

2018 Noxious Weed Control Plan Annual Report

Wallowa Falls Hydroelectric Project

FERC Project No. 308



Prepared by:



December 2018

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1.0 Introduction

The Wallowa Falls Hydroelectric Project (FERC Project No. 308) received a new operating license from the Federal Energy Regulatory Commission (Commission) on January 5, 2017 (FERC 2017). Article 415 of the FERC license required PacifiCorp to file a noxious weed control plan (NWCP) with FERC within 6 month from the date of the license issuance (July 5, 2017):

Article 415. Noxious Weed Control Plan. The revised Noxious Weed Control Plan required by Appendix B, condition 6, must be developed after consultation with the Oregon Department of Fish and Wildlife and U.S. Fish and Wildlife Service. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the plan, including any changes required by the Commission.

The United States Department of Agriculture (USDA), Forest Service Final Section 4(e) Conditions were filed on February 16, 2016 and included as Appendix B in FERC license (FERC 2017). The following conditions apply to the NWCP (PacifiCorp 2017):

Condition No. 6 – Noxious Weed Management Plan The Licensee shall, within six months following License issuance, revise the Noxious Weed Management Plan (NWMP), Appendix K, Volume III of the FLA [Final License Application] (February 2015), in consultation with the USDA Forest Service. The NWMP shall include measures A through D below and must meet USDA Forest Service standards, guidelines, methods, and monitoring protocols for actions undertaken on National Forest Service (NFS) lands. The NWMP shall be filed with the Commission for approval. After Commission approval, the Licensee shall immediately implement the NWMP.

- A. The Licensee shall implement applicable noxious weed control measures found in invasive plant management direction for the Pacific Northwest Region and/or the Wallowa-Whitman National Forest Land and Resource Management Plan, as amended for the period of the License. Future changes or modifications to the management direction will require the Licensee to coordinate with the USDA Forest Service at the Annual Resource Coordination Meeting required in Condition 5 to ensure the Licensee's implementation activities comply with those changes or modifications.

- B. The Licensee shall survey and treat noxious weeds on NFS lands within the FERC Project Boundary for three (3) consecutive years between June 1 and July 31 following construction or maintenance activities described in the FLA. If for three consecutive years, no noxious weeds are detected during the annual surveys, then survey intervals shall shift to a biennial schedule until a noxious weed infestation is detected. Control methods that will effectively control all Class A and other target weeds shall be implemented the same year as detection as allowed by U.S. Forest Service Pacific Northwest Region Invasive Plant Program, Preventing and Managing Invasive Plants (April 2005) and Record of Decision (ROD) (October 2005).
- C. The exact timing between June 1 and July 31 are recommended to implement control methods for optimal effectiveness in association with the guidelines provided by U.S. Forest Service Pacific Northwest Region Invasive Plant Program, Preventing and Managing Invasive Plants (April 2005) and Record of Decision (ROD) (October 2005). Manual control methods shall include measures including but not limited to reseeding, mulching and supplemental irrigation to ensure establishment of non-noxious vegetation in treated areas.
- D. The Licensee shall ensure that: a) ground cover in treated areas equals or exceeds 80 percent of that in an undisturbed control area with similar vegetation and is adjacent to the Project area and b) species composition in disturbed areas equals or exceeds 75 percent non-weedy species. If the standards above are not feasible or achievable, the Licensee shall consult and coordinate with the USDA Forest Service to develop suitable alternatives.
- E. The Licensee shall include a status report in its Annual Report, required by Condition No. 5 – Resource Coordination, describing activities related to weed control, assessment of weed areas, and identification of future efforts to control noxious weed spread and colonization within the Project boundary.

PacifiCorp submitted the Noxious Weed Control Plan (NWCP) to the Commission on June 1, 2017 pursuant to Article 415 and the Forest Service Final Section 4E Conditions included as Appendix B of the FERC license. A FERC order approving NWCP was issued by the Commission on July 25, 2017. PacifiCorp implement the NWCP in 2017 prior to receiving the Commission approval to insure that noxious weed monitoring and control methods were completed during the growing season and would optimize effectiveness.

This report complies with the FERC License Appendix B USDA, Forest Service Final Section 4(e) Condition No. 5- Resource Coordination requiring PacifiCorp to provide an Annual Report to Wallowa Whitman National Forest (WWNF) on the status of the NWCP activities for that year (FERC 2017). The status report should be completed by December 1 each year to allow for at least a 30-day review prior to the Annual Resource Coordination meeting. The status report will only apply to the Project Boundary as described in Section 2.0 and shown in Appendix A:

- The current year Invasive Plant Inventory Forms
- A description of the control methods, operation and maintenance, and success of the control methods conducted that year and the accompanying treatment forms [Herbicide Application (2510), Insect Release (2550), and/or Mechanical/Physical Treatment (2530)]
- Future anticipated soil disturbing activities, noxious weed prevention methods to be conducted, and identification of future efforts to control noxious weed spread and colonization for the following year within the Project Boundary
- Future expected efforts and a schedule for monitoring
- Compliance with the current Wallowa Whitman National Forest, State and Local regulations for weed management activities
- Results of revegetation success for all ground disturbance activities

2.0 Project location

The Wallowa Falls Hydroelectric Project is located on the east fork of the Wallowa River near the town of Joseph, Oregon in Wallowa County. The project powerhouse discharges into the West Fork of the Wallowa River upstream of Wallowa Lake (Figure 1).

The Project Boundary is an estimated 26 acres and encloses project operations, such as Royal Purple Creek Diversion Dam, the pipeline and open channel conveying water from the Royal Purple Creek Diversion Dam to the East Fork Dam and impoundment, penstock, powerhouse, transmission line, and non-project substation (FERC 2017). Portions of the access road, tailrace, and Pacific Park Campground are also included within the Project Boundary (FERC 2017). Approximately half lands within the Project Boundary are owned by PacifiCorp and the other half are on WWNF lands. Appendix A shows the Project Boundary and the associated features.

Areas within the Project Boundary may be more susceptible to noxious weeds due to exposed soils and/or are adjacent to frequent human activity. Therefore the Project Boundary is differentiated into three noxious weed priority areas to prioritize monitoring, prevention, and control methods accordingly. Noxious weed priority areas are defined as follows and are shown on Appendix A.

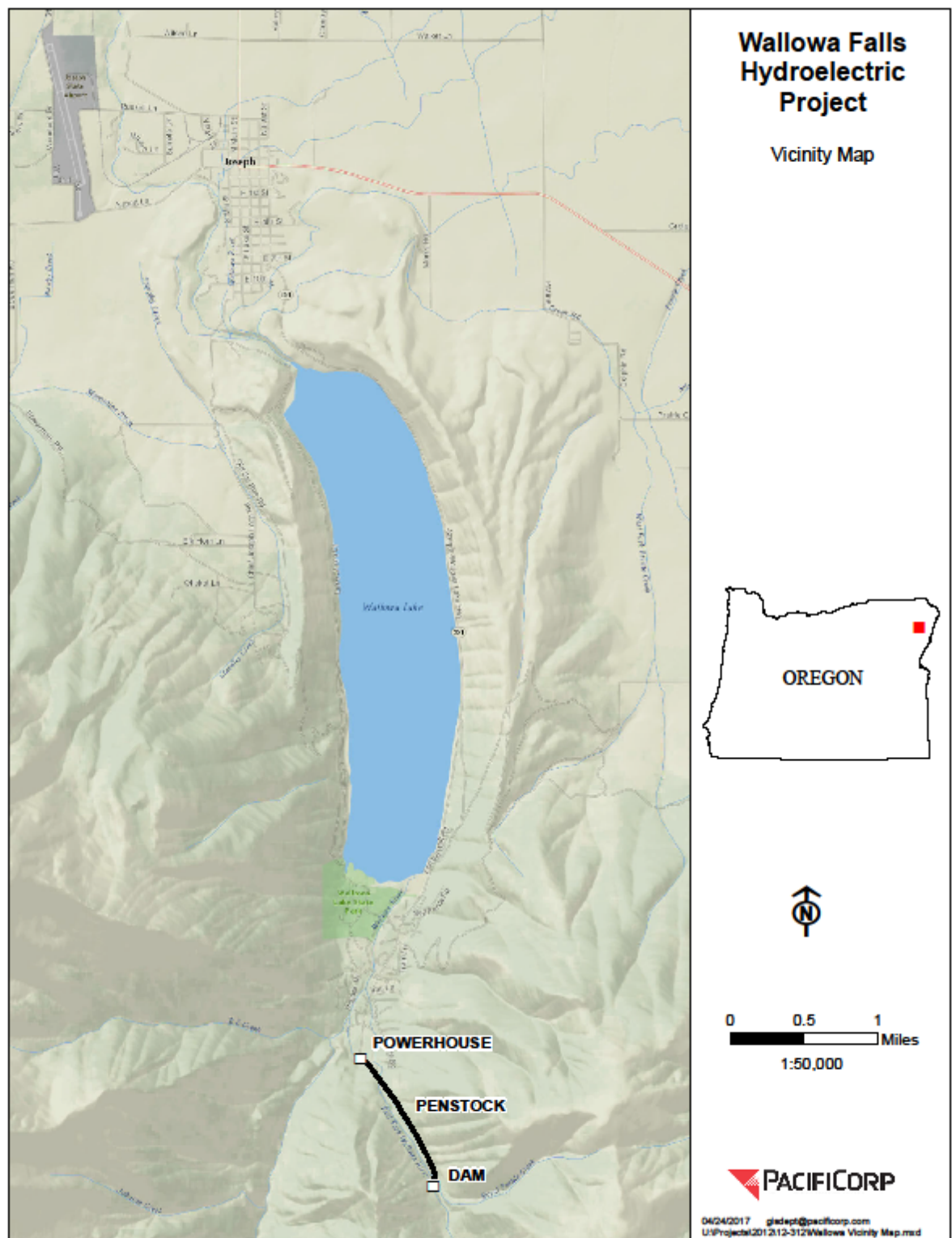
High Priority: areas with frequent or continued soil disturbance, frequent or constant exposure to weed seed vectors, or is known to have existing noxious weeds. These areas include the campground, forebay area, and portions of the WWNF trail within the Project Boundary.

