255	-110.9795
WW-124-001	44.84	Uinta	WY	PEM	Bear River	0.000	0.000	0.000	0.000	0.110		0.000	0.000			41.81181	-110.9655
WW-39-013	45.07	Uinta	WY	PEM	Bear River	0.000	0.000	0.000	0.000	0.000		0.067	0.138	U-24	2-Track	41.51588	-110.9923
					<b>Lincoln County Totals</b>	17.805	4.337	2.882	1.016	3.659		0.048	0.127				
					<b>Unita County Totals</b>	5.956	0.772	0.452	0.147	0.131		0.814	1.608				
					<b>Wyoming Totals</b>	23.761	5.109	3.334	1.163	3.790		0.862	1.736				
					<b>Project Totals</b>	666.633	166.754	111.391	208.431	31.821		15.473	39.796				

**Table H-2 Utah Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-26-004	49.58	Rich	UT	PEM	Bear River	6.835	1.678	1.119	0.000	0.000		0.000	0.000			41.54048	-111.0769
WW-28-011	52.04	Rich	UT	PUSCx	Bear River	1.363	0.112	0.112	0.784	0.000		0.000	0.000			41.53073	-111.121
WW-28-010	52.15	Rich	UT	PUSCx	Bear River	0.416	0.072	0.072	0.227	0.000		0.000	0.006	R-5C	2-Track	41.52998	-111.1228
WW-28-009A	52.18	Rich	UT	PUSCx	Bear River	0.013	0.009	0.009	0.005	0.000		0.000	0.000			41.52988	-111.1233
WW-28-009B	52.18	Rich	UT	PUSCx	Bear River	0.109	0.000	0.000	0.016	0.000		0.000	0.000			41.52966	-111.1232
WW-28-009	52.18	Rich	UT	PUSCx	Bear River	0.607	0.111	0.026	0.387	0.000		0.000	0.000			41.53006	-111.1237
WW-165-002	52.34	Rich	UT	PSS	Bear River	0.000	0.000	0.000	0.000	0.000		0.208	0.297	R-5F	2-Track	41.5321	-111.1286
WW-165-003	52.43	Rich	UT	PEM	Bear River	0.000	0.000	0.000	0.000	0.000		0.557	1.224	R-5F	2-Track	41.52952	-111.1288
WW-28-008	52.46	Rich	UT	PEM	Bear River	6.511	1.716	1.128	2.664	0.000		0.000	0.000			41.52786	-111.1281
WW-28-007	52.82	Rich	UT	PEM	Bear River	10.333	2.642	1.744	3.918	0.000		0.000	0.000			41.52543	-111.1343
WW-28-006	60.74	Rich	UT	PEM	Bear River	2.766	0.726	0.484	0.000	0.000		0.000	0.000			41.48063	-111.2684
WW-39-011A	60.78	Rich	UT	PEM	Bear River	0.000	0.000	0.000	0.000	0.000		0.033	0.182	R-8B	Good	41.48391	-111.2656
WW-39-011	60.78	Rich	UT	PEM	Bear River	0.000	0.000	0.000	0.000	0.000		0.088	0.233	R-8B	Good	41.48403	-111.2656
WW-39-010	60.90	Rich	UT	PEM	Bear River	0.000	0.000	0.000	0.000	0.000		0.127	0.454	R-19	Good	41.49354	-111.2605
WW-39-010A	60.90	Rich	UT	PEM	Bear River	0.000	0.000	0.000	0.000	0.000		0.035	0.362	R-19	Good	41.49358	-111.2608
WW-39-012	64.80	Rich	UT	PSS	Bear River	0.000	0.000	0.000	0.000	0.000		0.023	0.045	R-20	2-Track	41.48662	-111.3405
WW-39-009	68.29	Rich	UT	PSS	Bear River	0.000	0.000	0.000	0.000	0.000		0.000	0.016	R-24	2-Track	41.48422	-111.4011
WW-39-009A	68.29	Rich	UT	PSS	Bear River	0.000	0.000	0.000	0.000	0.000		0.003	0.017	R-24	2-Track	41.48418	-111.4014
WW-39-008	69.32	Rich	UT	PEM	Bear River	0.000	0.000	0.000	0.000	0.000		0.011	0.051	R-25	2-Track	41.48269	-111.4166
WW-39-008A	69.32	Rich	UT	PEM	Bear River	0.000	0.000	0.000	0.000	0.000		0.002	0.030	R-25	2-Track	41.48268	-111.4169
WW-28-005	78.69	Cache	UT	PEM	Cutler Reservoir	0.428	0.050	0.036	0.000	0.000		0.000	0.000			41.4718	-111.5906
WW-27-002A	79.40	Cache	UT	PEM	Cutler Reservoir	0.082	0.021	0.014	0.000	0.000		0.000	0.000			41.47804	-111.6015
WW-27-002	79.42	Cache	UT	PEM	Cutler Reservoir	0.055	0.047	0.039	0.000	0.000		0.000	0.000			41.47814	-111.6018
WW-39-002A	80.16	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.004	C-5	2-Track	41.48691	-111.6086
WW-39-002	80.18	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.001	0.026	C-5	2-Track	41.4871	-111.6085
WW-39-003A	80.18	Cache	UT	PSS	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.008	0.032	C-5	2-Track	41.48721	-111.6105
WW-39-003B	80.19	Cache	UT	PSS	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.006	C-5	2-Track	41.48731	-111.6102
WW-39-003	80.20	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.003	0.037	C-5	2-Track	41.48743	-111.6107
WW-39-004	80.32	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.007	C-5	2-Track	41.48915	-111.6123
WW-39-004A	80.34	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.001	C-5	2-Track	41.48945	-111.6123
WW-39-007	80.47	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.124	0.278	C-7	2-Track	41.49129	-111.6007
WW-39-006	80.57	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.048	0.106	C-7	2-Track	41.49277	-111.6015
WW-39-005	81.05	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.023	0.263	C-5	2-Track	41.49181	-111.6185
WW-165-005	81.40	Cache	UT	PEM	Cutler Reservoir	0.196	0.047	0.034	0.076	0.000		0.000	0.000			41.50172	-111.6162
WW-41-003	82.09	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.004	0.010	C-5	2-Track	41.50512	-111.6297
WW-41-004	89.19	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.019	C-12	Good and Mostly 2-	41.54314	-111.7328
WW-39-001	90.90	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.030	C-13	2-Track	41.52559	-111.7433
WW-28-002E	92.10	Cache	UT	PSS	Cutler Reservoir	0.152	0.000	0.000	0.000	0.000		0.000	0.012	C-14A	2-Track	41.5193	-111.7681
WW-28-002D	92.13	Cache	UT	PSS	Cutler Reservoir	0.033	0.000	0.000	0.000	0.000		0.000	0.000			41.51949	-111.7686
WW-28-002C	92.13	Cache	UT	PSS	Cutler Reservoir	0.007	0.000	0.000	0.000	0.000		0.000	0.000			41.51934	-111.7687
WW-28-004	92.18	Cache	UT	PEM	Cutler Reservoir	0.696	0.328	0.258	0.000	0.000		0.044	0.124	C-14A	2-Track	41.51997	-111.7693
WW-28-002B	92.23	Cache	UT	PSS	Cutler Reservoir	0.160	0.000	0.000	0.000	0.000		0.000	0.000			41.51999	-111.7702
WW-28-002	92.26	Cache	UT	PSS	Cutler Reservoir	0.475	0.000	0.000	0.000	0.000		0.000	0.000			41.52036	-111.7708
WW-28-002A	92.30	Cache	UT	PSS	Cutler Reservoir	0.136	0.000	0.000	0.000	0.000		0.000	0.000			41.52035	-111.7715
WW-28-002F	92.34	Cache	UT	PSS	Cutler Reservoir	0.001	0.000	0.000	0.000	0.000		0.000	0.000			41.52048	-111.7724
WW-28-003	92.43	Cache	UT	PSS	Cutler Reservoir	0.878	0.404	0.250	0.000	0.000		0.000	0.000			41.52148	-111.7736
WW-28-001	92.64	Cache	UT	PEM	Cutler Reservoir	0.194	0.158	0.108	0.000	0.000		0.000	0.000			41.52175	-111.7771
WW-27-001	93.44	Cache	UT	PEM	Cutler Reservoir	0.019	0.005	0.001	0.009	0.000		0.000	0.000			41.519	-111.7895
WW-18-014	94.75	Cache	UT	PSS	Cutler Reservoir	0.893	0.042	0.026	0.018	0.000		0.000	0.000			41.51386	-111.8126
WW-18-014A	94.76	Cache	UT	PSS	Great Salt Lake	0.036	0.000	0.000	0.000	0.000		0.000	0.000			41.51413	-111.8127
WW-18-014B	94.77	Cache	UT	PEM	Great Salt Lake	0.006	0.000	0.000	0.000	0.000		0.000	0.003	C-16A	Paved	41.51472	-111.8129
WW-143-002	94.79	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.057	0.337	C-18	2-Track	41.52054	-111.8144

**Table H-2 Utah Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-40-002	94.79	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.005	Zan Summers	0.001	0.006	C-18	2-Track	41.52279	-111.8168
WW-40-002B	94.79	Cache	UT	PSS	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.015	C-18	2-Track	41.52294	-111.8168
WW-41-002	94.79	Cache	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.014	0.030	C-18	2-Track	41.52276	-111.8163
WW-18-013	96.49	Cache	UT	PEM	Cutler Reservoir	0.091	0.025	0.006	0.033	0.000		0.000	0.000			41.51176	-111.8416
WW-194-001	99.24	Cache	UT	PEM	Culter Reservoir	0.000	0.000	0.000	0.000	0.000		0.003	0.012	C-18A	2-Track	41.52483	-111.8828
WW-195-001	100.77	Cache	UT	PEM	Culter Reservoir	0.000	0.000	0.000	0.000	0.000		0.098	0.192	C-18A	2-Track	41.54442	-111.9
WW-195-002	100.77	Cache	UT	PEM	Culter Reservoir	0.000	0.000	0.000	0.000	0.000		0.007	0.011	C-18A	2-Track	41.55384	-111.9074
WW-18-011	102.47	Box Elder	UT	PEM	Great Salt Lake	0.004	0.000	0.000	0.000	0.000		0.001	0.036	B-1	2-Track	41.52674	-111.9428
WW-18-010	102.68	Box Elder	UT	PEM	Great Salt Lake	0.276	0.016	0.000	0.129	0.000		0.000	0.063	B-1	2-Track	41.52639	-111.9462
WW-18-009	102.76	Box Elder	UT	PEM	Great Salt Lake	0.126	0.000	0.000	0.082	0.000		0.000	0.002	B-1	2-Track	41.52643	-111.948
WW-18-008	102.89	Box Elder	UT	PEM	Great Salt Lake	0.049	0.017	0.011	0.017	0.000		0.000	0.036	B-1A	2-Track	41.52616	-111.9494
WW-145-002	103.51	Box Elder	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.079	0.173	B-1A	2-Track	41.52078	-111.9586
WW-165-001	103.59	Box Elder	UT	PEM	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.010	0.032	B-1F	2-Track	41.51388	-111.9592
WW-18-007	105.04	Box Elder	UT	PSS	Great Salt Lake	0.235	0.167	0.166	0.000	0.000		0.006	0.085	B-3	2-Track	41.51642	-111.9857
WW-123-001	106.39	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.008	0.000	0.000	0.002	0.000		0.004	0.008	B-2A	2-Track	41.52674	-112.0008
WW-123-002	106.65	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.043	0.207	B-2M	2-Track	41.52936	-112.005
WW-18-005	107.52	Box Elder	UT	PSS	Great Salt Lake	0.011	0.000	0.000	0.000	0.000		0.000	0.000			41.54139	-112.0089
WW-18-004A	108.79	Box Elder	UT	PEM	Great Salt Lake	0.516	0.066	0.063	0.183	0.000		0.000	0.000			41.55325	-112.0229
WW-18-004	108.80	Box Elder	UT	PEM	Great Salt Lake	0.002	0.000	0.000	0.000	0.000		0.000	0.000			41.55393	-112.0223
WW-17-004B	109.32	Box Elder	UT	PEM/L2USA/PUSA	Great Salt Lake	34.511	8.971	6.027	13.893	0.000		0.000	0.000			41.55942	-112.0292
WW-17-004A	110.07	Box Elder	UT	PEM/L2USA/PUSA	Great Salt Lake	9.742	2.204	1.507	3.911	0.000		0.116	0.274	B-3B	2-Track	41.56913	-112.0345
WW-17-004	110.61	Box Elder	UT	PEM/L2USA/PUSA	Great Salt Lake	24.621	6.198	4.119	9.905	0.000		0.000	0.000			41.57282	-112.0415
WW-17-001	111.53	Box Elder	UT	PEM/L2USA/PUSA	Great Salt Lake	40.515	10.127	6.752	16.211	0.000		0.128	0.303	B-3A	2-Track	41.5728	-112.0592
WW-165-007	111.90	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.000	0.000	0.000	0.000	20.394	North Brigham Airport Staging Area	0.338	1.770	B-3A	2-Track	41.56473	-112.0663
WW-18-003	112.18	Box Elder	UT	PEM	Great Salt Lake	0.046	0.011	0.008	0.018	0.000		0.000	0.000			41.57237	-112.0717
WW-165-006	112.22	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.114	B-3A	2-Track	41.56309	-112.0725
WW-18-001	112.37	Box Elder	UT	PEM	Great Salt Lake	0.087	0.021	0.015	0.034	0.000		0.043	0.050	B-4E	2-Track	41.57206	-112.0754
WW-165-004	112.40	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.036	B-4E	2-Track	41.57626	-112.076
WW-41-011	115.05	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.044		0.000	0.000			41.58735	-112.1221
WW-41-010	115.16	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.628		0.000	0.000			41.58797	-112.1245
WW-143-001	116.62	Box Elder	UT	PEM	Great Salt Lake	1.274	0.339	0.214	0.499	3.048	David John	0.000	0.000			41.57739	-112.1539
WW-145-003	118.28	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.020	0.316	B-6D	2-Track	41.59055	-112.181
WW-39-019	118.28	Box Elder	UT	PEM	Great Salt Lake	0.459	0.113	0.075	0.185	0.000		0.011	0.135	B-6D	2-Track	41.59117	-112.1804
WW-39-019A	118.30	Box Elder	UT	PEM	Great Salt Lake	0.088	0.022	0.014	0.035	0.000		0.000	0.000			41.59133	-112.1806
WW-39-020	118.85	Box Elder	UT	PEMC	Great Salt Lake	0.258	0.112	0.090	0.090	0.000		0.000	0.000			41.59648	-112.1888
WW-145-004	118.89	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.016	0.073	B-6D	2-Track	41.59597	-112.1904
WW-11-012	119.20	Box Elder	UT	PUBFx	Great Salt Lake	0.182	0.029	0.019	0.085	0.000		0.015	0.023	B-6D	2-Track	41.59903	-112.1937
WW-11-010	119.50	Box Elder	UT	PEM	Great Salt Lake	1.096	0.322	0.226	0.448	0.000		0.000	0.000			41.59866	-112.1983
WW-40-003B	119.95	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.108	0.273	B-8	Good	41.60601	-112.2003
WW-40-003A	119.96	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.075	0.365	B-8	Good	41.60592	-112.2006
WW-40-003	120.00	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.029	0.094	B-8	Good	41.60703	-112.2002
WW-40-002A	120.36	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.028	0.114	B-10	Good	41.6135	-112.2007
WW-40-002C	120.38	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.021	0.026	B-7	Good	41.61352	-112.2014
WW-40-002D	120.42	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.124	B-10	Good	41.61461	-112.2009
WW-40-004	120.54	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.018	0.077	B-7	Good	41.61328	-112.2065
WW-11-009	123.93	Box Elder	UT	PEM/L2USA	Great Salt Lake	5.961	1.475	0.995	2.383	0.000		0.000	0.000			41.63083	-112.2683

**Table H-2 Utah Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-11-008	124.13	Box Elder	UT	PEM	Great Salt Lake	0.396	0.055	0.041	0.127	0.000		0.000	0.000			41.63153	-112.2721
WW-11-006	124.53	Box Elder	UT	PEM	Great Salt Lake	0.311	0.078	0.037	0.115	0.000		0.000	0.000			41.63422	-112.2789
WW-11-004	124.58	Box Elder	UT	PEM	Great Salt Lake	1.172	0.386	0.300	0.477	0.000		0.000	0.000			41.63421	-112.2799
WW-11-003	124.62	Box Elder	UT	PEMA	Cutler Reservoir	0.498	0.092	0.066	0.235	0.000		0.000	0.000			41.63496	-112.2804
WW-11-002	124.77	Box Elder	UT	PEM	Great Salt Lake	2.068	0.562	0.439	0.833	0.000		0.000	0.000	B-14	Good	41.63538	-112.2833
WW-11-001	124.87	Box Elder	UT	PEM	Great Salt Lake	0.672	0.179	0.129	0.287	0.000		0.004	0.045	B-14	Good	41.63598	-112.2851
WW-10-008	125.04	Box Elder	UT	PEMC	Cutler Reservoir	0.420	0.198	0.131	0.191	0.000		0.000	0.006	B-14	Good	41.637	-112.288
WW-122-003	125.18	Box Elder	UT	PEM	Great Salt Lake	3.395	0.711	0.476	1.175	0.000		0.000	0.000			41.63754	-112.2905
WW-122-001	125.69	Box Elder	UT	PEM	Great Salt Lake	8.946	2.298	1.461	3.661	0.000		0.000	0.000			41.63721	-112.3004
WW-10-004	126.30	Box Elder	UT	PEM	Great Salt Lake	0.654	0.335	0.299	0.228	0.000		0.000	0.000			41.63611	-112.3119
WW-123-003	126.40	Box Elder	UT	PEM	Great Salt Lake	0.923	0.309	0.208	0.382	0.000		0.098	0.227	B-16D	2-Track	41.63615	-112.3138
WW-10-003	126.70	Box Elder	UT	PEM	Great Salt Lake	0.472	0.123	0.099	0.162	0.000		0.000	0.000			41.63597	-112.3197
WW-39-025	149.52	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.047	0.382	B-25	2-Track	41.76085	-112.6738
WW-39-025A	149.60	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.041	B-25	2-Track	41.76075	-112.6752
WW-39-026	150.13	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.009	B-25	2-Track	41.75871	-112.6855
WW-39-026A	150.13	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.010	B-25	2-Track	41.75894	-112.6855
WW-03-001	150.38	Box Elder	UT	L2USA	Great Salt Lake	12.212	3.020	2.000	0.000	0.000		0.000	0.000			41.76338	-112.6905
WW-39-024	150.41	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.008	B-25	2-Track	41.75742	-112.6908
WW-39-024A	150.41	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.000	B-25	2-Track	41.75761	-112.691
WW-01-001	161.35	Box Elder	UT	PUSC	Great Salt Lake	0.033	0.000	0.000	0.000	0.000		0.000	0.000			41.76316	-112.8981
WW-01-002	161.82	Box Elder	UT	PUSC	Great Salt Lake	4.190	1.012	0.676	0.000	0.000		0.000	0.000			41.76257	-112.9073
WW-01-003	162.78	Box Elder	UT	PUSC	Great Salt Lake	0.296	0.030	0.030	0.000	0.000		0.000	0.000			41.76225	-112.9259
WW-164-002	169.51	Box Elder	UT	PSS	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		2.028	4.455	B-27C	2-Track	41.75455	-113.0561
WW-164-003	171.30	Box Elder	UT	PSS	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		4.607	10.100	B-36	2-Track	41.75377	-113.0907
WW-40-006	174.38	Box Elder	UT	PSS	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.041	0.090	B-40	2-Track	41.73951	-113.1294
WW-39-022	175.72	Box Elder	UT	PSS	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.065	B-39	Good	41.7217	-113.1419
WW-39-023A	176.07	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.048	B-39	Good	41.71811	-113.1472
WW-39-023	176.08	Box Elder	UT	PEM	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.038	0.115	B-39	Good	41.71818	-113.1474
WW-09-003	184.12	Box Elder	UT	PEM	Sinks of Dove Creek	1.169	0.307	0.195	0.000	0.000		0.103	0.229	B-39	Good	41.65727	-113.2786
WW-09-002	184.15	Box Elder	UT	PSS	Sinks of Dove Creek	0.167	0.089	0.074	0.000	0.000		0.000	0.015	B-39	Good	41.65711	-113.2793
WW-09-001	184.79	Box Elder	UT	PSS	Sinks of Dove Creek	1.399	0.544	0.378	0.693	0.000		0.079	0.266	B-42A	2-Track	41.65422	-113.2909
					<b>Rich County Totals</b>	28.954	7.067	4.694	8.000	0.000		1.088	2.917				
					<b>Cache County Totals</b>	4.538	1.126	0.771	0.136	0.005		0.439	1.561				
					<b>Box Elder County Totals</b>	159.461	40.537	27.340	56.677	24.115		8.160	20.917				
					<b>Utah Totals</b>	192.953	48.730	32.805	64.812	24.120		9.686	25.396				
					<b>Project Totals</b>	666.633	166.754	111.391	208.431	31.821		15.473	39.796				



**Table H-3 Nevada Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-149-003	270.26	Elko	NV	PEM	N/A	0.437	0.139	0.093	0.000	0.000		0.000	0.000			41.39993	-114.7042
WW-112-001	276.43	Elko	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.029	0.353	E-10	Improved-Maintaine	41.44933	-114.8332
WW-131-001	277.52	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River / Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.120	E-10	Improved-Maintaine	41.28838	-114.8374
WW-15-001	278.18	Elko	NV	PEM	N/A	0.490	0.128	0.087	0.000	0.000		0.043	0.111	E-11	Rough - Not Mainta	41.39319	-114.8499
WW-131-005	280.67	Elko	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.062	E-10	Improved-Maintaine	41.35024	-114.8913
WW-112-002	280.79	Elko	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.031	E-10	Improved-Maintaine	41.36075	-114.895
WW-131-003	281.56	Elko	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.013	E-10	Improved-Maintaine	41.34069	-114.8922
WW-132-004	281.91	Elko	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.074	0.200	E-12	Improved-Maintaine	41.39172	-114.9221
WW-130-003	282.48	Elko	NV	PSS	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.031	E-14	Rough - Not Mainta	41.38801	-114.9333
WW-15-002	283.41	Elko	NV	PEM	N/A	0.125	0.056	0.036	0.000	0.000		0.000	0.000			41.37907	-114.9461
WW-15-004	286.80	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River / Lake	1.142	0.330	0.198	0.000	0.000		0.029	0.078	E-14A		41.36777	-115.0052
WW-130-002	286.84	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	0.000	0.000	0.000	0.000		0.021	0.034	E-14A		41.36707	-115.0063
WW-15-006	287.53	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River / Lake	0.227	0.054	0.040	0.000	0.000		0.000	0.000			41.36563	-115.0178
WW-53-001	301.72	Elko	NV	PSS	Rye Patch Reservoir (on Humboldt River / Lake	0.373	0.128	0.079	0.000	0.000		0.000	0.000			41.26481	-115.2512
WW-54-002	301.83	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River / Lake	0.007	0.000	0.000	0.007	0.000		0.000	0.000			41.26521	-115.2532
WW-54-001	301.83	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River / Lake	0.003	0.003	0.003	0.000	0.000		0.000	0.000			41.26501	-115.2533
WW-07-002	302.93	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River / Lake	0.033	0.016	0.016	0.000	0.000		0.000	0.000			41.2597	-115.2726
WW-110-001	303.10	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	0.000	0.000	0.000	0.000		0.041	0.079	E-20	Rough - Not Maintained	41.25438	-115.2722
WW-110-003	303.66	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	4.241	1.039	0.696	0.000	0.000		1.363	2.941	E-21	Rough - Not Maintained	41.25157	-115.2824
WW-06-001	318.12	Elko	NV	PEM	Klamath River	0.732	0.158	0.110	0.000	0.000		0.000	0.000			41.27358	-115.5355
WW-06-003	329.51	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River / Lake	0.477	0.143	0.100	0.000	0.000		0.000	0.000			41.24607	-115.7496
WW-06-004	330.96	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River / Lake	11.144	2.892	1.919	0.000	0.000		0.000	0.000			41.24366	-115.7771
WW-101-001	343.93	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	0.000	0.000	0.000	0.000		0.158	0.263	E-44	Unimproved	41.2162	-116.0189
WW-151-001	346.48	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	0.000	0.000	0.000	0.554		0.000	0.000			41.21327	-116.0677
WW-151-002	347.67	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.897	0.230	0.163	0.000	0.000		0.000	0.000			41.20574	-116.0882
WW-132-001	350.69	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	0.000	0.000	0.000	0.000		0.001	0.012	E-48C	Unimproved	41.19899	-116.1422
WW-132-002	350.69	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	0.000	0.000	0.000	0.000		0.013	0.027	E-48C	Unimproved	41.19954	-116.144
WW-132-003	350.69	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	0.000	0.000	0.000	0.000		0.000	0.013	E-48C	Unimproved	41.19943	-116.1442
WW-183-002	351.99	Elko	NV	PEM	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.000	0.014	E-48F	Unimproved	41.21036	-116.1668
WW-169-002	353.26	Elko	NV	PEM	Owyhee River	0.164	0.031	0.022	0.000	0.000		0.000	0.000			41.21007	-116.1924
WW-168-006	359.63	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.079	0.000	0.000	0.020	0.000		0.000	0.000			41.21644	-116.3132
WW-168-005	361.47	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.092	0.039	0.022	0.000	0.000		0.000	0.000			41.21154	-116.3469
WW-168-004	361.73	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.111	0.027	0.017	0.000	0.000		0.000	0.000			41.21145	-116.3519

**Table H-3 Nevada Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-168-003	363.26	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.335	0.061	0.042	0.116	0.000		0.000	0.000			41.21043	-116.3808
WW-183-001	363.52	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	0.000	0.000	0.000	0.000		0.038	0.066	E-50A	Unimproved	41.20914	-116.3858
WW-168-002	363.96	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.116	0.029	0.019	0.000	0.000		0.000	0.000			41.21084	-116.3943
WW-169-001	369.97	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.171	0.033	0.027	0.029	0.000		0.000	0.000			41.20892	-116.5071
WW-168-001	372.38	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.302	0.089	0.057	0.000	0.000		0.000	0.000			41.22067	-116.5498
WW-183-003	372.61	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	0.000	0.000	0.000	0.000		0.000	0.006	E-52A	Unimproved	41.22362	-116.5526
WW-147-004	380.32	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.019	0.019	0.017	0.000	0.000		0.000	0.000			41.21259	-116.6966
WW-183-004	386.59	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.137	0.034	0.024	0.058	0.000		0.002	0.015	E-57A	Improved-not maintain	41.21033	-116.8112
WW-147-003	388.08	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.032	0.000	0.000	0.000	0.000		0.000	0.000			41.21055	-116.8398
WW-147-002	388.26	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.041	0.000	0.000	0.000	0.000		0.000	0.000			41.21097	-116.8432
WW-147-001	388.27	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.552	0.191	0.124	0.087	0.000		0.000	0.000			41.2116	-116.8432
WW-23-002	434.57	Humboldt	NV	PEM	Rye Patch Reservoir (on Humboldt River / Lake)	3.283	0.644	0.471	0.000	0.000		0.000	0.000			41.21045	-117.5867
WW-23-002A	435.06	Humboldt	NV	PEM	Rye Patch Reservoir (on Humboldt River / Lake)	29.545	7.514	4.984	0.000	0.000		0.000	0.000			41.21685	-117.5911
WW-182-001	467.60	Humboldt	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.245	Donna Harber	0.000	0.000			41.42644	-118.0635
WW-12-001	483.22	Humboldt	NV	PEM	N/A	4.034	0.940	0.625	0.000	0.000		0.000	0.000			41.4778	-118.3454
WW-12-002	491.90	Humboldt	NV	PEM	N/A	13.929	3.495	2.334	0.000	0.000		0.000	0.000			41.49953	-118.4993
WW-23-001	513.09	Humboldt	NV	PEM	N/A	0.069	0.000	0.000	0.001	0.000		0.000	0.000			41.56179	-118.8472
WW-150-004	519.38	Humboldt	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.002	H-48	Unimproved	41.57587	-118.9648
WW-150-003	519.38	Humboldt	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.003	H-48	Unimproved	41.57607	-118.9649
WW-106-003	534.62	Humboldt	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.007	H-52	Unimproved	41.60113	-119.2544
WW-183-005	537.19	Humboldt	NV	PEM	N/A	0.466	0.125	0.083	0.170	0.000		0.000	0.000			41.57316	-119.301
WW-155-011	541.92	Washoe	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.036	W-1	Unimproved	41.59567	-119.3855
WW-155-012	541.92	Washoe	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.011	0.029	W-1	Unimproved	41.59588	-119.3856
WW-155-009	541.94	Washoe	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.000	W-1	Unimproved	41.59506	-119.3874
WW-155-010	541.94	Washoe	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.009	W-1	Unimproved	41.59527	-119.3873
WW-13-002	572.84	Washoe	NV	PEM	N/A	0.300	0.163	0.106	0.000	0.000		0.001	0.020	W-9	Improved-Not Maintained	41.75829	-119.839
WW-140-008	573.66	Washoe	NV	PEM	N/A	0.458	0.110	0.064	0.000	0.000		0.000	0.000			41.76944	-119.8444
WW-140-007	576.22	Washoe	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.059	0.062	W-14A		41.8037	-119.8638
WW-140-006	576.28	Washoe	NV	PEM	N/A	0.265	0.040	0.026	0.000	0.089		0.336	0.632	W-14A		41.80492	-119.8625
WW-140-005	576.35	Washoe	NV	PEM	N/A	0.851	0.309	0.208	0.000	0.000		0.000	0.000			41.80619	-119.8621
WW-140-004	576.40	Washoe	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.042	0.060	W-14A		41.80823	-119.857
WW-108-003	576.52	Washoe	NV	PEM	N/A	0.000	0.000	0.000	0.000	0.000		0.052	0.070	W-14A		41.80727	-119.8677
					<b>Elko County Totals</b>	22.479	5.868	3.912	0.318	0.554		1.812	4.467				
					<b>Humboldt County Totals</b>	51.326	12.718	8.497	0.172	0.245		0.002	0.012				
					<b>Washoe County Totals</b>	1.874	0.622	0.404	0.000	0.089		0.503	0.919				
					<b>Nevada Totals</b>	75.679	19.208	12.814	0.490	0.888		2.317	5.398				
					<b>Project Totals</b>	666.633	166.754	111.391	208.431	31.821		15.473	39.796				

**Table H-4 Oregon Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-46-001	592.02	Lake	OR	PEM	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.024	L-1B	Unimproved	42.0066	-119.9868
WW-200-003	592.02	Lake	OR	PEM	Crump Lake	0.071	0.000	0.000	0.000	0.000		0.000	0.000			42.00566	-119.9866
WW-20-006	598.15	Lake	OR	PEM	Crump Lake	0.008	0.000	0.000	0.000	0.000		0.000	0.000			42.06443	-120.0684
WW-184-002	598.35	Lake	OR	PEM	Crump Lake	0.368	0.088	0.057	0.152	0.000		0.000	0.000			42.06637	-120.0716
WW-20-007	601.92	Lake	OR	PEM	Crump Lake	0.442	0.123	0.083	0.000	0.000		0.000	0.000			42.10891	-120.1085
WW-184-003	603.82	Lake	OR	PEM	Crump Lake	1.184	0.233	0.146	0.291	0.000		0.399	1.387	L-3A		42.12529	-120.1382
WW-192-004	604.90	Lake	OR	PEM	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.029	0.048	CT-1		42.13785	-120.1499
WW-172-004	605.49	Lake	OR	PEM	Crump Lake	0.902	0.054	0.037	0.039	0.000		0.000	0.000			42.13902	-120.1602
WW-172-003	605.58	Lake	OR	PEM	Crump Lake	0.030	0.000	0.000	0.005	0.000		0.002	0.010	CT-1		42.13918	-120.162
WW-192-005	605.61	Lake	OR	PEM	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.018	0.043	CT-1		42.1415	-120.1618
WW-174-006	605.62	Lake	OR	PEM	Crump Lake	0.016	0.000	0.000	0.000	0.000		0.000	0.000			42.13949	-120.1627
WW-192-006	605.87	Lake	OR	PEM	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.027	CT-1B		42.13701	-120.1702
WW-174-005	606.12	Lake	OR	PEM	Crump Lake	0.112	0.029	0.001	0.000	0.000		0.000	0.000			42.14342	-120.1702
WW-20-002	607.56	Lake	OR	PEM	Crump Lake	0.673	0.029	0.000	0.000	0.000		0.000	0.000			42.15276	-120.1949
WW-192-002	608.93	Lake	OR	PEM	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.013	0.034	CT-4		42.18791	-120.2082
WW-192-003	609.53	Lake	OR	PEM	Rye Patch Reservoir (on Humboldt River)	0.106	0.000	0.000	0.000	0.000		0.000	0.000			42.163	-120.2304
WW-38-003	610.45	Lake	OR	PEM	Crump Lake	5.242	1.332	0.843	0.000	0.000		0.000	0.002	L-5	Improved-Maintained	42.1659	-120.2473
WW-200-002	611.84	Lake	OR	PSS	Crump Lake	0.132	0.000	0.000	0.000	0.000		0.000	0.000			42.17325	-120.2721
WW-200-001	611.84	Lake	OR	PEM	Crump Lake	0.336	0.078	0.078	0.000	0.000		0.000	0.000			42.17323	-120.2722
WW-173-015	612.19	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.009	L-12	Improved	42.17547	-120.2812
WW-173-016	612.21	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.003	L-12	Improved	42.17597	-120.282
WW-173-017	612.41	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.005	0.014	L-12	Improved	42.17698	-120.2877
WW-192-001	612.46	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.012	CT-7		42.17539	-120.2874
WW-173-018	612.47	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.015	L-12	Improved	42.18266	-120.2947
WW-173-019	612.48	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.003	L-12	Improved	42.18248	-120.2946
WW-173-020	612.60	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.007	L-12	Improved	42.18438	-120.2994
WW-173-021	612.61	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.007	L-12	Improved	42.18437	-120.2996
WW-155-004	612.90	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.032	L-12A	Unimproved	42.17256	-120.2951
WW-155-003	612.90	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.006	0.022	L-12A	Unimproved	42.17192	-120.2947
WW-155-002	612.92	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.005	0.009	L-12A	Unimproved	42.17176	-120.2948
WW-173-006	613.05	Lake	OR	PEM	Goose Lake	0.016	0.005	0.000	0.011	0.000		0.000	0.000			42.16528	-120.2915
WW-173-003	613.12	Lake	OR	PEM	Goose Lake	0.012	0.000	0.000	0.009	0.000		0.000	0.000			42.16446	-120.2927
WW-173-004	613.13	Lake	OR	PEM	Goose Lake	0.031	0.000	0.000	0.000	0.000		0.000	0.000			42.16441	-120.2929
WW-173-013	613.18	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.030	0.035	L-12D	Unimproved	42.16325	-120.2914
WW-173-007	613.21	Lake	OR	PEM	Goose Lake	0.036	0.006	0.001	0.018	0.000		0.000	0.000			42.16307	-120.2927
WW-173-008	613.22	Lake	OR	PEM	Goose Lake	0.004	0.000	0.000	0.004	0.000		0.000	0.000			42.16294	-120.2929
WW-155-007	613.36	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.055	0.067	L-12D	Unimproved	42.16091	-120.2914
WW-173-010	613.38	Lake	OR	PEM	Goose Lake	0.005	0.000	0.000	0.000	0.000		0.000	0.000			42.16103	-120.294
WW-173-011	613.56	Lake	OR	PEM	Goose Lake	0.031	0.013	0.000	0.018	0.000		0.022	0.031	L-12D	Unimproved	42.15848	-120.2949
WW-173-014	613.68	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.022	L-12A	Unimproved	42.15644	-120.2862
WW-173-012	613.78	Lake	OR	PEM	Goose Lake	0.010	0.000	0.000	0.010	0.000		0.000	0.000			42.15544	-120.2949
WW-152-001	617.20	Lake	OR	PEM	Goose Lake	16.710	4.106	2.724	6.811	0.000		0.425	0.978	L-14B	Unimproved	42.12324	-120.3289
WW-152-002	617.70	Lake	OR	PEM	Goose Lake	0.050	0.021	0.014	0.021	0.000		0.000	0.000			42.11998	-120.3374
WW-152-011	617.71	Lake	OR	PEM	Goose Lake	0.023	0.000	0.000	0.000	0.000		0.230	0.552	L-14A	Unimproved	42.1192	-120.3366
WW-152-010	617.71	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.010	0.204	L-14A	Unimproved	42.11923	-120.3368
WW-152-003	617.77	Lake	OR	PEM	Goose Lake	4.508	1.098	0.754	1.748	0.000		0.000	0.000			42.11928	-120.3384
WW-152-008	617.82	Lake	OR	PSS	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.034	0.055	L-14A	Unimproved	42.11769	-120.3367
WW-152-007	617.83	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.056	L-14A	Unimproved	42.11749	-120.3369
WW-152-006	617.85	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.112	0.277	L-14A	Unimproved	42.11709	-120.3367
WW-152-004	618.99	Lake	OR	PEM	Goose Lake	29.736	7.493	5.002	11.884	0.000		0.000	0.000			42.10417	-120.3509
WW-25-100	626.18	Lake	OR	PEM	Goose Lake	300.516	75.835	50.513	120.891	2.934		0.000	0.000			42.05807	-120.4601
WW-126-001	630.71	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.122	0.169	L-15	Improved-not Maintained	42.00024	-120.5134

**Table H-4 Oregon Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-36-001	630.73	Lake	OR	PSS	Goose Lake	1.035	0.149	0.101	0.000	0.000		0.000	0.000			42.01639	-120.5187
WW-126-002	630.84	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.002	L-15	Improved-not Maintained	42.00269	-120.5168
WW-142-001	630.90	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.005	L-15	Improved-not Maintained	42.00395	-120.5183
WW-142-002	630.90	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.017	L-15	Improved-not Maintained	42.00381	-120.5184
WW-142-003	631.27	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.002	L-15	Improved-not Maintained	42.00404	-120.5258
WW-142-004	631.28	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.011	L-15	Improved-not Maintained	42.00389	-120.5258
WW-142-006	631.47	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.013	L-15	Improved-not Maintained	42.00532	-120.5301
WW-142-005	631.48	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.016	L-15	Improved-not Maintained	42.00516	-120.5303
WW-142-007	631.54	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.014	0.100	L-15	Improved-not Maintained	42.00748	-120.5322
WW-43-001	634.39	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.006	0.051	L-15	Improved-not Maintained	42.00584	-120.5862
WW-43-003	634.75	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.088	L-15	Improved-not Maintained	42.00828	-120.5917
WW-43-007	635.98	Lake	OR	PEM	Goose Lake	0.009	0.000	0.000	0.000	0.000		0.000	0.005	L-15	Improved-not Maintained	42.01025	-120.616
WW-43-008	636.03	Lake	OR	PEM	Goose Lake	0.036	0.026	0.009	0.000	0.000		0.000	0.036	L-15	Improved-not Maintained	42.01047	-120.6169
WW-43-005	636.05	Lake	OR	PEM	Goose Lake	0.210	0.081	0.055	0.000	0.000		0.117	0.193	L-15	Improved-not Maintained	42.01068	-120.6173
WW-192-007	636.16	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.073	0.144	CT-9		42.00928	-120.6196
WW-43-009	636.27	Lake	OR	PEM	Goose Lake	0.006	0.000	0.000	0.000	0.000		0.000	0.032	L-15	Improved-not Maintained	42.01134	-120.6214
WW-43-010	636.27	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.006	L-15	Improved-not Maintained	42.01156	-120.6214
WW-33-003	636.82	Lake	OR	PEMA	Goose Lake	0.019	0.000	0.000	0.000	0.000		0.000	0.000			42.01171	-120.6321
WW-171-001	638.91	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.013	L-15B	Improved	42.01175	-120.6715
WW-172-001	639.00	Lake	OR	PEM	Goose Lake	0.025	0.000	0.000	0.000	0.000		0.000	0.022	L-15D	Partially Improved	42.00998	-120.6736
WW-171-003	639.03	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.008	L-15	Improved-not Maintained	42.01178	-120.6757
WW-171-004	639.08	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.026	0.189	L-15	Improved-not Maintained	42.01147	-120.6765
WW-172-002	639.21	Lake	OR	PEMC	Goose Lake	0.977	0.108	0.064	0.000	0.000		0.000	0.000			42.00865	-120.6774
WW-199-005	639.43	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.015	CT-12		42.01211	-120.6845
WW-199-004	639.43	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.009	0.028	CT-12		42.01193	-120.6844
WW-199-006	639.44	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.003	CT-12		42.01193	-120.6846
WW-184-007	639.47	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.010	L-16	Improved-not Maintained	42.02156	-120.6922
WW-199-007	639.53	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.027	0.070	CT-12		42.00958	-120.6856
WW-171-009	639.60	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.003	0.046	L-15D	Partially Improved	42.00417	-120.682
WW-171-008	639.61	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.124	L-15D	Partially Improved	42.00397	-120.682
WW-171-010	639.74	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.003	L-15D	Partially Improved	42.00351	-120.6851
WW-171-012	641.45	Lake	OR	PEM	Klamath River	0.677	0.531	0.426	0.000	0.000		0.261	0.484	L-15D	Partially Improved	42.00151	-120.7181
WW-184-006	641.45	Lake	OR	PEMC	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.178	0.270	L-16	Improved-not Maintained	42.02274	-120.7175
WW-37-001	641.70	Lake	OR	PEM	Klamath River	0.064	0.000	0.000	0.024	0.000		0.011	0.024	L-15D	Partially Improved	42.00126	-120.723
WW-171-011	641.87	Lake	OR	PEM	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.084	0.134	L-15D	Partially Improved	42.00039	-120.7264

**Table H-4 Oregon Wetlands Crossed by the Ruby Pipeline Project**

Wetland ID	MP	County	State	NWI Type	JD Waterway	Wetland Acreage within 300' Survey Corridor	Wetland Acreage within 75' Construction Workspace	Wetland Acreage within 50' Operational Right-of-Way	Wetland Acres within the Extra Work Space	Wetland Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Wetland Acres within the Access Road 30' Improvement	Wetland Acres within the Access Road Survey Corridor	Access Road Name	Access Road Condition	LAT	LONG
WW-142-009	642.02	Lake	OR	PEM	Klamath River	0.000	0.000	0.000	0.000	0.000		0.002	0.023	L-16	Improved-not Maintained	42.02069	-120.7288
WW-37-003	642.05	Lake	OR	PEM	N/A	1.452	0.590	0.369	0.000	0.000		0.000	0.000			42.0016	-120.7298
WW-184-005	642.21	Lake	OR	PEM	Klamath River	0.000	0.000	0.000	0.000	0.000		0.028	0.064	L-16	Improved-not Maintained	42.01903	-120.7324
WW-142-008	642.43	Lake	OR	PEM	Klamath River	0.000	0.000	0.000	0.000	0.000		0.000	0.014	L-16	Improved-not Maintained	42.01787	-120.7379
WW-174-004	643.25	Lake	OR	PEM	Klamath River	0.000	0.000	0.000	0.000	0.000		0.025	0.063	L-16	Improved-not Maintained	42.02087	-120.748
WW-184-004	643.39	Lake	OR	PEM	Klamath River	0.000	0.000	0.000	0.000	0.000		0.000	0.004	L-16	Improved-not Maintained	42.02277	-120.7504
WW-175-002	645.07	Lake	OR	PEM	Klamath River	0.504	0.140	0.098	0.000	0.000		0.000	0.000			42.00988	-120.787
WW-175-004	645.07	Lake	OR	PEM	Klamath River	0.044	0.000	0.000	0.000	0.000		0.000	0.000			42.01022	-120.7868
WW-175-003	645.14	Lake	OR	PEM	Klamath River	0.039	0.000	0.000	0.000	0.000		0.000	0.000			42.01083	-120.788
WW-156-003	648.26	Lake	OR	PEM	Klamath River	0.022	0.000	0.000	0.000	0.000		0.000	0.000			42.01259	-120.8473
WW-156-002	648.27	Lake	OR	PEM	Klamath River	0.017	0.017	0.017	0.000	0.000		0.000	0.000			42.01296	-120.8476
WW-174-001	648.29	Lake	OR	PEM	Klamath River	0.044	0.000	0.000	0.000	0.000		0.000	0.000			42.01318	-120.848
WW-156-004	648.30	Lake	OR	PEM	Klamath River	0.012	0.010	0.010	0.000	0.000		0.000	0.000			42.01297	-120.8481
WW-174-002	648.31	Lake	OR	PEM	Klamath River	0.371	0.111	0.063	0.000	0.000		0.000	0.000			42.01296	-120.8484
WW-174-003	648.81	Lake	OR	PEM	Klamath River	0.071	0.000	0.000	0.000	0.090		0.000	0.000			42.012	-120.858
WW-153-005	650.09	Klamath	OR	PEM	Klamath River	0.474	0.176	0.119	0.000	0.000		0.000	0.004	K-1	Improved-Maintained	42.01076	-120.8827
WW-153-006	650.46	Klamath	OR	PEMC	Klamath River	0.742	0.211	0.147	0.000	0.000		0.000	0.000			42.00983	-120.8898
WW-154-002	651.10	Klamath	OR	PEM	Klamath River	0.938	0.241	0.162	0.000	0.000		0.193	0.394	K-1C	Unimproved	42.00798	-120.9021
WW-175-001	652.99	Klamath	OR	PEM	Klamath River	0.000	0.000	0.000	0.000	0.000		0.018	0.038	K-3A	Unimproved	41.99509	-120.9351
WW-154-004	653.14	Klamath	OR	PEMC	Klamath River	0.773	0.316	0.210	0.000	0.000		0.000	0.000			42.00515	-120.941
WW-154-003	653.26	Klamath	OR	PEMC	Klamath River	1.090	0.135	0.097	0.000	0.000		0.000	0.000			42.00541	-120.9432
WW-154-005	653.54	Klamath	OR	PEM	Klamath River	0.442	0.103	0.070	0.000	0.000		0.000	0.000			42.00756	-120.9478
WW-154-001	654.48	Klamath	OR	PEM	Klamath River	0.514	0.158	0.107	0.000	0.000		0.000	0.013	K-3	Improved-Maintained	42.01095	-120.9656
WW-153-004	655.97	Klamath	OR	PEM	Klamath River	0.041	0.041	0.041	0.000	0.000		0.000	0.009	K-3	Improved-Maintained	42.00184	-120.991
WW-153-003	656.03	Klamath	OR	PEMFh	Klamath River	2.097	0.000	0.000	0.031	0.000		0.000	0.327	K-3	Improved-Maintained	42.00143	-120.9922
WW-153-002	656.23	Klamath	OR	PEMFh	Klamath River	0.111	0.000	0.000	0.000	0.000		0.000	0.000			41.99933	-120.9948
WW-153-001	661.62	Klamath	OR	PEM	Klamath River	0.073	0.025	0.025	0.000	0.000		0.000	0.000			41.99624	-121.0979
					<b>Lake County Totals</b>	366.946	92.303	61.461	141.935	3.023		2.395	6.482				
					<b>Klamath County Totals</b>	7.295	1.404	0.978	0.031	0.000		0.211	0.784				
					<b>Oregon Totals</b>	374.241	93.707	62.439	141.966	3.023		2.607	7.267				
					<b>Project Totals</b>	666.633	166.754	111.391	208.431	31.821		15.473	39.796				



Table H-5 Waterbody Crossings in Wyoming

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
0.03	SS-16-001	Lincoln	WY	Tributary to Ham's Fork River	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.008	0.004	0.002	0.002	0.000		0.000	0.000		41.7770	-110.3511
0.46	SS-34-002	Lincoln	WY	Roberson Ditch	INTERMITTENT	8	Flaming Gorge Reservoir (Briggs Reservoir)	0.057	0.022	0.010	0.001	0.000		0.000	0.000		41.7711	-110.3532
0.68	SS-16-028	Lincoln	WY	Tributary to Ham's Fork River	INTERMITTENT	10	Flaming Gorge Reservoir (Briggs Reservoir)	0.079	0.034	0.013	0.000	0.000		0.000	0.000		41.7681	-110.3548
0.75	SS-16-029	Lincoln	WY	Tributary to Ham's Fork River	PERENNIAL	15	Flaming Gorge Reservoir (Briggs Reservoir)	0.110	0.046	0.018	0.000	0.000		0.000	0.000		41.7671	-110.3544
0.91	SS-16-030	Lincoln	WY	Hams Fork River	PERENNIAL	25	Flaming Gorge Reservoir (Briggs Reservoir)	0.185	0.069	0.030	0.000	0.000		0.000	0.000		41.7648	-110.3554
0.98	SS-16-013	Lincoln	WY	Tributary to Hams Fork River	INTERMITTENT	40	Flaming Gorge Reservoir (Briggs Reservoir)	0.283	0.116	0.048	0.018	0.000		0.000	0.000		41.7637	-110.3555
1.07	SS-16-012	Lincoln	WY	Abandoned oxbow channel	INTERMITTENT	6	Flaming Gorge Reservoir (Briggs Reservoir)	0.016	0.000	0.000	0.000	0.000		0.000	0.000		41.7625	-110.3554
1.35	SS-16-011	Lincoln	WY	South Side Ditch	INTERMITTENT	8	Flaming Gorge Reservoir (Briggs Reservoir)	0.060	0.023	0.010	0.016	0.000		0.000	0.000		41.7586	-110.3565
1.78	SS-16-009	Lincoln	WY	Tributary to South Side Ditch	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.006	0.004	0.001	0.002	0.000		0.000	0.000		41.7531	-110.3607
1.80	SS-16-008	Lincoln	WY	Unnamed Trib. To South Side Ditch	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.002	0.000	0.000	0.001	0.000		0.000	0.000		41.7530	-110.3612
1.84	SS-16-007	Lincoln	WY	Tributary to South Side Ditch	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.008	0.003	0.001	0.002	0.000		0.001	0.002	LW-4	41.7523	-110.3610
2.17	SS-16-006	Lincoln	WY	Unnamed Trib. to Dry Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.004	0.000	0.000	0.002	0.000		0.000	0.000		41.7484	-110.3646
2.55	SS-34-003	Lincoln	WY	Tributary to Dry Muddy Creek	INTERMITTENT	0.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.015	0.005	0.002	0.002	0.000		0.000	0.002	LW-4	41.7439	-110.3642
2.73	SS-16-004	Lincoln	WY	Tributary to Dry Muddy Creek	INTERMITTENT	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.018	0.006	0.003	0.000	0.000		0.000	0.000		41.7413	-110.3643
3.14	SS-16-003	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.008	0.003	0.002	0.000	0.000		0.000	0.001	LW-4	41.7355	-110.3664
3.68	SS-16-002	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	1.25	Flaming Gorge Reservoir (Briggs Reservoir)	0.003	0.000	0.000	0.000	0.000		0.000	0.000		41.7280	-110.3691
5.95	SS-17-002	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.005	0.005	0.001	0.000	0.000		0.000	0.000		41.6983	-110.3681
5.96	SS-17-003	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	0.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.005	0.002	0.001	0.000	0.000		0.000	0.000		41.6982	-110.3682
5.99	SS-17-004	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	0.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.004	0.001	0.001	0.000	0.000		0.000	0.000		41.6981	-110.3688
6.04	SS-17-005	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	0.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.6979	-110.3697

**Table H-5 Waterbody Crossings in Wyoming**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
6.49	SS-17-006	Lincoln	WY	Tributary to Dry Muddy Creek	INTERMITTENT	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.6935	-110.3758
6.52	SS-17-007	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	3	Flaming Gorge Reservoir (Briggs Reservoir)	0.029	0.022	0.006	0.000	0.000		0.000	0.000		41.6933	-110.3762
6.61	SS-17-008	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.008	0.008	0.007	0.000	0.000		0.000	0.000		41.6921	-110.3771
6.69	SS-17-009	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.6911	-110.3781
6.77	SS-17-010	Lincoln	WY	Tributary to Dry Muddy Creek	INTERMITTENT	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.016	0.006	0.003	0.000	0.000		0.000	0.000		41.6903	-110.3789
8.46	SS-17-011	Lincoln	WY	Unnamed Trib. to Dry Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.003	0.000	0.000	0.000	0.000		0.000	0.000		41.6773	-110.4053
8.74	SS-17-012	Lincoln	WY	Dry Muddy Creek	INTERMITTENT	15	Flaming Gorge Reservoir (Briggs Reservoir)	0.142	0.046	0.018	0.053	0.000		0.000	0.000		41.6766	-110.4105
8.77	SS-17-013	Lincoln	WY	Tributary to Dry Muddy Creek	INTERMITTENT	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.010	0.005	0.002	0.002	0.000		0.000	0.000		41.6765	-110.4112
8.85	SS-16-015	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.025	0.014	0.008	0.000	0.000		0.000	0.000		41.6757	-110.4122
9.62	SS-16-016	Lincoln	WY	Tributary to Dry Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.016	0.003	0.001	0.000	0.000		0.001	0.003	LW-6A	41.6697	-110.4241
14.16	SS-16-017	Lincoln	WY	Tributary to Little Muddy Creek	INTERMITTENT	12	Flaming Gorge Reservoir (Briggs Reservoir)	0.089	0.034	0.014	0.024	0.000		0.000	0.000		41.6388	-110.5009
15.44	SS-17-015	Lincoln	WY	Tributary to Little Muddy Creek	EPHEMERAL	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.005	0.003	0.000	0.003	0.000		0.000	0.000		41.6296	-110.5213
15.97	SS-39-030	Lincoln	WY	Unnamed Trib. to Little Muddy Creek	EPHEMERAL	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.000	0.003	LW-20	41.6244	-110.5348
16.62	SS-39-029	Lincoln	WY	Unnamed Trib. to Little Muddy Creek	EPHEMERAL	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.001	0.002	LW-22	41.6168	-110.5381
16.63	SS-39-028	Lincoln	WY	Unnamed Trib. to Little Muddy Creek	EPHEMERAL	3	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.002	0.005	LW-23	41.6170	-110.5396
17.23	SS-17-014	Lincoln	WY	Tributary to Little Muddy Creek	EPHEMERAL	1.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.006	0.004	0.002	0.000	0.000		0.000	0.000		41.6058	-110.5322
18.47	SS-16-018	Lincoln	WY	Tributary to Little Muddy Creek	EPHEMERAL	3	Flaming Gorge Reservoir (Briggs Reservoir)	0.024	0.009	0.004	0.000	0.000		0.001	0.002	LW-21	41.5903	-110.5411
18.68	SS-16-019	Lincoln	WY	Tributary to Little Muddy Creek	EPHEMERAL	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.018	0.008	0.003	0.005	0.000		0.000	0.000		41.5893	-110.5450
18.80	SS-16-020	Lincoln	WY	Tributary to Little Muddy Creek	INTERMITTENT	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.018	0.007	0.003	0.009	0.000		0.000	0.000		41.5886	-110.5471
18.84	SS-16-021	Lincoln	WY	Tributary to Little Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.5883	-110.5476

**Table H-5 Waterbody Crossings in Wyoming**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
18.96	SS-16-022	Lincoln	WY	Tributary to Little Muddy Creek	EPHEMERAL	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.019	0.008	0.004	0.000	0.000		0.000	0.000		41.5875	-110.5498
19.03	SS-39-031	Lincoln	WY	Unnamed Trib. to Little Muddy Creek	INTERMITTENT	5	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.003	0.010	LW-21	41.5792	-110.5459
19.15	SS-16-023	Lincoln	WY	Tributary to Little Muddy Creek	INTERMITTENT	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.026	0.011	0.005	0.000	0.000		0.002	0.003	LW-24	41.5864	-110.5531
19.44	SS-16-024	Lincoln	WY	Tributary to Little Muddy Creek	EPHEMERAL	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.025	0.011	0.006	0.003	0.000		0.000	0.000		41.5841	-110.5577
19.72	SS-16-025	Lincoln	WY	Little Muddy Creek	PERENNIAL	12	Flaming Gorge Reservoir (Briggs Reservoir)	0.100	0.047	0.020	0.000	0.000		0.000	0.000		41.5814	-110.5617
20.14	SS-39-032	Lincoln	WY	North Fork Little Muddy Creek	PERENNIAL	6	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.004	0.020	LW-21	41.5862	-110.5676
20.32	SS-16-026	Lincoln	WY	Little Muddy Creek	PERENNIAL	12	Flaming Gorge Reservoir (Briggs Reservoir)	0.166	0.069	0.023	0.000	0.000		0.000	0.000		41.5810	-110.5722
22.58	SS-17-016	Uinta	WY	Ditch Trib. to Lake (Cumberland Flats)	INTERMITTENT	3	Flaming Gorge Reservoir (Briggs Reservoir)	0.078	0.000	0.000	0.000	0.000		0.009	0.016	U-3	41.5683	-110.6102
22.63	SS-17-017	Uinta	WY	Ditch Trib. to Lake (Cumberland Flat)	EPHEMERAL	1.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.017	0.000	0.000	0.000	0.000		0.000	0.000		41.5682	-110.6111
23.15	SS-17-018	Uinta	WY	Unnamed Trib. to Lake (Cumberland Flat)	INTERMITTENT	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.011	0.000	0.000	0.000	0.000		0.000	0.001	U-4	41.5662	-110.6207
23.29	SS-17-019	Uinta	WY	Unnamed Trib. to Lake (Cumberland Flats)	EPHEMERAL	1.25	Flaming Gorge Reservoir (Briggs Reservoir)	0.012	0.006	0.004	0.000	0.000		0.004	0.005	U-4	41.5660	-110.6233
23.49	SS-17-020	Uinta	WY	Unnamed Trib. to Lake (Cumberland Flats)	INTERMITTENT	2.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.029	0.010	0.004	0.000	0.000		0.000	0.000		41.5654	-110.6273
23.59	SS-17-021	Uinta	WY	Unnamed Trib. to Lake (Cumberland Flats)	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.010	0.003	0.001	0.000	0.000		0.000	0.000		41.5650	-110.6291
23.82	SS-17-022	Uinta	WY	Little Muddy Creek	PERENNIAL	5	Flaming Gorge Reservoir (Briggs Reservoir)	0.083	0.016	0.007	0.000	0.000		0.004	0.009	U-1	41.5636	-110.6330
24.41	SS-17-023	Uinta	WY	Tributary to Little Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.002	0.002	0.001	0.000	0.000		0.000	0.000		41.5621	-110.6442
24.47	SS-17-024	Uinta	WY	Tributary to Little Muddy Creek	EPHEMERAL	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.020	0.007	0.004	0.000	0.000		0.002	0.005	U-1	41.5619	-110.6454
24.50	SS-17-025	Uinta	WY	Tributary to Little Muddy Creek	EPHEMERAL	5	Flaming Gorge Reservoir (Briggs Reservoir)	0.052	0.019	0.011	0.000	0.000		0.000	0.010	U-1	41.5619	-110.6460
24.64	SS-17-026	Uinta	WY	Tributary to Little Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.008	0.003	0.001	0.000	0.000		0.001	0.002	U-1	41.5615	-110.6485

**Table H-5 Waterbody Crossings in Wyoming**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
24.72	SS-17-027	Uinta	WY	Unnamed Trib. to Little Muddy Creek	EPHEMERAL	0.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.001	0.000	0.000	0.000	0.000		0.000	0.000		41.5606	-110.6497
24.72	SS-17-028	Uinta	WY	Unnamed Trib. to Little Muddy Creek	EPHEMERAL	0.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.001	0.000	0.000	0.000	0.000		0.000	0.000		41.5605	-110.6498
24.74	SS-17-029	Uinta	WY	Tributary to Little Muddy Creek	EPHEMERAL	0.25	Flaming Gorge Reservoir (Briggs Reservoir)	0.001	0.000	0.000	0.000	0.000		0.000	0.000		41.5606	-110.6501
24.78	SS-41-004	Uinta	WY	Little Muddy Creek	PERENNIAL	10	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.007	0.016	U-6	41.5649	-110.6564
24.83	SS-17-030	Uinta	WY	Tributary to Little Muddy Creek	EPHEMERAL	0.75	Flaming Gorge Reservoir (Briggs Reservoir)	0.008	0.002	0.001	0.000	0.000		0.000	0.000		41.5598	-110.6515
24.87	SS-17-031	Uinta	WY	Tributary to Little Muddy Creek	EPHEMERAL	2	Flaming Gorge Reservoir (Briggs Reservoir)	0.014	0.005	0.002	0.000	0.000		0.001	0.003	U-1	41.5593	-110.6519
24.98	SS-17-032	Uinta	WY	Tributary to Little Muddy Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.025	0.016	0.004	0.000	0.000		0.000	0.000		41.5578	-110.6526
25.01	SS-17-033	Uinta	WY	Unnamed Trib. to Little Muddy Creek	EPHEMERAL	0.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.010	0.000	0.000	0.000	0.000		0.000	0.000		41.5573	-110.6527
25.26	SS-17-034	Uinta	WY	Unnamed Trib. to Little Muddy Creek	EPHEMERAL	0.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.002	0.000	0.000	0.000	0.000		0.000	0.000		41.5537	-110.6524
25.39	SS-17-035	Uinta	WY	Tributary to Little Muddy Creek	EPHEMERAL	1.75	Flaming Gorge Reservoir (Briggs Reservoir)	0.029	0.007	0.003	0.000	0.000		0.003	0.007	U-5B	41.5519	-110.6528
26.41	SS-26-009	Uinta	WY	Tributary to Ryckman Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.031	0.004	0.000	0.014	0.000		0.000	0.000		41.5425	-110.6604
26.55	SS-26-010	Uinta	WY	Tributary to Ryckman Creek	EPHEMERAL	3	Flaming Gorge Reservoir (Briggs Reservoir)	0.022	0.009	0.004	0.006	0.000		0.000	0.000		41.5430	-110.6627
26.80	SS-26-003	Uinta	WY	Tributary to Ryckman Creek	EPHEMERAL	1.5	Flaming Gorge Reservoir (Briggs Reservoir)	0.012	0.004	0.002	0.000	0.000		0.000	0.000		41.5422	-110.6674
26.91	SS-26-002C	Uinta	WY	Ryckman Creek	PERENNIAL	0	Flaming Gorge Reservoir (Briggs Reservoir)	0.000	0.000	0.000	0.000	0.000		0.000	0.000		41.5424	-110.6694
27.14	SS-26-002D	Uinta	WY	Ryckman Creek	PERENNIAL	0	Flaming Gorge Reservoir (Briggs Reservoir)	0.007	0.002	0.001	0.000	0.000		0.000	0.000		41.5432	-110.6738
27.26	SS-26-004	Uinta	WY	Tributary to Ryckman Creek	EPHEMERAL	8	Flaming Gorge Reservoir (Briggs Reservoir)	0.068	0.026	0.011	0.000	0.000		0.000	0.001	U-6	41.5421	-110.6760
27.32	SS-26-005	Uinta	WY	Tributary to Ryckman Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.006	0.003	0.002	0.000	0.000		0.000	0.001	U-6	41.5415	-110.6770
27.37	SS-26-007	Uinta	WY	Tributary to Ryckman Creek	EPHEMERAL	8	Flaming Gorge Reservoir (Briggs Reservoir)	0.054	0.022	0.010	0.000	0.000		0.006	0.012	U-6	41.5415	-110.6781
27.49	SS-26-002E	Uinta	WY	Ryckman Creek	PERENNIAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.027	0.000	0.000	0.000	0.000		0.000	0.000		41.5397	-110.6786
27.79	SS-26-002B	Uinta	WY	Ryckman Creek	PERENNIAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.020	0.000	0.000	0.000	0.000		0.000	0.000		41.5357	-110.6802

**Table H-5 Waterbody Crossings in Wyoming**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
27.99	SS-26-008	Uinta	WY	Hill Creek	INTERMITTENT	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.016	0.006	0.001	0.000	0.000		0.001	0.002	U-6	41.5334	-110.6823
28.85	SS-26-001	Uinta	WY	Unnamed Trib. to Hill Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.001	0.000	0.000	0.000	0.000		0.000	0.000		41.5279	-110.6974
37.04	SS-26-016	Uinta	WY	Tributary to Sheep Creek	INTERMITTENT	15	Flaming Gorge Reservoir (Briggs Reservoir)	0.123	0.038	0.018	0.000	0.000		0.009	0.016	U-10	41.5203	-110.8471
37.07	SS-26-017	Uinta	WY	Tributary to Sheep Creek	EPHEMERAL	1	Flaming Gorge Reservoir (Briggs Reservoir)	0.007	0.000	0.000	0.004	0.000		0.000	0.000		41.5203	-110.8478
40.75	SS-26-011	Uinta	WY	Unnamed Trib. to Salt Creek	EPHEMERAL	1	Bear River	0.019	0.000	0.000	0.008	0.000		0.000	0.000		41.5292	-110.9114
41.13	SS-26-011A	Uinta	WY	Unnamed Trib. to Salt Creek	EPHEMERAL	1	Bear River	0.005	0.000	0.000	0.000	0.000		0.000	0.000		41.5301	-110.9187
42.00	SS-26-011B	Uinta	WY	Unnamed Trib. to Salt Creek	EPHEMERAL	1	Bear River / Bear Lake	0.008	0.000	0.000	0.006	0.000		0.000	0.000		41.5296	-110.9352
42.10	SS-39-033	Uinta	WY	Adin Brown Ditch	INTERMITTENT	5	Bear River	0.000	0.000	0.000	0.000	0.198		0.000	0.000		41.3367	-111.0024
42.10	SS-39-034	Uinta	WY	Red Canyon Creek	INTERMITTENT	1	Bear River	0.000	0.000	0.000	0.000	0.040		0.000	0.000		41.3411	-111.0014
42.10	SS-39-033A	Uinta	WY	Adin Brown Ditch	INTERMITTENT	5	Bear River	0.000	0.000	0.000	0.000	0.042		0.000	0.000		41.3412	-111.0025
42.29	SS-26-012	Uinta	WY	Tributary to Salt Creek	INTERMITTENT	2	Bear River / Bear Lake	0.016	0.007	0.003	0.005	0.000		0.000	0.000		41.5311	-110.9403
42.86	SS-26-014	Uinta	WY	Tributary to Salt Creek	EPHEMERAL	1	Bear River / Bear Lake	0.010	0.005	0.002	0.000	0.000		0.000	0.000		41.5365	-110.9486
43.71	SS-39-022	Uinta	WY	Salt Creek	INTERMITTENT	6	Bear River	0.000	0.000	0.000	0.000	0.000		0.006	0.011	U-24	41.5161	-110.9682
43.98	SS-26-013	Uinta	WY	Tributary to Alkali Creek	EPHEMERAL	2	Bear River / Bear Lake	0.024	0.006	0.002	0.000	0.000		0.000	0.000		41.5396	-110.9694
44.41	SS-39-026	Uinta	WY	Alkali Creek	INTERMITTENT	6	Bear River	0.007	0.000	0.000	0.000	0.000		0.005	0.020	U-28	41.5399	-110.9778
44.47	SS-34-006	Uinta	WY	Tributary to Alkali Creek	INTERMITTENT	4	Bear River / Bear Lake	0.045	0.015	0.006	0.010	0.000		0.000	0.000		41.5408	-110.9785
44.50	SS-34-005	Uinta	WY	Alkali Creek	INTERMITTENT	6	Bear River / Bear Lake	0.052	0.019	0.007	0.024	0.000		0.000	0.000		41.5411	-110.9791
44.66	SS-39-025	Uinta	WY	Unnamed Trib. to Alkali Creek	EPHEMERAL	5	Bear River	0.000	0.000	0.000	0.000	0.000		0.004	0.008	U-19	41.5626	-110.9795
44.73	SS-39-024	Uinta	WY	Unnamed Trib. to Alkali Creek	EPHEMERAL	2	Bear River	0.000	0.000	0.000	0.000	0.000		0.001	0.003	U-19	41.5638	-110.9807
44.98	SS-39-021	Uinta	WY	Unnamed Trib. to Bear River	INTERMITTENT	2	Bear River	0.000	0.000	0.000	0.000	0.000		0.002	0.003	U-31	41.5404	-110.9879
44.98	SS-26-015	Uinta	WY	Unnamed Trib. to Bear River	INTERMITTENT	1.5	Bear River / Bear Lake	0.014	0.005	0.002	0.004	0.000		0.000	0.000		41.5410	-110.9882
45.07	SS-39-023	Uinta	WY	Salt Creek	INTERMITTENT	10	Bear River	0.000	0.000	0.000	0.000	0.000		0.010	0.019	U-24	41.5159	-110.9923
							<b>Lincoln County Totals</b>	1.651	0.668	0.274	0.146	0.000		0.016	0.054			
							<b>Unita County Totals</b>	1.006	0.269	0.115	0.080	0.280		0.074	0.171			
							<b>Wyoming Totals</b>	2.657	0.937	0.389	0.226	0.280		0.090	0.225			
							<b>Project Totals</b>	35.578	13.310	5.664	5.779	1.021		5.823	12.547			



