

**ATTACHMENT P1-3**  
**DRAFT RECLAMATION AND REVEGETATION PLAN**

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# **Draft Reclamation and Revegetation Plan**

## **Boardman to Hemingway Transmission Line Project**



1221 West Idaho Street  
Boise, Idaho 83702

September 2018; July 2020 (Modified by Oregon Department of Energy  
during ASC – PO Phase)

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## ACRONYMS AND ABBREVIATIONS

BLM	Bureau of Land Management
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
FWS	U.S. Fish and Wildlife Service
GPS	global positioning system
IPC	Idaho Power Company
kV	kilovolt
OAR	Oregon Administrative Rule
ODA	Oregon Department of Agriculture
ODOE	Oregon Department of Energy
OHV	off-highway vehicle
Project	Boardman to Hemingway Transmission Line Project
RL	reclamation level
ROW	right-of-way
RZ	reclamation zone
T&E	threatened and endangered
TVES	Terrestrial Visual Encounter Surveys
USFS	United States Forest Service

## Agency Review Process

The agency review process outlined in this section aligns with the OAR 345-025-0016 agency consultation process applicable to monitoring and mitigation plans.

To afford an adequate opportunity for applicable local, state and federal agencies to review the draft plan prior to finalization and implementation, and any future plan amendments, the certificate holder shall implement the following agency review process.

Step 1: Certificate Holder's Update of Draft Plan or Future Plan Amendment: The certificate holder may develop one Reclamation and Revegetation Plan to cover all construction and operational activities for the entire facility; or, may develop individual plans per county, segment or phase, construction or operation, as best suited for the facility. Based on the draft Reclamation and Revegetation Plan included as Attachment P1-3 of the Final Order on the ASC, the certificate holder shall update the draft plan(s) based on facility design. If the plan(s) are amended following finalization, the certificate holder shall clearly identify and provide basis for any proposed changes.

Step 2: Certificate Holder and Department Coordination on Appropriate Review Agencies and Agency Review Conference Call(s): Prior to submission of the updated draft plan, or any future amended plans, the certificate holder shall coordinate with the Department's Compliance Officer to identify the appropriate federal, state and local agencies to be involved in the plan review process. In this instance, "appropriate" federal agencies are based on landownership where facility construction and operation would result in temporary or permanent disturbance. "Appropriate" state agencies would include Oregon Department of Agriculture and Oregon Department of Fish and Wildlife; "appropriate" local agencies refers to the County Planning Department, Public Works Department and Weed Department, or other county departments with expertise in revegetation. Once appropriate federal, state and local agency contacts are identified by the Department and certificate holder, the Department's Compliance Officer will initiate coordination between agencies to schedule review/planning conference call(s). The Department and certificate holder may agree to schedule separate conference calls per county.

The intent of the conference call(s) are to provide the certificate holder, or its contractor, an opportunity to describe details of the updated draft or amended plan; and, agency plan review schedule. Agencies may provide initial feedback on requirements to be included in the plan during the call, or may provide written comments during the 14-day comment period. The Department will request that any comments provided be supported by an analysis and local, state or federal regulatory requirement (citation).

The certificate holder may coordinate with appropriate review agencies, in advance of or outside of the established agency review process; however, this established agency review process is necessary under OAR 345-025-0016 and may result in more efficient plan finalization and amendment if managed in a consolidated process, utilizing the Department's Compliance Officer as the lead Point of Contact.

Step 3: Agency Review Process: Either with, or prior to, the agency conference call(s), the certificate holder shall distribute electronic copies of the draft, or future amended, plan(s) requesting that the Department coordinate agency review comments within 14-days of receipt, or as otherwise determined feasible. See Section 5.0 of the plan for an example of details to be finalized during the agency review process. Following the 14-day agency review period, the Department will consolidate comments and recommendations into the draft, or amended, plan(s), using a Microsoft Word version of the plan provided by certificate holder. Within 14-days of receipt of the agency review comments, the certificate holder shall provide an updated final version of the plan, incorporating any applicable regulatory requirements, as identified during agency review or must provide reasons supporting exclusion of recommended requirements.

Final plans will be distributed to applicable review agencies by the Department, including the certificate holder's assessment of any exclusions of agency recommendations, and a description of their opportunity for dispute resolution.

Step 4: Dispute Resolution: If any review agency considers the final, or amended, plan(s) not to adhere to applicable state, federal or local laws, Council rules, Council order, or site certificate condition or warranty, the review agency may submit a written request of the potential violation to the Department's Compliance Officer or Council Secretary, requesting Council review during a regularly scheduled Council meeting. The Council would, as the governing body, review the violation claim and determine, through Council vote, whether the claim of violation is warranted and identify any necessary corrective actions.

## 1.0 INTRODUCTION

This Attachment to Exhibit P1 of Idaho Power Company's (IPC's) application for site certificate contains information describing the framework for application of reclamation and revegetation actions on lands disturbed by the Boardman to Hemingway Transmission Line Project (Project).

Specifically, this Reclamation and Revegetation Plan (hereafter referred to as the Reclamation Plan) describes existing habitat types within the Site Boundary; reclamation zones (RZ); reclamation levels (RL) based on the type, duration, and level of disturbance; and finally, preferred reclamation and monitoring methods. The Final Reclamation and Revegetation Plan will include site-specific treatments, identify seed mixes for use in specific habitat types, address atypical situations, and be subject to agency approval on public lands. The Final Reclamation Plan will be a framework for the subsequent development of site-specific treatment plans.

The Project area, or Site Boundary, as defined in Oregon Administrative Rule (OAR) 345-001-0010(55) includes "the perimeter of the site of a proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas, and all corridors and micro-siting corridors proposed by the applicant." The Site Boundary for this Project includes the following related and supporting facilities in Oregon:

- The Proposed Route, consisting of 270.8 miles of new 500-kilovolt (kV) electric transmission line, removal of 12 miles of existing 69-kV transmission line, rebuilding of 0.9 mile of a 230-kV transmission line, and rebuilding of 1.1 miles of an existing 138-kV transmission line;
- Four alternatives that each could replace a portion of the Proposed Route, including the West of Bombing Range Road Alternative 1 (3.7 miles), West of Bombing Range Road Alternative 2 (3.7 miles), Morgan Lake Alternative (18.5 miles), and Double Mountain Alternative (7.4 miles);
- One proposed 20-acre station (Longhorn Station);
- Ten communication station sites of less than ¼ acre each and two alternative communication station sites;
- Permanent access roads for the Proposed Route, including 206.3 miles of new roads and 223.2 miles of existing roads requiring substantial modification, and for the Alternative Routes including 30.2 miles of new roads and 22.7 miles of existing roads requiring substantial modification; and
- Thirty temporary multi-use areas and 299 pulling and tensioning sites of which four will have light-duty fly yards within the pulling and tensioning sites.

The Project features are fully described in Exhibit B and the Site Boundary for each Project feature is described in Exhibit C, Table C-24. The location of the Project features and the Site Boundary is outlined in Exhibit C.

### 1.1 Purpose

The purpose of this Reclamation Plan is to provide a framework for reclamation treatments to be applied to areas impacted by Project construction, operation, and maintenance activities. This Reclamation Plan will describe and recommend construction and reclamation treatment actions that will meet the goals and objectives for land health standards under the applicable authorities, described below in Section 2.0 – Applicable Rules and Statutes; it will also provide requirements for implementing and monitoring reclamation, and will meet the reclamation success standards described in Section 6.4.



Important actions in mitigating the effects associated with the Project include (1) minimizing to the greatest degree practicable the effects associated with right-of-way (ROW) preparation and the construction of facilities, and (2) stabilizing disturbed areas to facilitate eventual desirable plant revegetation for the purpose of maintaining a safe and stable landscape that meets the desired outcomes of land management plans. The procedures outlined in this Plan will assist in:

- Restoring plant communities and associated wildlife habitat and range;
- Preventing substantial increases in noxious weeds in the Project area;
- Minimizing Project-related soil erosion; and
- Reducing visual impacts on sensitive areas caused by construction activities.

## 1.2 Responsible Parties

IPC will have the overall responsibility of ensuring implementation and monitoring of reclamation efforts for the Project.

The Construction Contractor(s) will be responsible for development of the Final Reclamation Plan. This Reclamation Plan will provide the Construction Contractor(s) the baseline and framework for developing the Final Reclamation Plan that addresses site-specific conditions for reclamation areas identified based on the final design layout of the Project. The Construction Contractor(s) will also be responsible for field-verifying habitat types within the Project disturbance area, identifying and mapping reclamation treatment and control monitoring sites, and collecting preconstruction qualitative and quantitative data at monitoring sites. Once postconstruction reclamation procedures are complete, the Construction Contractor(s) will be responsible for reclamation monitoring, reporting, and installing signage at each reclamation area to indicate that reclamation is in process.

On federal lands, the appropriate land management agency, including either the Bureau of Land Management (BLM) or the United States Forest Service (USFS), will be responsible for the review of the Final Reclamation Plan, on-the-ground reclamation activities, reclamation monitoring reports, and sign-off that reclamation has been completed to the conditions included in the Record of Decision and the ROW Grant.

The Oregon Department of Energy (ODOE) will review all reclamation activities on private, state, and federal lands under the agency's compliance monitoring program. The ODOE Compliance Officer will be responsible for the review of the Final Reclamation Plan, on-the-ground reclamation activities, reclamation monitoring reports, and sign-off that reclamation has been completed ~~to the conditions of the Project Order~~based on the success criteria of the Reclamation Plan.

Reclamation on agricultural lands will be coordinated with local landowners to best meet landowners' needs and management goals. An agricultural mitigation plan is included in ASC Attachment K-1 of Exhibit K.

Sensitive biological resources will be mapped in accordance with a Biological Monitoring Plan.

## 2.0 APPLICABLE RULES AND STATUTES

This Reclamation Plan is intended to fulfill OARs requiring disclosure of methods used to mitigate for impacts to wildlife habitat, to monitor mitigation efforts, and to protect soil resources.

Specifically, OAR 345-021-0010(1)(p) requires Exhibit P1 to include:

*(G) A description of any measures proposed by the applicant to avoid, reduce or mitigate the potential adverse impacts described in (F) in accordance with the ODFW mitigation goals described in OAR 635-415-0025 and a discussion of how the proposed measures would achieve those goals. (H) A description of the applicant's proposed monitoring plans to evaluate the success of the measures described in (G). Additionally, OAR 345-022-0022, requires that Exhibit I demonstrates that construction and operation of the Project, taking into account mitigation, will not result in significant adverse impact to soils.*

Authority for the reclamation practices defined in this Plan is provided under the following.

## **2.1 Endangered Species Act of 1973, as amended**

Take of federally listed species is prohibited without specific exceptions or permits issued under Sections 7 or 10 of the Endangered Species Act (ESA). Under the ESA, the definition of “take” includes to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. The U.S. Fish and Wildlife Service (FWS) has further defined harm to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Federal agencies must consult with the FWS under Section 7 of the ESA on actions they authorize, fund, or carry out to ensure these actions are not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

## **2.2 Federal Land Policy and Management Act, Section 101(a)(8)**

The Federal Land Policy and Management Act requires “public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition.”

## **2.3 BLM National Sage-Grouse Habitat Conservation Strategy, Section 1.4.1**

BLM's goal is to “Sustain or reestablish the integrity of the sagebrush biome to provide the amount, continuity, and quality of habitat that is necessary to maintain sustainable populations of sage-grouse and other sagebrush-dependent wildlife species” (BLM 2004).

## **2.4 BLM Oregon Standards for Rangeland Health and Guidelines for Livestock Grazing**

The Standards for Rangeland Health, as applied in the State of Oregon, are: “to promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions; and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands” (BLM 1997).

## 2.5 BLM Oregon, Vale Field Office, Southeastern Oregon Resource Management Plan

“Restore, protect, and enhance the diversity and distribution of desirable vegetation communities including perennial native and desirable introduced plant species. Provide for their continued existence and normal function in nutrient, water, and energy cycles” (BLM 2002).

## 2.6 BLM Oregon, Vale Field Office, Baker Resource Area Resource Management Plan

“Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences” (BLM 1989).

## 2.7 USFS, Wallowa-Whitman Land and Resource Management Plan

The Wallow-Whitman Land and Resource Management Plan establishes the following management goals: “To maintain native and desirable introduced or historic plant and animal species and communities. Maintain or enhance ecosystem function to provide for long-term integrity and productivity of biological communities. To provide habitat for viable populations of all existing native and desired nonnative vertebrate wildlife species and to maintain or enhance the overall quality of wildlife habitat across the Forest” (USFS 1990).