Medium Priority: areas with prior or frequent soil disturbance, but has low exposure to weed seed vectors. Examples of this would include the access road and penstock.

Low Priority: areas that have intact soils and a low exposure to weed seed vectors. Examples of this would include talus slopes and forested areas away from high use areas.

These areas may be modified as needed to adjust for changes in the Project Boundary or in public use of an area (e.g. new trails etc.). No changes were required to the Project Boundary or the noxious weed priority areas in 2018.

Figure 1: Wallowa Falls Hydroelectric Project Vicinity Map



3.0 Regulation and Compliance

A comprehensive review of current and applicable WWNF, State and local regulations was completed in June 2018. The laws are as follows and PacifiCorp complied with these regulations and guidelines for all noxious weed monitoring and management in 2018:

3.1 USFS and WWNF regulations guidelines

The following USFS documents were used as guidelines and reference for all noxious weed monitoring and control methods implemented in 2018:

- Land and Resource Management Plan Wallowa-Whitman National Forest, as amended (USFS 1990).
- Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Final Environmental Impact Statement (USFS 2005a).
- Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Record of Decision. (USFS 2005b).
- Wallowa-Whitman National Forest Invasive Plants Treatment Project Final Environmental Impact Statement. (USFS 2010a).
- Wallowa-Whitman National Forest Invasive Plant Treatment Project Record of Decision. (USFS March 2010b).

3.2 Oregon Revised Statues

The following Oregon Revised Statues (ORS) are chapter 569 Weed Control that provide state and county authority to manage noxious weeds and are applicable to NWCP:

2015 ORS 569.175 applicable definitions:

- (1) "Noxious weed" means a terrestrial, aquatic or marine plant designated by the State Weed Board under ORS 569.615 as among those representing the greatest public menace and as a top priority for action by weed control programs.
- (2) "Person" means a person as defined in ORS 174.100 (Definitions), the federal government or any of its agencies, the State of Oregon or any of its agencies, or any city, county, district or municipal corporation of this state

2015 ORS 569.185 State Department of Agriculture authority:

- (13) Request any person owning or controlling land within this state to control, prevent the spread of or, when feasible, eradicate noxious weeds, and to supervise such activities.

2015 ORS 569.350 Necessity of eradication of weeds:

Noxious weeds have become so thoroughly established and are spreading so rapidly on state, county and federally owned lands, as well as on property in individual ownership and in transition to county ownership through tax delinquency, that they hereby are declared a

menace to the public welfare. While it is recognized that complete eradication may not be practicable, it hereby is established that steps leading to eradication and control are necessary and that responsibility rests not only on the individual landowner and operator but also on the county, state and federal government, and that the county, state and federal government should cooperate with individual owners in the control and eradication of noxious weed pests.

3.3 Noxious Weed Monitoring List

State of Oregon and Wallowa County maintain a list of target Noxious Weeds that are separated into the following three categories for prioritizing management (Oregon Department of Agriculture 2018):

A listed Weed: A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent.

Recommended action: Infestations are subject to eradication or intensive control when and where found. A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent.

B listed Weed: A weed of economic importance which is regionally abundant, but which may have limited distribution in some counties.

Recommended action: Limited to intensive control at the state, county or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.

T Designated Weed: A designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T designated noxious weeds are determined by the Oregon State Weed Board and directs Oregon Department of Agriculture to develop and implement a statewide management plan. T designated noxious weeds are species selected from either the A or B list.

The following table is a list of species included in the 2018 NWCP monitoring:

Table 1: 2018 Oregon State and Wallowa County Listed Noxious Weeds

Common Name ^{2,3}	Scientific Name^{1,2}	Oregon State Category²	Wallowa County Category³
Absinthe Wormwood*	<i>Artemisia absinthium</i>		B
African Rue	<i>Peganum harmala</i>	A (T)	
Annual Bugloss*	<i>Anchusa officialis</i>		B
Armenian blackberry (Himalayan blackberry)*	<i>Rubus armeniacus</i>	B	B
Atlantic Ivy	<i>Hedera hibernica</i>	B	
Bachelor Button*	<i>Centaurea cyanus</i>		B
Barbed goatgrass	<i>Aegilops triuncialis</i>	A (T)	
Biddy-biddy	<i>Acaena novae-zelandiae</i>	B	
Bohemian Knotweed	<i>Polygonum behemicum</i>		A
Buffalobur	<i>Solunum rostratum</i>	B	
Bull thistle**	<i>Cirsium vulgare</i>	B	
Bur Buttercup*	<i>Ceratocephala testiculata</i>		B
Butterfly bush	<i>Buddleja davidii</i>	B	
Camelthorn	<i>Alhagi pseudalhag</i>	A	
Canada thistle**	<i>Cirsium arvense</i>	B	B
Cape Ivy	<i>Delairea odorata</i>	A (T)	
Chicory*	<i>Cichorium intybus</i>		B
Coltsfoot	<i>Tussilago farfara</i>	A	
Common Burdock**	<i>Arctium minus</i>		B
Common Bugloss*	<i>Anchusa officinalis</i>	B(T)	A (T)
Common cordgrass	<i>Spartina anglica</i>	A(T)	
Common crupina*	<i>Crupina vulgaris</i>	B	B
Common frogbit	<i>Hydrocharis morsus-range</i>	A	
Common reed	<i>Phragmites australis</i>	B	
Common Tansy	<i>Tanacetum vulgare</i>		A
Common Teasel	<i>Dipsacus fullonum</i>		B
Creeping yellowcress	<i>Rorippa sylvestris</i>	B	
Cut-leaved Teasel	<i>Dipsacus laciniatus</i>	B	
Dalmatian Toadflax*	<i>Linaria dalmatica</i>	B(T)	B
Delta arrowhead	<i>Sagittaria platyphyla</i>	A	
Dense flowered cord grass	<i>Spartina densiflora</i>	A (T)	
Diffuse Knapweed*	<i>Centaurea diffusa</i>	B	B
Dodder*	<i>Cuscuta spp.</i>	B	
Dyer's Woad*	<i>Isatis tinctoria</i>	B	T
English Ivy	<i>Hedera helix</i>	B	
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	B	

Table 1: 2018 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)

Common Name ^{2,3}	Scientific Name^{1,2}	Oregon State Category²	Wallowa County Category³
European water chestnut	<i>Trapa natans</i>	A	
False Brome	<i>Brachypodium sylvaticum</i>	B	
Field Bindweed*	<i>Convolvulus arvensis</i>	B (T)	B
Floating Primrose Willow	<i>Ludwigia peploides</i>	B	
Flowering Rush	<i>Butomus umbellatus</i>	A (T)	
French Broom	<i>Genista monspessulana</i>	B	
Garden yellow loosestrife	<i>Lysimachia vulgaris</i>	A (T)	
Garlic Mustard	<i>Alliaria petiolata</i>	B (T)	A (T)
Giant hogweed	<i>Heracleum mantegazzianum</i>	A (T)	
Giant Knotweed	<i>Polygonum sachalinense</i>	B	A
Goatsrue	<i>Galega officinalis</i>	A (T)	
Gorse	<i>Ulex europaeus</i>	B (T)	
Hairy whitetop *	<i>Lepidium pubescens</i>	B	A
Halogeton	<i>Halogeton glomeratus</i>	B	
Herb Robert	<i>Geranium robertianum</i>	B	
Himalayan knotweed	<i>Polygonum polystachum</i>	B	
Hoary Alyssum (False Hoary Alyssum) *	<i>Berteroa incana</i>	A (T)	A (T)
Hoary cress whitetop *	<i>Lepidium draba</i>	B	A (T)
Houndstongue**	<i>Cynoglossum officinale</i>	B	B
Hydrilla	<i>Hydrilla verticillata</i>	A	
Iberian starthistle	<i>Centaurea iberica</i>	A (T)	A
Indigo bush	<i>Amorpha fruticosa</i>	B	
Italian Thistle	<i>Cardus pycnocephalus</i>	B	A (T)
Japanese dodder	<i>Cuscuta japonica</i>	A	
Japanese knotweed*	<i>Polygonum cuspidatum</i>	B	(T)
Johnsongrass	<i>Sorghum halepense</i>	B	
Jointed goatgrass *	<i>Aegilops cylindrica</i>	B	B (T)
Jubata grass	<i>Cortaderia jubata</i>	B	
King devil hawkweed	<i>Pilosella piloselloides</i>	A	
Kochia *	<i>Kochia scoparia</i>	B	B
Kudzu	<i>Pueraria lobata</i>	A(T)	
Large-flower Primrose Willow	<i>Ludwigia grandiflora</i>	B (T)	
Leafy Spurge *	<i>Euphorbia esula</i>	B(T)	A (T)
Lens podded whitetop*	<i>Cardaria chalapensis</i>	B	
Lesser celandine	<i>Ranunculus ficaria</i>	B	
Long-Spine sandbur	<i>Cenchrus longispinus</i>		B
Matgrass	<i>Nardus stricta</i>	A (T)	
Meadow Hawkweed*	<i>Hieracium pratense</i>	B (T)	B (T)