Table H-6 Waterbody Crossings in Utah

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
49.41	SS-195-003	Rich	UT	Bear River Canal	INTERMITTENT	8	Bear River	0.000	0.000	0.000	0.000	0.139	Hopkins 2	0.000	0.000		41.5317	-111.0735
51.06	SS-125-002	Rich	UT	Bear River Canal	INTERMITTENT	4	Bear River	0.052	0.013	0.005	0.000	0.000		0.000	0.000		41.5369	-111.1047
51.43	SS-28-022	Rich	UT	Canal to Bear River	INTERMITTENT	1	Bear River	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.5341	-111.1107
51.57	SS-28-021	Rich	UT	Canal to Bear River	INTERMITTENT	4	Bear River	0.031	0.011	0.005	0.000	0.000		0.000	0.000		41.5333	-111.1131
51.74	SS-28-020	Rich	UT	Canal to Bear River	INTERMITTENT	4	Bear River	0.029	0.011	0.005	0.008	0.000		0.003	0.005	R-5A	41.5330	-111.1161
51.99	SS-39-035	Rich	UT	Unnamed Trib. to Rees Canal	INTERMITTENT	0	Bear River	0.000	0.000	0.000	0.000	0.013	Staging Area	0.000	0.000		41.5329	-111.1211
52.32	SS-165-001	Rich	UT	Crawford-Thompson Canal	INTERMITTENT	15	Bear River	0.000	0.000	0.000	0.000	0.000		0.045	0.100	R-5F	41.5323	-111.1285
52.55	SS-28-019	Rich	UT	Crawford Thompson Canal	PERENNIAL	25	Bear River	0.217	0.076	0.030	0.097	0.000		0.000	0.000		41.5272	-111.1295
52.61	SS-28-018A	Rich	UT	Bear River - Blank Data Sheet	PERENNIAL	0	Bear River	0.002	0.000	0.000	0.000	0.000		0.000	0.000		41.5264	-111.1304
52.81	SS-28-018	Rich	UT	Bear River	PERENNIAL	45	Bear River	0.361	0.131	0.053	0.000	0.000		0.000	0.000		41.5254	-111.1340
52.96	SS-28-017	Rich	UT	Canal to Bear River	INTERMITTENT	40	Bear River	0.293	0.128	0.050	0.099	0.000		0.000	0.000		41.5244	-111.1366
53.19	SS-28-016	Rich	UT	Ditch to Bear River	INTERMITTENT	3	Bear River	0.030	0.014	0.006	0.007	0.000		0.000	0.000		41.5226	-111.1404
53.62	SS-125-004	Rich	UT	Ditch to Dry Creek	INTERMITTENT	1	Bear River	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.5195	-111.1476
53.96	SS-125-005	Rich	UT	Ditch to Woodruff Creek	INTERMITTENT	2.5	Bear River	0.053	0.026	0.017	0.000	0.000		0.002	0.004	R-7B	41.5165	-111.1511
54.25	SS-124-001	Rich	UT	Ditch to Woodruff Creek	INTERMITTENT	4	Bear River	0.030	0.011	0.005	0.000	0.000		0.000	0.000		41.5146	-111.1559
54.49	SS-124-002	Rich	UT	Woodruff Creek	INTERMITTENT	9	Bear River	0.089	0.028	0.014	0.033	0.000		0.000	0.000		41.5130	-111.1600
54.55	SS-28-011	Rich	UT	Ditch to Saleratus Creek	INTERMITTENT	4	Bear River	0.029	0.011	0.005	0.000	0.000		0.000	0.000		41.5129	-111.1613
54.65	SS-124-003	Rich	UT	Ditch to Saleratus Creek	INTERMITTENT	3	Bear River	0.022	0.008	0.004	0.000	0.000		0.000	0.000		41.5117	-111.1626
54.89	SS-28-009	Rich	UT	Randolf-Woodruff Canal	INTERMITTENT	8	Bear River	0.059	0.023	0.010	0.000	0.000		0.000	0.000		41.5111	-111.1670
56.87	SS-26-018	Rich	UT	Unnmamed Trib. to Woodruff Creek	INTERMITTENT	0	Bear River	0.007	0.003	0.001	0.002	0.000		0.000	0.001	R-8	41.4973	-111.1999
57.00	SS-39-015	Rich	UT	Unnmamed Trib. to Woodruff Creek	INTERMITTENT	1	Bear River	0.000	0.000	0.000	0.000	0.000		0.000	0.000	R-12B	41.4956	-111.2016
59.86	SS-28-008	Rich	UT	Tributary to Woodruff Creek	EPHEMERAL	8	Bear River	0.058	0.023	0.010	0.016	0.000		0.000	0.000		41.4808	-111.2530
60.42	SS-39-014	Rich	UT	Unnmamed Trib. of Woodruff Creek	INTERMITTENT	1	Bear River	0.000	0.000	0.000	0.000	0.000		0.001	0.002	R-8	41.4608	-111.2655
60.45	SS-39-013	Rich	UT	Unnmamed Trib. to Woodruff Creek	INTERMITTENT	3	Bear River	0.000	0.000	0.000	0.000	0.000		0.002	0.005	R-17	41.4770	-111.2638
60.46	SS-28-007	Rich	UT	Unnmamed Trib. to Woodruff Creek	INTERMITTENT	5	Bear River	0.036	0.015	0.006	0.009	0.000		0.008	0.021	R-8B	41.4786	-111.2637
60.72	SS-28-006	Rich	UT	Woodruff Creek	PERENNIAL	15	Bear River	0.120	0.060	0.023	0.000	0.000		0.000	0.000		41.4804	-111.2679
60.82	SS-39-012	Rich	UT	Woodruff Creek	PERENNIAL	10	Bear River	0.000	0.000	0.000	0.000	0.000		0.007	0.016	R-8B	41.4842	-111.2662
60.90	SS-39-011	Rich	UT	Unnmamed Trib. to Woodruff Creek	PERENNIAL	7	Bear River	0.000	0.000	0.000	0.000	0.000		0.006	0.012	R-19	41.4925	-111.2604
60.90	SS-39-011A	Rich	UT	Unnmamed Trib. to Woodruff Creek	PERENNIAL	0	Bear River	0.000	0.000	0.000	0.000	0.000		0.000	0.001	R-19	41.4926	-111.2606
61.25	SS-28-005	Rich	UT	Tributary to Woodruff Creek	EPHEMERAL	4	Bear River	0.029	0.011	0.005	0.000	0.000		0.003	0.006	R-19	41.4792	-111.2762
62.00	SS-28-004	Rich	UT	Unnmamed Trib. to Woodruff Creek	INTERMITTENT	3	Bear River	0.027	0.009	0.004	0.009	0.000		0.013	0.026	R-19A	41.4787	-111.2895
62.12	SS-39-019	Rich	UT	Unnmamed Trib. to Woodruff Creek	INTERMITTENT	6	Bear River	0.000	0.000	0.000	0.000	0.000		0.007	0.075	R-19A	41.4813	-111.2917
62.66	SS-39-018	Rich	UT	Unnmamed Trib. to Woodruff Creek	EPHEMERAL	1	Bear River	0.000	0.000	0.000	0.000	0.000		0.021	0.025	R-19A	41.4809	-111.3034
63.17	SS-39-017	Rich	UT	Unnmamed Trib. to Woodruff Creek	INTERMITTENT	1	Bear River	0.000	0.000	0.000	0.000	0.000		0.002	0.007	R-19A	41.4773	-111.3137
63.41	SS-39-016	Rich	UT	Unnmamed Trib. to Woodruff Creek	INTERMITTENT	1	Bear River	0.000	0.000	0.000	0.000	0.000		0.004	0.032	R-19A	41.4758	-111.3160
64.80	SS-39-020	Rich	UT	Walton Creek	PERENNIAL	6	Bear River	0.000	0.000	0.000	0.000	0.000		0.006	0.013	R-20	41.4866	-111.3405
68.29	SS-39-010	Rich	UT	Walton Creek	PERENNIAL	2	Bear River	0.000	0.000	0.000	0.000	0.000		0.001	0.003	R-24	41.4842	-111.4012
77.78	SS-165-005	Cache	UT	East Fork of Little Bear River	EPHEMERAL	3	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.002	0.005	C-1	41.4714	-111.5752
77.79	SS-28-003	Cache	UT	East Fork Little Bear River	PERENNIAL	4	Cutler Reservoir	0.031	0.007	0.005	0.000	0.000		0.000	0.002	C-3	41.4664	-111.5754
78.69	SS-28-002	Cache	UT	Tributary to East Fork Little Bear River	PERENNIAL	4	Cutler Reservoir	0.042	0.013	0.005	0.000	0.000		0.000	0.000		41.4717	-111.5905
79.40	SS-27-002	Cache	UT	East Fork Little Bear River	PERENNIAL	1	Cutler Reservoir	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.4780	-111.6015

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
80.18	SS-39-006A	Cache	UT	Unnamed Trib. to East Fork Little Bear River	PERENNIAL	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.001	C-5	41.4872	-111.6105
80.19	SS-39-006	Cache	UT	Unnamed Trib. to East Fork Little Bear River	INTERMITTENT	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.001	C-5	41.4873	-111.6105
81.40	SS-165-006	Cache	UT	Unnamed Trib. to Mill Creek	PERENNIAL	3	Cutler Reservoir	0.025	0.011	0.005	0.010	0.000		0.000	0.000		41.5017	-111.6162
82.07	SS-27-005	Cache	UT	Unnamed Trib. to Mill Creek	INTERMITTENT	0	Cutler Reservoir	0.004	0.001	0.001	0.001	0.000		0.000	0.000		41.5072	-111.6265
84.18	SS-27-007	Cache	UT	Unnamed Trib. to Bear Hollow	INTERMITTENT	0	Cutler Reservoir	0.004	0.002	0.001	0.000	0.000		0.001	0.008	C-8	41.5276	-111.6482
90.51	SS-39-001	Cache	UT	Unnamed Trib. to Porcupine Reservoir	INTERMITTENT	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.001	0.001	C-14	41.5357	-111.7486
90.54	SS-39-002	Cache	UT	Unnamed Trib. to Porcupine Reservoir	INTERMITTENT	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.003	0.014	C-14	41.5339	-111.7470
90.54	SS-39-003	Cache	UT	Unnamed Trib. to Porcupine Reservoir	INTERMITTENT	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.001	0.001	C-14	41.5329	-111.7453
90.92	SS-39-004	Cache	UT	Unnamed Trib. to Porcupine Reservoir	INTERMITTENT	2	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.002	0.012	C-13	41.5252	-111.7432
92.31	SS-28-001	Cache	UT	East Fork Little Bear River	PERENNIAL	18	Cutler Reservoir	0.692	0.036	0.024	0.000	0.000		0.000	0.000		41.5203	-111.7720
93.44	SS-27-001B	Cache	UT	Tributary to East Fork Little Bear River	EPHEMERAL	0	Cutler Reservoir	0.001	0.000	0.000	0.000	0.000		0.000	0.000	C-15A	41.5190	-111.7893
93.44	SS-27-001A	Cache	UT	Tributary to East Fork Little Bear River	PERENNIAL	4	Cutler Reservoir	0.034	0.013	0.005	0.012	0.000		0.000	0.007	C-15A	41.5192	-111.7896
93.51	SS-39-005	Cache	UT	Unnamed Trib. to East Fork Little Bear River	INTERMITTENT	2	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.001	0.003	C-15	41.5168	-111.7887
94.39	SS-27-003	Cache	UT	Tributary to South Fork Little Bear River	EPHEMERAL	0	Cutler Reservoir	0.014	0.008	0.003	0.000	0.000		0.000	0.001	C-16	41.5152	-111.8058
94.61	SS-27-004	Cache	UT	Tributary to South Fork Little Bear River	EPHEMERAL	0	Cutler Reservoir	0.007	0.002	0.000	0.000	0.000		0.001	0.003	C-16	41.5152	-111.8100
94.63	SS-41-001	Cache	UT	Canal Trib. to Little Bear River	PERENNIAL	12	Cutler Reservoir	0.000	0.000	0.000	0.000	0.005	Zan Summers	0.123	0.147	C-18	41.5221	-111.8130
94.72	SS-18-015	Cache	UT	South Fork Little Bear River	PERENNIAL	3	Cutler Reservoir	0.035	0.001	0.000	0.000	0.000		0.001	0.035	C-16A	41.5146	-111.8120
94.77	SS-18-014	Cache	UT	Little Bear River	PERENNIAL	25	Cutler Reservoir	0.178	0.041	0.029	0.000	0.000		0.018	0.039	C-16A	41.5144	-111.8129
94.79	SS-40-002	Cache	UT	Spring Branch	PERENNIAL	2	Cutler Reservoir	0.000	0.000	0.000	0.000	0.001	Zan Summers	0.002	0.003	C-18	41.5229	-111.8168
94.79	SS-41-002	Cache	UT	Little Bear Creek	PERENNIAL	10	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.007	0.016	C-18	41.5228	-111.8163
95.55	SS-40-001E	Cache	UT	Spring Branch	PERENNIAL	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.001	C-18	41.5219	-111.8222
95.58	SS-40-001D	Cache	UT	Spring Branch	PERENNIAL	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.002	0.005	C-18	41.5213	-111.8246
95.73	SS-40-001C	Cache	UT	Spring Branch	PERENNIAL	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.001	0.002	C-18	41.5188	-111.8287
95.74	SS-40-001B	Cache	UT	Spring Branch	PERENNIAL	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.002	0.003	C-18	41.5185	-111.8290
95.74	SS-40-001A	Cache	UT	Spring Branch	PERENNIAL	1	Cutler Reservoir	0.000	0.000	0.000	0.000	0.000		0.000	0.001	C-18	41.5176	-111.8296
96.04	SS-18-013	Cache	UT	Tributary to Spring Branch	PERENNIAL	1	Cutler Reservoir	0.012	0.007	0.004	0.000	0.000		0.000	0.000		41.5104	-111.8332
96.48	SS-18-011	Cache	UT	Spring Branch	PERENNIAL	5	Cutler Reservoir	0.070	0.027	0.006	0.026	0.000		0.000	0.000		41.5118	-111.8414
96.48	SS-18-012	Cache	UT	Tributary to Spring Branch	INTERMITTENT	1.5	Cutler Reservoir	0.001	0.000	0.000	0.000	0.000		0.000	0.000		41.5116	-111.8417
97.92	SS-18-010	Cache	UT	Unnamed tributary	EPHEMERAL	0	Cutler Reservoir	0.004	0.001	0.001	0.000	0.000		0.000	0.000		41.5198	-111.8637
97.95	SS-35-001	Cache	UT	Tributary to Spring Branch	PERENNIAL	2	Cutler Reservoir	0.046	0.017	0.007	0.004	0.000		0.000	0.000		41.5210	-111.8643
98.75	SS-18-007	Cache	UT	Tributary to West Fork Little Bear River	PERENNIAL	2	Cutler Reservoir	0.035	0.012	0.006	0.000	0.000		0.000	0.000		41.5188	-111.8778
98.81	SS-18-008	Cache	UT	West Fork Little Bear River	PERENNIAL	0	Cutler Reservoir	0.004	0.000	0.000	0.000	0.000		0.000	0.000		41.5190	-111.8790
103.74	SS-18-006	Box Elder	UT	Unnamed Trib. to Mantua Reservoir	INTERMITTENT	0	Bear River	0.004	0.000	0.000	0.001	0.000		0.000	0.007	B-1A	41.5211	-111.9643
105.30	SS-123-003	Box Elder	UT	Canal to Bear River/North Bay	PERENNIAL	6	Bear River / Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.006	0.013	B-2A	41.5139	-111.9893
107.98	SS-18-005	Box Elder	UT	Tributary to North String Irrigation Ditch	EPHEMERAL	0	Bear River / Great Salt Lake	0.004	0.001	0.001	0.001	0.000		0.000	0.000		41.5475	-112.0120
108.74	SS-144-001	Box Elder	UT	Canal from North String Irrigation Ditch	EPHEMERAL	1.5	Great Salt Lake	0.037	0.027	0.005	0.007	0.000		0.001	0.003	B-2R	41.5535	-112.0218
110.57	SS-34-004	Box Elder	UT	Tributary to North Lake	PERENNIAL	14	Bear River / Great Salt Lake	0.097	0.040	0.016	0.039	0.000		0.000	0.000		41.5728	-112.0406
112.18	SS-18-003	Box Elder	UT	Field ditch	INTERMITTENT	4	Bear River / Great Salt Lake	0.028	0.012	0.005	0.011	0.000		0.000	0.000		41.5728	-112.0717
112.31	SS-165-004	Box Elder	UT	Unnamed Canal from Hammond West Branch Canal	INTERMITTENT	4	Bear River / Great Salt Lake	0.028	0.011	0.005	0.011	0.000		0.013	0.021	B-4E	41.5728	-112.0743

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
112.40	SS-18-002A	Box Elder	UT	Irrigation Ditch in Bear River Valley	INTERMITTENT	4	Bear River / Great Salt Lake	0.010	0.000	0.000	0.000	0.000		0.000	0.000		41.5720	-112.0760
112.49	SS-18-004	Box Elder	UT	Field ditch	INTERMITTENT	1	Bear River / Great Salt Lake	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.5727	-112.0778
112.82	SS-10-009	Box Elder	UT	Hammond West Branch Canal	INTERMITTENT	8	Bear River / Great Salt Lake	0.055	0.021	0.009	0.015	0.000		0.000	0.072	B-4	41.5718	-112.0838
112.83	SS-10-010	Box Elder	UT	Irrigation ditch	INTERMITTENT	2	Bear River / Great Salt Lake	0.014	0.005	0.002	0.004	0.000		0.000	0.001	B-4A	41.5719	-112.0841
112.95	SS-122-002	Box Elder	UT	Canal to Bear River marsh	INTERMITTENT	4	Bear River / Great Salt Lake	0.028	0.011	0.005	0.007	0.000		0.003	0.006	B-4A	41.5718	-112.0863
113.07	SS-122-001	Box Elder	UT	Canal to Bear River marsh	INTERMITTENT	4	Bear River / Great Salt Lake	0.028	0.011	0.005	0.007	0.000		0.004	0.022	B-4A	41.5717	-112.0886
113.20	SS-10-013	Box Elder	UT	Irrigation ditch	INTERMITTENT	3	Bear River / Great Salt Lake	0.021	0.008	0.003	0.006	0.000		0.000	0.000		41.5718	-112.0911
113.36	SS-10-014	Box Elder	UT	Bear River	PERENNIAL	220	Bear River / Great Salt Lake	1.566	0.604	0.262	0.419	0.000		0.000	0.000		41.5719	-112.0941
113.81	SS-10-015	Box Elder	UT	Irrigation ditch	INTERMITTENT	1	Bear River / Great Salt Lake	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.5728	-112.1026
114.14	SS-10-016	Box Elder	UT	Irrigation canal tributary to Bear River	INTERMITTENT	1	Bear River / Great Salt Lake	0.008	0.004	0.002	0.003	0.000		0.000	0.000		41.5729	-112.1089
114.14	SS-10-017	Box Elder	UT	Irrigation canal tributary to Bear River	INTERMITTENT	2	Bear River / Great Salt Lake	0.016	0.007	0.003	0.005	0.000		0.000	0.000		41.5729	-112.1090
114.21	SS-10-018	Box Elder	UT	Irrigation canal tributary to Bear River	INTERMITTENT	1	Bear River / Great Salt Lake	0.005	0.003	0.001	0.001	0.000		0.000	0.005	B-4C	41.5729	-112.1104
114.46	SS-10-019	Box Elder	UT	Irrigation Canal Trib. To Bear River	INTERMITTENT	1	Bear River	0.061	0.000	0.000	0.014	0.000		0.000	0.000	B-4C	41.5730	-112.1152
114.71	SS-34-001A	Box Elder	UT	Irrigation canal tributary to Bear River	INTERMITTENT	0	Bear River / Great Salt Lake	0.003	0.001	0.001	0.001	0.000		0.000	0.000		41.5727	-112.1201
114.98	SS-10-022	Box Elder	UT	Irrigation canal tributary to Bear River	INTERMITTENT	1	Bear River / Great Salt Lake	0.002	0.000	0.000	0.001	0.000		0.000	0.000		41.5742	-112.1249
115.00	SS-34-001	Box Elder	UT	Irrigation canal tributary to Bear River	INTERMITTENT	5	Bear River / Great Salt Lake	0.112	0.039	0.017	0.028	0.000		0.000	0.000		41.5739	-112.1254
115.22	SS-10-023	Box Elder	UT	Irrigation canal tributary to Bear River	INTERMITTENT	5	Bear River / Great Salt Lake	0.035	0.013	0.006	0.009	0.000		0.000	0.000		41.5746	-112.1295
115.24	SS-10-024	Box Elder	UT	Ditch Tributary to Bear River	INTERMITTENT	1	Bear River / Great Salt Lake	0.007	0.003	0.001	0.002	0.000		0.001	0.002	B-5C	41.5746	-112.1298
115.57	SS-10-025	Box Elder	UT	Ditch Tributary to Bear River	INTERMITTENT	2	Bear River / Great Salt Lake	0.017	0.007	0.003	0.005	0.000		0.000	0.021	B-5A	41.5752	-112.1363
115.60	SS-10-026	Box Elder	UT	Ditch Tributary to Bear River	INTERMITTENT	3	Bear River / Great Salt Lake	0.026	0.010	0.004	0.007	0.000		0.013	0.020	B-5C	41.5752	-112.1368
115.74	SS-10-027	Box Elder	UT	Ditch Tributary to Bear River	INTERMITTENT	1	Bear River / Great Salt Lake	0.007	0.003	0.001	0.002	0.000		0.004	0.005	B-5B	41.5754	-112.1395
115.99	SS-10-029	Box Elder	UT	Ditch Tributary to Bear River	INTERMITTENT	1	Bear River / Great Salt Lake	0.005	0.003	0.001	0.001	0.000		0.000	0.000		41.5752	-112.1443
116.14	SS-10-028	Box Elder	UT	Ditch Tributary to Bear River	INTERMITTENT	1	Bear River / Great Salt Lake	0.096	0.044	0.001	0.051	0.000		0.000	0.001	B-5B	41.5755	-112.1471
116.25	SS-10-030	Box Elder	UT	Irrigation ditch tributary to Bear River	INTERMITTENT	1	Bear River / Great Salt Lake	0.005	0.003	0.001	0.001	0.000		0.000	0.000		41.5751	-112.1494
116.41	SS-10-031	Box Elder	UT	Irrigation ditch tributary to Bear River	INTERMITTENT	1	Bear River / Great Salt Lake	0.005	0.003	0.001	0.001	0.000		0.000	0.000		41.5751	-112.1524
116.50	SS-143-001	Box Elder	UT	Canal from Corinne Canal	INTERMITTENT	5	Bear River / Great Salt Lake	0.021	0.000	0.000	0.000	0.000		0.000	0.000		41.5752	-112.1545
116.81	SS-10-032	Box Elder	UT	Ditch to Corinne Canal	PERENNIAL	4	Bear River / Great Salt Lake	0.030	0.012	0.005	0.008	0.000		0.000	0.045	B-4H	41.5793	-112.1569
116.88	SS-40-004	Box Elder	UT	Ditch Trib. to Corinne Canal	INTERMITTENT	0	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	B-6B	41.5792	-112.1584
116.94	SS-39-036	Box Elder	UT	Ditch Trib. to Bear River	INTERMITTENT	8	Great Salt Lake	0.066	0.025	0.011	0.018	0.000		0.000	0.124	B-6B	41.5807	-112.1586
116.96	SS-10-035	Box Elder	UT	Irrigation Ditch Tributary to Bear River	PERENNIAL	2	Bear River	0.017	0.006	0.003	0.005	0.000		0.000	0.000		41.5811	-112.1587
116.98	SS-10-033	Box Elder	UT	Ditch Trib. To Bear River	INTERMITTENT	6	Bear River	0.000	0.000	0.000	0.000	0.000		0.000	0.012	B-6B	41.5820	-112.1583
116.99	SS-40-003	Box Elder	UT	Ditch Trib. to Corinne Canal	PERENNIAL	0	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	B-6B	41.5820	-112.1586
117.00	SS-10-034	Box Elder	UT	Irrigation Ditch Tributary to Bear River	PERENNIAL	4	Bear River	0.000	0.000	0.000	0.000	0.000		0.000	0.003	B-6B	41.5823	-112.1586
117.25	SS-10-036	Box Elder	UT	Irrigation Ditch Tributary to Bear River	PERENNIAL	1	Bear River	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.5834	-112.1633
117.45	SS-10-039	Box Elder	UT	Irrigation Ditch Tributary to Bear River	PERENNIAL	2	Bear River	0.017	0.006	0.003	0.005	0.000		0.000	0.000		41.5851	-112.1664
117.74	SS-39-037	Box Elder	UT	Corinne Canal	PERENNIAL	12	Great Salt Lake	0.095	0.036	0.016	0.025	0.000		0.000	0.000		41.5867	-112.1716
117.75	SS-10-040	Box Elder	UT	Corinne Canal Tributary to Homestead Bay - Bear River	PERENNIAL	2	Great Salt Lake	0.016	0.006	0.003	0.004	0.000		0.000	0.000		41.5875	-112.1712
118.29	SS-11-011	Box Elder	UT	Central Canal Tributary to Sulphur Creek	PERENNIAL	2	Great Salt Lake	0.014	0.006	0.002	0.006	0.000		0.000	0.000		41.5919	-112.1796
118.29	SS-39-038	Box Elder	UT	Central Canal	PERENNIAL	10	Great Salt Lake	0.069	0.026	0.012	0.018	0.000		0.000	0.000		41.5912	-112.1807
118.29	SS-145-003	Box Elder	UT	Central Canal	INTERMITTENT	12	Bear River / Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.009	0.022	B-6D	41.5896	-112.1824

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
118.30	SS-11-009	Box Elder	UT	Central Canal Trib. To Iowa String Canal	PERENNIAL	1	Great Salt Lake	0.007	0.003	0.001	0.003	0.000		0.000	0.000		41.5920	-112.1798
118.47	SS-11-008	Box Elder	UT	Irrigation Canal Trib. to Corinne Canal	INTERMITTENT	2	Great Salt Lake	0.022	0.009	0.004	0.006	0.000		0.000	0.000		41.5936	-112.1824
118.83	SS-11-007	Box Elder	UT	Tributary to Sulphur Creek.	PERENNIAL	2	Great Salt Lake	0.016	0.008	0.003	0.006	0.000		0.000	0.000		41.5968	-112.1878
119.49	SS-11-006	Box Elder	UT	Sulphur Creek	PERENNIAL	35	Great Salt Lake	0.253	0.098	0.042	0.068	0.000		0.000	0.000		41.5985	-112.1982
120.01	SS-40-005	Box Elder	UT	Tributary to Sulphur Creek	PERENNIAL	40	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.046	0.098	B-8	41.6071	-112.2003
120.54	SS-40-006	Box Elder	UT	Canal to Sulphur Creek	PERENNIAL	6	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.008	0.077	B-7	41.6133	-112.2065
124.13	SS-11-004	Box Elder	UT	Tributary to Salt Creek	PERENNIAL	12	Great Salt Lake	0.165	0.036	0.015	0.048	0.000		0.000	0.000		41.6313	-112.2721
124.54	SS-11-003	Box Elder	UT	Salt Creek Marsh	INTERMITTENT	20	Great Salt Lake	0.138	0.044	0.023	0.046	0.000		0.000	0.000		41.6341	-112.2791
124.64	SS-11-002	Box Elder	UT	Salt Creek Marsh	PERENNIAL	12	Great Salt Lake	0.124	0.040	0.017	0.069	0.000		0.000	0.000		41.6346	-112.2810
124.86	SS-11-001	Box Elder	UT	Salt Creek Marsh	PERENNIAL	6.5	Great Salt Lake	0.049	0.019	0.008	0.020	0.000		0.001	0.004	B-14	41.6360	-112.2847
125.19	SS-122-003	Box Elder	UT	Salt Creek Marsh	PERENNIAL	12	Bear River / Great Salt Lake	0.096	0.036	0.014	0.039	0.000		0.000	0.000		41.6375	-112.2907
125.34	SS-10-008	Box Elder	UT	Salt Creek Marsh	PERENNIAL	4	Bear River / Great Salt Lake	0.029	0.011	0.005	0.008	0.000		0.000	0.000		41.6374	-112.2937
126.08	SS-10-007	Box Elder	UT	Salt Creek Marsh	PERENNIAL	15	Great Salt Lake	0.116	0.042	0.019	0.029	0.000		0.000	0.000		41.6362	-112.3077
126.70	SS-10-006	Box Elder	UT	Salt Creek Marsh	PERENNIAL	1	Great Salt Lake	0.005	0.003	0.001	0.002	0.000		0.000	0.000		41.6364	-112.3196
126.89	SS-10-005	Box Elder	UT	Salt Creek Marsh	PERENNIAL	2	Great Salt Lake	0.022	0.008	0.003	0.006	0.000		0.000	0.000		41.6362	-112.3233
127.05	SS-10-004	Box Elder	UT	Irrigation Canal to Salt Creek Matsh	INTERMITTENT	1	Bear River / Great Salt Lake	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.6368	-112.3264
127.17	SS-145-001	Box Elder	UT	Unnamed Ditch to West Canal	INTERMITTENT	6	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.008	0.011	B-16B	41.6374	-112.3278
127.62	SS-10-001	Box Elder	UT	Tributary to West Canal	INTERMITTENT	1	Great Salt Lake	0.008	0.000	0.000	0.000	0.000		0.000	0.000		41.6422	-112.3337
127.71	SS-40-007	Box Elder	UT	West Canal	INTERMITTENT	15	Great Salt Lake	0.114	0.041	0.018	0.028	0.000		1.957	1.957	B-15A	41.6452	-112.3289
131.06	SS-32-005A	Box Elder	UT	Unnamed Trib. to Blue Creek (Faust Valley)	INTERMITTENT	0	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	B-17	41.6886	-112.3534
131.19	SS-32-005	Box Elder	UT	Tributary to Blue Creek (Faust Valley)	INTERMITTENT	4	Great Salt Lake	0.020	0.000	0.000	0.009	0.000		0.000	0.042	B-17	41.6905	-112.3534
133.21	SS-04-017B	Box Elder	UT	Unnamed Trib. to Blue Creek (Faust Valley)	INTERMITTENT	3	Great Salt Lake	0.071	0.012	0.004	0.000	0.000		0.000	0.000		41.7068	-112.3792
133.52	SS-04-018	Box Elder	UT	Unnamed Trib. to Blue Creek (Faust Valley)	INTERMITTENT	5	Great Salt Lake	0.006	0.000	0.000	0.000	0.000		0.000	0.000		41.7089	-112.3844
133.78	SS-04-016	Box Elder	UT	Unnamed Trib. to Blue Creek (Faust Valley)	EPHEMERAL	2	Great Salt Lake	0.003	0.000	0.000	0.000	0.000		0.000	0.000		41.7107	-112.3890
134.35	SS-04-015	Box Elder	UT	Tributary to Blue Creek (Faust Valley)	EPHEMERAL	2	Great Salt Lake	0.017	0.008	0.004	0.004	0.000		0.000	0.000		41.7143	-112.3974
136.86	SS-165-002	Box Elder	UT	Blue Creek	PERENNIAL	10	Great Salt Lake	0.071	0.027	0.012	0.017	0.000		0.000	0.000		41.7268	-112.4411
137.35	SS-165-003	Box Elder	UT	Unnamed Trib. to Blue Creek	EPHEMERAL	4	Great Salt Lake	0.029	0.011	0.005	0.007	0.000		0.000	0.000		41.7272	-112.4505
138.23	SS-145-002	Box Elder	UT	Unnamed Trib. in Sand Hollow to Blue Creek	EPHEMERAL	5	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.008	B-20A	41.7155	-112.4687
139.14	SS-32-003	Box Elder	UT	Tributary to Blue Creek	EPHEMERAL	3	Great Salt Lake	0.021	0.008	0.004	0.006	0.000		0.000	0.000		41.7286	-112.4846
139.43	SS-02-041	Box Elder	UT	Unnamed Trib. To Sand Hollow Creek	EPHEMERAL	1	Great Salt Lake	0.011	0.004	0.002	0.000	0.000		0.000	0.000		41.7282	-112.4898
143.73	SS-05-015	Box Elder	UT	Unnamed Trib. (Hansel Valley/Salt Wells Flat)	EPHEMERAL	1	Great Salt Lake	0.002	0.000	0.000	0.001	0.000		0.000	0.000		41.7407	-112.5668
143.85	SS-32-004A	Box Elder	UT	Tributary (Hansel Valley/Salt Wells Flat)	EPHEMERAL	0	Great Salt Lake	0.026	0.014	0.008	0.004	0.000		0.008	0.022	B-24	41.7403	-112.5692
145.78	SS-05-018	Box Elder	UT	Tributary (Hansel Valley/Salt Wells Flat)	INTERMITTENT	4	Great Salt Lake	0.029	0.012	0.005	0.008	0.000		0.000	0.000		41.7515	-112.6033
145.84	SS-05-019	Box Elder	UT	Tributary (Hansel Valley/Salt Wells Flat)	INTERMITTENT	3	Great Salt Lake	0.026	0.009	0.004	0.007	0.000		0.000	0.000		41.7516	-112.6044
146.38	SS-05-020	Box Elder	UT	Tributary (Hansel Valley/Salt Wells Flat)	INTERMITTENT	3	Great Salt Lake	0.032	0.008	0.004	0.006	0.000		0.000	0.000		41.7533	-112.6147
146.44	SS-03-051	Box Elder	UT	Tributary (Hansel Valley/Salt Wells Flat)	EPHEMERAL	3	Great Salt Lake	0.022	0.008	0.004	0.000	0.000		0.000	0.000		41.7537	-112.6156
148.66	SS-05-023	Box Elder	UT	Tributary to Salt Wells [Hills] Flat	INTERMITTENT	4	Great Salt Lake	0.011	0.001	0.000	0.000	0.000		0.000	0.000		41.7612	-112.6575
149.43	SS-05-022	Box Elder	UT	Tributary to Salt Wells [Hills] Flat	INTERMITTENT	25	Great Salt Lake	0.252	0.072	0.044	0.000	0.000		0.000	0.000		41.7634	-112.6719

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
149.55	SS-05-021	Box Elder	UT	Tributary to Salt Wells [Hills] Flat	EPHEMERAL	15	Great Salt Lake	0.124	0.047	0.018	0.000	0.000		0.000	0.000		41.7635	-112.6743
149.55	SS-39-049	Box Elder	UT	Canal Bordering Wells Flat	INTERMITTENT	2	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.014	0.034	B-25	41.7608	-112.6742
152.61	SS-03-029	Box Elder	UT	Tributary to Salt Wells [Hills] Flat	EPHEMERAL	3	Great Salt Lake	0.030	0.010	0.004	0.000	0.000		0.000	0.000		41.7632	-112.7335
154.23	SS-03-030	Box Elder	UT	Tributary to Salt Wells [Hills] Flat	EPHEMERAL	2	Great Salt Lake	0.020	0.009	0.002	0.008	0.000		0.000	0.000		41.7631	-112.7649
154.34	SS-03-031	Box Elder	UT	Tributary to Salt Wells [Hills] Flat	EPHEMERAL	1	Great Salt Lake	0.009	0.004	0.002	0.002	0.000		0.000	0.000		41.7631	-112.7670
154.95	SS-03-044	Box Elder	UT	Unnamed Tributary to Salt Wells [Hills] Flat	EPHEMERAL	1	Great Salt Lake	0.001	0.000	0.000	0.000	0.000		0.000	0.000		41.7625	-112.7783
155.00	SS-03-045	Box Elder	UT	Unnamed Tributary to Salt Wells [Hills] Flat	EPHEMERAL	1	Great Salt Lake	0.003	0.001	0.000	0.001	0.000		0.000	0.000		41.7624	-112.7793
155.41	SS-03-050	Box Elder	UT	Discontiguous Trib. From Monument Peak	EPHEMERAL	1	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	B-29A	41.7631	-112.7907
161.81	SS-01-017	Box Elder	UT	Tributary (Sage Valley)	EPHEMERAL	2	Great Salt Lake	0.062	0.006	0.002	0.000	0.000		0.000	0.000		41.7624	-112.9071
165.70	SS-04-011	Box Elder	UT	Deep Creek	INTERMITTENT	8	Great Salt Lake	0.056	0.021	0.009	0.015	0.000		0.000	0.000		41.7623	-112.9823
165.81	SS-40-008	Box Elder	UT	Deep Creek	INTERMITTENT	45	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.036	0.081	B-35	41.7577	-112.9844
166.72	SS-04-010	Box Elder	UT	Tributary to Gunnison Bay Mud Flat	EPHEMERAL	2	Great Salt Lake	0.016	0.006	0.003	0.004	0.000		0.002	0.004	B-35	41.7620	-113.0021
166.74	SS-40-009	Box Elder	UT	Unnamed Trib. to Great Salt Lake	EPHEMERAL	1	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	B-34	41.7629	-113.0025
168.53	SS-04-009	Box Elder	UT	Tributary to Gunnison Bay Mud Flat	EPHEMERAL	6	Great Salt Lake	0.045	0.017	0.007	0.000	0.000		0.000	0.000		41.7618	-113.0372
168.72	SS-39-047	Box Elder	UT	Unnamed Trib. to Gunnison Bay Mud Flat	EPHEMERAL	1	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	B-36	41.7708	-113.0409
170.99	SS-08-018	Box Elder	UT	Tributary to Gunnison Bay Mud Flat	INTERMITTENT	1	Great Salt Lake	0.009	0.003	0.001	0.000	0.000		0.000	0.000		41.7615	-113.0849
171.11	SS-08-019	Box Elder	UT	Tributary to Gunnison Bay Mud Flat	INTERMITTENT	1	Great Salt Lake	0.010	0.004	0.002	0.000	0.000		0.000	0.002	B-37	41.7615	-113.0871
174.20	SS-40-010	Box Elder	UT	Unnamed Trib. to Great Salt Lake	EPHEMERAL	0.5	Great Salt Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	B-39	41.7414	-113.1264
174.43	SS-08-023	Box Elder	UT	Discontinuous Tributary Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.7416	-113.1379
174.69	SS-08-022	Box Elder	UT	Discontinuous Tributary Great Salt Lake Marsh	EPHEMERAL	2	N/A	0.016	0.006	0.003	0.000	0.000		0.000	0.000		41.7382	-113.1400
174.93	SS-08-021	Box Elder	UT	Discontinuous Tributary Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.010	0.004	0.002	0.000	0.000		0.000	0.000		41.7350	-113.1418
174.95	SS-08-020	Box Elder	UT	Discontinuous Tributary Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.010	0.004	0.002	0.000	0.000		0.000	0.000		41.7348	-113.1419
175.80	SS-08-024	Box Elder	UT	Discontinuous Tributary Great Salt Lake Marsh	EPHEMERAL	2	N/A	0.016	0.006	0.002	0.000	0.000		0.001	0.007	B-39B	41.7238	-113.1492
175.95	SS-08-025	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	3	N/A	0.025	0.009	0.004	0.000	0.000		0.000	0.000		41.7218	-113.1506
175.96	SS-08-026	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	2	N/A	0.009	0.005	0.003	0.000	0.000		0.000	0.000		41.7218	-113.1509
175.98	SS-08-027	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.7215	-113.1511
176.15	SS-164-004B	Box Elder	UT	Unnamed Trib. to Great Salt Lake Mud Flat	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.003	0.004	B-39C	41.7194	-113.1527
176.17	SS-164-004A	Box Elder	UT	Unnamed Trib. to Great Salt Lake Mud Flat	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	B-39C	41.7188	-113.1522
176.18	SS-164-004	Box Elder	UT	Unnamed Trib. to Great Salt Lake Mud Flat	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	B-39C	41.7186	-113.1520
176.18	SS-08-029	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.7190	-113.1530
176.22	SS-08-030	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	3	N/A	0.025	0.008	0.004	0.000	0.000		0.000	0.000		41.7185	-113.1534

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
176.32	SS-08-031	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.008	0.003	0.002	0.000	0.000		0.000	0.000		41.7172	-113.1544
176.35	SS-39-048	Box Elder	UT	Unnamed Trib. to Great Salt Lake Mud Flat	INTERMITTENT	6	N/A	0.000	0.000	0.000	0.000	0.000		0.005	0.011	B-39	41.7154	-113.1513
176.47	SS-08-032	Box Elder	UT	Tributary to Great Salt Lake Marsh	INTERMITTENT	10	N/A	0.083	0.028	0.012	0.025	0.000		0.000	0.000		41.7154	-113.1559
176.51	SS-08-033	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.011	0.005	0.003	0.002	0.000		0.000	0.000		41.7150	-113.1564
176.55	SS-08-034	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	2	N/A	0.020	0.008	0.003	0.008	0.000		0.000	0.000		41.7144	-113.1568
177.26	SS-08-035	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	2	N/A	0.017	0.006	0.003	0.000	0.000		0.000	0.000		41.7076	-113.1667
177.40	SS-40-012	Box Elder	UT	Unnamed Trib. to Great Salt Lake	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.006	B-39	41.7058	-113.1688
177.54	SS-08-036	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	2	N/A	0.010	0.004	0.003	0.002	0.000		0.000	0.000		41.7057	-113.1713
177.57	SS-08-037	Box Elder	UT	Tributary to Great Salt Lake Marsh	INTERMITTENT	7	N/A	0.062	0.020	0.008	0.015	0.000		0.000	0.000		41.7056	-113.1719
177.67	SS-40-013	Box Elder	UT	Unnamed Trib. to Great Salt Lake	EPHEMERAL	0.5	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.000	B-39	41.7037	-113.1726
177.95	SS-164-001	Box Elder	UT	Unnamed Trib. to Great Salt Lake	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.002	B-39	41.7014	-113.1770
178.14	SS-08-038	Box Elder	UT	Discontinuous Tributary	EPHEMERAL	2	N/A	0.067	0.027	0.022	0.000	0.000		0.000	0.000		41.7005	-113.1805
178.25	SS-08-039	Box Elder	UT	Discontinuous Tributary	EPHEMERAL	2	N/A	0.064	0.056	0.035	0.000	0.000		0.000	0.000		41.6994	-113.1820
178.40	SS-08-040	Box Elder	UT	Discontinuous Tributary to Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.007	0.000	0.000	0.000	0.000		0.000	0.000		41.6978	-113.1841
178.73	SS-08-041	Box Elder	UT	Discontinuous Tributary to Great Salt Lake Marsh	INTERMITTENT	2	N/A	0.034	0.010	0.000	0.000	0.000		0.000	0.000		41.6949	-113.1892
179.14	SS-08-042	Box Elder	UT	Discontinuous Tributary	EPHEMERAL	1	N/A	0.004	0.000	0.000	0.000	0.000		0.000	0.000		41.6907	-113.1949
179.38	SS-08-051	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.010	0.003	0.002	0.003	0.000		0.002	0.004	B-39	41.6888	-113.1989
179.47	SS-08-050	Box Elder	UT	Discontinuous Tributary to Great Salt Lake Marsh	INTERMITTENT	2	N/A	0.073	0.011	0.005	0.018	0.000		0.001	0.003	B-41B	41.6881	-113.2003
179.57	SS-08-052	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.010	0.004	0.001	0.004	0.000		0.000	0.000		41.6876	-113.2021
179.65	SS-08-049	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.010	0.004	0.002	0.004	0.000		0.000	0.000		41.6867	-113.2029
179.70	SS-08-048	Box Elder	UT	Tributary to Great Salt Lake Marsh	EPHEMERAL	1	N/A	0.008	0.004	0.002	0.001	0.000		0.001	0.002	B-39	41.6861	-113.2035
180.57	SS-08-047	Box Elder	UT	Tributary to Peplin Pond/Peplin Flats	INTERMITTENT	2	N/A	0.019	0.008	0.004	0.000	0.000		0.001	0.003	B-39	41.6784	-113.2168
180.71	SS-08-046	Box Elder	UT	Tributary to Peplin Pond/Peplin Flats	EPHEMERAL	2	N/A	0.015	0.006	0.003	0.000	0.000		0.001	0.003	B-39	41.6771	-113.2188
180.73	SS-08-045	Box Elder	UT	Tributary to Peplin Flats - Great Salt Lake	INTERMITTENT	1	0	0.007	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6769	-113.2192
180.87	SS-08-044	Box Elder	UT	Tributary to Peplin Pond/Peplin Flats	EPHEMERAL	2	N/A	0.015	0.006	0.003	0.004	0.000		0.001	0.003	B-39	41.6757	-113.2214
181.14	SS-08-043	Box Elder	UT	Tributary to Peplin Flats - Great Salt Lake	INTERMITTENT	1	N/A	0.008	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6732	-113.2253
181.16	SS-08-053	Box Elder	UT	Tributary to Peplin Flats - Great Salt Lake	INTERMITTENT	1	0	0.007	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6731	-113.2256
181.20	SS-08-054	Box Elder	UT	Tributary to Peplin Pond/Peplin Flats	INTERMITTENT	2	N/A	0.016	0.006	0.002	0.000	0.000		0.001	0.003	B-39	41.6726	-113.2263
181.60	SS-09-122	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.006	0.003	0.002	0.000	0.000		0.000	0.001	B-39	41.6697	-113.2329
181.69	SS-09-121	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.005	0.002	0.001	0.000	0.000		0.001	0.001	B-39	41.6692	-113.2345
181.78	SS-09-120	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.008	0.004	0.002	0.000	0.000		0.001	0.001	B-39	41.6688	-113.2361
181.87	SS-09-119	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.008	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6682	-113.2377
181.93	SS-09-118	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1.5	N/A	0.014	0.006	0.004	0.000	0.000		0.000	0.000		41.6683	-113.2390
181.98	SS-09-117	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.002	0.002	0.002	0.000	0.000		0.000	0.000		41.6678	-113.2398

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
182.05	SS-09-116	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.013	0.007	0.003	0.000	0.000		0.000	0.000		41.6676	-113.2411
182.08	SS-09-114	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.004	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6673	-113.2415
182.10	SS-09-115	Box Elder	UT	Tributary to Dove Creek	INTERMITTENT	0.5	N/A	0.002	0.000	0.000	0.000	0.000		0.000	0.000	B-39	41.6669	-113.2418
182.12	SS-09-113	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.006	0.002	0.001	0.000	0.000		0.001	0.001	B-39	41.6671	-113.2424
182.31	SS-09-112	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.001	0.001	0.000	0.000		0.000	0.001	B-39	41.6661	-113.2457
182.33	SS-09-111	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6661	-113.2461
182.67	SS-09-110	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1.5	N/A	0.007	0.004	0.002	0.000	0.000		0.000	0.000	B-39	41.6645	-113.2523
182.70	SS-09-109	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.007	0.004	0.002	0.000	0.000		0.000	0.000	B-39	41.6644	-113.2528
182.74	SS-09-108	Box Elder	UT	Tributary to Dove Creek	INTERMITTENT	2	N/A	0.016	0.006	0.003	0.000	0.000		0.002	0.003	B-39	41.6641	-113.2535
182.82	SS-09-107	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.006	0.002	0.001	0.000	0.000		0.001	0.001	B-39	41.6636	-113.2551
182.99	SS-09-106	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.006	0.003	0.002	0.000	0.000		0.001	0.001	B-39	41.6628	-113.2581
183.10	SS-09-105	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.005	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6623	-113.2601
183.17	SS-09-104	Box Elder	UT	Tributary to Dove Creek	INTERMITTENT	5.5	N/A	0.041	0.015	0.007	0.000	0.000		0.004	0.009	B-39	41.6620	-113.2615
183.22	SS-09-103	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.009	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6617	-113.2624
183.28	SS-09-102	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.005	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6614	-113.2634
183.38	SS-09-100	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.009	0.004	0.002	0.000	0.000		0.001	0.002	B-39	41.6609	-113.2652
183.51	SS-09-099	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	2.5	N/A	0.025	0.011	0.006	0.000	0.000		0.002	0.004	B-39	41.6603	-113.2675
183.61	SS-09-098	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.005	0.002	0.001	0.000	0.000		0.001	0.001	B-39	41.6597	-113.2694
183.62	SS-09-097	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6596	-113.2696
184.12	SS-09-096	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.25	N/A	0.002	0.001	0.000	0.000	0.000		0.000	0.001	B-39	41.6572	-113.2786
184.13	SS-09-095	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.25	N/A	0.002	0.001	0.000	0.000	0.000		0.000	0.000	B-39	41.6572	-113.2789
184.22	SS-09-094	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.015	0.004	0.001	0.000	0.000		0.001	0.003	B-39	41.6564	-113.2804
184.33	SS-09-092B	Box Elder	UT	Tributary to Dove Creek	INTERMITTENT	1	N/A	0.007	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6562	-113.2824
184.47	SS-09-091	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	5	N/A	0.039	0.018	0.008	0.001	0.009		0.000	0.004	B-39	41.6558	-113.2850
184.57	SS-09-090	Box Elder	UT	Dove Creek	INTERMITTENT	3	N/A	0.026	0.010	0.004	0.007	0.000		0.002	0.005	B-39	41.6551	-113.2869
184.73	SS-09-088	Box Elder	UT	Tributary to Dove Creek	INTERMITTENT	1	N/A	0.007	0.003	0.001	0.002	0.000		0.001	0.002	B-39	41.6545	-113.2898
184.96	SS-09-087	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.005	0.003	0.002	0.000	0.000		0.000	0.001	B-39	41.6540	-113.2943
185.64	SS-09-086	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	6	N/A	0.016	0.008	0.000	0.007	0.000		0.000	0.000		41.6540	-113.3073
185.66	SS-09-089	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.007	0.000	0.000	0.000	0.000		0.000	0.000	B-39	41.6535	-113.3077
185.72	SS-09-085	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.008	0.006	0.002	0.002	0.000		0.000	0.000	B-39	41.6539	-113.3088
185.96	SS-09-084	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.016	0.013	0.003	0.004	0.000		0.000	0.000		41.6539	-113.3136
186.08	SS-09-083	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.009	0.003	0.002	0.002	0.000		0.001	0.002	B-39	41.6537	-113.3158
186.19	SS-09-082	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.014	0.006	0.002	0.005	0.000		0.001	0.003	B-39	41.6538	-113.3180
186.25	SS-09-081	Box Elder	UT	Unnamed Trib. to Dove Creek	EPHEMERAL	1	N/A	0.009	0.000	0.000	0.000	0.000		0.000	0.002	B-39	41.6533	-113.3190
186.39	SS-09-080	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.009	0.004	0.002	0.002	0.000		0.001	0.002	B-39	41.6536	-113.3218
186.50	SS-09-079	Box Elder	UT	Unnamed Trib. to Dove Creek	EPHEMERAL	1.5	N/A	0.003	0.000	0.000	0.000	0.000		0.000	0.001	B-39	41.6532	-113.3239
186.53	SS-09-078	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.003	0.001	0.001	0.001	0.000		0.000	0.001	B-39	41.6534	-113.3246
186.55	SS-09-077B	Box Elder	UT	Unnamed Trib. to Dove Creek	EPHEMERAL	0.75	N/A	0.003	0.000	0.000	0.000	0.000		0.000	0.001	B-39	41.6532	-113.3249
186.61	SS-09-077A	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.005	0.002	0.000	0.002	0.000		0.000	0.000		41.6538	-113.3261
186.65	SS-09-076	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.002	0.000	0.000	0.000	0.000		0.000	0.000	B-39	41.6532	-113.3268
186.79	SS-09-075	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1.5	N/A	0.017	0.006	0.003	0.005	0.000		0.002	0.004	B-39	41.6535	-113.3296
187.47	SS-09-074	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.008	0.003	0.002	0.000	0.000		0.001	0.002	B-39	41.6549	-113.3423
187.53	SS-09-073	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6552	-113.3434
187.59	SS-09-072	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6556	-113.3444
187.64	SS-09-071	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6558	-113.3452
187.72	SS-09-070	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.005	0.002	0.001	0.000	0.000		0.001	0.001	B-39	41.6563	-113.3466
187.76	SS-09-069	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6566	-113.3474
187.90	SS-09-068	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6574	-113.3498
187.90	SS-09-067	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6574	-113.3500
187.94	SS-09-066	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6577	-113.3506
188.00	SS-09-065	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.001	0.001	0.000	0.000		0.000	0.001	B-39	41.6580	-113.3516
188.03	SS-09-064	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6582	-113.3521
188.06	SS-09-063	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.005	0.002	0.001	0.000	0.000		0.001	0.001	B-39	41.6584	-113.3526
188.08	SS-09-062	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.005	0.002	0.001	0.000	0.000		0.001	0.001	B-39	41.6586	-113.3531
188.10	SS-09-061	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6586	-113.3533
188.14	SS-09-060	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6589	-113.3540

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
188.17	SS-09-059	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6590	-113.3547
188.18	SS-09-058	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.002	0.001	0.001	0.000	0.000		0.000	0.001	B-39	41.6589	-113.3548
188.19	SS-09-057	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.003	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6591	-113.3550
188.26	SS-09-056	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.001	0.001	0.000	0.000		0.000	0.001	B-39	41.6596	-113.3563
188.28	SS-09-055	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6597	-113.3567
188.29	SS-09-054	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.25	N/A	0.001	0.001	0.000	0.000	0.000		0.000	0.000		41.6600	-113.3567
188.31	SS-09-053	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.002	0.001	0.000	0.000	0.000		0.000	0.000		41.6601	-113.3570
188.42	SS-09-049	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6605	-113.3590
188.45	SS-09-048	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6608	-113.3595
188.48	SS-09-047	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.005	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6608	-113.3600
188.61	SS-09-046	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.25	N/A	0.002	0.001	0.000	0.000	0.000		0.000	0.000	B-39	41.6598	-113.3619
188.65	SS-09-045	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.007	0.003	0.001	0.000	0.000		0.001	0.001	B-39	41.6593	-113.3624
188.71	SS-09-044	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.006	0.002	0.001	0.000	0.000		0.001	0.001	B-39	41.6586	-113.3631
188.79	SS-09-043	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.002	0.001	0.001	0.000	0.000		0.000	0.001	B-39	41.6575	-113.3639
188.80	SS-09-042	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.009	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6575	-113.3642
188.81	SS-09-041	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.009	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6573	-113.3644
188.89	SS-09-040	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1.25	N/A	0.014	0.004	0.002	0.000	0.000		0.001	0.002	B-39	41.6566	-113.3653
188.95	SS-09-039	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.25	N/A	0.002	0.001	0.000	0.000	0.000		0.000	0.000	B-39	41.6557	-113.3658
188.96	SS-09-038	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.008	0.004	0.002	0.000	0.000		0.001	0.002	B-39	41.6556	-113.3660
188.99	SS-09-037	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.6	N/A	0.006	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6554	-113.3664
189.01	SS-09-034	Box Elder	UT	Tributary to Dove Creek	INTERMITTENT	1.5	N/A	0.026	0.015	0.002	0.000	0.000		0.001	0.002	B-39	41.6552	-113.3669
189.03	SS-09-035	Box Elder	UT	Tributary to Dove Creek	INTERMITTENT	1.5	N/A	0.016	0.008	0.003	0.000	0.000		0.001	0.003	B-39	41.6548	-113.3670
189.05	SS-09-036	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1.5	N/A	0.005	0.005	0.002	0.000	0.000		0.000	0.001	B-39	41.6547	-113.3671
189.11	SS-09-052	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	1	N/A	0.002	0.000	0.000	0.000	0.000		0.000	0.001	B-39	41.6538	-113.3674
189.11	SS-09-051	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.75	N/A	0.002	0.000	0.000	0.000	0.000		0.000	0.000	B-39	41.6537	-113.3674
189.15	SS-09-033	Box Elder	UT	Tributary to Dove Creek	EPHEMERAL	0.5	N/A	0.007	0.005	0.002	0.001	0.000		0.000	0.000		41.6535	-113.3685
189.47	SS-09-032	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.002	0.001	0.001	0.000		0.000	0.001	B-39	41.6499	-113.3720
189.52	SS-09-031	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	0.5	N/A	0.004	0.001	0.001	0.000	0.000		0.000	0.001	B-39	41.6494	-113.3727
189.57	SS-09-030	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6489	-113.3734
189.62	SS-09-029	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	1	N/A	0.011	0.004	0.002	0.000	0.000		0.001	0.002	B-39	41.6485	-113.3743
189.73	SS-09-028	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	0.75	N/A	0.008	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6474	-113.3758
189.87	SS-09-027	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	1	N/A	0.010	0.004	0.002	0.000	0.000		0.001	0.002	B-39	41.6460	-113.3779
189.95	SS-09-026	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	1.5	N/A	0.021	0.007	0.003	0.000	0.000		0.001	0.003	B-39	41.6454	-113.3790
189.95	SS-09-025	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.001	0.002	B-39	41.6452	-113.3790
190.23	SS-09-024	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	1.5	N/A	0.033	0.009	0.003	0.014	0.000		0.002	0.010	B-39	41.6427	-113.3833
190.30	SS-09-023	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	3	N/A	0.038	0.022	0.013	0.010	0.000		0.001	0.003	B-39	41.6419	-113.3842
190.40	SS-09-022	Box Elder	UT	Tributary to Runswick Wash / Dove Creek	EPHEMERAL	10	N/A	0.075	0.033	0.022	0.000	0.000		0.000	0.000		41.6411	-113.3858
190.44	SS-39-046	Box Elder	UT	Unnamed Trib. to Runswick Wash	EPHEMERAL	2	N/A	0.019	0.008	0.003	0.000	0.000		0.002	0.004	B-39	41.6413	-113.3868
191.53	SS-39-045	Box Elder	UT	Unnamed Trib. to Runswick Wash	EPHEMERAL	0.5	N/A	0.007	0.006	0.002	0.000	0.000		0.000	0.001	B-39	41.6364	-113.4068
191.80	SS-39-044	Box Elder	UT	Unnamed Trib. to Runswick Wash	EPHEMERAL	4	N/A	0.032	0.014	0.007	0.000	0.000		0.003	0.006	B-39	41.6352	-113.4117
198.32	SS-39-043	Box Elder	UT	Unnamed Trib. to Muddy Creek	EPHEMERAL	0.5	N/A	0.005	0.002	0.001	0.000	0.000		0.000	0.001	B-39	41.6165	-113.5300
199.33	SS-39-042	Box Elder	UT	Muddy Creek	INTERMITTENT	6	N/A	0.049	0.020	0.008	0.000	0.000		0.004	0.010	B-39	41.6118	-113.5484
200.51	SS-39-041	Box Elder	UT	Unnamed Trib. to Muddy Creek	EPHEMERAL	9	N/A	0.064	0.025	0.011	0.000	0.000		0.000	0.000		41.6052	-113.5665

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
202.23	SS-39-040	Box Elder	UT	Headwaters of Rosebud Creek	EPHEMERAL	3	N/A	0.018	0.009	0.004	0.000	0.000		0.000	0.000		41.5810	-113.5750
203.75	SS-123-001	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	2	N/A	0.015	0.006	0.002	0.000	0.000		0.000	0.000		41.5598	-113.5828
205.18	SS-39-039	Box Elder	UT	Unnamed Trib. to Great Salt Lake	EPHEMERAL	6	N/A	0.058	0.027	0.013	0.000	0.000		0.000	0.000		41.5397	-113.5897
207.78	SS-03-021	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.015	0.006	0.002	0.000	0.000		0.000	0.000		41.5036	-113.6033
207.79	SS-03-020	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.014	0.006	0.003	0.000	0.000		0.000	0.000		41.5035	-113.6035
207.85	SS-03-019	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.014	0.006	0.002	0.000	0.000		0.000	0.000		41.5028	-113.6041
207.89	SS-03-018	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	3	N/A	0.022	0.008	0.004	0.000	0.000		0.000	0.000		41.5023	-113.6047
208.58	SS-03-017	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	INTERMITTENT	5	N/A	0.038	0.014	0.006	0.010	0.000		0.000	0.000		41.4946	-113.6131
209.30	SS-123-002	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	4	N/A	0.030	0.012	0.005	0.008	0.000		0.000	0.000		41.4865	-113.6218
210.37	SS-03-015	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.018	0.008	0.004	0.004	0.000		0.000	0.000		41.4746	-113.6349
210.46	SS-03-014	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	1	N/A	0.011	0.003	0.001	0.003	0.000		0.000	0.000		41.4736	-113.6359
212.28	SS-03-013	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.015	0.006	0.003	0.000	0.000		0.000	0.000		41.4539	-113.6590
212.71	SS-03-012	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	3	N/A	0.024	0.009	0.004	0.000	0.000		0.000	0.000		41.4511	-113.6665
213.19	SS-03-011	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.015	0.006	0.003	0.000	0.000		0.000	0.000		41.4479	-113.6747
213.37	SS-03-010	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	3	N/A	0.023	0.009	0.004	0.000	0.000		0.000	0.000		41.4468	-113.6778
213.45	SS-03-009	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.4462	-113.6793
213.82	SS-03-008	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.016	0.007	0.003	0.004	0.000		0.000	0.000		41.4436	-113.6854
214.07	SS-03-007	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.4422	-113.6895
214.29	SS-03-006	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.016	0.007	0.004	0.004	0.000		0.000	0.000		41.4410	-113.6935
214.41	SS-03-005	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.014	0.005	0.002	0.004	0.000		0.000	0.000		41.4407	-113.6957
214.57	SS-03-004	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	2	N/A	0.015	0.006	0.003	0.004	0.000		0.000	0.000		41.4404	-113.6988

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
214.66	SS-03-003	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	3	N/A	0.024	0.010	0.004	0.006	0.000		0.000	0.000		41.4402	-113.7006
214.78	SS-03-002	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.4399	-113.7029
214.81	SS-03-001	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.4399	-113.7034
215.18	SS-02-040	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	0.5	N/A	0.004	0.001	0.001	0.001	0.000		0.000	0.000		41.4392	-113.7105
215.56	SS-02-039	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	0.5	N/A	0.004	0.001	0.001	0.001	0.000		0.000	0.000		41.4384	-113.7178
215.79	SS-02-038	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	INTERMITTENT	2	N/A	0.018	0.006	0.002	0.004	0.000		0.000	0.000		41.4378	-113.7221
215.95	SS-02-037	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.4376	-113.7252
216.10	SS-02-036	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	INTERMITTENT	2	N/A	0.015	0.006	0.003	0.004	0.000		0.000	0.000		41.4373	-113.7281
216.15	SS-02-035	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	0.5	N/A	0.004	0.002	0.001	0.001	0.000		0.000	0.000		41.4372	-113.7290
216.21	SS-02-034	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	1	N/A	0.009	0.004	0.001	0.003	0.000		0.000	0.000		41.4372	-113.7303
216.34	SS-02-033	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	INTERMITTENT	4	N/A	0.034	0.012	0.006	0.011	0.000		0.000	0.000		41.4366	-113.7326
216.47	SS-02-032	Box Elder	UT	Unnamed Tributary (Newfoundland Evaporation Basin)	EPHEMERAL	1	N/A	0.010	0.004	0.001	0.003	0.000		0.000	0.000		41.4358	-113.7347
217.10	SS-116-009	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	6	N/A	0.057	0.025	0.013	0.014	0.000		0.000	0.000		41.4356	-113.7467
217.20	SS-116-008	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	6	N/A	0.042	0.016	0.007	0.011	0.000		0.000	0.000		41.4356	-113.7486
217.89	SS-116-007	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	8	N/A	0.057	0.023	0.010	0.015	0.000		0.000	0.000		41.4342	-113.7619
217.97	SS-116-006	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	20	N/A	0.142	0.056	0.024	0.038	0.000		0.000	0.000		41.4341	-113.7634
218.14	SS-116-005	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	3	N/A	0.034	0.014	0.004	0.007	0.000		0.000	0.000		41.4339	-113.7666
218.21	SS-116-004	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	10	N/A	0.070	0.027	0.012	0.019	0.000		0.000	0.000		41.4337	-113.7679
222.61	SS-116-003	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	2	N/A	0.014	0.005	0.002	0.000	0.000		0.000	0.000		41.4246	-113.8518
222.88	SS-116-002	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	3	N/A	0.023	0.009	0.004	0.000	0.000		0.000	0.000		41.4241	-113.8569
223.10	SS-116-001	Box Elder	UT	Discontiguous Creek (Great Salt Lake Desert)	EPHEMERAL	2	N/A	0.015	0.005	0.002	0.000	0.000		0.000	0.000		41.4236	-113.8611
226.07	SS-05-001	Box Elder	UT	Tributary to Grouse Creek	EPHEMERAL	6	N/A	0.043	0.017	0.008	0.011	0.000		0.000	0.000		41.4280	-113.9136
226.67	SS-05-002	Box Elder	UT	Grouse Creek	INTERMITTENT	30	N/A	0.255	0.085	0.037	0.072	0.000		0.000	0.000		41.4312	-113.9242
227.35	SS-05-005	Box Elder	UT	Tributary to Grouse Creek	EPHEMERAL	3	N/A	0.049	0.028	0.011	0.007	0.000		0.000	0.000		41.4373	-113.9336
227.42	SS-05-003	Box Elder	UT	Tributary to Grouse Creek	EPHEMERAL	3	N/A	0.019	0.010	0.005	0.005	0.000		0.000	0.000		41.4378	-113.9346
227.43	SS-05-004	Box Elder	UT	Tributary to Grouse Creek	EPHEMERAL	20	N/A	0.157	0.063	0.029	0.040	0.000		0.000	0.000		41.4377	-113.9349

**Table H-6 Waterbody Crossings in Utah**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
228.61	SS-40-020A	Box Elder	UT	Unnamed Trib. to Grouse Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	B-60	41.4355	-113.9597
228.63	SS-40-020	Box Elder	UT	Unnamed Trib. to Grouse Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	B-60	41.4354	-113.9600
228.80	SS-40-015	Box Elder	UT	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.008	B-60	41.4154	-113.9723
228.82	SS-40-014	Box Elder	UT	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.005	B-60	41.4082	-113.9757
229.00	SS-40-019	Box Elder	UT	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	B-60A	41.4219	-113.9734
229.90	SS-04-008	Box Elder	UT	Tributary to Grouse Creek	EPHEMERAL	3	N/A	0.057	0.028	0.014	0.000	0.000		0.000	0.000		41.4489	-113.9801
230.32	SS-04-007	Box Elder	UT	Tributary to Grouse Creek	EPHEMERAL	3	N/A	0.025	0.011	0.005	0.000	0.000		0.000	0.000		41.4509	-113.9876
230.37	SS-04-006	Box Elder	UT	Tributary to Grouse Creek	EPHEMERAL	2	N/A	0.030	0.016	0.007	0.000	0.000		0.000	0.000		41.4511	-113.9885
230.59	SS-04-005	Box Elder	UT	Tributary to Thousand Springs Creek	EPHEMERAL	3	N/A	0.019	0.010	0.004	0.002	0.000		0.000	0.000		41.4520	-113.9925
230.71	SS-04-004	Box Elder	UT	Tributary to Thousand Springs Creek	INTERMITTENT	5	N/A	0.057	0.014	0.006	0.011	0.000		0.000	0.000		41.4518	-113.9948
230.82	SS-40-016	Box Elder	UT	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.001	B-61	41.4535	-113.9971
231.22	SS-04-003	Box Elder	UT	Tributary to Thousand Springs Creek	INTERMITTENT	2	0	0.036	0.015	0.007	0.009	0.000		0.000	0.000		41.4526	-114.0046
231.48	SS-40-018	Box Elder	UT	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.020	B-61	41.4562	-114.0089
231.66	SS-04-002	Box Elder	UT	Tributary to Thousand Springs Creek	EPHEMERAL	2	N/A	0.017	0.008	0.003	0.004	0.000		0.000	0.000		41.4536	-114.0129
232.43	SS-132-003	Box Elder	UT	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	10	N/A	0.000	0.000	0.000	0.000	0.000		0.009	0.019	E-1	41.4102	-114.0402
232.89	SS-04-001	Box Elder	UT	Tributary to Thousand Springs Creek	EPHEMERAL	2	N/A	0.005	0.001	0.000	0.002	0.000		0.000	0.000		41.4575	-114.0356
							<b>Rich County Totals</b>	1.589	0.618	0.257	0.278	0.152		0.131	0.354			
							<b>Cache County Totals</b>	1.248	0.202	0.102	0.052	0.006		0.168	0.311			
							<b>Box Elder County Totals</b>	8.479	3.174	1.390	1.725	0.009		2.253	3.035			
							<b>Utah Totals</b>	11.316	3.994	1.749	2.056	0.166		2.552	3.700			
							<b>Project Totals</b>	35.578	13.310	5.664	5.779	1.021		5.823	12.547			