## 2.8 The Oregon Sage-Grouse Action Plan 2015, Section iii

“The overarching habitat goal is to maintain or enhance the distribution of sagebrush habitats in Oregon with the objective to retain greater than 70% of sage-grouse range as sagebrush habitat in advanced structural stages and to manage the remaining 30% (areas of juniper encroachment, non-sagebrush shrubland, and grassland) to increase available habitat within the range of the sage-grouse” (Sage-Grouse Conservation Partnership 2015).

## 3.0 OVERVIEW OF EXISTING ENVIRONMENTS

Reclamation actions will be specific to the setting and habitat types impacted by the Project.

### 3.1 Description of Vegetation

The Proposed Route crosses four ecoregions (Thorson et al. 2003). Starting in Morrow County, at the Longhorn Station, the route crosses approximately 34.8 miles of the Columbia Plateau ecoregion. Vegetation in this ecoregion is characterized by grasslands of bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg bluegrass (*Poa secunda*), and Idaho fescue (*Festuca idahoensis*), and associated sagebrush species (*Artemisia* sp.) (Thorson et al. 2003). Cheatgrass (*Bromus tectorum*) is common understory component. Major irrigation projects in the area have converted much of land along the route to poplar tree plantations and irrigated agriculture.

In Umatilla County, the route generally runs from west to east, crossing the Columbia Plateau, and rising into the Blue Mountains ecoregion. Vegetation in this portion of the Columbia Plateau ecoregion is similar to that found in Morrow County, supporting bunchgrass communities without the associated sagebrush species (Thorson et al. 2003). Dryland farming is common in this area. Generally, vegetation in the Blue Mountain ecoregion consists of a diverse shrub layer beneath an open canopy of ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*). Areas of mesic spruce-fir forest exist as the route crosses the Blue Mountains, in Union County (Thorson et al. 2003). In Baker County, the route descends as it runs to the southeast, passing through bunchgrass, sagebrush, bitterbrush (*Purshia tridentata*), and some

juniper (*Juniperus*) communities (Thorson et al. 2003). Again, irrigated agriculture is a major land use in the valleys of Baker County.

As the route leaves Baker County, it also leaves the Blue Mountains ecoregion, entering Malheur County and the Snake River Plain ecoregion (Thorson et al. 2003). Aside from irrigated agriculture, Wyoming big sagebrush (*Artemisia tridentata* subsp. *wyomingensis*), basin big sagebrush (*A. tridentata* subsp. *tridentata*), bluebunch wheatgrass, and cheatgrass are common (Thorson et al. 2003). In saline areas, shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), and saltgrass (*Distichlis spicata*) occur.

Before leaving Malheur County and entering Owyhee County, Idaho, to eventually terminate at the Hemingway Substation, the route crosses a small portion of the Northern Basin and Range ecoregion, before returning to the Snake River Plain, in Idaho. Northern Basin and Range ecoregion along this portion of the route is characterized by sagebrush steppe containing deep river canyons, barren lava fields, badlands, and tuffaceous outcrops (Thorson et al. 2003).

### 3.2 Grouping of Vegetation

IPC used data from the Terrestrial Visual Encounter Surveys (TVES) to identify the ecological systems and assign a habitat type and category based on vegetation characteristics. However, due to limitations on access to private lands, surveys have not been completed within the entire Site Boundary. Approximately 67 percent of the Site Boundary was surveyed for TVES (see Exhibit P1). In areas where survey information was not available due to unsigned right-of-entry agreements or changes in route alignment, biologists used desktop analysis methods to assign habitat type and category. Gap Analysis Project (or GAP) and aerial imagery interpretation were used to delineate habitat type and agency designated habitats (e.g., Oregon Department of Fish and Wildlife designated big game habitats), known occurrences of special status species, and conditions in adjacent surveyed areas were used to approximate the appropriate category type. Detailed descriptions of the modeling and criteria used to identify and categorize habitats within the Site Boundary are included in Attachment P1-1, Habitat Categorization Matrix, and Attachment P1-6, Habitat Mitigation Plan.

TVES and subsequent desktop analysis for the habitat categorization process identified various habitat types present within the Site Boundary. These habitat types were then assembled into RZs for purposes of this Reclamation Plan. Habitat types grouped into RZs are useful in presenting and describing reclamation methods used for specific habitat types. The extent of each habitat type within the Site Boundary is presented in Table 1. RZs are discussed in greater detail in Section 4.1 below.

**Table 1. Habitat Types within the Site Boundary and Corresponding Reclamation Zone**

Reclamation Zone	Percent of Site Boundary	Habitat Types Included in each Reclamation Zone
Shrubland	37	Desert Shrub Shrub-Steppe with Big Sage Shrub-Steppe without Big Sage
Grassland	18	Native Grasslands
Agriculture	8	Agriculture
Forest and Woodland	13	Douglas Fir / Mixed Grand Fir Ponderosa Pine Western Juniper / Mountain Mahogany Woodland Forested - Other

Reclamation Zone	Percent of Site Boundary	Habitat Types Included in each Reclamation Zone
Wetland / Riparian	1	Aquatic Bed Wetland Emergent Wetland Scrub-Shrub Wetland Forested Wetland Ponds and Lakes Ephemeral, Intermittent, and Perennial Stream Herbaceous Riparian Introduced Riparian Riparian Woodland and Shrubland
Other	23	Introduced Upland Vegetation and Burned Areas Developed / Disturbed Bare Ground, Cliffs, Talus

## 4.0 RECLAMATION PLAN METHODOLOGY

This section of the Reclamation Plan describes the process used to identify reclamation actions that will be required within areas subject to ground disturbance as a result of Project construction, operation, and maintenance. Reclamation will occur across all areas impacted by the Project unless occupied by a permanent structure, regardless of land ownership. The following discussion focuses on two key components: (1) identification of RZs, and (2) identification of RLs that have been used to designate or prescribe the required actions for each RZ. The implementation of the reclamation actions described in Section 5.0 – Reclamation Plan varies based on these two components, as well as the habitat types potentially affected.

### 4.1 Identification of Reclamation Zones

This Reclamation Plan identifies six RZs (RZ1 to RZ6), which are an aggregation of the habitat types listed in Table 1. Additionally, this Reclamation Plan describes the applicable reclamation actions for each RZ. While species composition will vary within the RZ, similar habitat types will likely be found within the designated zone that will support similar reclamation actions.

The following subsection describe each RZ applicable within the Site Boundary.

#### 4.1.1 Reclamation Zone 1 – Shrublands (RZ1)

Reclamation Zone 1 (RZ1) includes shrubland habitat types, which is an aggregation of desert shrub, shrub-steppe with big sage, and shrub-steppe without big sage habitat types. Shrublands are the most common zone found within the Site Boundary, accounting for nearly 37 percent of the total cover. Over 84 percent of the Shrublands RZ is dominated by big sagebrush (*Artemisia*) species. Shrub-steppe without big sage and desert shrub habitat types account for 4 percent and 1 percent of the Site Boundary, respectively.

This zone is typically composed of a variety of low, shrubby, and woody vegetation, with a limited to moderate grass understory (NatureServe 2006). This zone is found throughout the Project, from 375 to 4,700 feet in elevation, and receives approximately 8 to 21 inches of rainfall annually (PRISM 2010). All reclamation actions described in Section 5.0 – Reclamation Plan with the exception of selective clearing are potentially applicable to this zone, dependent on site conditions.



#### **4.1.2 Reclamation Zone 2 – Grasslands (RZ2)**

Reclamation Zone 2 (RZ2) includes an aggregation of native grassland habitat types. Grasslands are the third most common RZ identified, occupying roughly 18 percent of the Site Boundary. The two most common grassland ecological systems found are the Columbia Basin foothill and canyon dry grassland (9 percent of the Site Boundary) and lower montane foothill and valley grassland (7 percent of the Site Boundary). These once-extensive grasslands have been largely converted to farmland and are now found in small fragments in isolated areas throughout the Site Boundary. Additionally, cheatgrass has invaded and converted many of these grasslands into invasive annual grasslands, which are included in the “Other” habitat type described below.

Within the Site Boundary, grasslands are typically found in both valley and montane environments ranging from 550 to 5,000 feet in elevation and receives approximately 10 to 32 inches of rainfall annually (PRISM 2010). All reclamation actions described in Section 5.0 – Reclamation Plan with the exception of selective clearing and vertical mulch are potentially applicable to this zone, dependent on site conditions.

#### **4.1.3 Reclamation Zone 3 – Agriculture (RZ3)**

Reclamation Zone 3 (RZ3) includes both irrigated and dry-land farming, which are important land uses within the Site Boundary. Agriculture, accounting for nearly 8 percent of the Site Boundary, is typically found from approximately 300 to 3,900 feet in elevation, and receives approximately 8 to 15 inches of rainfall annually (PRISM 2010). All reclamation actions described in Section 5.0 – Reclamation Plan with the exception of selective clearing and vertical mulch are potentially applicable to this zone, dependent on site conditions.

#### **4.1.4 Reclamation Zone 4 – Forest and Woodland (RZ4)**

Reclamation Zone 4 (RZ4) includes an aggregation of all forested habitats crossed by the Project and accounts for 13 percent of the Site Boundary. Forest and woodlands are mostly made up of mixed grand fir and Douglas-fir forest (47 percent of the Forest and Woodland RZ) with lesser amounts of ponderosa pine forest and juniper woodlands. These mixed grand fir/Douglas-fir forest are common in the Blue Mountains and are found on drier sites, lacking the characteristic mesic understory of wetter grand fir forest types. Ponderosa pine is a common component on warmer sites in this RZ. Other seral species found in this type are lodgepole pine, western larch, and western white pine (NatureServe 2006).

Forested habitats in the Site Boundary are found in the Blue Mountains in Umatilla and Union counties, from just south of La Grande to south and east of Pendleton. Logging and other disturbance such as grazing are common in these habitat types. Juniper woodlands are mostly found in Baker County west of the town of Durkee. Forest and woodland habitats typically range from 1,900 to 8,800 feet in elevation, and receive approximately 22 to 36 inches of rainfall annually (PRISM 2010). All reclamation actions described in Section 5.0 – Reclamation Plan are potentially applicable to this zone, dependent on site conditions.

#### **4.1.5 Reclamation Zone 5 – Wetland and Riparian (RZ5)**

Reclamation Zone 5 (RZ5) is composed of wetland and riparian habitat types. These types account for 1 percent of the Site Boundary. This is a minor RZ limited in extent by available moisture that is found mostly along stream banks and adjacent to springs and seeps. While not commonly found, these types provide highly important fish and wildlife and livestock habitat. Forested, scrub-shrub, and herbaceous wetland and riparian habitats are all present in the Site Boundary.

In wetland and riparian areas, reclamation actions associated with the other RZs may not be applicable due to site-specific conditions requiring modification from standard actions or as a

result of agency coordination. In these more sensitive areas, the appropriate land management agency and ODOE or the Construction Contractor(s) must coordinate on reclamation actions to be applied and in some cases the land management agency may require additional, detailed planting plans to accommodate riparian habitats and land management agency objectives.

Permanent impacts to wetland habitats are regulated by the U.S. Army Corps of Engineers and are discussed in detail in Exhibit J.

#### **4.1.6 Reclamation Zone 6 – Other (RZ6)**

Reclamation Zone 6 (RZ6) includes an aggregation of disturbed and developed areas and areas dominated by invasive annual and perennial plant species, and is the second most prominent RZ, accounting for 23 percent of the Site Boundary. This zone is typically dominated by invasive plant species or seeded nonnative plants capable of existing in disturbed environments. Introduced forbland and introduced annual and perennial grasslands are the main habitat types of this zone, and together account for 90 percent of the total cover within RZ6. Restoration of these communities to a native plant dominated community is generally not possible as changes in soils and chronic disturbance have altered site potential. This zone is found across a wide range of sites with elevations ranging from approximately 300 to 4,100 feet, receiving from approximately 9 to 31 inches of rainfall annually (PRISM 2010). All reclamation actions described in Section 5.0 – Reclamation Plan with the exception of selective clearing and vertical mulch are potentially applicable to this zone, dependent on site conditions.

Several substrate-dominated natural communities are included under “Other” in Table 1, including cliffs, canyons, and ash and tuff badlands. These sparsely vegetated types are generally found in Malheur County in small, isolated pockets scattered among the sagebrush steppe and shrubland and may require site-specific reclamation plans due to the unique nature of these sites.

## **4.2 Identification of Reclamation Levels**

Determination of RLs that prescribe the types of required actions were based on (1) the type(s) of construction activity, facility features, and the area of associated disturbance; (2) the duration of disturbance (temporary or permanent) associated with these features; and (3) the type of disturbance associated with each activity as described below.