Table 1: 2018 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)

Common Name ^{2,3}	Scientific Name^{1,2}	Oregon State Category²	Wallowa County Category³
Mouse-ear hawkweed	<i>Pilosella pilosella</i>	A (T)	
Meadow Knapweed**	<i>Centaurea pratensis</i>	B	A (T)
Mediterranean Sage	<i>Salvia aethiopis</i>	B	A (T)
Medusahead Rye*	<i>Taeniatherum canput-medusae</i>	B	B (T)
Milk thistle	<i>Silybum marianum</i>	B	
Orange Hawkweed*	<i>Pilosella aurantiacum</i>	A (T)	A (T)
Oregano	<i>Origanum vulgare</i>		A (T)
Ovate goatgrass	<i>Aegilops ovata</i>	A	
Oxeye Daisy**	<i>Leucanthemum vulgare</i>		B
Parrot's feather	<i>Myriophyllum aquaticum</i>	B	
Paterson's curse	<i>Echium plantagineum</i>	A (T)	
Perennial peavine	<i>Lathyrus latifolius</i>	B	
Perennial Pepperweed*	<i>Lepidium latifolium</i>	B(T)	A(T)
Pheasanteye (Blooddrops)*	<i>Adonis aestivalis</i>	B	
Plumeless Thistle*	<i>Carduus acanthoides</i>	A (T)	A
Poison Hemlock*	<i>Conium maculatum</i>	B	B
Policeman's Helmet	<i>Impatiens glandulifera</i>	B	
Portuguese broom	<i>Cytisus striatus</i>	B(T)	
Puncturevine*	<i>Tribulus terrestris</i>	B	A
Purple Loosestrife*	<i>Lythrum salicaria</i>	B	A
Purple nutsedge	<i>Cyperus rotundus</i>	A	
Purple Star Thistle	<i>Centaurea calcitrapa</i>	A (T)	T
Ragweed	<i>Ambrosia artemisiifolia</i>	B	
Ravenna grass	<i>Saccharum ravennae</i>	A (T)	A
Reed Canarygrass (Ribbon grass)	<i>Phalaris arundinaceae</i>	B (T)	B
Rose campion	<i>Lychnis coronaria</i>		A
Rush Skeletonweed*	<i>Chondrilla juncea</i>	B(T)	B (T)
Russian Knapweed*	<i>Acroptilon repens</i>	B	A (T)
Saltcedar*	<i>Tamarix ramoissima</i>	B (T)	
Salt meadow cordgrass	<i>Spartina patens</i>	A (T)	
Scotch Broom*	<i>Cytisus scoparius</i>	B	A(T)
Scotch Thistle*	<i>Onopordium acanthium</i>	B	B (T)
Shiny leaf geranium	<i>Geranium lucidum</i>	B	
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>	A	
Slender flowered thistle	<i>Cardus tenuiflorus</i>	B	
Small broomrape	<i>Orobancha minor</i>	B	
Smooth Cordgrass	<i>Spartina alterniflora</i>	A	
Smooth distaff thistle	<i>Carthamus baeticus</i>	A	

Table 1: 2018 Listed Oregon and Wallowa County Listed Noxious Weeds (continued)

Common Name ^{2,3}	Scientific Name^{1,2}	Oregon State Category²	Wallowa County Category³
South American waterweed	<i>Egeria densa</i>	B	
Spanish broom	<i>Spartium junceum</i>	B	
Spanish heath	<i>Erica lusitanica</i>	B	
Spikeweed	<i>Hemizonia pungens</i>	B	
Spiny cocklebur [*]	<i>Xanthium spinosum</i>	B	
Spotted Cats ear	<i>Hyphochaeris glabra</i>		T
Spotted Knapweed ^{**}	<i>Centaurea stoebe</i>	B(T)	A (T)
Spurge laurel	<i>Daphne Laureola</i>	B	
Squarrose knapweed	<i>Centaurea virgata</i>	A (T)	
St. Johnswort ^{**}	<i>Hypericum perforatum</i>	B	
Sulfur Cinquefoil [*]	<i>Potentilla recta</i>	B	B (T)
Swainsonpea	<i>Sphaerophysa salsula</i>	B	
Sweetbriar Rose [*]	<i>Rosa rubiginosa</i>		B
Syrian bean-caper	<i>Zygophyllum fabago</i>	A	
Tall Buttercup [*]	<i>Ranunculus acris</i>		B
Tansy Ragwort [*]	<i>Senecio jacobaea</i>	B (T)	A (T)
Tuarian thistle	<i>Onopordum tauricum</i>	A(T)	
Tree of Heaven [*]	<i>Ailanthus altissima</i>	B	
Velvetleaf	<i>Abutilon theophrasti</i>	B	
Ventenata (North Africa grass) [*]	<i>Ventenata dubia</i>		B
Water soldier	<i>Stratiotes aloides</i>	A	
Waterprimrose	<i>Ludwigia hexapetala</i>	B (T)	
Wetted Thistle [*]	<i>Carduus crispis</i>	A (T)	A (T)
West Indian sponge Plant	<i>Limnobium laevigatum</i>	A	
White bryonia (white bryony)	<i>Byronia alba</i>	A	A
White Champion	<i>Silene latifolia</i>		B
Wooly distaff thistle	<i>Carthamus lanatus</i>	A (T)	
Yellow archangel	<i>Lamiastrum galeobdolon</i>	B	
Yellow flag iris [*]	<i>Iris psuedocorus</i>	B	A (T)
Yellow floating heart	<i>Nymphoides peltata</i>	A (T)	
Yellow hawkweed [*]	<i>Pilosella floribundum</i>	A (T)	
Yellow nutsedge	<i>Cyperus esculentus</i>	B	
Yellow starthistle [*]	<i>Centuarea solstitialis</i>	B	A
Yellow toadflax [*]	<i>Linaria vulgaris</i>	B	B
Yellowtuft	<i>Alyssum coriscan</i>	A(T)	

***Noxious weeds are known to exist within Wallowa County ^{1,2}**

****Noxious weeds are known to exist within the Project Boundary (Bio-Resources 2018)**

¹ Natural Resources Conservation Service 2018

² Oregon Department of Agriculture 2018

³ Wallowa County 2018

4.0 2018 Monitoring and Management

The following is description of noxious weed monitoring, control and other management strategies that occurred in 2018 within the Project Boundary.

4.1 Prevention

Activities that disturb soils through the removal of native vegetation result in exposed ground that promotes the establishment of noxious weeds. Therefore noxious weeds will be controlled prior to conducting any soil disturbing activity and the area will be revegetated to prevent noxious weed establishment. No ground disturbing activities occurred within the Project Boundary in 2018.

4.2 Noxious Weed Monitoring

PacifiCorp contracted with local contractor, Kendrick Moholt (Bio-Resources, Inc.) to implement the NWCP monitoring and oversee control methods. The noxious weed monitoring surveys were completed by Kendrick on July 8, 2018 and included all high and medium priority noxious weed areas. A record of the each noxious weed infestation has been documented on Invasive Plant Inventory Forms are provided in Appendix B. The table below provides a list of the noxious weeds location and status.

Table 2: Noxious Weeds Located in 2018 within the Project Boundary.

Common Name	Scientific Name	Oregon State Category	Wallowa County Category	Location
Canada thistle	<i>Cirsium arvense</i>	B	B	Campground/trail
Bull thistle	<i>Cirsium vulgare</i>	B	None	Campground/trail
Houndstongue	<i>Cynoglossum officinale</i>	B	B	Trail
Common Burdock	<i>Arctium minus</i>	None	B	Campground/trail
Spotted knapweed	<i>Centaurea maculosa</i>	B (T)	A (T)	Campground/road
Oxeye daisy	<i>Leucanthemum vulgar</i> , formerly <i>Chrysanthemum leucanthemum</i>		B	Campground/trail
Meadow hawkweed	<i>Hieracium caespitosum</i>	B(T)	B (T)	Trail
St. Johnswort	<i>Hypericum perforatum</i>	B		Trail

4.3 Control Methods

Kendrick Moholt supervised the spray operation to control noxious weeds within the Project Boundary on July 9, 2018. Treatment consisted of spraying with Milestone® herbicide, mixed with a surfactant and a marking dye. The Herbicide Application Form 2510 is provided in Appendix B.

The campground and surrounding areas had Canada thistle, bull thistle, houndstongue, and burdock treated with spot application using backpack sprayers to minimize the application to individual plants.

An area near the entrance to the campground and the east side of the county road (near the trail head and horse trails) was thoroughly sprayed with backpack sprayers and All-terrain vehicle mounted sprayer to control larger infestations of spotted knapweed. The spotted knapweed will likely need to be treated again in 2019 to be completely effective.

Along the access road and trail there are three locations, including the area near the dam, were sprayed to control meadow hawkweed. Due to the potential presence of rare plants, special care was taken to avoid impacting rare plants. The two hawkweed populations identified during the relicensing studies do not appear to be spreading and appears to be decreasing in size. A third population consisting of two plants was located near the trailhead in 2017 and it appears to have been controlled. Additional treatments in 2019 will be necessary to eradicate hawkweed at the other locations. Other target noxious weed treated along access road and trail include bull thistle, Canada thistle and St. Johnswort.