Table H-7 Waterbody Crossings in Nevada

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
232.43	SS-132-001	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-1	41.3757	-114.0407
232.43	SS-132-002	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	5	N/A	0.000	0.000	0.000	0.000	0.000		0.004	0.010	E-1	41.3927	-114.0408
233.20	SS-132-004B	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	3.5	N/A	0.000	0.000	0.000	0.000	0.000		0.027	0.076	E-1	41.4479	-114.0456
233.34	SS-132-005	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	4	N/A	0.000	0.000	0.000	0.000	0.000		0.044	0.146	E-1	41.4623	-114.0422
236.30	SS-132-009	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.014	0.005	0.002	0.004	0.000		0.002	0.004	E-2	41.4545	-114.0945
236.82	SS-132-008	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	3	N/A	0.021	0.008	0.004	0.006	0.000		0.002	0.006	E-2	41.4534	-114.1044
237.39	SS-132-007	Elko	NV	Unnamed Trib. the Thousand Springs Creek	INTERMITTENT	5	N/A	0.038	0.015	0.007	0.010	0.000		0.004	0.009	E-2	41.4525	-114.1149
237.84	SS-132-006	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	12	N/A	0.087	0.034	0.014	0.023	0.000		0.011	0.025	E-2	41.4545	-114.1230
239.07	SS-183-001	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.004		0.000	0.000		41.4553	-114.1465
239.19	SS-102-029	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	4	N/A	0.223	0.126	0.063	0.033	0.000		0.009	0.022	E-2	41.4546	-114.1485
240.40	SS-102-027	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.001	0.002	E-2	41.4542	-114.1720
240.49	SS-183-002	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	1.5	N/A	0.000	0.000	0.000	0.000	0.024		0.000	0.000		41.3732	-114.1830
240.49	SS-183-003	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	0.5	N/A	0.000	0.000	0.000	0.000	0.007		0.000	0.000		41.3754	-114.1819
240.83	SS-105-006	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.004	E-2	41.4546	-114.1817
240.84	SS-105-007	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.005	E-2	41.4546	-114.1821
240.88	SS-31-017	Elko	NV	Tributary to Crittenden Creek	EPHEMERAL	1	N/A	0.009	0.004	0.002	0.000	0.000		0.000	0.000		41.4579	-114.1796
240.91	SS-31-018	Elko	NV	Tributary to Crittenden Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.4580	-114.1801
240.99	SS-24-041	Elko	NV	Tributary to Crittenden Creek	EPHEMERAL	2	N/A	0.015	0.006	0.002	0.000	0.000		0.000	0.000		41.4587	-114.1814
241.05	SS-24-040	Elko	NV	Tributary to Crittenden Creek	EPHEMERAL	3	N/A	0.025	0.009	0.004	0.000	0.000		0.000	0.000		41.4593	-114.1823
243.55	SS-31-011	Elko	NV	Thousand Springs Creek	INTERMITTENT	6	N/A	0.042	0.016	0.007	0.011	0.000		0.000	0.000		41.4781	-114.2220
243.58	SS-133-020	Elko	NV	Thousand Springs Creek	EPHEMERAL	4	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.006	E-4	41.4792	-114.2220
243.73	SS-06-028	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	2	N/A	0.026	0.007	0.003	0.011	0.000		0.004	0.007	E-4	41.4784	-114.2251
243.86	SS-133-022	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.006	0.000	0.000	0.002	0.000		0.000	0.003	E-4	41.4789	-114.2279
244.04	SS-06-029	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1	N/A	0.010	0.002	0.000	0.004	0.000		0.006	0.010	E-4	41.4789	-114.2311
244.60	SS-133-024	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1.2	N/A	0.009	0.003	0.002	0.003	0.000		0.001	0.002	E-4	41.4774	-114.2417
244.66	SS-06-031	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1	N/A	0.009	0.004	0.002	0.003	0.000		0.001	0.002	E-4	41.4773	-114.2427
244.67	SS-133-025	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.009	0.005	0.002	0.002	0.000		0.001	0.001	E-4	41.4773	-114.2430
245.31	SS-133-026	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.008	0.004	0.002	0.003	0.000		0.001	0.002	E-4	41.4749	-114.2549
245.48	SS-133-027	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.001	0.000	0.000	0.000	0.000		0.000	0.000	E-4	41.4741	-114.2580
245.91	SS-06-033	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1	N/A	0.010	0.005	0.002	0.003	0.000		0.001	0.002	E-4	41.4691	-114.2622

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
246.12	SS-06-034	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1	N/A	0.013	0.006	0.002	0.003	0.000		0.001	0.002	E-4	41.4664	-114.2640
246.88	SS-133-028	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1.2	N/A	0.011	0.003	0.001	0.004	0.000		0.001	0.002	E-4	41.4578	-114.2729
247.02	SS-133-029A	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-4	41.4561	-114.2745
247.02	SS-133-029	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.002	0.000		0.001	0.003	E-4	41.4566	-114.2750
247.15	SS-133-030	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.004	E-4	41.4566	-114.2779
247.18	SS-06-037	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	2	N/A	0.017	0.007	0.003	0.004	0.000		0.000	0.000		41.4556	-114.2776
247.26	SS-133-031A	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	3	N/A	0.008	0.000	0.000	0.004	0.000		0.000	0.002	E-4	41.4553	-114.2793
247.60	SS-06-038	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	4	N/A	0.049	0.000	0.000	0.018	0.000		0.000	0.000		41.4516	-114.2837
247.87	SS-147-001	Elko	NV	Unnamed trib to Thousand Springs Creek	EPHEMERAL	2	N/A	0.021	0.000	0.000	0.011	0.000		0.015	0.018	E-4	41.4487	-114.2870
248.00	SS-147-002	Elko	NV	Unnamed trib to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.003	E-4	41.4483	-114.2897
248.71	SS-07-031	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1	N/A	0.003	0.000	0.000	0.001	0.000		0.000	0.000		41.4398	-114.2980
248.72	SS-07-030	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.005	0.002	0.000	0.002	0.000		0.000	0.001	E-4	41.4402	-114.2986
248.93	SS-07-032	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	2	N/A	0.008	0.000	0.000	0.001	0.000		0.000	0.000		41.4383	-114.3018
249.00	SS-07-029	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	2	N/A	0.008	0.002	0.000	0.003	0.000		0.000	0.000		41.4386	-114.3033
250.08	SS-147-003	Elko	NV	Unnamed trib to Twentyone Mile Draw	EPHEMERAL	5	N/A	0.057	0.024	0.007	0.015	0.000		0.004	0.011	E-4	41.4348	-114.3234
251.20	SS-07-027A	Elko	NV	Tributary to Twentyone Mile Draw	EPHEMERAL	2	N/A	0.023	0.003	0.000	0.003	0.000		0.000	0.001	E-4	41.4272	-114.3417
251.23	SS-07-027B	Elko	NV	Side Channel of Tributary to Twentyone Mile Draw	EPHEMERAL	0	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.001	E-4	41.4272	-114.3422
252.11	SS-07-026	Elko	NV	Tributary to Twentyone Mile Draw	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.001	0.002	E-4	41.4272	-114.3591
252.41	SS-07-025	Elko	NV	Tributary to Twentyone Mile Draw	EPHEMERAL	1	N/A	0.010	0.004	0.002	0.000	0.000		0.001	0.002	E-4	41.4266	-114.3648
252.51	SS-07-024	Elko	NV	Tributary to Twentyone Mile Draw	EPHEMERAL	1	N/A	0.010	0.003	0.001	0.000	0.000		0.002	0.004	E-4	41.4262	-114.3667
252.87	SS-147-004	Elko	NV	Twentyone Mile Draw	EPHEMERAL	6	N/A	0.000	0.000	0.000	0.000	0.000		0.008	0.015	E-4	41.4280	-114.3740
252.97	SS-07-023	Elko	NV	Twentyone Mile Draw	EPHEMERAL	2	N/A	0.015	0.006	0.003	0.004	0.000		0.000	0.000		41.4254	-114.3754
253.33	SS-07-022	Elko	NV	Tributary to Twentyone Mile Draw	EPHEMERAL	1	N/A	0.010	0.004	0.002	0.003	0.000		0.001	0.002	E-4	41.4241	-114.3823
255.82	SS-147-005	Elko	NV	Unnamed trib to Twentyone Mile Draw	EPHEMERAL	1.5	N/A	0.012	0.005	0.002	0.003	0.000		0.001	0.002	E-4	41.4222	-114.4299
256.09	SS-147-006	Elko	NV	Unnamed trib to Twentyone Mile Draw	EPHEMERAL	2	N/A	0.014	0.006	0.002	0.004	0.000		0.001	0.003	E-4	41.4217	-114.4351
256.65	SS-147-007	Elko	NV	Unnamed trib to Twentyone Mile Draw	EPHEMERAL	1	N/A	0.015	0.006	0.003	0.004	0.000		0.001	0.003	E-4	41.4204	-114.4458
256.92	SS-107-016	Elko	NV	Unnamed trib. to Twentyone Mile Draw	EPHEMERAL	0.9	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-5	41.3757	-114.4443
257.06	SS-105-008	Elko	NV	Unnamed trib. to Twenty One Mile Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-6	41.4108	-114.4522
257.81	SS-07-018	Elko	NV	Tributary to Fivemile Draw	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.002	0.000		0.000	0.000	E-4	41.4191	-114.4681
257.87	SS-107-015	Elko	NV	Unnamed trib. to Five Mile Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-5	41.3679	-114.4672
257.99	SS-105-009A	Elko	NV	Unnamed trib. to Five Mile Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-6	41.4051	-114.4709

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
257.99	SS-105-009	Elko	NV	Unnamed trib. to Five Mile Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-6	41.4050	-114.4710
258.22	SS-06-025	Elko	NV	Tributary to Fivemile Draw	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.001	0.002	E-4	41.4190	-114.4760
258.81	SS-105-010	Elko	NV	Unnamed trib. to Five Mile Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.050	E-6	41.3973	-114.4865
259.06	SS-131-013	Elko	NV	Unnamed Trib. to Fivemile Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.008	0.024	E-6	41.3954	-114.4911
259.31	SS-107-014	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	1.75	N/A	0.000	0.000	0.000	0.000	0.000		0.026	0.042	E-5	41.3568	-114.4946
259.44	SS-147-008	Elko	NV	Unnamed trib to Fivemile Draw	EPHEMERAL	2	N/A	0.017	0.006	0.003	0.000	0.000		0.002	0.004	E-4	41.4185	-114.4994
259.45	SS-107-010	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	0.5	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.000	E-5	41.3556	-114.4973
259.49	SS-107-009	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	0.75	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.001	E-5	41.3553	-114.4980
259.54	SS-107-007	Elko	NV	Unnamed trib. to Toano Draw	INTERMITTENT	2.5	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.006	E-5	41.3548	-114.4990
259.82	SS-107-008	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-5	41.3535	-114.5043
260.30	SS-06-023	Elko	NV	Tributary to Fivemile Draw	EPHEMERAL	2	N/A	0.045	0.028	0.005	0.000	0.000		0.000	0.000		41.4182	-114.5161
260.78	SS-107-013	Elko	NV	Unnamed trib. to Toano Draw	INTERMITTENT	2.75	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.004	E-5	41.3526	-114.5103
261.30	SS-131-014	Elko	NV	Unnamed Trib. to Fivemile Draw	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.006	E-6	41.3876	-114.5284
261.50	SS-107-006	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	0.5	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-5	41.3433	-114.5346
261.50	SS-107-012	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-5	41.3446	-114.5301
261.54	SS-131-017	Elko	NV	Unnamed Trib. to Toano Draw	EPHEMERAL	7	N/A	0.000	0.000	0.000	0.000	0.000		0.005	0.009	E-8	41.3646	-114.5375
262.47	SS-147-009	Elko	NV	Unnamed trib to Fivemile Draw	EPHEMERAL	4	N/A	0.050	0.022	0.010	0.000	0.000		0.007	0.015	E-4	41.4141	-114.5572
262.67	SS-131-015	Elko	NV	Unnamed Trib. to Toano Draw	EPHEMERAL	5	N/A	0.000	0.000	0.000	0.000	0.000		0.015	0.024	E-6	41.3862	-114.5526
262.96	SS-107-011	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	0.75	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.001	E-5	41.3400	-114.5443
264.06	SS-147-010	Elko	NV	Unnamed trib to Toano Draw	EPHEMERAL	2.5	N/A	0.049	0.020	0.010	0.000	0.000		0.006	0.013	E-4	41.4093	-114.5871
264.19	SS-131-018	Elko	NV	Toano Draw	EPHEMERAL	4	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.006	E-8	41.3409	-114.5687
264.24	SS-107-004	Elko	NV	Unnamed trib. to Toano Draw	INTERMITTENT	12	N/A	0.000	0.000	0.000	0.000	0.000		0.012	0.019	E-5	41.3362	-114.5682
264.24	SS-107-005	Elko	NV	Unnamed trib. to Toano Draw	INTERMITTENT	1	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.010	E-5	41.3344	-114.5678
264.24	SS-147-011	Elko	NV	Toano Draw	INTERMITTENT	6	N/A	0.031	0.016	0.007	0.000	0.000		0.004	0.009	E-4	41.4088	-114.5906
264.37	SS-131-016	Elko	NV	Toano Draw	EPHEMERAL	10	N/A	0.000	0.000	0.000	0.000	0.000		0.007	0.015	E-6	41.3843	-114.5857
264.42	SS-131-016A	Elko	NV	Toano Draw	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.004	E-6	41.3842	-114.5866
264.80	SS-105-001	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-9	41.3432	-114.5815
264.83	SS-105-013	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.000	E-6	41.3839	-114.5945
264.94	SS-07-012	Elko	NV	Tributary to Thousand Springs Creek (Toano Draw)	EPHEMERAL	1.5	N/A	0.017	0.005	0.002	0.000	0.000		0.001	0.003	E-4	41.4062	-114.6037
265.34	SS-105-012	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-6	41.3832	-114.6045
265.40	SS-105-011	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.005	0.005	E-6	41.3830	-114.6056
266.20	SS-105-002	Elko	NV	Unnamed trib. to Toano Draw	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-9	41.3656	-114.6161

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
267.07	SS-105-003	Elko	NV	Unnamed trib. to Thousand Springs Creek	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.002	E-9	41.3784	-114.6371
267.45	SS-105-004	Elko	NV	Unnamed trib to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-9	41.3874	-114.6526
267.83	SS-105-005	Elko	NV	Unnamed trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.000	E-9	41.3914	-114.6593
269.66	SS-132-052	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-9A	41.4009	-114.6934
269.69	SS-149-001	Elko	NV	Unnamed Trib. to Brush Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.3993	-114.6936
269.77	SS-132-051	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	4	N/A	0.000	0.000	0.000	0.000	0.000		0.013	0.015	E-9A	41.4008	-114.6957
270.04	SS-149-002	Elko	NV	Unnamed Trib. to Brush Creek	EPHEMERAL	4	N/A	0.028	0.011	0.005	0.000	0.000		0.000	0.000		41.3992	-114.7000
270.16	SS-149-003	Elko	NV	Unnamed Trib. to Red House Flat	PERENNIAL	5	N/A	0.040	0.014	0.006	0.000	0.000		0.000	0.000		41.3997	-114.7023
270.21	SS-149-003A	Elko	NV	Unnamed Trib. to Red House Flat	PERENNIAL	4	N/A	0.015	0.000	0.000	0.000	0.000		0.000	0.000		41.3993	-114.7034
270.25	SS-149-003B	Elko	NV	Unnamed Trib. to Red House Flat	PERENNIAL	2	N/A	0.018	0.006	0.003	0.000	0.000		0.000	0.000		41.4002	-114.7039
270.35	SS-149-004	Elko	NV	Brush Creek	PERENNIAL	6	N/A	0.056	0.022	0.010	0.000	0.000		0.000	0.000		41.4004	-114.7058
271.34	SS-132-053	Elko	NV	Unnamed Trib. to Brush Creek	EPHEMERAL	7	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.004	E-9B	41.3582	-114.7260
272.09	SS-132-054	Elko	NV	Brush Creek	PERENNIAL	4.5	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.004	E-9B	41.3494	-114.7427
272.82	SS-149-005	Elko	NV	West Brush Creek	INTERMITTENT	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-9B	41.3567	-114.7563
273.14	SS-112-001	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.4363	-114.7545
273.80	SS-112-002	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.4377	-114.7570
273.89	SS-112-003	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-10	41.4386	-114.7585
274.11	SS-112-004	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-10	41.4412	-114.7619
274.14	SS-112-005	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.4424	-114.7633
274.14	SS-112-006	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.000	E-10	41.4434	-114.7645
274.14	SS-112-007	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.008	E-10	41.4493	-114.7698
274.14	SS-112-008	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.4525	-114.7736
274.16	SS-112-009	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.001	E-10	41.4553	-114.7757
274.16	SS-112-010	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.4583	-114.7808
274.16	SS-112-011	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.007	E-10	41.4619	-114.7841
274.16	SS-112-012	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.008	0.009	E-10	41.4660	-114.7881
274.17	SS-112-014	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.4680	-114.7971
274.17	SS-112-015	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-10	41.4641	-114.8098
276.38	SS-15-001	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.3983	-114.8189
276.43	SS-112-016	Elko	NV	Spring Creek	PERENNIAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.006	E-10	41.4497	-114.8328
276.44	SS-112-017	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-10	41.4363	-114.8410
276.44	SS-132-025	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.037	E-12	41.4456	-114.8415

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
276.46	SS-112-018	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.4308	-114.8418
276.56	SS-15-002	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1	N/A	0.001	0.000	0.000	0.000	0.000		0.000	0.000		41.3973	-114.8217
277.36	SS-15-003	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	2.5	N/A	0.072	0.063	0.050	0.003	0.000		0.030	0.044	E-11	41.3923	-114.8352
277.49	SS-15-003A	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.005	0.005	0.000	0.000	0.000		0.000	0.005	E-11	41.3920	-114.8377
277.52	SS-131-001	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.007	E-10	41.2654	-114.8314
277.52	SS-131-003	Elko	NV	Bishop Creek	INTERMITTENT	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.009	E-10	41.2883	-114.8376
277.52	SS-131-002	Elko	NV	Willow Creek	PERENNIAL	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.009	E-10	41.2759	-114.8342
277.75	SS-15-003B	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1.5	N/A	0.008	0.008	0.003	0.000	0.000		0.000	0.000		41.3924	-114.8425
277.85	SS-15-003C	Elko	NV	Tributary to Thousand Springs Creek	EPHEMERAL	1	N/A	0.019	0.019	0.016	0.000	0.000		0.000	0.005	E-11	41.3920	-114.8442
277.91	SS-131-004	Elko	NV	Unnamed Trib. to Bishop Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-10	41.3145	-114.8473
278.17	SS-15-004	Elko	NV	Thousand Spring Creek	PERENNIAL	6	N/A	0.058	0.035	0.008	0.000	0.000		0.006	0.024	E-11	41.3931	-114.8496
278.22	SS-15-005	Elko	NV	Thousand Spring Creek	PERENNIAL	3	N/A	0.025	0.009	0.004	0.000	0.000		0.002	0.005	E-11	41.3934	-114.8506
278.36	SS-112-023	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.3959	-114.8520
278.37	SS-112-020	Elko	NV	Loomis Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.001	E-10	41.4188	-114.8446
278.37	SS-112-022	Elko	NV	Pole Creek	PERENNIAL	8	N/A	0.000	0.000	0.000	0.000	0.000		0.009	0.024	E-10	41.4039	-114.8507
278.37	SS-112-019	Elko	NV	Unnamed Trib. to Thousand Springs Creek	PERENNIAL	6	N/A	0.000	0.000	0.000	0.000	0.000		0.011	0.016	E-10	41.4203	-114.8438
278.48	SS-112-024	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	3	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.006	E-10	41.3913	-114.8546
278.58	SS-112-025	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	4	N/A	0.000	0.000	0.000	0.000	0.000		0.004	0.008	E-10	41.3887	-114.8561
279.16	SS-112-026	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.005	E-10	41.3777	-114.8658
279.38	SS-112-028	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.3744	-114.8695
279.83	SS-112-029	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	3	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.009	E-10	41.3686	-114.8774
280.63	SS-131-008	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-10	41.3561	-114.8913
280.66	SS-132-040	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	2.5	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.004	E-12	41.3673	-114.8933
280.79	SS-112-030	Elko	NV	Unnamed Trib. to Thousand Springs Creek	PERENNIAL	2.5	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.006	E-10	41.3609	-114.8951
280.80	SS-112-032	Elko	NV	Unnamed Trib. to Thousand Springs Creek	PERENNIAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.005	E-10	41.3601	-114.8952
280.94	SS-132-041	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-12	41.3710	-114.8993
281.23	SS-132-026	Elko	NV	Unnamed Trib. to Loomis Creek	INTERMITTENT	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-12	41.4054	-114.9155
281.56	SS-131-007	Elko	NV	Unnamed Trib. to Thousand Springs Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.000	E-10	41.3447	-114.8927
281.56	SS-132-042	Elko	NV	Unnamed Trib. to Thousand Springs Creek	INTERMITTENT	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-12	41.3786	-114.9087
281.56	SS-131-006	Elko	NV	Unnamed Trib. to Thousand Springs Creek	PERENNIAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-10	41.3408	-114.8922
281.82	SS-132-027	Elko	NV	Unnamed Trib. to Loomis Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-12	41.3978	-114.9215
281.89	SS-132-043A	Elko	NV	Pole Creek	PERENNIAL	4	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.007	E-12	41.3915	-114.9217
282.14	SS-130-025B	Elko	NV	Pole Creek	PERENNIAL	6	N/A	0.000	0.000	0.000	0.000	0.000		0.011	0.021	E-14	41.3907	-114.9265
282.38	SS-130-025A	Elko	NV	Pole Creek	PERENNIAL	7	N/A	0.000	0.000	0.000	0.000	0.000		0.005	0.026	E-14	41.3892	-114.9321
282.52	SS-130-025	Elko	NV	Pole Creek	PERENNIAL	5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.087	E-14	41.3873	-114.9337

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
282.60	SS-131-005	Elko	NV	Unnamed Trib. to Bishop Creek	INTERMITTENT	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.009	E-10	41.3284	-114.8940
282.71	SS-131-012	Elko	NV	Pole Creek	PERENNIAL	6	N/A	0.043	0.017	0.007	0.011	0.000		0.004	0.010	E-11	41.3826	-114.9340
282.75	SS-130-026	Elko	NV	Unnamed Trib. to Pole Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-14	41.3849	-114.9351
282.75	SS-130-027	Elko	NV	Unnamed Trib. to Pole Creek	INTERMITTENT	0.8	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-14	41.3858	-114.9354
282.83	SS-130-024	Elko	NV	Unnamed Trib. to Pole Creek	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.007	E-14	41.3801	-114.9356
283.01	SS-130-022	Elko	NV	Unnamed Trib. to Pole Creek	INTERMITTENT	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.006	E-14	41.3788	-114.9389
283.07	SS-132-046	Elko	NV	Unnamed Trib. to Pole Creek	INTERMITTENT	2	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.005	E-13	41.3977	-114.9452
283.20	SS-15-007	Elko	NV	Tributary to Pole Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.002	0.001		0.000	0.000		41.3810	-114.9431
283.29	SS-132-045	Elko	NV	Unnamed Trib. to Pole Creek	INTERMITTENT	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-13	41.3908	-114.9560
283.35	SS-15-008	Elko	NV	Tributary to Pole Creek	EPHEMERAL	3	N/A	0.027	0.008	0.004	0.007	0.000		0.000	0.000		41.3797	-114.9453
283.36	SS-15-009	Elko	NV	Tributary to Pole Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.3797	-114.9455
283.42	SS-15-010	Elko	NV	Tributary to Pole Creek	PERENNIAL	1	N/A	0.013	0.007	0.003	0.000	0.000		0.000	0.000		41.3791	-114.9463
284.51	SS-15-011	Elko	NV	Tributary to Pole Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.3703	-114.9623
285.24	SS-132-044	Elko	NV	Unnamed Trib. to Pole Creek	INTERMITTENT	2.5	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.006	E-13	41.3879	-114.9717
286.82	SS-15-012	Elko	NV	Burnt Creek	PERENNIAL	2	atch Reservoir (on Humboldt	0.021	0.008	0.003	0.000	0.000		0.000	0.004	E-14A	41.3679	-115.0056
286.84	SS-130-023	Elko	NV	Burnt Creek	PERENNIAL	2.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.005	E-14A	41.3670	-115.0062
286.89	SS-15-013	Elko	NV	Tributary to Burnt Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.012	0.005	0.002	0.003	0.000		0.000	0.000		41.3681	-115.0068
286.89	SS-130-021	Elko	NV	Unnamed Trib. to Burnt Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.001	E-14	41.3651	-115.0081
286.89	SS-130-020A	Elko	NV	Unnamed Trib. to Burnt Creek	PERENNIAL	5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.008	E-14	41.3653	-115.0081
286.96	SS-130-020	Elko	NV	Unnamed Trib. to Burnt Creek	PERENNIAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.006	E-14	41.3646	-115.0097
287.15	SS-15-014	Elko	NV	Tributary to Burnt Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.021	0.008	0.004	0.006	0.000		0.000	0.000		41.3683	-115.0116
287.53	SS-15-015	Elko	NV	Tributary to Burnt Creek	INTERMITTENT	4	atch Reservoir (on Humboldt	0.034	0.013	0.005	0.000	0.000		0.000	0.000		41.3657	-115.0178
287.66	SS-130-018	Elko	NV	Burnt Creek	PERENNIAL	5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.028	0.095	E-14	41.3620	-115.0162
287.78	SS-130-019	Elko	NV	Unnamed Trib. to Burnt Creek	INTERMITTENT	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-14	41.3606	-115.0174
287.80	SS-15-016	Elko	NV	Tributary to Burnt Creek	EPHEMERAL	5	atch Reservoir (on Humboldt	0.036	0.014	0.007	0.010	0.000		0.000	0.000		41.3627	-115.0213
287.95	SS-15-017	Elko	NV	Tributary to Burnt Creek	EPHEMERAL	3.5	atch Reservoir (on Humboldt	0.026	0.010	0.004	0.007	0.000		0.000	0.000		41.3611	-115.0231
288.06	SS-15-018	Elko	NV	Tributary to Burnt Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.3598	-115.0246
288.16	SS-130-015B	Elko	NV	Unnamed Trib. to Burnt Creek	INTERMITTENT	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.003	E-14	41.3554	-115.0206
288.24	SS-130-015	Elko	NV	Unnamed Trib. to Burnt Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.015	E-14	41.3550	-115.0226
288.45	SS-15-019	Elko	NV	Tributary to Burnt Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.035	0.012	0.005	0.009	0.000		0.000	0.000		41.3561	-115.0300
288.47	SS-15-020	Elko	NV	Tributary to Burnt Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.026	0.013	0.005	0.009	0.000		0.000	0.000		41.3562	-115.0304
288.52	SS-130-017	Elko	NV	Unnamed Trib. to Burnt Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.013	0.018	E-14B	41.3533	-115.0299
288.66	SS-130-017A	Elko	NV	Unnamed Trib. to Burnt Creek	INTERMITTENT	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.005	E-14B	41.3505	-115.0311
288.66	SS-130-014	Elko	NV	Burnt Creek	PERENNIAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.019	E-14B	41.3497	-115.0308
288.71	SS-130-013	Elko	NV	Unnamed Trib. to Burnt Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-14	41.3489	-115.0313
289.02	SS-113-003	Elko	NV	Burnt Creek	PERENNIAL	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.005	0.016	E-14	41.3438	-115.0349
289.23	SS-113-002	Elko	NV	Unnamed Trib. to Burnt Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.012	E-14	41.3431	-115.0401
289.50	SS-15-021	Elko	NV	Tributary to Burnt Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.021	0.008	0.004	0.006	0.000		0.000	0.000		41.3506	-115.0488
290.70	SS-53-001	Elko	NV	Unnamed Trib. to Tabor Creek Valley	EPHEMERAL	2	atch Reservoir (on Humboldt	0.010	0.001	0.000	0.003	0.000		0.000	0.001	E-14	41.3426	-115.0690
290.99	SS-113-001	Elko	NV	Discontiguous Creek (Tabor Creek Valley)	INTERMITTENT	2.5	atch Reservoir (on Humboldt	0.020	0.007	0.003	0.006	0.000		0.016	0.098	E-15	41.3423	-115.0754

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
292.36	SS-107-002	Elko	NV	Unnamed trib. to Tabor Creek	EPHEMERAL	1.75	atch Reservoir (on Humboldt	0.018	0.007	0.003	0.005	0.000		0.002	0.004	E-15	41.3308	-115.0968
297.19	SS-130-002	Elko	NV	Unnamed Trib. to Tabor Creek	EPHEMERAL	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.011	E-17A	41.2746	-115.1582
297.19	SS-52-008	Elko	NV	Tributary to Tabor Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.004	Lead Break US Pip	0.000	0.000		41.2704	-115.1539
297.50	SS-52-011	Elko	NV	Tabor Creek	INTERMITTENT	4	atch Reservoir (on Humboldt	0.030	0.011	0.005	0.000	0.000		0.000	0.000		41.2953	-115.1824
297.54	SS-52-012	Elko	NV	Tabor Creek	PERENNIAL	4	atch Reservoir (on Humboldt	0.044	0.018	0.005	0.000	0.000		0.000	0.000		41.2950	-115.1831
297.81	SS-130-003	Elko	NV	Unnamed Trib. to Tabor Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-17A	41.2745	-115.1705
297.95	SS-130-004A	Elko	NV	Tabor Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-17A	41.2765	-115.1756
297.95	SS-130-004	Elko	NV	Tabor Creek	PERENNIAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.008	E-17A	41.2756	-115.1750
298.57	SS-130-006	Elko	NV	Unnamed Trib. to Tabor Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.007	E-17A	41.2750	-115.1888
298.76	SS-130-007	Elko	NV	Unnamed Trib. to Marys River	INTERMITTENT	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-17A	41.2775	-115.1955
298.88	SS-130-010	Elko	NV	Unnamed Trib. to Marys River	INTERMITTENT	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-17D	41.2802	-115.2009
299.14	SS-130-008	Elko	NV	Unnamed Trib. to Marys River	INTERMITTENT	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-17A	41.2783	-115.2051
299.27	SS-53-002	Elko	NV	Unnamed Trib. to Marys River	PERENNIAL	4.5	atch Reservoir (on Humboldt	0.066	0.031	0.014	0.000	0.000		0.000	0.000		41.2806	-115.2104
299.88	SS-53-003	Elko	NV	Unnamed Trib. to Marys River	PERENNIAL	5	atch Reservoir (on Humboldt	0.081	0.033	0.007	0.000	0.000		0.000	0.000		41.2758	-115.2202
300.16	SS-130-009	Elko	NV	Unnamed Trib. to Marys River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.006	E-17A	41.2753	-115.2262
300.59	SS-53-004	Elko	NV	Unnamed Trib. to Marys River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.024	0.015	0.007	0.000	0.000		0.000	0.000		41.2695	-115.2311
301.83	SS-54-002	Elko	NV	Mary's River	PERENNIAL	20	atch Reservoir (on Humboldt	0.173	0.056	0.024	0.056	0.000		0.000	0.000		41.2639	-115.2534
302.93	SS-07-010	Elko	NV	Tributary to Hot Springs Creek	INTERMITTENT	2.5	atch Reservoir (on Humboldt	0.019	0.009	0.003	0.000	0.000		0.000	0.000		41.2598	-115.2726
303.11	SS-110-007	Elko	NV	Unnamed trib. to Hot Springs Creek	INTERMITTENT	5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.008	E-20	41.2544	-115.2723
303.54	SS-110-008	Elko	NV	Hot Springs Creek	INTERMITTENT	12	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.186	E-21	41.2497	-115.2782
303.67	SS-07-011A	Elko	NV	Tributary to Hot Springs Creek	INTERMITTENT	0	atch Reservoir (on Humboldt	0.002	0.001	0.000	0.000	0.000		0.000	0.000		41.2546	-115.2850
303.69	SS-07-011	Elko	NV	Hot Springs Creek	INTERMITTENT	2.5	atch Reservoir (on Humboldt	0.039	0.015	0.006	0.000	0.000		0.000	0.000		41.2536	-115.2847
303.74	SS-110-009	Elko	NV	Unnamed trib. to Hot Springs Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.018	0.033	E-21	41.2511	-115.2838
304.22	SS-110-011	Elko	NV	Unnamed trib. to Hot Springs Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.138	0.056	0.017	0.000	0.000		0.040	0.048	E-22	41.2503	-115.2938
304.59	SS-110-010	Elko	NV	Unnamed trib. to Hot Springs Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.052	0.020	0.005	0.000	0.000		0.001	0.003	E-22	41.2479	-115.3002
304.80	SS-19-004	Elko	NV	Unnamed Trib. to Hot Springs Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.049	0.000	0.000	0.000	0.000		0.000	0.000		41.2464	-115.3038
305.83	SS-110-001	Elko	NV	Unnamed trib. to Pole Creek	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.005	E-23	41.2253	-115.3114
306.05	SS-110-002	Elko	NV	Unnamed trib. to Pole Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.039	E-23	41.2190	-115.3117
306.37	SS-110-003	Elko	NV	Pole Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.049	E-23	41.2096	-115.3120
306.46	SS-110-004	Elko	NV	Pole Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.005	E-23	41.2064	-115.3117
306.49	SS-110-005	Elko	NV	Pole Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.007	E-23	41.2055	-115.3117
306.55	SS-110-006	Elko	NV	Unnamed trib. to Pole Creek	EPHEMERAL	0.8	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.001	E-23	41.2026	-115.3113
306.69	SS-19-003	Elko	NV	Tributary to Pole Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.2338	-115.3359
307.50	SS-19-002	Elko	NV	Tributary to Pole Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.014	0.006	0.003	0.004	0.000		0.000	0.000		41.2310	-115.3510
307.82	SS-19-001	Elko	NV	Tributary to Pole Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.016	0.007	0.003	0.004	0.000		0.000	0.000		41.2300	-115.3570
309.46	SS-132-062	Elko	NV	Pole Creek	INTERMITTENT	20	atch Reservoir (on Humboldt	0.031	0.000	0.000	0.000	0.000		0.000	0.034	E-25	41.2260	-115.3876
309.93	SS-132-061	Elko	NV	Unnamed Trib. to Pole Creek	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.021	0.007	0.003	0.000	0.000		0.002	0.004	E-25	41.2287	-115.3959

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
310.11	SS-132-060	Elko	NV	Unnamed Trib. to Pole Creek	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.035	0.013	0.005	0.000	0.000		0.002	0.006	E-25	41.2299	-115.3990
310.57	SS-132-059	Elko	NV	Unnamed Trib. to Pole Creek	EPHEMERAL	12	atch Reservoir (on Humboldt	0.103	0.041	0.017	0.027	0.000		0.011	0.024	E-25	41.2328	-115.4070
311.19	SS-110-022	Elko	NV	Pole Creek	PERENNIAL	8	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.008	0.017	E-26	41.2578	-115.4041
311.77	SS-110-012	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.013	0.025	E-26	41.2570	-115.4171
312.45	SS-110-013	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.004	E-26	41.2538	-115.4338
312.70	SS-110-014	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.013	0.022	E-26	41.2535	-115.4391
312.76	SS-134-001	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	0.75	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.000	E-26	41.1853	-115.4840
312.76	SS-134-002	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.002	E-26	41.1858	-115.4837
312.77	SS-132-058	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	3.5	atch Reservoir (on Humboldt	0.026	0.010	0.004	0.000	0.000		0.003	0.006	E-25	41.2467	-115.4450
312.93	SS-134-003	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.018	0.078	E-26	41.1870	-115.4866
313.04	SS-110-015	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.009	E-26	41.2405	-115.4548
313.10	SS-102-008	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.010	E-29	41.1669	-115.5031
313.17	SS-110-016	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-26	41.2395	-115.4581
313.21	SS-110-020	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-26	41.1957	-115.4869
313.29	SS-102-009	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.001	E-29	41.1685	-115.5060
313.34	SS-102-010	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-29	41.1689	-115.5068
313.46	SS-102-011	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-29	41.1714	-115.5078
313.52	SS-102-012	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.005	E-29	41.1732	-115.5080
313.62	SS-132-057	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	12	atch Reservoir (on Humboldt	0.114	0.058	0.036	0.000	0.000		0.009	0.021	E-25	41.2521	-115.4598
313.65	SS-110-019	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.046	0.120	E-26	41.2111	-115.4866
313.95	SS-110-018	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.008	E-26	41.2154	-115.4901
314.15	SS-134-005	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.013	0.024	E-26	41.2176	-115.4929
314.20	SS-134-006	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.003	E-26	41.2196	-115.4927
314.29	SS-132-056	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	3.5	atch Reservoir (on Humboldt	0.025	0.010	0.004	0.007	0.000		0.003	0.006	E-25	41.2563	-115.4712
314.36	SS-07-004	Elko	NV	Tributary to the North Fork Humboldt River	EPHEMERAL	4	atch Reservoir (on Humboldt	0.076	0.024	0.005	0.000	0.000		0.005	0.011	E-25	41.2567	-115.4727
314.38	SS-134-007	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.003	E-26	41.2235	-115.4941
314.44	SS-110-017	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.061	E-26	41.2268	-115.4932
315.15	SS-07-005	Elko	NV	Tributary to the North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.009	0.002	0.000	0.000	0.000		0.000	0.000		41.2615	-115.4863
315.47	SS-109-004A	Elko	NV	Unnamed trib. to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-25	41.2623	-115.4926
316.41	SS-07-006	Elko	NV	Tributary to Indian Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.014	0.004	0.001	0.000	0.000		0.000	0.000		41.2718	-115.5056
316.83	SS-15-026	Elko	NV	Tributary to Indian Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.003	0.003	0.000	0.000	0.000		0.000	0.000		41.2759	-115.5114
316.84	SS-15-025	Elko	NV	Tributary to Indian Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.018	0.010	0.000	0.000	0.000		0.000	0.000		41.2760	-115.5117

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
316.84	SS-15-027	Elko	NV	Tributary to Indian Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.011	0.005	0.003	0.000	0.000		0.000	0.000		41.2757	-115.5118
316.91	SS-15-028	Elko	NV	Indian Creek	INTERMITTENT	8	atch Reservoir (on Humboldt	0.140	0.051	0.011	0.000	0.000		0.000	0.000		41.2758	-115.5131
316.93	SS-15-029	Elko	NV	Tributary to Indian Creek	EPHEMERAL	6	atch Reservoir (on Humboldt	0.033	0.017	0.008	0.000	0.000		0.000	0.000		41.2761	-115.5134
317.00	SS-15-030	Elko	NV	Tributary to Indian Creek	EPHEMERAL	5	atch Reservoir (on Humboldt	0.040	0.017	0.007	0.000	0.000		0.000	0.000		41.2761	-115.5146
317.15	SS-15-031	Elko	NV	Tributary to Indian Creek	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.029	0.009	0.005	0.000	0.000		0.000	0.000		41.2764	-115.5175
317.40	SS-07-009	Elko	NV	Tributary to Indian Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.044	0.028	0.021	0.006	0.000		0.000	0.000		41.2766	-115.5222
318.12	SS-06-002	Elko	NV	North Fork Humboldt River	PERENNIAL	35	atch Reservoir (on Humboldt	0.246	0.103	0.041	0.000	0.000		0.000	0.000		41.2737	-115.5355
318.21	SS-06-001	Elko	NV	Tributary to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.018	0.012	0.006	0.003	0.000		0.000	0.000		41.2733	-115.5371
319.50	SS-06-007	Elko	NV	Tributary to North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.039	0.014	0.009	0.008	0.000		0.000	0.000		41.2662	-115.5600
319.75	SS-06-006	Elko	NV	Tributary to North Fork Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.015	0.013	0.007	0.002	0.000		0.000	0.000		41.2651	-115.5645
320.75	SS-06-005	Elko	NV	Tributary to North Fork Humboldt River	EPHEMERAL	3	atch Reservoir (on Humboldt	0.028	0.010	0.005	0.000	0.000		0.000	0.000		41.2605	-115.5828
320.99	SS-102-013	Elko	NV	Unnamed Stream in Long Canyon	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.013	E-29	41.1909	-115.5696
321.94	SS-06-004	Elko	NV	Tributary to North Fork Humboldt River	EPHEMERAL	4	atch Reservoir (on Humboldt	0.029	0.011	0.005	0.008	0.000		0.002	0.004	E-28A	41.2579	-115.6053
322.52	SS-132-021	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	4	atch Reservoir (on Humboldt	0.034	0.012	0.005	0.000	0.000		0.003	0.007	E-28A	41.2569	-115.6162
322.83	SS-06-008	Elko	NV	Tributary to North Fork Humboldt River	EPHEMERAL	10	atch Reservoir (on Humboldt	0.127	0.063	0.016	0.034	0.000		0.007	0.016	E-29A	41.2562	-115.6222
323.11	SS-102-033	Elko	NV	Unnamed Trib. to North Fork Humboldt	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.018	E-29	41.2357	-115.6244
323.22	SS-31-002	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	3	atch Reservoir (on Humboldt	0.030	0.011	0.005	0.007	0.000		0.003	0.007	E-29A	41.2561	-115.6298
323.23	SS-102-032	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.005	E-29	41.2317	-115.6260
323.33	SS-06-009	Elko	NV	Tributary to North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.037	0.017	0.002	0.016	0.000		0.000	0.000		41.2557	-115.6317
323.39	SS-102-031	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.013	0.026	E-29	41.2234	-115.6279
323.42	SS-132-019	Elko	NV	Unnamed Trib. to North Fork Humboldt River	INTERMITTENT	5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.008	E-31	41.2289	-115.6293
323.51	SS-132-018	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.006	E-31	41.2321	-115.6315
324.04	SS-132-017	Elko	NV	Unnamed Trib. to North Fork Humboldt River	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.053	E-31	41.2355	-115.6425
324.48	SS-06-010	Elko	NV	Tributary to North Fork Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.016	0.006	0.003	0.004	0.000		0.000	0.000		41.2536	-115.6536
324.93	SS-132-016	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.006	0.009	E-31	41.2391	-115.6600
325.16	SS-56-003	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.022	0.009	0.004	0.006	0.004		0.002	0.005	E-29A	41.2524	-115.6666
325.26	SS-06-012	Elko	NV	Tributary to Pie Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.016	0.007	0.003	0.000	0.000		0.000	0.000		41.2523	-115.6686
325.58	SS-06-013	Elko	NV	Tributary to Pie Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.023	0.008	0.004	0.006	0.000		0.000	0.000		41.2518	-115.6747
325.86	SS-132-015	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	3.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.006	E-31	41.2632	-115.6818
326.10	SS-06-014	Elko	NV	Tributary to Pie Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.024	0.009	0.004	0.006	0.000		0.000	0.000		41.2508	-115.6846
326.29	SS-132-014	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.017	0.101	E-31	41.2648	-115.6904
326.40	SS-132-013	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.006	0.011	E-31	41.2698	-115.6934
326.55	SS-132-012	Elko	NV	Unnamed Trib. to Pie Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.005	E-31	41.2740	-115.6969
326.59	SS-06-015	Elko	NV	Tributary to Pie Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.022	0.008	0.004	0.006	0.000		0.000	0.000		41.2501	-115.6939
326.67	SS-132-011	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	3.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.010	E-31	41.2817	-115.7005

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
326.80	SS-06-016	Elko	NV	Unnamed Trib. to Pie Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.028	0.008	0.004	0.010	0.000		0.000	0.000		41.2495	-115.6979
326.96	SS-102-023	Elko	NV	Pie Creek	PERENNIAL	8	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.006	0.012	E-31	41.2930	-115.7078
327.33	SS-102-024	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.014	E-31	41.2938	-115.7151
327.58	SS-06-017	Elko	NV	Tributary to Pie Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.022	0.009	0.004	0.006	0.000		0.000	0.000		41.2484	-115.7127
327.58	SS-06-018	Elko	NV	Tributary to Pie Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.010	0.005	0.002	0.002	0.000		0.000	0.000		41.2483	-115.7128
328.93	SS-06-039	Elko	NV	Badger Creek	INTERMITTENT	16	atch Reservoir (on Humboldt	0.157	0.075	0.019	0.034	0.000		0.000	0.000		41.2463	-115.7387
329.02	SS-102-020A	Elko	NV	Badger Creek	INTERMITTENT	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.008	0.020	E-33	41.2476	-115.7406
329.08	SS-102-020	Elko	NV	Badger Creek	INTERMITTENT	10	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.007	0.016	E-35	41.2483	-115.7418
329.43	SS-102-019	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.005	0.009	E-35	41.2451	-115.7481
329.51	SS-06-040	Elko	NV	Pie Creek	PERENNIAL	21	atch Reservoir (on Humboldt	0.156	0.069	0.027	0.000	0.000		0.000	0.000		41.2462	-115.7495
329.66	SS-06-041	Elko	NV	Tributary to Pie Creek	INTERMITTENT	12	atch Reservoir (on Humboldt	0.153	0.059	0.015	0.025	0.000		0.000	0.000		41.2462	-115.7523
330.45	SS-102-026	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-36	41.2825	-115.7744
330.49	SS-06-042	Elko	NV	Tributary to Gance Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.023	0.009	0.004	0.006	0.000		0.000	0.000		41.2445	-115.7682
331.02	SS-06-043	Elko	NV	Gance Creek	PERENNIAL	12	atch Reservoir (on Humboldt	0.432	0.224	0.094	0.000	0.000		0.000	0.000		41.2441	-115.7785
331.92	SS-102-025	Elko	NV	Unnamed Trib. to Mahala Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-31	41.2936	-115.7882
331.92	SS-132-022	Elko	NV	Gance Creek	PERENNIAL	30	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.021	0.047	E-34	41.2514	-115.7944
332.17	SS-101-001	Elko	NV	Unnamed Trib. to Gance Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.002	E-37	41.2450	-115.8005
332.79	SS-101-002	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	1.3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.020	E-37	41.2369	-115.8113
332.89	SS-101-003	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.009	E-39	41.2361	-115.8131
333.16	SS-101-004	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	10	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.007	0.016	E-39	41.2366	-115.8153
333.21	SS-101-007	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	6	atch Reservoir (on Humboldt	0.051	0.019	0.008	0.008	0.000		0.006	0.028	E-39	41.2405	-115.8186
333.22	SS-101-005	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	0.6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-39	41.2377	-115.8172
333.22	SS-101-006	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	0.8	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.001	E-39	41.2390	-115.8179
333.25	SS-19-008	Elko	NV	Tributary to Pie Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.056	0.028	0.011	0.000	0.000		0.000	0.000		41.2410	-115.8196
333.68	SS-101-008	Elko	NV	Unnamed Trib. to Pie Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.007	E-40	41.2381	-115.8269
334.47	SS-19-009	Elko	NV	Tributary to Spring Branch Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.015	0.008	0.003	0.003	0.000		0.000	0.000		41.2368	-115.8419
334.50	SS-19-010	Elko	NV	Tributary to Spring Branch Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.032	0.011	0.004	0.012	0.000		0.000	0.000		41.2371	-115.8426
334.73	SS-101-009	Elko	NV	Unnamed Trib. to Spring Branch	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.004	E-40	41.2354	-115.8464
334.83	SS-101-010	Elko	NV	Unnamed Trib. to Spring Branch	EPHEMERAL	0.4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-40	41.2353	-115.8484
334.85	SS-19-011	Elko	NV	Tributary to Spring Branch Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.026	0.009	0.004	0.007	0.000		0.000	0.000		41.2361	-115.8488
334.85	SS-101-012	Elko	NV	Spring Branch Creek	PERENNIAL	13	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.010	0.056	E-40	41.2350	-115.8488
334.88	SS-19-012	Elko	NV	Spring Branch Creek	PERENNIAL	15	atch Reservoir (on Humboldt	0.121	0.045	0.022	0.038	0.000		0.000	0.000		41.2359	-115.8496
335.26	SS-101-013	Elko	NV	Unnamed Trib. to Pie Creek	INTERMITTENT	6	atch Reservoir (on Humboldt	0.070	0.023	0.008	0.000	0.000		0.009	0.026	E-40	41.2352	-115.8568
335.52	SS-49-022A	Elko	NV	Unnamed Trib. to East Adobe Creek	EPHEMERAL	0	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.003		0.000	0.000		40.8410	-115.8114
335.52	SS-49-022B	Elko	NV	Unnamed Trib. to East Adobe Creek	EPHEMERAL	0	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.007		0.000	0.000		40.8419	-115.8131
335.52	SS-49-022	Elko	NV	Unnamed Trib. to East Adobe Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.028		0.000	0.000		40.8414	-115.8114
335.52	SS-49-022C	Elko	NV	Unnamed Trib. to East Adobe Creek	EPHEMERAL	0	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.005		0.000	0.000		40.8419	-115.8137

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
335.52	SS-49-021	Elko	NV	East Adobe Creek	INTERMITTENT	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.245		0.000	0.000		40.8421	-115.8102
335.72	SS-101-014	Elko	NV	Pie Creek	PERENNIAL	10	atch Reservoir (on Humboldt	0.093	0.038	0.015	0.025	0.000		0.010	0.019	E-40	41.2348	-115.8655
335.74	SS-19-013	Elko	NV	Pie Creek	PERENNIAL	4	atch Reservoir (on Humboldt	0.028	0.012	0.005	0.009	0.000		0.003	0.006	E-40	41.2347	-115.8660
337.84	SS-132-023	Elko	NV	Unnamed Trib. to Eagle Rock Creek	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.008	E-41	41.2304	-115.9047
337.85	SS-19-016	Elko	NV	Tributary to Pie Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.023	0.010	0.004	0.006	0.000		0.000	0.000		41.2312	-115.9050
338.78	SS-101-017	Elko	NV	Unnamed Trib. to Eagle Rock Creek	INTERMITTENT	12	atch Reservoir (on Humboldt	0.101	0.032	0.014	0.027	0.000		0.009	0.022	E-40	41.2299	-115.9228
339.17	SS-101-016	Elko	NV	Unnamed Trib. to Eagle Rock Creek	INTERMITTENT	2.5	atch Reservoir (on Humboldt	0.008	0.000	0.000	0.000	0.000		0.015	0.035	E-40	41.2288	-115.9302
339.92	SS-101-011	Elko	NV	Eagle Rock Creek	PERENNIAL	10	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.019	0.120	E-40	41.2220	-115.9421
340.12	SS-132-024	Elko	NV	Unnamed Trib. to Eagle Rock Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.035	0.011	0.005	0.000	0.000		0.003	0.006	E-42	41.2266	-115.9480
340.82	SS-19-019	Elko	NV	Eagle Rock Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.019	0.007	0.003	0.005	0.005		0.000	0.000		41.2231	-115.9606
340.92	SS-19-020	Elko	NV	Eagle Rock Creek	EPHEMERAL	10	Rye Patch Reservoir	0.084	0.000	0.000	0.000	0.000		0.000	0.000		41.2223	-115.9624
341.01	SS-19-021	Elko	NV	Tributary to Eagle Rock Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.015	0.006	0.003	0.000	0.000		0.000	0.000		41.2221	-115.9641
341.52	SS-19-022	Elko	NV	Tributary to Eagle Rock Creek	EPHEMERAL	10	atch Reservoir (on Humboldt	0.070	0.027	0.012	0.000	0.000		0.000	0.000		41.2201	-115.9735
341.92	SS-31-005	Elko	NV	Tributary to Eagle Rock Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.037	0.010	0.005	0.017	0.000		0.000	0.000		41.2205	-115.9810
342.24	SS-101-015	Elko	NV	Unnamed Trib. to Eagle Rock Creek	PERENNIAL	7	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.006	0.018	E-42A	41.2216	-115.9872
342.59	SS-31-004	Elko	NV	Tributary to Eagle Rock Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.016	0.006	0.002	0.004	0.000		0.000	0.000		41.2206	-115.9939
343.52	SS-101-018	Elko	NV	Taylor Canyon Creek	PERENNIAL	3	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.000	0.001	E-44	41.2236	-116.0139
343.81	SS-101-019	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-44	41.2194	-116.0181
343.92	SS-101-020	Elko	NV	Maggie Creek	PERENNIAL	4	atch Reservoir (on Humboldt	0.033	0.012	0.006	0.000	0.000		0.003	0.017	E-44	41.2156	-116.0185
344.20	SS-19-025	Elko	NV	Maggie Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.026	0.009	0.004	0.000	0.000		0.000	0.000		41.2140	-116.0235
344.56	SS-19-026	Elko	NV	Maggie Creek	INTERMITTENT	4	atch Reservoir (on Humboldt	0.067	0.023	0.017	0.000	0.000		0.000	0.000		41.2123	-116.0300
344.67	SS-19-027	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.024	0.009	0.004	0.000	0.000		0.000	0.000		41.2118	-116.0321
344.76	SS-19-028	Elko	NV	Maggie Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.031	0.014	0.005	0.007	0.000		0.000	0.000		41.2113	-116.0337
345.04	SS-19-029	Elko	NV	Tributary to Maggie Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.036	0.014	0.006	0.014	0.000		0.000	0.000		41.2104	-116.0389
345.07	SS-19-030	Elko	NV	Tributary to Maggie Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.023	0.014	0.009	0.004	0.000		0.000	0.000		41.2106	-116.0395
345.62	SS-56-009	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.022	0.009	0.004	0.000	0.000		0.003	0.027	E-45A	41.2103	-116.0499
345.65	SS-56-010	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.004	E-45A	41.2142	-116.0506
345.80	SS-56-008	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.018	0.098	E-45A	41.2091	-116.0535
345.93	SS-19-032	Elko	NV	Unnamed Trib. to Maggie Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.009	0.003	0.001	0.000	0.000		0.000	0.000		41.2100	-116.0559
346.45	SS-19-033	Elko	NV	Tributary to Maggie Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.015	0.007	0.003	0.004	0.000		0.000	0.000		41.2092	-116.0657
346.46	SS-56-004	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.005	E-46	41.2097	-116.0661
346.50	SS-151-001	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	1	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.043		0.000	0.000		41.2121	-116.0678
346.65	SS-19-034	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.023	0.008	0.004	0.006	0.000		0.000	0.000		41.2085	-116.0694
347.56	SS-19-035	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.015	0.006	0.002	0.004	0.003		0.000	0.000	E-45B	41.2052	-116.0863
347.57	SS-56-005	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.007	E-45B	41.2044	-116.0868
347.57	SS-19-036	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.016	0.006	0.003	0.004	0.000		0.000	0.000		41.2051	-116.0866
347.68	SS-56-006	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.007	E-45B	41.2036	-116.0896

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
347.88	SS-56-007	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.013	0.023	E-45B	41.2045	-116.0932
347.94	SS-151-002	Elko	NV	Unnamed Trib. to Maggie Creek	INTERMITTENT	1	atch Reservoir (on Humboldt	0.012	0.004	0.002	0.003	0.000		0.000	0.000		41.2069	-116.0932
348.85	SS-151-003	Elko	NV	Unnamed Trib. to Dip Creek	PERENNIAL	1	atch Reservoir (on Humboldt	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.2072	-116.1105
349.84	SS-132-030	Elko	NV	Unnamed Trib. to Crooked Creek	INTERMITTENT	1.5	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-48C	41.2144	-116.1313
351.15	SS-132-031	Elko	NV	Unnamed Trib. to Indian Creek	EPHEMERAL	1	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-48E	41.2047	-116.1531
352.05	SS-183-011	Elko	NV	Unnamed Trib. to Indian Creek	PERENNIAL	2	Owyhee River	0.017	0.006	0.002	0.006	0.000		0.089	0.185	E-48F	41.2117	-116.1681
353.26	SS-169-008	Elko	NV	Indian Creek	PERENNIAL	5	Owyhee River	0.044	0.017	0.007	0.000	0.000		0.000	0.000		41.2100	-116.1925
353.30	SS-132-028	Elko	NV	Indian Creek	PERENNIAL	10	Owyhee River	0.004	0.000	0.000	0.000	0.000		0.008	0.032	E-48A	41.2111	-116.1926
354.50	SS-169-009	Elko	NV	Unnamed Trib. to Indian Creek	EPHEMERAL	2	Owyhee River	0.016	0.006	0.003	0.000	0.000		0.001	0.003	E-48A	41.2123	-116.2154
354.70	SS-169-010	Elko	NV	Unnamed Trib. to Indian Creek	PERENNIAL	2	Owyhee River	0.016	0.006	0.003	0.000	0.000		0.001	0.003	E-48A	41.2122	-116.2194
354.79	SS-169-011	Elko	NV	Unnamed Trib. to Ham Creek	PERENNIAL	2	Owyhee River	0.021	0.011	0.004	0.006	0.000		0.002	0.003	E-48A	41.2122	-116.2210
355.41	SS-132-036	Elko	NV	Ham Creek	EPHEMERAL	3	Owyhee River	0.025	0.010	0.004	0.006	0.000		0.002	0.005	E-48A	41.2121	-116.2329
355.44	SS-169-012	Elko	NV	Ham Creek	EPHEMERAL	4	Owyhee River	0.034	0.013	0.005	0.010	0.000		0.004	0.008	E-48A	41.2121	-116.2334
356.49	SS-132-038	Elko	NV	Unnamed Trib. to Adams Creek	EPHEMERAL	1.5	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.001	0.004	E-48A	41.2153	-116.2538
356.61	SS-56-011	Elko	NV	Unnamed Trib. to Summit Creek	INTERMITTENT	3	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.002	0.006	E-48	41.2252	-116.2563
356.77	SS-132-039	Elko	NV	Adams Creek	PERENNIAL	8	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.006	0.017	E-48A	41.2188	-116.2593
356.90	SS-56-012	Elko	NV	Adams Creek	INTERMITTENT	6	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.004	0.010	E-48	41.2177	-116.2617
356.97	SS-56-013	Elko	NV	Unnamed Trib. to Adams Creek	INTERMITTENT	4	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.014	0.043	E-48	41.2166	-116.2631
357.08	SS-169-013	Elko	NV	Adams Creek	PERENNIAL	3	Owyhee River	0.023	0.010	0.004	0.006	0.000		0.000	0.000		41.2114	-116.2650
357.15	SS-56-016	Elko	NV	Unnamed Trib. to Adams Creek	EPHEMERAL	2	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.010	0.027	E-48	41.2040	-116.2655
357.27	SS-56-015	Elko	NV	Unnamed Trib. to Adams Creek	INTERMITTENT	2	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.002	0.004	E-48	41.2056	-116.2679
357.31	SS-56-014	Elko	NV	Adams Creek	PERENNIAL	6	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.025	0.047	E-48	41.2067	-116.2688
357.35	SS-177-001	Elko	NV	Unnamed Trib. to Adams Creek	EPHEMERAL	1.5	Owyhee River	0.019	0.006	0.003	0.004	0.000		0.000	0.000		41.2110	-116.2702
357.35	SS-177-002	Elko	NV	Unnamed Trib. to Adams Creek	EPHEMERAL	3	Owyhee River	0.020	0.011	0.006	0.006	0.000		0.000	0.000		41.2113	-116.2702
358.25	SS-183-008	Elko	NV	Unnamed Trib. to Summit Creek	INTERMITTENT	3	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.002	0.005	E-49C	41.2149	-116.2868
358.28	SS-177-003	Elko	NV	Unnamed Trib. to Summit Creek	INTERMITTENT	3	Owyhee River	0.022	0.009	0.004	0.006	0.000		0.000	0.000		41.2131	-116.2878
358.36	SS-183-007	Elko	NV	Unnamed Trib. to Summit Creek	EPHEMERAL	6	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.004	0.010	E-49C	41.2167	-116.2884
358.47	SS-183-006	Elko	NV	Unnamed Trib. to Summit Creek	INTERMITTENT	2	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.002	0.004	E-49C	41.2194	-116.2901
358.49	SS-183-005	Elko	NV	Unnamed Trib. to Summit Creek	INTERMITTENT	1	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-49C	41.2198	-116.2904
358.52	SS-183-004	Elko	NV	Unnamed Trib. to Summit Creek	INTERMITTENT	1.5	Owyhee River	0.000	0.000	0.000	0.000	0.000		0.001	0.004	E-49C	41.2219	-116.2905
359.65	SS-168-019A	Elko	NV	Unnamed Trib. to Willow Creek	PERENNIAL	2.5	atch Reservoir (on Humboldt	0.022	0.007	0.003	0.005	0.000		0.000	0.000		41.2160	-116.3136
359.67	SS-168-019	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.021	0.008	0.003	0.007	0.000		0.000	0.000		41.2159	-116.3140
359.72	SS-183-009	Elko	NV	Unnamed Trib. to Willow Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.006	E-49D	41.2142	-116.3150
360.67	SS-168-018	Elko	NV	Unnamed Trib. to Willow Creek	INTERMITTENT	4	atch Reservoir (on Humboldt	0.032	0.013	0.006	0.009	0.000		0.000	0.000		41.2118	-116.3316

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
361.47	SS-168-017	Elko	NV	Unnamed Trib. to Willow Creek	PERENNIAL	2	atch Reservoir (on Humboldt	0.016	0.007	0.003	0.000	0.000		0.000	0.000		41.2116	-116.3469
363.19	SS-168-016	Elko	NV	Willow Creek	INTERMITTENT	20	atch Reservoir (on Humboldt	0.126	0.000	0.000	0.000	0.000		0.000	0.000		41.2097	-116.3797
363.26	SS-168-015	Elko	NV	Rattlesnake Creek	PERENNIAL	15	atch Reservoir (on Humboldt	0.154	0.045	0.018	0.038	0.000		0.000	0.000		41.2105	-116.3807
363.51	SS-183-010	Elko	NV	Unnamed Trib. to Willow Creek	INTERMITTENT	6.75	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.010	0.025	E-50A	41.2089	-116.3856
363.51	SS-183-010A	Elko	NV	Rattlesnake Creek	PERENNIAL	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.005	0.008	E-50A	41.2091	-116.3857
363.96	SS-168-014B	Elko	NV	Unnamed Trib. to Willow Creek	PERENNIAL	7	atch Reservoir (on Humboldt	0.051	0.024	0.009	0.000	0.000		0.000	0.000		41.2109	-116.3943
364.39	SS-168-014	Elko	NV	Willow Creek	PERENNIAL	8	atch Reservoir (on Humboldt	0.092	0.037	0.019	0.023	0.000		0.000	0.000		41.2097	-116.4019
364.88	SS-168-013	Elko	NV	Unnamed Trib. to Willow Creek	INTERMITTENT	1	atch Reservoir (on Humboldt	0.001	0.000	0.000	0.000	0.000		0.000	0.000		41.2080	-116.4109
365.39	SS-168-012	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.022	0.008	0.003	0.006	0.000		0.000	0.000		41.2066	-116.4205
365.92	SS-168-011A	Elko	NV	Trib. to China Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.016	0.006	0.003	0.004	0.000		0.000	0.000		41.2047	-116.4303
365.96	SS-168-011	Elko	NV	China Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.018	0.008	0.004	0.004	0.000		0.000	0.000		41.2043	-116.4308
366.50	SS-168-010	Elko	NV	Unnamed Trib. to China Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.2059	-116.4407
366.56	SS-168-009	Elko	NV	Unnamed Trib. to China Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.002	0.000	0.000	0.000	0.000		0.000	0.000		41.2064	-116.4419
366.80	SS-168-008	Elko	NV	Unnamed Trib. to China Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.2068	-116.4464
367.16	SS-168-007	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.002	0.000	0.000	0.000	0.000		0.000	0.000		41.2074	-116.4531
367.30	SS-168-006	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.034	0.012	0.006	0.015	0.000		0.000	0.000		41.2080	-116.4558
367.48	SS-168-005	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.011	0.004	0.002	0.000	0.000		0.000	0.000		41.2080	-116.4593
368.02	SS-168-004	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.026	0.010	0.003	0.010	0.000		0.000	0.000		41.2085	-116.4696
368.99	SS-169-006	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	20	atch Reservoir (on Humboldt	0.147	0.059	0.025	0.038	0.000		0.000	0.000		41.2087	-116.4881
369.69	SS-128-010	Elko	NV	Unnamed Trib. to Hot Creek	PERENNIAL	7	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.005	0.036	E-52	41.2000	-116.5021
369.72	SS-128-012	Elko	NV	Unnamed Trib. to Hot Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.003	E-52	41.1962	-116.5030
369.73	SS-128-011	Elko	NV	Unnamed Trib. to Hot Creek	PERENNIAL	10	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.007	0.015	E-52	41.1969	-116.5031
369.75	SS-128-013	Elko	NV	Hot Creek	PERENNIAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.010	E-52	41.1885	-116.5039
369.97	SS-169-005	Elko	NV	Hot Creek	PERENNIAL	2	atch Reservoir (on Humboldt	0.025	0.007	0.003	0.003	0.000		0.000	0.000		41.2092	-116.5070
369.99	SS-128-014	Elko	NV	Unnamed Trib. to Hot Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.002	E-52	41.1837	-116.5077
370.06	SS-19-052	Elko	NV	Unnamed Trib. to Hot Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.006	E-52	41.1813	-116.5173
370.06	SS-128-009	Elko	NV	Unnamed Trib. to Hot Creek	INTERMITTENT	3.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.002	E-52	41.2096	-116.5086
370.14	SS-169-004	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.017	0.007	0.003	0.005	0.000		0.000	0.000		41.2091	-116.5102
371.19	SS-168-003	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.023	0.009	0.004	0.000	0.000		0.000	0.000		41.2154	-116.5284
372.38	SS-168-002	Elko	NV	Unnamed Trib. to Willow Creek	PERENNIAL	1	atch Reservoir (on Humboldt	0.009	0.004	0.002	0.000	0.000		0.000	0.000		41.2206	-116.5498
372.61	SS-183-012	Elko	NV	Unnamed Trib. to Willow Creek	PERENNIAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.003	E-52A	41.2237	-116.5525
373.05	SS-169-003	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	5	atch Reservoir (on Humboldt	0.038	0.014	0.006	0.010	0.000		0.000	0.000		41.2214	-116.5611
373.29	SS-169-002	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.014	0.005	0.002	0.004	0.000		0.000	0.000		41.2210	-116.5658
373.71	SS-183-013	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.004	0.041	E-52D	41.2257	-116.5740