### **4.2.1 Types of Construction Activities and Facility Features**

As presented in Exhibit B, Project Description, major activities associated with the construction of the Project will include, but are not limited to, the following tasks:

- Surveying the transmission centerline, other project features, and work areas;
- Upgrading or constructing temporary and permanent access roads;
- Clearing and grading activities for the ROW, tower sites, multi-use areas, substations, and regeneration sites;
- Developing the Longhorn Station;
- Excavating foundations;
- Installing foundations;
- Assembling and erecting towers with temporary and permanent pad sites;
- Stringing conductors and ground wires;
- Installing communication stations and distribution lines;

- Installing counterpoise (tower grounds) where needed; and
- Conducting cleanup and reclamation of affected areas.

The area disturbed by construction, operation, and maintenance of major facility features will vary as presented in Exhibit B, Project Description. For example, the extent of disturbance associated with bladed access roads will likely be much greater than the disturbance associated with primitive access roads. Likewise, construction disturbance at a tower location will typically be greater than operational and maintenance disturbance for the same tower site.

#### **4.2.2 Disturbance Duration**

This Reclamation Plan identifies two broad types of disturbance duration, as defined below.

##### **4.2.2.1 Permanent**

Permanent impacts are defined as those impacts that will exist for the entire life of the Project. Permanent impacts would occur along access roads, communication stations, Longhorn Station, and tower sites, as well as within the permanent ROW and vegetative maintenance zones along portions of the Project that cross forested/woodland habitats.

##### **4.2.2.2 Temporary**

Temporary impacts are those impacts that will last for a time less than the life of the Project; these include temporary impacts associated with permanent access roads, multi-use areas, pulling and tensioning sites, light-duty fly yards, areas around tower pads, and around the Longhorn Station. Temporary impacts during operation would result from the periodic disturbance associated with inspection and maintenance of the line; temporary impacts associated with retirement of the Project would be similar to those described for construction.

#### **4.2.3 Disturbance Level**

This Reclamation Plan defines four broad disturbance levels based on activities associated with construction, operation, and maintenance of Project facilities. Disturbance levels will be considered in the identification of RLs and implementation of specific reclamation practices. In general, the amount of ground disturbance increases with each disturbance level.

##### **4.2.3.1 Disturbance Level 1 (D1) – No New Disturbance**

D1 areas include existing access roads and previously disturbed locations that do not require further improvement (vegetation removal or grading) that will remain permanent (in place) after Project construction is complete.

##### **4.2.3.2 Disturbance Level 2 (D2) – Primitive**

In D2 areas, disturbance is caused by access to the Project site or construction activities in a work area that requires the clearing of large woody vegetation and other obstructions to improve or provide suitable access for equipment and vehicles. Most woody shrub vegetation is removed and soils are compacted, but no surface soil is removed (i.e., no blading of topsoil), preserving vegetation roots wherever practical to facilitate plant reestablishment. These roads are commonly called “two track” or “overland travel” roads. Examples include new access roads where overland access may be used in the construction of facilities, or in some areas where roads may be improved for access (selective tree and brush clearing). These roads are not intended for use as all-weather roads.

##### **4.2.3.3 Disturbance Level 3 (D3) – Substantial Modification**

In D3 areas, disturbance is caused by access to the Project site or construction activities within a work area that requires improving access for equipment and vehicles. Activities resulting in this type of disturbance may include: (1) increasing the width of the existing road prism; (2) changing



the existing road alignment; (3) using materials inconsistent with the existing road surface; and/or (4) changing the existing road profile in a way that would alter vehicle use patterns.

Repairs using existing road surface materials within the existing road prism that would not change the road profile or alter the vehicle use patterns are considered substantial modifications if they comprise greater than 20 percent of the road surface area defined by road prism width and longitudinal distance over a defined road segment.

#### 4.2.3.4 Disturbance Level 4 (D4) – Bladed

Disturbance in D4 areas is caused by removing vegetation and displacement of soils. The soils are compacted and the surface soil is displaced (i.e., blading of topsoil). Some examples include construction of a new road prism across a steep side slope or over rough and uneven terrain, tower sites that require clearing and grading, multi-use areas requiring grading, some light-duty fly yards, and existing access roads that require improvements. These roads are designed to support heavy equipment and vehicular traffic.

### 4.2.4 Reclamation Levels

Four levels of reclamation (RL1 to RL4) have been identified for the Project based on the potential disturbance level (D1 through D4), and duration of disturbance (temporary or permanent). These RLs are described in the following subsections and summarized in Table 2.

**Table 2. Disturbance Level, Disturbance Duration, and Associated Reclamation Level**

Disturbance Level	Disturbance Duration	
	Temporary	Permanent
<b>D1</b> – No New Disturbance	<i>Does Not Apply</i>	<b>RL1</b> – Minimal Level of Permanent Disturbance
<b>D2</b> – Primitive	<b>RL2</b> – Low Level of Temporary Disturbance	<b>RL1</b> – Minimal Level of Permanent Disturbance
<b>D3</b> – Substantial Modification	<b>RL3</b> – Moderate Level of Temporary Disturbance	<b>RL4</b> – Moderate / High Level of Permanent Disturbance
<b>D4</b> – Bladed	<i>Does Not Apply</i>	<b>RL4</b> – Moderate / High Level of Permanent Disturbance

#### 4.2.4.1 Reclamation Level 1 (RL1) – Minimal Level of Permanent Disturbance

Project activities in RL1 areas do not result in new disturbance, require minimal preconstruction treatment, and will normally require no postconstruction reclamation actions (outside of routine maintenance). Routine maintenance will include removal of woody vegetation within the transmission line ROW, which is described in Exhibit P1, Attachment P1-4, Vegetation Management Plan. RL1 can include an existing disturbance, such as an existing road.

#### 4.2.4.2 Reclamation Level 2 (RL2) – Low Level of Temporary Disturbance

Project activities in RL2 areas are low level and temporary that will result in disturbance confined to overland construction, including vegetation crushing, and will require limited reclamation actions. RL2 can include temporary facilities such as pulling and tensioning sites and the temporary portions of structure work areas. Low-level temporary disturbance associated with permanent access roads not needing substantial modification or blading may also occur.

#### 4.2.4.3 Reclamation Level 3 (RL3) – Moderate Level of Temporary Disturbance

Project activities in RL3 areas will result in moderate temporary disturbance, limited to clearing and cutting of vegetation. RL3 can include temporary facilities such as pulling and tensioning sites and the temporary portions of structure work areas. Moderate-level temporary disturbance

associated with permanent access roads may also occur. RL3 is distinguished from RL2 by a higher level of construction disturbance.

#### 4.2.4.4 Reclamation Level 4 (RL4) – Moderate / High Level of Permanent Disturbance

Project activities in RL4 areas will result in a moderate to high level of permanent disturbance (e.g., blading). Reclamation actions will be minimal because RL4 areas will be permanently occupied by Project components and facilities. RL4 applies to rebuilt existing roads, new access roads that will serve for maintenance and operation of the transmission line, regeneration stations, and the permanent portions of the structure pads. In RL4 locations, seeding and alternative seeding will be applied where appropriate and replacement of soils and vertical mulch will be limited.

For RL2 through RL4, pretreatment of existing noxious weed occurrences may be required before construction to prevent infestation and spread.

Table 3 identifies the various RLs to be applied for each of the related and supporting facilities and associated disturbance levels and durations. In general, the order of disturbance levels from least to greatest is overland drive-and-crush, overland clear-and-cut, and blade-and-shape. RL does not imply level of effort to meet reclamation success criteria. For instance, a RL2 in native shrub-steppe habitat may require more time and effort to meet success criteria than a RL3 in an introduced upland vegetation habitat.

**Table 3. Construction Component and Reclamation Level**

Construction Component	Disturbance Level	Disturbance Duration		Reclamation Level
		Temporary	Permanent	
Structure work areas	D2 – Primitive	●		RL2 – Low Level of Temporary Disturbance
	D3 – Substantial Modification	●		RL3 – Moderate Level of Temporary Disturbance
	D4 – Bladed		●	RL4 – Moderate / High Level of Permanent Disturbance
Pulling and tensioning sites, multi-use areas, and other ancillary facilities that result in temporary disturbance	D2 – Primitive	●		RL2 – Low Level of Temporary Disturbance
	D3 – Substantial Modification	●		RL3 – Moderate Level of Temporary Disturbance
Longhorn Station, communication sites, and other ancillary facilities that result in permanent (long-term) disturbance	D2 – Primitive		●	RL1 – Minimal Level of Permanent Disturbance
	D3 – Substantial Modification		●	RL4 – Moderate / High Level of Permanent Disturbance
	D4 – Bladed		●	RL4 – Moderate / High Level of Permanent Disturbance

Construction Component	Disturbance Level	Disturbance Duration		Reclamation Level
		Temporary	Permanent	
Existing paved roads, access roads (no improvement)	D1 – No New Disturbance		●	RL1 – Minimal Level of Permanent Disturbance
Existing access road (with improvements)	D2 – Primitive		●	RL1 – Minimal Level of Permanent Disturbance
	D2 – Primitive	●		RL2 – Low Level of Temporary Disturbance
	D3 – Substantial Modification		●	RL4 – Moderate / High Level of Permanent Disturbance
	D3 – Substantial Modification	●		RL3 – Moderate Level of Temporary Disturbance
	D4 – Bladed		●	RL4 – Moderate / High Level of Permanent Disturbance
New access road	D2 – Primitive		●	RL1 – Minimal Level of Permanent Disturbance
	D2 – Primitive	●		RL2 – Low Level of Temporary Disturbance
	D3 – Substantial Modification		●	RL4 – Moderate / High Level of Permanent Disturbance
	D3 – Substantial Modification	●		RL3 – Moderate Level of Temporary Disturbance
	D4 – Bladed		●	RL4 – Moderate / High Level of Permanent Disturbance

## 5.0 RECLAMATION PLAN

This section presents reclamation actions specifically required for each level of reclamation (RL1 to RL4 as described in Section 4.2.4 – Reclamation Levels) within the reclamation zones previously discussed (RZ1 to RZ6 as described in Section 4.1 – Identification of Reclamation Zones).

Reclamation actions are physical treatments and activities that will occur throughout each phase of the Project and are specific to RL, as identified in Table 4. Table 4 presents pre- and post-construction reclamation actions for each RZ and RL. Table 3, which identifies the RLs for various construction components, is to be used in conjunction with Table 4 to determine appropriate site-specific reclamation actions.

**Table 4. Reclamation Action Identification**

Reclamation Activity	RZ 1 (Shrublands)				RZ 2 (Grasslands)				RZ 3 (Agriculture)				RZ 4 (Forest and Woodland)				RZ 5 (Wetlands and Riparian)				RZ 6 (Other)			
	RL 1	RL 2	RL 3	RL 4	RL 1	RL 2	RL 3	RL 4	RL 1	RL 2	RL 3	RL 4	RL 1	RL 2	RL 3	RL 4	RL 1	RL 2	RL 3	RL 4	RL 1	RL 2	RL 3	RL 4
<b>PRECONSTRUCTION ACTIONS</b>																								
Noxious weed plan implementation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Selective clearing			●	●											●	●			●	●				
Topsoil segregation			●				●				●				●				●				●	
Reclamation monitoring site selection			●				●				●				●				●				●	
<b>POSTCONSTRUCTION ACTIONS</b>																								
Noxious weed plan implementation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Management of waste materials	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Earthworks			●	●			●	●			●	●			●	●			●	●			●	●
Topsoil replacement			●				●				●				●				●				●	
Seeding		●	●	●		●	●	●		●	●	●		●	●	●		●	●	●		●	●	●
Alternative seeding		●	●	●		●	●	●		●	●	●		●	●	●		●	●	●		●	●	●
Vertical mulch replacement			●				●				●				●				●				●	
Signage		●	●			●	●			●	●			●	●			●	●			●	●	
Reclamation monitoring (general and site-specific)		●	●	●		●	●	●		●	●	●		●	●	●		●	●	●		●	●	●

Notes:  
 RL – Reclamation level  
 RZ – Reclamation zone

If a variance to the expected disturbance level for a particular construction component is required due to unforeseen environmental or engineering constraints, Table 3 provides direction for determining the revised RL, which can then be used to identify the appropriate reclamation actions per Table 4.

These reclamation actions will facilitate resource protection during construction, enhance recovery for areas temporarily disturbed by Project construction, and promote the re-establishment of vegetation in disturbed areas.