4.4 Revegetation Success

All areas of prior ground disturbance within Project Boundary will be evaluated during the annual noxious weed monitoring to determine if the following criteria have been met:

- a) ground cover in treated areas equals or exceeds 80 percent of that in an undisturbed control area with similar vegetation and is adjacent to the area of ground disturbance and
- b) species composition in disturbed areas equals or exceeds 75 percent non-weedy species.

These areas will be monitored until the above criteria is met for 3 consecutive years. If the criteria cannot be met and is not feasible or achievable, then PacifiCorp will consult and coordinate with the US Forest Service at the Annual Resource Coordination Meeting. Currently there are no areas ground disturbance areas that require revegetation and/or revegetation success monitoring.

5.0 2019 Monitoring and Management

In 2019, the construction of the tailrace reroute and royal purple pipe extension will be begin in late summer and is scheduled to be completed in 2020. The royal purple pipe extension is currently within a high priority portion of the current Noxious Weed Monitoring Area. A portion of the tailrace reroute will extend beyond the current Noxious Weed Monitoring Area, but will be included in the 2019 noxious weed survey as a high priority area. Appendix C provides map of the proposed construction limits for both projects. Any noxious weed identified within the area will be treated prior to construction. In addition to these areas, the 2019 noxious weed monitoring will include all high and medium priority areas within the Project Boundary (Appendix A) and noxious weed control will occur as needed. The hawkweed infestations and spotted knapweed infestation near the trailhead and along the trail will likely need additional herbicide treatment in 2019.

6.0 References

- Bio-Resources, Inc. 2018. Wallowa Falls Hydroelectric Project Special Status Plant and Noxious Weed Management. October 2018.
- Federal Energy Regulatory Commission (FERC). 2017. PacifiCorp Wallowa Falls Hydroelectric License (FERC) Project No. 308. Issued January 5, 2017.
- Natural Resources Conservation Service (NRCS). 2018. The PLANTS Database URL: <http://plants.usda.gov> (15 May 2018). National Plant Data Team, Greensboro, NC 27401-4901 USA.
- Oregon Department of Agriculture. 2018. Noxious Weed Policy and Classification System 2018.
- PacifiCorp. 2017. Wallowa Falls Hydroelectric Project FERC Project No. P-308 Noxious Weed Control Plan. Portland, Oregon.
- United States Forest Service. 1990. Land and Resource Management Plan Wallowa-Whitman National Forest, as amended. United States Forest Service. URL: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5260139.pdf. (September 24, 2013).
- United States Forest Service. 2005a. Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Final Environmental Impact Statement. United States Forest Service April 2005. URL: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3812803.pdf. (April 20, 2017)
- United States Forest Service. 2005b. Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Record of Decision. United States Forest Service October 2005. URL: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5302164.pdf (April 20, 2017).
- United States Forest Service. 2010a. Wallowa-Whitman National Forest Invasive Plants Treatment Project Final Environmental Impact Statement. United States Forest Service. March 2010. URL: <http://www.fs.usda.gov/detail/wallowawhitman/landmanagement/planning/?cid=stelprdb5192845> (September 24, 2013).
- United States Forest Service. 2010b. Wallowa-Whitman National Forest Invasive Plants Treatment Project Record of Decision. United States Forest Service April 2010. URL: <http://www.fs.usda.gov/detail/wallowa-whitman/landmanagement/planning/?cid=stelprdb5192845> (September 24, 2013).
- Wallowa County. 2018. 2018 Noxious Plant List. URL: http://www.co.wallowa.or.us/public_works/vegetation/weed_list.html. (May 15, 2018).

Appendix A

Noxious Weed Monitoring Area

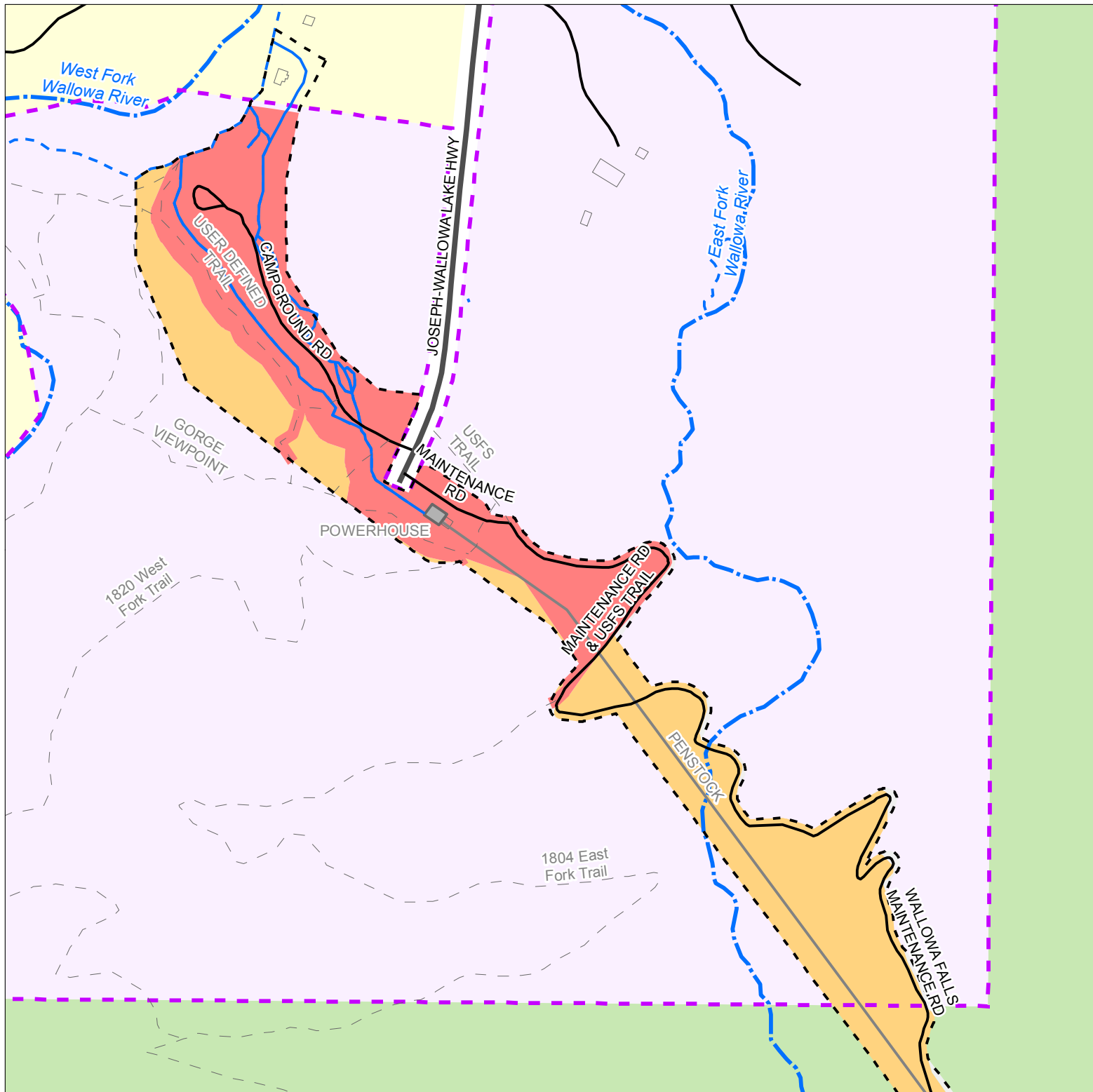
Wallowa Falls Hydroelectric Project

Noxious Weed Monitoring Area

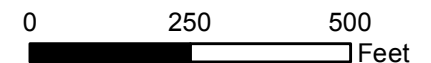
Page 1 of 3

Legend

- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary
- Priority Noxious Weed Areas**
 - High
 - Medium
 - Low
- Land Ownership**
 - PacifiCorp
 - USFS
 - Private