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
373.72	SS-169-001	Elko	NV	Unnamed Trib. to Willow Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.015	0.005	0.002	0.004	0.000		0.000	0.000		41.2214	-116.5741
374.12	SS-183-014	Elko	NV	Unnamed Trib. to Willow Creek	INTERMITTENT	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.001	0.004	E-52D	41.2242	-116.5815
374.58	SS-183-015	Elko	NV	Willow Creek Canal	INTERMITTENT	1.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.004	E-52E	41.2247	-116.5913
374.77	SS-149-008	Elko	NV	Willow Creek	PERENNIAL	8	atch Reservoir (on Humboldt	0.079	0.024	0.009	0.028	0.000		0.000	0.000		41.2218	-116.5936
374.77	SS-168-001	Elko	NV	Willow Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.007	0.004	0.001	0.002	0.000		0.000	0.000		41.2215	-116.5940
374.84	SS-149-007	Elko	NV	Willow Creek Canal	INTERMITTENT	4	atch Reservoir (on Humboldt	0.043	0.017	0.007	0.012	0.000		0.005	0.010	E-52G	41.2219	-116.5953
378.70	SS-148-019A	Elko	NV	Unnamed Trib. to Rock Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.019	0.000	0.000	0.000	0.000		0.000	0.000		41.2114	-116.6667
379.72	SS-147-028	Elko	NV	Rock Creek	PERENNIAL	30	atch Reservoir (on Humboldt	0.209	0.080	0.035	0.000	0.000		0.000	0.000		41.2100	-116.6855
381.29	SS-147-026	Elko	NV	Unnamed Trib. to High Line Canal	INTERMITTENT	10	atch Reservoir (on Humboldt	0.085	0.040	0.021	0.000	0.000		0.000	0.000		41.2107	-116.7146
382.23	SS-147-025	Elko	NV	Unnamed Trib. to Rock Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.023	0.009	0.004	0.000	0.000		0.000	0.000		41.2077	-116.7323
382.78	SS-147-024	Elko	NV	Unnamed Trib. to High Line Canal	EPHEMERAL	5	atch Reservoir (on Humboldt	0.035	0.021	0.010	0.004	0.000		0.000	0.000		41.2068	-116.7427
383.61	SS-147-023	Elko	NV	Unnamed Trib. to High Line Canal	EPHEMERAL	4	atch Reservoir (on Humboldt	0.044	0.014	0.005	0.012	0.000		0.000	0.000		41.2063	-116.7586
384.49	SS-183-016	Elko	NV	Midas Creek	INTERMITTENT	3.5	atch Reservoir (on Humboldt	0.034	0.011	0.005	0.010	0.000		0.000	0.000		41.2058	-116.7754
384.63	SS-128-004	Elko	NV	Unnamed Trib. to Hot Lake	EPHEMERAL	9	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.006	0.014	E-57	41.1498	-116.7714
385.67	SS-128-003	Elko	NV	Unnamed Trib. to Rock Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.004	E-57	41.1961	-116.7980
385.67	SS-128-003B	Elko	NV	Unnamed Trib. to Rock Creek	EPHEMERAL	6	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.005	0.010	E-57	41.1896	-116.7980
385.67	SS-128-003C	Elko	NV	Unnamed Trib. to Rock Creek	EPHEMERAL	10	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.008	0.019	E-57	41.1820	-116.7980
385.73	SS-183-017	Elko	NV	Unnamed Trib. to Hot Lake Squaw Valley	EPHEMERAL	3	atch Reservoir (on Humboldt	0.022	0.008	0.004	0.000	0.000		0.000	0.000		41.2054	-116.7991
385.88	SS-183-018	Elko	NV	Unnamed Trib. to Hot Lake Squaw Valley	EPHEMERAL	2	atch Reservoir (on Humboldt	0.015	0.006	0.002	0.004	0.000		0.000	0.000		41.2051	-116.8020
385.93	SS-128-003D	Elko	NV	Unnamed Trib. to Rock Creek	EPHEMERAL	13	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.009	0.020	E-57	41.1706	-116.7978
386.41	SS-183-019	Elko	NV	Unnamed Trib. to Hot Lake Squaw Valley	EPHEMERAL	3	atch Reservoir (on Humboldt	0.021	0.008	0.004	0.006	0.000		0.000	0.000		41.2100	-116.8079
386.96	SS-183-020	Elko	NV	Summit Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.026	0.011	0.004	0.006	0.000		0.000	0.000		41.2106	-116.8184
387.08	SS-183-021	Elko	NV	Unnamed Trib. to Summit Creek	INTERMITTENT	1	atch Reservoir (on Humboldt	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.2107	-116.8207
387.32	SS-147-027	Elko	NV	Unnamed Trib. to Summit Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.014	0.005	0.002	0.000	0.000		0.000	0.000		41.2107	-116.8253
388.29	SS-147-017	Elko	NV	Spring Creek	PERENNIAL	5	atch Reservoir (on Humboldt	0.037	0.015	0.007	0.000	0.000		0.000	0.000		41.2114	-116.8436
390.19	SS-147-012	Elko	NV	Unnamed Trib. to Evans Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.022	0.008	0.004	0.006	0.000		0.000	0.000		41.1989	-116.8752
390.48	SS-147-013	Elko	NV	Unnamed Trib. to Evans Creek	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.019	0.007	0.003	0.000	0.000		0.000	0.000		41.1959	-116.8790
390.61	SS-147-014	Elko	NV	Unnamed Trib. to Evans Creek	EPHEMERAL	3.5	atch Reservoir (on Humboldt	0.025	0.010	0.004	0.000	0.000		0.000	0.000		41.1947	-116.8809
390.86	SS-147-015	Elko	NV	Unnamed Trib. to Evans Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.029	0.011	0.004	0.000	0.000		0.000	0.000		41.1925	-116.8847
391.30	SS-147-016	Elko	NV	Unnamed Trib. to Evans Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.030	0.011	0.005	0.000	0.000		0.000	0.000		41.1887	-116.8913
391.35	SS-147-018	Elko	NV	Unnamed Trib. to Evans Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.030	0.012	0.005	0.000	0.000		0.000	0.000		41.1883	-116.8922
391.42	SS-147-019	Elko	NV	Unnamed Trib. to Evans Creek	INTERMITTENT	3	atch Reservoir (on Humboldt	0.043	0.016	0.007	0.000	0.000		0.000	0.000		41.1885	-116.8937
391.65	SS-147-020	Elko	NV	Unnamed Trib. to Evans Creek	INTERMITTENT	5	atch Reservoir (on Humboldt	0.037	0.015	0.006	0.000	0.000		0.000	0.000		41.1865	-116.8974
392.91	SS-147-021	Elko	NV	Unnamed Trib. to Evans Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.011	0.004	0.002	0.000	0.000		0.000	0.000		41.1792	-116.9197

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
393.51	SS-147-022	Elko	NV	Unnamed Trib. to Evans Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.019	0.007	0.003	0.000	0.000		0.000	0.000		41.1753	-116.9299
399.01	SS-148-018	Humboldt	NV	Unnamed Trib. to Evans Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.014	0.005	0.002	0.000	0.000		0.000	0.000		41.1451	-117.0269
400.02	SS-148-017	Humboldt	NV	Jake Creek	PERENNIAL	23	atch Reservoir (on Humboldt	0.167	0.063	0.027	0.044	0.000		0.000	0.000		41.1374	-117.0434
405.78	SS-148-016	Humboldt	NV	Unnamed Trib. to Hammond Ditch	EPHEMERAL	1.1	atch Reservoir (on Humboldt	0.005	0.004	0.002	0.000	0.000		0.000	0.000		41.1126	-117.1481
405.98	SS-148-015	Humboldt	NV	Unnamed Trib. to Hammond Ditch	PERENNIAL	6.5	atch Reservoir (on Humboldt	0.056	0.024	0.012	0.000	0.000		0.000	0.000		41.1116	-117.1517
406.35	SS-148-014	Humboldt	NV	Kelly Creek	PERENNIAL	9.5	atch Reservoir (on Humboldt	0.118	0.052	0.016	0.013	0.000		0.000	0.000		41.1096	-117.1582
411.16	SS-148-013A	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.0834	-117.2435
411.18	SS-148-013	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	0.6	atch Reservoir (on Humboldt	0.003	0.002	0.001	0.000	0.000		0.000	0.000		41.0829	-117.2435
411.64	SS-148-012	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	0.6	atch Reservoir (on Humboldt	0.005	0.002	0.001	0.000	0.000		0.000	0.000		41.0804	-117.2517
411.83	SS-148-011	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	0.6	atch Reservoir (on Humboldt	0.005	0.002	0.001	0.000	0.000		0.000	0.000		41.0797	-117.2552
413.22	SS-148-010	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.010	0.003	0.001	0.000	0.000		0.000	0.000		41.0715	-117.2795
413.46	SS-148-009	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	4.5	atch Reservoir (on Humboldt	0.032	0.013	0.006	0.000	0.000		0.000	0.000		41.0700	-117.2838
414.01	SS-148-008	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	6	atch Reservoir (on Humboldt	0.046	0.018	0.008	0.000	0.000		0.000	0.000		41.0667	-117.2934
414.39	SS-148-007	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	4.6	atch Reservoir (on Humboldt	0.032	0.013	0.005	0.000	0.000		0.000	0.000		41.0644	-117.2999
414.56	SS-148-006	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	4.2	atch Reservoir (on Humboldt	0.032	0.012	0.006	0.000	0.000		0.000	0.000		41.0635	-117.3029
414.58	SS-148-005	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.016	0.007	0.003	0.000	0.000		0.000	0.000		41.0634	-117.3033
414.64	SS-148-004	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	0.8	atch Reservoir (on Humboldt	0.006	0.002	0.001	0.000	0.000		0.000	0.000		41.0630	-117.3043
414.71	SS-148-003	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.0625	-117.3055
414.80	SS-148-001	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	0.8	atch Reservoir (on Humboldt	0.006	0.002	0.001	0.000	0.000		0.000	0.000		41.0620	-117.3072
415.00	SS-49-001	Humboldt	NV	Unnamed Trib. to Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.005	H-8	41.0601	-117.3109
415.05	SS-128-019	Humboldt	NV	Unnamed Trib. to Kelly Creek	INTERMITTENT	1.5	atch Reservoir (on Humboldt	0.012	0.004	0.002	0.003	0.000		0.000	0.000		41.0615	-117.3118
415.55	SS-49-002	Humboldt	NV	Unnamed Trib. to Humboldt River	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.004	H-9	41.0569	-117.3214
415.57	SS-128-018	Humboldt	NV	Unnamed Trib. to Kelly Creek	INTERMITTENT	2	atch Reservoir (on Humboldt	0.016	0.007	0.003	0.000	0.000		0.000	0.000		41.0614	-117.3218
415.70	SS-128-017	Humboldt	NV	Unnamed Trib. to Kelly Creek	INTERMITTENT	1	atch Reservoir (on Humboldt	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.0614	-117.3242
417.37	SS-128-020	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.011	0.004	0.002	0.000	0.000		0.001	0.002	H-10	41.0733	-117.3487
417.89	SS-49-005	Humboldt	NV	Unnamed Trib. to Red House Flat	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.005	0.012	H-10	41.0742	-117.3586
418.24	SS-56-002	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.011	0.003	0.001	0.001	0.002		0.000	0.000	H-10	41.0756	-117.3651
418.36	SS-49-006	Humboldt	NV	Unnamed Trib. to Humboldt River	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.005	H-10	41.0759	-117.3683
418.38	SS-128-021	Humboldt	NV	Unnamed Trib. to Kelly Creek	INTERMITTENT	1.2	atch Reservoir (on Humboldt	0.009	0.003	0.002	0.003	0.000		0.000	0.000		41.0750	-117.3673
418.57	SS-128-022	Humboldt	NV	Unnamed Trib. to Kelly Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.026	0.003	0.001	0.014	0.000		0.000	0.000		41.0740	-117.3700
418.86	SS-49-007	Humboldt	NV	Unnamed Trib. to Humboldt River	EPHEMERAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.005	0.009	H-10	41.0760	-117.3752

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
419.27	SS-49-008	Humboldt	NV	Unnamed Trib. to Red House Flat	EPHEMERAL	2	atch Reservoir (on Humboldt	0.002	0.000	0.000	0.000	0.000		0.002	0.004	H-10	41.0750	-117.3832
420.09	SS-49-009	Humboldt	NV	Unnamed Trib. to Eden Valley	EPHEMERAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.009	H-10	41.0788	-117.3969
421.32	SS-14-006	Humboldt	NV	Discontiguous Creek (Eden Valley)	EPHEMERAL	5	atch Reservoir (on Humboldt	0.002	0.000	0.000	0.000	0.000		0.007	0.024	H-10	41.0827	-117.4197
421.43	SS-128-023	Humboldt	NV	Discontiguous Creek (Eden Valley)	EPHEMERAL	6	atch Reservoir (on Humboldt	0.076	0.031	0.012	0.023	0.000		0.000	0.000		41.0846	-117.4211
421.78	SS-49-010	Humboldt	NV	Unnamed Trib. to Eden Valley	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.005	H-10	41.0829	-117.4290
421.85	SS-128-024	Humboldt	NV	Discontiguous Creek (Eden Valley)	EPHEMERAL	3	atch Reservoir (on Humboldt	0.026	0.008	0.004	0.007	0.000		0.000	0.000		41.0868	-117.4286
423.05	SS-128-025	Humboldt	NV	Discontiguous Creek (Eden Valley)	EPHEMERAL	6	atch Reservoir (on Humboldt	0.178	0.064	0.037	0.000	0.000		0.000	0.000		41.0890	-117.4513
427.81	SS-23-006	Humboldt	NV	Tributary to Little Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.1244	-117.5248
430.09	SS-23-007	Humboldt	NV	Long Canyon	EPHEMERAL	1	atch Reservoir (on Humboldt	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.1534	-117.5457
430.47	SS-23-008	Humboldt	NV	Tributary to Little Humboldt River	EPHEMERAL	1	atch Reservoir (on Humboldt	0.011	0.004	0.002	0.000	0.000		0.000	0.000		41.1583	-117.5491
430.55	SS-23-009	Humboldt	NV	Tributary to Little Humboldt River	EPHEMERAL	2	atch Reservoir (on Humboldt	0.014	0.005	0.002	0.000	0.000		0.000	0.000		41.1593	-117.5497
434.66	SS-23-010	Humboldt	NV	Little Humboldt River	INTERMITTENT	20	atch Reservoir (on Humboldt	0.144	0.059	0.024	0.000	0.000		0.000	0.000		41.2117	-117.5874
434.81	SS-23-011	Humboldt	NV	Tributary to Little Humboldt River	INTERMITTENT	13	atch Reservoir (on Humboldt	0.117	0.039	0.015	0.000	0.000		0.000	0.000		41.2135	-117.5888
435.45	SS-23-014	Humboldt	NV	Big Cottonwood Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.037	0.016	0.007	0.000	0.000		0.000	0.000		41.2217	-117.5947
435.63	SS-23-015	Humboldt	NV	Tributary to Big Cottonwood Creek	EPHEMERAL	4	atch Reservoir (on Humboldt	0.028	0.011	0.005	0.000	0.000		0.000	0.000		41.2241	-117.5962
439.72	SS-29-005	Humboldt	NV	Tributary to Big Cottonwood Creek	EPHEMERAL	6	atch Reservoir (on Humboldt	0.042	0.016	0.007	0.000	0.000		0.000	0.000		41.2372	-117.6646
441.28	SS-29-004	Humboldt	NV	Unnnamed Trib. to Paradise Valley	EPHEMERAL	5	atch Reservoir (on Humboldt	0.036	0.014	0.006	0.000	0.000		0.000	0.000		41.2420	-117.6892
441.29	SS-50-002	Humboldt	NV	Unnnamed Trib. to Paradise Valley	EPHEMERAL	4	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.006	H-22	41.2423	-117.6881
441.41	SS-29-003	Humboldt	NV	Tributary to Big Cottonwood Creek	EPHEMERAL	4.5	atch Reservoir (on Humboldt	0.034	0.012	0.005	0.000	0.000		0.000	0.000		41.2438	-117.6896
441.43	SS-50-004	Humboldt	NV	Unnnamed Trib. to Paradise Valley	EPHEMERAL	3	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.005	H-22	41.2443	-117.6882
441.82	SS-50-003	Humboldt	NV	Unnnamed Trib. to Paradise Valley	EPHEMERAL	2.5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.002	0.005	H-22	41.2500	-117.6887
441.94	SS-29-002	Humboldt	NV	Tributary to Big Cottonwood Creek	EPHEMERAL	1.5	atch Reservoir (on Humboldt	0.014	0.006	0.002	0.000	0.000		0.000	0.000		41.2514	-117.6912
441.99	SS-50-001	Humboldt	NV	Unnnamed Trib. to Paradise Valley	EPHEMERAL	5	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.003	0.008	H-22	41.2525	-117.6888
442.00	SS-50-001A	Humboldt	NV	Unnnamed Trib. to Paradise Valley	EPHEMERAL	2	atch Reservoir (on Humboldt	0.000	0.000	0.000	0.000	0.000		0.000	0.003	H-22	41.2527	-117.6890
443.83	SS-29-001	Humboldt	NV	Tributary to Big Cottonwood Creek	EPHEMERAL	3	atch Reservoir (on Humboldt	0.021	0.008	0.004	0.000	0.000		0.000	0.000		41.2785	-117.6967
444.64	SS-12-001	Humboldt	NV	Tributary to Big Cottonwood Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.2897	-117.7012
445.35	SS-12-002	Humboldt	NV	Tributary to Big Cottonwood Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.015	0.006	0.003	0.004	0.000		0.000	0.000		41.2992	-117.7064
445.71	SS-12-003	Humboldt	NV	Tributary to Big Cottonwood Creek	EPHEMERAL	1	atch Reservoir (on Humboldt	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.3040	-117.7090
446.16	SS-12-004	Humboldt	NV	Tributary to Big Cottonwood Creek	EPHEMERAL	2	atch Reservoir (on Humboldt	0.016	0.006	0.002	0.004	0.000		0.000	0.000		41.3101	-117.7121
448.78	SS-12-005	Humboldt	NV	Tributary to Tony Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.3417	-117.7383
449.01	SS-24-034	Humboldt	NV	Tributary to Tony Creek	EPHEMERAL	6	N/A	0.049	0.019	0.009	0.000	0.000		0.000	0.000		41.3437	-117.7422
450.24	SS-24-035	Humboldt	NV	Tributary to Tony Creek	EPHEMERAL	5	N/A	0.038	0.014	0.006	0.000	0.000		0.000	0.000		41.3566	-117.7584
450.78	SS-12-007	Humboldt	NV	Tributary to Tony Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.3637	-117.7636

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
451.39	SS-12-008	Humboldt	NV	Unnamed Tributary to Porcupine Creek	INTERMITTENT	1	N/A	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.3705	-117.7711
451.62	SS-24-036	Humboldt	NV	Porcupine Creek	INTERMITTENT	3.5	N/A	0.034	0.015	0.007	0.000	0.000		0.000	0.000		41.3713	-117.7766
451.89	SS-24-037	Humboldt	NV	Chimney Creek	EPHEMERAL	6	N/A	0.045	0.017	0.007	0.011	0.000		0.000	0.000		41.3740	-117.7802
452.08	SS-24-038	Humboldt	NV	Chimney Creek	EPHEMERAL	5.5	N/A	0.047	0.018	0.009	0.000	0.000		0.000	0.000		41.3759	-117.7829
452.33	SS-24-039	Humboldt	NV	Tributary to Tony Creek	EPHEMERAL	3	N/A	0.029	0.011	0.005	0.000	0.000		0.000	0.000		41.3784	-117.7864
453.11	SS-129-021	Humboldt	NV	Unnnamed Trib. of Tony Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.3861	-117.7974
454.43	SS-129-022	Humboldt	NV	Unnnamed Trib. of Tony Creek	EPHEMERAL	2	N/A	0.019	0.008	0.003	0.005	0.000		0.000	0.000		41.3914	-117.8199
455.11	SS-23-012	Humboldt	NV	Tony Creek	EPHEMERAL	2	N/A	0.022	0.009	0.004	0.000	0.000		0.000	0.000		41.3907	-117.8329
463.62	SS-129-020	Humboldt	NV	Unnnamed Trib. to Quinn River	EPHEMERAL	1	N/A	0.011	0.004	0.002	0.000	0.000		0.000	0.000		41.3985	-117.9958
472.07	SS-23-013	Humboldt	NV	Bottle Creek Slough	EPHEMERAL	25	N/A	0.176	0.068	0.030	0.048	0.000		0.000	0.000		41.4260	-118.1515
480.87	SS-33-004	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.4536	-118.3170
481.50	SS-33-003	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.4580	-118.3265
481.54	SS-33-002	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	5	N/A	0.035	0.013	0.006	0.000	0.000		0.000	0.000		41.4586	-118.3268
481.88	SS-33-001	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	2	N/A	0.015	0.006	0.003	0.000	0.000		0.000	0.000		41.4629	-118.3299
482.52	SS-50-005	Humboldt	NV	Unnnamed Ditch to Quinn River	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.027	0.094	H-36	41.4686	-118.3415
482.99	SS-12-016	Humboldt	NV	Happy Creek	INTERMITTENT	1	N/A	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.4760	-118.3417
483.79	SS-12-017	Humboldt	NV	Tributary to Quinn River	INTERMITTENT	2	N/A	0.016	0.006	0.002	0.000	0.000		0.000	0.000		41.4816	-118.3550
483.81	SS-12-018	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	2	N/A	0.016	0.006	0.002	0.000	0.000		0.000	0.000		41.4817	-118.3554
484.32	SS-12-019	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	2	N/A	0.022	0.007	0.003	0.000	0.000		0.000	0.000		41.4852	-118.3641
484.62	SS-12-020	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	1	N/A	0.009	0.004	0.002	0.000	0.000		0.000	0.000		41.4872	-118.3693
486.56	SS-12-021	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	2	N/A	0.040	0.015	0.004	0.000	0.000		0.000	0.000		41.5004	-118.4023
486.96	SS-12-022	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	1	N/A	0.018	0.016	0.003	0.002	0.000		0.000	0.000		41.5027	-118.4094
487.24	SS-12-023	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.5042	-118.4145
488.27	SS-12-024	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	1	N/A	0.016	0.005	0.002	0.005	0.000		0.000	0.000		41.5091	-118.4330
489.25	SS-12-025	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	1	N/A	0.010	0.003	0.001	0.003	0.000		0.000	0.000		41.5115	-118.4517
490.35	SS-12-026	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	1	N/A	0.006	0.003	0.001	0.000	0.000		0.000	0.000		41.5083	-118.4718
490.46	SS-12-027	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	2	N/A	0.010	0.006	0.003	0.000	0.000		0.000	0.000		41.5075	-118.4737
490.60	SS-12-028	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	4	N/A	0.023	0.011	0.005	0.000	0.000		0.000	0.000		41.5067	-118.4760
490.63	SS-12-029	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	5	N/A	0.029	0.014	0.006	0.000	0.000		0.000	0.000		41.5065	-118.4767
490.79	SS-12-030	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	5	N/A	0.032	0.014	0.006	0.000	0.000		0.000	0.000		41.5057	-118.4795
491.70	SS-12-031	Humboldt	NV	Quinn River	INTERMITTENT	12	N/A	0.090	0.034	0.015	0.000	0.000		0.000	0.000		41.5006	-118.4957
491.78	SS-12-032	Humboldt	NV	Quinn River	PERENNIAL	30	N/A	0.227	0.107	0.044	0.000	0.000		0.000	0.000		41.5002	-118.4972
492.34	SS-12-033	Humboldt	NV	Tributary to Quinn River	INTERMITTENT	12	N/A	0.088	0.032	0.014	0.023	0.000		0.000	0.000		41.4975	-118.5073
492.50	SS-12-034	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	2	N/A	0.038	0.009	0.003	0.000	0.000		0.000	0.000		41.4974	-118.5105
492.95	SS-12-035	Humboldt	NV	Deep Creek	INTERMITTENT	3	N/A	0.023	0.008	0.003	0.000	0.000		0.000	0.000		41.4948	-118.5184
493.58	SS-12-036	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	2	N/A	0.016	0.006	0.003	0.000	0.000		0.000	0.000		41.4913	-118.5297
494.10	SS-12-037	Humboldt	NV	Tributary to Quinn River	EPHEMERAL	3	N/A	0.024	0.008	0.004	0.000	0.000		0.000	0.000		41.4883	-118.5388
500.90	SS-129-019	Humboldt	NV	Unnnamed Trib. to Leonard Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.000	0.000		0.000	0.000		41.4713	-118.6617
502.37	SS-14-100	Humboldt	NV	Leonard Creek Slough	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.000	0.000		0.000	0.000		41.4765	-118.6890
502.45	SS-129-018	Humboldt	NV	Sentinel Creek	INTERMITTENT	4	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.007	H-38	41.4851	-118.6877
503.26	SS-150-010	Humboldt	NV	Unnnamed Trib. to Leonard Creek Slough	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.008	H-38	41.4719	-118.7116
504.77	SS-14-101	Humboldt	NV	Leonard Creek	PERENNIAL	5	N/A	0.036	0.014	0.006	0.009	0.000		0.000	0.000		41.4910	-118.7306
506.65	SS-14-102	Humboldt	NV	Tributary to Leonard Creek	EPHEMERAL	3	N/A	0.025	0.012	0.007	0.000	0.000		0.000	0.000		41.5023	-118.7636
507.79	SS-14-103	Humboldt	NV	Tributary to Leonard Creek	EPHEMERAL	2	N/A	0.019	0.007	0.003	0.005	0.000		0.000	0.000		41.5090	-118.7838
508.14	SS-106-001	Humboldt	NV	Unnnamed stream in Pearl Canyon	INTERMITTENT	4	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.006	H-41	41.5115	-118.7921
510.80	SS-14-104	Humboldt	NV	Tributary to Leonard Creek	EPHEMERAL	2	N/A	0.016	0.006	0.003	0.004	0.000		0.000	0.000		41.5439	-118.8126
510.97	SS-14-105	Humboldt	NV	Tributary to Leonard Creek	EPHEMERAL	1	N/A	0.022	0.007	0.003	0.006	0.000		0.000	0.000		41.5443	-118.8159

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
511.85	SS-129-003	Humboldt	NV	Unnamed Trib. to Cove Creek	EPHEMERAL	1	N/A	0.002	0.000	0.000	0.000	0.000		0.000	0.001	H-42	41.5528	-118.8279
512.31	SS-23-001	Humboldt	NV	Tributary to Craine Creek	EPHEMERAL	1	N/A	0.007	0.003	0.001	0.002	0.000		0.000	0.000		41.5579	-118.8335
512.57	SS-23-002	Humboldt	NV	Tributary to Craine Creek	EPHEMERAL	1	N/A	0.018	0.003	0.002	0.002	0.000		0.000	0.000		41.5597	-118.8378
512.75	SS-129-005E	Humboldt	NV	Unnamed Trib. to Cove Creek	INTERMITTENT	3	N/A	0.000	0.000	0.000	0.000	0.000		0.008	0.012	H-43	41.5756	-118.8315
512.86	SS-23-003	Humboldt	NV	Tributary to Craine Creek	EPHEMERAL	1	N/A	0.020	0.008	0.002	0.009	0.000		0.000	0.000		41.5609	-118.8431
512.97	SS-129-007	Humboldt	NV	Unnamed Trib. to Cove Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.001	H-43	41.5737	-118.8419
512.97	SS-129-007B	Humboldt	NV	Unnamed Trib. to Cove Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.005	H-43	41.5740	-118.8419
513.54	SS-129-008	Humboldt	NV	Unnamed Trib. to Center Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	H-43	41.5613	-118.8553
513.73	SS-129-009	Humboldt	NV	Unnamed Trib. to Center Creek	EPHEMERAL	2	N/A	0.010	0.000	0.000	0.003	0.000		0.001	0.002	H-43	41.5609	-118.8592
513.82	SS-23-004	Humboldt	NV	Center Creek	PERENNIAL	2	N/A	0.015	0.005	0.002	0.004	0.000		0.000	0.000		41.5615	-118.8608
515.75	SS-23-005	Humboldt	NV	Tributary to Craine Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.5653	-118.8960
516.84	SS-150-014	Humboldt	NV	Tributary to Craine Creek	PERENNIAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.142	0.284	H-45	41.5829	-118.9135
517.19	SS-150-015	Humboldt	NV	Tributary to Craine Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.006	H-45	41.5853	-118.9212
517.28	SS-151-005A	Humboldt	NV	Unnamed Trib. to Craine Creek	PERENNIAL	6	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.005	H-45	41.5847	-118.9230
518.05	SS-151-005	Humboldt	NV	Unnamed Trib. to Craine Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.024	0.038	H-45	41.5775	-118.9385
518.40	SS-24-002	Humboldt	NV	Tributary to Craine Creek	EPHEMERAL	3	N/A	0.025	0.010	0.004	0.007	0.000		0.000	0.000		41.5711	-118.9463
518.63	SS-24-001	Humboldt	NV	Unnamed Trib. to Craine Creek	EPHEMERAL	1	N/A	0.001	0.000	0.000	0.000	0.000		0.000	0.000	H-48	41.5717	-118.9507
519.32	SS-150-013	Humboldt	NV	Unnamed Trib. to Idaho Canyon	EPHEMERAL	2.5	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.006	H-48	41.5752	-118.9637
519.38	SS-150-012	Humboldt	NV	Unnamed Trib. to Idaho Canyon	PERENNIAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	H-48	41.5761	-118.9649
519.48	SS-150-011	Humboldt	NV	Unnamed Trib. to Idaho Canyon	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.065	H-48	41.5800	-118.9665
529.24	SS-140-005	Humboldt	NV	Unnamed Trib. to Sand Creek	EPHEMERAL	5	N/A	0.000	0.000	0.000	0.000	0.000		0.004	0.010	H-50	41.5571	-119.1504
531.79	SS-140-006A	Humboldt	NV	Sand Creek	EPHEMERAL	4	N/A	0.022	0.012	0.005	0.004	0.000		0.009	0.038	H-51	41.5664	-119.2008
531.83	SS-140-006	Humboldt	NV	Sand Creek	EPHEMERAL	4	N/A	0.000	0.000	0.000	0.000	0.000		0.009	0.015	H-51	41.5655	-119.2015
531.93	SS-140-006B	Humboldt	NV	Sand Creek	EPHEMERAL	7	N/A	0.000	0.000	0.000	0.000	0.000		0.004	0.011	H-50	41.5638	-119.2034
533.63	SS-140-007	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	INTERMITTENT	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	H-50	41.5599	-119.2372
534.44	SS-153-009	Humboldt	NV	Unnamed Trib. to Virgin Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.010	H-52	41.6023	-119.2509
535.30	SS-155-038	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	EPHEMERAL	4	N/A	0.058	0.021	0.007	0.016	0.000		0.000	0.000		41.5735	-119.2646
535.36	SS-140-008	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	H-50	41.5715	-119.2656
535.84	SS-155-039	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	EPHEMERAL	2	N/A	0.015	0.005	0.002	0.000	0.000		0.002	0.005	H-50	41.5732	-119.2750
536.07	SS-155-041	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	EPHEMERAL	1	N/A	0.009	0.004	0.002	0.000	0.000		0.000	0.000		41.5735	-119.2794
536.07	SS-155-040	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	EPHEMERAL	1.5	N/A	0.016	0.008	0.002	0.000	0.000		0.000	0.000		41.5733	-119.2795
536.68	SS-155-042	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	EPHEMERAL	2	N/A	0.016	0.006	0.003	0.004	0.000		0.000	0.000		41.5732	-119.2912
536.89	SS-140-010	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	EPHEMERAL	2.5	N/A	0.000	0.000	0.000	0.000	0.000		0.084	0.086	H-50	41.5887	-119.2951
536.97	SS-140-010B	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.004	H-50	41.5905	-119.2967
537.18	SS-155-043	Humboldt	NV	Cottonwood Creek	PERENNIAL	3	N/A	0.023	0.009	0.004	0.010	0.000		0.000	0.000		41.5735	-119.3008
537.31	SS-153-008	Humboldt	NV	Cottonwood Creek	PERENNIAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.004	H-50	41.5932	-119.3032

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
537.43	SS-153-011	Humboldt	NV	Unnamed Trib. to Cottonwood Creek	PERENNIAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.007	H-54	41.6095	-119.3057
538.34	SS-13-012	Washoe	NV	Tributary to Wall Canyon Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.5732	-119.3233
541.05	SS-160-002	Washoe	NV	Wall Canyon Creek	INTERMITTENT	4	N/A	0.031	0.013	0.007	0.009	0.000		0.000	0.000		41.5757	-119.3748
541.07	SS-160-003	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	INTERMITTENT	2	N/A	0.010	0.002	0.001	0.004	0.000		0.000	0.000		41.5756	-119.3752
541.92	SS-155-036	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	W-1	41.5955	-119.3821
541.92	SS-155-037	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.008	W-1	41.5953	-119.3832
541.92	SS-155-035	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	INTERMITTENT	5	N/A	0.000	0.000	0.000	0.000	0.000		0.004	0.008	W-1	41.5958	-119.3854
541.94	SS-155-034	Washoe	NV	Wall Canyon Creek	INTERMITTENT	2	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.003	W-1	41.5952	-119.3874
542.02	SS-155-031B	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.003	W-1	41.5961	-119.3918
542.12	SS-155-031A	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	8	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.036	W-1	41.5965	-119.3938
542.16	SS-155-033	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	W-1	41.5967	-119.3946
542.23	SS-160-001	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	3	N/A	0.033	0.012	0.006	0.008	0.000		0.000	0.000		41.5804	-119.3962
542.26	SS-111-012	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	3.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	W-1	41.5987	-119.3965
542.32	SS-111-011	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.053	0.054	W-1	41.6002	-119.3977
542.39	SS-111-013	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	1.9	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.009	W-1	41.6013	-119.3989
542.42	SS-155-030	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	4	N/A	0.000	0.000	0.000	0.000	0.000		0.004	0.018	W-1	41.6015	-119.3996
542.43	SS-111-013A	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	1.8	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.005	W-1	41.6017	-119.3998
542.69	SS-30-003	Washoe	NV	Tributary to Wall Canyon Creek	EPHEMERAL	1	N/A	0.008	0.003	0.001	0.002	0.000		0.000	0.000		41.5805	-119.4051
542.84	SS-155-029	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.070	W-1	41.6068	-119.4078
543.89	SS-111-009	Washoe	NV	Unnamed trib. to Wall Canyon Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.004	W-1	41.6202	-119.4192
543.92	SS-155-027A	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.012	W-1	41.6207	-119.4195
544.14	SS-155-027	Washoe	NV	Unnamed Trib. to Wall Canyon Creek	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.017	0.022	W-1	41.6228	-119.4234
544.66	SS-111-008	Washoe	NV	Unnamed trib. to Badger Creek	EPHEMERAL	2.3	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.007	W-1	41.6279	-119.4409
544.73	SS-111-007	Washoe	NV	Unnamed trib. to Badger Creek	EPHEMERAL	5.2	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.031	W-1	41.6281	-119.4422
545.43	SS-140-004	Washoe	NV	Unnamed trib. to Badger Creek	INTERMITTENT	1	N/A	0.000	0.000	0.000	0.000	0.000		0.014	0.035	W-2	41.6134	-119.4541
546.07	SS-140-003	Washoe	NV	Unnamed trib. to Badger Creek	EPHEMERAL	2.5	N/A	0.000	0.000	0.000	0.000	0.000		0.013	0.014	W-2	41.6205	-119.4657
546.19	SS-111-006	Washoe	NV	Unnamed trib. to Badger Creek	EPHEMERAL	1.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	W-1	41.6308	-119.4668
546.23	SS-111-005	Washoe	NV	Unnamed trib. to Badger Creek	EPHEMERAL	2	N/A	0.000	0.000	0.000	0.000	0.000		0.002	0.003	W-1	41.6310	-119.4676
546.41	SS-13-010	Washoe	NV	Tributary to Massacre Lake	EPHEMERAL	3	N/A	0.026	0.012	0.005	0.006	0.000		0.000	0.000		41.5850	-119.4762
546.54	SS-111-004	Washoe	NV	Unnamed trib. to Badger Creek	EPHEMERAL	2.4	N/A	0.000	0.000	0.000	0.000	0.000		0.004	0.008	W-1	41.6329	-119.4733
546.59	SS-140-002	Washoe	NV	Unnamed Trib. to Massacre Lake	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.049	0.120	W-3	41.5917	-119.4792

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
546.65	SS-111-003	Washoe	NV	Unnamed trib. to Badger Creek	EPHEMERAL	1.9	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.001	W-1	41.6332	-119.4755
546.73	SS-111-002	Washoe	NV	Unnamed trib. to Badger Creek	EPHEMERAL	1.8	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	W-1	41.6334	-119.4770
546.75	SS-111-001	Washoe	NV	Unnamed trib. to Badger Creek	EPHEMERAL	2.9	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	W-1	41.6333	-119.4774
547.73	SS-140-001	Washoe	NV	Unnamed Trib. to Massacre Lake	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.127	0.300	W-3	41.6138	-119.4988
548.03	SS-13-009	Washoe	NV	Tributary to Middle Lake	EPHEMERAL	4	N/A	0.030	0.011	0.005	0.008	0.000		0.000	0.000		41.5872	-119.5074
548.95	SS-184-001	Washoe	NV	Unnamed Trib. to Massacre Lake	EPHEMERAL	5	N/A	0.000	0.000	0.000	0.000	0.000		0.015	0.025	W-3B	41.6069	-119.5231
549.14	SS-126-003	Washoe	NV	Unnamed trib. to Massacre Lake	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.019	0.079	W-4	41.5927	-119.5283
552.83	SS-13-008	Washoe	NV	Massacre Creek	EPHEMERAL	3	N/A	0.024	0.009	0.004	0.008	0.000		0.000	0.000		41.5930	-119.5998
555.77	SS-126-002	Washoe	NV	Unnamed trib. to West Lake	EPHEMERAL	4	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.004	W-7	41.5878	-119.6575
561.75	SS-57-001	Washoe	NV	Unnamed Trib. to Fortynine Lake	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.055		0.000	0.000		41.5723	-119.8463
563.54	SS-111-021	Washoe	NV	Unnamed Trib. to Alkali Lake	EPHEMERAL	4.8	N/A	0.000	0.000	0.000	0.000	0.000		0.003	0.007	W-10	41.6342	-119.7707
563.57	SS-111-017	Washoe	NV	Unnamed Trib. to Alkali Lake	EPHEMERAL	1.3	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.002	W-9	41.6332	-119.7743
563.58	SS-111-020	Washoe	NV	Unnamed Trib. to Alkali Lake	EPHEMERAL	2.2	N/A	0.002	0.000	0.000	0.000	0.000		0.001	0.002	W-10	41.6352	-119.7699
563.59	SS-111-018	Washoe	NV	Unnamed Trib. to Alkali Lake	EPHEMERAL	0.8	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	W-9	41.6339	-119.7737
563.62	SS-111-019	Washoe	NV	Unnamed Trib. to Alkali Lake	EPHEMERAL	2.5	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.002	W-9	41.6343	-119.7737
564.95	SS-111-022	Washoe	NV	Unnamed Trib. to Alkali Lake	EPHEMERAL	4.6	N/A	0.000	0.000	0.000	0.000	0.000		0.001	0.003	W-9	41.6528	-119.7822
565.64	SS-126-001	Washoe	NV	Unnamed trib. to Alkali Lake	EPHEMERAL	1	N/A	0.000	0.000	0.000	0.000	0.000		0.000	0.001	W-10A	41.6569	-119.7998
566.99	SS-13-007	Washoe	NV	Tributary to Alkali Lake	EPHEMERAL	1	N/A	0.014	0.006	0.003	0.000	0.000		0.001	0.002	W-9	41.6784	-119.8019
567.97	SS-13-006	Washoe	NV	Tributary to Alkali Lake	EPHEMERAL	0.5	N/A	0.004	0.002	0.001	0.000	0.000		0.000	0.000		41.6910	-119.8107
568.31	SS-13-005	Washoe	NV	Tributary to Alkali Lake	EPHEMERAL	2.5	N/A	0.021	0.008	0.003	0.000	0.000		0.000	0.000		41.6957	-119.8126
570.30	SS-13-004	Washoe	NV	Tributary to Alkali Lake	EPHEMERAL	2.5	N/A	0.024	0.011	0.007	0.000	0.000		0.000	0.000		41.7232	-119.8242
571.24	SS-13-003	Washoe	NV	Tributary to Alkali Lake	EPHEMERAL	1	N/A	0.008	0.004	0.001	0.000	0.000		0.000	0.000		41.7361	-119.8298
571.69	SS-13-002	Washoe	NV	Tributary to Alkali Lake	EPHEMERAL	4	N/A	0.093	0.037	0.024	0.000	0.000		0.000	0.000		41.7424	-119.8322
573.74	SS-140-012	Washoe	NV	Unnamed Trib. to Alkali Lake	EPHEMERAL	6	N/A	0.077	0.024	0.007	0.000	0.000		0.000	0.000		41.7706	-119.8447
574.13	SS-153-003	Washoe	NV	Unnamed Trib. to Alkali Lake	EPHEMERAL	2.5	N/A	0.050	0.035	0.017	0.000	0.000		0.000	0.000		41.7758	-119.8474
574.44	SS-22-002	Washoe	NV	Tributary to Alkali Lake	EPHEMERAL	0	N/A	0.008	0.002	0.002	0.000	0.000		0.000	0.000		41.7800	-119.8494
575.99	SS-108-010	Washoe	NV	Unnamed trib. to Mosquito Lake	INTERMITTENT	2	N/A	0.000	0.000	0.000	0.000	0.000		0.004	0.012	W-14	41.8068	-119.8396
576.00	SS-108-011	Washoe	NV	Unnamed stream to Mosquito Lake	EPHEMERAL	3	N/A	0.000	0.000	0.000	0.000	0.000		0.004	0.009	W-14	41.8060	-119.8428
576.26	SS-56-001	Washoe	NV	Unnamed Trib. to Lake Trib. to Mosquito Valley	EPHEMERAL	2	N/A	0.016	0.006	0.002	0.000	0.006		0.001	0.006	W-14A	41.8050	-119.8613
576.32	SS-140-011C	Washoe	NV	Unnamed Trib. to Mosquito Lake	EPHEMERAL	4	N/A	0.002	0.000	0.000	0.000	0.000		0.000	0.000		41.8055	-119.8628
576.34	SS-140-011	Washoe	NV	Unnamed trib. to Mosquito Lake	INTERMITTENT	2	N/A	0.000	0.000	0.000	0.000	0.000		0.008	0.029	W-14A	41.8067	-119.8591
576.36	SS-140-011B	Washoe	NV	Unnamed Trib. to Mosquito Lake	EPHEMERAL	3	N/A	0.001	0.000	0.000	0.000	0.000		0.000	0.000		41.8061	-119.8628
576.53	SS-108-013	Washoe	NV	Unnamed trib. to Mosquito Lake	INTERMITTENT	2	N/A	0.000	0.000	0.000	0.000	0.000		0.018	0.035	W-14A	41.8073	-119.8678
576.94	SS-108-012	Washoe	NV	Unnamed trib. to Mosquito Lake	INTERMITTENT	3	N/A	0.027	0.009	0.004	0.008	0.000		0.022	0.041	W-14A	41.8140	-119.8667

**Table H-7 Waterbody Crossings in Nevada**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
581.88	SS-126-009	Washoe	NV	Unnamed trib. to Twelve Mile Creek	PERENNIAL	10	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.008	0.009	W-15	41.8785	-119.9069
581.96	SS-22-007	Washoe	NV	Tributary to Twelvemile Creek	EPHEMERAL	5	Crump Lake	0.096	0.041	0.007	0.031	0.000		0.000	0.000		41.8795	-119.9082
582.43	SS-126-008	Washoe	NV	Unnamed trib. to Twelve Mile Creek	EPHEMERAL	4	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.015	0.024	W-15	41.8861	-119.9105
583.24	SS-126-007	Washoe	NV	Unnamed trib. to Twelve Mile Creek	EPHEMERAL	3	Crump Lake	0.037	0.011	0.005	0.000	0.000		0.009	0.013	W-15	41.8969	-119.9165
583.90	SS-126-006	Washoe	NV	Unnamed trib. to Twelve Mile Creek	EPHEMERAL	6	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.005	0.032	W-15	41.9062	-119.9196
583.94	SS-22-005	Washoe	NV	Tributary to Twelvemile Creek	EPHEMERAL	3	Crump Lake	0.022	0.008	0.004	0.000	0.000		0.000	0.000		41.9065	-119.9209
584.51	SS-126-004	Washoe	NV	Unnamed trib. to Twelve Mile Creek	EPHEMERAL	2	Crump Lake	0.031	0.009	0.004	0.000	0.000		0.021	0.025	W-15	41.9144	-119.9244
584.98	SS-126-005	Washoe	NV	Unnamed trib. to Twelve Mile Creek	EPHEMERAL	2	Crump Lake	0.006	0.000	0.000	0.000	0.000		0.005	0.005	W-15	41.9208	-119.9271
587.00	SS-108-009	Washoe	NV	Unnamed trib. to Twelvemile Creek	EPHEMERAL	4	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.010	W-15	41.9486	-119.9391
587.29	SS-108-008	Washoe	NV	Unnamed trib. to Twelvemile Creek	EPHEMERAL	1	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.007	0.016	W-15	41.9527	-119.9412
588.58	SS-108-007	Washoe	NV	Unnamed trib. to Twelve Mile Creek	EPHEMERAL	2	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.004	W-15	41.9704	-119.9492
589.10	SS-108-006	Washoe	NV	Unnamed trib. to Twelvemile Creek	EPHEMERAL	2	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.011	W-15	41.9775	-119.9526
589.28	SS-108-005	Washoe	NV	Unnamed trib. to Twelvemile Creek	EPHEMERAL	2	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.007	W-15	41.9799	-119.9537
589.55	SS-108-004	Washoe	NV	Unnamed trib. to Twelvemile Creek	EPHEMERAL	5	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.026	W-15	41.9836	-119.9554
589.97	SS-108-003	Washoe	NV	Unnamed trib. to Twelvemile Creek	EPHEMERAL	2	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.007	0.009	W-15	41.9894	-119.9582

<b>Elko County Totals</b>	8.573	3.375	1.407	1.127	0.382		1.356	4.189
<b>Humboldt County Totals</b>	3.232	1.261	0.536	0.304	0.002		0.375	0.841
<b>Washoe County Totals</b>	0.709	0.277	0.121	0.084	0.061		0.495	1.236
<b>Nevada Totals</b>	12.515	4.913	2.064	1.516	0.444		2.227	6.266
<b>Project Totals</b>	35.578	13.310	5.664	5.779	1.021		5.823	12.547



Table H-8 Waterbody Crossings in Oregon

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
590.64	SS-153-004	Lake	OR	Twelvemile Creek	PERENNIAL	30	Crump Lake	0.218	0.086	0.040	0.056	0.000		0.000	0.000		41.9979	-119.9645
591.11	SS-46-003	Lake	OR	Unnamed Trib. to Twelvemile Creek	INTERMITTENT	1	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-1B	42.0075	-119.9671
591.53	SS-175-005	Lake	OR	Unnamed Trib. to Twelvemile Creek	EPHEMERAL	2.2	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.005	0.010	L-1D	42.0056	-119.9770
591.74	SS-46-002	Lake	OR	Unnamed Trib. to Twelvemile Creek	INTERMITTENT	1	Crump Lake	0.017	0.009	0.003	0.004	0.000		0.006	0.010	L-1B	42.0060	-119.9814
591.99	SS-20-016	Lake	OR	Tributary to Twelvemile Creek	EPHEMERAL	2	Crump Lake	0.017	0.007	0.003	0.000	0.000		0.000	0.000		42.0054	-119.9862
592.05	SS-200-002	Lake	OR	Unnamed Trib. to Twelvemile Creek	INTERMITTENT	1.5	Crump Lake	0.016	0.012	0.003	0.000	0.000		0.000	0.000		42.0051	-119.9873
592.09	SS-20-015	Lake	OR	Unnamed Trib. to Twelvemile Creek	INTERMITTENT	3	Crump Lake	0.029	0.009	0.004	0.000	0.000		0.000	0.000		42.0053	-119.9880
592.95	SS-46-001	Lake	OR	Unnamed Trib. to Twelvemile Creek	INTERMITTENT	1	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.001	L-1B	42.0135	-120.0000
598.34	SS-184-003	Lake	OR	Twentymile Creek	INTERMITTENT	48	Crump Lake	0.347	0.142	0.056	0.134	0.000		0.000	0.000		42.0662	-120.0716
601.01	SS-184-009	Lake	OR	Unnamed Trib. to Deep Creek	EPHEMERAL	11	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.030	0.124	L-3A	42.0925	-120.1099
601.44	SS-184-004A	Lake	OR	Unnamed Trib. to Deep Creek	INTERMITTENT	2	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.045	L-3A	42.0971	-120.1156
601.93	SS-184-008	Lake	OR	Unnamed Trib. to Deep Creek	PERENNIAL	4	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.003	0.008	L-3A	42.1033	-120.1201
602.42	SS-184-007	Lake	OR	Unnamed Trib. to Deep Creek	EPHEMERAL	5	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.009	L-3A	42.1043	-120.1228
602.84	SS-20-014	Lake	OR	Tributary to Deep Creek	EPHEMERAL	2	Crump Lake	0.021	0.011	0.004	0.005	0.000		0.000	0.000		42.1164	-120.1230
603.11	SS-184-006	Lake	OR	Unnamed Trib. to Deep Creek	EPHEMERAL	6	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.009	L-3A	42.1153	-120.1299
603.13	SS-20-013	Lake	OR	Tributary to Deep Creek	INTERMITTENT	3	Crump Lake	0.026	0.010	0.005	0.006	0.000		0.000	0.000		42.1184	-120.1278
603.25	SS-184-005	Lake	OR	Unnamed Trib. to Deep Creek	INTERMITTENT	8	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.024	0.042	L-3A	42.1183	-120.1310
603.83	SS-184-004	Lake	OR	Unnamed Trib. to Deep Creek	INTERMITTENT	3	Crump Lake	0.031	0.012	0.005	0.008	0.000		0.000	0.065	L-3A	42.1259	-120.1369
604.10	SS-174-005	Lake	OR	Deep Creek	PERENNIAL	67	Crump Lake	0.470	0.180	0.079	0.000	0.000		0.046	0.102	L-3A	42.1310	-120.1361
605.24	SS-192-017	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	3	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.005	CT-1	42.1411	-120.1539
605.30	SS-174-004	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	4	Crump Lake	0.034	0.014	0.006	0.009	0.000		0.003	0.007	CT-1	42.1383	-120.1568
605.38	SS-192-016	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	1.5	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	CT-1	42.1471	-120.1587
605.43	SS-174-003B	Lake	OR	Horse Creek	PERENNIAL	20	Crump Lake	0.276	0.074	0.028	0.000	0.000		0.000	0.000		42.1388	-120.1593
605.44	SS-174-003A	Lake	OR	Tributary to Horse Creek	INTERMITTENT	6	Crump Lake	0.079	0.000	0.000	0.008	0.000		0.000	0.000		42.1388	-120.1596
605.57	SS-174-002A	Lake	OR	Tributary to Horse Creek	EPHEMERAL	5	Crump Lake	0.083	0.000	0.000	0.011	0.000		0.004	0.008	CT-1	42.1392	-120.1617
605.61	SS-192-018	Lake	OR	Horse Creek	PERENNIAL	10	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.008	0.020	CT-1	42.1416	-120.1617
605.61	SS-192-018A	Lake	OR	Horse Creek	PERENNIAL	14	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.020	0.037	CT-1	42.1415	-120.1618
605.61	SS-192-018B	Lake	OR	Horse creek	PERENNIAL	15	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.019	0.019	CT-1	42.1416	-120.1617
605.85	SS-174-002	Lake	OR	Tributary to Horse Creek	INTERMITTENT	1.5	Crump Lake	0.046	0.005	0.003	0.004	0.000		0.000	0.000		42.1411	-120.1663
605.87	SS-192-020	Lake	OR	Unnamed Trib. to Burnt Creek	EPHEMERAL	6	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.147	0.161	CT-1B	42.1372	-120.1701
605.92	SS-192-019	Lake	OR	Unnamed Trib. to Burnt Creek	EPHEMERAL	1	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.006	CT-1B	42.1373	-120.1722
606.18	SS-192-014	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	1	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	CT-1	42.1500	-120.1604

**Table H-8 Waterbody Crossings in Oregon**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
606.18	SS-192-015	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	3	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.003	0.007	CT-1	42.1491	-120.1596
606.38	SS-192-005	Lake	OR	Unnamed Trib. to Horse Creek	INTERMITTENT	3	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.008	0.012	CT-2	42.1442	-120.1749
606.42	SS-192-013	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	1.5	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.004	CT-1	42.1562	-120.1681
606.52	SS-192-021	Lake	OR	Unnamed Trib. to Horse Creek	INTERMITTENT	1	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	CT2A	42.1446	-120.1776
606.60	SS-192-011	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	4	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.003	0.006	CT-1	42.1582	-120.1706
606.83	SS-192-010	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	1	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.001	CT-1	42.1612	-120.1738
607.24	SS-192-008	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	2.5	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.026	0.028	CT-1	42.1662	-120.1795
607.33	SS-192-009	Lake	OR	Unnamed Trib. to Horse Creek	EPHEMERAL	2	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.032	0.036	CT-1	42.1669	-120.1809
607.55	SS-20-006	Lake	OR	Tributary to Horse Creek	INTERMITTENT	1.5	Crump Lake	0.006	0.003	0.001	0.000	0.000		0.000	0.000		42.1528	-120.1947
607.56	SS-20-005	Lake	OR	Tributary to Horse Creek	INTERMITTENT	2.5	Crump Lake	0.020	0.008	0.003	0.003	0.000		0.000	0.000		42.1530	-120.1947
607.57	SS-20-004	Lake	OR	Tributary to Horse Creek	INTERMITTENT	5	Crump Lake	0.039	0.015	0.007	0.005	0.000		0.000	0.000		42.1530	-120.1948
607.57	SS-20-003	Lake	OR	Tributary to Horse Creek	INTERMITTENT	4	Crump Lake	0.032	0.011	0.005	0.004	0.000		0.000	0.000		42.1530	-120.1949
608.54	SS-20-002	Lake	OR	Tributary to Horse Creek	INTERMITTENT	2.5	Crump Lake	0.022	0.010	0.006	0.000	0.000		0.000	0.000		42.1593	-120.2119
609.61	SS-20-001	Lake	OR	Tributary to Burnt Creek	EPHEMERAL	1.5	Crump Lake	0.015	0.008	0.004	0.000	0.000		0.000	0.000		42.1638	-120.2318
610.11	SS-192-003	Lake	OR	Unnamed Trib. to Camas Creek	INTERMITTENT	2	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.003	CT-5	42.1687	-120.2400
610.57	SS-192-004	Lake	OR	Unnamed Trib. to Camas Creek	EPHEMERAL	2.5	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.003	0.006	CT-5	42.1820	-120.2426
611.39	SS-43-001	Lake	OR	Unnamed Trib. to Camas Creek	INTERMITTENT	1	Crump Lake	0.008	0.003	0.001	0.002	0.000		0.001	0.002	L-9	42.1704	-120.2642
611.43	SS-51-022	Lake	OR	Tributary to Camas Creek	EPHEMERAL	2	Crump Lake	0.015	0.006	0.003	0.004	0.000		0.002	0.003	L-9	42.1707	-120.2649
611.68	SS-51-021	Lake	OR	Trib. to Camas Creek	PERENNIAL	6	Crump Lake	0.052	0.020	0.008	0.014	0.000		0.000	0.000		42.1720	-120.2694
611.68	SS-43-002	Lake	OR	Unnamed Trib. to Camas Creek	INTERMITTENT	1.5	Crump Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.003	L-9	42.1704	-120.2703
611.81	SS-21-001	Lake	OR	Camas Creek	PERENNIAL	2	Crump Lake	0.015	0.006	0.003	0.002	0.000		0.000	0.000		42.1728	-120.2717
611.83	SS-21-002	Lake	OR	Tributary to Camas Creek	PERENNIAL	1	Crump Lake	0.008	0.003	0.001	0.000	0.000		0.000	0.000		42.1730	-120.2720
611.85	SS-51-018	Lake	OR	Camas Creek	PERENNIAL	5	Crump Lake	0.036	0.016	0.006	0.000	0.000		0.000	0.000		42.1730	-120.2724
611.92	SS-51-017	Lake	OR	Tributary to Camas Creek	EPHEMERAL	2	Crump Lake	0.016	0.006	0.003	0.004	0.000		0.000	0.000		42.1734	-120.2737
612.20	SS-173-038	Lake	OR	Unnamed Trib. to Thomas Creek	INTERMITTENT	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	L-12	42.1760	-120.2819
612.38	SS-173-039	Lake	OR	Bullard Creek	PERENNIAL	1.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	L-12	42.1752	-120.2853
612.39	SS-173-041	Lake	OR	Unnamed Trib. to Thomas Creek	PERENNIAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.003	L-12	42.1779	-120.2881
612.40	SS-173-044	Lake	OR	Unnamed Trib. to Bullard Creek	INTERMITTENT	1.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.004	L-12	42.1833	-120.2936
612.41	SS-173-040	Lake	OR	Unnamed Trib. to Bullard Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12	42.1769	-120.2877
612.41	SS-173-043	Lake	OR	Bullard Creek	PERENNIAL	3	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.006	0.020	L-12	42.1830	-120.2937
612.44	SS-173-039A	Lake	OR	Bullard Creek	PERENNIAL	4	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.018	0.060	L-12	42.1758	-120.2874
612.51	SS-192-023	Lake	OR	Unnamed Trib. to Bullard Creek	INTERMITTENT	3	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.005	CT-8	42.1775	-120.2907

**Table H-8 Waterbody Crossings in Oregon**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
612.52	SS-173-045	Lake	OR	Unnamed Trib. to Bullard Creek	EPHEMERAL	0.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.001	L-12	42.1825	-120.2957
612.52	SS-173-042	Lake	OR	Unnamed Trib. to Thomas Creek	EPHEMERAL	1.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.004	L-12	42.1804	-120.2938
612.54	SS-173-048	Lake	OR	Unnamed Trib. Bullard Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12	42.1897	-120.3031
612.54	SS-173-047	Lake	OR	Unnamed Trib. to Bullard Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.003	L-12	42.1872	-120.3008
612.57	SS-173-046	Lake	OR	Bullard Creek	PERENNIAL	5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.024	0.034	L-12	42.1829	-120.2973
612.58	SS-173-049	Lake	OR	Unnamed Trib. to Bullard Creek	INTERMITTENT	3.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.003	0.007	L-12	42.1919	-120.3061
612.58	SS-155-014	Lake	OR	Bullard Creek	EPHEMERAL	0.75	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.002	L-12A	42.1782	-120.2931
612.60	SS-155-016	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	0.75	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.001	L-12A	42.1763	-120.2918
612.60	SS-155-015	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	0.75	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	CT-8	42.1762	-120.2917
612.61	SS-155-013	Lake	OR	Bullard Creek	PERENNIAL	3	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.009	L-12A	42.1833	-120.2985
612.62	SS-171-015	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.009	L-12A	42.1730	-120.2890
612.62	SS-155-017	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	2.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.004	L-12A	42.1760	-120.2920
612.65	SS-155-018	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.001	L-12A	42.1758	-120.2924
612.87	SS-173-035	Lake	OR	Deadman Creek	PERENNIAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.003	L-12A	42.1659	-120.2882
612.87	SS-155-019	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	0.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	L-12A	42.1729	-120.2948
612.88	SS-155-020	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12A	42.1728	-120.2949
612.90	SS-155-021	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	0.75	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.005	L-12A	42.1722	-120.2948
612.90	SS-21-003	Lake	OR	Wash Tributary to Deadman Creek	INTERMITTENT	1	Goose Lake	0.008	0.001	0.000	0.007	0.000		0.000	0.001	L-12A	42.1669	-120.2899
612.91	SS-173-036	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.001	L-12A	42.1663	-120.2894
612.91	SS-155-022	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	0.25	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	L-12A	42.1720	-120.2949
612.92	SS-155-023	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.003	L-12A	42.1709	-120.2959
612.93	SS-50-009	Lake	OR	Unnamed Trib. to Collins Mill Ponds	INTERMITTENT	8	Goose Lake	0.000	0.000	0.000	0.000	0.048		0.000	0.000		42.1969	-120.3529
612.93	SS-50-010	Lake	OR	Unnamed Trib. to Collins Mill Ponds	INTERMITTENT	4	Goose Lake	0.000	0.000	0.000	0.000	0.011		0.000	0.000		42.1964	-120.3539
612.96	SS-155-001	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1	Goose Lake	0.010	0.010	0.003	0.000	0.000		0.001	0.002	L-12A	42.1663	-120.2907
612.97	SS-155-012A	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	0.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.000	L-12A	42.1671	-120.2925
612.97	SS-155-012	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	0.5	Goose Lake	0.001	0.000	0.000	0.000	0.000		0.006	0.006	L-12A	42.1667	-120.2917
613.02	SS-155-004	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1	Goose Lake	0.005	0.001	0.000	0.002	0.000		0.001	0.002	L-12D	42.1656	-120.2911
613.02	SS-173-001	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1	Goose Lake	0.005	0.005	0.005	0.000	0.000		0.001	0.002	L-12D	42.1657	-120.2914
613.06	SS-155-005	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.006	0.006	L-12D	42.1648	-120.2910
613.07	SS-155-006	Lake	OR	Unnamed Trib. to Deadman Creek	PERENNIAL	8	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.006	0.012	L-12D	42.1647	-120.2909
613.07	SS-173-002	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	2	Goose Lake	0.026	0.010	0.006	0.007	0.000		0.000	0.002	L-12D	42.1652	-120.2922

**Table H-8 Waterbody Crossings in Oregon**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
613.09	SS-155-007	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	3	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.006	L-12D	42.1641	-120.2905
613.10	SS-155-008	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12D	42.1640	-120.2905
613.11	SS-155-009	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	0.8	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12D	42.1639	-120.2906
613.13	SS-173-002A	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	2	Goose Lake	0.004	0.000	0.000	0.000	0.000		0.000	0.000		42.1644	-120.2929
613.14	SS-173-003	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	3.5	Goose Lake	0.012	0.000	0.000	0.003	0.000		0.000	0.000		42.1642	-120.2930
613.15	SS-173-004	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	1.5	Goose Lake	0.003	0.000	0.000	0.001	0.000		0.000	0.000		42.1640	-120.2921
613.15	SS-21-009	Lake	OR	Tributary to Deadman Creek	EPHEMERAL	2	Goose Lake	0.003	0.000	0.000	0.002	0.000		0.000	0.000		42.1641	-120.2929
613.15	SS-155-002	Lake	OR	Deadman's Creek	PERENNIAL	5	Goose Lake	0.041	0.016	0.006	0.010	0.000		0.000	0.000		42.1640	-120.2925
613.15	SS-173-005	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1	Goose Lake	0.001	0.001	0.000	0.001	0.000		0.000	0.000		42.1639	-120.2923
613.17	SS-155-010	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	1.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12D	42.1634	-120.2913
613.18	SS-173-034	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12A	42.1626	-120.2878
613.18	SS-173-006	Lake	OR	Unnamed Trib. to Deadman Creek	PERENNIAL	1.5	Goose Lake	0.014	0.005	0.002	0.006	0.000		0.000	0.000		42.1637	-120.2928
613.19	SS-173-032	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.005	L-12A	42.1616	-120.2881
613.19	SS-173-033	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.003	L-12A	42.1623	-120.2878
613.19	SS-155-011	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.006	L-12D	42.1631	-120.2915
613.22	SS-173-007	Lake	OR	Unnamed Trib. to Deadman Creek	INTERMITTENT	0.5	Goose Lake	0.004	0.001	0.001	0.001	0.000		0.000	0.000		42.1630	-120.2930
613.24	SS-173-008	Lake	OR	Deadman Creek	PERENNIAL	4	Goose Lake	0.036	0.013	0.005	0.010	0.000		0.000	0.000		42.1628	-120.2932
613.33	SS-173-010	Lake	OR	Unnamed Trib. to Deadman Creek	PERENNIAL	3	Goose Lake	0.040	0.000	0.000	0.000	0.000		0.000	0.000		42.1615	-120.2940
613.35	SS-173-031	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12A	42.1608	-120.2870
613.37	SS-155-024	Lake	OR	Deadman Creek	PERENNIAL	8	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.006	0.013	L-12D	42.1607	-120.2915
613.37	SS-173-016	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12D	42.1607	-120.2920
613.37	SS-173-009	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1	Goose Lake	0.009	0.006	0.004	0.003	0.000		0.001	0.002	L-12D	42.1610	-120.2936
613.38	SS-173-017	Lake	OR	Unnamed Trib. to Deadman Creek	EPHEMERAL	1	Goose Lake	0.002	0.000	0.000	0.001	0.000		0.004	0.004	L-12D	42.1607	-120.2931
613.39	SS-173-030	Lake	OR	Unnamed Trib. to Crane Creek	PERENNIAL	2.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.004	L-12A	42.1582	-120.2856
613.54	SS-173-011	Lake	OR	Unnamed Trib. to Crane Creek	INTERMITTENT	1.5	Goose Lake	0.018	0.007	0.003	0.004	0.000		0.002	0.004	L-12D	42.1588	-120.2948
613.63	SS-173-012	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1.5	Goose Lake	0.023	0.015	0.000	0.005	0.000		0.011	0.013	L-12D	42.1575	-120.2949
613.80	SS-173-013	Lake	OR	Unnamed Trib. to Crane Creek	INTERMITTENT	1.5	Goose Lake	0.016	0.006	0.003	0.005	0.000		0.000	0.000		42.1550	-120.2951
613.82	SS-173-014	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1	Goose Lake	0.007	0.005	0.002	0.002	0.000		0.000	0.000		42.1547	-120.2950
613.84	SS-173-029	Lake	OR	Unnamed Trib. to Crane Creek	INTERMITTENT	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.003	0.004	L-12A	42.1561	-120.2860
613.86	SS-173-028	Lake	OR	Unnamed Trib. to Crane Creek	INTERMITTENT	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.004	L-12A	42.1536	-120.2877
613.88	SS-173-015	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1.5	Goose Lake	0.016	0.000	0.000	0.009	0.000		0.000	0.000		42.1539	-120.2946

**Table H-8 Waterbody Crossings in Oregon**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
614.06	SS-173-019	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	0.75	Goose Lake	0.001	0.001	0.001	0.000	0.000		0.000	0.000	L-12A	42.1514	-120.2947
614.06	SS-173-018	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	2	Goose Lake	0.010	0.005	0.003	0.002	0.000		0.000	0.001	L-12A	42.1513	-120.2949
614.07	SS-173-020	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1	Goose Lake	0.002	0.001	0.000	0.001	0.000		0.000	0.000		42.1512	-120.2949
614.11	SS-173-021	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	2.5	Goose Lake	0.013	0.007	0.003	0.002	0.000		0.000	0.000		42.1507	-120.2945
614.12	SS-173-027	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1	Goose Lake	0.001	0.000	0.000	0.000	0.000		0.002	0.003	L-12B	42.1509	-120.2936
614.13	SS-173-026	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-12A	42.1509	-120.2934
614.13	SS-173-023	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1	Goose Lake	0.007	0.003	0.001	0.002	0.000		0.000	0.001	L-12B	42.1504	-120.2941
614.14	SS-173-022	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1.5	Goose Lake	0.005	0.000	0.000	0.000	0.000		0.000	0.000		42.1502	-120.2943
614.17	SS-173-024	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1	Goose Lake	0.010	0.005	0.002	0.003	0.000		0.001	0.002	L-12B	42.1501	-120.2936
614.20	SS-173-025	Lake	OR	Unnamed Trib. to Crane Creek	EPHEMERAL	1.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.003	L-12B	42.1500	-120.2925
614.56	SS-21-029	Lake	OR	Tributary to Thomas Creek	EPHEMERAL	2	Goose Lake	0.017	0.006	0.003	0.005	0.000		0.000	0.000		42.1448	-120.2909
616.53	SS-200-001	Lake	OR	Unnamed Trib. to Crane Creek	INTERMITTENT	4	Goose Lake	0.032	0.012	0.005	0.009	0.014		0.000	0.000		42.1271	-120.3170
616.66	SS-152-006	Lake	OR	Tributary to Crane Creek	PERENNIAL	5	Goose Lake	0.038	0.016	0.007	0.009	0.000		0.000	0.000		42.1265	-120.3194
616.94	SS-152-005	Lake	OR	Unnamed Canal to Crane Creek	PERENNIAL	1	Goose Lake	0.007	0.003	0.001	0.003	0.000		0.000	0.000		42.1249	-120.3243
616.99	SS-152-004	Lake	OR	Unnamed Tributary to Crane Creek	PERENNIAL	2	Goose Lake	0.022	0.013	0.005	0.011	0.000		0.000	0.000		42.1245	-120.3253
617.50	SS-152-003	Lake	OR	Unnamed Tributary to Crane Creek	INTERMITTENT	0.5	Goose Lake	0.005	0.002	0.001	0.002	0.000		0.000	0.000		42.1216	-120.3344
617.65	SS-152-001	Lake	OR	Unnamed Canal to Crane Creek	INTERMITTENT	0.5	Goose Lake	0.002	0.001	0.000	0.001	0.000		0.000	0.001	L-14A	42.1203	-120.3367
617.66	SS-152-002	Lake	OR	Unnamed Canal to Crane Creek	INTERMITTENT	1	Goose Lake	0.010	0.004	0.002	0.003	0.000		0.001	0.002	L-14B	42.1204	-120.3369
617.82	SS-152-010	Lake	OR	Unnamed Canal to Crane Creek	INTERMITTENT	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.001	L-14A	42.1178	-120.3368
617.83	SS-152-007	Lake	OR	Unnamed Canal to Crane Creek	INTERMITTENT	0.6	Goose Lake	0.005	0.002	0.001	0.002	0.000		0.000	0.000		42.1185	-120.3390
617.89	SS-152-008	Lake	OR	Unnamed Canal to Crane Creek	INTERMITTENT	1.5	Goose Lake	0.012	0.005	0.002	0.003	0.000		0.000	0.000		42.1178	-120.3397
618.57	SS-152-009	Lake	OR	Unnamed Canal to Crane Creek	INTERMITTENT	5	Goose Lake	0.068	0.023	0.011	0.023	0.000		0.000	0.000		42.1094	-120.3466
619.13	SS-152-011	Lake	OR	Unnamed Canal to Crane Creek	INTERMITTENT	2	Goose Lake	0.016	0.006	0.003	0.006	0.000		0.000	0.000		42.1025	-120.3523
619.14	SS-152-012	Lake	OR	Unnamed Canal to Crane Creek	PERENNIAL	6	Goose Lake	0.048	0.020	0.008	0.019	0.000		0.000	0.000		42.1024	-120.3524
622.40	SS-152-013	Lake	OR	Thomas Creek	PERENNIAL	40	Goose Lake	0.271	0.107	0.046	0.075	0.000		0.000	0.000		42.0927	-120.4124
623.73	SS-25-009	Lake	OR	Unnamed Trib. to Goose Lake	EPHEMERAL	1.5	Goose Lake	0.001	0.000	0.000	0.001	0.000		0.000	0.000		42.0893	-120.4370
625.37	SS-33-013	Lake	OR	Tributary to Goose Lake	INTERMITTENT	1.5	Goose Lake	0.011	0.004	0.002	0.004	0.000		0.000	0.000		42.0690	-120.4538
626.11	SS-33-014	Lake	OR	Tributary to Goose Lake	INTERMITTENT	3	Goose Lake	0.025	0.011	0.005	0.010	0.000		0.000	0.000		42.0598	-120.4612
626.24	SS-33-015	Lake	OR	Tributary to Goose Lake	INTERMITTENT	4	Goose Lake	0.029	0.012	0.005	0.012	0.000		0.000	0.000		42.0582	-120.4625
626.35	SS-33-016	Lake	OR	Draws Creek	PERENNIAL	15	Goose Lake	0.113	0.045	0.018	0.044	0.000		0.000	0.000		42.0569	-120.4637