#### Pre-Construction Agency Consultation

The Construction Contractor(s) will coordinate with the appropriate land management agency and ODOE or landowner(s) during the development of the Final Reclamation Plan. This coordination will include the following:

- Development of site-specific reclamation treatments where disturbance occurs,
- Determining desirable species for each reclamation zone to be included in Table 6 of this plan,
- Determining appropriate seed mixes for each reclamation zone, and
- Delineation of the geographic extent in which each seed mix will be distributed within the areas disturbed by construction.

The Construction Contractor(s) and appropriate land management agency and ODOE, or landowner(s) coordination will occur during the preconstruction phase of the Project to ensure the proper amount of each seed mix can be purchased and is available when needed. The goal of identifying site-specific reclamation treatments will be achieved through analysis of existing data and ground verification of habitat types documented during TVES surveys in areas subject to Project-related ground disturbance. In particular, habitat types important to threatened and endangered (T&E) species may require additional reclamation actions to mitigate disturbance impacts associated with the Project and maximize the probability of reclamation success.

The Construction Contractor(s) will also coordinate with the appropriate land management agency and ODOE on the methods to be used for: field-verification of habitat types within the Project disturbance area, identifying and mapping reclamation treatment and control monitoring sites, and collecting preconstruction qualitative and quantitative data at monitoring sites.

## **5.1 ROW Preparation and Preconstruction Actions**

Preconstruction actions are those that occur before construction of the Project is initiated, and includes activities associated with ROW preparation. ROW preparation includes general site preparation involving flagging of the ROW boundaries, construction areas and sensitive resources (wetlands, T&E plants, cultural) to avoid accidental entry into these areas. It also includes identification and pre-treatment of noxious weed infestations located within proposed Project disturbance footprint (see Exhibit P1, Attachment P1-5, Noxious Weed Plan) and storage areas for windrowed plant and soil materials. Monitoring sites will be established, as described in Section 6.2.2 – Site-Specific Reclamation Monitoring.

Preconstruction actions will focus on protection of environmentally sensitive areas and resources identified for preservation, monitoring site selection and baseline data collection, and identification and pretreatment of noxious weed infestations located within proposed Project disturbance. Preconstruction actions and ROW preparation are the responsibility of the Construction Contractor(s).

Disturbance related to Project construction may begin only after all ROW preparation and

preconstruction actions have been completed.

### **5.1.1 Noxious Weed Plan Implementation**

Noxious weeds and invasive plant species will be managed in conformance with the Noxious Weed Plan (Exhibit P1, Attachment P1-5). Specific measures and agency directives will be detailed in the Noxious Weed Plan once finalized, as well as information regarding noxious weed control measures and monitoring requirements. Noxious weed treatment and monitoring will continue following Project construction.

### **5.1.2 Monitoring Site Selection**

As discussed below in Section 6.2.2 – Site-Specific Reclamation Monitoring, preliminary monitoring site locations will be established along the ROW. A single monitoring site includes

both a treatment site and a control site. The treatment site is an area expected to be disturbed during construction and that will be revegetated. The control site will be paired with the treatment site, meaning the control site will be in the vicinity of the treatment site and will have the same general slope, aspect, and habitat type as the treatment site (prior to disturbance).

Monitoring sites will be selected for each of the habitat types expected to be subject to Project-related surface disturbance as described below in Section 6.1 – Monitoring Requirements.

### **5.1.3 Selective Clearing**

Selective clearing is the normal practice for mitigating impacts in areas where trees or brush of high densities have been cleared due to Project activities. Selective clearing is to be considered in shrubland (RZ1) or forest and woodland RZ (RZ4) areas of the Project. See the Vegetation Management Plan (Exhibit P1, Attachment P1-4) for further discussion of vegetation management.

### **5.1.4 Topsoil Segregation**

Ground disturbance will be avoided and minimized where practical; however, even with avoidance and minimization of disturbance, there will still be extensive areas of temporary soil disturbance resulting from construction of the Project. The Final Reclamation Plan will identify locations where the management of topsoil is warranted (e.g., stripping off the topsoil layer and storing it separately from subsoils), such as areas where topsoil currently supports native plant species or in areas that are important to private landowners (e.g., agricultural soils). Generally, the topsoil layer is considered the upper 6 to 12 inches of soil, but this can vary by soil type, and soils deeper than 12 inches may need to be considered as “topsoil” in certain agricultural areas. Furthermore, top soils in dry shrubland and desert-like environments may be much thinner than 6 inches in many instances.

Topsoil segregation includes the separation of topsoil from subsoil. Topsoil contains organic material, including the seeds of plants growing on the site. Topsoil segregation will be performed where earthworks cause disturbance to vegetation and soil. Topsoil will be set aside for postconstruction replacement. The goal of this activity is to maintain the biological, chemical, and physical integrity of the topsoil and subsoil (where appropriate).

If topsoil is removed, care will be taken to ensure it is not mixed with the underlying subsoil. Topsoil will be stored in a separate stockpile. It will be returned to the area from which it was taken and will not be spread in adjacent areas. If topsoil is not suitable for backfill, it will be spread in other previously disturbed areas or transported to a predetermined off-site disposal area.

Additionally, subsurface soils and waste rock will be spread where practicable and in proximity to the disturbance (within the ROW). This material will be spread uniformly to match existing contours and covered with topsoil, when available, and re-seeded. Large rocks excavated during foundation work will be kept separate from topsoil during construction and during surface preparation as part of restoration. These rocks will be moved to designated on-site locations.

## **5.2 Postconstruction Reclamation Actions**

Postconstruction reclamation actions occur after Project construction has terminated, and primarily focus on stabilizing permanent use areas and restoring temporary areas to allow revegetation. Postconstruction reclamation actions that may be used are defined below and are organized by their sequence of implementation. The Construction Contractor(s) will incorporate the reclamation actions identified in the Final Reclamation Plan that will be reviewed and

approved by the appropriate land management agency and ODOE, or landowner, before postconstruction actions commence.

If reclamation actions identified below cannot be implemented following construction, appropriate interim erosion control measures as proposed by the Construction Contractor(s) and approved by the appropriate land management agency, ODOE, landowner, and/or discussed in the Erosion and Sediment Control Plan (ESCP [discussed in Exhibit I, Soil Protection]), will be installed until revegetation can occur.

### **5.2.1 Management of Waste Materials**

Management of waste materials will be performed in conformance with the Spill Prevention, Containment, and Countermeasures Plan (see Exhibit I, Soil Protection). Final cleanup will ensure all construction areas are free of construction debris including, but not limited to, assembly scrap metals, oil or other petroleum-based liquids, construction wood debris, and worker-generated litter. Permanent erosion control devices will be left in place.

### **5.2.2 Earthworks**

Earthwork activities will include the re-establishment of slope stability, surface stability, desired topographic diversity, and drainage features. Subsurface soils and waste rock will be spread where practicable and in proximity to the disturbance (within the ROW). This material will be spread uniformly to match existing contours and covered with topsoil, when available, and reseeded. Earthwork activities will include re-contouring, to the extent feasible, of areas that are not needed for operation and maintenance of the Project. Temporarily disturbed lands within the ROW will be re-contoured to match surrounding landscapes. Re-contouring will emphasize restoration of the existing drainage patterns and landform to preconstruction conditions, to the extent practicable. Structure pads and permanent access roads may be reseeded to reduce pad and road erosion, but these permanent features will not be re-contoured. Earthwork activities will also include application of appropriate hydrologic stabilization methods and soil erosion measures in conformance with the ESCP (see Exhibit I, Soil Protection).

Detrimental soil disturbance such as compaction, erosion, puddling, and displacement will be minimized through implementing measures identified in the ESCP. Measures may include road ripping, frequent water bars, cross-ditching (e.g., rolling dips), or other methods to reduce compaction while preventing gully formation. Ripping pattern will be altered to a crossing, diagonal, or undulating pattern of tine paths to avoid concentrated runoff patterns that can lead to gullies.

### **5.2.3 Topsoil Replacement**

Areas within the ROW, laydown or staging yards, and other areas of extensive vehicle travel and material storage may contain compacted soils. These soils will be de-compacted on a case-by-case basis. In areas of droughty soils, the soil surfaces will be mulched and stabilized to minimize wind erosion and to conserve soil moisture in accordance with the ESCP. Topsoil and subsurface soils will be replaced in the proper order during reclamation.

### **5.2.4 Seeding**

Seeding involves planting new seed of native or desirable introduced plant species to establish desired self-perpetuating plant communities within Project-affected areas. It is important to establish a species composition, diversity, structure, and total ground cover appropriate for the desired habitat type to meet the objectives of the BLM and USFS Resource Management Plans on public lands. As stated above, the BLM (2002) plan states that action on BLM lands should "Restore, protect, and enhance the diversity and distribution of desirable vegetation communities including perennial native and desirable introduced plant species." While native



plant communities are generally preferred, in some cases, as determined by the appropriate land management agency, ODOE, or landowner, desirable introduced species may be recommended in seed mixes as a treatment to improve chances of reclamation success where the RZ(s) contain large quantities of invasive species such as cheatgrass or medusahead (*Taeniatherum caput-medusae*), or where there are other limiting factors such as precipitation variability or limited ecological site potential. Under these circumstances, a desirable introduced species seed mix may provide optimal ground cover and long-term protection against annual plant establishment. This treatment is identified as alternative seeding in this Reclamation Plan and is discussed in Section 5.2.5.

In addition to restoring temporarily disturbed areas, IPC will re-seed some permanently disturbed areas. To minimize potential damage from wildland fires, IPC will not reseed areas within a 20-foot radius around structures. Additionally, as stated in the Vegetation Management Plan (Exhibit P1, Attachment P1-4), brush and grass will be cleared around wood poles to help protect structures from range fires.

Appendix A – Preliminary Agency-Approved Seed Mixes includes a list of approved seed mixes provided by the BLM and USFS. These preliminary seed mixes were provided to IPC in a memo from Susan Fritts of the BLM, dated December 16, 2015. The objective of these seed mixes is to provide native or desirable introduced vegetation to compete with invasive and noxious weeds as well as reclaim continuous habitat for wildlife and pollinators species. The seed mixes presented in Appendix A are intended for rehabilitation of sites disturbed during Project construction and are not intended for mitigation of impacts to wetlands or traditional foods. Furthermore, in areas where the preconstruction vegetation is dominated by invasive annual species such as cheatgrass, a desirable introduced species mix has been developed to keep noxious weeds from invading, this mix is not intended to provide habitat for wildlife or pollinators. Soils with exposed or shallow bedrock may require adaptive seed mixtures and implementation of revegetation practices (i.e., fertilization, mulching, monitoring) to enhance revegetation success. Revegetation of areas with extensive rock outcrop may not be possible.

Because the Project crosses four ecoregions, botanists and wildlife biologists from the BLM and USFS designed these seed mixes to be used across each ecoregion and general vegetation community while still tailoring the mixes to be site appropriate. Information from *Natural Vegetation of Oregon and Washington* (Franklin and Dyrness 1973), BFI Native Seed, LLC, Natural Resource Conservation Service, as well as professional experience helped determine the seed mixes. Agency-approved seed mixes will be applied Project-wide, except in agricultural areas, to the appropriate habitat type, unless directed otherwise by the land management agency and/or landowner. The Construction Contractor(s) or weed specialist may recommend modified seeding application rates and timing of implementation to achieve site-specific weed management objectives. Final seed mixes will be determined by soil type and site-specific conditions and will be provided to the Construction Contractor(s) by a BLM or USFS specialist or landowner.

It is important to consider the source of seed used for revegetation. Seed that is genetically adapted to a particular ecoregion will have a much higher success rate in that ecoregion; however, ecoregion-specific seed is not always readily available. Wildland seed collection is a method of increasing seed supply that may be considered if commercially harvested seed is not available.

Before construction begins, the Construction Contractor(s) will produce the Final Reclamation Plan in coordination with the appropriate land management agency, ODOE, or landowner. The Final Reclamation Plan will specifically correlate agency-approved seed mixes to Project-identified RZs and habitat types.

Reclamation seeding methods will include broadcast seeding, drill seeding, or hydroseeding/hydromulching (or a combination of methods). Seeding methods will be chosen based on the type of seed, disturbance level, soil type, terrain, and precipitation levels for the area to be reclaimed. Seeding methods will be reviewed and approved by the land management agency or private landowner.

Broadcast seeding will apply the seed directly on the ground surface. The type of broadcast spreader will depend on the size of the area to be seeded, and the terrain. Seed will be placed in direct contact with the soil, ideally at a depth of approximately 0.5 to 1 inch deep. It will then be covered by raking or dragging a chain or harrow over the seed bed to remove air pockets. Studies have shown that good soil-to-seed contact is required for successful seed germination (Pyke et al. 2015).