1:3,600



Wallowa Falls Hydroelectric Project

Noxious Weed Monitoring Area

Page 2 of 3

Legend

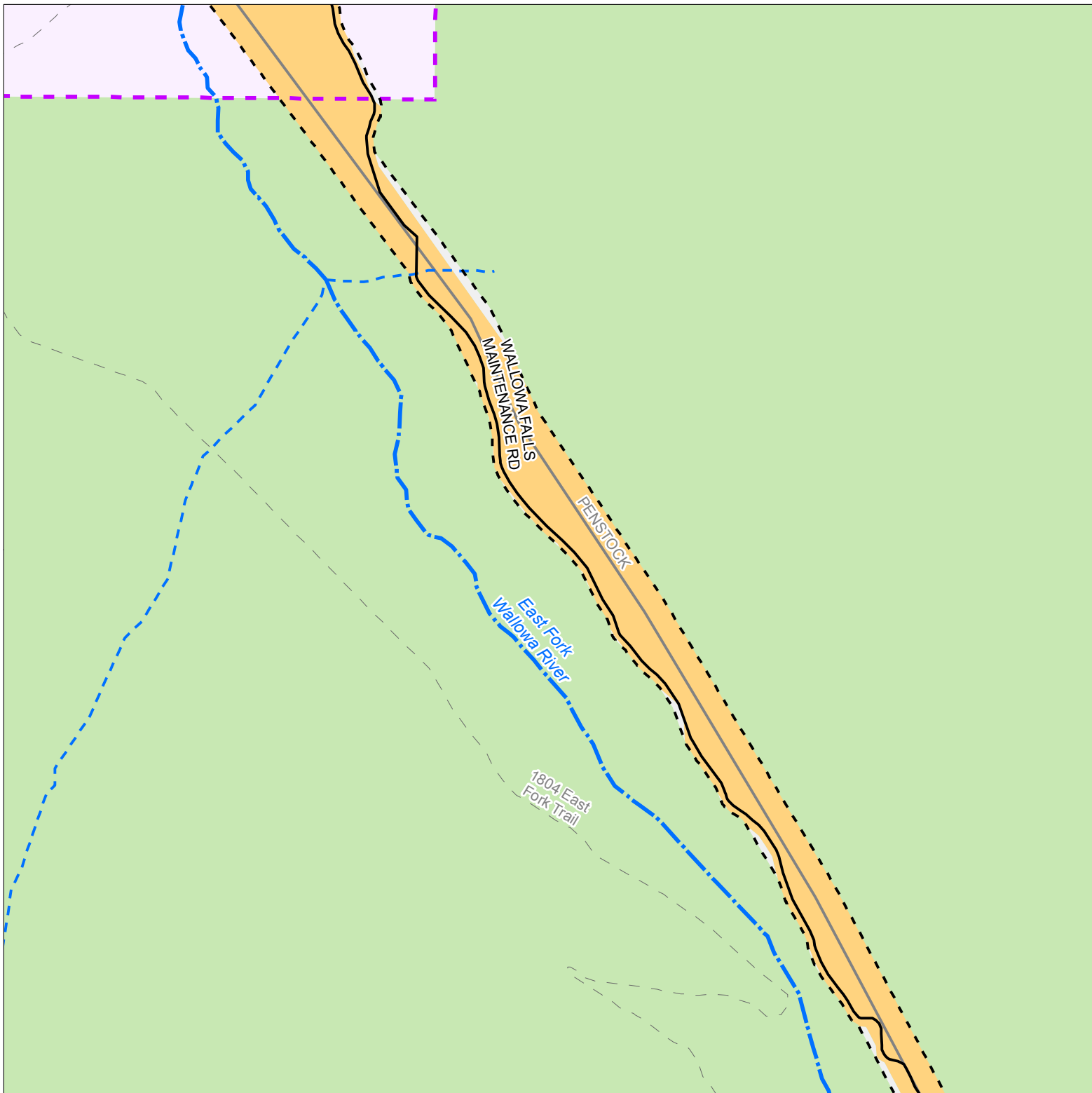
- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary
- Priority Noxious Weed Areas**
 - High
 - Medium
 - Low
- Land Ownership**
 - PacifiCorp
 - USFS
 - Private

1:3,600

0 250 500 Feet



04/20/2017 gisdept@pacifiCorp.com
U:\Projects\2012\12-312\Noxious Weed Monitoring
Area Map.mxd



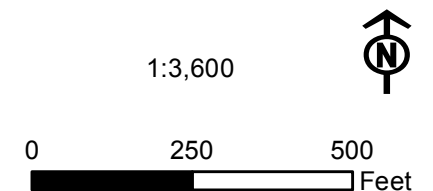
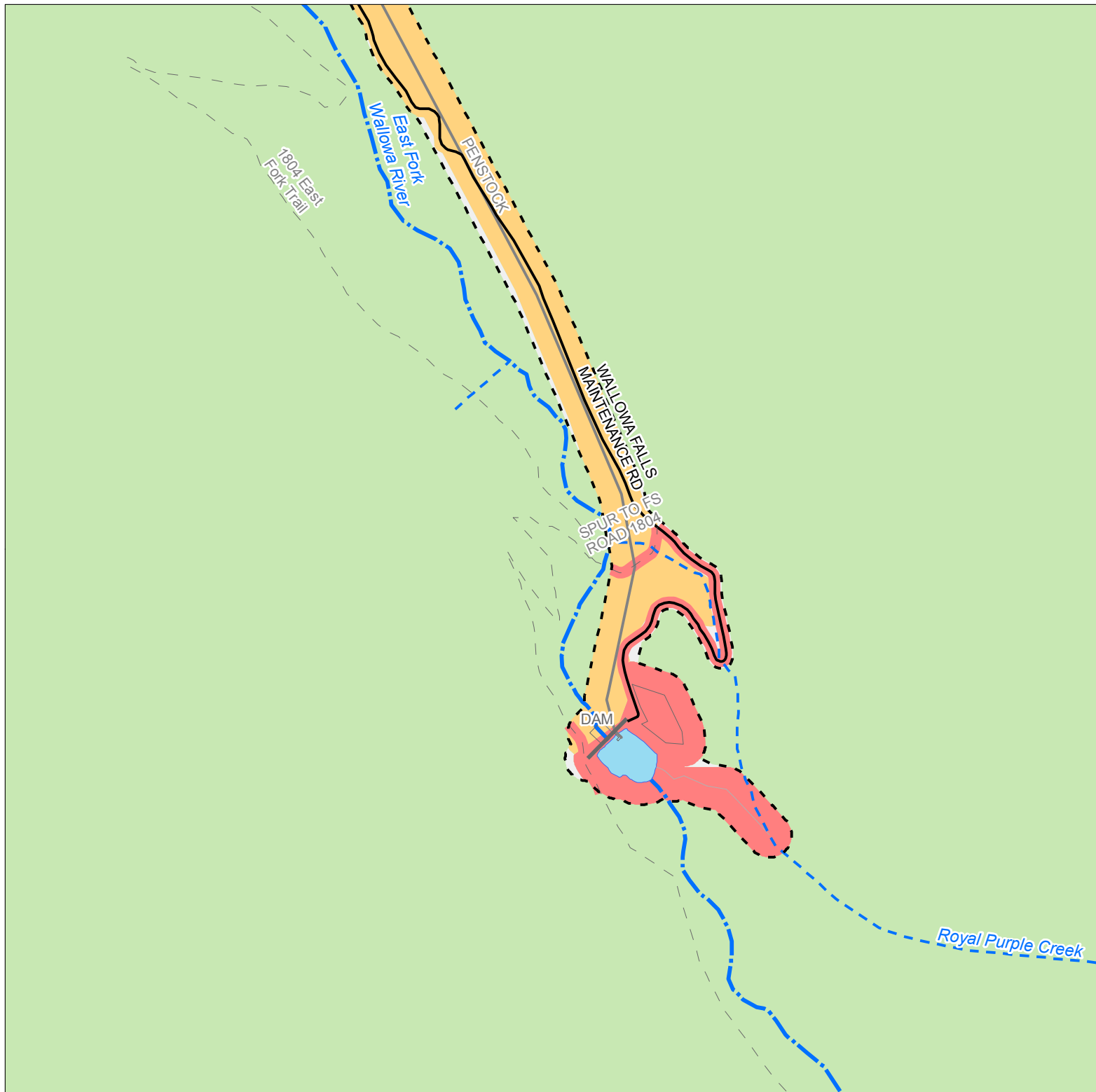
Wallowa Falls Hydroelectric Project

Noxious Weed Monitoring Area

Page 3 of 3

Legend

- Trail
- Road
- Highway
- Facility
- Penstock
- FERC Boundary
- Priority Noxious Weed Areas**
 - High
 - Medium
 - Low
- Land Ownership**
 - PacifiCorp
 - USFS
 - Private



Appendix B
Invasive Plant Inventory Form and
Herbicide Application (2510) Forms

Invasive Plant Inventory Form

General Site Information

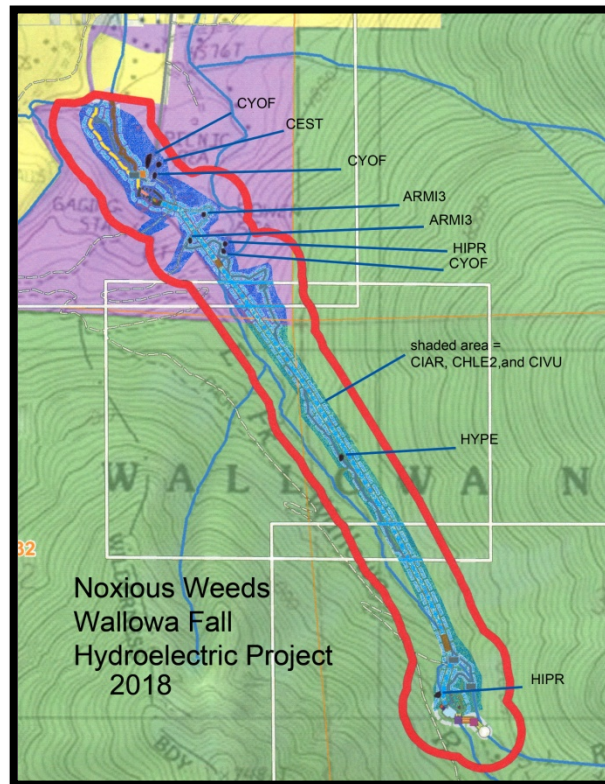
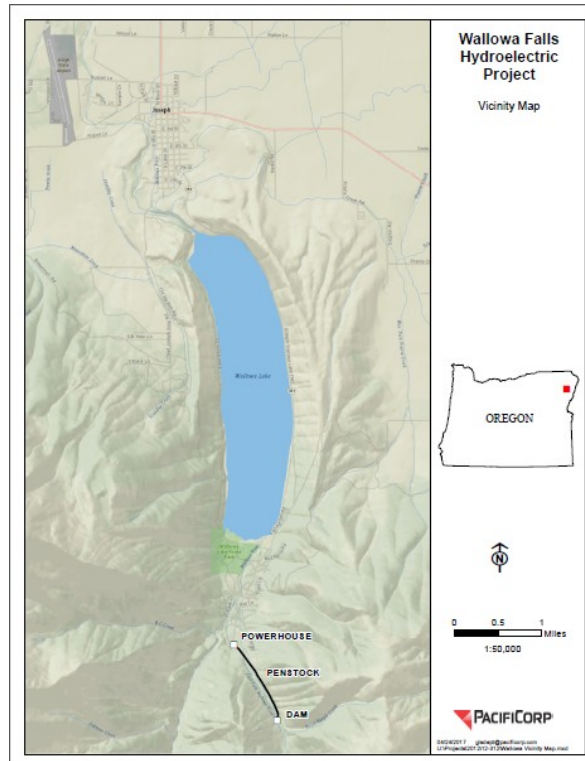
Site Name: Wallowa Falls Hydroelectric Project		Date: 8 July 2018	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp	
Photo Name:		Examiner: Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	Elevation: 4700'- 5800'	GPS Coordinates: 0483259 E 5012652N to 0484159E 5011062N	Datum: UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	GPS File Name:	Other Observations:	
Access: Road__ Trail <u>X</u> River__ Other campground			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>33</u> NW ¹ / ₄ of NW ¹ / ₄ , SW ¹ / ₄ of NW ¹ / ₄ , NW ¹ / ₄ of SW ¹ / ₄ , SE ¹ / ₄ of SW ¹ / ₄			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>29</u> SW ¹ / ₄			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>32</u> NE ¹ / ₄ of NE ¹ / ₄			