**Table H-8 Waterbody Crossings in Oregon**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
626.52	SS-33-017	Lake	OR	Tributary to Goose Lake	PERENNIAL	8	Goose Lake	0.056	0.023	0.009	0.022	0.000		0.000	0.000		42.0548	-120.4653
627.08	SS-29-010	Lake	OR	Tributary to Goose Lake	INTERMITTENT	13	Goose Lake	0.105	0.039	0.015	0.048	0.000		0.000	0.000		42.0478	-120.4710
628.14	SS-29-009	Lake	OR	Tributary to Goose Lake	PERENNIAL	15	Goose Lake	0.118	0.048	0.019	0.049	0.000		0.000	0.000		42.0347	-120.4816
628.50	SS-29-008	Lake	OR	Tributary to Goose Lake	INTERMITTENT	18	Goose Lake	0.152	0.068	0.026	0.061	0.000		0.000	0.000		42.0302	-120.4852
630.07	SS-29-007	Lake	OR	Tributary to Goose Lake	PERENNIAL	5	Goose Lake	0.035	0.015	0.006	0.014	0.000		0.000	0.000		42.0168	-120.5059
630.23	SS-29-006	Lake	OR	Tributary to Goose Lake	PERENNIAL	2.5	Goose Lake	0.027	0.014	0.006	0.011	0.000		0.000	0.000		42.0169	-120.5091
630.69	SS-172-001	Lake	OR	Drews Creek	PERENNIAL	3	Goose Lake	0.034	0.018	0.007	0.000	0.000		0.000	0.000		42.0163	-120.5178
630.70	SS-42-002	Lake	OR	Unnamed Trib. to Goose Lake	INTERMITTENT	2.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.029	0.029	L-15	42.0002	-120.5134
630.74	SS-126-013	Lake	OR	Unnamed Trib. to Goose Lake	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.001	L-15	42.0004	-120.5142
630.85	SS-126-014	Lake	OR	Unnamed Trib. to Goose Lake	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.008	0.023	L-15	42.0034	-120.5173
631.01	SS-36-001	Lake	OR	Tributary to Goose Lake	INTERMITTENT	10	Goose Lake	0.099	0.035	0.015	0.029	0.000		0.000	0.000		42.0152	-120.5240
631.18	SS-142-001	Lake	OR	Unnamed Trib. to Goose Lake	INTERMITTENT	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	L-15	42.0038	-120.5239
631.24	SS-142-002	Lake	OR	Unnamed Trib. to Goose Lake	EPHEMERAL	4	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	L-15	42.0038	-120.5250
631.33	SS-142-003	Lake	OR	Unnamed Trib. to Goose Lake	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.003	L-15	42.0040	-120.5270
631.49	SS-42-014	Lake	OR	Unnamed Trib. to Goose Lake	INTERMITTENT	3	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.015	L-15	42.0061	-120.5307
631.58	SS-42-016	Lake	OR	Unnamed Trib. to Goose Lake	INTERMITTENT	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.003	L-15	42.0077	-120.5329
631.60	SS-142-004	Lake	OR	Unnamed Trib. to Goose Lake	EPHEMERAL	10	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.009	0.020	L-15	42.0077	-120.5334
631.83	SS-36-002	Lake	OR	Tributary to Goose Lake	INTERMITTENT	18	Goose Lake	0.152	0.056	0.024	0.042	0.000		0.000	0.000		42.0127	-120.5395
632.06	SS-142-005	Lake	OR	Unnamed Trib. to Goose Lake	EPHEMERAL	3	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.005	L-15	42.0086	-120.5429
632.50	SS-214-001	Lake	OR	Unnamed Canal From Dry Creek	PERENNIAL	11	Goose Lake	0.084	0.033	0.014	0.022	0.000		0.009	0.020	L-15	42.0114	-120.5517
632.50	SS-214-002	Lake	OR	Dry Creek	PERENNIAL	3.5	Goose Lake	0.025	0.010	0.005	0.007	0.000		0.003	0.006	L-15	42.0118	-120.5527
632.50	SS-214-003	Lake	OR	Dry Creek	PERENNIAL	2.5	Goose Lake	0.018	0.007	0.003	0.005	0.000		0.002	0.005	L-15	42.0118	-120.5529
633.20	SS-29-013	Lake	OR	Tributary to Dry Creek	EPHEMERAL	2.5	Goose Lake	0.017	0.007	0.003	0.000	0.000		0.000	0.000		42.0103	-120.5654
633.25	SS-29-014	Lake	OR	Tributary to Dry Creek	EPHEMERAL	5	Goose Lake	0.056	0.022	0.011	0.005	0.000		0.000	0.000		42.0103	-120.5664
633.31	SS-29-015	Lake	OR	Tributary to Dry Creek	EPHEMERAL	5	Goose Lake	0.043	0.016	0.007	0.011	0.000		0.000	0.000		42.0099	-120.5675
633.85	SS-51-002	Lake	OR	Tributary to Dry Creek	EPHEMERAL	2	Goose Lake	0.016	0.007	0.003	0.004	0.000		0.000	0.000		42.0064	-120.5768
633.85	SS-43-009	Lake	OR	Unnamed Trib. to Sibley Draw Creek	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.003	L-15	42.0072	-120.5775
633.87	SS-43-010	Lake	OR	Unnamed Trib. to Sibley Draw Creek	EPHEMERAL	4	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.003	L-15	42.0071	-120.5778
633.87	SS-43-011	Lake	OR	Unnamed Trib. to Sibley Draw Creek	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-15	42.0071	-120.5779
633.89	SS-51-003	Lake	OR	Tributary to Dry Creek	EPHEMERAL	6	Goose Lake	0.044	0.018	0.007	0.011	0.000		0.000	0.000		42.0061	-120.5774
633.91	SS-43-012	Lake	OR	Unnamed Trib. to Sibley Draw Creek	EPHEMERAL	3.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.006	L-15	42.0068	-120.5785

**Table H-8 Waterbody Crossings in Oregon**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
633.96	SS-51-004	Lake	OR	Dry Creek	PERENNIAL	12	Goose Lake	0.085	0.034	0.015	0.026	0.000		0.000	0.000		42.0057	-120.5787
634.18	SS-51-005	Lake	OR	Tributary to Dry Creek	INTERMITTENT	2	Goose Lake	0.014	0.005	0.002	0.000	0.000		0.000	0.000		42.0044	-120.5826
634.19	SS-171-004	Lake	OR	Unnamed Trib. to Dry Creek	EPHEMERAL	2	Goose Lake	0.001	0.000	0.000	0.000	0.000		0.000	0.001	L-15E	42.0049	-120.5828
634.20	SS-43-013	Lake	OR	Dry Creek	PERENNIAL	20	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.037	L-15	42.0054	-120.5832
634.26	SS-171-001A	Lake	OR	Unnamed tributary to Dry Creek	EPHEMERAL	5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.006	0.014	L-15E	42.0049	-120.5839
634.30	SS-171-001	Lake	OR	Dry Creek	PERENNIAL	15	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.011	0.062	L-15E	42.0050	-120.5847
634.32	SS-171-002	Lake	OR	Unnamed Trib. to Dry Creek	EPHEMERAL	5	Goose Lake	0.074	0.032	0.015	0.000	0.000		0.004	0.011	L-15E	42.0044	-120.5852
634.38	SS-51-006	Lake	OR	Sibley Draw	PERENNIAL	2	Goose Lake	0.016	0.006	0.002	0.005	0.000		0.000	0.000		42.0046	-120.5862
634.40	SS-43-014	Lake	OR	Dry Creek	PERENNIAL	20	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.158	L-15	42.0058	-120.5865
634.75	SS-43-015	Lake	OR	Dry Creek	PERENNIAL	20	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.118	L-15	42.0086	-120.5918
635.30	SS-172-002	Lake	OR	Dry Creek	PERENNIAL	14	Goose Lake	0.138	0.042	0.018	0.045	0.000		0.000	0.000		42.0081	-120.6034
635.46	SS-33-023	Lake	OR	Unnamed Trib. to Dry Creek	EPHEMERAL	2	Goose Lake	0.021	0.006	0.003	0.005	0.000		0.002	0.003	L-15	42.0092	-120.6062
635.62	SS-43-017	Lake	OR	Unnamed Trib. to Dry Creek	EPHEMERAL	7	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.007	0.013	L-15	42.0092	-120.6093
635.75	SS-43-018	Lake	OR	Unnamed Trib. to Dry Creek	EPHEMERAL	10	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.007	0.017	L-15	42.0095	-120.6116
635.76	SS-33-025	Lake	OR	Tributary to Dry Creek	EPHEMERAL	2	Goose Lake	0.016	0.007	0.003	0.000	0.000		0.000	0.000		42.0103	-120.6116
635.98	SS-33-018	Lake	OR	Tributary to McCoin Creek	EPHEMERAL	10	Goose Lake	0.075	0.027	0.012	0.000	0.000		0.007	0.016	L-15	42.0105	-120.6159
635.99	SS-33-019	Lake	OR	Tributary to McCoin Creek	EPHEMERAL	4	Goose Lake	0.028	0.011	0.005	0.000	0.000		0.003	0.006	L-15	42.0105	-120.6162
636.15	SS-202-003	Lake	OR	Unnamed Trib. to Dry Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.001	CT-9	42.0079	-120.6195
636.15	SS-192-022	Lake	OR	Dry Creek	INTERMITTENT	11	0	0.000	0.000	0.000	0.000	0.000		0.018	0.038	CT-9	42.0091	-120.6195
636.22	SS-202-002	Lake	OR	Falls Creek	PERENNIAL	25	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.017	0.039	CT-10	42.0060	-120.6211
636.26	SS-43-022	Lake	OR	Unnamed Trib. to Dry Creek	EPHEMERAL	10	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.029	L-15	42.0113	-120.6213
636.27	SS-43-023	Lake	OR	Unnamed Trib. to McCoin Creek	INTERMITTENT	10	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.007	0.015	L-15	42.0115	-120.6215
636.27	SS-33-028	Lake	OR	Tributary to McCoin Creek	INTERMITTENT	25	Goose Lake	0.153	0.073	0.030	0.000	0.000		0.000	0.000		42.0110	-120.6215
636.81	SS-33-022A	Lake	OR	Tributary to McCoin Creek	EPHEMERAL	0	Goose Lake	0.001	0.000	0.000	0.000	0.000		0.000	0.000		42.0112	-120.6320
636.88	SS-33-029	Lake	OR	Tributary to McCoin Creek	INTERMITTENT	1	Goose Lake	0.030	0.005	0.002	0.000	0.000		0.000	0.000		42.0118	-120.6333
637.15	SS-43-025	Lake	OR	McCoin Creek	INTERMITTENT	5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.011	L-15	42.0169	-120.6404
637.17	SS-43-024	Lake	OR	McCoin Creek	EPHEMERAL	10	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.007	0.015	L-15	42.0169	-120.6407
637.25	SS-29-025	Lake	OR	McCoin Creek	INTERMITTENT	17	Goose Lake	0.183	0.075	0.034	0.058	0.000		0.000	0.000		42.0115	-120.6405
637.33	SS-29-024	Lake	OR	Fall Creek	PERENNIAL	15	Goose Lake	0.108	0.042	0.018	0.029	0.000		0.000	0.000		42.0111	-120.6420
637.35	SS-43-026	Lake	OR	Unnamed Trib. to McCoin Creek	INTERMITTENT	8	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.007	0.016	L-15	42.0188	-120.6450
637.38	SS-29-023	Lake	OR	Unanmed Trib. to Dry Creek	EPHEMERAL	2.5	Goose Lake	0.029	0.010	0.004	0.007	0.000		0.000	0.000		42.0110	-120.6429
637.48	SS-43-027	Lake	OR	Dry Creek	INTERMITTENT	15	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.010	0.022	L-15	42.0187	-120.6477
637.65	SS-29-022	Lake	OR	Unnamed Trib. to Falls Creek	EPHEMERAL	2	Goose Lake	0.010	0.010	0.009	0.000	0.000		0.000	0.000		42.0100	-120.6480
637.93	SS-42-022	Lake	OR	Unnamed Ditch to Dry Creek	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.038	L-15	42.0180	-120.6564
638.25	SS-29-020	Lake	OR	Unnamed Trib. Falls Creek	EPHEMERAL	3.5	Goose Lake	0.029	0.011	0.004	0.008	0.000		0.000	0.000		42.0082	-120.6593
638.62	SS-42-021	Lake	OR	Unnamed Trib. to McCoin Creek	INTERMITTENT	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.004	L-15	42.0169	-120.6633
638.91	SS-171-005	Lake	OR	Fall Creek	PERENNIAL	6	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.009	L-15B	42.0119	-120.6716

**Table H-8 Waterbody Crossings in Oregon**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
639.03	SS-171-006	Lake	OR	Unnamed Trib. to Fall Creek	INTERMITTENT	5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.002	L-15	42.0117	-120.6756
639.19	SS-172-004	Lake	OR	Unnamed Trib. to Fall Creek	INTERMITTENT	1	Goose Lake	0.022	0.004	0.001	0.000	0.000		0.000	0.000		42.0088	-120.6770
639.26	SS-172-005	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	2	Goose Lake	0.013	0.008	0.000	0.000	0.000		0.000	0.000		42.0086	-120.6783
639.36	SS-171-007	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	4	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.094	0.148	L-15	42.0117	-120.6824
639.36	SS-171-009	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.003	L-16	42.0189	-120.6878
639.37	SS-171-008	Lake	OR	Unnamed Trib. to Fall Creek	INTERMITTENT	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.004	L-16	42.0171	-120.6866
639.39	SS-184-013A	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.001	L-16	42.0206	-120.6895
639.39	SS-184-013	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	4	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.004	L-16	42.0204	-120.6895
639.40	SS-171-007A	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.004	0.018	L-15	42.0125	-120.6839
639.43	SS-199-012A	Lake	OR	Unnamed Trib. to Fall Creek	INTERMITTENT	4	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.004	CT-12	42.0122	-120.6845
639.43	SS-199-012	Lake	OR	Fall Creek	PERENNIAL	3	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.004	CT-12	42.0121	-120.6845
639.47	SS-199-007	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	1.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-16	42.0214	-120.6927
639.47	SS-184-011	Lake	OR	Fall Creek	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.034	0.056	L-16	42.0218	-120.6946
639.47	SS-184-012	Lake	OR	Unnamed Trib. to Fall Creek	INTERMITTENT	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.002	0.003	CT-13	42.0213	-120.6924
639.52	SS-171-010	Lake	OR	Unnamed Trib. to Fall Creek	PERENNIAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.004	L-15D	42.0047	-120.6806
639.53	SS-199-013	Lake	OR	Unnamed Trib. to Fall Creek	INTERMITTENT	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.003	CT-12	42.0104	-120.6864
639.54	SS-199-014	Lake	OR	Unnamed Trib. to Fall Creek	INTERMITTENT	3	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.007	CT-12	42.0095	-120.6856
639.55	SS-172-006	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	1	Goose Lake	0.017	0.003	0.001	0.000	0.002		0.001	0.002	CT-12	42.0066	-120.6833
639.74	SS-171-011	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	1	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-15D	42.0036	-120.6850
639.75	SS-171-012	Lake	OR	Unnamed Trib. to Fall Creek	EPHEMERAL	2	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.001	0.003	L-15D	42.0036	-120.6855
639.77	SS-202-001	Lake	OR	Unnamed Trib. to Falls Creek	INTERMITTENT	1.5	Goose Lake	0.000	0.000	0.000	0.000	0.000		0.000	0.000	CT-12	42.0039	-120.6862
640.93	SS-184-010	Lake	OR	Unnamed Trib. to East Willow Creek	EPHEMERAL	4	Klamath River	0.000	0.000	0.000	0.000	0.000		0.000	0.022	L-16	42.0235	-120.7074
641.97	SS-142-011	Lake	OR	Unnamed Trib. to Willow Creek	PERENNIAL	2	Klamath River	0.000	0.000	0.000	0.000	0.000		0.003	0.022	L-16	42.0208	-120.7275
641.98	SS-37-001	Lake	OR	South Arm East Willow Creek	INTERMITTENT	3	Klamath River	0.068	0.035	0.005	0.007	0.000		0.000	0.000		42.0014	-120.7286
642.43	SS-142-010	Lake	OR	Unnamed Trib. to Willow Creek	EPHEMERAL	3	Klamath River	0.000	0.000	0.000	0.000	0.000		0.002	0.005	L-16	42.0178	-120.7370
642.96	SS-142-009	Lake	OR	Unnamed Trib. to Willow Creek	INTERMITTENT	2	Klamath River	0.000	0.000	0.000	0.000	0.000		0.001	0.003	L-16	42.0184	-120.7430
643.33	SS-142-008	Lake	OR	Unnamed Trib. to Willow Creek	EPHEMERAL	1	Klamath River	0.000	0.000	0.000	0.000	0.000		0.001	0.002	L-16	42.0215	-120.7494
644.68	SS-38-003	Lake	OR	Tributary to North Fork Willow Creek	EPHEMERAL	1.5	Klamath River	0.027	0.009	0.004	0.000	0.000		0.000	0.000		42.0078	-120.7801
644.73	SS-38-004	Lake	OR	Tributary to North Fork Willow Creek	EPHEMERAL	2	Klamath River	0.025	0.013	0.006	0.000	0.000		0.000	0.000		42.0082	-120.7808
644.75	SS-38-005	Lake	OR	Tributary to North Fork Willow Creek	EPHEMERAL	1	Klamath River	0.007	0.003	0.001	0.000	0.000		0.000	0.000		42.0083	-120.7812

**Table H-8 Waterbody Crossings in Oregon**

MP	STREAM ID	COUNTY	STATE	STREAM NAME	FLOW TYPE	WIDTH (EDGES) (ft)	JD Waterway	Waterbody Acreage within 300' Survey Corridor	Waterbody Acreage within 115' Construction Workspace	Waterbody Acreage within 50' Operational Right-of-Way	Waterbody Acres within the Extra Work Space	Waterbody Acres within Construction Yards and Staging Areas	Pipeyard/ Staging Area Names	Waterbody Acres within the Access Road 30' Improvement	Waterbody Acres within the Access Road 66' Survey Corridor	Access Road Name	LAT	LONG
645.03	SS-38-006	Lake	OR	Tributary to North Fork Willow Creek	EPHEMERAL	2	Klamath River	0.012	0.006	0.003	0.000	0.000		0.000	0.000		42.0095	-120.7865
645.06	SS-38-007	Lake	OR	North Fork Willow Creek	INTERMITTENT	2	Klamath River	0.022	0.010	0.004	0.000	0.000		0.000	0.000		42.0099	-120.7869
645.67	SS-38-008	Lake	OR	Tributary to North Fork Willow Creek	INTERMITTENT	2	Klamath River	0.016	0.006	0.003	0.004	0.000		0.000	0.000		42.0139	-120.7975
647.84	SS-175-002	Lake	OR	Unnamed Trib. to Wild Horse Creek	EPHEMERAL	2.3	Klamath River	0.017	0.006	0.003	0.004	0.000		0.020	0.038	CT-22	42.0124	-120.8390
648.08	SS-175-003	Lake	OR	Unnamed Trib. to Wild Horse Creek	EPHEMERAL	2	Klamath River	0.000	0.000	0.000	0.000	0.000		0.008	0.016	L-19B	42.0120	-120.8437
648.08	SS-156-006	Lake	OR	Unnamed Trib. to Wild Horse Creek	EPHEMERAL	3	Klamath River	0.029	0.013	0.006	0.000	0.000		0.000	0.000		42.0132	-120.8439
648.31	SS-174-001	Lake	OR	Unnamed Trib. to Wild Horse Creek	EPHEMERAL	28	Klamath River	0.185	0.083	0.034	0.000	0.000		0.000	0.000		42.0129	-120.8483
651.11	SS-154-003	Klamath	OR	Fourmile Creek	EPHEMERAL	1.5	Klamath River	0.012	0.005	0.002	0.000	0.000		0.001	0.002	K-1C	42.0081	-120.9023
652.99	SS-175-004	Klamath	OR	Unnamed Trib. to Gwinn Springs Creek	INTERMITTENT	2	Klamath River	0.000	0.000	0.000	0.000	0.000		0.001	0.003	K-3A	41.9951	-120.9351
653.27	SS-154-004	Klamath	OR	Rock Creek Springs	INTERMITTENT	16	Klamath River	0.143	0.057	0.023	0.000	0.000		0.000	0.000		42.0054	-120.9436
653.54	SS-154-002	Klamath	OR	Rock Creek Springs	PERENNIAL	2	Klamath River	0.017	0.006	0.002	0.000	0.000		0.000	0.000		42.0076	-120.9478
654.47	SS-154-001	Klamath	OR	Rock Creek	PERENNIAL	4	Klamath River	0.036	0.017	0.006	0.000	0.000		0.003	0.009	K-3	42.0109	-120.9653
664.16	SS-153-001	Klamath	OR	East Branch Lost River	PERENNIAL	15	Klamath River	0.144	0.058	0.024	0.035	0.000		0.000	0.000		41.9977	-121.1468
664.90	SS-153-002	Klamath	OR	Unnamed Trib. to East Branch Lost River	EPHEMERAL	3	Klamath River	0.030	0.012	0.006	0.000	0.013		0.000	0.000		41.9995	-121.1608
667.80	SS-175-001	Klamath	OR	Lost River	PERENNIAL	360	Klamath River	2.582	0.965	0.423	0.666	0.000		0.000	0.000		42.0021	-121.2162
673.24	SS-156-005	Klamath	OR	Unnamed Trib. to Low Line Canal	EPHEMERAL	3	Klamath River	0.022	0.009	0.004	0.000	0.000		0.000	0.000		41.9990	-121.3184
674.46	SS-156-004	Klamath	OR	Low Line Canal	PERENNIAL	12	Klamath River	0.117	0.044	0.019	0.030	0.000		0.000	0.000		41.9983	-121.3417
674.64	SS-156-003	Klamath	OR	Unnamed Trib. to High Line Canal	EPHEMERAL	2	Klamath River	0.014	0.005	0.002	0.004	0.000		0.000	0.000		41.9971	-121.3445
675.24	SS-156-002	Klamath	OR	Unnamed Trib. to Canal D	PERENNIAL	2.5	Klamath River	0.067	0.010	0.006	0.000	0.042		0.000	0.000		41.9966	-121.3563
675.35	SS-49-015	Klamath	OR	Low Line Canal	INTERMITTENT	15	n/a	0.076	0.047	0.020	0.029	0.000		0.000	0.000		42.0147	-121.3679
675.35	SS-49-016	Klamath	OR	Low Line Canal	INTERMITTENT	10	n/a	0.050	0.031	0.013	0.019	0.000		0.000	0.000		42.0145	-121.3680
675.35	SS-49-017	Klamath	OR	Canal Tributary to D Canal	INTERMITTENT	4	n/a	0.029	0.016	0.005	0.000	0.000		0.000	0.000		41.9987	-121.3595
675.35	SS-49-014	Klamath	OR	Tributary to Low Line Canal	INTERMITTENT	5	n/a	0.024	0.015	0.006	0.009	0.000		0.000	0.000		42.0171	-121.3682
675.35	SS-50-006	Klamath	OR	High Line Canal	INTERMITTENT	1	n/a	0.007	0.003	0.001	0.002	0.000		0.000	0.000		42.0273	-121.3728
675.35	SS-50-007	Klamath	OR	Canal Tributary to D Canal	INTERMITTENT	1.5	n/a	0.010	0.004	0.002	0.003	0.000		0.000	0.000		42.0097	-121.3662
675.35	SS-49-013	Klamath	OR	High Line Canal	INTERMITTENT	10	n/a	0.080	0.032	0.012	0.033	0.000		0.000	0.000		42.0273	-121.3733
							<b>Lake County Totals</b>	5.633	2.132	0.887	1.151	0.076		0.949	2.342			
							<b>Klamath County Totals</b>	3.458	1.334	0.575	0.831	0.055		0.006	0.014			
							<b>Oregon Totals</b>	9.090	3.466	1.463	1.982	0.131		0.954	2.356			
							<b>Project Totals</b>	35.578	13.310	5.664	5.779	1.021		5.823	12.547			



# **I. State of Oregon Mitigation Requirements**



**Department of State Lands**

**Division 141-085**

**PROPOSED RULE CHANGE SUMMARY BY MAJOR TOPIC (7/17/2008)**

**Administrative Rules  
Governing the Issuance  
& Enforcement of  
Removal-Fill Authorizations  
Within Waters of Oregon,  
Including Wetlands**

**DOCUMENT STATISTICS**

Existing Division 85 Rule:

- 90 pages/single-spaced
- 42,000 words
- 227 definitions

Proposed Division 85 Rule:

- 82 pages/double-spaced
- 23,000 words
- 75 definitions

**GENERAL**

- Bold fonts have been used to highlight important subject matter in each major section.
- Use of the special fonts or double-spacing enables the user to find topics more readily.
- No regulatory meaning is associated with this formatting.

## POLICY

- No substantive changes were made to this section.

## DEFINITIONS

The list of defined terms was shortened from 227 to 75 by using the following criteria:

- Terms defined in statute were generally not repeated
- Terms in common usage without a special meaning in the Removal-Fill program were deleted
- Terms not used in the rule were deleted; and
- Terms used only once in the rule were defined in the rule section where they were used.

The following terms were added, newly defined, or the meaning was substantively changed:

(3) "**Artificially Created**" means waters or wetlands constructed entirely from upland.

(9) "**Buffer**" means an upland or wetland area immediately adjacent to or surrounding a wetland or other water that is set aside to protect the water from conflicting adjacent land uses and to support ecological functions.

(15) "**Cowardin 1979**" means Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

(21) "**Ecologically Preferable**" means having a higher likelihood of replacing functions and services or of improving water resources of this state.

(29) "**Functions and Services**" are those ecological characteristics or processes associated with a wetland and the societal benefits derived from those characteristics. These ecological characteristics are "functions," whereas the associated societal benefits are "services."

(33) "**In-lieu Fee**" means the federally approved compensatory mitigation and compensatory wetland mitigation program used to compensate for reasonably expected adverse effects of project development on Waters of the United States and Waters of this state.

(34) "**Interagency Review Team (IRT)**" is an advisory committee to the Department on wetland mitigation bank projects and in-lieu fee projects.

(37) "**Location**" means project location.

(47) "**Office of Administrative Hearings**" means the state agency that provides Administrative Law Judges to conduct contested case proceedings.

(49) "**Payment In-Lieu Mitigation**" means compensatory wetland mitigation for waters of this state that is performed using cash paid to the Department or by agreement of the Department to an approved third party. The payment in-lieu program is not approved to compensate for impacts to waters of the United States.

(54) "**Project**" means the primary development or use intended to be accomplished for which the fill or removal is proposed (e.g., retail shopping complex, residential development, stream bank stabilization or fish habitat enhancement). Projects consist of integrally related component parts that would have no independent utility were those individual parts to be constructed separately. Projects may include more than one removal-fill site.

(55) "**Project Site**" means the geographic area where the project is being proposed or considered.

(59) "**Reasonably Expected Adverse Effect**" and "**Adverse Impact**" mean the actual, direct or indirect, reasonably expected or predictable results of project development upon waters of this state including water resources, navigation, fishing and public recreation uses.

(63) "**Removal-Fill Site**" means the specific point where a person removes material from the bed or banks or fills any waters of this state. A project may include more than one removal-fill site.

(66) "**Substantial Fill**" in an estuary is any amount of fill regulated by the Department that would result in reasonably expected adverse effects on navigation, fishing and/or public recreation uses.

(68) "**Temporal Loss**" of the functions and services provided by waters of this state means the loss that occurs between the time of their destruction or degradation and the time of their replacement.

(69) "**Tidal Habitat**" means habitat located between the highest measured tide and extreme low tide (or to the elevation of any eelgrass beds which is lower), that is flooded with surface water at least annually, during most years.

(72) **"Wetland Creation"** means to convert an area that has never been a wetland to a wetland.

(73) **"Wetland Enhancement"** means increasing the condition, functions and services of an existing degraded wetland.

(75) **"Wetland Restoration"** means to reestablish a former wetland, sufficient to meet wetland criteria.

## **REMOVAL-FILL JURISDICTION**

- The jurisdictional section was rewritten and reorganized for greater clarity.
- "Seeps and springs" were added as a type of jurisdictional water.
- Guidance was added for determining the jurisdictional portions of reservoirs.

## **EXEMPTIONS**

- The exemption section was rewritten and reorganized for greater clarity.
- A separate section was created just for agricultural activities.
- We created some redundancy for the sake of having all the agricultural exemptions in one place.

## **PERMITS AND AUTHORIZATIONS**

- The permits and authorizations section was rewritten and reorganized for greater clarity.
- Note the use of the terms "Location," "Project," "Project Site," "Reasonably Expected Adverse Effect," "Adverse Impact," and "Removal-Fill Site." These terms have precise meanings in the context of the rule (refer to Definitions Section).

The term "location" means project location. A "project" consists of integrally related component parts, which have no independent utility. This requires us to look at reasonably expected adverse effects or adverse impacts from the project as a whole.

"Project Site" as used in 196.825(11)(a)(A) refers to the project in its entirety, and that distinguishes it from the "removal-fill site," a term also used in that same subsection.

"Reasonably Expected Adverse Effect and Adverse Impact" includes both the direct and indirect results from project development (ORS 196.825 (4)). We can require compensatory mitigation for impacts that we can reasonably infer would occur from the project. For example, let's take the case of subdivided lots with wetlands in them. Even if the applicant did not propose to fill the wetlands in those lots as part of his or her proposed project, we can still look at the entire project, and require the applicant to show us those lots on his or her site plan.

We defined the term "Removal-Fill Site" to establish that projects may include more than one removal-fill site, and that cumulatively, even if one or more of these sites is less than 50CY, in total, the 50CY threshold can still be met.

## **COMPENSATORY MITIGATION**

To help improve mitigation success, the compensatory wetland mitigation section, in particular, was extensively revised and substantively changed. Here is what has changed:

- To avoid confusing the public, the Department proposes to adopt the same key mitigation terms used in the new federal mitigation regulations and to interpret them in the same way.
- Freshwater is now "non-tidal."
- The section on estuarine mitigation in the current rule is being repealed.
- We have incorporated estuarine mitigation into the new proposed Compensatory Wetland Mitigation (CWM) section by adding "Tidal Waters." Thus, non-tidal and tidal CWM requirements are merged.
- A mitigation options hierarchy has been created by giving preference for mitigation that is in the ground and successful, i.e., established mitigation bank, in-lieu fee credits and advance mitigation credits. A functions and services replacement assessment is used to verify mitigation success. Payment In-Lieu Mitigation is granted a lower priority than in-lieu credits because the Corps will not accept payment in-lieu mitigation to compensate for impacts to waters of the United States.
- The permittee-responsible mitigation provisions have been beefed up to improve mitigation success. On-site or off-site options are subject to functions and services replacement and site suitability criteria.
- Conservation of non-tidal wetland and tidal waters may be used for meeting the CWM requirement in special circumstances.

- CWM site suitability factors are going to be applied to establish a watershed-based approach and to improve the sustainability of the CWM site.
- Wetland “services” assessment added to functional assessment requirement.
- More specificity has been added with regard to the administration protection for publicly owned sites.
- There are new CWM plan requirements, including the need to submit an updated long-term maintenance plan before the Department will release the CWM site from CWM monitoring obligations.
- There are also new plan requirements for CWM that proposes to use the conservation option. These requirements include the need for a long-term projection instrument; a long-term management plan with a funding mechanism and a protection instrument.
- The new monitoring section now stipulates final report requirements for release:
  - Final site mapping, by type and method
  - Final functions and services assessment
  - Final long-term maintenance plan/steward/funding
- The temporary impacts section now includes requirement for monitoring
- A new pilot program for advance mitigation has been added.

# **J. Guidance on Function Assessment and Mitigation Approach for Large Linear Corridor Projects, Draft Regulation 11-19-07**





**OREGON ADMINISTRATIVE RULES  
OREGON DEPARTMENT OF FISH AND WILDLIFE**

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**DIVISION 415**

**FISH AND WILDLIFE HABITAT MITIGATION POLICY**

**635-415-0000**

**Purpose**

The purpose of these rules is to further the Wildlife Policy (ORS 496.012) and the Food Fish Management Policy (ORS 506.109) of the State of Oregon through the application of consistent goals and standards to mitigate impacts to fish and wildlife habitat caused by land and water development actions. The policy provides goals and standards for general application to individual development actions, and for the development of more detailed policies for specific classes of development actions or habitat types.

Stat. Auth.: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Stats. Implemented: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Hist.: DFW 25-2000, f. 4-26-00, cert. ef. 5-1-00

**635-415-0005**

**Definitions**

For the purposes of OAR 635-415-0000 through 635-415-0025 only:

- (1) "Department" means the Oregon Department of Fish and Wildlife.
- (2) "Development Action" means any activity subject to regulation by local, state, or federal agencies that could result in the loss of fish and wildlife habitat. Development actions may include, but are not limited to, the planning, construction, and operational activities of local, state, and federal agencies. Development actions also include subsequent re-permitting for activities with new impacts or continued impacts that have not been mitigated consistent with current standards.
- (3) "Essential Habitat" means any habitat condition or set of habitat conditions which, if diminished in quality or quantity, would result in depletion of a fish or wildlife species.
- (4) "Fish and Wildlife" means all fish, shellfish, intertidal animals, wild birds, amphibians, reptiles, and wild mammals over which the Fish and Wildlife Commission has jurisdiction.
- (5) "Habitat" means the physical and biological conditions within the geographic range of occurrence of a species, extending over time, that affect the welfare of the species or any sub-population or members of the species.
- (6) "Habitat Quantity" means the amount of a given habitat type.
- (7) "Habitat Quality" means the relative importance of a habitat with regard to its ability to influence species presence and support the life-cycle requirements of the fish and wildlife species that use it.
- (8) "Habitat Type" means the classification of a site or area based on its dominant plant, soil, and water associations or other salient features (e.g. tidal influence, salinity, substrate, alkalinity, etc.) of value to the support and use by fish and wildlife.
- (9) "Home Range" means the area that a species traverses in the scope of normal life-cycle activities.
- (10) "Impact" means an adverse effect of a development action upon fish and wildlife habitat.
- (11) "Important Habitat" means any habitat recognized as a contributor to sustaining fish and wildlife populations on a physiographic province basis over time.
- (12) "In-kind Habitat Mitigation" means habitat mitigation measures which recreate similar habitat structure and function to that existing prior to the development action.
- (13) "In-proximity Habitat Mitigation" means habitat mitigation measures undertaken within or in proximity to areas affected by a development action. For the purposes of this policy, "in proximity to" means within the same home range, or watershed (depending on the species or population being considered) whichever will have the highest likelihood of benefiting fish and wildlife populations directly affected by the development.
- (14) "Irreplaceable" means that successful in-kind habitat mitigation to replace lost habitat quantity and/or quality is not feasible within an acceptable period of time or location, or involves an unacceptable level of risk or uncertainty, depending on the habitat under consideration and the fish and wildlife species or populations that are



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affected. "Acceptable", for the purpose of this definition, means in a reasonable time frame to benefit the affected fish and wildlife species.

(15) "Limited habitat" means an amount insufficient or barely sufficient to sustain fish and wildlife populations over time.

(16) "Mitigation" means taking one or more of the following actions listed in order of priority:

(a) Avoiding the impact altogether by not taking a certain development action or parts of that action;

(b) Minimizing impacts by limiting the degree or magnitude of the development action and its implementation;

(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the development action and by monitoring and taking appropriate corrective measures;

(e) Compensating for the impact by replacing or providing comparable substitute resources or environments.

(17) "Mitigation Bank" means fish and/or wildlife habitat that is restored, created, or enhanced for the purpose of selling habitat credits in exchange for anticipated unavoidable future habitat losses due to development actions.

(18) "Mitigation Plan" means a written plan or statement that thoroughly describes the manner in which the impact of a development action will be reduced or eliminated over time, avoided, and/or minimized; and the affected environment, including fish and wildlife habitat, monitored, restored, rehabilitated, repaired and/or replaced or otherwise compensated for in accordance with OAR 635-415-0010 of these rules.

(19) "Native" means fish and wildlife species, subspecies or populations that occur currently or historically in Oregon through natural (i.e. nonhuman) colonization or immigration, rather than by human action or intervention.

(20) "Nonnative" means a fish or wildlife species not native to Oregon; foreign or introduced.

(21) "Net Benefit" means an increase in overall in-proximity habitat quality or quantity after a development action and any subsequent mitigation measures have been completed and monitored.

(22) "Net Loss" means a loss of habitat quantity and/or habitat quality resulting from a development action despite mitigation measures having been taken.

(23) "Off-site" means outside the boundary of the development action.

(24) "Off-proximity Habitat Mitigation" means habitat mitigation measures undertaken outside the area that would constitute "in-proximity mitigation" but within the same physiographic province as the development action.

(25) "Out-of-kind Habitat Mitigation" means habitat mitigation measures which result in different habitat structure and function that may benefit fish and wildlife species other than those existing at the site prior to the development action.

(26) "Physiographic Province" means any one of ten major geographical areas within the State of Oregon based on differences in topography, climate, and vegetation as defined in the Oregon Wildlife Diversity Plan (OAR 635-100-0001 through 0040).

(27) "Project Life" means the period of time during which a development action is subject to regulation by local, state, or federal agencies.

(28) "Project Proponent" means any individual, corporation, association or agency or their delegated representative that proposes a development action.

(29) "Reliable Method" means a mitigation method that has been tested in areas with site factors similar to those affected by a development action and the area in which the mitigation action is being proposed and that has been found (e.g., through field trials, demonstration projects or scientific studies) to produce the habitat effects required to meet the mitigation goal for that action.

(30) "Site Factors" means climate, soil series, sediments, hydrology, salinity, pH, DO, plant community, fish and wildlife use, or other characteristics of an area that determine its capacity to produce vegetation or maintain habitat features valuable to fish and wildlife.

(31) "Watershed" means a drainage basin encompassing a stream, its tributaries, and associated uplands at the USGS 4th Field Hydrologic Unit level.

Stat. Auth.: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Stats. Implemented: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Hist.: DFW 25-2000, f. 4-26-00, cert. ef. 5-1-00



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**635-415-0010**

**Fish and Wildlife Habitat Mitigation Policy**

It is the fish and wildlife habitat mitigation policy of the Oregon Department of Fish and Wildlife to require or recommend, depending upon the habitat protection and mitigation opportunities provided by specific statutes, mitigation for losses of fish and wildlife habitat resulting from development actions. Priority for mitigation actions shall be given to habitat for native fish and wildlife species. Mitigation actions for nonnative fish and wildlife species may not adversely affect habitat for native fish and wildlife.

Stat. Auth.: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Stats. Implemented: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Hist.: DFW 25-2000, f. 4-26-00, cert. ef. 5-1-00

**635-415-0015**

**Application of Fish and Wildlife Habitat Mitigation Policy**

(1) The Department shall work with regulatory and planning agencies, land management agencies, private developers, operators, public interest groups, and the public to implement this Fish and Wildlife Habitat Mitigation Policy.

(2) The Department shall apply the requirements of this division when implementing its own development actions, and when developing recommendations to other state, federal, or local agencies regarding development actions for which mitigation for impacts to fish and wildlife habitat is authorized or required by federal, state, or local environmental laws or land use regulations.

(3) In applying this policy, the Department shall identify and utilize the habitat protection and mitigation opportunities provided by applicable federal, state, and local environmental laws and land use regulations, and shall participate throughout the duration of these regulatory processes to coordinate Department mitigation requirements or recommendations with those of other agencies. If the regulatory authority of an agency provides for mitigation of cumulative or historic losses, the Department shall apply the standards of OAR 635-415-0025 in making its recommendations.

(4) When making recommendations on local land use actions, the Department shall follow the provisions of its certified State Agency Coordination Program and OAR Chapter 635 Division 405.

(5) Unless required by statute, the Department may elect not to recommend or require mitigation for a development action if, in the opinion of the Department, the impacts to fish and wildlife habitat are expected to be inconsequential in either nature, extent, or duration; or if staff resources are not available.

(6) Nothing in this policy shall be construed to vest authority in the Department where no such statutory or regulatory authority has been granted.

Stat. Auth.: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Stats. Implemented: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Hist.: DFW 25-2000, f. 4-26-00, cert. ef. 5-1-00

**635-415-0020**

**Implementation of Department Habitat Mitigation Requirements**

(1) The Department shall provide mitigation consistent with the goals and standards of OAR 635-415-0025 for Department development actions that impact fish and wildlife habitat.

(2) The Department shall require mitigation consistent with the goals and standards of OAR 635-415-0025 for development actions that impact fish and wildlife habitat for which the Department has statutory authority to require mitigation as a condition of a permit or order.

(3) The Department shall recommend mitigation consistent with the goals and standards of OAR 635-415-0025 for development actions which impact fish and wildlife habitat for other than Department actions when:

(a) Federal or state environmental laws or land use regulations authorize or require mitigation for impacts to fish and wildlife; or



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(b) Local environmental laws or land use regulations authorize or require mitigation for impacts to fish and wildlife habitat; or

(c) The proposed development action requires either an amendment to an acknowledged comprehensive plan or land use regulation relating to fish and wildlife habitat protection, or adoption of a new land use regulation relating to fish and wildlife habitat protection, and the Department believes that mitigation is necessary to comply with Statewide Planning Goal 5 or other applicable statewide planning goal requirements for fish and wildlife habitat protection.

(4) The Department's recommendations or requirements for mitigating the impacts of a development action shall be based on the following considerations:

(a) The location, physical and operational characteristics, and duration of the proposed development action; and

(b) The alternatives to the proposed development action; and

(c) The fish and wildlife species and habitats which will be affected by the proposed development action; and

(d) The nature, extent, and duration of impacts expected to result from the proposed development action.

(5) The Department shall require the project proponent to prepare a written mitigation plan approved by the Department if required by an ODFW implemented statute; or recommend or require a written plan approved by the Department if the impacts of the proposed development action may, in the opinion of the Department, be so significant in nature, extent, or duration that mitigation measures to achieve the goals and standards of OAR 635-415-0025 cannot be identified without the evaluation that would be provided in a written mitigation plan.

(6) The Department may recommend or require the posting of a bond, or other financial instrument acceptable to the Department, to cover the cost of mitigation actions based on the nature, extent, and duration of the impact and/or the risk of the mitigation plan not achieving mitigation goals.

(7) The Department may consider the use of mitigation banks or payment-to-provide mitigation based on the nature, extent, and duration of the impact and/or the risk of the mitigation plan not achieving mitigation goals.

(a) The Department may consider the use of mitigation banks and payment-to-provide mitigation only for habitat categories two through six and only if they are consistent with the mitigation goals and standards identified in OAR 635-415-0025.

(b) The amount of payment-to-provide mitigation, recommended or required, shall include at a minimum the cost of property acquisition, mitigation actions, maintenance, monitoring, and any other actions needed for the long-term protection and management of the mitigation site.

(8) In addition to any other information that may be required by law, a written mitigation plan prepared for the Department shall:

(a) Include the information required in OAR 635-415-0020(4)(a)-(d); and

(b) Describe the mitigation actions which shall be taken to achieve the fish and wildlife habitat mitigation goals and standards of OAR 635-415-0025; and

(c) Describe and map the location of the development action and mitigation actions including the latitude and longitude, township, range, section, quartersection and county; and

(d) Complement and not diminish mitigation provided for previous development actions; and

(e) Include protocols and methods, and a reporting schedule for monitoring the effectiveness of mitigation measures. Monitoring efforts shall continue for a duration and at a frequency needed to ensure that the goals and standards in OAR 635-415-0025 are met, unless the Department determines that no significant benefit would result from such monitoring; and

(f) Provide for future modification of mitigation measures that may be required to meet the goals and standards of OAR 635-415-0025; and

(g) Be effective throughout the project life or the duration of project impacts whichever is greater.

(h) Contain mitigation plan performance measures including:

(A) Success Criteria. The mitigation plan must clearly define the methods to meet mitigation goals and standards and list the criteria for measuring success;

(B) Criteria and a timeline for formal determination that the mitigation goals and standards have been met;

(C) Provisions for long-term protection and management of the site if appropriate;



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(D) A reporting schedule for identifying progress toward achieving the mitigation goals and standards and any modification of mitigation measures. Mitigation goals and standards must be achieved within a reasonable time frame to benefit the affected fish and wildlife species.

(9) The requirement for a mitigation plan pursuant to OAR 635-415-0020(8) may, at the discretion of the Department, be partially or entirely fulfilled by incorporation of environmental assessments or environmental impact statements prepared for the proposed development action; or by local government land use regulations which implement the requirements of Statewide Planning Goals 5, 8, 15, 16, or 17 pertaining to fish and wildlife habitat protection.

(10) The project proponent is responsible for the expenses of developing, evaluating, and implementing the mitigation plan and monitoring the mitigation site; however, to the extent that available resources allow, the Department may take one or more of the following actions to assist in the development of a mitigation plan:

(a) Identify fish and wildlife species and habitats to be affected by the proposed development action;  
(b) Determine the Habitat Categories that are likely to be affected by the proposed development action;  
(c) Identify the nature, extent, and duration of potential impacts upon fish and wildlife habitat resulting from the proposed development action;

(d) Identify mitigation measures to achieve the goals and standards of OAR 635-415-0025.

(e) Furnish any information or counsel to further the purpose of OAR Chapter 635 Division 415

Stat. Auth.: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Stats. Implemented: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Hist: DFW 25-2000, f. 4-26-00, cert. ef. 5-1-00

### **635-415-0025**

#### **Implementation of Department Habitat Mitigation Recommendations**

(1) "Habitat Category 1" is irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage.

(a) The mitigation goal for Category 1 habitat is no loss of either habitat quantity or quality.

(b) The Department shall act to protect Category 1 habitats described in this subsection by recommending or requiring:

(A) Avoidance of impacts through alternatives to the proposed development action; or

(B) No authorization of the proposed development action if impacts cannot be avoided.

(2) "Habitat Category 2" is essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage.

(a) The mitigation goal if impacts are unavoidable, is no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality.

(b) The Department shall act to achieve the mitigation goal for Category 2 habitat by recommending or requiring:

(A) Avoidance of impacts through alternatives to the proposed development action; or

(B) Mitigation of impacts, if unavoidable, through reliable in-kind, in-proximity habitat mitigation to achieve no net loss of either pre-development habitat quantity or quality. In addition, a net benefit of habitat quantity or quality must be provided. Progress towards achieving the mitigation goals and standards shall be reported on a schedule agreed to in the mitigation plan performance measures. The fish and wildlife mitigation measures shall be implemented and completed either prior to or concurrent with the development action.

(c) If neither 635-415-0025(2)(b)(A) or (B) can be achieved, the Department shall recommend against or shall not authorize the proposed development action.

(3) "Habitat Category 3" is essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population.

(a) The mitigation goal is no net loss of either habitat quantity or quality.



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(b) The Department shall act to achieve the mitigation goal for Category 3 habitat by recommending or requiring:

(A) Avoidance of impacts through alternatives to the proposed development action; or

(B) Mitigation of impacts, if unavoidable, through reliable in-kind, in-proximity habitat mitigation to achieve no net loss in either pre-development habitat quantity or quality. Progress towards achieving the mitigation goals and standards shall be reported on a schedule agreed to in the mitigation plan performance measures. The fish and wildlife mitigation measures shall be implemented and completed either prior to or concurrent with the development action.

(c) If neither 635-415-0025(3)(b)(A) or (B) can be achieved, the Department shall recommend against or shall not authorize the proposed development action.

(4) "Habitat Category 4" is important habitat for fish and wildlife species.

(a) The mitigation goal is no net loss in either existing habitat quantity or quality.

(b) The Department shall act to achieve the mitigation goal for Category 4 habitat by recommending or requiring:

(A) Avoidance of impacts through alternatives to the proposed development action; or

(B) Mitigation of impacts, if unavoidable, through reliable in-kind or out-of-kind, in-proximity or off-proximity habitat mitigation to achieve no net loss in either pre-development habitat quantity or quality. Progress towards achieving the mitigation goals and standards shall be reported on a schedule agreed to in the mitigation plan performance measures. The fish and wildlife mitigation measures shall be implemented and completed either prior to or concurrent with the development action.

(c) If neither 635-415-0025(4)(b)(A) or (B) can be achieved, the Department shall recommend against or shall not authorize the proposed development action.

(5) "Habitat Category 5" is habitat for fish and wildlife having high potential to become either essential or important habitat.

(a) The mitigation goal, if impacts are unavoidable, is to provide a net benefit in habitat quantity or quality.

(b) The Department shall act to achieve the mitigation goal for Category 5 habitat by recommending or requiring:

(A) Avoidance of impacts through alternatives to the proposed development action; or

(B) Mitigation of impacts, if unavoidable, through actions that contribute to essential or important habitat.

(c) If neither 635-415-0025(5)(b)(A) or (B) can be achieved, the Department shall recommend against or shall not authorize the proposed development action.

(6) "Habitat Category 6" is habitat that has low potential to become essential or important habitat for fish and wildlife.

(a) The mitigation goal is to minimize impacts.

(b) The Department shall act to achieve the mitigation goal for Category 6 habitat by recommending or requiring actions that minimize direct habitat loss and avoid impacts to off-site habitat.

Stat. Auth.: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Stats. Implemented: ORS 496.012, ORS 496.138, ORS 496.171, ORS 506.109 & ORS 506.119

Hist.: DFW 25-2000, f. 4-26-00, cert. ef. 5-1-00

# **K. Detailed ODFW Mitigation Requirements**



**OREGON DEPARTMENT OF STATE LANDS**  
**Guidance On Function Assessment And Mitigation Approach For Large Linear Corridor Projects**

**DRAFT REGULATION 11-19-07**

Relevant regulations – please be familiar with all of the following:  
ORS 196.825(3) criteria for permit issuance – applicant has provided all practicable mitigation to reduce the adverse effects... if off-site mitigation proposed, applicant shall document the impracticability of on-site....

OARs 141-85-0121, -0126, -0131, -0136, -0141, -0171, -0176, and -0286  
-0121(3) says impacts to less than 0.2 acre may go offsite – but this is still subject to ODFW habitat mitigation policy (below) and Corps concurrence.  
-0121(7) says evaluate entire wetland at impact site  
-0121(8) says which functions to assess  
-0121(11-13) says use HGM, judgmental, or BPJ, but in all cases provide rationale for ratings  
-0126(1-2) describe how mitigation should replace lost functions, & under what circumstances we can accept out-of-kind  
-0126(4) says for linear projects we may accept single CWM site for multiple impacts  
-01286 guides estuarine mitigation.

Function assessment approach:

1. Screen for special wetland functions/features – highlight any wetlands that involve special aquatic sites (bogs, mature forested wetlands, vernal pools, rare plant communities) or use by any listed species.
2. Use BPJ approach (short description with rationale based on observable indicators) for each freshwater wetland. Group these individual wetlands according to 5<sup>th</sup> field HUC location, tallying cumulative impacts to functions and values by watershed. Please provide a summary chart listing unique identifier for each impacted wetland, 5<sup>th</sup> HUC location, acreage of impact, HGM and Cowardin classes, rating for each of the parameters listed in OAR 141-85-0121(8), and notes on any rare/special features.
3. For any tidal wetlands, evaluate the suite of functions listed in the Tidal HGM guidebook, adapt as per the HGM judgemental method or BPJ. Describe rationale for ratings in each of the listed function categories. Chart as above.

Mitigation approach:

1. Freshwater wetland mitigation can be lumped at the 4th field HUC or stay with the 5th field HUC, with replacement by HGM and Cowardin classification. Provide a rationale for why each instance of out-of-kind mitigation is environmentally preferable. Provide a summary chart broken out by watershed showing the net functional lift at each mitigation site, acreage, ratios, and HGM/Cowardin classes before & after mitigation treatments. Format of this chart should relate clearly to the chart in #2 above. All other CWM requirements per rule should be in separate sections for each mitigation site.

2. Habitat mitigation for “important” wetlands should be in-kind and in-proximity per ODFW policy OAR, <http://www.dfw.state.or.us/OARs/415.pdf>
3. Estuary mitigation must take place in the same estuary as the impacts per OAR 141-85-0286.
4. Mitigation for crossings through Ag wetlands - DSL exempts ongoing normal farming and ranching activities, so cropping and grazing may continue where the corridor crosses such ag wetlands. Wetland used for hybrid poplar is considered cropped wetland. No acreage replacement is required if the surface remains cropped wetland
5. Mitigation for Cowardin class conversions - For areas where the wetland impact is temporary – eg the surface is restored to wetland after placement of pipe in a trench – but where the corridor will be maintained as an emergent wetland and trees/shrubs prevented from growing back, the applicant will need to offset the loss of functions provided by the vegetative structure – notably thermoregulation (riparian shade), & songbird habitat.

E:\Wetland Mitigation Report\Ap K - OR pipeline function assess-mitig guidance.doc

# **L. Wetland, Waterbody and Riparian Restoration Plan for Oregon, Nevada, Utah and Wyoming**



**Wetland, Waterbody, and Riparian  
Restoration Plan for  
Oregon, Nevada, Utah, and Wyoming**



FERC Docket No. CP09-54-000

**June 2010**



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### Acronyms and Abbreviations

BLM	Bureau of Land Management
BMPs	Best Management Practices
CFR	Code of Federal Regulations
CWA	Clean Water Act
DBH	diameter at breast height
E & E	Ecology and Environment, Inc.
EPA	Environmental Protection Agency
FACU	Facultative Upland
FACW	Facultative Wetland
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
GIS	Geographical Information System
GPS	Global Positioning System
JD	Jurisdiction Determination
MP	milepost
NRCS	National Resource Conservation Service
NWI	National Wetland Inventory
OAR	Oregon Administrative Rules
OBL	Obligate Wetland
ODFW	Oregon Department of Fish and Wildlife
DSL	Oregon Department of State Lands
NEPA	National Environmental Policy Act of 1969
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PCN	Pre-Construction Notice
PEM	Palustrine Emergent Wetland
PEMC	Palustrine Emergent Seasonal
PFC	Proper Functioning Condition
Plan	Restoration and Revegetation Plan
POD	Plan of Development
Project	Ruby Pipeline Project
PSS	Palustrine Scrub-Shrub
Reclamation	Bureau of Reclamation
ROW	Right-of-Way
Ruby	Ruby Pipeline, LLC
Ruby's Procedures	Wetland and Waterbody Construction and Mitigation Procedures

SWPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
UPL	Upland
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
Woody Riparian Habitat	Woody Riparian Habitat Crossed by the Ruby Pipeline Project

# 1.0 Introduction

## 1.1 Project Overview

The Ruby Pipeline Project (Project), proposed by Ruby Pipeline, LLC (Ruby), is composed of approximately 675.2 miles of 42-inch diameter natural gas pipeline, along with associated compression and measurement facilities, located between Opal, Wyoming, and Malin, Oregon (Figure 1). The Project would also include an approximate 2.6-mile lateral, the PG&E Lateral, in Klamath County, Oregon. The Project's right-of-way (ROW) would cross four states: Wyoming, Utah, Nevada, and Oregon. In addition to the pipeline facilities, Ruby proposes to install four compressor stations for the Project: one located near the Opal Hub, one in western Utah, one near the mid-point of the Project north of Elko, Nevada, and one northwest of Winnemucca, Nevada. The Project has been designed in accordance with the U.S. Department of Transportation Pipeline Safety Regulations, 49 Code of Federal Regulations (CFR) Part 192.

Ruby will utilize a nominal 115-foot wide construction ROW for installation of both the mainline and the lateral, and the final ROW operational width will be 50 feet. The construction ROW through wetlands crossings would be maintained at 75 feet wide, as feasible. This ROW width would accommodate large equipment, pipe stringing and set up, welding, the trench, and the temporary storage of topsoil and trench spoil. Aboveground facilities have been located outside of wetlands.

In addition to the pipeline ROW, the Project will require jurisdictional facilities, temporary extra workspaces, staging areas, and access roads to the ROW (See Ruby's Plan of Development [POD]). Extra workspaces and staging areas are required for storage of topsoil, trench subsoil material, and additional equipment required at waterbody, roadway, and railroad crossings; pipeline point of intersection locations; other utilities; terrain constraints; and staging areas. The Project will use existing public and private roads to access the pipeline ROW and extra workspaces. Ruby anticipates that three new access roads to accommodate timber clearing would be constructed up to 30 feet wide. The length of these roads would be 0.09 mile, 0.18 mile, and 0.35 mile, totaling 0.62 mile of new roads for timber clearing through National Forest lands. It also anticipates constructing a new 30-foot-wide road to gain access to a mainline valve at milepost R109.0. This road would be 0.33 mile long. Further, some existing roads will be widened to 30 feet and/or upgraded to accommodate heavy construction equipment. Some road sections may require extra grading

to allow for adequate turning radius. All temporary road upgrades will be reclaimed and seeded (refer to the Restoration and Revegetation Plans prepared by Ruby, Appendix E of the POD).

Federal lands that would be crossed by the Project include Bureau of Land Management (BLM), Bureau of Reclamation (Reclamation), and U.S. Forest Service (USFS). The Project will also cross privately owned lands pending approval by landowners.

Ruby proposes to construct and operate the Project to reliably deliver Rocky Mountain natural gas to consumers throughout the Project area, including the West Coast (Washington, Oregon, and California) and Nevada. Demand for natural gas in the Project area continues to grow, with additional natural gas supplies needed to replace declining Canadian supplies, increase diversity and reliability of supply, and provide flexibility as renewable energy is developed.

## **1.2 Wetland, Waterbody, and Riparian Restoration Plan Overview**

Ruby has implemented all appropriate avoidance and minimization measures during the planning and design of the Project and will continue to do so in coordination with the relevant state and federal resource agencies during implementation of the Project. Based on field data, current Project design plans, and impact analyses, unavoidable impacts to wetlands, waterbodies, and riparian areas are anticipated to be temporary in nature.

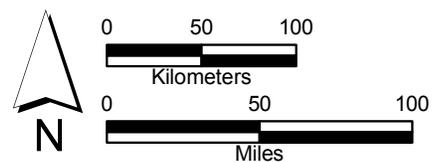
Ruby intends to implement on-site and in-kind restoration for all temporary impacts to wetland habitat, waterbodies, and riparian areas that may result from Project construction. The restoration measures outlined in this Wetland, Waterbody and Riparian Restoration Plan (Plan) have been prepared in coordination with the U.S. Army Corps of Engineers (USACE), BLM, Reclamation, USFS, and state land management agencies.

The Plan utilizes restoration methods developed for other large-diameter pipeline projects that were approved by the Federal Energy Regulatory Commission (FERC) (Dames and Moore 1990; Ecology and Environment, Inc. 2002). Ruby incorporated recent technical standards into the Plan and published long-term restoration monitoring information associated with similar habitats (Ecology and Environment, Inc. 2002).

The POD for the Project includes specifics regarding pipeline construction and clean-up procedures. Therefore, the Plan incorporates Ruby's Upland Erosion Control, Revegetation, and Maintenance Plan; Wetland and Waterbody Construction and Mitigation Procedures (Ruby's Procedures); Noxious and Invasive Weed Control Plan; and Preliminary Wetland Mitigation Plan; POD Appendices D, F, H, and Q, respectively.



- Mile Post (Approx.)
- ★ City
- Proposed Route
- - - County Boundary
- Major Highways
- ▭ State Boundary



**Figure 1**  
**Proposed Route July 17, 2009**  
**RUBY PIPELINE PROJECT**  
 September 2009



## 2.0 Purpose

### 2.1 Restoration Plan

The purpose of the Plan is to provide guidance for the restoration of wetland habitat, waterbodies, and riparian areas temporarily disturbed by Project construction in Oregon, Nevada, Utah, and Wyoming. Monitoring and maintenance measures are also included in the Plan to outline the means necessary to assess and confirm successful restoration of temporary impacts.

The Plan is applicable to the ROW, extra workspace, and sections of access roads that require restoration of wetland habitat, waterbodies, and riparian areas temporarily impacted by construction of the Project. Wetland habitat and waterbodies referenced in the Plan specifically include wetlands, waterways, and riparian areas identified and delineated by Ruby during field assessment; they include the following by reference:

- “Waters of the United States” as defined in 33 CFR Part 328;
- “Waterbody” and “wetland,” as defined in Ruby’s Plan and Procedures: Wetland and Waterbody Construction and Mitigation Procedures (POD Appendix F, Final Environmental Impact Statement [FEIS] Appendix F), as follows:
  - “Waterbody” includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:
    - “minor waterbody” includes all waterbodies less than or equal to 10 feet wide at the water’s edge at the time of crossing;
    - “intermediate waterbody” includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water’s edge at the time of crossing; and
    - “major waterbody” includes all waterbodies greater than 100 feet wide at the water’s edge at the time of crossing.
  - “Wetland” includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands.
- “Wetlands,” “waters,” “stream channels,” and similar habitat defined in the federal and state regulatory programs referenced in the Ruby “Draft Wetland Mitigation Plan” (POD Appendix Q, FEIS Appendix Q); and
- “Playas,” “sensitive waterbodies,” “surface waters,” “wetlands,” and “riparian habitats,” as referenced in the FEIS.

## 2.2 Regulatory Context

The Plan is intended to support Project permit applications, regulatory review processes, and management actions and, as such, has been prepared in coordination with the USACE, BLM, Reclamation, USFS, and state land management agencies. The Plan is specifically intended to provide additional information to support the following:

- Clean Water Act (CWA), Section 404, Nationwide Permit 12 and 33 application and Pre-Construction Notice (PCN) submitted to the USACE pursuant to the implementing regulations of 33 CFR Part 330;
- National Environmental Policy Act of 1969 (NEPA) and the FERC implementing regulations under 18 CFR part 380:
  - FERC Staff's Recommended Mitigation measures outlined in Section 5.2 of the Ruby FEIS; and
  - FERC Certificate of Public Convenience and Necessity.
- Federal land management regulations and plans implemented by the BLM, Reclamation, and USFS:
  - Restoration comments received from the BLM, Reclamation, and USFS related to the POD and FEIS.

Ruby has submitted the Wetland Restoration Plan for Oregon Department of State Lands under separate cover to support the Joint Permit Application Form – Removal-Fill Permit Application (PCN Appendix J). Compensatory mitigation for Oregon is being addressed with the Oregon Department of State Lands (DSL) via the Payment-in-Lieu Mitigation Program.

Other related permits, processes and management actions are outlined in the Ruby PCN, POD, and FEIS.

## 3.0 Goals and Objectives

The primary goals of the Plan are to assist Ruby and its contractors in minimizing the extent and duration of Project-related disturbance and restoring wetland habitat, waterbodies, and riparian areas affected by temporary, construction-related impacts within five years of disturbance.

The Plan provides measures that will be implemented prior to and during construction with the objectives of:

- Minimizing wetland habitat, waterbody, and riparian area impacts;
- Reestablishing wetland and riparian subsoil and wetland topsoil profile;
- Reestablishing pre-disturbance grades in wetland habitat, waterbodies, and riparian areas; and
- Reestablishing the native wetland and riparian plant communities.

The Plan also provides details and measures that will be implemented following construction with the objectives of reestablishing, maintaining, and monitoring wetlands, waters, and riparian areas.

Specific objectives outlined and referenced in the Plan include the following:

- Pursuant to Ruby's Procedures (POD Appendix F), "The intent of these Procedures is to assist applicants by identifying baseline mitigation measures for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies."
- Pursuant to implementing regulations of the CWA, Nationwide Permits (33 CFR part 330):
  - Nationwide Permit 12: "Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must also be revegetated, as appropriate."
  - Nationwide Permit 33: "Following completion of construction, temporary fill must be completely removed to upland areas, dredged material must be returned to its original location, and the affected areas must be restored to

- pre-construction elevations. The affected areas must also be revegetated, as appropriate.”
- Nationwide Permit General Condition 20:
    - “(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).”
    - “(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that adverse effects to the aquatic environment are minimal.”
    - “(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require pre-construction notification . . . Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.”
  - Pursuant to the POD: “Streambeds would be returned to their preconstruction contours, and stream and river banks would be restored and mitigated in-kind, or to a greater functional quality than their preconstruction condition and re-vegetated in accordance with Ruby's Procedures (Appendix F); also see the Biological Resources Conservation Measure Plan (Appendix I). Periodic aerial and ground inspections of the ROW would be conducted, and further restoration measures would be implemented if necessary.”
  - Pursuant to the Ruby FEIS, Section 5.2, FERC STAFF’S RECOMMENDED MITIGATION:
    - 19. “Where temporary work areas abut a playa, Ruby shall install exclusion fencing and warning signs around the playa to prevent project disturbance.”
    - 25. “Ruby shall locate all temporary extra workspaces and staging areas at least 50 feet from waterbodies and limit the construction right-of-way to 115 feet wide in waterbodies.”
    - 27. “Ruby shall include an explanation as to why each wetland cannot be avoided and a description of the construction and restoration measures that would be implemented to minimize wetland impacts . . . .”
    - 28. “Ruby shall locate all temporary extra workspaces and staging areas at least 50 feet from wetlands and limit the construction right-of-way to 75 feet wide in wetlands.”
    - 29. “Prior to construction, Ruby shall file its Wetland Restoration Plan. This plan shall be developed in consultation with the COE and appropriate state and land managing agencies. This plan shall include measures for seeding

and replanting wetland vegetation affected by all project activities and shall identify measures for ensuring wetland revegetation would be successful.”

- 30. “Ruby shall limit its construction right-of-way width to 75 feet in the woody riparian habitat identified in table 4.4.3-1 of the EIS . . . .”
- 31. “Ruby shall plant woody riparian vegetation (e.g., shrubs, cuttings, seedlings, saplings) in all woody riparian areas (except directly over the trenchline) as soon as possible after construction within the appropriate planting season, including the riparian areas impacted by access roads. Ruby shall consult with the landowner or appropriate land managing agency to identify the species and planting densities to be used and any methods to protect planted riparian areas from grazing and browsing impacts, such as browse protection or fencing, until these areas become established. Ruby shall monitor the success of riparian habitat restoration for 5 years after construction. At the end of the 5-year period, Ruby shall file a report identifying the status of the woody riparian restoration and the need for any additional restoration efforts.”