Drill seeding will be used on areas of sufficient size with moderate or favorable terrain to accommodate mechanical equipment. Drill seeding provides the advantage of planting the seed at a uniform depth. This is important because seeds buried too deeply either germinate and die before reaching the surface or they may become dormant until they reach enough light to stimulate germination (Pyke et al. 2015).

Hydroseeding, which is the spraying of seeds and water onto the ground surface, or hydroseeding/hydromulching, which is the spraying of seeds, mulch, and water, may be implemented on steeper slopes. Tackifier may be added to facilitate adherence of hydromulch to slopes greater than 25 percent or on sandy or other highly erodible soils.

IPC may use soil amendments (e.g., fertilizer, wood or straw mulches, tackifying agents, or soil stabilizing emulsions) on a case-by-case basis. Straw, hay, mulch, gravel, seed, and other imported materials must be certified weed-free. If certified weed-free materials are not available, then alternative materials will be used with agency approval.

To help limit the spread and establishment of noxious weed species in disturbed areas, desired vegetation must be established promptly after disturbance. IPC will rehabilitate disturbed areas as soon as possible after ground-disturbing construction and operations and maintenance activities and during the optimal period. If areas are not immediately seeded after construction due to weather or scheduling constraints, all noxious weeds will be controlled before seeding. Appropriate herbicides will be used to ensure fall seedings are not affected by residual herbicides.

Additionally, to promote recolonization by T&E plant species and reduce competition between T&E and other plant species, the Construction Contractor(s) will prepare the site-specific revegetation, reseeding, and soil stabilization plans for all areas disturbed by construction or maintenance within 100 feet of mapped T&E plant occurrences. The site-specific plans will be approved by the BLM, USFS, or Oregon Department of Agriculture (ODA) Authorized Officer or his/her designated representative prior to implementation. The plans will be designed to ensure T&E plant species are not disadvantaged. The plans will include proposed seed mixes, seeding application rates, seeding methodologies, seeding timeframes, and any other revegetation or soil stabilization techniques (e.g., natural recolonization, alternative seeding, supplemental planting, supplemental watering, supplemental mulch, surface pocking, the use of soil stabilizers). The seed mixes will be developed in consultation with the BLM, USFS, or ODA botanist, favor the T&E plant species, and be based on site-specific vegetation found on the undisturbed areas adjacent to the areas to be revegetated or reseeded.

### **5.2.5 Alternative Seeding**

Alternative seeding is employed to establish ground cover in disturbed or weed-infested areas by seeding of nonnative grasses and/or forbs. While nonnative species are generally not

desirable, they provide soil cover, stabilization, and a source of organic litter until other vegetation can become established in areas where systems have crossed abiotic and biotic thresholds to an alternative successional state and are unable to recover to their original state (Pyke et al. 2015). Similar to regular seeding, alternative seeding mix compositions and seeding methods will be determined prior to construction through Construction Contractor(s) coordination with the applicable land management agency, ODOE, or landowner.

### **5.2.6 Vertical Mulch/Slash**

Vertical mulch/slash is brush and tree limbs less than 6 inches in diameter removed during woody vegetation removal operations. Vertical mulch/slash is not entirely in contact with the soil surface; rather, parts of the mulch rise above the surface. Removed and stored trees and shrubs are the sources of vertical mulch/slash. For cleared areas, vegetation windrowed to the outside of the disturbance boundary will be replaced back onto the site. Additionally, during topsoil segregation, small rocks will be incorporated and vegetation combined as vertical mulch.

### **5.2.7 Signage**

Reclamation areas will require informational signs to prevent further human disturbance within these recovering areas. Signs stating “Restoration in Progress – No Vehicle Traffic Allowed,” or similar, will be installed as necessary at locations where the ROW intersects permanent access roads to deter vehicular damage to the site. The Construction Contractor(s) will provide reclamation signs and t-posts. Sign locations will be provided by the appropriate land managing agency and ODOE to the Construction Contractor(s) following completion of postconstruction reclamation procedures and prior to the initiation of reclamation monitoring.

### **5.2.8 Reclamation Monitoring**

Monitoring will be initiated prior to construction and will continue through the postconstruction phases of the Project. Monitoring data will be documented and reported to facilitate revised reclamation strategies, if applicable. Revised strategies will be implemented as needed. Evaluation of reclamation success will be based on criteria as described in Section 6.4 – Reclamation Goals and Success Standards.

Reclamation monitoring and reporting will be conducted as described below in Section 6.2 – Monitoring Methods.

## **5.3 Modifications and Field Changes**

The reclamation actions described in this Reclamation Plan will be incorporated into the Final Reclamation Plan, to be developed by the Construction Contractor(s) and subject to the approval of the appropriate land management agency, ODOE, or landowner.

Adjustments to RLs or actions by the Construction Contractor(s) may be necessary if Project conditions change (e.g., disturbance levels change at a specific tower work site, access roads change based on Project needs, etc.).

This Reclamation Plan is intended to provide flexibility with respect to construction and unknown constraints that may be encountered in the field. Changes to the original disturbance level or duration, previously described, will be documented by the Construction Contractor(s) and will be reassessed to ensure appropriate reclamation actions are implemented.

## 6.0 RECLAMATION SUCCESS STANDARDS, MONITORING, AND MAINTENANCE

Postconstruction reclamation monitoring is required to ensure soil protection is achieved, to evaluate reclamation success of reclaimed areas associated with the construction of Project facilities, to identify the need for adaptive management measures, and to make a final determination regarding reclamation success to release IPC (and the Construction Contractor(s) by contractual obligation) from further monitoring and reclamation actions. Reclamation success standards will be used by the appropriate land management agency and ODOE to determine if the implemented reclamation actions have adequately achieved the goals and objectives provided in the Final Reclamation Plan, with consideration for local site conditions.

The monitoring practices include standard techniques for monitoring sites, data collection, as well as the quantitative (numerical) and qualitative (descriptive) measures to be used in monitoring reclamation success. Specific monitoring requirements, including the site-specific data analysis protocol, will be developed by the Construction Contractor(s), in coordination with the appropriate land management agency and ODOE prior to the start of construction activities. Data will be collected as described below at both the treatment and control sites upon establishment of monitoring sites during preconstruction activities. The data will provide a baseline for comparison to post construction conditions and allow decision makers to make more accurate conclusions pertaining to reclamation success based on site-specific conditions, such as habitat type and climatic conditions.

Reclamation monitoring will be conducted ~~annually every 1 to 2 years until vegetation is established in a similar species composition as the paired control site, and then will extend to a frequency of every 5 to 10 years (depending on habitat vegetation) until the vegetation reaches the same maturity as the paired control site. for up to 5 years following completion of construction (as discussed above).~~ The first annual monitoring event will occur during the first growing season after reclamation actions occur. When it is determined that an area of the Project has been successfully reclaimed at any point during ~~the 5 years of~~ monitoring by satisfying all success criteria (as defined in Section 6.4 – Reclamation Success Standards), IPC will request concurrence from ODOE. If ODOE concurs, IPC will conclude that it has no further obligation to perform reclamation activities in that area of the Project, ~~however, noxious weed monitoring will continue for the life of the Project. Where this is the case, the monitoring effort may require less than 5 years.~~ If, after 5 years of monitoring, some sites (e.g. grasslands) have not attained the success criteria or if at any point during the annual/bi-annual monitoring it is clear that reclamation cannot be successful (including private landowner denial of reclamation activities), IPC will coordinate with ODOE regarding appropriate steps forward. At this point, IPC may suggest additional reclamation techniques or strategies or monitoring, or IPC may propose mitigation to compensate for any permanent habitat loss.

The Construction Contractor(s) or third-party contractor will prepare and submit a Reclamation Monitoring Report for the entire Project length to IPC, the appropriate land management agency, and ODOE on an annual/bi-annual basis ~~for up to 5 years (as described above, based on habitat vegetation)~~ following completion of each phase of construction. ~~If after 5 years, additional reclamation actions are determined necessary (as described above),~~ a Annual/bi-annual reporting will continue until reclamation areas have satisfied all success criteria ~~or IPC has been waived from further reclamation obligations.~~ The purpose of the Reclamation Monitoring Report is to provide a summary and status update on progress toward meeting reclamation goals and success standards as described in the Final Reclamation Plan. Because construction and reclamation activities will occur in phases, the monitoring report will also be organized by construction phase. The Reclamation Monitoring Report will, at a minimum, include:

- A reiteration of reclamation goals and success standards as described in the Final Reclamation Plan;
- A description of the monitoring practices implemented;

- A list and map identifying the location of all reclamation areas including their associated geographic information systems data;
- A presentation of the reclamation monitoring data collected;
- A discussion of the demonstrated or lack of demonstrated progress toward the success standards;
- A discussion of adaptive management;
- A proposed list of sites to be released from further monitoring; and
- Site-specific recommendations for remedial actions, as appropriate.

Adaptive management may be necessary to determine appropriate remedial actions, based on monitoring observations from any year, for sites that have not demonstrated progress toward reclamation success standards. If required, implementation of remedial actions will be determined by the appropriate land management agency and ODOE based on the monitoring data and annual report. ~~The last year's Annual/bi-annual reports~~ will be submitted with a summary of monitoring data, observations, and the overall trend toward reclamation for each habitat type. The appropriate land management agency and ODOE will release IPC from further reclamation and monitoring requirements for specific areas upon acceptance of the annual monitoring report documenting that reclamation success criteria have been met, as discussed above.

Monitoring reclamation activities and remedial measures on disturbed private lands (e.g., agricultural lands) will be determined based on agreements made between the landowner and IPC. Monitoring of agricultural lands is not proposed; restoration of agricultural lands will be considered complete upon replacement of disturbed soils and seeding or planting of crops.

## 6.1 Monitoring Requirements

Monitoring requirements will vary according to RL as shown in Table 5. RL1 areas (e.g., maintenance of the ROW, existing roads) are permanent disturbance areas that will not require reclamation monitoring. However, all areas disturbed by Project construction will follow measures for noxious weed control as applicable and specified in the Noxious Weed Plan (Exhibit P1, Attachment P1-5).

RL2, RL3, and RL4 are disturbance areas that will require reclamation actions and subsequent reclamation monitoring efforts. Reclamation monitoring includes both general reclamation monitoring and site-specific reclamation monitoring as described in Section 6.2.

The specific location of monitoring sites associated with these different activities will be in key areas and these sites will be reviewed and approved by the appropriate land management agency and ODOE prior to initiation of construction activities. Once monitoring sites have been approved, the Construction Contractor(s) will establish the sites in the field, and baseline data (e.g., photo points, biometrics, and soil conditions) will be collected. The Construction Contractor(s) will conduct annual monitoring following postconstruction activities as described in Section 6.0.

**Table 5. Reclamation Monitoring Requirements**

Construction Component	Disturbance Level	Disturbance Duration		Reclamation Level	Monitoring
		Temporary	Permanent		
Structure work areas	D2 – Primitive	●		RL2	General
	D3 – Substantial Modification	●		RL3	General, Site-specific
	D4 – Bladed		●	RL4	General

Construction Component	Disturbance Level	Disturbance Duration		Reclamation Level	Monitoring
		Temporary	Permanent		
Pulling and tensioning sites, multi-use areas, and other ancillary facilities that result in temporary disturbance	D2 – Primitive	●		RL2	General
	D3 – Substantial Modification	●		RL3	General, Site-specific
Longhorn Station, communication sites and other ancillary facilities that result in permanent (long-term) disturbance	D2 – Primitive		●	RL1	General
	D3 – Substantial Modification		●	RL4	General
	D4 – Bladed		●	RL4	General
Existing paved roads, access roads (no improvement)	D1 – No New Disturbance		●	RL1	Not Required
Existing access roads (with improvements)	D2 – Primitive		●	RL1	Not Required
	D2 – Primitive	●		RL2	General
	D3 – Substantial Modification		●	RL4	General
	D3 – Substantial Modification	●		RL3	General, Site-specific
	D4 – Bladed		●	RL4	General
New access roads	D2 – Primitive		●	RL1	General
	D2 – Primitive	●		RL2	General
	D3 – Substantial Modification		●	RL4	General
	D3 – Substantial Modification	●		RL3	General, Site-specific
	D4 – Bladed		●	RL4	General

## 6.2 Monitoring Methods

Identification and establishment of monitoring sites will be accomplished prior to ground-disturbing activities. Identification of monitoring sites (both a treatment site and control site) will include the collection of baseline data for comparison with subsequent postconstruction monitoring. Postconstruction annual monitoring and collection of data will be conducted during the growing season after reclamation actions occur for each phase of construction.