Site Data Information

Target Species Code: CIVU		Common Name: Bull Thistle	
Scientific Name: <i>Cirsium vulgare</i>		Phenology: R__ B__ FL <u>X</u> S	
Distribution: C Lumped__ Linear__ SE Scattered even__ SP Scattered Patchy <u>X</u> Continuous__			
Total Acres: 26	Percent Infested: <1%	Infested Acres: ~0.15	
% Cover or Count (weeds): ~50		Understory Cover % (all): 40-90%	
Potential to Spread: High__ Med <u>x</u> Low__		Distance to Water: >30m	
Water Type: Perennial__ Ephemeral__		System: Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-20%, Aspect variable	
Other Species on Site:			

Comments

Map of Site



Invasive Plant Inventory Form

General Site Information

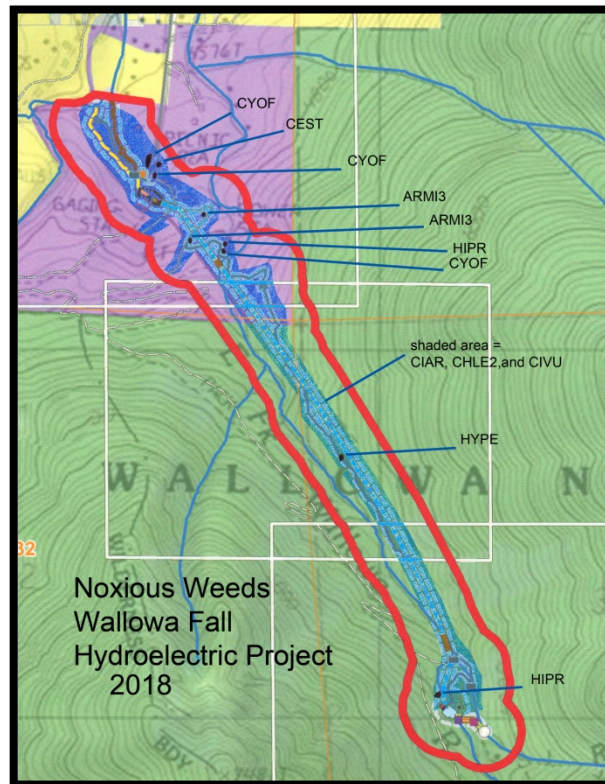
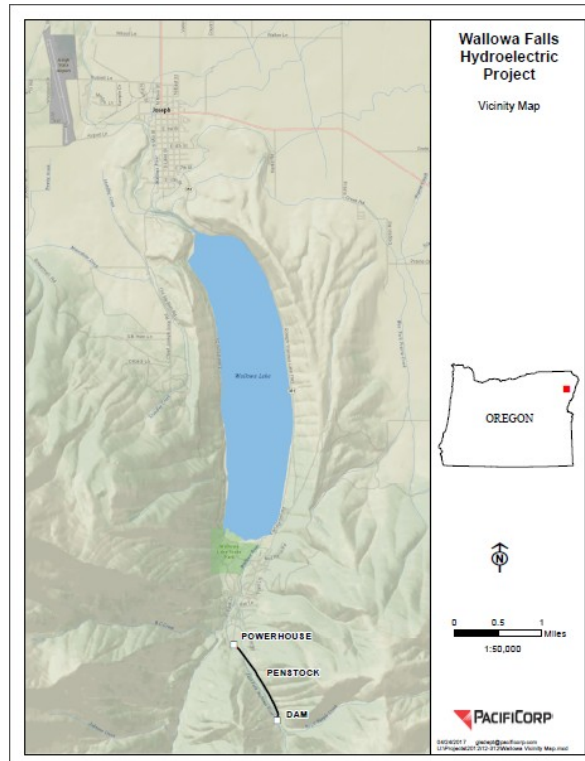
Site Name: Wallowa Falls Hydroelectric Project		Date: 8 July 2018	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp	
Photo Name:		Examiner: Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	Elevation: 4700'- 5800'	GPS Coordinates: 0483259 E 5012652N to 0484159E 5011062N	Datum: UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	GPS File Name:	Other Observations:	
Access: Road__ Trail <u>X</u> River__ Other campground			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>33</u> NW ¹ / ₄ of NW ¹ / ₄ , SW ¹ / ₄ of NW ¹ / ₄ , NW ¹ / ₄ of SW ¹ / ₄ , SE ¹ / ₄ of SW ¹ / ₄			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>29</u> SW ¹ / ₄			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>32</u> NE ¹ / ₄ of NE ¹ / ₄			

Site Data Information

Target Species Code: CIAV		Common Name: Canada Thistle	
Scientific Name: <i>Cirsium arvense</i>		Phenology: R__ B__ FL <u>X</u> S	
Distribution: C Lumped__ Linear__ SE Scattered even__ SP Scattered Patchy <u>X</u> Continuous__			
Total Acres: 26	Percent Infested: <1%	Infested Acres: ~0.3	
% Cover or Count (weeds): ~1000		Understory Cover % (all): 40-90%	
Potential to Spread: High__ Med <u>x</u> Low__		Distance to Water: >30m	
Water Type: Perennial__ Ephemeral__		System: Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-20%, Aspect variable	
Other Species on Site:			

Comments

Map of Site



Invasive Plant Inventory Form

General Site Information

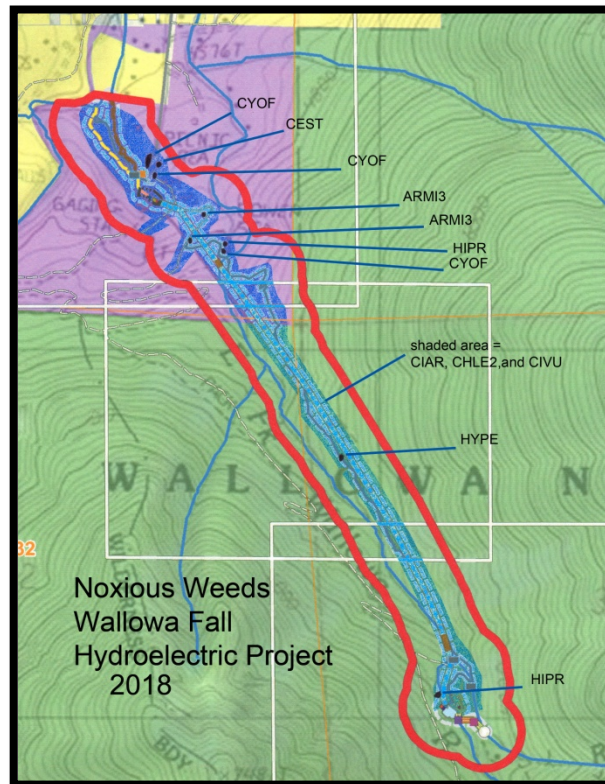
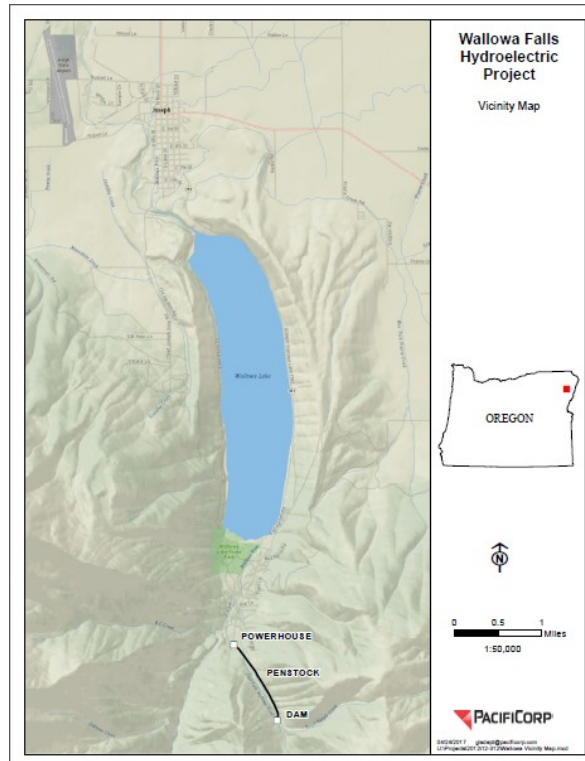
Site Name: Wallowa Falls Hydroelectric Project		Date: 8 July 2018	
Photo Point (GPS):		Ownership: PacifiCorp	
Photo Name:		Examiner: Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	Elevation: 4700'- 5000'	GPS Coordinates: 0483488E 5012298N and 0483529E 5012336N	Datum: UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	GPS File Name:	Other Observations:	
Access: Road__ Trail <u>X</u> River__ Other Campground			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>29</u> ¼ sec: <u>SE</u> of ¼ sec: <u>SE</u>			