## 4.0 Restoration Plan

The Plan outlines the process required to satisfy the goals and objectives described in Section 3. The Plan incorporates lessons learned from the Kern Expansion Project restoration effort (Ecology and Environment, Inc. 2002, 2007); the experiences of subject-matter experts in arid and semi-arid land restoration (Plummer 1977; Institute for Land Rehabilitation 1978; and Sheley et al. 2008); and over 25 years of Ecology and Environment, Inc. (E & E) staff experience in successful wetland, waterbody, and riparian restoration projects.

The Plan is applicable to all temporary wetland, waterbody, and riparian impacts within ROWs, extra workspaces, and access roads in Oregon, Nevada, Utah, and Wyoming. Measures to be implemented to ensure successful restoration include topsoil and subsoil segregation and stockpiling during construction in wetlands; channel bed material segregation and stockpiling during construction in channels or ditches; cleanup; backfilling; appropriate surface recontouring; replacement of instream structure in channels; soil erosion control; seedbed preparation; application of ecologically site-specific seed mixes; planting; weed abatement; and monitoring. ROW alignments will have uneven edges created by either leaving shrubs and trees in place when clearing or planting shrub and tree groupings after cleanup.

### 4.1 Site Preparation

Initial site preparation activities prior to start of construction include pre-impact data collection, implementation of construction controls (i.e., Best Management Practices [BMPs]), and clearing and salvage activities.

#### 4.1.1 Pre-Impact Data Collection

Data collection prior to the initiation of impacts is critical to document pre-existing conditions such that after construction, the wetland, waterbody, and riparian areas may be restored to their natural structure, form, and function. Data collection includes:

- Surveying and staking the ROW;
- Surveying and staking the limits of wetland and riparian habitat within the ROW;
- Soil sampling in wetland and riparian areas to identify surface soil thickness for removal, segregation, and stockpiling, where applicable;
- Bed material sampling in stream channels and ditches; and
- Longitudinal profile and cross section surveying in stream channels.

Bed gradation and thickness must be sampled at each stream crossing. One sample per crossing is adequate. The intent of the sample is to identify significant differences in particle size gradations to enable proper replacement of bed materials. General categorization will suffice, with up to three layers for segregation and stockpiling (e.g., cobble top-layer at documented thickness, coarse gravel mid-layer at documented thickness, and fine gravel and sand at bottom-layer).

One channel cross section will be surveyed at each minor stream crossing, at the location of the proposed crossing. Three channel cross sections must be surveyed at each intermediate and major stream crossing, at the following locations:

1. At the proposed crossing;
2. Upstream from the proposed crossing, approximately 10 feet downstream of the ROW boundary (i.e., outside of proposed impacts and inside the ROW boundary); and
3. Downstream from the proposed crossing, approximately 10 feet upstream of the ROW boundary (i.e., outside of proposed impacts and inside the ROW boundary).

A longitudinal profile will be surveyed for each stream crossing prior to construction-related impact. Thalweg (deepest point in the channel) shots are to be taken at all grade breaks along the length of the channel. For all stream crossings, the longitudinal profile must extend a minimum of 50 feet beyond the ROW boundaries, both upstream and downstream.

#### **4.1.2 Construction Control Implementation**

Instream and upland sediment controls are to be installed prior to commencement of any construction activities. Instream control selection, as dictated by site conditions, may include water dams surrounding work areas or silt curtains positioned downstream from work areas. Upland controls may include installation of silt fence or sediment logs such as excelsior or coir. These controls are to be placed at the toe of the upland slope and positioned to minimize obstruction to heavy machinery traffic during the construction process. Refer to section 4.4 and Ruby's Procedures (POD Appendix F) for additional detail on sediment controls for stream crossings; and POD Appendix A, Attachment B for the Construction Typical Details that accompany this Plan.

Where temporary work areas abut a playa, Ruby will install exclusion fencing and warning signs around the playa to prevent Project disturbance.

#### **4.1.3 Clearing and Salvage Activities**

Clearing and salvage activities required for site preparation include brush hogging the ROW, segregating and stockpiling topsoil (over geotextile markers where practicable), grading for

safe construction passage, trenching, and installing the pipeline, as described in the POD. Dense stands of noxious and invasive weeds will be treated with approved herbicides prior to vegetation clearing, in accordance with the Noxious and Invasive Weed Control Plan (POD, Appendix H). However, no herbicides will be used in or within 100 feet of wetlands within the Sheldon National Wildlife Refuge unless authorized by the U.S. Fish and Wildlife Service (USFWS). ROW surveying and staking will identify the construction boundaries, including cut and fill locations, and extents of grading. The wetland, waterbody, and riparian boundaries will also be marked/flagged in the field to establish the boundary where impacts should be avoided to the extent possible. Following construction the habitat boundaries will also be surveyed and marked/flagged in the field to reestablish the limits to be restored.

A brush hog is a heavily built rotary mower that severs vegetation with very thick, dull, and hinged wedge-like blades that slice through dense plant growth without hindering blade movement, which is likely to occur with a standard mower due to rigid, sharp blades. As such, Ruby will use brush hogging as a means to remove aboveground vegetation in wetland and riparian areas without disturbing root systems and limited topsoil resources (Watson October 9, 2009). Ruby will limit the clearing of vegetation between extra work areas and the edge of the waterbody to the construction right-of-way. Many grasses, forbs, and shrubs will root sprout after pipeline construction is completed. This procedure should facilitate ROW restoration and revegetation.

Topsoil will be stockpiled from the trenchline and spoilsides in wetlands and riparian areas; however, all extra work areas (such as staging areas and additional spoil storage areas) will be located at least 50 feet away from wetlands and streams, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. Ruby has provided FERC with a site-specific justification of all extra work areas that require less than 50-foot setback from the wetland and water's edge. Ruby will minimize the length of time that topsoil is stockpiled and the trench is open in wetland habitat and waterbodies.

Surface soil thickness will vary throughout the ROW, depending on soil type; however, up to 12 inches of wetland and riparian topsoil shall be preserved to the greatest extent feasible. Surface topsoil containing the seed reservoir and existing vegetation will be scraped and stored along the ROW. The topsoil/vegetation mixture will not be mixed with underlying subsoil horizons. Certified weed-free erosion control blankets and/or certified weed-free straw bales or silt fence will be used to contain and limit erosion at the stockpiles as needed. A geotextile fabric barrier (or other suitable material) will be laid down on the existing (pre-disturbance) ground surface under stockpiles (where feasible and practicable) to serve as a "marker" to preserve the underlying vegetation and original grades and will then be removed after trench closure. This measure will substantially minimize impacts and subsequent restoration efforts. Stockpiled surface soil and sub-surface soils will be replaced in the

proper order during backfilling and final grading operations. Refer to Ruby's Procedures in POD Appendix F for detailed topsoil procedures.

Surface rocks, where present and where useful for restoration, will be windrowed adjacent to the topsoil stockpile. In some areas, significant surface rock will limit the effectiveness of drill and broadcast seeding. Surface rocks in these areas larger than 10 inches in diameter will be removed to a depth of 12 inches as practical to create suitable seedbed for seeding and plant establishment. Salvaged surface rock will be redistributed on the ROW in size, density, and distribution similarly to adjacent areas not disturbed by construction. Subsurface rocks will be separated from subsoils. Salvaged rock will be used to re-create rock outcrops and rock faces, to the greatest extent possible. Salvaged rock will also be used as a deterrent to off-highway vehicle travel, if requested by the landowner or land management agency. Excessive rock excavated but not used for restoration purposes will be removed and disposed of in upland locations at approved locations.

For channel and ditch crossings, all excavation materials are to be stockpiled in a segregated manner such that the pre-construction bed gradation may be recreated during the backfill process (e.g., for non-uniform channel beds, fine materials are to be stockpiled separately from coarse materials so that the replacement column mimics a natural condition).

During construction, all vehicle travel and equipment operation will be within the ROW or on approved access roads. Cross-country vehicle travel outside the ROW or on non-approved, access roads will not be allowed.

## **4.2 Site Restoration**

Restoration will include cleanup, backfill, soil decompaction, topsoil replacement, streambed material replacement, surface grading/contouring, installation of soil erosion and sediment control measures, and seedbed preparation. Refer to POD Appendix A, Attachment B for the Construction Typical Details that accompany this Plan.

### **4.2.1 Backfilling**

Backfilling of subsoil materials will be required after the pipeline is aligned in the trench and padded with screened subsoil or other appropriate materials. The excavated subsoil will be used to backfill the trench.

Backfilling at channel and ditch crossings will be guided by bed gradation and thickness, as determined by pre-construction sampling. For uniform bed materials, all excavation may be placed in a single stockpile. Conversely, several stockpiles may be required for a non-uniform bed to adequately reflect pre-disturbance size progression during replacement.

#### **4.2.2 Soil Decompaction**

Compacted soils would typically be associated with the ROW travel lane, pipe laydown locations, and access roads. Subsoil decompaction will occur prior to surface soil replacement as necessary to reduce soil bulk density and topsoil integration, thereby preventing the creation a confining subsoil layer once surface soil is replaced. Identified locations will be decompacted to a minimum depth of 6–12 inches. “Soil ripping” will be used along contours to minimize soil erosion and facilitate soil-water retention and permeability to aid revegetation. Extra workspaces and access roads will also be ripped to reduce soil compaction.

#### **4.2.3 Topsoil Replacement**

The stockpiled topsoil/vegetation mixture will be re-spread over the ROW after subsoil re-contouring is completed. In wetlands, the segregated topsoil will be restored to its original location. The topsoil/vegetation mixture will provide seeds, vegetative propagules, and soil microbiota to facilitate vegetation establishment on the ROW.

#### **4.2.4 Grading and Terrain Contouring**

The ROW, extra workspaces, and access roads (both new and widened) will be graded and contoured to pre-construction contours such that they blend within the surrounding landscape. All waterbody banks will be returned to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector. Topsoil will be feathered and blended across the construction corridor, creating a roughened surface to capture precipitation, decrease erosion, and provide micro-habitats for plant establishment. Contouring will emphasize restoration of existing drainage and landform patterns, to the greatest extent practicable.

#### **4.2.5 Seedbed Preparation**

Seedbed preparation will consist of grading/contouring, decompacting soils, and restoring surface soil as described above. The soil surface will be worked with heavy equipment to create a roughened surface (Institute for Land Rehabilitation 1978; Sheley et al. 2008); however, specific wetland BMPs referenced in this plan (and contained in entirety in the POD) will be employed in wetlands and waterbodies to avoid rutting and damage from equipment. The seedbed will be firm but not compacted, nor will it have a crusted surface.

#### **4.2.6 Soil Erosion and Sediment Control**

Soil erosion and sediment control will be achieved through establishing native wetland vegetation and adjacent upland/riparian vegetation using measures such as mulch, soil tackifiers, erosion control blankets, sediment logs (wattles), silt fence, and/or water control devices (Institute for Land Rehabilitation 1978; Sheley et al. 2008). The Project will establish a desirable wetland and riparian plant cover as quickly as possible after pipeline construction, according to directions by the relevant land management agency or landowner to minimize soil erosion and control sedimentation. Mulch, certified weed-free erosion control blankets and sediment logs, and certified weed-free straw bales, soil tackifiers, and/or water bars may also be used as appropriate (see the Restoration and Revegetation Plans, POD, Appendix E). All organic mulches, blankets, and wattles will be certified weed-free by the appropriate state agency or BLM.

For stream and ditch crossings, instream sediment controls, such as water dams or silt fences, are to be used.

### **4.3 Revegetation**

A native revegetation plan will be utilized to facilitate restoration of the temporary wetland and riparian impact areas within the ROW, extra workspaces, and access roads. Seeding will be the primary method of reestablishing herbaceous wetland and riparian plants, and container-grown, nursery-stock shrubs and trees, and/or live cuttings will be planted to restore wooded wetland and riparian habitat, unless Ruby has made previous arrangements with landowners or land management agencies regarding planting specifications and/or sources for plant and seed materials. Revegetation efforts will be supplemented by the natural growth and regeneration of seed and plant propagules contained in the segregated and stockpiled wetland topsoil.

#### **4.3.1 Design Basis**

The design basis for this Plan is provided by the documentation from field surveys of pre-disturbance site conditions, including existing plant communities/associations, species occurrence and dominance, and percent cover. These design data were accessed, queried, and sorted using the database created for the Project from the Ruby wetland delineation, stream assessment, and habitat impact assessment field data. Field survey data are supported by supplemental Natural Resources Conservation Service (NRCS) and U.S. Environmental Protection Agency (EPA) Level IV Ecoregion data of potential natural vegetation present along the length of the pipeline.

The following process was utilized to compile pertinent seeding and planting design data for the Plan:

### **Wetland and Riparian Seeding**

- 1) The wetland delineation database was queried to isolate dominant herbaceous wetland species (i.e., wetland species comprising 5% or greater cover on the USACE data forms) to be seeded at all Palustrine Emergent (PEM) wetland impact sites.
- 2) Each wetland impact area was then sorted in ascending order according to milepost (MP), starting in Wyoming and ending in Oregon.
- 3) A master list of all dominant species was compiled and then assessed for nativity (i.e., native, introduced, weed, or noxious weed status) using the U.S. Department of Agriculture (USDA)–NRCS Plants Database (<http://plants.usda.gov>) to isolate native, regionally appropriate species.
- 4) The pipeline route was then overlain on the EPA Level IV Ecoregion Geographical Information System (GIS) map data ([http://www.epa.gov/wed/pages/ecoregions/level\\_iv.htm](http://www.epa.gov/wed/pages/ecoregions/level_iv.htm)) for each state and divided by Ecoregion into MP ranges (e.g., Salt Desert Shrub Basins and Slopes in Wyoming occur between MP 0 and MP 11).
- 5) Dominant native wetland species in the wetland delineation database were then segregated into dominant tables according to the Level IV Ecoregions. Introduced, weed, or noxious weed species were then eliminated. Although forbs are important components of restoration, they were also eliminated as it is anticipated that they will not survive herbicide application to control weeds. The resulting Wetland Seed Schedules for the Plan therefore contain only natives and are segmented according to Ecoregion by MP ranges across the entire length of the pipeline. The Wetland Seed Schedules represent a broad range of hydrologic regime spanning from Obligate Wetland (OBL) to Facultative Upland (FACU) indicator status to be seeded at all PEM and Palustrine Shrub Scrub (PSS) impact sites. Seeding rates assume that 50 seeds per square foot will be applied. Seeding rates are presented as the seeding rate per acre, such that Ruby may adjust quantities based on final impact acreage at each site.
- 6) The pipeline route was also overlain USDA-NRCS Web Soil Survey Ecological Site Database (<http://websoilsurvey.nrcs.usda.gov/app/> and <http://esis.sc.egov.usda.gov/>) to gather species data on potential/present natural vegetation at each wetland and riparian impact site. These data were also divided by Ecoregion by MP.
- 7) Dominant upland, riparian, and wetland species in the NRCS database were then segregated into dominant species tables according to the Level IV Ecoregions. “Potential natural vegetation” species listed in the Level IV Ecoregion tables were then added to the NRCS tables to form composite lists of upland, riparian, and wetland species for each Ecoregion. Introduced, weed, noxious weed, and non-

commercially available species were then eliminated from the NRCS/Ecoregion tables. The NRCS/Ecoregion tables were analyzed for species composition and commonality and then narrowed down to one Upland Buffer and Riparian Seed Schedule that contains a variety of dominant upland and riparian species that occur across all Ecoregions. The resulting Upland Buffer and Riparian Seed Schedule represents a broad range of hydrologic regime spanning from Facultative Wetland (FACW) to Upland (UPL) indicator status to be seeded at all Upland Buffer/Woody Riparian impact sites.

- 8) Species from the Upland Buffer and Riparian Seed Schedule common to all Ecoregions that span from FACW to FACU were then added to the Wetland Seed Schedules to ensure that a broad range of hydrologic regimes and soil types are covered.
- 9) The seed schedules were developed according to the above methodology and the best professional judgment of the E & E professional wetland scientists and restoration ecologists.

#### **Wetland and Riparian Planting**

- 1) The wetland delineation database was queried according to the methodology described in Steps 1–5 above to isolate dominant woody wetland species to be planted at all PSS and certain PEM wetland impact sites.
- 2) The woody riparian habitat crossed by the Project (Woody Riparian Habitat), presented by waterbody and MP (Table 4.4.3-1 of the FEIS), was used to determine riparian tree and shrub impact and restoration locations and impact footprints. Specifically, the length of riparian habitat on both sides of the waterbodies (as measured perpendicular to the crossing or parallel with the pipeline) was multiplied by the 75-foot wetland/riparian impact ROW to determine the riparian tree and shrub planting areas. The woody riparian habitat data used to create Table 4.4.3-1 were supplemented with dominant tree and shrub species and percent cover data derived from the wetland delineation database.
- 3) The acreage of temporary wetland impacts and the percent cover of dominant trees and shrubs as contained in the wetland delineation database were used to determine the wetland tree and shrub planting areas, plant quantity, and species of trees and shrubs in applicable PEM/PSS wetland impact areas.
- 4) Twenty-year or mature spread (i.e., diameter or canopy width) data for trees and shrubs were utilized to determine appropriate plant spacing. Data utilized to assess mature spread were obtained from the USDA-NRCS Plants Database (<http://plants.usda.gov>); the Field Guide for the Identification and Use of Common Riparian Woody Plants of the Intermountain West and Pacific Northwest (Hoag et al. 2008); Wetland Plants of Oregon & Washington (Guard 1997); Common Plants of the Upper Klamath Basin (Oregon Native Plant Society 2007); Native Freshwater

Wetland Plant Associations of Northwestern Oregon (<http://oregonstate.edu/ornhic/documents/christy2004.pdf>); and were modified according to the best professional judgment of the E & E professional wetland scientists and restoration ecologists based on extensive restoration experience and familiarity with the growth habitats of the species.

- 5) The PEM/PSS and Woody Riparian Habitat impact areas (as noted in Steps 2 and 3 above) were multiplied by the percent cover of the dominant native tree and shrub wetland species and then divided by the spread to derive plant quantities for each PEM/PSS and Woody Riparian planting sites.
- 6) These data were then readily converted in to the Wetland Tree and Shrub Planting Schedules and the Riparian Tree and Shrub Planting Schedules that present planting area, species, aerial cover, and plant quantity.

#### 4.3.2 Revegetation Approach

This section of the Plan provides the reference guides to revegetation actions in each of the four states. Please refer to the following Wetland Restoration Guide tables:

- Table 4-1 – Oregon Wetland Restoration Guide
- Table 4-2 – Nevada Wetland Restoration Guide
- Table 4-3 – Utah Wetland Restoration Guide
- Table 4-4 – Wyoming Wetland Restoration Guide

The Seeding Plans and associated seed schedules are provided in Section 4.3.3 for herbaceous wetland plants and in Section 4.3.4 for herbaceous upland buffer and riparian plants. The Planting Plans for wetland shrubs and trees are provided in Section 4.3.5 and the Planting Plans for riparian shrubs and trees are provided in Section 4.3.6. The seeding and planting plans are supported by Seeding Specifications (Exhibit E), Planting Specifications (Exhibit F), and Typical Details (Exhibit G).

The Wetland Restoration Guides included below serve as the master guide to the applicable plant materials required for restoration of each impact area. They indicate the applicable seed schedule and whether planting is required at each specific wetland impact area. The table is organized as follows:

- Wetland ID - the unique, alpha-numeric designation utilized for each specific wetland impact area;
- MP – milepost most closely associated with the wetland impact area;
- County – in which the wetland impact area is located;
- National Wetland Inventory (NWI) Type – indicates the type of wetland habitat impacted by Cowardin classification;

- Jurisdictional Waterway – indicates the jurisdictional waterbody to which drainage from the impact area flows;
- Total Wetland Impact/Restoration Area – provides the acreage of each impact area to be restored;
- Seed Schedule – refers to the applicable seed schedule/mix to use for each specific impact area;
- Planting Required – “Yes” indicates the user needs to refer to the Tree and Shrub Planting Schedule for the applicable trees and/or shrubs required for the impact area.

**Table 4-1 Oregon Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-46-001	592.02	Lake	OR	PEM	Crump Lake	0.024	N-5 / O-1		42.006597	-119.986760
WW-200-003	592.02	Lake	OR	PEM	Crump Lake	0.000	N-5 / O-1		42.005658	-119.986635
WW-20-006	598.15	Lake	OR	PEM		0.000	N-5 / O-1		42.064427	-120.068423
WW-184-002	598.35	Lake	OR	PEM	Crump Lake	0.240	N-5 / O-1		42.066369	-120.071568
WW-20-007	601.92	Lake	OR	PEM		0.123	N-5 / O-1	YES	42.108908	-120.108507
WW-184-003	603.82	Lake	OR	PEM	Crump Lake	2.310	N-5 / O-1	YES	42.125285	-120.138221
WW-192-004	604.90	Lake	OR	PEM		0.077	N-5 / O-1		42.137847	-120.149859
WW-172-004	605.49	Lake	OR	PEM	Crump Lake	0.093	O-2	YES	42.139016	-120.160223
WW-172-003	605.58	Lake	OR	PEM	Crump Lake	0.017	O-2		42.139180	-120.162015
WW-192-005	605.61	Lake	OR	PEM		0.061	O-2		42.141500	-120.161782
WW-174-006	605.62	Lake	OR	PEM	Crump Lake	0.000	O-2		42.139489	-120.162713
WW-192-006	605.87	Lake	OR	PEM		0.027	O-2		42.137012	-120.170234
WW-174-005	606.12	Lake	OR	PEM	Crump Lake	0.029	O-2		42.143415	-120.170195
WW-20-002	607.56	Lake	OR	PEM		0.029	O-2	YES	42.152759	-120.194901
WW-192-002	608.93	Lake	OR	PEM	Owyhee River	0.047	O-2	YES	42.187910	-120.208186
WW-192-003	609.53	Lake	OR	PEM		0.000	O-2		42.163005	-120.230384
WW-38-003	610.45	Lake	OR	PEM		1.333	O-2		42.165901	-120.247328
WW-200-002	611.84	Lake	OR	PSS	Crump Lake	0.000	O-2		42.173254	-120.272138
WW-200-001	611.84	Lake	OR	PEM	Crump Lake	0.078	O-2	YES	42.173234	-120.272186
WW-173-015	612.19	Lake	OR	PEM	Goose Lake	0.010	O-2		42.175466	-120.281181
WW-173-016	612.21	Lake	OR	PEM	Goose Lake	0.003	O-2	YES	42.175966	-120.281970
WW-173-017	612.41	Lake	OR	PEM	Goose Lake	0.018	O-2		42.176982	-120.287703
WW-192-001	612.46	Lake	OR	PEM		0.014	O-2		42.175390	-120.287392
WW-173-018	612.47	Lake	OR	PEM	Goose Lake	0.016	O-2		42.182656	-120.294699
WW-173-019	612.48	Lake	OR	PEM	Goose Lake	0.003	O-2		42.182477	-120.294625
WW-173-020	612.60	Lake	OR	PEM	Goose Lake	0.008	O-2		42.184379	-120.299390

**Table 4-1 Oregon Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-173-021	612.61	Lake	OR	PEM	Goose Lake	0.007	O-2		42.184373	-120.299608
WW-155-004	612.90	Lake	OR	PEM	Goose Lake	0.032	O-2	YES	42.172559	-120.295100
WW-155-003	612.90	Lake	OR	PEM	Goose Lake	0.027	O-2		42.171924	-120.294668
WW-155-002	612.92	Lake	OR	PEM	Goose Lake	0.014	O-2		42.171761	-120.294823
WW-173-006	613.05	Lake	OR	PEM	Goose Lake	0.016	O-2		42.165280	-120.291485
WW-173-003	613.12	Lake	OR	PEM	Goose Lake	0.009	O-2		42.164460	-120.292667
WW-173-004	613.13	Lake	OR	PEM	Goose Lake	0.000	O-2		42.164408	-120.292937
WW-173-013	613.18	Lake	OR	PEM	Goose Lake	0.065	O-2	YES	42.163248	-120.291355
WW-173-007	613.21	Lake	OR	PEM	Goose Lake	0.023	O-2		42.163073	-120.292682
WW-173-008	613.22	Lake	OR	PEM	Goose Lake	0.004	O-2		42.162936	-120.292901
WW-155-007	613.36	Lake	OR	PEM	Goose Lake	0.122	O-2		42.160907	-120.291407
WW-173-010	613.38	Lake	OR	PEM	Goose Lake	0.000	O-2		42.161028	-120.294045
WW-173-011	613.56	Lake	OR	PEM	Goose Lake	0.083	O-2		42.158483	-120.294852
WW-173-014	613.68	Lake	OR	PEM	Goose Lake	0.022	O-2		42.156439	-120.286153
WW-173-012	613.78	Lake	OR	PEM	Goose Lake	0.010	O-2		42.155438	-120.294872
WW-152-001	617.20	Lake	OR	PEM	Goose Lake	12.319	O-3	YES	42.123236	-120.328875
WW-152-002	617.70	Lake	OR	PEM	Goose Lake	0.042	O-3		42.119975	-120.337383
WW-152-011	617.71	Lake	OR	PEM	Goose Lake	0.782	O-3		42.119203	-120.336623
WW-152-010	617.71	Lake	OR	PEM	Goose Lake	0.213	O-3		42.119229	-120.336839
WW-152-003	617.77	Lake	OR	PEM	Goose Lake	2.845	O-3		42.119282	-120.338422
WW-152-008	617.82	Lake	OR	PSS	Goose Lake	0.089	O-3	YES	42.117688	-120.336695
WW-152-007	617.83	Lake	OR	PEM	Goose Lake	0.056	O-3		42.117490	-120.336854
WW-152-006	617.85	Lake	OR	PEM	Goose Lake	0.389	O-3		42.117093	-120.336680
WW-152-004	618.99	Lake	OR	PEM	Goose Lake	19.376	O-3		42.104175	-120.350861
WW-25-100	626.18	Lake	OR	PEM		199.660	O-3		42.058069	-120.460114
WW-126-001	630.71	Lake	OR	PEM	Goose Lake	0.291	O-3		42.000235	-120.513445
WW-36-001	630.73	Lake	OR	PSS	Goose Lake	0.149	O-3	YES	42.016390	-120.518694

**Table 4-1 Oregon Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-126-002	630.84	Lake	OR	PEM	Goose Lake	0.002	O-3	YES	42.002688	-120.516762
WW-142-001	630.90	Lake	OR	PEM	Goose Lake	0.005	O-3		42.003945	-120.518333
WW-142-002	630.90	Lake	OR	PEM	Goose Lake	0.021	O-3		42.003805	-120.518428
WW-142-003	631.27	Lake	OR	PEM	Goose Lake	0.002	O-3		42.004037	-120.525782
WW-142-004	631.28	Lake	OR	PEM	Goose Lake	0.013	O-3		42.003885	-120.525837
WW-142-006	631.47	Lake	OR	PEM	Goose Lake	0.013	O-3		42.005323	-120.530128
WW-142-005	631.48	Lake	OR	PEM	Goose Lake	0.016	O-3		42.005159	-120.530320
WW-142-007	631.54	Lake	OR	PEM	Goose Lake	0.114	O-3		42.007482	-120.532207
WW-43-001	634.39	Lake	OR	PEM	Goose Lake	0.057	O-2		42.005840	-120.586176
WW-43-003	634.75	Lake	OR	PEM	Goose Lake	0.088	O-2	YES	42.008284	-120.591687
WW-43-007	635.98	Lake	OR	PEM		0.005	O-2		42.010254	-120.615954
WW-43-008	636.03	Lake	OR	PEM		0.062	O-2		42.010472	-120.616904
WW-43-005	636.05	Lake	OR	PEM		0.391	O-2		42.010678	-120.617338
WW-192-007	636.16	Lake	OR	PEM		0.217	O-2		42.009281	-120.619563
WW-43-009	636.27	Lake	OR	PEM	Goose Lake	0.032	O-2		42.011338	-120.621420
WW-43-010	636.27	Lake	OR	PEM	Goose Lake	0.007	O-2		42.011560	-120.621424
WW-33-003	636.82	Lake	OR	PEMA		0.000	O-2		42.011710	-120.632087
WW-171-001	638.91	Lake	OR	PEM	Goose Lake	0.013	O-2		42.011754	-120.671481
WW-172-001	639.00	Lake	OR	PEM	Goose Lake	0.022	O-2		42.009979	-120.673648
WW-171-003	639.03	Lake	OR	PEM	Goose Lake	0.009	O-2		42.011782	-120.675668
WW-171-004	639.08	Lake	OR	PEM	Goose Lake	0.215	O-2		42.011469	-120.676505
WW-172-002	639.21	Lake	OR	PEMC	Goose Lake	0.108	O-2		42.008648	-120.677401
WW-199-005	639.43	Lake	OR	PEM		0.015	O-2		42.012109	-120.684495
WW-199-004	639.43	Lake	OR	PEM		0.037	O-2		42.011931	-120.684405
WW-199-006	639.44	Lake	OR	PEM		0.003	O-2		42.011934	-120.684632
WW-184-007	639.47	Lake	OR	PEM	Goose Lake	0.010	O-2	YES	42.021561	-120.692237
WW-199-007	639.53	Lake	OR	PEM		0.097	O-2		42.009581	-120.685560

**Table 4-1 Oregon Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-171-009	639.60	Lake	OR	PEM	Goose Lake	0.049	O-2		42.004167	-120.682037
WW-171-008	639.61	Lake	OR	PEM	Goose Lake	0.124	O-2		42.003970	-120.682043
WW-171-010	639.74	Lake	OR	PEM	Goose Lake	0.003	O-2		42.003510	-120.685101
WW-171-012	641.45	Lake	OR	PEM	Klamath River	1.275	O-2		42.001515	-120.718123
WW-184-006	641.45	Lake	OR	PEMC	Goose Lake	0.447	O-2		42.022737	-120.717531
WW-37-001	641.70	Lake	OR	PEM	Klamath River	0.059	O-2		42.001257	-120.723029
WW-171-011	641.87	Lake	OR	PEM	Goose Lake	0.218	O-2		42.000391	-120.726423
WW-142-009	642.02	Lake	OR	PEM	Klamath River	0.025	O-2		42.020693	-120.728807
WW-37-003	642.05	Lake	OR	PEM		0.590	O-2	YES	42.001598	-120.729774
WW-184-005	642.21	Lake	OR	PEM	Klamath River	0.092	O-2		42.019034	-120.732447
WW-142-008	642.43	Lake	OR	PEM	Klamath River	0.015	O-2		42.017872	-120.737917
WW-174-004	643.25	Lake	OR	PEM	Klamath River	0.089	O-2		42.020870	-120.747966
WW-184-004	643.39	Lake	OR	PEM	Klamath River	0.004	O-2		42.022774	-120.750363
WW-175-002	645.07	Lake	OR	PEM	Klamath River	0.140	O-2	YES	42.009881	-120.786978
WW-175-004	645.07	Lake	OR	PEM	Klamath River	0.000	O-2		42.010221	-120.786783
WW-175-003	645.14	Lake	OR	PEM	Klamath River	0.000	O-2		42.010832	-120.787994
WW-156-003	648.26	Lake	OR	PEM	Klamath River	0.000	O-2		42.012588	-120.847327
WW-156-002	648.27	Lake	OR	PEM	Klamath River	0.017	O-2		42.012963	-120.847590

**Table 4-1 Oregon Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-174-001	648.29	Lake	OR	PEM	Klamath River	0.000	O-2		42.013180	-120.848036
WW-156-004	648.30	Lake	OR	PEM	Klamath River	0.010	O-2		42.012970	-120.848061
WW-174-002	648.31	Lake	OR	PEM	Klamath River	0.111	O-2		42.012960	-120.848352
WW-174-003	648.81	Lake	OR	PEM	Klamath River	0.090	O-2		42.011995	-120.857969
WW-153-005	650.09	Klamath	OR	PEM	Klamath River	0.180	O-2	YES	42.010759	-120.882691
WW-153-006	650.46	Klamath	OR	PEMC	Klamath River	0.211	O-2		42.009833	-120.889821
WW-154-002	651.10	Klamath	OR	PEM	Klamath River	0.827	O-2	YES	42.007980	-120.902143
WW-175-001	652.99	Klamath	OR	PEM	Klamath River	0.056	O-2		41.995088	-120.935090
WW-154-004	653.14	Klamath	OR	PEMC	Klamath River	0.316	O-2	YES	42.005154	-120.941026
WW-154-003	653.26	Klamath	OR	PEMC	Klamath River	0.135	O-2		42.005412	-120.943183
WW-154-005	653.54	Klamath	OR	PEM	Klamath River	0.103	O-2		42.007560	-120.947806
WW-154-001	654.48	Klamath	OR	PEM	Klamath River	0.171	O-4	YES	42.010947	-120.965559
WW-153-004	655.97	Klamath	OR	PEM	Klamath River	0.050	O-4		42.001844	-120.991030
WW-153-003	656.03	Klamath	OR	PEMFh	Klamath River	0.358	O-4		42.001434	-120.992192
WW-153-002	656.23	Klamath	OR	PEMFh	Klamath River	0.000	O-4		41.999329	-120.994808

**Table 4-1 Oregon Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-153-001	661.62	Klamath	OR	PEM	Klamath River	0.025	O-4		41.996238	-121.097868
					Lake County Totals	246.139				
					Klamath County Totals	2.430				
					<b>Oregon Totals</b>	<b>248.569</b>				

**Table 4-2 Nevada Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-149-003	270.26	Elko	NV	PEM	N/A	0.139	N-1		41.399928	-114.704224
WW-112-001	276.43	Elko	NV	PEM	N/A	0.382	N-1		41.449327	-114.833208
WW-131-001	277.52	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River / Humboldt)	0.120	N-1		41.288379	-114.837364
WW-15-001	278.18	Elko	NV	PEM		0.282	N-1		41.393186	-114.849873
WW-131-005	280.67	Elko	NV	PEM	N/A	0.062	N-1		41.350240	-114.891297
WW-112-002	280.79	Elko	NV	PEM	N/A	0.031	N-1		41.360751	-114.895041
WW-131-003	281.56	Elko	NV	PEM	N/A	0.013	N-1		41.340686	-114.892243
WW-132-004	281.91	Elko	NV	PEM	N/A	0.274	N-1		41.391720	-114.922144
WW-130-003	282.48	Elko	NV	PSS	N/A	0.031	N-1	YES	41.388012	-114.933293
WW-15-002	283.41	Elko	NV	PEM		0.056	N-1		41.379073	-114.946089
WW-15-004	286.80	Elko	NV	PEM		0.436	N-2		41.367773	-115.005152
WW-130-002	286.84	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.054	N-2		41.367069	-115.006272
WW-15-006	287.53	Elko	NV	PEM		0.054	N-2		41.365630	-115.017750
WW-53-001	301.72	Elko	NV	PSS		0.128	N-3	YES	41.264812	-115.251202
WW-54-002	301.83	Elko	NV	PEM		0.007	N-3		41.265209	-115.253231
WW-54-001	301.83	Elko	NV	PEM		0.003	N-3		41.265013	-115.253298
WW-07-002	302.93	Elko	NV	PEM		0.016	N-3		41.259696	-115.272575

**Table 4-2 Nevada Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-110-001	303.10	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.120	N-3		41.254382	-115.272170
WW-110-003	303.66	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	5.343	N-3		41.251573	-115.282378
WW-06-001	318.12	Elko	NV	PEM	Klamath River	0.158	N-3		41.273583	-115.535543
WW-06-003	329.51	Elko	NV	PEM		0.143	N-3		41.246067	-115.749602
WW-06-004	330.96	Elko	NV	PEM		2.892	N-3		41.243660	-115.777066
WW-101-001	343.93	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.421	N-3		41.216195	-116.018900
WW-151-001	346.48	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.554	N-3		41.213275	-116.067661
WW-151-002	347.67	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.230	N-3		41.205741	-116.088232
WW-132-001	350.69	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.012	N-2		41.198994	-116.142182

**Table 4-2 Nevada Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-132-002	350.69	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.039	N-2		41.199540	-116.143978
WW-132-003	350.69	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.013	N-2		41.199434	-116.144191
WW-183-002	351.99	Elko	NV	PEM	Owyhee River	0.014	N-2		41.210358	-116.166829
WW-169-002	353.26	Elko	NV	PEM	Owyhee River	0.031	N-2		41.210067	-116.192425
WW-168-006	359.63	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.020	N-3		41.216436	-116.313202
WW-168-005	361.47	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.039	N-3		41.211541	-116.346913
WW-168-004	361.73	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.027	N-3		41.211454	-116.351898
WW-168-003	363.26	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.177	N-3		41.210430	-116.380836
WW-183-001	363.52	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.105	N-3		41.209137	-116.385789

**Table 4-2 Nevada Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-168-002	363.96	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.029	N-3		41.210842	-116.394291
WW-169-001	369.97	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.063	N-3		41.208920	-116.507075
WW-168-001	372.38	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.089	N-3		41.220672	-116.549791
WW-183-003	372.61	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.006	N-3		41.223617	-116.552560
WW-147-004	380.32	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.019	N-3		41.212587	-116.696590
WW-183-004	386.59	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.109	N-3		41.210330	-116.811201
WW-147-003	388.08	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	N-3		41.210548	-116.839822

**Table 4-2 Nevada Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-147-002	388.26	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.000	N-3		41.210975	-116.843196
WW-147-001	388.27	Elko	NV	PEM	Rye Patch Reservoir (on Humboldt River)	0.279	N-3		41.211598	-116.843218
WW-23-002	434.57	Humboldt	NV	PEM		0.644	N-4		41.210452	-117.586666
WW-23-002A	435.06	Humboldt	NV	PEM		7.514	N-4		41.216846	-117.591053
WW-182-001	467.60	Humboldt	NV	PEM	N/A	0.245	N-4		41.426444	-118.063533
WW-12-001	483.22	Humboldt	NV	PEM		0.940	N-4		41.477799	-118.345422
WW-12-002	491.90	Humboldt	NV	PEM		3.495	N-4		41.499526	-118.499254
WW-23-001	513.09	Humboldt	NV	PEM		0.001	N-5 / O-1		41.561792	-118.847219
WW-150-004	519.38	Humboldt	NV	PEM	N/A	0.002	N-5 / O-1		41.575869	-118.964840
WW-150-003	519.38	Humboldt	NV	PEM	N/A	0.005	N-5 / O-1		41.576069	-118.964937
WW-106-003	534.62	Humboldt	NV	PEM	N/A	0.007	N-5 / O-1		41.601133	-119.254412
WW-183-005	537.19	Humboldt	NV	PEM	N/A	0.296	N-5 / O-1		41.573159	-119.300971
WW-155-011	541.92	Washoe	NV	PEM	N/A	0.037	N-5 / O-1		41.595667	-119.385498
WW-155-012	541.92	Washoe	NV	PEM	N/A	0.040	N-5 / O-1		41.595876	-119.385613
WW-155-009	541.94	Washoe	NV	PEM	N/A	0.000	N-5 / O-1		41.595059	-119.387385
WW-155-010	541.94	Washoe	NV	PEM	N/A	0.011	N-5 / O-1		41.595269	-119.387325
WW-13-002	572.84	Washoe	NV	PEM		0.184	N-6		41.758291	-119.839045
WW-140-008	573.66	Washoe	NV	PEM	N/A	0.110	N-6		41.769436	-119.844449
WW-140-007	576.22	Washoe	NV	PEM	N/A	0.121	N-5 / O-1		41.803700	-119.863806
WW-140-006	576.28	Washoe	NV	PEM	N/A	1.098	N-5 / O-1		41.804920	-119.862465
WW-140-005	576.35	Washoe	NV	PEM	N/A	0.309	N-5 / O-1		41.806191	-119.862054

**Table 4-2 Nevada Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-140-004	576.40	Washoe	NV	PEM	N/A	0.102	N-5 / O-1		41.808234	-119.856963
WW-108-003	576.52	Washoe	NV	PEM	N/A	0.122	N-5 / O-1		41.807269	-119.867694

Elko County	
Totals	13.019
Humboldt	
County Totals	13.148
Washoe	
County Totals	2.134
<hr/>	
<b>Nevada</b>	
<b>Totals</b>	<b>28.300</b>

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-26-004	49.58	Rich	UT	PEM		1.678	W-3 / U-1		41.540480	111.076879
WW-28-011	52.04	Rich	UT	PUSC <sub>x</sub>		0.896	U-2		41.530733	111.121011
WW-28-010	52.15	Rich	UT	PUSC <sub>x</sub>		0.305	U-2		41.529984	111.122795
WW-28-009A	52.18	Rich	UT	PUSC <sub>x</sub>		0.013	U-2		41.529883	111.123333
WW-28-009B	52.18	Rich	UT	PUSC <sub>x</sub>		0.016	U-2		41.529661	111.123236
WW-28-009	52.18	Rich	UT	PUSC <sub>x</sub>		0.498	U-2		41.530061	111.123659
WW-165-002	52.34	Rich	UT	PSS	Bear River	0.505	U-2	YES	41.532102	111.128635
WW-165-003	52.43	Rich	UT	PEM	Bear River	1.781	U-2		41.529517	111.128822
WW-28-008	52.46	Rich	UT	PEM		4.380	U-2		41.527859	111.128056
WW-28-007	52.82	Rich	UT	PEM		6.560	U-2		41.525428	111.134266
WW-28-006	60.74	Rich	UT	PEM		0.726	U-3		41.480629	111.268371
WW-39-011A	60.78	Rich	UT	PEM	Bear River	0.215	U-3		41.483911	111.265648
WW-39-011	60.78	Rich	UT	PEM	Bear River	0.320	U-3		41.484033	111.265564
WW-39-010	60.90	Rich	UT	PEM	Bear River	0.582	U-3		41.493544	111.260531

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-39-010A	60.90	Rich	UT	PEM		0.397	U-3		41.493578	111.260805
WW-39-012	64.80	Rich	UT	PSS	Bear River	0.069	U-4	YES	41.486618	111.340514
WW-39-009	68.29	Rich	UT	PSS	Bear River	0.016	U-4		41.484216	111.401114
WW-39-009A	68.29	Rich	UT	PSS		0.020	U-4	YES	41.484178	111.401408
WW-39-008	69.32	Rich	UT	PEM	Bear River	0.062	U-5		41.482686	111.416584
WW-39-008A	69.32	Rich	UT	PEM		0.032	U-5		41.482676	111.416913
WW-28-005	78.69	Cache	UT	PEM		0.050	U-6		41.471797	111.590553
WW-27-002A	79.40	Cache	UT	PEM		0.021	U-6		41.478038	111.601465
WW-27-002	79.42	Cache	UT	PEM		0.047	U-6		41.478140	111.601761
WW-39-002A	80.16	Cache	UT	PEM		0.004	U-6		41.486912	111.608640
WW-39-002	80.18	Cache	UT	PEM	Cutler Reservoir	0.028	U-6		41.487099	111.608462
WW-39-003A	80.18	Cache	UT	PSS		0.040	U-6		41.487207	111.610493
WW-39-003B	80.19	Cache	UT	PSS		0.006	U-6		41.487315	111.610155
WW-39-003	80.20	Cache	UT	PEM	Cutler Reservoir	0.041	U-6		41.487433	111.610659
WW-39-004	80.32	Cache	UT	PEM	Cutler Reservoir	0.007	U-6		41.489154	111.612255

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-39-004A	80.34	Cache	UT	PEM		0.001	U-6		41.489448	111.612298
WW-39-007	80.47	Cache	UT	PEM	Cutler Reservoir	0.402	U-6		41.491292	111.600688
WW-39-006	80.57	Cache	UT	PEM	Cutler Reservoir	0.153	U-6		41.492769	111.601514
WW-39-005	81.05	Cache	UT	PEM	Cutler Reservoir	0.286	U-5		41.491811	111.618512
WW-165-005	81.40	Cache	UT	PEM	Cutler Reservoir	0.123	U-5		41.501715	111.616199
WW-41-003	82.09	Cache	UT	PEM	Cutler Reservoir	0.014	U-5		41.505121	111.629678
WW-41-004	89.19	Cache	UT	PEM	Cutler Reservoir	0.019	U-6		41.543142	111.732819
WW-39-001	90.90	Cache	UT	PEM	Cutler Reservoir	0.030	U-6		41.525588	111.743303
WW-28-002E	92.10	Cache	UT	PSS		0.012	U-6		41.519297	111.768119
WW-28-002D	92.13	Cache	UT	PSS		0.000	U-6		41.519490	111.768626
WW-28-002C	92.13	Cache	UT	PSS		0.000	U-6		41.519343	111.768738
WW-28-004	92.18	Cache	UT	PEM		0.496	U-6		41.519972	111.769344
WW-28-002B	92.23	Cache	UT	PSS		0.000	U-6		41.519990	111.770177
WW-28-002	92.26	Cache	UT	PSS		0.000	U-6		41.520360	111.770780
WW-28-002A	92.30	Cache	UT	PSS		0.000	U-6		41.520351	111.771479

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-28-002F	92.34	Cache	UT	PSS		0.000	U-6		41.520484	111.772358
WW-28-003	92.43	Cache	UT	PSS		0.404	U-6	YES	41.521481	111.773568
WW-28-001	92.64	Cache	UT	PEM		0.158	U-6		41.521754	111.777060
WW-27-001	93.44	Cache	UT	PEM		0.015	U-7		41.519001	111.789470
WW-18-014	94.75	Cache	UT	PSS		0.059	U-7	YES	41.513855	111.812623
WW-18-014A	94.76	Cache	UT	PSS		0.000	U-7		41.514131	111.812666
WW-18-014B	94.77	Cache	UT	PEM		0.003	U-7		41.514717	111.812921
WW-143-002	94.79	Cache	UT	PEM	Cutler Reservoir	0.394	U-7		41.520539	111.814427
WW-40-002	94.79	Cache	UT	PEM	Cutler Reservoir	0.012	U-7		41.522788	111.816824
WW-40-002B	94.79	Cache	UT	PSS		0.018	U-7		41.522945	111.816781
WW-41-002	94.79	Cache	UT	PEM	Cutler Reservoir	0.045	U-7		41.522758	111.816323
WW-18-013	96.49	Cache	UT	PEM		0.058	U-4		41.511758	111.841553
WW-194-001	99.24	Cache	UT	PEM		0.015	U-4		41.524830	111.882805
WW-195-001	100.77	Cache	UT	PEM		0.290	U-4		41.544420	111.900015
WW-195-002	100.77	Cache	UT	PEM		0.017	U-4		41.553841	111.907392

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-18-011	102.47	Box Elder	UT	PEM		0.037	U-4		41.526743	111.942846
WW-18-010	102.68	Box Elder	UT	PEM		0.208	U-4		41.526393	111.946223
WW-18-009	102.76	Box Elder	UT	PEM		0.084	U-4		41.526430	111.948024
WW-18-008	102.89	Box Elder	UT	PEM		0.069	U-4		41.526157	111.949350
WW-145-002	103.51	Box Elder	UT	PEM	Cutler Reservoir	0.252	U-4		41.520778	111.958558
WW-165-001	103.59	Box Elder	UT	PEM	Cutler Reservoir	0.042	U-4		41.513879	111.959247
WW-18-007	105.04	Box Elder	UT	PSS	Great Salt Lake	0.258	U-7		41.516420	111.985731
WW-123-001	106.39	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.015	U-7		41.526738	112.000767
WW-123-002	106.65	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.250	U-7		41.529364	112.005046
WW-18-005	107.52	Box Elder	UT	PSS		0.000	U-7		41.541386	112.008861
WW-18-004A	108.79	Box Elder	UT	PEM		0.249	U-7		41.553245	112.022932
WW-18-004	108.80	Box Elder	UT	PEM		0.000	U-7		41.553930	112.022316
WW-17-004B	109.32	Box Elder	UT	PEM/L2US A/PUSA		22.865	U-7		41.559423	112.029210
WW-17-004A	110.07	Box Elder	UT	PEM/L2US A/PUSA		6.506	U-7		41.569126	112.034546

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-17-004	110.61	Box Elder	UT	PEM/L2US A/PUSA		16.103	U-7		41.572821	112.041507
WW-17-001	111.53	Box Elder	UT	PEM/L2US A/PUSA		26.768	U-8		41.572799	112.059165
WW-165-007	111.90	Box Elder	UT	PEM	Bear River/Great Salt Lake	22.502	U-8		41.564733	112.066302
WW-18-003	112.18	Box Elder	UT	PEM		0.030	U-8		41.572366	112.071696
WW-165-006	112.22	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.116	U-8		41.563089	112.072454
WW-18-001	112.37	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.148	U-8		41.572060	112.075432
WW-165-004	112.40	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.037	U-8		41.576263	112.076045
WW-41-011	115.05	Box Elder	UT	PEM		0.044	U-7		41.587351	112.122130
WW-41-010	115.16	Box Elder	UT	PEM		0.628	U-7		41.587968	112.124468
WW-143-001	116.62	Box Elder	UT	PEM	Great Salt Lake	3.886	U-7		41.577392	112.153875
WW-145-003	118.28	Box Elder	UT	PEM	Bear River/Great Salt Lake	0.336	U-7		41.590548	112.181014
WW-39-019	118.28	Box Elder	UT	PEM		0.443	U-7		41.591172	112.180372

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-39-019A	118.30	Box Elder	UT	PEM		0.058	U-7		41.591328	112.180629
WW-39-020	118.85	Box Elder	UT	PEMC		0.202	U-7		41.596476	112.188803
WW-145-004	118.89	Box Elder	UT	PEM	Great Salt Lake	0.089	U-7		41.595966	112.190378
WW-11-012	119.20	Box Elder	UT	PUBFx		0.152	U-7		41.599033	112.193673
WW-11-010	119.50	Box Elder	UT	PEM	Great Salt Lake	0.770	U-7		41.598661	112.198271
WW-40-003B	119.95	Box Elder	UT	PEM		0.382	U-7		41.606012	112.200295
WW-40-003A	119.96	Box Elder	UT	PEM		0.440	U-7		41.605920	112.200558
WW-40-003	120.00	Box Elder	UT	PEM	Great Salt Lake	0.123	U-7		41.607033	112.200220
WW-40-002A	120.36	Box Elder	UT	PEM		0.142	U-7		41.613502	112.200727
WW-40-002C	120.38	Box Elder	UT	PEM		0.048	U-7		41.613519	112.201419
WW-40-002D	120.42	Box Elder	UT	PEM		0.124	U-7		41.614615	112.200900
WW-40-004	120.54	Box Elder	UT	PEM	Great Salt Lake	0.095	U-7		41.613284	112.206488
WW-11-009	123.93	Box Elder	UT	PEM/ L2USA		3.859	U-8		41.630825	112.268340
WW-11-008	124.13	Box Elder	UT	PEM	n/a	0.183	U-8		41.631535	112.272087
WW-11-006	124.53	Box Elder	UT	PEM		0.192	U-8		41.634218	112.278903

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-11-004	124.58	Box Elder	UT	PEM		0.863	U-8		41.634215	112.279858
WW-11-003	124.62	Box Elder	UT	PEMA	Cutler Reservoir	0.327	U-8		41.634955	112.280400
WW-11-002	124.77	Box Elder	UT	PEM		1.395	U-8		41.635376	112.283323
WW-11-001	124.87	Box Elder	UT	PEM	Great Salt Lake	0.515	U-8		41.635983	112.285087
WW-10-008	125.04	Box Elder	UT	PEMC	Cutler Reservoir	0.394	U-8		41.636997	112.288024
WW-122-003	125.18	Box Elder	UT	PEM	Great Salt Lake	1.886	U-8		41.637541	112.290452
WW-122-001	125.69	Box Elder	UT	PEM	Great Salt Lake	5.959	U-8		41.637214	112.300353
WW-10-004	126.30	Box Elder	UT	PEM	Great Salt Lake	0.563	U-7		41.636106	112.311906
WW-123-003	126.40	Box Elder	UT	PEM	Great Salt Lake	1.016	U-7		41.636147	112.313846
WW-10-003	126.70	Box Elder	UT	PEM	Great Salt Lake	0.286	U-7		41.635970	112.319656
WW-39-025	149.52	Box Elder	UT	PEM	Great Salt Lake	0.429	U-10		41.760852	112.673788
WW-39-025A	149.60	Box Elder	UT	PEM		0.041	U-10		41.760755	112.675226
WW-39-026	150.13	Box Elder	UT	PEM	Great Salt Lake	0.009	U-10		41.758706	112.685491
WW-39-026A	150.13	Box Elder	UT	PEM		0.010	U-10		41.758940	112.685534
WW-03-001	150.38	Box Elder	UT	L2USA		3.020	U-10		41.763382	112.690461

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-39-024	150.41	Box Elder	UT	PEM	Great Salt Lake	0.008	U-10		41.757418	112.690848
WW-39-024A	150.41	Box Elder	UT	PEM	Great Salt Lake	0.000	U-10		41.757612	112.690973
WW-01-001	161.35	Box Elder	UT	PUSC		0.000	U-10		41.763155	112.898139
WW-01-002	161.82	Box Elder	UT	PUSC		1.012	U-10		41.762566	112.907304
WW-01-003	162.78	Box Elder	UT	PUSC		0.030	U-10		41.762250	112.925912
WW-164-002	169.51	Box Elder	UT	PSS	Great Salt Lake	6.483	U-10	YES	41.754545	113.056081
WW-164-003	171.30	Box Elder	UT	PSS	Great Salt Lake	14.707	U-10		41.753771	113.090742
WW-40-006	174.38	Box Elder	UT	PSS	Great Salt Lake	0.131	U-10		41.739509	113.129364
WW-39-022	175.72	Box Elder	UT	PSS	Great Salt Lake	0.065	U-10		41.721701	113.141890
WW-39-023A	176.07	Box Elder	UT	PEM		0.051	U-9		41.718113	113.147190
WW-39-023	176.08	Box Elder	UT	PEM	Great Salt Lake	0.152	U-9		41.718179	113.147414
WW-09-003	184.12	Box Elder	UT	PEM		0.639	U-9		41.657266	113.278568
WW-09-002	184.15	Box Elder	UT	PSS		0.104	U-9		41.657106	113.279285
WW-09-001	184.79	Box Elder	UT	PSS		1.583	U-9		41.654222	113.290883

**Table 4-3 Utah Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
					Rich County					
					Totals	19.071				
					Cache County					
					Totals	3.267				
					Box Elder					
					County Totals	150.406				
					<b>Utah Totals</b>	<b>172.744</b>				

**Table 4-4 Wyoming Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-16-007	0.60	Lincoln	WY	PEM/PSS		1.380	W-1		41.769180	110.354526
WW-16-008	0.73	Lincoln	WY	PEMF		0.129	W-1		41.767253	110.355111
WW-16-010	0.78	Lincoln	WY	PEM/PSS		0.706	W-1	YES	41.766605	110.354752
WW-16-011	0.84	Lincoln	WY	PSS		0.125	W-1	YES	41.765863	110.355336
WW-16-012	0.87	Lincoln	WY	PEM		0.008	W-1		41.765331	110.354921
WW-16-013	0.90	Lincoln	WY	PEM		0.000	W-1		41.764944	110.355846
WW-16-001	1.04	Lincoln	WY	PEM		2.761	W-1		41.762883	110.355684
WW-41-008	8.30	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.070	W-1		41.677193	110.401840
WW-41-009	8.39	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.059	W-1		41.677183	110.403956
WW-17-005	8.64	Lincoln	WY	PEM		0.134	W-1		41.676897	110.408712
WW-41-007	14.86	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	3.659	W-2		41.735426	110.561629

**Table 4-4 Wyoming Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-39-016	17.68	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.003	W-1		41.601927	110.547545
WW-39-016A	17.68	Lincoln	WY	PEM		0.041	W-1		41.601888	110.547309
WW-16-002	18.81	Lincoln	WY	PEM		0.046	W-1		41.588460	110.547070
WW-16-003	19.72	Lincoln	WY	PEM		0.066	W-1		41.581317	110.561737
WW-39-017	20.14	Lincoln	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.002	W-1		41.585870	110.567500
WW-16-004	20.32	Uinta	WY	PEM		0.076	W-1		41.580828	110.572305
WW-16-005	20.46	Uinta	WY	PABFx		0.000	W-1		41.580711	110.574899
WW-16-006	20.51	Uinta	WY	PEM		0.301	W-1		41.580844	110.575863
WW-17-007	22.72	Uinta	WY	PEM		0.579	W-1		41.567864	110.612732
WW-17-009	23.14	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.014	W-1		41.566251	110.620542
WW-17-010	23.48	Uinta	WY	PEM		0.068	W-1		41.565263	110.626954
WW-17-011	23.83	Uinta	WY	PEM		0.179	W-1		41.563671	110.633364
WW-17-012	23.92	Uinta	WY	PEM		0.062	W-1		41.563169	110.634963

**Table 4-4 Wyoming Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-41-005	24.77	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	1.354	W-1		41.564880	110.656114
WW-26-007	26.92	Uinta	WY	PEM		0.000	W-3 / U-1		41.542485	110.669432
WW-26-008	27.11	Uinta	WY	PEM		0.020	W-3 / U-1		41.542887	110.673328
WW-26-002	27.62	Uinta	WY	PEM		0.000	W-3 / U-1		41.537929	110.679374
WW-26-003	27.99	Uinta	WY	PEM		0.126	W-3 / U-1		41.533432	110.682583
WW-26-001	36.51	Uinta	WY	PEM		0.087	W-3 / U-1		41.520137	110.837033
WW-26-006	37.05	Uinta	WY	PEM		0.020	W-3 / U-1		41.520084	110.847488
WW-41-006	37.58	Uinta	WY	PEM	Flaming Gorge Reservoir (Briggs Reservoir)	0.012	W-3 / U-1		41.521614	110.856326
WW-39-018	42.10	Uinta	WY	PEM	Bear River	0.021	W-3 / U-1		41.341931	111.002509
WW-26-005	42.28	Uinta	WY	PEM		0.068	W-3 / U-1		41.531018	110.940125
WW-39-015	44.43	Uinta	WY	PEM	Bear River	0.028	W-3 / U-1		41.539967	110.978293
WW-34-003	44.51	Uinta	WY	PEM		0.101	W-3 / U-1		41.541122	110.979152
WW-39-024B	44.66	Uinta	WY	PEM	Bear River	0.041	W-3 / U-1		41.562555	110.979478
WW-124-001	44.84	Uinta	WY	PEM	Bear River	0.110	W-3 / U-1		41.811812	110.965490

**Table 4-4 Wyoming Wetland Restoration Guide**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	Jurisdictional Waterway	Total Wetland Impact/Restoration Area (Acres)	Seed Schedule	Plant Schedule	LAT	LONG
WW-39-013	45.07	Uinta	WY	PEM	Bear River	0.206	W-3 / U-1		41.515876	110.992306

Lincoln County	
Totals	9.188
Uinta County	
Totals	3.472
<hr/>	
<b>Wyoming</b>	
<b>Totals</b>	<b>12.660</b>

### 4.3.3 Wetland Seeding Plan

E & E restoration ecologists prepared wetland seed mixes based upon vegetation communities present along the ROW, using the dominant and associative species documented in the areas during field assessment, and supplementing with state-specific NRCS Ecological Site and Level IV Ecoregion native vegetation data as discussed in detail in Section 3.3.1 Basis of Design above. The wetland seed mixes represent a broad range of hydrologic regime spanning from OBL to FACU indicator status such that they are capable of site-specific adaptation in the range of micro-habitat conditions that exist in the various impact areas. The wetland seed mixes are to be applied to all PEM and PEM/PSS temporary wetland impact areas.

### Wyoming Wetland Seeding

Four primary seed mixes are applicable to the wetland restoration areas in Box Elder, Lincoln, and Uinta counties and are presented in Exhibit A, Wetland Seed Schedules, according to the Ecoregions listed in Table 4-5.

**Table 4-5 Wyoming Ecoregions**

Milepost	Ecoregion (Ecoregion Symbol)	County	Seed Schedule
0 to 11	Salt Desert Shrub Basins and Slopes (18c)	Lincoln	W-1
11 to 16	Rolling Sagebrush Steppe (18a)	Lincoln	W-2
16 to 25	Salt Desert Shrub Basins and Slopes	Lincoln and Uinta	W-1
25 to 48	Foothill Shrublands and Low Mountains (18d)	Uinta	W-3 (U-1)

### Utah Wetland Seeding

Ten primary seed mixes are applicable to the wetland restoration areas in Box Elder, Cache, and Rich counties and are presented in Exhibit A, Wetland Seed Schedules, according to the Ecoregions listed in Table 4-6.

**Table 4-6 Utah Ecoregions**

Milepost	Ecoregion (Ecoregion Symbol)	County	Seed Schedule
48 to 52	Foothill Shrublands and Low Mountains	Rich	U-1 (W-3)
52 to 58	Wet Valleys (18c)	Rich	U-2

**Table 4-6 Utah Ecoregions**

<b>Milepost</b>	<b>Ecoregion (Ecoregion Symbol)</b>	<b>County</b>	<b>Seed Schedule</b>
58 to 63	Semi-arid Bear Hills (18d)	Rich	U-3
63 to 69	Semi-arid Foothills (19f)	Rich	U-4
69 to 77	Wasatch Montane Zone (19d)	Rich and Cache	U-5
77 to 81	Mountain Valleys (19g)	Cache	U-6
81 to 89	Wasatch Montane Zone	Cache	U-5
89 to 93	Mountain Valleys	Cache	U-6
93 to 95	Malad and Cache Valleys (13i)	Cache	U-7
95 to 105	Semi-arid Foothills	Cache and Box Elder	U-4
105 to 111	Malad and Cache Valleys	Box Elder	U-7
111 to 113	Wetlands (13g)	Box Elder	U-8
113 to 123	Malad and Cache Valleys	Box Elder	U-7
123 to 126	Wetlands	Box Elder	U-8
126 to 128	Malad and Cache Valleys	Box Elder	U-7
128 to 143	Sagebrush Basins and Slopes (13c)	Box Elder	U-9
143 to 145	Woodland and Shrub Covered Low Mountains (13d)	Box Elder	No Impacts
145 to 147	Sagebrush Basins and Slopes	Box Elder	U-9
147 to 176	Shadscale Dominated Saline Basins (13b)	Box Elder	U-10
176 to 197	Sagebrush Basins and Slopes	Box Elder	U-9
197 to 212	Shadscale Dominated Saline Basins	Box Elder	U-10
212 to 226	Dissected High Lava Plateau (80a)	Box Elder	No Impacts

**Table 4-6 Utah Ecoregions**

Milepost	Ecoregion (Ecoregion Symbol)	County	Seed Schedule
226-228	Shadscale Dominated Saline Basins	Box Elder	No Impacts
228 to 233	Dissected High Lava Plateau	Box Elder	No Impacts

**Nevada Wetland Seeding**

Six primary seed mixes are applicable to the wetland restoration areas in Washoe, Humboldt, and Elko counties and are presented in Exhibit A, Wetland Seed Schedules according to the Ecoregions listed in Table 4-7.

**Table 4-7 Nevada Ecoregions**

Milepost	Ecoregion (Ecoregion Symbol)	County	Seed Schedule
233 to 234	Dissected High Lava Plateau	Elko	No impacts
234 to 237	Semi-arid Hills and Low Mountains (80b)	Elko	No impacts
237 to 248	Dissected High Lava Plateau	Elko	No impacts
248 to 251	Semi-arid Hills and Low Mountains	Elko	No impacts
251 to 284	Dissected High Lava Plateau	Elko	N-1
284 to 288	Semi-arid Uplands (80j)	Elko	N-2
288 to 348	Upper Humboldt Plains (13m)	Elko	N-3
348 to 358	Semi-arid Uplands	Elko	N-2
358 to 389	Upper Humboldt Plains	Elko	N-3
389 to 405	Lahontan Sagebrush Slopes (13k)	Elko and Humboldt	No impacts
405 to 416	Upper Lahontan Basin (13z)	Humboldt	N-4
416 to 427	Lahontan Sagebrush Slopes	Humboldt	No impacts
427 to 492	Upper Lahontan Basin	Humboldt	N-4
492 to 507	Lahontan Salt Shrub Basin (13j)	Humboldt	No impacts

**Table 4-7 Nevada Ecoregions**

Milepost	Ecoregion (Ecoregion Symbol)	County	Seed Schedule
507 to 558	High Lava Plains (80g)	Humboldt and Washoe	N-5 (O-1)
558 to 575	Pluvial Lake Basins (80d)	Washoe	N-6
575 to 590.5	High Lava Plains	Washoe	N-5 (O-1)

**Oregon Wetland Seeding**

Four primary seed mixes are applicable to the wetland restoration areas in Lake and Klamath counties and are presented in Exhibit A, Wetland Seed Schedules according to the Ecoregions listed in Table 4-8.

**Table 4-8 Oregon Ecoregions**

Milepost	Ecoregion (Ecoregion Symbol)	County	Seed Schedule
590.5 to 605	High Lava Plains	Lake	O-1 (N-5)
605 to 617	Fremont Pine/Fir Forest (9h)	Lake	O-2
617 to 634	Klamath/Goose Lake Basins (9g)	Lake	O-3
634 to 6543	Fremont Pine/Fir Forest	Lake and Klamath	O-2
6543 to 675	Klamath Juniper Woodland (9j)	Klamath	O-4

Although the intent of the Plan is to utilize the native species that occurred prior to impact, substitutions may be required based on availability. It will be incumbent upon the seeding contractor to obtain the species specified. However, if, certain native species are not commercially available, Ruby reserves the right to make substitutions and adjust the seed schedules in coordination with applicable land management agencies and/or property owners. All substitutions will be specified by an experienced restoration ecologist and/or wetland scientist and documented in the as-built report.

**4.3.4 Riparian Seeding Plan**

E & E restoration ecologists prepared a riparian seed mix based upon species common to all Ecoregions present along the ROW. This riparian seed mixture has been formulated from the dominant species documented in the areas during field assessment and state-specific NRCS Ecological Site and Level IV Ecoregion native vegetation data, as discussed in detail

in the Basis of Design Section 3.3.1, above. The riparian seed mix represents a broad range of hydrologic regime spanning from FACW to UPL indicator status such that species are capable of site-specific adaptation in the range of micro-habitat conditions that exist in the various impact areas. The riparian seed mix is to be applied to all riparian impact areas and is also intended for use in the upland buffers adjacent to wetland, riparian and stream/ditch work areas.

### **Riparian Seeding**

One primary seed mix is applicable to all riparian restoration areas and upland buffers adjacent to wetland, riparian and stream/ditch work areas across all states and is presented in Exhibit B, Riparian Seed Schedule.

### **4.3.5 Wetland Planting Plan**

The wetland planting plan is intended to restore the species composition and cover of native trees and shrubs that existed in delineated wetlands prior to impact in each area. The Wetland Tree and Shrub Planting Schedules for Oregon, Nevada, Utah, and Wyoming provide the specific number and species of trees and shrubs to be planted in the applicable wetland impact areas. The planting schedules were formulated from the Ruby wetland delineation database based on dominant native species present by percent cover by impact area. When a species occurred at more than one soil test pit location in a wetland impact area, the percent coverage was averaged. Percent cover was used to define the square-foot area to be covered by each species, and this was converted into a plant quantity based on the diameter/aerial coverage at maturity of each plant species, as assigned by E & E restoration ecologists. An additional number of plants (10 percent) were added to the calculated total for each impact area as a contingency to account for variable success rates.

Ruby will locate woody vegetation (i.e., trees and shrubs) in a manner that it is consistent with future vegetation maintenance activities that will occur over permanent ROW and adjacent areas. To facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained free of large trees (over three-inch diameter at breast height (DBH) and 15 feet in height). Other vegetation such as large shrubs will be either replanted and/or allowed to revegetate within the entire 50-foot operational ROW.

### **Oregon Wetland Planting Plan**

Tree and Shrub Planting Schedules for Oregon are presented in Exhibit C, Table O.

### **Nevada Wetland Planting Plan**

Tree and Shrub Planting Schedules for Oregon are presented in Exhibit C, Table N.

### **Utah Wetland Planting Plan**

Tree and Shrub Planting Schedules for Oregon are presented in Exhibit C, Table U.

### **Wyoming Wetland Planting Plan**

Tree and Shrub Planting Schedules for Oregon are presented in Exhibit C, Table W.

These tables present plant quantities based on containerized nursery stock: 10-gallon trees and 5-gallon and 1-quart shrubs. The tables note that 1-quart willows may be substituted with live cuttings using a 3-cutting/bundle for each 1-quart willow.