An annual Reclamation Monitoring Report will be prepared by the Construction Contractor(s) and provided to IPC, the appropriate land management agency, and ODOE for review and discussion of reclamation conditions. The annual report will include geographic information systems data as part of the deliverable.

Construction activities will result in varying disturbance levels that will require two types of monitoring:

1. **General reclamation monitoring.** General field reconnaissance (windshield survey) and reporting of conditions in areas disturbed during construction where reclamation actions have been implemented.
2. **Site-specific reclamation monitoring.** Detailed field data collection and reporting at designated reclamation monitoring sites as identified in the Final Reclamation Plan.

A description of the activities associated with these two monitoring methods (practices), and how these practices will be assigned to areas affected by construction of the transmission line and associated facilities, is presented below. The Construction Contractor(s) will consult with the appropriate land management agency and ODOE to adapt these practices, as needed, to meet localized conditions and concerns.

### **6.2.1 General Reclamation Monitoring**

A general field review of the transmission line layout, where accessible by vehicle and right-of-entry is granted, will be conducted in conjunction with annual site-specific reclamation monitoring. The intent of this review is to document overall recovery conditions associated with the Project. Conditions of concern warranting documentation may include establishment of noxious weed populations resulting from Project construction, a lack of desirable vegetation cover, soil compaction, or lack of soil parent material due to erosion. In lieu of establishing monitoring sites, documentation may include establishing single photo points at locations agreed upon with the appropriate land management agency and ODOE and/or recording the apparent cause of unsuccessful reclamation. Site locations may be documented by noting the direction and estimated distance to the nearest transmission line tower (by number) or global positioning system (GPS) coordinates.

Adaptive management actions may be implemented based on findings of general reclamation monitoring as recommended by the appropriate land management agency and ODOE and described in Section 6.5 – Adaptive Management and Site Release. Each annual visit will be used to assess designated general reclamation monitoring locations and document new locations where appropriate.

### **6.2.2 Site-Specific Reclamation Monitoring**

Preliminary site-specific reclamation monitoring locations will be established prior to ground-disturbing activities within areas that will be disturbed by the Project. Site identification will be based on habitat type and habitat category previously identified during the TVES survey, as well as agency recommendation. A single monitoring site includes both a treatment site and a control site. The treatment site is an area expected to be disturbed during construction that will be reclaimed. The control site will be paired with the treatment site, meaning the control site will be in the vicinity of the treatment site and will have the same general slope, aspect, and habitat type as the treatment site (prior to disturbance). A control site may be paired with multiple treatment sites provided there is a high degree of similarity between sites.

#### Monitoring Site Selection Criteria

Sites will be selected prior to disturbance for each of the reclamation zones and habitat types traversed by the Project, in accordance with the processes identified below.

- Site selection will be prioritized to include T&E plant species occurrences and locations with high visual resource values.
- At least one paired monitoring site will be established for each area of disturbance affecting T&E plants.



- The final number of monitoring sites per habitat will be based on the extent and diversity of vegetation within each habitat type, with an anticipated average of two to five paired monitoring sites per habitat type.
- Selection of monitoring sites will be stratified based on proportions of each habitat type subject to reclamation activities (e.g., if 40 percent of the total area subject to disturbance and subsequent reclamation activities is sagebrush, then 40 percent of the total number of monitoring sites will be located in sagebrush).
- Selection of monitoring sites shall be further stratified based on the presence of noxious weeds, nonnative, or invasive species infestations (e.g., if the total habitat type area is approximately 70 percent cheatgrass, approximately 70 percent of the monitoring sites will be located in cheatgrass-infested areas, and approximately 30 percent of the monitoring sites will be located in noninfested areas).

Final determination of monitoring sites will be approved by the appropriate land management agency and ODOE prior to construction. Cooperation with the Construction Contractor(s) may be necessary prior to construction if changes to construction work area(s) affect the location(s) of the preliminary monitoring site(s).

For each monitoring site, paired transects will be installed and documented as treatment or control for quantitative monitoring. In general, the treatment transect will be placed within an affected area (normally within the immediate ROW), and the control transect will be placed immediately adjacent to the ROW, on undisturbed ground if on public lands. If control plots are on private land, they will be installed within the private land easement. Transect size and quantity will be determined based on the final footprint of disturbed areas, in cooperation with the appropriate land management agency and ODOE. Transect pairs will be sized and oriented in a similar manner, for consistency, unless terrain or construction conditions require deviation. In addition, the location of monitoring sites will avoid areas susceptible to future human disturbance (off-highway vehicles [OHV], transmission line maintenance, planned future utilities), where possible, to preserve the integrity of each monitoring site for the duration of the monitoring period. IPC may consider additional protections (including fencing, signage, or landowner agreements) to maintain effectiveness of monitoring sites.

Once monitoring site locations are finalized, photo points will be established prior to any construction-related disturbance. Photo points will be marked by a metal pin or metal T-post and location recorded with GPS technology to ensure that subsequent photographs are taken from the same location. The cardinal direction of photographs taken will be recorded to allow duplication, to the extent possible, of the same view during annual monitoring events. Photographs will be taken at each photo point (1) when the photo point is established, (2) when initial reclamation efforts have been completed, and (3) during each annual monitoring visit. Photo points will be collected at the same time of year for each year of monitoring, and with the same camera, if possible. Each photo point will include:

- A close-up photograph (0.5-meter by 0.5-meter photo plot) depicting soil surface characteristics and amount of vegetation and litter; and
- A general overview photograph of the site and/or photographs depicting north, south, east, and west views.

Site-specific reclamation monitoring sites will be examined annually, and a variety of vegetation data will be collected including quantitative and descriptive information. Parameters that will be used to measure reclamation success are presented in Section 6.4 – Reclamation Goals and Success Standards. Reclamation monitoring sites will also assess noxious weed, nonnative, and invasive species establishment that may require remedial actions such as removal or

treatment. However, it should be noted that postconstruction monitoring for Project-related impacts to noxious weeds might occur independently of reclamation monitoring, as outlined in Exhibit P1, Attachment P1-5, Noxious Weed Plan.

Reclamation monitoring will also include the consideration of erosion control as a key indicator to measure the trend toward reclamation success (where applicable), and remedial actions may be taken in conjunction with monitoring efforts to control erosion, as needed. These remedial actions will also follow requirements as stipulated in the ESCP discussed in Exhibit I, Soil Protection. In conjunction with, and complementary to, reclamation monitoring, IPC is responsible for monitoring to ensure soil protection is achieved, and providing a monitoring report on reseeding success and/or other methods to stabilize soils to the appropriate land management agency and ODOE annually until it has been determined that an area of the Project has satisfied all success criteria and/or IPC has been released from reclamation obligations (as described above).

### **6.3 Data Collection**

All data collected in support of the Reclamation and Revegetation Plan will be made available to ODOE and its cooperating agencies.

The collection of baseline data during preconstruction establishment of treatment and control monitoring sites and annual postconstruction reclamation monitoring will include both quantitative (numerical) and qualitative (descriptive) data collection. Quantitative monitoring will document the trend and degree of change at each site, and qualitative monitoring will enable investigation of potential reasons for reclamation success or lack thereof and identification of unanticipated issues. Additional baseline data to be collected during preconstruction establishment of treatment and control sites will include the collection of site characteristics that are not expected to change throughout the monitoring period. In addition to the qualitative and quantitative data described below, information to be collected and/or recorded during the initial establishment of monitoring sites may include GPS location, slope, aspect, elevation, soil type, current habitat type, and existing disturbances.

Reclamation monitoring for the Project will use vegetation as the main indicator of recovery, but observations of soil conditions, such as of compaction, rutting, and erosion, will also be documented and considered when assessing progress toward functionality. Measurements and descriptions will be accompanied by photographs that will be used to visually document the status of recovery at all monitoring sites. Sampling points will be mapped and relocated using GPS technology. Photo points and field notes will be the primary methods of qualitative monitoring for the Project. A protocol for taking photographs and a standardized data-recording form (likely electronic form) will be developed by the reclamation subcontractor and approved by the appropriate land management agency and ODOE to ensure consistency of monitoring. Qualitative and quantitative information to be obtained during general reclamation monitoring and site-specific monitoring is described in detail below.

For disturbed areas affecting T&E species, at a minimum, photographs from permanent photo points, percent cover of T&E species within the affected areas, and noxious weed presence and treatment data will be collected and reported. Reclamation monitoring in T&E plant occurrences will be conducted during the blooming period for the species of interest.

#### **6.3.1 Baseline Information**

Site characteristics that are not expected to change throughout the monitoring period will be collected during the initial visit. These characteristics should be as similar as possible between

control and treatment (i.e., paired) sites. Data to be collected and recorded during the establishment of control and treatment sites may include the following:

- *Location.* Record the location of control and treatment sites and photo points with a GPS.
- *Slope.* Slope of the control and treatment sites will be recorded. This may include a range if slope is not generally uniform throughout the monitoring site.
- *Aspect.* Record the aspect of the control and treatment sites (cardinal direction the site faces).
- *Elevation.* Record the elevation of the control and treatment sites.
- *Soil type.* Record the soil type(s) based on Natural Resources Conservation Service-mapped soil type.
- *Current habitat type.* Record the current habitat type using a field key such as NatureServe (2006). Ecological site information may also be recorded as it provides insight on site potential, productivity, successional patterns, and management implications.

### 6.3.2 Qualitative (Descriptive) Information

Qualitative data collection will occur annually for both general and site-specific monitoring. The goal of qualitative monitoring is to describe site conditions and assess the need for remedial actions to ensure sites are progressing toward the success standards ~~to be established in this plan~~ established by the reclamation subcontractor in consultation with the appropriate land management agency and ODOE. The Project area typically has unpredictable weather patterns that may affect reclamation success. Comparing annual qualitative evaluations within similarly disturbed areas in the same habitat type will allow for identification of sites that are demonstrating a comparative lack of reclamation success and may require remedial action. Any non-Project-related disturbances that could affect reclamation will also be documented and described during the collection of qualitative information.

Reclamation success may be assessed by the presence or condition of certain site characteristics that encourage recruitment of native vegetation. If reclamation actions for a given site are implemented successfully, they will contribute to the stabilization of soils, native species seedling or seedbank recruitment, and prevention of noxious weeds establishment. The following items should be considered when creating a qualitative monitoring worksheet for use during monitoring:

- *Waste materials management.* Is the site free of trash and construction material? Is the area free of undesirable materials that may inhibit reclamation success?
- *Evidence of soil stabilization and lack of erosion.* Describe visible signs of soil erosion such as rock pedestals, overland flow patterns, and the formation of rills or gullies. Indicators that soils have not stabilized and erosion is negatively affecting reclamation success include rills greater than 2 inches, sheet flow, head cutting in drainages, eroded slopes occurring on or adjacent to reclaimed areas, and any signs showing accelerated erosion is occurring and soils are not being held by plants on site.
- *Occurrence of noxious weeds.* Noxious weeds compete with native species, and relatively high abundances can have negative effects on site conditions. Are noxious weeds on site both the treatment and control site? Are they inhibiting reclamation success beyond their level of influence at the control site?
- *Evidence of wildlife use.* Wildlife presence can indicate that habitat conditions are improving; however, concentrated or prolonged herbivory can negatively affect

reclamation success if unmanaged. Are wildlife species over-browsing the site? Are wildlife using the site for cover, bedding, or feeding?

- *Livestock use.* Livestock can affect site conditions. Are livestock present on the site? Are livestock trails, prints, and scat present?
- *Recreation and other human-use.* Recreation and other human-use can affect site conditions. Are human trails, trash, or other items that indicate use?
- *Visual appearance.* Does the visual appearance compare similarly to surrounding habitats? Visual comparison with general patterns of established vegetation documented during preconstruction conditions or as observed in the control site will help to determine whether large bare areas are indicative of site conditions or simply a result of the innate patchiness of the habitat type.
- *Plant vigor.* Do mature plants and seedlings appear healthy? Are there signs of decadence, or are plants in poor, fair, good, or excellent condition?
- *Evidence of good reproductive capability and success.* Is seed production evident? Are flowers or seed stalks evident? Are seedlings present? Is vegetative reproduction occurring (e.g., rhizomes and tillers)? How does the number of flowering plants and seedlings compare to the control site or the expectations of the particular seed mix utilized for reclamation?

Each of these site characteristics will help determine trends that relate to reclamation success.