Site Data Information

Target Species Code: ARMI3		Common Name: Common Burdock	
Scientific Name: <i>Arctium minus</i>		Phenology: R__ B__ FL <u>X</u> S	
Distribution: C Lumped__ Linear__ SE Scattered even__ SP Scattered Patchy <u>X</u> Continuous__			
Total Acres: 26	Percent Infested: <1%	Infested Acres: ~0.1	
% Cover or Count (weeds): ~5		Understory Cover % (all): 60-90%	
Potential to Spread: High__ Med <u>x</u> Low__		Distance to Water: >30m	
Water Type: Perennial__ Ephemeral__		System: Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-10%, Aspect variable	
Other Species on Site:			

Comments

Map of Site



Invasive Plant Inventory Form

General Site Information

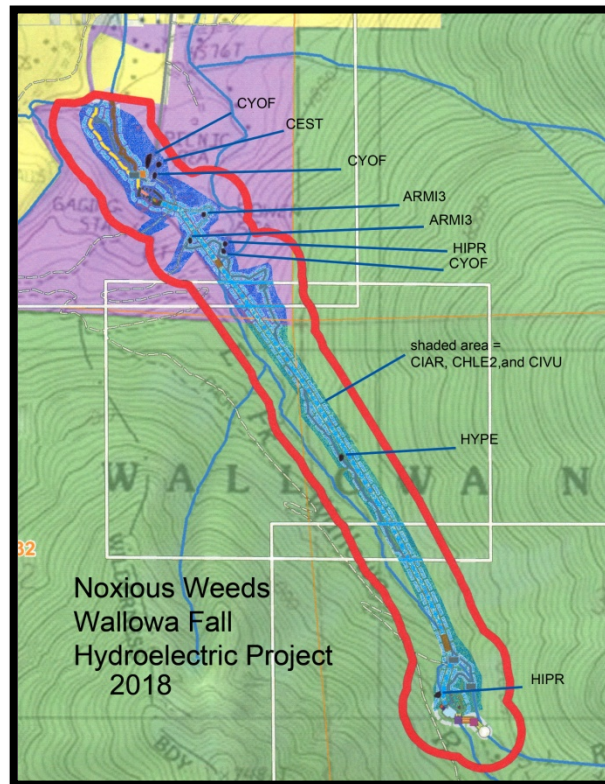
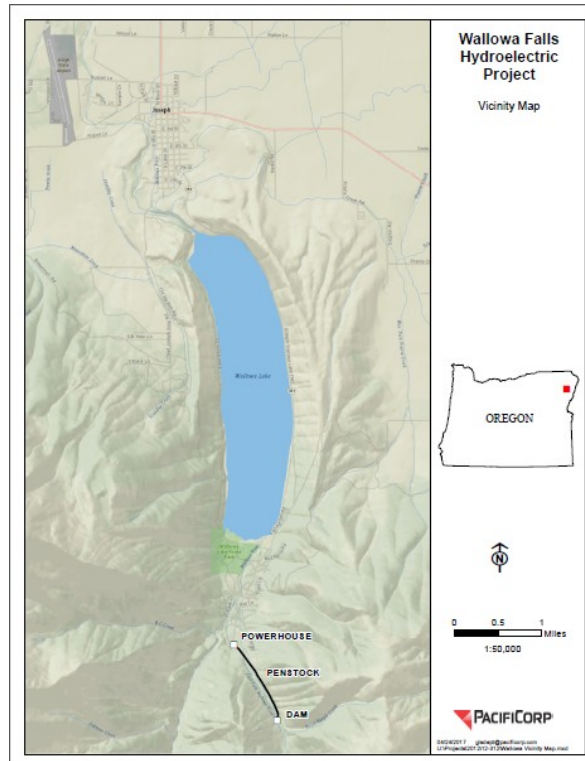
Site Name: Wallowa Falls Hydroelectric Project		Date: 8 July 2018	
Photo Point (GPS):		Ownership: PacifiCorp	
Photo Name:		Examiner: Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	Elevation: 4700'- 5000'	GPS Coordinates: 0483297 5012651N and 0483577E 5012260N	Datum: UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	GPS File Name:	Other Observations:	
Access: Road__ Trail <input checked="" type="checkbox"/> River__ Other_____#			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>29</u> ¼ sec: <u>NW</u> of ¼ sec: <u>SE</u>			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>29</u> ¼ sec: <u>SE</u> of ¼ sec: <u>SE</u>			

Site Data Information

Target Species Code: CYOF		Common Name: Houndstongue	
Scientific Name: <i>Cynoglossum officinale</i>		Phenology: R__ B__ FL <input checked="" type="checkbox"/> S	
Distribution: C Lumped__ Linear__ SE Scattered even____ SP Scattered Patchy <input checked="" type="checkbox"/> Continuous_____			
Total Acres: 26	Percent Infested: <1%	Infested Acres: ~0.15	
% Cover or Count (weeds): ~60		Understory Cover % (all): 40-90%	
Potential to Spread: High <input checked="" type="checkbox"/> Med__ Low__		Distance to Water: >30m	
Water Type: Perennial__ Ephemeral__		System: Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-10%, Aspect variable	
Other Species on Site:			

Comments

Map of Site



Invasive Plant Inventory Form

General Site Information

Site Name: Wallowa Falls Hydroelectric Project		Date: 8 July 2018	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp	
Photo Name:		Examiner: Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	Elevation: 4700'- 5800'	GPS Coordinates:	Datum: UTM (NAD 27) Zone 11
Wildlife Biologist:		0484195E 5011062N (USFS) 0484223E 5011018N (PacifiCorp)	
EDRR: __Y__N	GPS File Name:	Other Observations:	
Access: Road__ Trail <u>X</u> River__ Other____#			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>33</u> ¼ sec: <u>SE</u> (USFS)			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>29</u> ¼ sec: <u>SE</u> of ¼ sec: <u>SE</u> (PacifiCorp)			

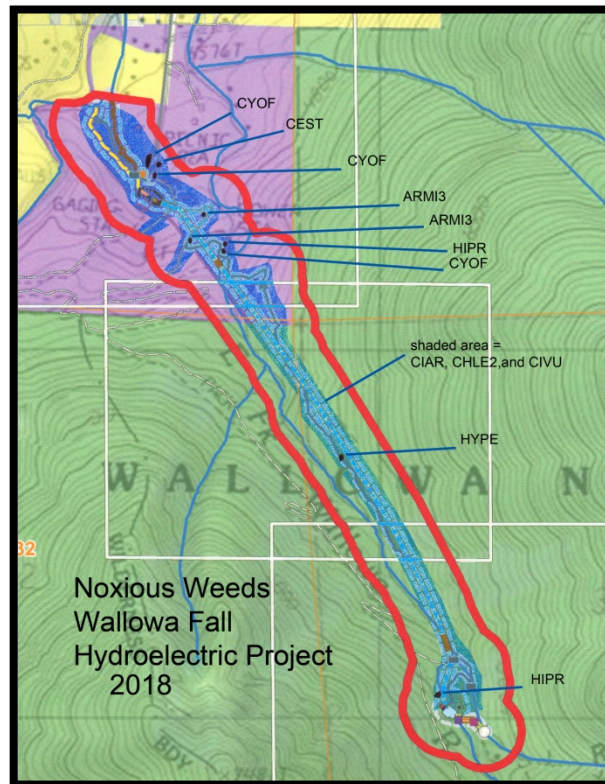
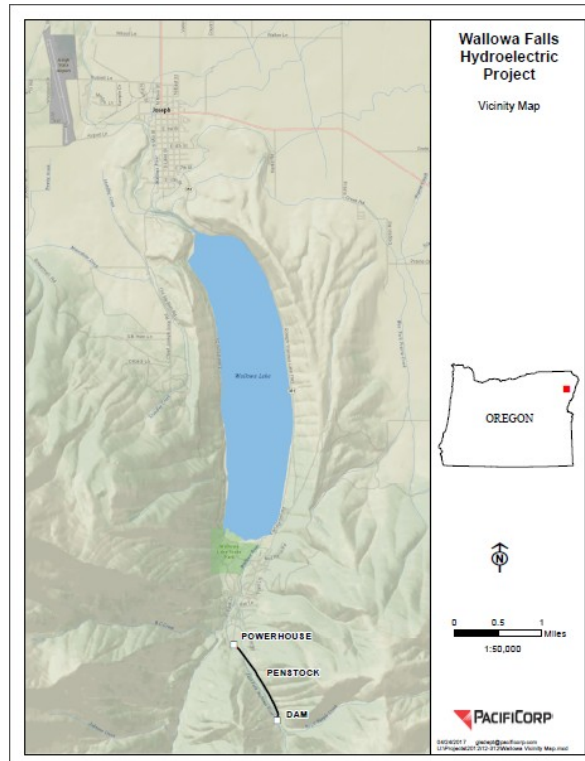
Site Data Information