#### **4.3.6 Riparian Planting Plan**

The riparian planting plan is intended to restore the species composition and cover of native trees and shrubs that existed in riparian habitat prior to impact in each area. The Riparian Tree and Shrub Planting Schedules for Oregon, Nevada, Utah and Wyoming provide the specific number and species of trees and shrubs to be planted in the applicable riparian impact areas. As discussed in the Basis of Design section above (4.3.1), the riparian planting schedules were formulated from FEIS Table 4.4.3-1, Woody Riparian Habitat Crossed by the Ruby Pipeline Project and the wetland delineation database that documented dominant native species present by percent cover by impact area. When a species occurred at more than one location in a riparian impact area, the percent coverage was averaged. Percent cover was used to define the square-foot area to be covered by each species, and this was converted into a plant quantity based on the diameter/aerial coverage at maturity of each plant species as assigned by E & E restoration ecologists. An additional number of plants (10 percent) were added to the calculated the total for each impact area as a contingency to account for variable success rates.

As with wetlands, Ruby will locate woody vegetation (i.e., trees and shrubs) in a manner that it is consistent with future vegetation maintenance activities that will occur over permanent ROW and adjacent areas. To facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained free of large trees (over three-inch DBH and 15 feet in height). Other vegetation such as large shrubs will be either replanted and/or allowed to revegetate within the entire 50-foot operational ROW.

#### **Riparian Planting**

Tree and Shrub Planting Schedules for Oregon, Nevada, Utah, and Wyoming are presented in Exhibit D, Riparian Plant Schedules.

This table presents plant quantities based on containerized nursery stock: 10-gallon trees, 5-gallon, and 1-quart shrubs. The table notes that 1-quart willows may be substituted with live cuttings using a 3-cutting/bundle for each 1-quart willow.

The woody species diameter at maturity assumptions utilized for the plant quantity calculations are outlined in Table 4-9. Data utilized to assess mature tree and shrub diameter were obtained from the USDA-NRCS Plants Database (<http://plants.usda.gov>) and the Field Guide for the Identification and Use of Common Riparian Woody Plants of the Intermountain West and Pacific Northwest (Hoag et al. 2008).

**Table 4-9 Mature Spread (Diameter) of Trees and Shrubs**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Diameter</b>
<i>Pinus ponderosa</i>	Ponderosa Pine	25'
<i>Populus tremuloides</i>	Quaking Aspen	15'
<i>Rosa woodsii</i>	Wood's Rose	4'
<i>Salix exigua</i>	Sandbar Willow	8'
<i>Salix geyerana</i>	Geyer Willow	10'
<i>Salix lasiandra</i>	Pacific Willow	20'
<i>Salix lemmonii</i>	Lemmon's Willow	10'
<i>Salix lucida</i>	Shining Willow	8'
<i>Salix sitchensis</i>	Sitka Willow	15'

Although the intent of the Plan is to utilize the native species that occurred prior to impact, substitutions may be required based on availability. Therefore, if certain native species are not commercially available, Ruby reserves the right to make substitutions in coordination with applicable land management agencies and/or property owners. All substitutions will be specified by an experienced restoration ecologist and/or wetland scientist and documented in the as-built report.

### **4.3.7 Seeding and Planting Specifications**

#### **Seeding Methods**

The main purpose of seeding methods is to place the seed in direct contact with the soil, cover the seed with soil, and firm the soil around the seed to eliminate air pockets (Sheley et al. 2008). Drill and broadcasting seeding techniques will be used. Most species can be successfully drill-seeded into the soil.

The NRCS guidelines for seeding native plants in arid and semi-arid environments call for at least 20–40 pure live seeds per square foot for drilled seed (Dreesen, not dated). The seeding schedules in this Plan specify 50 seeds per square foot. The number of pure live seeds per square foot will be doubled for broadcast seeding.

Drill seeding will be the primary method for seeding within the ROW. Drill seeding uses specialized equipment such as a rangeland seeder. The advantages of drill seeding are efficiency at placing seed at the proper soil depth and economic savings from buying bulk seed. Its disadvantages include terrain limitations; drill seeding cannot be used on slopes greater than 15 percent or with rocky soils. Slopes that cannot be drill seeded will be broadcast seeded. Broadcast seeding distributes the seed on top of the soil surface using a hand-held spreader, all-terrain vehicle–mounted cyclone-type seed spreader, or seed blower. Broadcast seed is not as efficient as drill seeding because in this method seeds are not buried in the soil, and it requires approximately twice the bulk seed. Areas where broadcast seeding is used will be hand-raked, or a harrow will be used to cover the seed.

Hydro-seeding and hydro-mulching will not be used in wetland areas or near waterbodies. Should the water levels in the restoration areas rise above the hydro-seeded/mulched area prior to seed germination and establishment, the mulch, binder, and seed will float and wash away.

#### **Fertilizer, Soil Amendments, and Weed Control**

Fertilizer will not be applied in wetlands unless requested by the land owner or land management agency and as approved by appropriate permitting agencies. Should it be required, a small amount (1/3 of the manufacturer's recommended rate) of slow-release organic fertilizer will be applied in wetland restoration areas to promote soil microbial health and add organic matter. A light application (1/2 of the manufacturer's recommended rate) of humic acid in granular form will be added as a soil amendment to stimulate soil microbial growth. Mycorrhizal inoculum will be applied in accordance with manufacturer recommendations.

Pre-emergent herbicides will be used, where appropriate and approved by agencies, to minimize germination of noxious and annual weeds. No herbicides will be used in or within 100 feet of a wetland in the Sheldon National Wildlife Refuge unless allowed by the USFWS. A plant species shall be considered invasive if it appears on the current state and/or USDA Noxious Weed Lists and/or is a known problem species, as is the case with *Phalaris arundinacea*, *Mentha pulegium*, *Holcus lanatus*, and *Anthoxanthum odoratum*. Herbicide selections, applications rates, and timing will be conducted by a certified applicator in compliance with product use directions and approved by the BLM, USFS, Reclamation, or private landowner.

### **Mulch**

A mulch cover minimizes soil erosion, conserves soil water, and moderates surface temperatures to improve the chances of seedling establishment (Sheley et al. 2008). The native plant materials that were mixed with topsoil during its removal and then spread over the ROW will serve as a seed source and a natural mulching device. Ruby does not intend to apply mulch to wetland area unless requested by a landowner or land management agency. In Oregon, if requested by the Department of State Lands, Oregon certified weed-free straw will be used as surface mulch in wetland restoration areas. The straw mulch will be applied so it sufficiently covers approximately 75 percent of soil (Dreesen, not dated). This rate of application corresponds to approximately 1–2 tons per acre. Rate of application will depend on the amount of native vegetation within the topsoil/vegetation mix. Mulch will be crimped and tackified to the soil surface with an organic-based tackifier as specified.

### **Source of Plant Materials**

Wetland seeds and container-grown shrubs and trees will be purchased from commercial vendors unless Ruby has made previous arrangements with land management agencies regarding planting specifications and/or sources for plant and seed materials. Ruby will provide funds for the Fremont-Winema National Forests to collect and start willow cuttings and carex seedlings to be used in riparian areas in the FWNF where needed to restore vegetation. Commercially available seed and containerized plant material will be sourced from local nurseries and ecological sites similar to the ROW, to the greatest extent possible. Ruby is currently working to identify commercial seed sources and nurseries. Refer to Exhibit H for the preliminary list of suppliers that may be utilized to supply wetland seed and plant materials. All seeds will be tested for purity and viability and certified as weed free to ensure compliance with local, state, and federal seed requirements.

## **4.4 Best Management Practices**

Ruby's POD provides BMPs that are applicable to work within wetland habitat in Appendix F (Ruby's Wetland and Waterbody Construction and Mitigation Procedures); Appendix H

(Noxious and Invasive Weed Control Plan); and Appendix Q (Preliminary Wetland Mitigation Plan). Some of the most pertinent BMPs for wetland, waterbody, and riparian restoration are included herein for reference.

#### **4.4.1 General Restoration BMPs**

A copy of the Stormwater Pollution Prevention Plan (SWPPP) prepared for compliance with the U.S. Environmental Protection Agency's (EPA) National Stormwater Program General Permit requirements must be available in the field on each construction spread. The SWPPP shall contain Spill Prevention and Response Procedures that meet the requirements of state and Federal agencies. All employees handling fuels and other hazardous materials are properly trained.

Ruby will structure its operations in a manner that reduces the risks of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. Ruby will ensure that:

- all equipment is in good operating order and inspected on a regular basis;
- fuel trucks transporting fuel to on-site equipment travel only on approved access roads;
- all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary, within 200 feet of any water supply well or spring, or within 500 feet from a waterbody or in an upland area at least 500 feet from a wetland boundary on land managed by the BLM. These activities can occur closer only if the Environmental Inspector finds, in advance, no reasonable alternative and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill.
- Specifically, in certain instances, refueling or fuel storage may be unavoidable due to site-specific conditions or unique construction requirements (e.g., continuously operating pumps, or refueling within wetlands). The following precautions will be taken when refueling within 100 feet of wetlands or waterbodies, 200 feet of water supply well or spring and within 500 feet of streams, wetlands, or other waterbodies on land managed by the BLM:
  - Adequate amounts of absorbent materials and containment booms must be kept on hand by each construction crew to enable the rapid cleanup of any spill which may occur.

- If fuel must be stored within wetlands or near streams for refueling of continuously operating pumps, secondary containment must be provided.
- Secondary containment structures must be lined with suitable plastic sheeting, provide a containment volume of at least 150 percent of the storage vessel, and allow for at least one foot of freeboard.
- Provide for adequate lighting of these locations and activities;
- hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland (150 in Oregon), waterbody, or designated municipal watershed area **or within 200 feet of a water supply well or spring**, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas.
- concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, **or within 200 feet of a water supply well or spring**, unless the location is an existing industrial site designated for such use.

#### 4.4.2 Wetland BMPs

Some of the most pertinent BMPs for wetland restoration are presented below for reference.

- Locate all temporary extra workspaces and staging areas at least 50 feet from wetlands.
- Narrow the ROW to 75 feet in wetlands, except where Ruby has received authorization from FERC and/or land management agencies for wider ROW and/or additional work areas; and wetlands are within actively cultivated or rotated cropland, in which case Ruby would use the typical 115-foot-wide ROW.
- Minimize the length of time that topsoil is segregated and the trench is open.
- Limit the operation of construction equipment within wetlands to that needed for clearing, excavation, pipe installation, backfilling, and restoration.
- Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.
- Use “push-pull” or “float” techniques to place the pipe in the trench where water and other site conditions allow.
- Limit pulling of tree stumps and grading activities in wetlands to directly over the trench line, except where necessary to ensure safety.

- Limit grading impacts in saturated or standing-water wetlands and/or in wetlands where rutting may occur by using low ground-weight construction equipment or by operating normal equipment on prefabricated timber or terra mats.
- Install trench breakers at the boundaries of wetlands and adjacent uplands.
- Segregate the top 12 inches of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated or frozen. Immediately after backfilling is complete, restore the segregated topsoil to its original location.
- Establish stable surface and drainage conditions and the use of erosion control devices to minimize soil erosion and sedimentation. Sediment barriers shall be installed prior to initial disturbance in wetlands and adjacent uplands to prevent sediment transport into the wetland.
- Re-establish terrain compatible with the surrounding landscape.
- Use native plant species for revegetation unless it is determined that: (1) suitable native species are not available; (2) the natural biological diversity of the proposed action would not be diminished; (3) exotic and naturalized species can be confined within the proposed management area; and/or (4) analysis of the site indicates that native species are unable to compete with invasive weeds;
- Limit clearing of vegetation between extra work areas and the edge of the wetland to the certificated construction ROW.
- Minimize fill in wetlands by installing geotextile fabric under stockpiles (as feasible) to preserve existing wetland vegetation and facilitate soil removal.

#### **4.4.3 Waterbody BMPs**

In addition, Ruby's POD provides BMPs that apply to work within stream crossings in Appendix F (Ruby's Wetland and Waterbody Construction and Mitigation Procedures). Some of the most pertinent BMPs for stream crossing are presented below for reference.

- Locate all temporary extra workspaces and staging areas at least 50 feet from waterbodies.
- Limit the construction ROW to 115 feet wide in waterbodies.
- Install all in-stream sediment controls prior to construction disturbance; and ensure they remain in place throughout the construction process. Water barriers and/or silt curtains may be removed once construction within and adjacent to the channel is complete and restoration has occurred. Silt curtains are to be placed an adequate distance downstream of the disturbance area, at a location approved by the Project Engineer. Water barriers are to be located such that work areas are completely surrounded.
- During upland work adjacent to stream crossings, toe of slope protection must be in place to prevent sediment inputs to the stream. Silt fence, excelsior, or coir logs may

be used. Slope toe BMPs must be inspected regularly for gaps and following all precipitation events. Silt fence or sediment logs must be properly keyed in.

- During excavation at stream crossings, native materials from the channel are to be stockpiled in an upland area and surrounded by silt fence.
- Concrete-coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use.
- Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.
- If the pipeline parallels a waterbody, attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction ROW.
- Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.
- Maintain adequate flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.
- Waterbody buffers (extra work area setbacks, refueling restrictions, etc.) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground-disturbing activities are complete.
- All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction ROW at least 10 feet from the water's edge or in additional extra work areas.
- Implement an equipment disinfection plan (as indicated in the FEIS) prior to work in any waterbody.

#### **4.4.4 Riparian BMPs**

- Limit the construction ROW width to 75 feet in the woody riparian habitats identified in Table 4.4.3-1 of the FEIS.

## **4.5 Restoration Schedule**

### **4.5.1 Preconstruction Filing and Notifications**

The following section includes some of the filing and notification procedures that are pertinent to wetland, waterbody, and riparian habitat restoration. Complete filing and notification procedures may be referenced in the FEIS, Project permit authorizations, and regulatory approval/guidance documents.

**BLM Requirements**

Reclamation must be notified at least 48 hours prior to commencement of work for any waterbody crossings within Reclamation jurisdiction and will authorize equipment necessary for installation of equipment bridges (refer to Ruby's Procedures, POD Appendix F) once required protection measures are in place. Notification Procedures and Permits will be applied to any crossings on the Lost River.

**FERC Requirements**

The following information shall be filed with FERC prior to the beginning of construction:

1. A wetland delineation report, as described in section VI.A.1., if applicable; and
2. A schedule identifying when trenching or blasting would occur within each waterbody greater than 10 feet wide, or within any designated coldwater fishery. The project sponsor shall revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice.

The following site-specific construction plans required by these Procedures must be filed with FERC for review and written approval:

1. Plans for extra work areas that would be closer than 50 feet from a waterbody or wetland;
2. Plans for major waterbody crossings;
3. Plans for the use of a construction ROW greater than 75 feet wide in wetlands; and
4. Plans for horizontal directional drill "crossings" of wetlands or waterbodies.

Waterbody crossings:

1. Provide written notification to authorities responsible for potable surface water supply intakes located within three miles downstream of the crossing at least one week before beginning work in the waterbody, or as otherwise specified by that authority.
2. Notify appropriate state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in state permits.

**FEIS Requirements**

Ruby will coordinate with U.S. Fish and Wildlife Service USFWS, Nevada Department of Wildlife (NDOW), and the Oregon Department of Fish and Wildlife (ODFW) to determine if and how fish deterrence practices will be implemented prior to blasting in any waterbody crossing that has the potential to contain special status fish species as identified in Section 4.7 of the FEIS.

Ruby shall not start construction or restoration work in any area where preconstruction surveys have identified Ute ladies'-tresses orchid until the procedures and approvals outlined in the FEIS are completed.

Refer to Section 5.2 of the FEIS for the detailed list of notification requirements.

### **Ruby Notification**

Ruby has determined that site-specific waterbody crossing plans are required for the following areas, and will supply said plans to applicable federal and state land management agencies and/or private property owners prior to construction:

#### Wyoming

- Hams Fork River;
- Little Muddy Creek (three crossings);
- Ryckman Creek;

#### Utah

- South Fork Sheep Creek;
- Bear River (two crossings);
- Woodruff Creek;
- East Fork of the Little Bear River (two crossings);
- South Fork of the Little Bear River;
- Brigham City Airport wetlands;
- Salt Creek Wildlife Management Area marsh areas;

#### Nevada

- Marys River;
- Spring Creek;

#### Oregon/Nevada (Border)

- Twelvemile Creek;

#### Oregon

- Twentymile Creek;
- Deep Creek;
- Thomas Creek;
- Drews Creek;
- Goose Lake wetlands; and
- Lost River Canal.

#### **4.5.2 Wetland and Riparian Habitat**

The Project is scheduled to begin late in the first quarter or early second quarter of 2010. The FERC Certificate of Public Convenience and Necessity, BLM Record of Decision on the selected route, and USACE Section 404 Permit approval must be finalized before construction can begin. The POD provides details regarding construction procedures and timing. Pipeline construction will take approximately one year after initiation, and restoration for a given pipeline segment will be initiated upon trench closure.

All temporary wetland impact areas will be restored within five years of initial disturbance. Ruby will establish and maintain a tracking system that will be utilized to inform the USACE, federal and state land management agencies, and private property owners of specific timeframes associated with initiation of impacts at each wetland area such that the five-year period may be accurately tracked by impact area.

#### **4.5.3 Waterbodies**

The Project would adhere to the in-water work windows required by individual state fisheries agencies or FERC, as described below. Therefore, restoration in each waterbody would be implemented immediately following in-water work, and within the following work windows:

##### Wyoming

- July 1–August 31 for coldwater fisheries (WGFD)
- July 1–November 15 for coolwater and warmwater fisheries (WGFD)

##### Utah

- July 16–February 28 for Bonneville cutthroat trout fisheries (UDWR)
- June 1–September 30 for other cold water fisheries (FERC)
- June 1–November 30 for coolwater and warmwater fisheries (FERC)

##### Nevada

- June 1–August 31 for Spring and Fall spawning – specific fisheries (NDOW)
- June 1–December 31 for Spring spawning – specific fisheries (NDOW)
- July 1–December 31 for streams containing Lahontan cutthroat trout (USFWS)
- March 1–September 30 Fall spawning – specific fisheries (NDOW)

##### Oregon

- July 15–September 30 for Warner Valley tributaries (ODFW)
- July 15–September 30 for Goose Lake and tributaries (ODFW)
- July 1–January 31 for Lost River above Bonanza (ODFW)

- July 1–March 31 for Lost River below Bonanza (ODFW)
- October 15–March 31 for Bureau of Reclamation facilities

Ruby is proposing to cross all waterbodies that could contain special status species during the state-specified in-water work windows and has committed to using a dry open-cut crossing method. Ruby is proposing to cross the Hams Fork River, the Bear River East, and the Bear River West (drainages containing special status species) using a horizontal directional drill.

#### **4.6 Construction Oversight**

Oversight of restoration measures will be performed by a qualified wetland ecologist, restoration ecologist, landscape architect/ecologist, engineer, and/or other professional, as applicable by phase and task.



## 5.0 Draft Monitoring Plan

Monitoring and documenting the success of the restoration efforts is an integral component to the success of the Plan. The purpose of monitoring is to evaluate the success of the restoration efforts and to identify corrective measures that may be required to ensure successful restoration. Vegetation monitoring goals are intended to ensure that vegetation establishment is successful by confirming that the Project is moving toward performance criteria for seeded, planted and natural/volunteer plant species; and to monitor invasive and noxious weeds and implement control treatments as necessary. Additional goals are intended to confirm grade and soil restoration by monitoring stability of restoration areas in terms of soil erosion, slope and streambank stability, as well as settling and cover over the pipeline.

Ruby will ensure that the USACE and federal and state land management agencies have the opportunity to participate in the process as Ruby designs and executes restoration monitoring; as such, this draft monitoring plan is subject to review and will be finalized following discussion with these agencies.

### 5.1 Performance Criteria

Performance criteria describe the benchmarks by which the success of the restoration project, and the specific goals of the Plan, will be measured. These criteria should be designed to allow flexibility to accommodate unforeseen natural events and processes and to support the inherent variability of native restoration, while ensuring that the end results are healthy, self-sustaining wetland and riparian plant communities.

Given that the Project includes restoration of a variety of wetland and riparian habitat and waterbodies ranging in size, composition, diversity, cover, and function, the performance criteria outlined below reference the pre-disturbance conditions documented in the field during the wetland delineation, stream/riparian assessment and impact assessment. These pre-disturbance data are accessible via the Ruby database for the Project and may be referenced during the establishment and monitoring period.

#### Herbaceous Wetland Restoration Sites

- Cover of herbaceous species shall meet the lesser of:
  - 80% of the type, density, and distribution of adjacent, undisturbed wetland habitat; or
  - Pre-disturbance percent cover.

- Cover of noxious weeds and/or invasive species shall be no more than 10%.
- Soil cover and stability:
  - Adequate soil cover over the pipeline;
  - Limited settling over the pipeline such that pre-construction contours are met; and
  - Soil and slope stability (as applicable).

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### **Woody-dominated Wetland Restoration Sites and Woody Component of Herbaceous Wetland Sites**

- Trees and shrubs shall meet:
  - Pre-disturbance species composition; and
  - Pre-disturbance percent cover at each impact area.
- Cover of herbaceous species shall meet the lesser of:
  - 80% of the type, density and distribution of adjacent, undisturbed wetland habitat; or
  - Pre-disturbance percent cover.
- Cover of noxious weeds and/or invasive species shall be no more than 10%.
- Soil cover and stability:
  - Adequate soil cover over the pipeline;
  - Limited settling over the pipeline such that pre-construction contours are met; and
  - Soil and slope stability (as applicable).

### **Woody-dominated Riparian Restoration Sites**

- Trees and shrubs shall meet:
  - Pre-disturbance species composition; and
  - Pre-disturbance percent cover at each impact area.
- Soil cover and stability:
  - Adequate soil cover over the pipeline;
  - Limited settling over the pipeline such that pre-construction contours are met; and
  - Soil and slope stability (as applicable).

### **Waterbody Crossings**

- Adequate pipeline cover within the channel; and
- Streambank and channel stability.

### **BLM Lands in Nevada**

In addition to the performance criteria listed above, the BLM has specifically requested additional criteria for Riparian/Wet Meadow and Wetland Areas in Nevada, as greater sage-grouse late brood-rearing habitat on riparian/meadow areas is one primary basis for reclamation.

Short Term - By June 2013 (or three spring periods after seeding/"plug" planting operations) make 50% or greater progress towards, and by June 2015 (or five spring periods after seeding/planting operations) achieve the following:

- Allow for a minimum of an equivalent of at least 1,700 pounds/acre of total air dry production for seeded plants/native plantings consistent with plants listed under the ecological site description by allowable percentages.
- Allow for rating of Proper Functioning Condition (PFC) upward trend by 2013 and PFC by 2015.

## **5.2 Monitoring Methodology**

The health and overall condition of the trees, shrubs, and herbaceous species within the wetland and riparian restoration areas will be assessed via qualitative and quantitative sampling performed at representative sample points throughout the Project.

### **5.2.1 Methodology for All States**

Ruby will utilize permanent plots and visual estimates to sample representative wetland and riparian restoration sites for annual estimates of herbaceous cover (native, non-native, noxious weeds and invasive); and woody composition and cover. The first two years of herbaceous vegetation monitoring will include the success of seed germination. The annual data will be compared to the performance criteria outlined above. An adequate number of samples will be taken within each habitat class to determine whether the area is meeting its performance criteria. The sample plots will be randomly located and well disbursed across each habitat class. All plots will be marked in the field and documented with Global Positioning Systems (GPS) such that they are permanent and replicable.

The appearance, presence of erosion, soil and slope stability, and overall condition of restoration areas and waterbody crossings will be evaluated via visual assessment, qualitative assessment, and quantitative comparison to data gathered by the pre-impact data collection survey and sampling (e.g., cross section, longitudinal profile, and bed materials).

### **5.2.2 BLM Lands in Nevada**

In addition to the methodology outlined above, representative wetland and riparian areas within BLM managed lands in Nevada will be assessed using PFC. The methodology for

assessing condition of running water (lotic) systems is presented in Technical Reference 1737-15 RIPARIAN AREA MANAGEMENT, A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas (Prichard et al. 1998).

### **5.3 Monitoring Schedule**

Ruby will employ two or more Environmental Inspectors per spread, who will be responsible for monitoring and ensuring compliance with all restoration measures outlined in the Plan. Ruby will file status reports on a weekly basis (pursuant to the criteria outlined in the FEIS) until all construction and restoration activities are complete. In addition, comprehensive monitoring events will occur annually during the growing season, over a five-year monitoring period, following implementation of restoration measures.

### **5.4 Reporting and Documentation**

#### **5.4.1 As-built Documentation**

Ruby will provide a post-construction report demonstrating as-built (restoration) conditions and discussing any variation from the Plan. The as-built report will provide a comprehensive update/revision of the seeding and planting information (e.g., red-line mark-up of seed and plant schedules to incorporate revisions and/or substitutions), as well as red-line mark-ups of as-built cross-sections and profiles at stream crossings. As-built data will include representative photographs of completed restoration areas, documentation of plant and seed materials received from the commercial sources, documentation of soil amendments used, and a summary of pertinent issues encountered during the implementation of the Plan.

#### **5.4.2 Annual Monitoring Reports**

##### **Requirements for All States**

Ruby will document its observations of restoration success following annual field inspections and provide summary reports to FERC, the BLM, USFS, Reclamation, and the USACE. The annual reports will evaluate the development of the restoration sites and include data necessary to document compliance with, and/or progress toward, achieving, the Performance Criteria outlined in Section 5.1 of this plan.

Annual monitoring reports will include the following information:

- Percent cover of herbaceous wetland species (including seed germination rates for years one and two);
- Composition and percent cover of wetland and riparian tree and shrub species;
- Percent cover of noxious weeds and/or invasive species;
- A discussion of successes, failures, and potential problem areas;

- Representative photographs of the wetland, waterbody, and riparian restoration areas (from approximately the same locations as pre-disturbance photos);
- Assessment of soil erosion, soil and slope stability in all restoration areas;
- Assessment of minimum cover depth over pipe at stream crossings;
- Evaluation of adequacy of pipe cover within the stream channel, and bank and channel stability relative to pre-construction conditions at stream crossings;
- Monitoring maps based on GPS coordinates of sample plots and photo locations;
- Drawings as needed for illustration; and
- Areas requiring remedial action.

Areas that need remedial action will also be identified by MP and GPS coordinates and will include a description of additional erosion controls or revegetation work anticipated. Reports including a summary of corrective actions proposed will be submitted within three months of identifying these conditions. Areas where control applications for noxious and invasive weeds are needed will also be reported.

#### **Additional Requirements for Nevada BLM**

Short Term Efforts - By June 2013 (or three spring periods after seeding/"plug" planting operations) document 50% or greater progress towards, and by June 2015 (or five spring periods after seeding/planting operations) document achievement of the following:

- A minimum of an equivalent of at least 1,700 pounds/acre of total air dry production for seeded plants/native plantings consistent with plants listed under the ecological site description by allowable percentages.
- Rating of PFC upward trend by 2013 and PFC by 2015.

### **5.5 Release from Monitoring Obligation**

Ruby will request formal release from monitoring from FERC, BLM, USFS, Reclamation, and the USACE when it determines that all, or a portion of, the restoration project meets the performance criteria outline herein.



## 6.0 Maintenance Plan

Maintenance measures will be employed during the five-year monitoring period (following construction) to ensure successful wetland restoration, including irrigation system repair, plant replacement, non-native plant control, water structure repair, fertilization, erosion control, wildlife protection, trash removal, and/or any other related activities.

Erosion control blankets and sediment logs will be checked monthly or after rain events or snowmelt, unless covered by snow. Any areas where blankets are not covering the ground surface or have been dislodged from the key trench will be repaired. Sediment logs will be checked to ensure that they are functioning as specified. While unlikely, any occurrences of sediment deposition in wetlands due to blanket failure or damage will be removed.

Trees and shrubs will be observed and watered according to a specified schedule, based on temperature and precipitation over different times of the year, with a maximum spacing of four weeks between watering except during winter months when weather and snow conditions prevent access or watering is not necessary. Plant saucer heights will be maintained, undesirable plants growing in saucers will be removed, plant health will be checked, and tree guying materials will be checked and repaired if necessary. Plants will be observed for signs of herbivory or damage from wildlife. Dead plants will be replaced during the growing season in which they are identified and/or immediately in the beginning of the next growing season (i.e., replacement will occur at the earliest feasible period based on seasonal limitations). All plant material will be replaced in-kind, with native material; consisting of potted nursery stock and/or native cuttings collected from local sources.

Vegetation maintenance adjacent to waterbodies will be limited to allow a riparian strip at least 25 feet wide (as measured from the waterbody's mean high water mark) to permanently revegetate with native plant species across the entire construction right-of-way.

Ruby will conduct periodic vegetation maintenance within wetland and riparian habitat. To facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained free of large trees (over 3 inches DBH and 15 feet in height). Other vegetation such as shrubs will be replanted and/or allowed to revegetate within the entire 50-foot operational ROW.

Sites will be watched for presence of invasive species and state-listed noxious weeds, and these will be controlled per the recommended methodology of the appropriate federal and/or state land management agency. Ruby will not use herbicides or pesticides in or within 100

feet of a wetland or waterbody except as allowed by the appropriate land management or state agency.

Ruby will install measures to minimize wildlife depredation at all restoration areas, including, but not limited to, fencing/exclosures, browse protectors and other appropriate deterrent measures.

Maintenance operations will be documented in log books and with photographic records and submitted monthly to the Environmental Inspector. Refer to Exhibit I for a Sample Scope of Work for Vegetation Maintenance that may assist in guiding the maintenance contractor.

## 7.0 Contingency Plan

Where initial restoration and plant establishment efforts fail to meet performance criteria within the first two years of the monitoring period (i.e., the establishment period), remedial measures may be required to ensure restoration success. Contingency measures that may be implemented include, but are not limited to:

- Wetland sod harvesting and transplanting;
- Harvesting and transplanting herbaceous plugs, shrubs, and trees;
- Live cutting collection, storage, and planting;
- Planting of commercially grown herbaceous plugs or potted shrubs and trees;
- Planting of commercially grown wetland sod;
- Temporary or permanent/above- or below-ground irrigation systems;
- Soil erosion and sediment control measures;
- Alternative measures to minimize wildlife depredation, including, but not limited to, fencing/exclosures, browse protectors and other appropriate deterrent measures;
- Livestock exclosures/depredation measures; and
- Invasive plant and weed management.

BLM, USFS, Reclamation, USACE, state land management agencies and private landowners will be consulted (as necessary) prior to implementation of any proposed contingency measures.



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# **Exhibit A – Wetland Seed Schedules**



## WETLAND SEED SCHEDULE W-1

### Ecoregion: Salt Desert Shrub Basins and Slopes - MP 0-11, 16-25

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	10.0%	0.41	0.41	0.82
<i>Carex praeegracilis</i>	field clustered sedge	FACW	10.0%	0.12	0.12	0.24
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	10.0%	0.42	0.42	0.84
<i>Eleocharis palustris</i>	creeping spikerush	OBL	10.0%	0.35	0.35	0.70
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	2.5%	0.28	0.28	0.57
<i>Hordeum brachyantherum</i>	meadow barley	FACW	5.0%	1.28	1.28	2.56
<i>Juncus balticus</i>	Baltic rush	FACW	10.0%	0.02	0.02	0.04
<i>Leymus cinereus</i>	Great basin wildrye	NI	5.0%	0.84	0.84	1.68
<i>Pascopyrum smithii</i>	Western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa glaucifolia</i>	Swallens bluegrass	FAC	5.0%	0.12	0.12	0.24
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU	2.5%	0.05	0.05	0.10
<i>Puccinellia nuttalliana</i>	Nuttall's alkaligrass	FACW	5.0%	0.04	0.04	0.08
<i>Schoenoplectus acutus</i>	hard-stem bulrush	OBL	5.0%	0.29	0.29	0.58
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
<i>Spartina gracilis</i>	alkali cordgrass	FACW	5.0%	0.55	0.55	1.11
<i>Triglochin concinna</i>	slender arrowgrass	OBL	5.0%	0.23	0.23	0.46
			<b>100.0%</b>	<b>6.06</b>	<b>6.06</b>	<b>12.11</b>

#### NOTES:

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.  
Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE W-2

### Ecoregion: Rolling Sagebrush Steppe - MP 11-16

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	10.0%	0.41	0.41	0.82
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	5.0%	0.21	0.21	0.42
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Hordeum brachyantherum</i>	meadow barley	FACW	10.0%	2.56	2.56	5.12
<i>Juncus balticus</i>	Baltic rush	FACW	15.0%	0.22	0.22	0.44
<i>Leymus cinereus</i>	Great basin wildrye	NI	10.0%	1.68	1.68	3.35
<i>Pascopyrum smithii</i>	Western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa glaucifolia</i>	Swallen's bluegrass	FAC	10.0%	0.24	0.24	0.47
<i>Poa secunda</i> spp. <i>sandbergii</i>	Sandberg bluegrass	FACU	5.0%	0.10	0.10	0.21
<i>Schoenoplectus americanus</i>	Olney threesquare	OBL	10.0%	1.21	1.21	2.42
<i>Scirpus nevadensis</i>	Nevada bulrush	OBL	10.0%	0.47	0.47	0.95
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
			<b>100.0%</b>	<b>8.72</b>	<b>8.72</b>	<b>17.43</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE W-3/U-1

### Ecoregion: Foothill Shrublands and Low Mountains - MP 25-52

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	10.0%	0.41	0.41	0.82
<i>Carex praeegracilis</i>	field clustered sedge	FACW	10.0%	0.33	0.33	0.66
<i>Carex utriculata</i>	beaked sedge	OBL	10.0%	0.49	0.49	0.98
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	10.0%	0.42	0.42	0.84
<i>Eleocharis palustris</i>	creeping spikerush	OBL	10.0%	0.35	0.35	0.70
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Hordeum brachyantherum</i>	meadow barley	FACW	10.0%	0.41	0.41	0.82
<i>Juncus balticus</i>	Baltic rush	FACW	15.0%	0.03	0.03	0.06
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa glaucifolia</i>	Swallen's bluegrass	FAC	5.0%	0.12	0.12	0.24
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
			<b>100.0%</b>	<b>4.28</b>	<b>4.28</b>	<b>8.55</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE U-2

### Ecoregion: Wet Valleys - MP 52-58

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex aquatilis</i>	water sedge	OBL	15%	0.67	0.67	1.35
<i>Carex praegracilis</i>	field clustered sedge	FACW	10%	0.33	0.33	0.66
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	10%	0.42	0.42	0.84
<i>Eleocharis palustris</i>	creeping spikerush	OBL	10%	0.35	0.35	0.70
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	10%	1.13	1.13	2.27
<i>Juncus balticus</i>	Baltic rush	FACW	15%	0.03	0.03	0.06
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	10%	1.98	1.98	3.96
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	10%	0.21	0.21	0.42
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	10%	0.12	0.12	0.25
			<b>100%</b>	<b>5.25</b>	<b>5.25</b>	<b>10.50</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1



### WETLAND SEED SCHEDULE U-3

#### Ecoregion: Semi-arid Bear Hills - MP 58-63

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex lanuginosa</i>	wooly sedge	OBL	15.0%	1.05	1.05	2.09
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	20.0%	0.82	0.82	1.63
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	10.0%	0.42	0.42	0.84
<i>Eleocharis palustris</i>	creeping spikerush	OBL	10.0%	0.35	0.35	0.70
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	10.0%	1.13	1.13	2.27
<i>Juncus balticus</i>	Baltic rush	FACW	15.0%	0.03	0.03	0.06
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
<i>Triglochin maritima</i>	seaside arrowgrass	OBL	5.0%	0.23	0.23	0.46
			<b>100.0%</b>	<b>5.19</b>	<b>5.19</b>	<b>10.37</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE U-4

### Ecoregion: Semi-arid Foothills - MP 63-69, 95-105

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex lanuginosa</i>	wooly sedge	OBL	5.0%	0.35	0.35	0.70
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	10.0%	0.41	0.41	0.82
<i>Carex praeegracilis</i>	field clustered sedge	FACW	5.0%	0.16	0.16	0.33
<i>Carex utriculata</i>	beaked sedge	OBL	5.0%	0.25	0.25	0.49
<i>Danthonia californica</i>	California oatgrass	FAC	2.0%	1.09	1.09	2.18
<i>Deschampsia cespitosa</i>	tufted hairgrass	FACW	10.0%	0.15	0.15	0.29
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	5.0%	0.21	0.21	0.42
<i>Eleocharis palustris</i>	creeping spikerush	OBL	10.0%	0.35	0.35	0.70
<i>Eleocharis parvula</i>	small spikerush	OBL	2.0%	0.07	0.07	0.14
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	2.0%	0.23	0.23	0.45
<i>Hordeum brachyantherum</i>	meadow barley	FACW	5.0%	1.28	1.28	2.56
<i>Juncus articulatus</i>	jointed rush	OBL	2.0%	0.00	0.00	0.01
<i>Juncus balticus</i>	Baltic rush	FACW	10.0%	0.02	0.02	0.04
<i>Juncus confusus</i>	Colorado rush	FAC	2.0%	0.00	0.00	0.01
<i>Juncus ensifolius</i>	three-stamen rush	FACW	2.0%	0.01	0.01	0.03
<i>Juncus tenuis</i>	slender rush	FAC	5.0%	0.00	0.00	0.00
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	2.0%	0.40	0.40	0.79
<i>Poa palustris</i>	fowl bluegrass	FACW	5.0%	0.03	0.03	0.07
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	2.0%	0.04	0.04	0.08
<i>Schoenoplectus americanus</i>	Olney threesquare	OBL	5.0%	0.61	0.61	1.21
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	2.0%	0.02	0.02	0.05

## WETLAND SEED SCHEDULE U-4

### Ecoregion: Semi-arid Foothills - MP 63-69, 95-105

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Thinopyrum ponticum</i>	tall wheatgrass	FACU	2.0%	0.55	0.55	1.10
			<b>100.0%</b>	<b>6.24</b>	<b>6.24</b>	<b>12.48</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE U-5

### Ecoregion: Wasatch Montane Zone - MP 69-77, 81-89

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	20.0%	0.82	0.82	1.63
<i>Carex praeegracilis</i>	field clustered sedge	FACW	15.0%	0.49	0.49	0.98
<i>Deschampsia cespitosa</i>	tufted hairgrass	FACW	15.0%	0.22	0.22	0.44
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	5.0%	0.21	0.21	0.42
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Juncus balticus</i>	Baltic rush	FACW	15.0%	0.03	0.03	0.06
<i>Juncus ensifolius</i>	three-stamen rush	FACW	10.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
			<b>100.0%</b>	<b>3.56</b>	<b>3.56</b>	<b>7.12</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE U-6

### Ecoregion: Mountain Valleys - MP 77-81, 89-93

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex aquatilis</i>	water sedge	OBL	5.0%	0.22	0.22	0.45
<i>Carex bebbii</i>	Bebb's sedge	OBL	5.0%	0.08	0.08	0.16
<i>Carex lanuginosa</i>	wooly sedge	OBL	5.0%	0.35	0.35	0.70
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	10.0%	0.41	0.41	0.82
<i>Carex praegracilis</i>	field clustered sedge	FACW	5.0%	0.16	0.16	0.33
<i>Carex stipata</i>	awlfruit sedge	OBL	5.0%	0.17	0.17	0.33
<i>Carex utriculata</i>	beaked sedge	OBL	5.0%	0.25	0.25	0.49
<i>Danthonia californica</i>	California oatgrass	FAC	2.5%	1.36	1.36	2.72
<i>Deschampsia cespitosa</i>	tufted hairgrass	FACW	10.0%	0.15	0.15	0.29
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	2.5%	0.10	0.10	0.21
<i>Eleocharis palustris</i>	creeping spikerush	OBL	10.0%	0.35	0.35	0.70
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	2.5%	0.28	0.28	0.57
<i>Hordeum brachyantherum</i>	meadow barley	FACW	5.0%	1.28	1.28	2.56
<i>Juncus articulatus</i>	jointed rush	OBL	2.5%	0.01	0.01	0.01
<i>Juncus balticus</i>	Baltic rush	FACW	5.0%	0.01	0.01	0.02
<i>Juncus confusus</i>	Colorado rush	FAC	5.0%	0.01	0.01	0.02
<i>Juncus ensifolius</i>	three-stamen rush	FACW	5.0%	0.04	0.04	0.07
<i>Leymus cinereus</i>	Great basin wildrye	NI	2.5%	0.42	0.42	0.84
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	2.5%	0.50	0.50	0.99
<i>Poa secunda</i> spp. <i>sandbergii</i>	Sandberg bluegrass	FACU+	2.5%	0.05	0.05	0.10
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	2.5%	0.03	0.03	0.06
			<b>100.0%</b>	<b>6.22</b>	<b>6.22</b>	<b>12.44</b>

## WETLAND SEED SCHEDULE U-6

### Ecoregion: Mountain Valleys - MP 77-81, 89-93

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
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**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:  
 Seeding rates shown are based on the following number of acres:

50
1

## WETLAND SEED SCHEDULE U-7

### Ecoregion: Malad and Cache Valleys - MP 93-95, 105-111, 113-123, 126-128

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	5.0%	0.20	0.20	0.41
<i>Carex stipata</i>	awlfuit sedge	OBL	5.0%	0.17	0.17	0.33
<i>Carex utriculata</i>	beaked sedge	OBL	5.0%	0.25	0.25	0.49
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	10.0%	0.42	0.42	0.84
<i>Eleocharis palustris</i>	creeping spikerush	OBL	5.0%	0.18	0.18	0.35
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Juncus balticus</i>	Baltic rush	FACW	15.0%	0.03	0.03	0.06
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	5.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Puccinellia nuttalliana</i>	Nuttall's alkali grass	OBL	5.0%	0.04	0.04	0.08
<i>Schoenoplectus acutus</i>	hard-stem bulrush	OBL	5.0%	0.29	0.29	0.58
<i>Schoenoplectus americanus</i>	Olney's bulrush	OBL	10.0%	1.21	1.21	2.42
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
<i>Thinopyrum ponticum</i>	tall wheatgrass	FACU	5.0%	1.38	1.38	2.76
<i>Triglochin maritima</i>	seaside arrowgrass	OBL	5.0%	0.23	0.23	0.46
			<b>100.0%</b>	<b>6.19</b>	<b>6.19</b>	<b>12.37</b>

## WETLAND SEED SCHEDULE U-7

### Ecoregion: Malad and Cache Valleys - MP 93-95, 105-111, 113-123, 126-128

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
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**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:  
 Seeding rates shown are based on the following number of acres:

50
1

## WETLAND SEED SCHEDULE U-8

### Ecoregion: Wetlands - MP 111-113, 124-126

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Bolboschoenus maritimus</i>	saltmarsh bulrush	NI	10.0%	1.34	1.34	2.68
<i>Distichlis spicata</i>	seashore saltgrass	FAC+*	15.0%	0.63	0.63	1.26
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Juncus balticus</i>	Baltic rush	FACW	5.0%	0.01	0.01	0.02
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	5.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Puccinellia nuttalliana</i>	Nuttall's alkali grass	OBL	5.0%	0.04	0.04	0.08
<i>Schoenoplectus acutus</i>	hard-stem bulrush	OBL	15.0%	0.87	0.87	1.73
<i>Schoenoplectus americanus</i>	Olney's bulrush	OBL	15.0%	1.82	1.82	3.63
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
<i>Thinopyrum ponticum</i>	tall wheatgrass	FACU	5.0%	1.38	1.38	2.76
<i>Triglochin concinna</i>	slender arrowgrass	OBL	5.0%	0.23	0.23	0.46
			<b>100.0%</b>	<b>8.11</b>	<b>8.11</b>	<b>16.21</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE U-9

### Ecoregion: Sagebrush Basins and Slopes - MP 128-143, 145-147, 176-197

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Bolboschoenus maritimus</i>	saltmarsh bulrush	NI	10.0%	1.34	1.34	2.68
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	20.0%	0.84	0.84	1.68
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	10.0%	1.13	1.13	2.27
<i>Juncus balticus</i>	Baltic rush	FACW	20.0%	0.04	0.04	0.08
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	10.0%	0.15	0.15	0.29
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	10.0%	1.98	1.98	3.96
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	10.0%	0.21	0.21	0.42
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	10.0%	0.12	0.12	0.25
			<b>100.0%</b>	<b>5.81</b>	<b>5.81</b>	<b>11.62</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE U-10

### Ecoregion: Shadscale Dominated Saline Basins - MP 147-176, 197-212, 226-228

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Bolboschoenus maritimus</i>	saltmarsh bulrush	NI	10.0%	1.34	1.34	2.68
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	15.0%	0.63	0.63	1.26
<i>Eleocharis palustris</i>	creeping spikerush	OBL	15.0%	0.53	0.53	1.05
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Juncus balticus</i>	Baltic rush	FACW	10.0%	0.02	0.02	0.04
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	5.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Schoenoplectus americanus</i>	Olney's bulrush	OBL	15.0%	1.82	1.82	3.63
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	10.0%	0.12	0.12	0.25
<i>Thinopyrum ponticum</i>	tall wheatgrass	FACU	5.0%	1.38	1.38	2.76
			<b>100.0%</b>	<b>7.57</b>	<b>7.57</b>	<b>15.14</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE N-1

Ecoregion: Dissected High Lava Plateau - MP 212-226, 228-234, 237-248, 251-284

Scientific Name	Common Name	Regional Indicator	* Percent	LBS/PLS	Drill Seeding Rate	Broadcast Rate
		Status	of Mix	per Acre	Total LBS per Acre	Total LBS per Acre
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	15.0%	0.61	0.61	1.22
<i>Carex simulata</i>	short-beak sedge	FACW	5.0%	0.10	0.10	0.21
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	15.0%	0.63	0.63	1.26
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Juncus balticus</i>	Baltic rush	FACW	15.0%	0.03	0.03	0.06
<i>Juncus nevadensis</i>	Sierra rush	FACW	10.0%	0.02	0.02	0.04
<i>Leymus cinereus</i>	Great basin wildrye	NI	5.0%	0.84	0.84	1.68
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	5.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	10.0%	0.12	0.12	0.25
<i>Thinopyrum ponticum</i>	tall wheatgrass	FACU	5.0%	1.38	1.38	2.76
			<b>100.0%</b>	<b>5.47</b>	<b>5.47</b>	<b>10.94</b>

## WETLAND SEED SCHEDULE N-1

### Ecoregion: Dissected High Lava Plateau - MP 212-226, 228-234, 237-248, 251-284

Scientific Name	Common Name	Regional Indicator	* Percent	LBS/PLS	Drill Seeding Rate	Broadcast Rate
		Status	of Mix	per Acre	Total LBS per Acre	Total LBS per Acre

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:  
 Seeding rates shown are based on the following number of acres:

50
1

## WETLAND SEED SCHEDULE N-2

### Ecoregion: Semi-arid Uplands - MP 283-288, 348-358

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Calamagrostis canadensis</i>	blue-joint reedgrass	OBL	10.0%	0.10	0.10	0.19
<i>Carex simulata</i>	short-beak sedge	FACW	10.0%	0.21	0.21	0.42
<i>Deschampsia cespitosa</i>	tufted hairgrass	FACW	10.0%	0.15	0.15	0.29
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	5.0%	0.21	0.21	0.42
<i>Eleocharis bella</i>	delicate spikerush	FACW	5.0%	0.18	0.18	0.36
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Elymus glauca</i>	blue wildrye	FACU	10.0%	1.62	1.62	3.24
<i>Festuca idahoensis</i>	Idaho fescue	NI	10.0%	0.48	0.48	0.97
<i>Juncus balticus</i>	Baltic rush	FACW	15.0%	0.03	0.03	0.06
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	5.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda</i> spp. <i>sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
			<b>100.0%</b>	<b>4.77</b>	<b>4.77</b>	<b>9.54</b>

## WETLAND SEED SCHEDULE N-2

### Ecoregion: Semi-arid Uplands - MP 283-288, 348-358

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
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**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:  
 Seeding rates shown are based on the following number of acres:

50
1

## WETLAND SEED SCHEDULE N-3

**Ecoregion: Upper Humboldt Plains - MP 288-348,  
358-389**

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex lanuginosa</i>	woody sedge	OBL	10.0%	0.70	0.70	1.40
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	10.0%	0.41	0.41	0.82
<i>Carex praegracilis</i>	field clustered sedge	FACW	5.0%	0.16	0.16	0.33
<i>Carex simulata</i>	short-beak sedge	FACW	5.0%	0.10	0.10	0.21
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	10.0%	0.42	0.42	0.84
<i>Eleocharis palustris</i>	creeping spikerush	OBL	5.0%	0.18	0.18	0.35
<i>Eleocharis pauciflora</i>	few flower spikerush	OBL	5.0%	0.18	0.18	0.36
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	2.5%	0.28	0.28	0.57
<i>Elymus glauca</i>	blue wildrye	FACU	5.0%	0.81	0.81	1.62
<i>Elymus trachycaulus</i>	slender wheatgrass	NI	5.0%	0.68	0.68	1.37
<i>Hordeum brachyantherum</i>	meadow barley	FACW	5.0%	1.28	1.28	2.56
<i>Juncus balticus</i>	Baltic rush	FACW	10.0%	0.02	0.02	0.04
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	2.5%	0.04	0.04	0.07
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	2.5%	0.50	0.50	0.99
<i>Poa secunda</i> spp. <i>sandbergii</i>	Sandberg bluegrass	FACU+	2.5%	0.05	0.05	0.10
<i>Scirpus nevadensis</i>	Nevada bulrush	OBL	5.0%	0.24	0.24	0.47
<i>Sisyrinchium idahoense</i>	Idaho blue eye grass	OBL	5.0%	0.22	0.22	0.44
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
			<b>100.0%</b>	<b>6.33</b>	<b>6.33</b>	<b>12.66</b>

### WETLAND SEED SCHEDULE N-3

**Ecoregion: Upper Humboldt Plains - MP 288-348, 358-389**

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
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**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:  
 Seeding rates shown are based on the following number of acres:

50
1

## WETLAND SEED SCHEDULE N-4

### Ecoregion: Upper Lahontan Basin - MP 405-416, 427-492

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	15.0%	0.63	0.63	1.26
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	10.0%	1.13	1.13	2.27
<i>Hordeum brachyantherum</i>	meadow barley	FACW	10.0%	2.56	2.56	5.12
<i>Juncus balticus</i>	Baltic rush	FACW	10.0%	0.02	0.02	0.04
<i>Juncus effusus</i>	soft rush	OBL	15.0%	0.34	0.34	0.68
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	5.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Scirpus nevadensis</i>	Nevada bulrush	OBL	10.0%	0.47	0.47	0.95
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	15.0%	0.19	0.19	0.37
			<b>100.0%</b>	<b>6.51</b>	<b>6.51</b>	<b>13.02</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE N-5/O-1

### Ecoregion: High Lava Plains - MP 507-558, 575-605

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Beckmannia syzigachne</i>	American sloughgrass	OBL	5.0%	0.09	0.09	0.19
<i>Carex hoodii</i>	Hood's sedge	FAC	5.0%	0.22	0.22	0.44
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	15.0%	0.61	0.61	1.22
<i>Carex simulata</i>	short beak sedge	OBL	5.0%	0.10	0.10	0.21
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	5.0%	0.21	0.21	0.42
<i>Eleocharis palustris</i>	creeping spikerush	OBL	10.0%	0.35	0.35	0.70
<i>Eleocharis pauciflora</i>	few flower spikerush	OBL	5.0%	0.18	0.18	0.36
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Juncus balticus</i>	Baltic rush	FACW	15.0%	0.03	0.03	0.06
<i>Juncus nevadensis</i>	Sierra rush	FACW	10.0%	0.02	0.02	0.04
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	5.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda</i> spp. <i>sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
			<b>100.0%</b>	<b>3.62</b>	<b>3.62</b>	<b>7.23</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE N-6

### Ecoregion: Pluvial Lake Basins - MP 558-575

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	20.0%	0.84	0.84	1.68
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	10.0%	1.13	1.13	2.27
<i>Juncus balticus</i>	Baltic rush	FACW	25.0%	0.05	0.05	0.10
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	10.0%	0.15	0.15	0.29
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	10.0%	1.98	1.98	3.96
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	10.0%	0.21	0.21	0.42
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	15.0%	0.19	0.19	0.37
			<b>100.0%</b>	<b>4.54</b>	<b>4.54</b>	<b>9.08</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE O-2

### Ecoregion: Fremont Pine/Fir Forest - MP 605-617, 634-654

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Beckmannia syzigachne</i>	American sloughgrass	OBL	2.0%	0.04	0.04	0.08
<i>Calamagrostis neglecta</i>	slimstem reedgrass	FACW	1.0%	0.01	0.01	0.01
<i>Carex aquatilis</i>	water sedge	OBL	5.0%	0.09	0.09	0.19
<i>Carex athrostachya</i>	slender beak sedge	FACW	1.0%	0.04	0.04	0.09
<i>Carex aurea</i>	golden fruit sedge	FACW	1.0%	0.04	0.04	0.09
<i>Carex bolanderi</i>	Bolander's sedge	FAC	1.0%	0.04	0.04	0.09
<i>Carex hoodii</i>	Hood's sedge	FAC	1.0%	0.04	0.04	0.09
<i>Carex lanuginosa</i>	wooly sedge	OBL	2.0%	0.14	0.14	0.28
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	10.0%	0.41	0.41	0.82
<i>Carex pachystachya</i>	thick-head sedge	FAC	1.0%	0.04	0.04	0.09
<i>Carex petasata</i>	Liddon sedge	OBL	1.0%	0.04	0.04	0.09
<i>Carex simulata</i>	short beak sedge	OBL	5.0%	0.10	0.10	0.21
<i>Carex subnigricans</i>	dark mountain sedge	FAC	1.0%	0.04	0.04	0.09
<i>Carex vesicaria</i>	inflated sedge	OBL	5.0%	0.26	0.26	0.52
<i>Deschampsia cespitosa</i>	tufted hairgrass	FACW	2.5%	0.04	0.04	0.07
<i>Deschampsia danthonioides</i>	annual hairgrass	FACW	2.5%	0.05	0.05	0.11
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	2.0%	0.08	0.08	0.17
<i>Eleocharis acicularis</i>	least spikerush	OBL	5.0%	0.09	0.09	0.17
<i>Eleocharis bolanderi</i>	Bolander's spikerush	FACW	1.0%	0.04	0.04	0.07
<i>Eleocharis ovata</i>	ovate spikerush	OBL	1.0%	0.04	0.04	0.07
<i>Eleocharis palustris</i>	creeping spikerush	OBL	5.0%	0.18	0.18	0.35

## WETLAND SEED SCHEDULE O-2

### Ecoregion: Fremont Pine/Fir Forest - MP 605-617, 634-654

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Eleocharis pauciflora</i>	few flower spikerush	OBL	5.0%	0.18	0.18	0.36
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	2.0%	0.23	0.23	0.45
<i>Juncus balticus</i>	Baltic rush	FACW	5.0%	0.01	0.01	0.02
<i>Juncus confusus</i>	Colorado rush	FAC	2.0%	0.00	0.00	0.01
<i>Juncus effusus</i>	soft rush	FACW	2.0%	0.00	0.00	0.01
<i>Juncus nevadensis</i>	Sierra rush	FACW	2.0%	0.00	0.00	0.01
<i>Juncus orthophyllus</i>	straightleaf rush	FACW	2.0%	0.00	0.00	0.01
<i>Juncus tenuis</i>	slender rush	FACW	2.0%	0.00	0.00	0.00
<i>Juncus xiphioides</i>	iris-leaf rush	OBL	1.0%	0.00	0.00	0.00
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	2.0%	0.03	0.03	0.06
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	2.0%	0.40	0.40	0.79
<i>Poa secunda</i> spp. <i>sandbergii</i>	Sandberg bluegrass	FACU+	2.0%	0.04	0.04	0.08
<i>Scirpus atrovirens</i>	green bulrush	OBL	2.0%	0.09	0.09	0.19
<i>Scirpus microcarpus</i>	small-fruit bulrush	OBL	5.0%	0.02	0.02	0.05
<i>Scirpus nevadensis</i>	Nevada bulrush	OBL	5.0%	0.24	0.24	0.47
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	2.0%	0.02	0.02	0.05
<i>Vicia americana</i>	American purple vetch	FAC	1.0%	0.66	0.66	1.32
			<b>100.0%</b>	<b>3.81</b>	<b>3.81</b>	<b>7.62</b>

#### NOTES:

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

## WETLAND SEED SCHEDULE O-2

### Ecoregion: Fremont Pine/Fir Forest - MP 605-617, 634-654

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
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**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:  
 Seeding rates shown are based on the following number of acres:

50
1

## WETLAND SEED SCHEDULE O-3

### Ecoregion: Klamath/Goose Lake Basins - MP 617-634

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex amplifolia</i>	big leaf sedge	FACW	2.0%	0.09	0.09	0.17
<i>Carex lanuginosa</i>	wooly sedge	OBL	2.0%	0.14	0.14	0.28
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	10.0%	0.41	0.41	0.82
<i>Carex praegracilis</i>	clustered field sedge	FACW	5.0%	0.16	0.16	0.33
<i>Carex simulata</i>	short beak sedge	OBL	5.0%	0.10	0.10	0.21
<i>Carex vesicaria</i>	inflated sedge	OBL	5.0%	0.26	0.26	0.52
<i>Deschampsia danthonioides</i>	annual hairgrass	FACW	2.0%	0.04	0.04	0.09
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	5.0%	0.21	0.21	0.42
<i>Eleocharis acicularis</i>	least spikerush	OBL	5.0%	0.09	0.09	0.17
<i>Eleocharis bella</i>	delicate spikerush	FACW	2.0%	0.07	0.07	0.15
<i>Eleocharis palustris</i>	creeping spikerush	OBL	10.0%	0.35	0.35	0.70
<i>Eleocharis pauciflora</i>	few flower spikerush	OBL	5.0%	0.18	0.18	0.36
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	2.0%	0.23	0.23	0.45
<i>Hordeum brachyantherum</i>	meadow barley	FACW	5.0%	1.28	1.28	2.56
<i>Juncus balticus</i>	Baltic rush	FACW	5.0%	0.01	0.01	0.02
<i>Juncus effusus</i>	soft rush	FACW	2.0%	0.00	0.00	0.01
<i>Juncus patens</i>	spreading rush	FACW	2.0%	0.00	0.00	0.01
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	2.0%	0.03	0.03	0.06
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	2.0%	0.40	0.40	0.79
<i>Poa secunda</i> spp. <i>sandbergii</i>	Sandberg bluegrass	FACU+	2.0%	0.04	0.04	0.08
<i>Puccinellia nuttalliana</i>	Nuttall's alkaligrass	FACW	5.0%	0.04	0.04	0.08

## WETLAND SEED SCHEDULE O-3

### Ecoregion: Klamath/Goose Lake Basins - MP 617-634

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Scirpus americanus</i>	Olney's rush (three-square)	OBL	5.0%	0.36	0.36	0.73
<i>Scirpus nevadensis</i>	Nevada bulrush	OBL	5.0%	0.24	0.24	0.47
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
			<b>100.0%</b>	<b>4.80</b>	<b>4.80</b>	<b>9.60</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

## WETLAND SEED SCHEDULE O-4

### Ecoregion: Klamath Juniper Woodland - MP 654-675

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Carex lanuginosa</i>	wooly sedge	OBL	10.0%	0.70	0.70	1.40
<i>Carex nebrascensis</i>	Nebraska sedge	OBL	10.0%	0.41	0.41	0.82
<i>Carex praeegracilis</i>	clustered field sedge	FACW	10.0%	0.33	0.33	0.66
<i>Carex simulata</i>	short beak sedge	OBL	10.0%	0.21	0.21	0.42
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	5.0%	0.21	0.21	0.42
<i>Eleocharis palustris</i>	creeping spikerush	OBL	15.0%	0.53	0.53	1.05
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	5.0%	0.57	0.57	1.13
<i>Juncus balticus</i>	Baltic rush	FACW	15.0%	0.03	0.03	0.06
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	5.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	5.0%	0.99	0.99	1.98
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	5.0%	0.10	0.10	0.21
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
			<b>100.0%</b>	<b>4.20</b>	<b>4.20</b>	<b>8.41</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Wetland species and dominance derived from wetland delineation data sheets by Ecoregion.

Supplemental species derived from NRCS Soil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1

# Exhibit B – Riparian Seed Schedule



## RIPARIAN SEED SCHEDULE

### Species Common to All States and All Ecoregions

Scientific Name	Common Name	Regional Indicator Status	* Percent of Mix	LBS/PLS per Acre	Drill Seeding Rate Total LBS per Acre	Broadcast Rate Total LBS per Acre
<i>Achnatherum hymenoides</i>	Indian ricegrass	NI	10.0%	1.54	1.54	3.09
<i>Distichlis spicata</i>	inland saltgrass	FAC+*	5.0%	0.21	0.21	0.42
<i>Elymus elymoides</i>	bottlebrush squirreltail	FACU-	10.0%	1.13	1.13	2.27
<i>Festuca idahoensis</i>	Idaho fescue	NI	5.0%	0.24	0.24	0.48
<i>Hesperostipa comata</i>	needle-and-thread grass	NI	5.0%	0.95	0.95	1.89
<i>Juncus balticus</i>	Baltic rush	FACW	5.0%	0.01	0.01	0.02
<i>Koeleria macrantha</i>	prairie junegrass	NI	5.0%	0.05	0.05	0.09
<i>Leymus cinereus</i>	Great bain wildrye	NI	10.0%	1.68	1.68	3.35
<i>Leymus triticoides</i>	creeping wildrye	NI	5.0%	0.64	0.64	1.28
<i>Muhlenbergia richardsonis</i>	mat muhly	FACW	5.0%	0.07	0.07	0.15
<i>Pascopyrum smithii</i>	western wheatgrass	FACU	10.0%	1.98	1.98	3.96
<i>Poa secunda spp. sandbergii</i>	Sandberg bluegrass	FACU+	10.0%	0.21	0.21	0.42
<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass	NI	10.0%	1.56	1.56	3.11
<i>Sporobolus airoides</i>	alkali sacaton	FAC-	5.0%	0.06	0.06	0.12
			<b>100.0%</b>	<b>10.33</b>	<b>10.33</b>	<b>20.66</b>

**NOTES:**

\* Percent of mix is based on dominance of species currently present at the wetland impacts site.

\*\* Seeds per pound (LB) is based on seed supplier information and USDA Plants Database.

Riparian seed species derived from NRCS Websoil Survey and EPA Level IV Ecoregion Potential Natural Vegetation Data.

Riparian seed species are common to all state and all ecoregions.

**ASSUMPTIONS:**

Number of seeds per square foot (SF) to be seeded is:

50

Seeding rates shown are based on the following number of acres:

1



# Exhibit C – Wetland Plant Schedules



**Wetland Planting Schedules for Wyoming, Utah, Nevada, and Oregon**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD WATER-WAY	IMPACT ACRES	SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	CONTAINER SIZE	PLANT QUANTITY	PLANT SPACING (FT)	% COVER
WW-16-010	0.77	Lincoln	WY	PEM/PSS		0.7064	<i>Salix exigua</i>	Sandbar Willow	OBL	1-quart	TBD	8	5
WW-16-011	0.82	Lincoln	WY	PSS		0.1245	<i>Salix exigua</i>	Sandbar Willow	OBL	1-quart	14	8	15
WW-165-002	52.34	Rich	UT	PSS	Bear River	0.5048	<i>Salix lutea</i>	Yellow Willow	OBL	1-quart	50	12	30
WW-39-012	64.80	Rich	UT	PSS		0.0688	<i>Salix amygdaloides</i>	Peachleaf Willow	FACW	10-gallon	3	25	50
							<i>Salix lutea</i>	Yellow Willow	OBL	1-quart	2	12	10 *
							<i>Salix exigua</i>	Sandbar Willow	OBL	1-quart	3	8	5 *
							<i>Salix boothii</i>	Booth's Willow	OBL	1-quart	1	20	10 *
							<i>Lonicera involucrata</i>	Four-line Honey-suckle	FAC	5-gallon	10	4	5 *
							<i>Pentaphylloides fruticosa</i>	Shrubby Cinquefoil	FACW	5-gallon	18	3	5 *
							<i>Rosa woodsii</i>	Wood's Rose	FAC	5-gallon	31	4	15 *
WW-39-009A	68.29	Rich	UT	PSS	Bear River	0.0200	<i>Salix lutea</i>	Yellow Willow	OBL	1-quart	3	12	50
							<i>Salix exigua</i>	Sandbar Willow	OBL	1-quart	2	8	10 *
							<i>Lonicera involucrata</i>	Four-line Honey-suckle	FAC	5-gallon	3	4	5 *
							<i>Pentaphylloides fruticosa</i>	Shrubby Cinquefoil	FACW	5-gallon	5	3	5 *
							<i>Rosa woodsii</i>	Wood's Rose	FAC	5-gallon	6	4	10 *
WW-28-003	92.39	Cache	UT	PSS		0.4035	<i>Salix exigua</i>	Sandbar Willow	OBL	1-quart	91	8	30
							<i>Salix amygdaloides</i>	Peachleaf Willow	FACW	10-gallon	9	25	30
							<i>Populus fremontii</i>	Fremont Cottonwood	FACW	10-gallon	1	40	10 *
							<i>Cornus sericea</i>	Redosier dogwood	FACW	5-gallon	54	6	10 *

## Wetland Planting Schedules for Wyoming, Utah, Nevada, and Oregon

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD WATER-WAY	IMPACT ACRES	SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	CONTAINER SIZE	PLANT QUANTITY	PLANT SPACING (FT)	% COVER
							<i>Lonicera involucrata</i>	Four-line Honey-suckle	FAC	5-gallon	60	4	5 *
							<i>Salix boothii</i>	Booth's Willow	OBL	1-quart	5	20	10 *
							<i>Salix lutea</i>	Yellow Willow	OBL	1-quart	13	12	10 *
WW-18-014	94.78						<i>Salix amygdaloides</i>	Peachleaf Willow	FACW	10-gallon	2	25	35
							<i>Crataegus douglasii</i>	Douglas Hawthorn	FAC	10-gallon	2	20	35
WW-164-002	169.52	Box Elder	UT	PSS		6.4826	<i>Atriplex tridentata</i>	Basin Saltbush	FACW	1-quart	1,941	4	10
		Box Elder	UT	PSS			<i>Sarcobatus vermiculatus</i>	Black Grease-wood	FACU	1-quart	1,294	6	15
WW-130-003	282.48	Elko	NV	PSS	Thousand Springs Creek	0.0310	<i>Salix exigua</i>	Sandbar Willow	OBL	1-quart	15	8	65
							<i>Ribes aureum</i>	Golden Currant	FACW	5-gallon	4	6	10 *
							<i>Chrysothamnus nauseosus</i>	Grey Rabbitbrush	UPL	5-gallon	9	4	10 *
WW-53-001	301.72	Elko	NV	PSS		0.1283	<i>Salix exigua</i>	Sandbar Willow	OBL	1-quart	86	8	90
		Elko	NV	PSS			<i>Rosa woodsii</i>	Wood's Rose	FAC	5-gallon	19	4	5
WW-20-007	601.92	Lake		PEM	Crump Lake	0.1227	<i>Salix spp</i>	TBD		1-quart	TBD	TBD	5
WW-184-003	603.82	Lake		PEM	Crump Lake	2.3096	<i>Salix lucida</i>	Shining Willow	NI	1-quart	519	8	30
WW-172-004	605.49	Lake		PEM	Crump Lake	0.0926	<i>Salix geyerana</i>	Geyer Willow	FACW	1-quart	3	10	10
							<i>Salix exigua</i>	Sandbar Willow	OBL	1-quart	7	8	10
							<i>Pinus ponderosa</i>	Ponderosa Pine	FACU	10-gallon	1	25	10
							<i>Populus tremuloides</i>	Quaking aspen	UPL	10-gallon	2	15	8
WW-20-002	607.56	Lake		PEM	Crump Lake	0.0293	<i>Salix lemmonii</i>	Lemmon's Willow	FACW	1-quart	4	5	8

## Wetland Planting Schedules for Wyoming, Utah, Nevada, and Oregon

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD WATERWAY	IMPACT ACRES	SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	CONTAINER SIZE	PLANT QUANTITY	PLANT SPACING (FT)	% COVER
							<i>Populus tremuloides</i>	Quaking aspen	FAC	10-gallon	1	15	15
WW-192-002	608.93	Lake		PEM	Owyhee River	0.0473	<i>Salix geyerana</i>	Geyer Willow	FACW	1-quart	1	10	5
WW-200-001	611.84	Lake		PEM	Crump Lake	0.0781	<i>Salix sitchensis</i>	Sitka Willow	FACW	1-quart	3	12	10
							<i>Salix lasiandra</i>	Pacific Willow	FACW	1-quart	1	20	10
WW-173-016	612.21	Lake		PEM	Goose Lake	0.0030	<i>Populus tremuloides</i>	Quaking aspen	UPL	10-gallon	1	15	30
WW-155-004	612.90	Lake		PEM	Goose Lake	0.0317	<i>Populus tremuloides</i>	Quaking aspen	UPL	10-gallon	1	15	10
WW-173-013	613.18	Lake		PEM	Goose Lake	0.0653	<i>Salix sitchensis</i>	Sitka Willow	FACW	1-quart	2	12	15
							<i>Populus tremuloides</i>	Quaking aspen	UPL	10-gallon	2	15	15
WW-152-001	617.20	Lake		PEM	Goose Lake	12.3191	<i>Salix lemmonii</i>	Lemmon's Willow	FACW	1-quart	4,722	5	20
WW-152-008	617.82	Lake		PEM	Goose Lake	0.0888	<i>Salix exigua</i>	Sandbar Willow	OBL	1-quart	33	8	50
WW-36-001	630.73	Lake		PSS	Goose Lake	0.1487	<i>Salix sp.</i>	TBD		1-quart	TBD	TBD	5
WW-126-002	630.84	Lake		PEM	Goose Lake	0.0023	<i>Rosa woodsii</i>	Wood's Rose	FACU	5-gallon	1	4	10
WW-43-003	634.75	Lake		PEM	Goose Lake	0.0881	<i>Salix geyerana</i>	Geyer Willow	FACW	1-quart	4	10	10
WW-184-007	639.47	Lake		PEM	Goose Lake	0.0103	<i>Salix lucida</i>	Shining Willow	NI	1-quart	2	8	20
WW-37-003	642.05	Lake		PEM	Klamath River	0.5897	<i>Rosa woodsii</i>	Wood's Rose	FACU	5-gallon	57	5	5
WW-175-002	645.07	Lake		PEM	Klamath River	0.1397	<i>Salix lemmonii</i>	Lemmon's Willow	FACW	1-quart	27	5	10
WW-153-005	650.09	Klamath		PEM	Klamath River	0.1796	<i>Populus tremuloides</i>	Quaking aspen	UPL	10-gallon	2	15	5
							<i>Rosa woodsii</i>	Wood's Rose	FACU	5-gallon	27	4	5
WW-154-002	651.10	Klamath		PEM	Klamath River	0.8274	<i>Rosa woodsii</i>	Wood's Rose	FACU	5-gallon	198	4	8
							<i>Pinus ponderosa</i>	Ponderosa Pine	FACU	10-gallon	5	25	8
WW-154-004	653.14	Klamath		PEMC	Klamath River	0.3164	<i>Pinus ponderosa</i>	Ponderosa Pine	FACU	10-gallon	6	25	25

**Wetland Planting Schedules for Wyoming, Utah, Nevada, and Oregon**

WETLAND ID	MP	COUNTY	STATE	NWI TYPE	JD WATER-WAY	IMPACT ACRES	SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS	CONTAINER SIZE	PLANT QUANTITY	PLANT SPACING (FT)	% COVER
							<i>Rosa woodsii</i>	Wood's Rose	FACU	5-gallon	76	4	8
WW-154-001	654.48	Klamath		PEM	Klamath River	0.1711	<i>Pinus ponderosa</i>	Ponderosa Pine	FACU	10-gallon	1	25	5
							<i>Salix lucida</i>	Shining Willow	NI	1-quart	6	8	5
* Percent cover estimated													
1. If site conditions and project schedule allow, a bundle of 3 willow cuttings will be substituted for each 1-quart containerized willow.													
2. If certain native species are not commercially available, substitutions may be required.													