### **6.3.3 Quantitative (Numerical) Information**

Desirable vegetation cover and composition will be quantitatively assessed at site-specific reclamation monitoring sites during annual monitoring to determine if there is progress toward reclamation success standards based on comparison with preconstruction treatment site conditions and the paired control site. Quantitative assessment will enable early identification of potential reclamation issues, and ensure that vegetation establishment of affected areas is occurring as expected based on climatic trends for the area. The following items should be considered when establishing a quantitative monitoring methodology:

- *Plant species list.* Record a complete plant list for each monitoring site. This provides a relative measure of diversity at the site. Each species should be categorized by its growth habitat (e.g., shrub, herbaceous forb, graminoid) and native status (e.g., native, nonnative, or listed as a noxious weed). T&E species will be indicated as such.
- *Total canopy cover.* A line-point intercept method (Herrick et al. 2005) is a rapid and accurate method for quantifying cover, including vegetation, litter, bare soil, rocks, and biotic crusts. This method provides measures for foliar cover, basal cover, and bare ground.
- *Vegetation type structure and composition.* Indicate percent cover of plant species by growth habitat and native status. This will allow for an assessment of whether treatment sites are trending toward achievement of the target habitat type structure and composition.
- *Percent cover of dominant species.* The percent cover for the species with the highest percent cover at each monitoring site will be reported. This information will enable comparison with the control site and provide an indicator of whether the treatment site is developing similar proportional cover of desirable dominant species.
- *Percent cover of T&E species.* The percent cover for T&E species will be recorded, regardless of whether they are most numerous or not, based on the line-point intercept method.

- Percent cover of weed species. The percent foliar cover of weed species will be recorded. This will allow an assessment of whether percent cover of weed species at treatment sites are being maintained at a level equal to or less than control sites.

Diversity, composition, and cover data will be recorded on standard field data sheets (likely electronic forms) to be developed by the Construction Contractor(s) and approved by the appropriate land management agency and ODOE.

## 6.4 Reclamation Success Standards

Reclamation success, as presented in this Reclamation Plan, is defined by the progression of vegetation and soils toward control site and/or preconstruction conditions. Once reclamation success standards have been met, established vegetation is anticipated to contribute to the maintenance and functionality of the community to ensure continued success after monitoring has concluded.

IPC will be responsible for monitoring reclamation efforts for the Project. Reclamation success will be evaluated by the Construction Contractor(s) and approved by the appropriate land management agency and ODOE by comparing treatment sites to control sites in terms of desirable species cover. The Construction Contractor(s) shall prioritize native perennial bunchgrass as desirable species cover. Reclamation of treatment sites will be considered successful if each site is within a specified percentage of the mean native species cover of the paired control site. Control sites will be representative areas that exhibit the same target habitat type located adjacent to, or near the Project-affected treatment sites. Control sites will be selected with the same slope, aspect, and elevation as treatment sites, to the extent practicable. The establishment of control sites within vegetation undisturbed by the Project will allow comparisons between the reclamation progress of the treatment site and sites undisturbed by the Project. Reclamation success is highly dependent on habitat type, environmental conditions (e.g., annual precipitation), avoidance of future disturbance, and proper implementation of reclamation actions. Recovery from construction disturbance activities such as clearing and grading in semi-arid and arid climactic zones in which the Project is located does not typically occur quickly.

Therefore, reclamation monitoring will assess the progress toward reclamation success standards presented in Table 6. Success standards will be developed based on preconstruction data collected at each monitoring site and/or data collected at each control site.

Table 6 presents preliminary reclamation monitoring success standards for each reclamation zone identified in Section 4.1 of this Plan. These standards will be considered the minimum requirement for each reclamation zone. Every reclamation zone includes a range of habitat types that will need to be considered to determine final reclamation standards for each monitoring site identified.

**Table 6. Preliminary Reclamation Monitoring Success Standards**

Reclamation Zone	Percent Desirable Vegetation Cover <sup>1</sup>
RZ1 – Shrublands	50
RZ2 – Grasslands	<del>30</del> 70 0
RZ3 – Agriculture	60
RZ4 – Forest and Woodland	50
RZ5 – Wetland and Riparian	70
RZ6 – Other	60

<sup>1</sup> As described in ~~text below~~ Section 6.3.3. above.

During finalization of the plan, the Construction Contractor and review agencies shall establish the desirable vegetation for each reclamation zone. While the success standards identified in Table 6 are preliminary, it is noted that the certificate holder commits to compensatory mitigation in its Habitat Mitigation Plan (Attachment P1-6) for temporary impacts to habitat categories 2 through 4, and that in combination with the above-minimum success standards could fully mitigate the temporary impact. Prior to construction, if Table 6 success criteria is selected, certificate holder shall demonstrate to the Department and ODFW, through letter memo with tables and narrative, that the combination of the above success criteria and compensatory mitigation included in the HMP fully mitigate temporary impacts in accordance with the applicable habitat category mitigation goal. If certificate holder intends to remove acres from its compensatory mitigation sites once revegetation success has been achieved, or cannot demonstrate that combined revegetation and compensatory mitigation for temporary impacts satisfies the applicable habitat category mitigation goal, the agency preferred success criteria, as presented below shall apply to revegetation under this plan and Table 6 shall be removed from the final plan:

Agency Preferred Success Criteria:

- For all Reclamation Zones, % cover of desirable vegetation (native grasses, forbs, shrubs, and trees) is equal or better than percent cover at paired control site
- For RZ1 – Shrublands, in addition to the above criteria, 15% sagebrush cover

Reclamation monitoring success standards will be based on quantitative data collected (discussed in Section 6.3 – Data Collection above) during preconstruction baseline surveys at treatment and control sites. Percent cover for both sites will be compared to ensure that preconstruction baseline conditions are similar to the control site within a particular habitat type. Any major differences will be noted and discussed in the annual monitoring report. Success

standards may be adjusted based on differences between the treatment and control site. Any adjustments to reclamation success standards will require the approval of the appropriate land management agency and ODOE.

After determining that the treatment and control sites are comparable, future reclamation success, based on percent cover measurements, will be compared against cover values collected at the control site. For example, if a treatment site is determined to be within the shrubland reclamation zone, the corresponding control site should also be within the shrubland reclamation zone. If certificate holder maintains acres for temporary habitat impacts in its compensatory mitigation sites (Attachment P1-6 Habitat Mitigation Plan) for the life of the facility, the treatment site will be considered a reclamation success once the percent desirable cover reaches a total of 50 percent of the control site's total vegetation cover [see Table 6]).~~If the control site has 80 percent total native vegetation cover, with 60 percent cover of woody vegetation and 20 percent cover of herbaceous vegetation, As described above, if certificate holder intends to remove acres from its compensatory mitigation sites (Attachment P1-6 Habitat Mitigation Plan) once revegetation success has been achieved, the above-referenced agency-preferred revegetation success criteria of equal or better conditions for monitoring sites compared to control sites shall apply.~~

If the annual monitoring report concludes (with agency concurrence) that typical environmental conditions, proper implementation of reclamation actions, and lack of disturbance is evident, reclamation success will be based on vegetation cover for each habitat type within the reclamation zone. If reclamation success is not evident by the last annual monitoring report (with agency concurrence), or if interim monitoring reports indicate that reclamation success is highly unlikely, adaptive management and/or remedial actions (Section 6.5 – Adaptive Management and Site Release) may be required.

## 6.5 Adaptive Management and Site Release

An adaptive management approach will allow frequent review and feedback on the progress of reclamation as a part of monitoring activities for the Project. Adaptive management greatly increases the potential for reclamation success by providing for early detection of problems and the opportunity to implement remedial actions to address these problems, if necessary. Effective monitoring is an essential element of adaptive management because it provides reliable feedback on the effects of reclamation actions. If adaptive management measures are determined to be necessary, monitoring data (both qualitative and quantitative) will provide information on reclamation components that are deficient, such as desirable vegetation cover, soil compaction, or lack of parent soil material due to erosion. Based on this information, appropriate remedial reclamation actions may include measures such as supplemental seeding, mulching, weed treatment, access control, herbivory prevention, and/or erosion control measures. Recommendations could also include waiting to determine if favorable germination/establishment conditions are expected such as ample seasonal moisture or favorable temperatures.

Progress toward reclamation success standards, as well as remedial/adaptive management actions (if necessary), will be identified in annual Reclamation Monitoring Reports.

Should remedial actions be required after year three, additional qualitative and quantitative monitoring in years four and five (as appropriate) will allow the effects of remedial action or climatic events to be discerned. Adaptive management actions to address unauthorized or excessive access, herbivory, or erosion may be appropriate on a case-by-case basis where feasible as early as year one or two, based on monitoring data analysis described in the annual Reclamation Monitoring Reports. Adaptive management actions such as supplemental planting or seeding may not be appropriate until analysis of year three monitoring data because in some situations it may take three growing seasons for plant establishment to stabilize, allowing for

assessment of reclamation success. Recommendations for adaptive management actions will be included in the annual Reclamation Monitoring Report and implemented by IPC in coordination with the appropriate land management agency and ODOE.



All adaptive management actions will be subject to the review and approval of the appropriate land management agency and ODOE. The Construction Contractor(s) will use all reasonable methods to help IPC ensure reclamation is progressing toward the success standards identified in Section 6.4 – Reclamation Goals and Success Standards. To the extent possible, IPC will tailor ROW easements to reduce potential land use conflicts within reclaimed areas by proposing access control (Exhibit B, Attachment B-5) and other means to regulate potentially disruptive land use activities. It is possible some sites will be incapable of supporting adequate vegetation to progress towards the success standards due to conflicting land management and/or environmental limitations not associated with the Project. For instance, reclamation may fail in areas with non-Project related disturbance such as unmanaged OHV access, grazing of domestic livestock, natural disasters such as fire or flooding, and/or construction of other projects. If reclamation failure is determined to be caused by these non-Project related disturbance, IPC will coordinate with ODOE regarding appropriate steps forward. IPC may suggest additional reclamation techniques or strategies or monitoring, or IPC may propose mitigation to compensate for any permanent habitat loss.

## 7.0 PLAN UPDATES

Once the preferred route is selected, final engineering is completed, and complete coverage of the Project area is conducted, a Final Reclamation Plan can be prepared. The Final Reclamation Plan will be updated prior to the start of construction. As the construction order and schedule are refined, the Final Reclamation Plan will be updated to include the schedule for baseline vegetation and weed surveys, identification of any areas for preconstruction noxious weed treatment, and provide a more detailed reclamation schedule and plan. Details specific to noxious weeds are presented in the Noxious Weed Plan (see Exhibit P1, Attachment P1-5).

## 8.0 LITERATURE CITED

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**APPENDIX A**  
**PRELIMINARY AGENCY-APPROVED SEED MIXES**

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The seeding rates in the table below are only provided for grasses being planted using a standard rangeland drill. If other methods of seeding are to be used, the seeding rate would likely need to be adjusted. Additional time is needed to develop seeding rates for forb and shrub species. In general, these species would compose a small portion of the seed mix and would be seeded at 0.1 pound per acre (lb./acre) or less. IPC may consider planting well established sagebrush plants and other shrubs acquired from reputable nurseries in areas where shrubs have been removed or crushed. Planting of established sagebrush plants and other shrubs will require site-specific consideration and coordination with ODOE.

### Owyhee and Malheur Counties/Northern Basin and Range and Snake River Plain

#### Loamy Soil Mix

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	50	7
Bottlebrush squirreltail	<i>Elymus elymoides</i>	20	2
Sandberg's bluegrass	<i>Poa secunda</i>	20	0.25
Basin wildrye	<i>Leymus cinereus</i>	5	1
Western yarrow	<i>Achillea millefolium</i>		
Basalt milkvetch	<i>Astragalus filipes</i>		
Sulfur buckwheat	<i>Eriogonum umbellatum</i>		
Bigseed biscuitroot	<i>Lomatium macrocarpum</i>		
Munro globemallow	<i>Sphaeralcea munroana</i>		
Wyoming sagebrush/ Basin big sagebrush <sup>1</sup>	<i>Artemisia tridentata</i> ssp. <i>tridentata</i> / ssp. <i>wyomingensis</i>		

#### Sandy Soil Mix

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Indian ricegrass	<i>Oryzopsis hymenoides</i>	50	6
Needle and thread	<i>Hesperostipa comata</i>	30	4
Bottlebrush squirreltail	<i>Elymus elymoides</i>	20	2
Monroe globemallow	<i>Sphaeralcea munroana</i>		
Tufted evening primrose	<i>Oenothera caespitosa</i>		
Smooth desert dandelion	<i>Malaxothrix glabrata</i>		
Fourwing saltbush	<i>Atriplex canescens</i>		
Rubber rabbit brush	<i>Ericameria nauseosa</i>		
Antelope bitterbrush	<i>Purshia tridentata</i>		

#### Riparian

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Baltic rush	<i>Juncus balticus</i>	80	1
Spike rush	<i>Eleocharis palustris</i>	20	3

**Southern Baker County/Blue Mountains****Wyoming Sagebrush Mix**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	50	7
Idaho fescue <sup>2</sup>	<i>Festuca idahoensis</i>		
Bottlebrush squirreltail	<i>Elymus elymoides</i>	20	2
Sandberg's bluegrass	<i>Poa secunda</i>	15	0.25
Small fescue	<i>Vulpia macrostachys</i>	5	0.10
Basin wildrye	<i>Leymus cinereus</i>	5	1
Western yarrow	<i>Achillea millefolium</i>		
Basalt milkvetch	<i>Astragalus filipes</i>		
Parsnipflower buckwheat	<i>Eriogonum heracleoides</i>		
Bigseed biscuitroot	<i>Lomatium macrocarpum</i>		
Monroe globemallow	<i>Sphaeralcea munroana</i>		
Arrowleaf balsamroot	<i>Balsamorhiza sagittata</i>		
Hoary aster	<i>Machaeranthera canescens</i>		
Wyoming sagebrush	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>		
Three tip sagebrush <sup>3</sup>	<i>Artemisia tripartita</i>		
Curl-leaf mountain mahogany <sup>3</sup>	<i>Cercocarpus ledifolius</i>		

**Mountain Sagebrush Mix**

Same as Wyoming sagebrush mix but replace Wyoming sagebrush with Mountain sagebrush

**Riparian**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Nevada rush	<i>Juncus nevadensis</i>	60	1
Spike rush	<i>Eleocharis palustris</i>	40	3

**Northern Baker, Union, and Morrow Counties/Blue Mountains****Warm/Hot Forests**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	60	9
Sandberg's bluegrass	<i>Poa secunda</i>	20	0.3
Prairie Junegrass	<i>Koeleria macrantha</i>	20	0.15
Penstemon	<i>Penstemon</i> sp.		
Oregon sunshine	<i>Eriophyllum lanatum</i>		
Western yarrow	<i>Achillea millefolium</i>		
Tailcup lupine	<i>Lupinus caudatus</i>		
Heartleaf arnica	<i>Arnica cordifolia</i>		
Larkspur	<i>Delphinium</i> sp.		
Hoary aster	<i>Machaeranthera canescens</i>		
Missouri goldenrod	<i>Solidago missouriensis</i>		

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Mountain monardella	<i>Monardella odoratissima</i>		
Hollyleaved barberry <sup>4</sup>	<i>Mahonia aquifolium</i>		

**Warm/Hot Forests Riparian**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Blue wildrye	<i>Elymus glaucus</i>	50	5
Western wheatgrass	<i>Pascopyrum smithii</i>	50	5

**Cool Forests**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Blue wildrye	<i>Elymus glaucus</i>	33	4
Mountain brome	<i>Bromus marginatus</i>	33	6
Pinegrass	<i>Calamagrostis rubescens</i>	33	0.25
Heartleaf arnica	<i>Arnica cordifolia</i>		
Thickstem aster	<i>Eurybia integrifolia</i>		
Missouri goldenrod	<i>Solidago missouriensis</i>		
Aster	<i>Aster foliaceus</i>		
Snowberry <sup>4</sup>	<i>Symphoricarpos albus</i>		
Dwarf rose <sup>4</sup>	<i>Rosa gymnocarpa</i>		
Prickly currant <sup>4</sup>	<i>Ribes lacustre</i>		

**Cool Forest Riparian**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Blue wildrye	<i>Elymus glaucus</i>	50	4
Mountain brome	<i>Bromus marginatus</i>	50	6

**Umatilla County/Columbia Basin****Loamy Soils**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	50	7
Bottlebrush squirreltail	<i>Festuca idahoensis</i>	15	1.5
Sandberg's bluegrass	<i>Poa secunda</i>	15	0.25
Thickspike wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	20	5
Wooly plantain	<i>Plantago patagonica</i>		
Narrow leaf milkweed	<i>Asclepias fascicularis</i>		
Silky lupine	<i>Lupinus sericeus</i>		
Common sunflower	<i>Helianthus annuus</i>		
Tiny trumpet	<i>Collomia linearis</i>		
Rubber rabbitbrush	<i>Ericameria nauseosa</i>		

**Sandy Soils**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	46	7
Indian ricegrass	<i>Oryzopsis hymenoides</i>	12	1
Sandberg's bluegrass	<i>Poa secunda</i>	12	0.25
Needle and thread	<i>Hesperostipa comata</i>	6	1
Bottlebrush squirreltail	<i>Elymus elymoides</i>	8	1
Sand dropseed	<i>Sporobolus cryptandrus</i>	6	0.025
Purple three awn	<i>Aristida purpurea</i>	10	0.5
Wooly plantain	<i>Plantago patagonica</i>		
Narrow leaf milkweed	<i>Asclepias fascicularis</i>		
Silky lupine	<i>Lupinus sericeus</i>		
Common sunflower	<i>Helianthus annuus</i>		
Tiny trumpet	<i>Collomia linearis</i>		
Rubber rabbitbrush	<i>Ericameria nauseosa</i>		

**Riparian**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Baltic rush	<i>Juncus balticus</i>	80	1
Spike rush	<i>Eleocharis palustris</i>	20	3

**Areas Dominated by Invasive Annual Species (throughout Project)****Under 4,000 feet Elevation**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Siberian wheatgrass/Vavilov <sup>5</sup>	<i>Agropyron fragile</i>	100	10

**Over 4,000 feet Elevation**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Crested wheatgrass/Ephraim <sup>6</sup>	<i>Agropyron cristatum</i>	100	10

## Notes:

<sup>1</sup> Use of Wyoming sagebrush or Basin big sagebrush would depend on which species was present preconstruction.

<sup>2</sup> On moist north slopes, add Idaho fescue at a rate of 1 lb./acre and reduce bluebunch wheatgrass to 4 lb./acre.

<sup>3</sup> Species to be added site specifically.

<sup>4</sup> Species would be planted as one- or two-year seedlings into disturbed areas.

<sup>5</sup> Siberian wheatgrass will not be used for re-seeding on Forest Service-administered lands, unless otherwise approved by the U.S. Forest Service.

<sup>6</sup> Crested wheatgrass will not be used for re-seeding on Forest Service-administered lands, unless otherwise approved by the U.S. Forest Service.

**APPENDIX A**  
**PRELIMINARY AGENCY-APPROVED SEED MIXES**

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The seeding rates in the table below are only provided for grasses being planted using a standard rangeland drill. If other methods of seeding are to be used, the seeding rate would likely need to be adjusted. Additional time is needed to develop seeding rates for forb and shrub species. In general, these species would compose a small portion of the seed mix and would be seeded at 0.1 pound per acre (lb./acre) or less. IPC may consider planting well established sagebrush plants and other shrubs acquired from reputable nurseries in areas where shrubs have been removed or crushed. Planting of established sagebrush plants and other shrubs will require site-specific consideration and coordination with ODOE.

### Owyhee and Malheur Counties/Northern Basin and Range and Snake River Plain

#### Loamy Soil Mix

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	50	7
Bottlebrush squirreltail	<i>Elymus elymoides</i>	20	2
Sandberg's bluegrass	<i>Poa secunda</i>	20	0.25
Basin wildrye	<i>Leymus cinereus</i>	5	1
Western yarrow	<i>Achillea millefolium</i>		
Basalt milkvetch	<i>Astragalus filipes</i>		
Sulfur buckwheat	<i>Eriogonum umbellatum</i>		
Bigseed biscuitroot	<i>Lomatium macrocarpum</i>		
Munro globemallow	<i>Sphaeralcea munroana</i>		
Wyoming sagebrush/ Basin big sagebrush <sup>1</sup>	<i>Artemisia tridentata</i> ssp. <i>tridentata</i> / ssp. <i>wyomingensis</i>		

#### Sandy Soil Mix

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Indian ricegrass	<i>Oryzopsis hymenoides</i>	50	6
Needle and thread	<i>Hesperostipa comata</i>	30	4
Bottlebrush squirreltail	<i>Elymus elymoides</i>	20	2
Monroe globemallow	<i>Sphaeralcea munroana</i>		
Tufted evening primrose	<i>Oenothera caespitosa</i>		
Smooth desert dandelion	<i>Malaxothrix glabrata</i>		
Fourwing saltbush	<i>Atriplex canescens</i>		
Rubber rabbit brush	<i>Ericameria nauseosa</i>		
Antelope bitterbrush	<i>Purshia tridentata</i>		

#### Riparian

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Baltic rush	<i>Juncus balticus</i>	80	1
Spike rush	<i>Eleocharis palustris</i>	20	3

**Southern Baker County/Blue Mountains****Wyoming Sagebrush Mix**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	50	7
Idaho fescue <sup>2</sup>	<i>Festuca idahoensis</i>		
Bottlebrush squirreltail	<i>Elymus elymoides</i>	20	2
Sandberg's bluegrass	<i>Poa secunda</i>	15	0.25
Small fescue	<i>Vulpia macrostachys</i>	5	0.10
Basin wildrye	<i>Leymus cinereus</i>	5	1
Western yarrow	<i>Achillea millefolium</i>		
Basalt milkvetch	<i>Astragalus filipes</i>		
Parsnipflower buckwheat	<i>Eriogonum heracleoides</i>		
Bigseed biscuitroot	<i>Lomatium macrocarpum</i>		
Monroe globemallow	<i>Sphaeralcea munroana</i>		
Arrowleaf balsamroot	<i>Balsamorhiza sagittata</i>		
Hoary aster	<i>Machaeranthera canescens</i>		
Wyoming sagebrush	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>		
Three tip sagebrush <sup>3</sup>	<i>Artemisia tripartita</i>		
Curl-leaf mountain mahogany <sup>3</sup>	<i>Cercocarpus ledifolius</i>		

**Mountain Sagebrush Mix**

Same as Wyoming sagebrush mix but replace Wyoming sagebrush with Mountain sagebrush

**Riparian**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Nevada rush	<i>Juncus nevadensis</i>	60	1
Spike rush	<i>Eleocharis palustris</i>	40	3

**Northern Baker, Union, and Morrow Counties/Blue Mountains****Warm/Hot Forests**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	60	9
Sandberg's bluegrass	<i>Poa secunda</i>	20	0.3
Prairie Junegrass	<i>Koeleria macrantha</i>	20	0.15
Penstemon	<i>Penstemon</i> sp.		
Oregon sunshine	<i>Eriophyllum lanatum</i>		
Western yarrow	<i>Achillea millefolium</i>		
Tailcup lupine	<i>Lupinus caudatus</i>		
Heartleaf arnica	<i>Arnica cordifolia</i>		
Larkspur	<i>Delphinium</i> sp.		
Hoary aster	<i>Machaeranthera canescens</i>		
Missouri goldenrod	<i>Solidago missouriensis</i>		

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Mountain monardella	<i>Monardella odoratissima</i>		
Hollyleaved barberry <sup>4</sup>	<i>Mahonia aquifolium</i>		

**Warm/Hot Forests Riparian**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Blue wildrye	<i>Elymus glaucus</i>	50	5
Western wheatgrass	<i>Pascopyrum smithii</i>	50	5

**Cool Forests**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Blue wildrye	<i>Elymus glaucus</i>	33	4
Mountain brome	<i>Bromus marginatus</i>	33	6
Pinegrass	<i>Calamagrostis rubescens</i>	33	0.25
Heartleaf arnica	<i>Arnica cordifolia</i>		
Thickstem aster	<i>Eurybia integrifolia</i>		
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Dwarf rose <sup>4</sup>	<i>Rosa gymnocarpa</i>		
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**Cool Forest Riparian**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Blue wildrye	<i>Elymus glaucus</i>	50	4
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**Umatilla County/Columbia Basin****Loamy Soils**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	50	7
Bottlebrush squirreltail	<i>Festuca idahoensis</i>	15	1.5
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Thickspike wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	20	5
Wooly plantain	<i>Plantago patagonica</i>		
Narrow leaf milkweed	<i>Asclepias fascicularis</i>		
Silky lupine	<i>Lupinus sericeus</i>		
Common sunflower	<i>Helianthus annuus</i>		
Tiny trumpet	<i>Collomia linearis</i>		
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**Sandy Soils**

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**Riparian**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
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**Over 4,000 feet Elevation**

Common Name	Scientific Name	Percent Composition	Seeding Rate (lb./acre)
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