# Exhibit D – Riparian Plant Schedules



## Riparian Planting Schedules for Wyoming, Utah, Nevada, and Oregon

MP	STREAM NAME	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	RIP WIDTH	ROW WIDTH	IMPACT AREA SF	PLANT SPACING	EST % COVER *	PLANT QUANTITY
19.8	Little Muddy Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	150	75	11250	8	15	29
		<i>Atriplex gardneri</i>	Gardner's Saltbush	1-quart				4	10	77
60.8	Woodruff Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	200	75	15000	8	15	39
77.9	East Fork Little Bear River	<i>Salix lutea</i>	Yellow Willow	1-quart	100	75	7500	12	10	6
		<i>Salix exigua</i>	Sandbar Willow	1-quart				8	15	19
		<i>Salix boothii</i>	Booth's Willow	1-quart				20	10	2
		<i>Lonicera involucrata</i>	Four-line Honeysuckle	5-gallon				4	5	26
		<i>Pentaphylloides fruticosa</i>	Shrubby Cinquefoil	5-gallon				3	5	46
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	26
		<i>Salix amygdaloides</i>	Peachleaf Willow	10-gallon				25	5	1
92.7	East Fork Little Bear River	<i>Salix exigua</i>	Sandbar Willow	1-quart	2620	75	196500	6	30	1,801
94.8	South Fork Little Bear River	<i>Salix lutea</i>	Yellow Willow	1-quart	620	75	46500	12	10	36
		<i>Salix exigua</i>	Sandbar Willow	1-quart				8	30	240
		<i>Salix boothii</i>	Booth's Willow	1-quart				20	10	13
		<i>Lonicera involucrata</i>	Four-line Honeysuckle	5-gallon				4	5	160
		<i>Pentaphylloides</i>	Shrubby	5-gallon				3	5	284

## Riparian Planting Schedules for Wyoming, Utah, Nevada, and Oregon

MP	STREAM NAME	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	RIP WIDTH	ROW WIDTH	IMPACT AREA SF	PLANT SPACING	EST % COVER *	PLANT QUANTITY
		<i>fruticosa</i>	Cinquefoil							
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	160
		<i>Salix amygdaloides</i>	Peachleaf Willow	10-gallon				25	5	4
		<i>Acer negundo</i>	Boxelder	10-gallon				25	5	4
		<i>Crataegus douglasii</i>	Douglas Hawthorn	10-gallon				20	5	6
94.9	Little Bear River	<i>Salix lutea</i>	Yellow Willow	1-quart	230	75	17250	12	10	13
		<i>Salix exigua</i>	Sandbar Willow	1-quart				8	30	89
		<i>Salix boothii</i>	Booth's Willow	1-quart				20	10	5
		<i>Lonicera involucrata</i>	Four-line Honeysuckle	5-gallon				4	5	59
		<i>Cornus sericea</i>	Red-osier Dogwood	5-gallon				6	10	53
		<i>Pentaphylloides fruticosa</i>	Shrubby Cinquefoil	5-gallon				3	5	105
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	59
		<i>Salix amygdaloides</i>	Peachleaf Willow	10-gallon				25	5	2
		<i>Acer negundo</i>	Boxelder	10-gallon				25	5	2
		<i>Crataegus douglasii</i>	Douglas Hawthorn	10-gallon				20	5	2
105.1	Canal to Bear River/North Bay	<i>Salix lutea</i>	Yellow Willow	1-quart	100	75	7500	12	10	6
		<i>Salix exigua</i>	Sandbar Willow	1-quart				8	30	39
		<i>Salix boothii</i>	Booth's	1-quart				20	10	2

## Riparian Planting Schedules for Wyoming, Utah, Nevada, and Oregon

MP	STREAM NAME	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	RIP WIDTH	ROW WIDTH	IMPACT AREA SF	PLANT SPACING	EST % COVER *	PLANT QUANTITY
			Willow							
		<i>Lonicera involucrata</i>	Four-line Honeysuckle	5-gallon				4	5	26
		<i>Cornus sericea</i>	Red-osier Dogwood	5-gallon				6	10	23
		<i>Pentaphylloides fruticosa</i>	Shrubby Cinquefoil	5-gallon				3	5	46
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	26
		<i>Salix amygdaloides</i>	Peachleaf Willow	10-gallon				25	5	1
		<i>Acer negundo</i>	Boxelder	10-gallon				25	5	1
		<i>Crataegus douglasii</i>	Douglas Hawthorn	10-gallon				20	5	1
R105.6		<i>Salix exigua</i>	Sandbar Willow	1-quart	40	75	3000	8	30	15
		<i>Salix amygdaloides</i>	Peachleaf Willow	10-gallon				25	5	1
		<i>Acer negundo</i>	Boxelder	10-gallon				25	5	1
		<i>Crataegus douglasii</i>	Douglas Hawthorn	10-gallon				20	5	1
113.7	Bear River	<i>Salix exigua</i>	Sandbar Willow	1-quart	50	75	3750	8	30	19
		<i>Salix amygdaloides</i>	Peachleaf Willow	10-gallon				25	5	1
		<i>Acer negundo</i>	Boxelder	10-gallon				25	5	1
		<i>Crataegus douglasii</i>	Douglas Hawthorn	10-gallon				20	5	1
267.5	Unnamed Trib. to Brush Creek	<i>Salix amygdaloides</i>	Peachleaf Willow	10-gallon	22	75	1650	25	5	1
		<i>Acer negundo</i>	Boxelder	10-gallon				25	5	1

## Riparian Planting Schedules for Wyoming, Utah, Nevada, and Oregon

MP	STREAM NAME	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	RIP WIDTH	ROW WIDTH	IMPACT AREA SF	PLANT SPACING	EST % COVER *	PLANT QUANTITY
		<i>Crataegus douglasii</i>	Douglas Hawthorn	10-gallon				20	5	1
267.8	Brush Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	4	75	300	8	30	2
		<i>Ribes aureum</i>	Golden Currant	5-gallon				6	5	0
269.6	Brush Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	4	75	300	8	30	2
		<i>Ribes aureum</i>	Golden Currant	5-gallon				6	5	1
270.3	West Brush Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	2	75	150	8	30	1
		<i>Ribes aureum</i>	Golden Currant	5-gallon				6	5	0
279.4	Pole Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	100	75	7500	8	30	39
		<i>Ribes aureum</i>	Golden Currant	5-gallon				6	5	11
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	1
279.6	Pole Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	100	75	7500	8	30	39
		<i>Ribes aureum</i>	Golden Currant	5-gallon				6	5	11
280	Pole Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	50	75	3750	8	30	19
		<i>Ribes aureum</i>	Golden Currant	5-gallon				6	5	6
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	13
280.2	Pole Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	50	75	3750	8	30	19
		<i>Ribes aureum</i>	Golden	5-gallon				6	5	6

## Riparian Planting Schedules for Wyoming, Utah, Nevada, and Oregon

MP	STREAM NAME	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	RIP WIDTH	ROW WIDTH	IMPACT AREA SF	PLANT SPACING	EST % COVER *	PLANT QUANTITY
			Currant							
300	Mary's River	<i>Salix exigua</i>	Sandbar Willow	1-quart	200	75	15000	8	30	77
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	52
301.8	Hot Springs Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	100	75	7500	8	30	39
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	26
315.1	Tributary to Indian Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	200	75	15000	8	30	77
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	52
316.3	North Fork Humboldt River	<i>Salix exigua</i>	Sandbar Willow	1-quart	80	75	6000	8	30	31
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	21
329.2	Tributary to Indian Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	100	75	7500	8	30	39
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	26
R350.0	Unnamed Trib. to Indian Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	12	75	900	8	30	5
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	3
358.1	Unnamed Trib. to Willow Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	100	75	7500	8	30	39
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	26
358.4	Unnamed Trib. to Willow Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	100	75	7500	8	30	39
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	26
359.3	Soldier Creek	<i>Salix exigua</i>	Sandbar	1-quart	100	75	7500	8	30	39

## Riparian Planting Schedules for Wyoming, Utah, Nevada, and Oregon

MP	STREAM NAME	SCIENTIFIC NAME	COMMON NAME	CONTAINER SIZE	RIP WIDTH	ROW WIDTH	IMPACT AREA SF	PLANT SPACING	EST % COVER *	PLANT QUANTITY
			Willow							
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	26
R378.6		<i>Salix exigua</i>	Sandbar Willow	1-quart	50	75	3750	8	30	19
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	13
505.9	Unnamed stream in Pearl Canyon	<i>Salix exigua</i>	Sandbar Willow	1-quart	10	75	750	8	30	4
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	3
		<i>Populus fremontii</i>	Fremont Cottonwood	10-gallon				40	20	0
		<i>Shepherdia argentea</i>	Silver Buffaloberry	5-gallon				15	15	1
514.2	Tributary to Craine Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	50	75	3750	8	30	19
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	13
		<i>Cornus sericea</i>	Red-osier Dogwood	5-gallon				6	10	11
		<i>Populus tremuloides</i>	Quaking Aspen	10-gallon				15	10	2
514.4	Tributary to Craine Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	25	75	1875	8	30	10
		<i>Rosa woodsii</i>	Wood's Rose	5-gallon				4	5	6
		<i>Cornus sericea</i>	Red-osier Dogwood	5-gallon				6	10	6
		<i>Populus tremuloides</i>	Quaking Aspen	10-gallon				15	15	1
588.3	Twelvemile Creek	<i>Artemisia cana</i>	Silver Sage	5-gallon	200	75	15000	3	5	92
630.0	Dry Creek	<i>Salix exigua</i>	Sandbar Willow	1-quart	20	75	1500	8	30	8

**Riparian Planting Schedules for Wyoming, Utah, Nevada, and Oregon**

<b>MP</b>	<b>STREAM NAME</b>	<b>SCIENTIFIC NAME</b>	<b>COMMON NAME</b>	<b>CONTAINER SIZE</b>	<b>RIP WIDTH</b>	<b>ROW WIDTH</b>	<b>IMPACT AREA SF</b>	<b>PLANT SPACING</b>	<b>EST % COVER *</b>	<b>PLANT QUANTITY</b>
		<i>Salix lemmonii</i>	Lemmon's Willow	1-quart				5	10	7
R671.9	Unnamed Trib. to High Line Canal	<i>Salix lucida</i>	Shining Willow	1-quart	10	75	750	8	10	1
	* percent cover is estimated									
	Plant lists are derived from wetland delineation data sheets									



# **Exhibit E – Wetland Seeding Specifications**



SECTION 02921  
SEEDING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. For revegetation of graded areas as indicated on the Drawings, provide seed as specified herein. Furnish and place soil amendments, seed additive, seed, straw mulch, and tackifier in the areas indicated on the plans and details and erosion control blanket and sediment log where directed by the Ecologist.
- B. Maintain seeded areas and erosion control features for two years.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02930: Planting

1.3 SUBMITTALS

General - Contractor shall be required to submit statements of guarantee and/or certifications from vendors who supply seed and materials for all products detailed in Part 2 - Products.

Submit the following:

- A. Grass Seed Vendor's Certificate:  
Submit the seed vendor's certified statement for the grass seed mixture required, showing common name, percentage of seed mix by weight, percentages of purity and germination, year of production, date of packaging, and location of packaging.
- B. Seeding Plan:  
Submit the Contractor's plan for seeding the graded areas. Include the proposed seeding method(s), equipment, schedule, sequencing, and methods for deficiency correction.

1.04 TIMING OF THE WORK

Seeding shall be completed as soon as practicable after ground disturbance. The Contractor shall coordinate the actual start of the seeding operation with the Ecologist.

### 1.05 CONTRACTOR'S SITE RESPONSIBILITIES

It shall be the responsibility of Contractor to locate and protect all utilities, structures, roadways, parking areas, fences, survey markers, existing vegetation (e.g. trees), etc. on all work sites. Any damage caused by Contractor or his subcontractors shall be immediately repaired or corrected by Contractor at no expense to Owner.

### 1.06 CLEANING

All work sites shall be kept clean and free from all debris. At the conclusion of work at any site, Contractor shall remove and haul from the site all excess materials, debris, and equipment. Any damage (e.g. damaged fencing, damaged road surfaces, excessive tire furrows, mud tracked onto pavement, etc.) resulting from Contractor's activities shall be repaired by Contractor to the Ecologist 's satisfaction at no expense to Owner.

### 1.07 FINAL ACCEPTANCE

When work has been completed for the project, Contractor and the Ecologist shall inspect the site together and determine the total area of the work, and whether or not the work is complete and has been done in accordance with Contract documents and specifications. If mutual agreement cannot be reached on these issues, the determinations made by the Ecologist shall be final. Deficiencies in the work, if any, shall be noted and a checklist of these deficiencies given to Contractor by the Ecologist. Contractor shall immediately correct any deficiencies listed on the checklist at no cost to Owner.

When all checklist items are completed to the satisfaction of the Ecologist, the Ecologist shall issue a Certificate of Final Acceptance. Contractor shall then submit these items for payment to Owner based on the original project bid prices and any change orders which have been agreed to and signed by both parties.

## PART 2 – PRODUCTS

### 2.01 GENERAL

All materials used shall be new and without flaws or defects of any type, and shall be the best of their class and kind.

All materials furnished shall be free of noxious weeds including, but not limited to, spotted knapweed, diffuse knapweed, Canada thistle, field bindweed, Johnsongrass, leafy spurge, and kochia.

Any materials that have become wet, moldy, or otherwise damaged in transit or in storage shall not be used.

All materials shall be furnished in original manufacturers' shipping bags or containers and remain in these bags or containers until they are used. All materials shall be stored in a manner that will prevent them from coming into contact with precipitation, surface water, or any other contaminating substance.

### 2.1 MATERIALS

#### A.

##### General:

Obtain and retain as part of the project records, certifications, and/or labels of materials supplied.

#### B. Soil Amendments:

Soil amendments shall be Menefee Granular Humate and Biosol Mix 6-1-3.

#### C. Seed:

Shall meet the following minimum requirements:

1. The grass seed mixture shall include no "primary noxious weed seeds."
2. Furnish in fully-labeled, standard sealed containers, with small seed and fluffy seed bagged separately.
3. Percentage and germination of each seed type in the mixture, purity, and weed seed content of the mixture shall be clearly stated on the label.

4. Subject to the testing provisions of the USDA, with the month and year of test clearly stated on the label.
5. Seed which has become wet, moldy, or otherwise damaged will not be acceptable.
6. Supplied on a Pure Live Seed (PLS) basis.

F. Seed additive:

Mychorrizal inoculum shall be in the form of micronized powder, shall contain 4 species of endomycorrhizae, shall be certified with a minimum count of 100,000 propagules per pound, and shall meet the specifications of MycoApply Micronized Endo, or approved equal. MycoApply Micronized Endo is available from Mycorrhizal Applications, Inc.: 810 NW E Street, Grants Pass, OR 97526; phone 866-476-7800 or Bowman Construction Supply, Denver, CO.

G. Mulch:

1. General - The type of mulching material to be used on upland seeding areas shall be certified weed-free straw.
2. The mulch shall consist of Certified Weed Free field straw of oats, barley, wheat, rye or triticale certified under the Oregon Department of Agriculture Weed Free Forage Certification Program.
3. The Contractor shall not unload certified weed free straw bales or remove their identifying twine, wire, or tags until accepted by the Ecologist.
4. Straw in an advanced stage of decomposition or old, dry straw which breaks in the crimping process will not be accepted.
5. At least 50% of the certified weed-free straw mulch by weight shall be 6 inches or more in length after application.

HI. Tackifier:

General - The tackifier shall be a non-toxic, biodegradable, guar-based organic product. The tackifier shall be Super Tack by Rantec or approved equal.

## I. Excelsior Erosion Control Blanket

Excelsior Erosion Control Blanket (ECB) shall be Curlex I Fibrenet by American Excelsior, or equivalent approved by the Ecologist. The blanket shall consist of weed-free curled wood excelsior with 80% of the fibers greater than or equal to 6 inches in length. The blanket shall be of consistent thickness with fibers distributed evenly throughout the entire area of the blanket. The excelsior material shall not contain any weed seed or chemical additives. The top of the blanket shall be covered with biodegradable jute netting.

The blanket shall have the following material characteristics:

Thickness: 0.35 inches

Mass per Unit Area: 0.68 lb/yd<sup>2</sup>

Fiber Count: ~7,000 per yd<sup>2</sup>

Light Penetration: 42.4%

Functional Longevity: 12-18 months

### Stakes for Blanket:

Stakes shall be a minimum 6 inches in length, biodegradable, and designed to safely and effectively secure erosion control blanket. The stake must withstand being driven into the ground while resisting breakage. A test section may be tried to ensure that the stakes will be workable for project soils and conditions. If more than 25% of the stakes break when pounded into the soil then another biodegradable stake may be substituted upon approval by the Ecologist.

## J. Sediment Logs:

If needed, excelsior Sediment Logs shall be Curlex by American Excelsior, or equivalent approved by the Ecologist. The logs shall be 9-inch diameter and shall consist of an outside open-weave containment fabric filled with excelsior fibers. Fibers shall be evenly distributed throughout the diameter and length of the sediment log. Excelsior fibers shall consist of weed-free curled wood excelsior with 80% of the fibers greater than or equal to 6 inches in length .

Stakes for securing sediment logs shall be 1-inch x 1-inch x 18-inch wood stakes.

## PART 3 - EXECUTION

### 3.1 PREPARATION

#### A. All Areas to be Seeded:

1. Limit soil preparation to areas that shall be seeded within 24 hours.
2. Thoroughly till or rip all areas that previously supported vehicular traffic and are to be seeded in the future to a depth of 12 inches.

### 3.2 APPLICATION

#### A. Humate:

1. Apply granular humate at a rate of 50 pounds per acre to all areas receiving seed. Apply by means of a mechanical spreader or other acceptable method which is capable of maintaining a uniform rate of application.

#### B. Biosol:

1. Apply Biosol at a rate of 300 pounds per acre.

#### C. Soil Preparation:

1. Till areas receiving seed to a depth of 6 inches to incorporate Humate and Biosol into the soil. Fine grade areas to create an even, firm seed bed. Restore prepared areas if eroded or disturbed after fine grading and soil preparation and before seeding.

#### D. Seeding:

General: Contractor shall not commence seeding without prior notification of the Ecologist.

1. Seed mixtures shall be as specified in the attachment.
2. Do not seed during windy weather or when the ground is frozen, excessively wet, or otherwise untillable.

#### Application of mychorrizal inoculum

1. Immediately prior to seeding, mychororrizal inoculum shall be added to seed bags or boxes and mixed thoroughly to coat all seeds with the powder. Mychororrizal inoculum shall be applied at a rate of one (1) pound per acre.
2. Seeding Equipment

Prior to commencement of seeding operations, calibration tests shall be conducted on the equipment used. These tests shall confirm that the equipment is operating within the manufacturer's specifications and will meet the seeding and mulching rates specified.

Drill seeding equipment used for applying seed mixtures shall be designed, modified or equipped to regulate the application rate and planting depth of the seed mixture. The drill seeder shall be equipped with: discs to cut furrows for the seed; depth bands set at ½"; two different types of seed boxes to handle small and large seed, with independent adjustments for each type of box; agitators in the seed boxes to mix seeds; ability to meter seed flow with precision; and rear packer wheels to compact soil over planted seed.

A drill shall be no wider than the width of the area over which it is to operate. The rows of planted seed shall be a maximum of 8 inches apart. All seeding equipment shall be operated perpendicular to the slope. If the operating slope is steep enough to cause uneven seed distribution, then partitions shall be installed in the seed box to maintain even distribution of seed across the drill width.

For areas where small/fine(seed containing more than 1,000,000 seeds per pound) or fluffy seed is used, the drill seeder shall be equipped with two separate seed boxes for small/fine seed and large seed to assure uniform distribution. In these instances, each seed box shall be individually calibrated and shall feed individual tubes to each drill (two tubes for each drill). Every other drill tube coming from the small seed box shall be pulled out from between the discs to allow the seed to be broadcast via the tube.

All small/fine seed shall be drilled and broadcast simultaneously via the drill seeder by pulling every other tube.

Fillers (e.g. fine sand, vermiculite, sterilized seed) shall be used for all small/fine seed to ensure adequate and even distribution.

Shortages of seed or mulch and failure to cover the designated area due to inadequate calibration will be corrected and compensated at the Contractor's expense.

The drill seeder shall make two passes; the second in a direction that is perpendicular to the first, as terrain permits.

All seed is to be drilled 0.50 inch into the soil at the specified PLS/acre rate with a mechanical, power-drawn drill seeder.

Some projects areas may be inaccessible to a drill. In these areas, which shall be agreed upon by Contractor and Ecologist, seed shall be uniformly broadcast at

the specified PLS/acre and covered with soil to a depth of 0.50 inch by raking or some other means acceptable to the Ecologist.

Broadcast seeding shall be accomplished using hand-operated "cyclone-type" seeders. All broadcast machinery shall be equipped with metering devices and agitator and picker wheels to handle fluffy seed. Broadcasting by hand shall be acceptable on small, isolated sites. When broadcast seeding, passes shall be made over each site to be seeded in a manner to ensure an even distribution of seed. When using hopper type equipment, seed shall be frequently mixed within the hopper to discourage seed settling and uneven planting distribution of species.

Broadcast seeding shall take place immediately following the completion of final seedbed preparation techniques and upon inspection and approval of the Ecologist. Broadcast seeding should not be conducted when wind velocities would prohibit even seed distribution.

E. Mulch:

1. Straw mulch shall be applied to seeded areas as designated on the plans immediately after seeding has been completed.
2. Straw shall be spread at a uniform rate of two (2) tons per acre.
3. Straw shall be anchored into the soil with mechanical equipment having flat, serrated disks at least  $\frac{1}{4}$  inch thick with dull edges and disks spaced no more than 9 inches apart. Mulch shall be anchored to a depth of at least 4 inches and shall not be covered with an excessive amount of soil. Anchoring operations shall be across the slopes where practical with no more than two passes of the anchoring equipment.
4. Straw in areas inaccessible to equipment shall be crimped by hand tool such as a shovel with crimps spaced a maximum of 9 inches apart.
5. Tackifier shall be applied at a mixed rate of 40 pounds of dry product per 1,000 gallons of water per acre. Spray the areas from different angles to ensure complete coverage.
6. All baling wire or rope shall be disposed of outside the limits of the project in approved areas.

E. Excelsior Erosion Control Blanket:

1. Excelsior Erosion control blanket shall be installed as described herein and in locations designated by the Ecologist.
2. Excelsior erosion control blanket application shall begin at the uphill end of the slope by anchoring it in a 6-inch deep key trench. Stakes shall be applied to the bottom of the key trench 1 foot apart, and the trench backfilled and compacted.

Blanket shall be secured over soil with stakes spaced at a maximum distance of 3.3 feet.

3. The side edges of all blanket seams and ends of consecutive rolls shall be staked with four (4) inches of overlap. Seams shall be placed so that the upstream blanket laps over the downhill blanket and uphill blanket laps over downhill blanket.
4. All outside edges of blanket shall be anchored in a 6-inch deep key trench. Stakes shall be applied to the bottom of the key trench 1 foot apart, and the trench backfilled and compacted.
5. The Contractor shall be responsible for maintaining and caring for the blankets until certification of project completion. All blanket that is disturbed or damaged during any portion of construction is to be replaced or repaired at the Contractor's expense as necessary to the satisfaction of the Ecologist.

G. Sediment Logs: Install in locations as designated by the Ecologist.

1. Sediment logs shall be installed as described herein and in locations designated by the Ecologist.
2. Sediment logs shall be installed in a three-inch-deep key trench. For areas receiving erosion control blanket, key trenches shall be excavated prior to placement of blanket and sediment logs installed on top of blanket.
3. Sediment logs shall be secured with stakes through the center of the log at each end and every six linear feet. At joints between logs, there shall be a minimum six inch overlap of logs.

## PART 4 – MAINTENANCE AND WARRANTY

### 4.1 MAINTENANCE

- A. The Contractor shall be responsible for maintaining seeded areas free from erosion damage until all work on the contract has been completed and accepted. This shall consist of the repair of areas where damage is due to the Contractor's operations and shall be performed at the Contractor's expense. Repair of those areas damaged by wind, fire, or other causes not attributable to the Contractor's operations shall be repaired by the Contractor and will be paid for at the contract unit price. Areas shall be re-graded, re-fertilized, and re-seeded as directed.

## 4.2 WARRANTY

- A. At the end of the first growing season following seeding, any seeded areas larger than 9 square feet that do not exhibit emerging vegetation from the seed mix shall be re-seeded and re-mulched at the Contractor's expense.

## PART 5 – MEASUREMENT AND PAYMENT

- A. Seeding shall be paid for by the Acre acceptably seeded at the Contractor's unit bid price.

This price shall include all materials, including soil preparation, soil amendments, and seed additive, and labor for complete work in place as per these Specifications.

- B. Straw mulch shall be paid for by the Acre acceptably mulched and tackified at the Contractor's unit bid price. This price shall include all materials and labor for complete work in place as per these Specifications.

- C. Excelsior Erosion Control Blanket shall be paid for by the Square Yard of finished surface acceptably installed at the Contractor's unit bid price.

This price shall include all materials, including stakes, complete in place and accepted, etc. required by this specification. No allowance shall be made for overlap. All appurtenances are to be included in the price of Erosion Control Blanket.

- D. Excelsior Sediment log shall be paid for by the Linear Foot of sediment log acceptably installed.

-- END OF SECTION 02921 --

# **Exhibit F – Wetland Planting Specifications**



## SECTION 02930 PLANTING

### PART I - GENERAL

#### 1.1 DESCRIPTION

The work in this section consists of furnishing all labor, material and equipment necessary for planting and mulching containerized trees and shrubs according to the plans and details, and of harvesting and planting willow cuttings.

- A. Final and exact locations shall be marked on site by the Ecologist after soil preparation is complete.
- B. Work shall not commence without prior notification of the Ecologist.
- C. If conflicts arise during installation regarding the size or location of planting areas as indicated on the plans, the Subcontractor shall contact the Ecologist for resolution. Failure to make such conflicts known will result in the Contractor's liability to relocate or reinstall the materials.
- D. Plant names are abbreviated on the drawings and cross-referenced in the plant schedules. Refer to the plant schedules for full, scientific and common names.

#### 1.2 TIMING

- A. Planting windows shall be between April 1 and May 31, and between August 15 and September 30.

#### 1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 02921: Seeding

#### 1.4 REFERENCES

The publication listed below forms a part of this specification to the extent referenced.  
American Association of Nurserymen, "American Standard for Nursery Stock, 2004."

#### 1.5 SUBMITTALS

- A. Plant Availability and Care: Within ten (10) working days of the preconstruction conference, the Contractor shall submit written confirmation that the plants for this project have been reserved. For any plant not available, the Contractor shall submit a list of at least 5 plant suppliers contacted.
- B. If willow cuttings are to be used, the Contractor shall submit a plan and schedule for harvest, storage method and location, and planting.
- C. Materials
  - 1. Plants: Plant supplier, scientific name, common name, size, and quantity of species for containerized plant materials. For any unavailable plants, a list of the nurseries contacted.

2. Materials for wrapping deciduous tree trunks.
3. Operations: Submit a plan detailing delivery, planting schedule, and equipment proposed to be used.

## 1.6 CLEANING

All work sites shall be kept clean and free from all debris. At the conclusion of work at any site, Contractor shall remove and haul from the site all excess materials, debris, and equipment. Any damage (e.g. damaged fencing, damaged road surfaces, excessive tire furrows, mud tracked onto pavement, etc.) resulting from Contractor's activities shall be repaired by Contractor to the Ecologist's satisfaction at no expense to Owner.

## 1.7 FINAL ACCEPTANCE

When work has been completed for the project, Contractor and the Ecologist shall inspect the site together and determine the total area of the work, and whether or not the work is complete and has been done in accordance with Contract documents and specifications. If mutual agreement cannot be reached on these issues, the determinations made by the Ecologist shall be final. Deficiencies in the work, if any, shall be noted and a checklist of these deficiencies given to Contractor by the Ecologist. Contractor shall immediately correct any deficiencies listed on the checklist at no cost to Owner.

When all checklist items are completed to the satisfaction of the Ecologist, the Ecologist shall issue a Certificate of Final Acceptance. Contractor shall then submit these items for payment to Owner based on the original project bid prices and any change orders which have been agreed to and signed by both parties.

## PART II - PRODUCTS

### 2.1 CONTAINERIZED PLANT MATERIALS

- A. All containerized plant materials will be checked by the Ecologist prior to planting for conformity of species and quality with American Standard for Nursery Stock, 2004. Plant materials not meeting these standards shall be rejected, removed, and replaced at no expense to the project, prior to planting. If for whatever reason unacceptable material is installed by the Contractor, it shall be removed and replaced with acceptable material at the expense of the Contractor.
- B. All plants delivered for installation shall be clearly labeled with scientific name, common name, and nursery of origin.
- C. Willow stakes shall be as harvested according to this Section.
- D. Tree bark protection for deciduous trees 5-gallon size and larger shall be spiral vinyl tree wrap; 36" long and 1.5" wide. The wrap shall be of a material that allows air circulation near the tree bark.
- E. Wood chip mulch shall be chipped woody material stockpiled from clearing and brush hogging operations prior to pipeline construction. The mulch shall be ground twice and

no larger than three inches in length or width.

- F. Straw shall be certified weed-free.

### PART III - EXECUTION

#### 3.1 CONTAINERIZED PLANT DELIVERY, HANDLING, AND STORAGE

- A. Plant material will be delivered to the site in species, size, and quantities specified. Plant material will be accompanied by a packing/shipping certificate attesting to the same. The Contractor shall count and confirm the delivery is accurate.
- B. Plant material shall be organized by species in separate and identifiable groups during unloading.
- C. Plant material shall be protected during delivery to prevent desiccation and damage to the branches, trunk, or root system. Branches shall be protected by tying-in. Exposed branches shall be covered during transport.
- D. Containerized plants shall be stored and protected in designated areas. Plant material shall not be stored longer than 30 days. Plant material shall be protected from direct exposure to wind and sun. All plant material shall be kept shaded and the soil shall not be allowed to become dry.
- E. Plant material shall not be injured in handling. Bark stripping, trunk splitting, cracking or breaking the earth ball shall be avoided, and any plants damaged during transit or storage will be rejected by the Ecologist. Plant material shall not be handled by the trunk or stems. Materials shall not be dropped or dumped from vehicles.

#### 3.2 PLANTING OF CONTAINERIZED SHRUBS AND TREES

- A. All plant material must be on site prior to commencement of planting.
- B. Plant pits shall be dug to a depth equal to the height of the root ball as measured from the base of the ball to the base of the plant trunk. Planting pits for trees and shrubs will be dug so that the top of the root ball is level with the final grade. Plant pits shall be dug a minimum 50 percent wider than the ball of the root system to allow for root expansion.
- C. Plant material shall be placed into the center of the pit, set plumb, and held in position until sufficient soil has been firmly placed around the root system or ball (approximately 1/3). In relation to the surrounding grade, the plant material shall be set at the specified grade. If the plant pit is too deep, clean in-situ soil may be utilized to compensate for the proper elevation. If the plant pit is too shallow, additional excavation shall be performed to achieve the proper elevation. In-situ soil used for backfill shall contain no more than 20% rocks by volume.
- D. The backfilling procedure shall remove all air pockets from around the root system. Soil shall be carefully worked around and over the plant roots and thoroughly and properly settled by firming, hand tamping and watering.
- E. A saucer consisting of backfill excavated from the pit shall be formed with a minimum 4 inch height around the edge of the plant pit to aid in water retention.

- F. All plant material shall be watered immediately after backfilling until the soil is completely saturated to the depth of the planting pit, and then watered a second time.
- G. Tree bark protection for all trees 5 gallon and larger: Wrap the trunks with spiral vinyl tree wrap, to a minimum height of 24" above the ground surface.
- H. Place a 2-inch layer of chipped bark mulch over the planting pit.

### 3.3 HARVEST, STORAGE, AND PLANTING OF WILLOW STAKES

- A. If conditions permit, willow stakes will be used in lieu of containerized willows, at a ratio of 3 cuttings for one containerized plant.
- B. The Contractor shall cut willow stakes from woody stems that are at least 2 years old. All side branches and the terminal bud shall be removed. The top of the willow stake at the terminal bud shall be cut at an angle that is perpendicular to the stem. The bottom end of the stake shall be cut at a 45 degree angle. Stakes shall be cut clean, avoiding bark stripping and stem splitting.
- C. Cuts shall be made 8-10 inches from the ground. No more than 30 percent of available branches from any one shrub shall be harvested. The harvest sites shall be left clean.
- D. Stakes cut at the Dam Site shall be 4 to 6 feet in length.
- E. Stakes shall be bundled in groups that can be easily counted, such as 10 or 20, and soaked in water for a minimum of 24 hours and up to 5 days. Non-submerged ends of stakes shall be wrapped with burlap and kept moist. Stakes shall be stored in the shade.
- F. Stakes shall be planted immediately after being removed from the water and shall not be allowed to become dry.
- G. Willow stakes shall be planted such that the lower 1/3 of each stake is in contact with moist soil.
- H. Willow stakes shall be planted in groups of 3. Stakes shall be planted by pressing the angled end into the soil. If soil firmness prevents this method, then a dibble bar, rebar, or similar equipment shall be used to create a pilot hole slightly smaller than the diameter of the stake. A minimum of  $\frac{3}{4}$  of the length of the stake shall be in the soil.
- I. Soil shall be pressed around the stake to ensure contact of soil with the stake. A 2-3" deep saucer shall be made around each stake grouping. Stakes shall be trimmed to a height of 6 inches above ground.

## PART IV– MAINTENANCE AND WARRANTY

### 4.1 MAINTENANCE

- A. The Contractor will maintain the plants according to these specifications until final project acceptance.
  - B. Watering of all containerized plants will occur on the following schedule, unless otherwise specified in the drawings:
    - September through October - once every three weeks
    - November through February - once every four weeks
    - March through May – once every three weeks
    - June through August – once every two weeks
1. Water quantity will be an amount sufficient to completely saturate the soil to the depth of the planting pit. Water all plants a second time immediately after the first.
    - A. While trees and shrubs are being watered, they shall be inspected and the following completed:
      1. Removal (and offsite disposal) of any plants growing in saucers that are not of the species planted.
      2. Re-building of saucers, if needed, to a height of 4 inches.
      3. Observation of the health of plants and reporting to the Ecologist if any evidence of damage is noticed.
      4. Inspection and repair if necessary of spiral vinyl tree wrap.

Watering is to occur with the least damage possible to plants and seeded areas. Prior to commencing maintenance work, the Contractor and the Ecologist will discuss access and methods for watering.

#### 4.2 WARRANTY

- A. At the end of 12 months after final project acceptance:
  1. 100% of all 10-gallon and larger trees shall be alive. 95% of all other trees and shrubs shall be alive. 75% of willow stakes shall be alive. If more than 30% of a plant is dead, the entire plant shall be considered dead. Dead plants shall be replaced by the Contractor at no additional cost and watered once every two weeks for 3 months.

#### 5. MEASUREMENT AND PAYMENT

The quantities of planted material shall be paid for at the contract unit price for each of the pay items listed below that appear in the bid schedule. This price of planting shall include all materials and labor for complete work in place as per these Specifications. Maintenance will be a separate pay item and will be paid monthly upon submittal of maintenance logs.

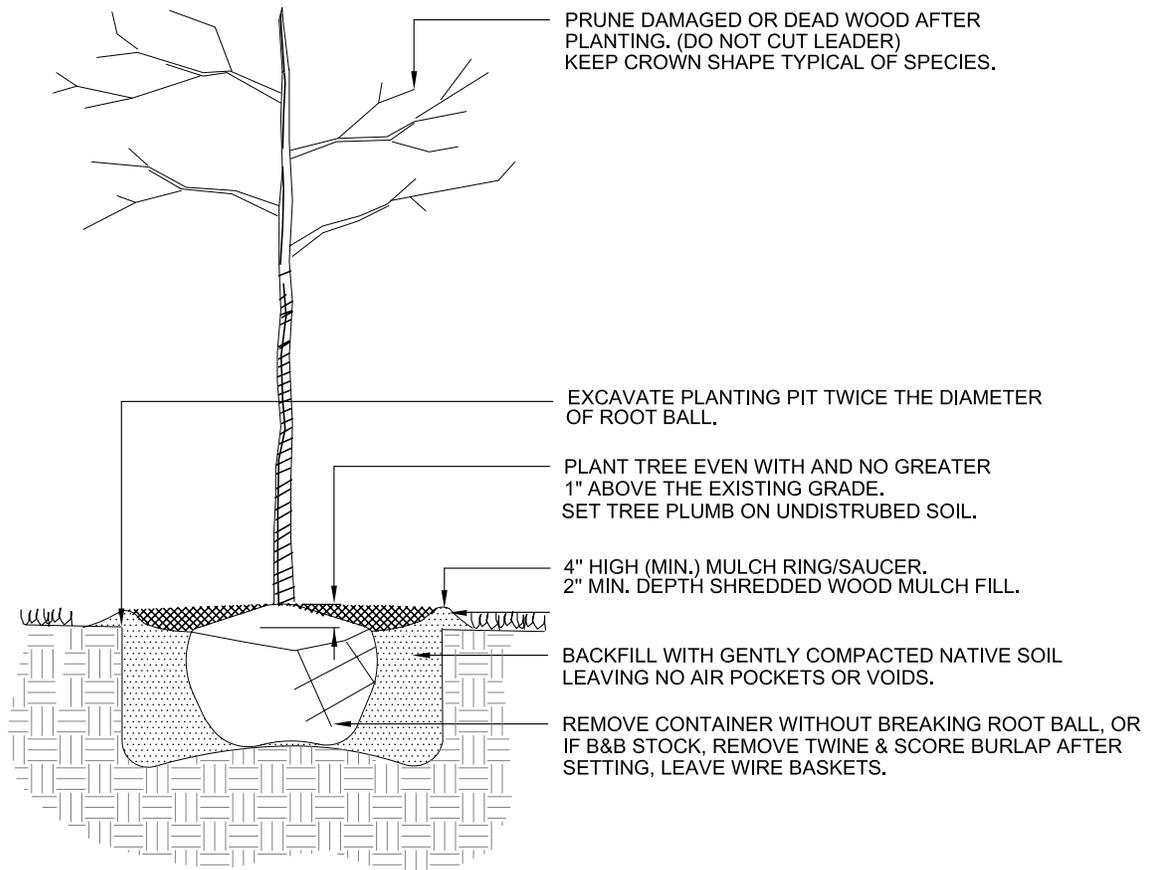
Payment shall be made as follows:

<u>Pay Item</u>	<u>Pay Unit</u>
Willow stake	Each
5-gallon shrub or tree	Each
10-gallon tree	Each

— END OF SECTION —

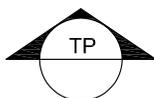
# **Exhibit G – Typical Construction Details for Wetland Restoration**





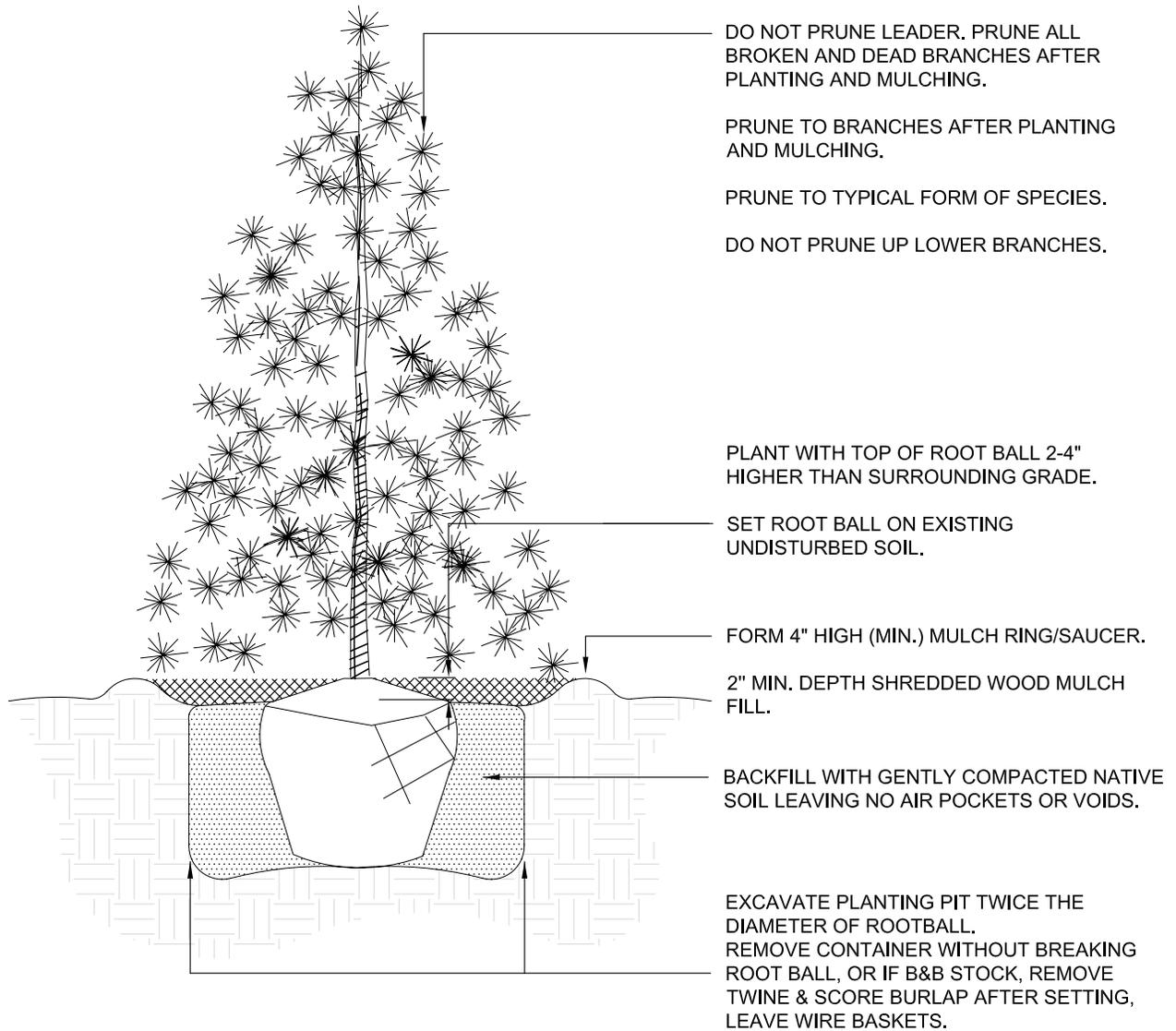
**NOTES:**

1. WATER IMMEDIATELY AFTER PLANTING & MAINTAIN AS DIRECTED IN NOTES AND
2. AFTER PLANTING, RAKE SPECIFIED SEED MIX INTO ALL DISTURBED/EXPOSED SOIL AREAS OUTSIDE OF PLANTING PITS (RAKE TO A DEPTH OF  $\frac{1}{2}$  INCH).
4. DO NOT PLACE SEED IN PLANTING PIT.



## TREE PLANTING

Cross-section NTS



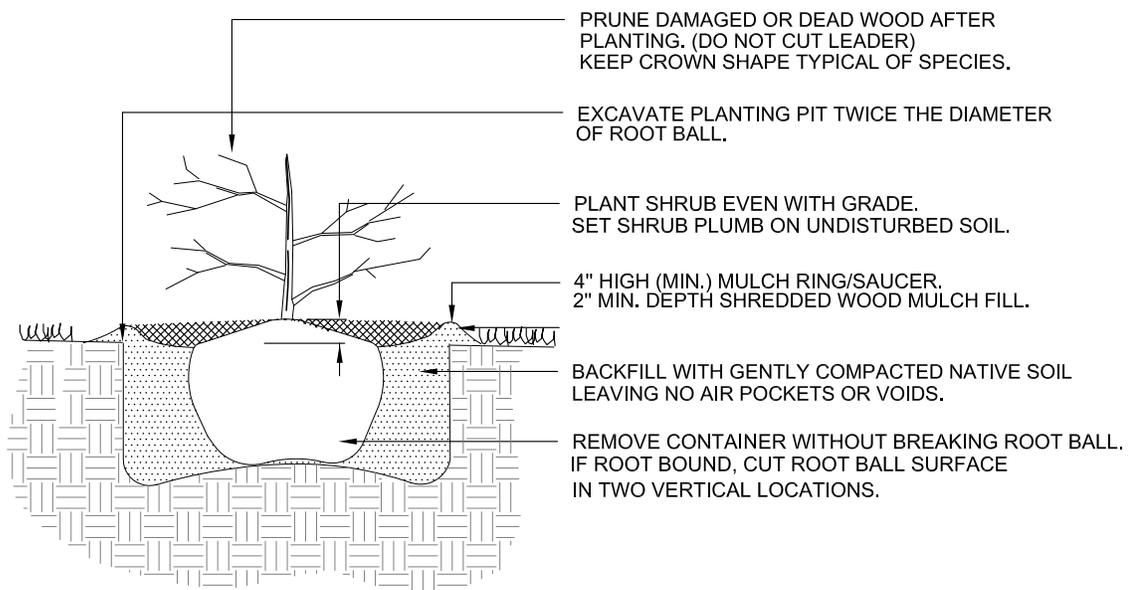
**NOTES:**

1. WATER IMMEDIATELY AFTER PLANTING & MAINTAIN AS DIRECTED IN NOTES AND
2. AFTER PLANTING, RAKE SPECIFIED SEED MIX INTO ALL DISTURBED/EXPOSED SOIL AREAS OUTSIDE OF PLANTING PITS (RAKE TO A DEPTH OF  $\frac{1}{2}$  INCH).
3. DO NOT PLACE SEED IN PLANTING PIT.



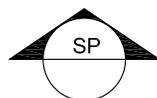
## EVERGREEN PLANTING

CROSS-SECTION: NTS



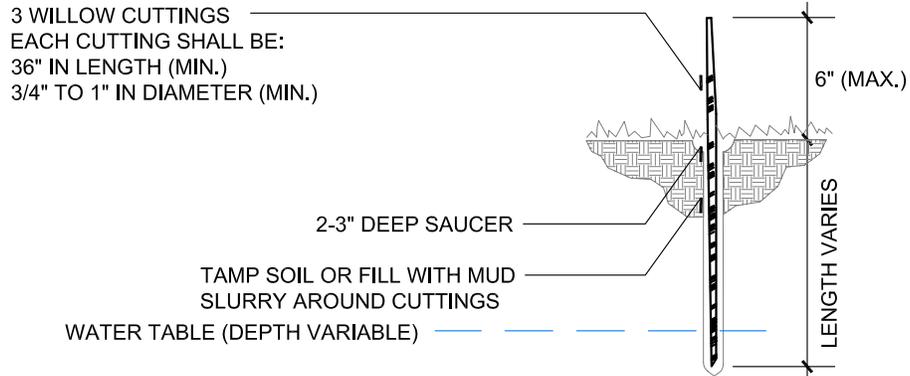
**NOTES:**

1. WATER IMMEDIATELY AFTER PLANTING & MAINTAIN AS DIRECTED IN NOTES AND
2. AFTER PLANTING, RAKE SPECIFIED SEED MIX INTO ALL DISTURBED/EXPOSED SOIL AREAS OUTSIDE OF PLANTING PITS (RAKE TO A DEPTH OF  $\frac{1}{2}$  INCH).
3. DO NOT PLACE SEED IN PLANTING PIT.



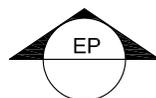
## SHRUB PLANTING

CROSS-SECTION: NTS



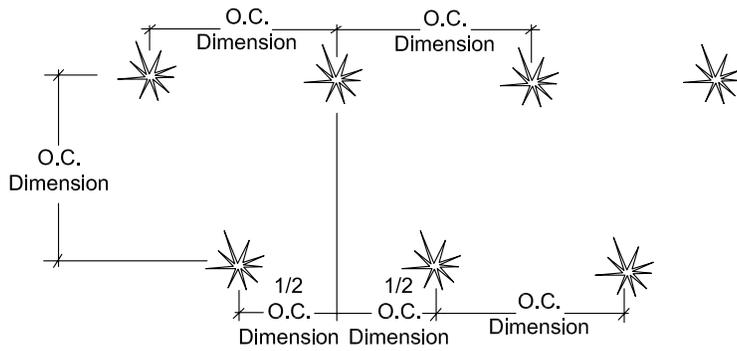
**NOTES:**

1. HARVEST, STORE AND MAINTAIN ACCORDING TO SPECIFICATIONS UNTIL TIME OF PLANTING.
2. FULLY SUBMERGE AND SOAK T BETWEEN 3 AND 7 DAYS TO FULLY HYDRATE THEM IMMEDIATELY PRIOR TO PLANTING.
3. CUTTINGS MUST BE PLANTED IN CAPILLARY FRINGE (SATURATED SOIL) OR LOCATED ON BANK IN ORDER TO REACH WATER TABLE.
4. PLANT CUTTINGS WITH MECHANICAL OR HAND DRIVEN STINGERS ACCORDING TO SPECIFICATIONS.
5. CUTTINGS SHALL BE INSERTED INTO THE GROUND SO THAT NO GREATER THAN 6 INCHES ARE ABOVE THE GROUND, REGARDLESS OF THE SPECIFIED LENGTH OF THE CUTTING.
6. REFER TO PLANT SCHEDULES FOR SPECIES, QUANTITIES AND PLANT SPACING REQUIREMENTS (SEE PLANT SPACING DETAIL).

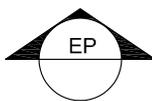


**WILLOW CUTTING**

CROSS-SECTION: NTS

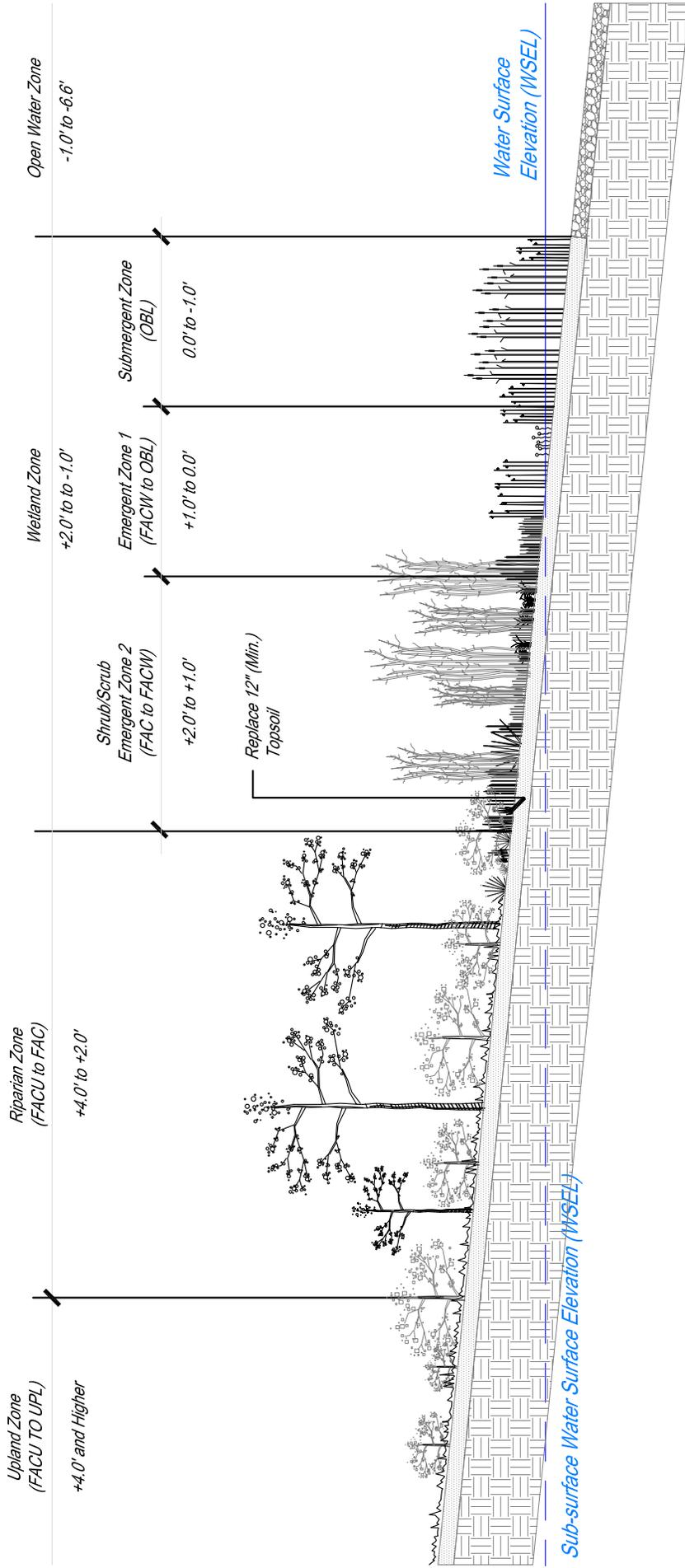


NOTES:  
 1. PLANT MATERIAL USING ON CENTER DIAGONAL SPACING AS INDICATED ON PLANT SCHEDULES.



# PLANT SPACING

PLAN: NTS



- NOTES:
1. THIS CROSS-SECTION REPRESENTS TYPICAL WETLAND PLANT ZONATION. ZONE WIDTHS WILL VARY DEPENDING ON SLOPE, SLOPE SHAPE, SOIL TYPE, SOIL MOISTURE REGIME, AND SITE HYDROLOGY.
  2. SEE WETLAND SEED AND PLANTING SCHEDULES.



## TYPICAL PLANT ZONATION

Cross-section NTS

# **Exhibit H– Preliminary List of Wetland Seed and Plant Suppliers**

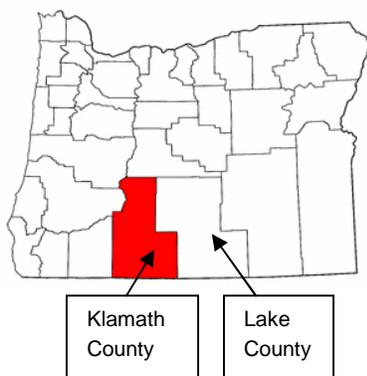


## Nurseries and Seed Companies near Lake and Klamath County, Oregon

The following is a list of Oregon-based nurseries and seed companies near Lake and Klamath counties. This list is organized by county. Within each county, a tally of nurseries and seed companies is accompanied by a map showing the county's proximity to Lake and Klamath counties. This list is not exhaustive. There are more nurseries and seed suppliers in Oregon, California, and Nevada that might grow seed in areas adjacent to Lake and Klamath counties. National seed supplies, such as Granite Seed in Lehi, Utah are also capable of providing the specimens and seeds necessary for our project area.

### Klamath County, Oregon

- 1 Nursery

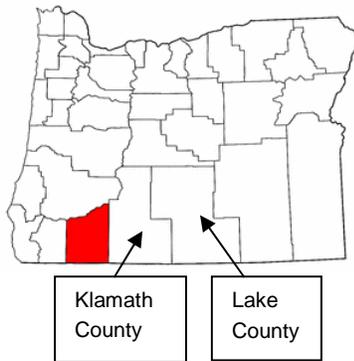


- 1) Rock Bottom Ranch Koi and Nursery  
1130 Bly Mountain Cutoff  
Bonanza, OR 97623  
Phone: 541.545.6481  
Website: [www.rockbottomranch.com](http://www.rockbottomranch.com)

Description: Nursery. Rock Bottom offers hardy plants and trees that are suitable for the harsh conditions and high elevation of Oregon's high desert. Varieties include native, fast-growing, drought-tolerant, deer-resistant, bird-friendly, and aquatic. 25% of projects or inventory use native plants.

### Jackson County, Oregon

- 3 Nurseries
- 1 Nursery and Seed Company



- 1) Plant Oregon  
8677 Wagner Creek Road  
Talent, OR 97540  
Phone: 541.535.3531  
Website: [www.plantoregon.com](http://www.plantoregon.com)

Description: Nursery. Plant Oregon is a 22-year-old grower of native plants in ranging sizes. We use no chemical growers and encourage mycorrhizae.

- 2) English Heritage Gardens  
851 Anderson Creek Rd.  
Talent, OR 97540  
Phone: 541.535.1761

Description: Nursery. Young nursery with 25 irrigated acres, one greenhouse, one shadehouse.

- 3) Siskiyou Gardens  
2825 Cummings Rd.  
Medford, OR 97501  
Phone: 541.476.6243  
Website: [www.mindspring.com/~winters1/rachel](http://www.mindspring.com/~winters1/rachel)

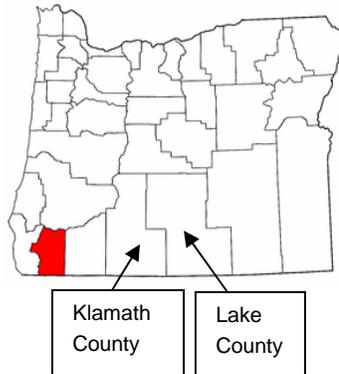
Description: Nursery. I grow some native plants but primarily do not grow rare or endangered specimens.

- 4) Silver Springs Nursery, Inc.  
3400 Little Applegate Road  
Jacksonville, OR 97530  
Phone: 541.899.1065

Description: Nursery and Seed Company

### Josephine County, Oregon

- 1 Seed Company

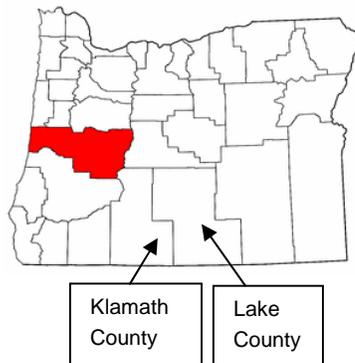


- 1) Charles A. Sprague Seed Orchard  
1980 Russell Road  
Merlin, OR 97532  
Phone: 541.476.9033

Description: Seed Company. 100% of projects or inventory using native plants.

#### Lane County, Oregon

- 1 Nursery and Seed Company

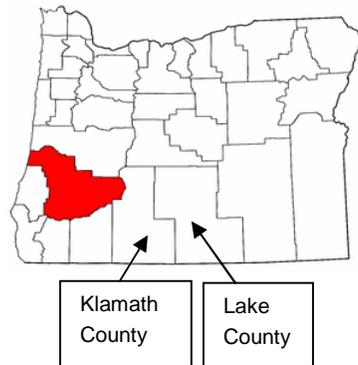


- 1) Wet Rock Gardens  
1950 Yolonda Avenue  
Springfield, OR 97477  
Phone: 541.746.4444  
Website: [www.wetrock.com](http://www.wetrock.com)

Description: Nursery and Seed Company. In 1999, its stock of native plants and seed was very small. It was working on expanding and having room to grow favorites such as Allium and Camassia.

#### Douglas County, Oregon

- 1 Nursery and Seed Company

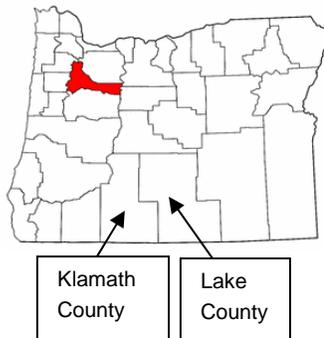


- 1) Oregon Department of Forestry  
2424 Wells Rd.  
Elkton, OR 97436  
Phone: 541.584.2214  
Website: [www.odf.state.or.us/nursery](http://www.odf.state.or.us/nursery)

Description: Nursery and Seed Company. Many conifer species. Primarily for reforestation projects, though open to public. Phipps Nursery grows mostly Douglas fir seedlings, but pine, cedar, spruce, hemlock, true fur, and other conifers, and hardwood seedlings like alder, ash, and maple are also grown. 100% of projects or inventory use native seed.

### Marion County, Oregon

- 1 Seed Company



- 1) Oregon Wholesale Seed Company  
PO Box 885  
Silverton, OR 97381  
Phone: 503.864.8221  
Website: [www.oregonwholesaleseed.com](http://www.oregonwholesaleseed.com)

Description: Seed Company.

### References

National Suppliers Directory. 2008. (<http://www.wildflower.org/suppliers/>, 21 January, 2010).  
Lady Bird Johnson Wildflower Center. University of Texas at Austin. Austin, TX 78739.



# **Exhibit I– Sample Scope of Work for Vegetation Maintenance**





Environmental Scientists and Engineers, LLC

an **ecology and environment** company

## **Ruby Pipeline Wetland Restoration Sample Scope of Work for Vegetation Maintenance 1-29-10**

This scope of work includes observing and maintaining approximately 9,300 shrubs and trees and of those, watering approximately 425. The work will also include controlling weeds and repairing erosion control measures, if needed.

There are 95 sites, spaced along a 70-mile segment of recently constructed pipeline in Lake and Klamath Counties, Oregon. Of the total number of sites, 88 are less than one acre in size, five are 1–2 acres, one is 19 acres, and one is 199 acres.

The total area to be maintained is approximately 248.5 acres. This scope of work will be for the remainder of 2010, with an option to renew for one or more years.

Site preparation, planting of woody nursery stock, seeding, and installation of erosion control measures will occur by others under a separate contract.

### **I. 2010 Scope of Work**

Maintenance tasks will include plant watering throughout the year; plant maintenance; maintenance of erosion control measures; weed control; and record keeping.

#### A. Watering

Plant container sizes and quantities include approximately 350 (5-gallon) shrubs; and 60 (10-gallon) trees. Approximately 8,800 quart-sized willows were planted for this project but it is not anticipated that they will require watering.

The amount of water to be applied to plants and frequency of watering will depend on plant container size and location. The intent is to provide a deep watering.

Watering of containerized plants will occur on the following schedule:

September through October - once every for weeks

November through February - once every six weeks

March through May - once every four weeks

June through August - once every three weeks

Water quantity will be an amount sufficient to completely saturate the soil to the depth of the planting pit. Water all plants a second time immediately after the first.

One scheduled watering may be skipped if there is more than 1 inch of snow on the ground. The interval between watering may be extended following measurable precipitation, but only after consultation with the Ecologist.

Watering and all maintenance activities must not damage existing or newly-installed vegetation and seeded areas, nor cause soil erosion.

#### B. Plant Maintenance

During each site visit for watering, the following activities will also occur:

1. Planting pit saucers will be checked and repaired if necessary to ensure that each is adequately holding water.
2. If present, competing vegetation around the perimeter of planted shrubs and trees will be mown with a weed-eater, without damaging new plantings.
3. All plants will be observed for signs of stress, vandalism, insect infestation, wildlife damage, or other problems. Any damage noted will be reported to the Ecologist immediately.

#### C. Maintenance of Erosion Control Measures

1. Previously installed erosion control blanket, silt fence, and sediment logs will be checked monthly. Any areas where blanket is not covering the ground surface or has been dislodged from the key trench will be repaired. Sediment logs and silt fence will be checked to ensure that they are functioning as specified.
2. While unlikely, any occurrences of sediment deposition in wetlands due to blanket failure or damage will be removed.
3. Any new areas of soil erosion discovered will be repaired with installation of slope checks, erosion control blanket, and the appropriate seed mix. The source of erosion will be identified and corrected, and the Ecologist will be notified.

#### D. Weed Control

Sites will be watched for presence of state-listed noxious weeds, and these will be controlled per recommended methodology of the Oregon Department of Agriculture. If indicated by the Ecologist, owing may be used to control annual weeds in recently-seeded areas.

#### Herbicide Notes:

1. All pertinent federal, state, and local regulations must be followed.
2. Herbicide can only be used by a licensed applicator, and all manufacturer's label directions must be followed.
3. All herbicide use must conform to the attached Standard Operating Procedure developed by The Nature Conservancy.

#### E. Record Keeping

The contractor will keep a log of all maintenance activities performed. For each site visit, the log will note the date, number of crew, hours on site, tasks accomplished, photographs, and any pertinent observations relating to site conditions and plant health. A minimum of two photos will be taken at each site and additional photos will be taken as needed to document site conditions that have changed since the previous visit. Each log will be submitted to the Ecologist within five working days of the site visit.

#### **2011 Scope of Work**

The exact scope of work for maintenance during the second year will be developed based on an assessment of site conditions. Maintenance tasks will most likely include weed control, plant watering, grass mowing around planted trees and shrubs, and maintenance of erosion control measures.

#### **Special Conditions**

If selected, the Contractor will be required to submit proof of insurance and a Health and Safety Plan specific to this project.