Target Species Code: HIPR		Common Name: meadow hawkweed	
Scientific Name: <i>Hieracium caespitosum</i> (Synonym: <i>Hieracium pratense</i>)		Phenology: R__ B__ FL <u>X</u> S	
Distribution: C Lumped__ Linear__ S E Scattered even__ S P Scattered Patchy <u>X</u> Continuous____			
Total Acres: 26	Percent Infested: <1%	Infested Acres: ~0.15	
% Cover or Count (weeds): <1% (~60 plants)		Understory Cover % (all): 40-90%	
Potential to Spread: High <u>x</u> Med__ Low__		Distance to Water: >30m	
Water Type: Perennial__ Ephemeral__		System: Lake__ River__ Spring__ Stream	
Soil Types: sandy loam to sandy lithosol		Slope % aspect: 2-20%, Aspect variable	
Other Species on Site:			

Comments

The hawkweed treated here is not in the same location formerly recorded with the infestation ID numbers MH3555 and MH3560. Plants have not been relocated at these older infestation sites.

Map of Site



Invasive Plant Inventory Form

General Site Information

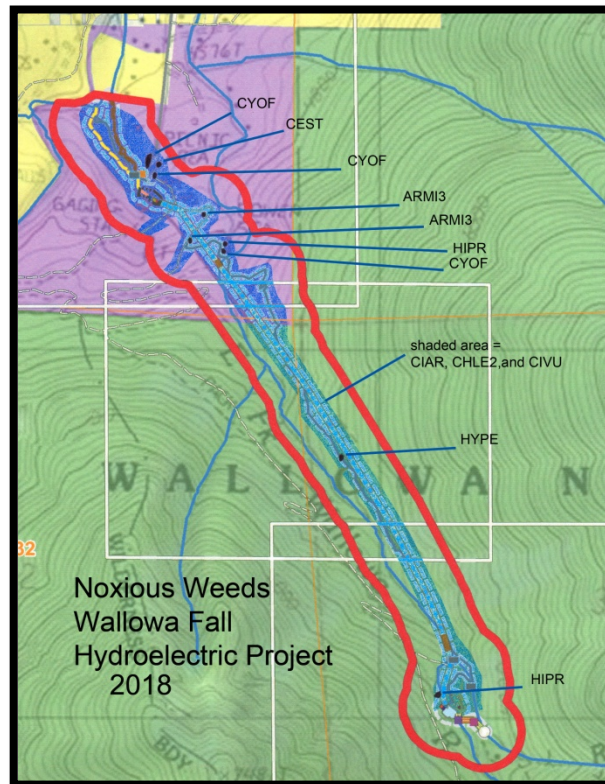
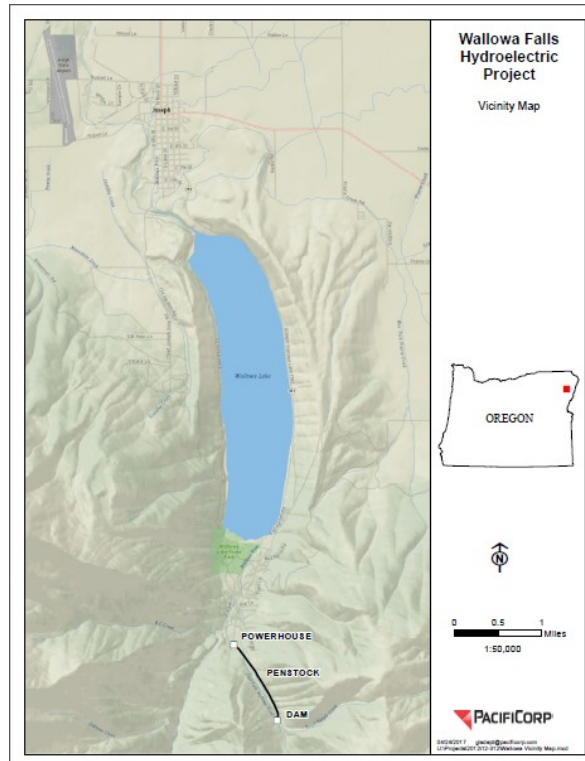
Site Name: Wallowa Falls Hydroelectric Project		Date: 8 July 2018	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap and PacifiCorp	
Photo Name:		Examiner: Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	Elevation: 4700'- 5800'	GPS Coordinates: 0483259 E 5012652N to 0484159E 5011062N	Datum: UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	GPS File Name:	Other Observations:	
Access: Road__ Trail <u>X</u> River__ Other campground			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>33</u> NW ¹ / ₄ of NW ¹ / ₄ , SW ¹ / ₄ of NW ¹ / ₄ , NW ¹ / ₄ of SW ¹ / ₄ , SE ¹ / ₄ of SW ¹ / ₄			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>29</u> SW ¹ / ₄			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>32</u> NE ¹ / ₄ of NE ¹ / ₄			

Site Data Information

Target Species Code: CHLE2		Common Name: Oxeye Daisy	
Scientific Name: <i>Leucanthemum vulgare</i> (Synonym- <i>Chrysanthemum leucanthemum</i>)		Phenology: R__ B__ FL <u>X</u> S	
Distribution: C Lumped__ Linear__ SE Scattered even__ SP Scattered Patchy <u>X</u> Continuous__			
Total Acres: 26	Percent Infested: <1%	Infested Acres: ~0.3	
% Cover or Count (weeds): ~1000		Understory Cover % (all): 40-90%	
Potential to Spread: High__ Med <u>x</u> Low__		Distance to Water: >30m	
Water Type: Perennial__ Ephemeral__		System: Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-20%, Aspect variable	
Other Species on Site:			

Comments

Map of Site



Invasive Plant Inventory Form

General Site Information

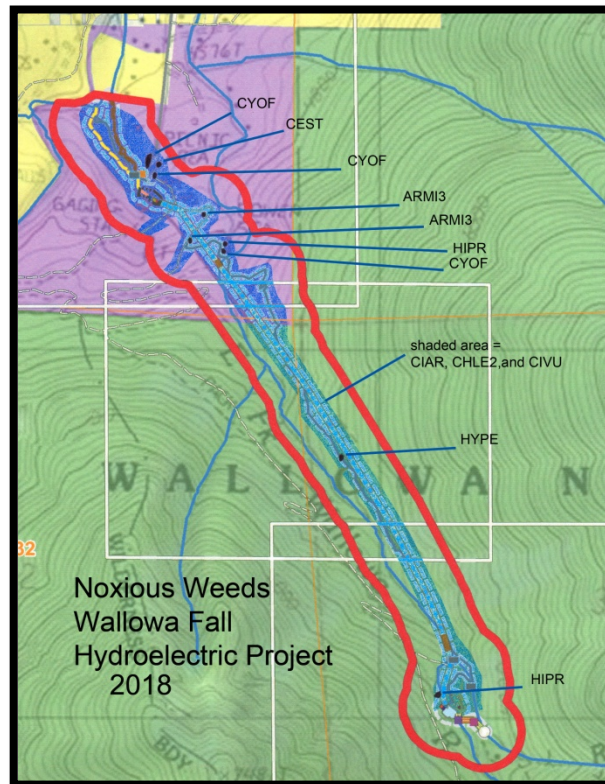
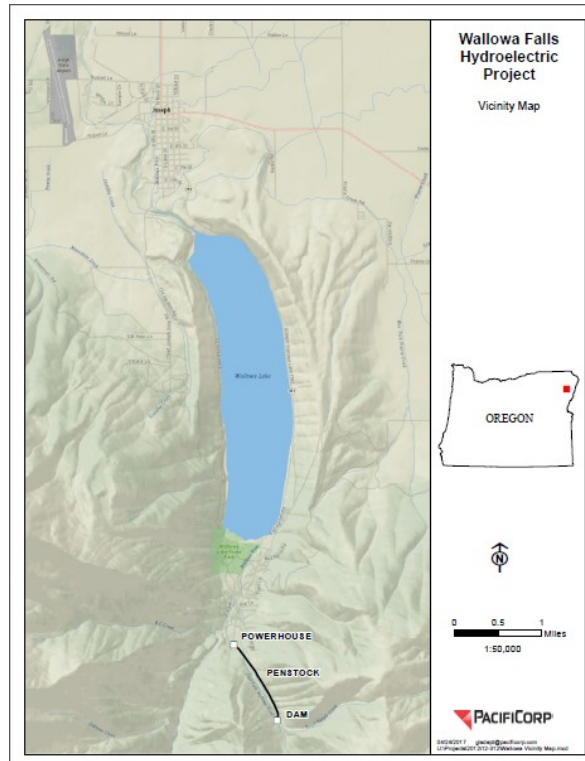
Site Name: Wallowa Falls Hydroelectric Project		Date: 8 July 2018	
Photo Point (GPS):		Ownership: PacifiCorp	
Photo Name:		Examiner: Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	Elevation: 4700'- 5000'	GPS Coordinates: 0483409E 5012480N	Datum: UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	GPS File Name:	Other Observations:	
Access: Road <u>X</u> Trail <u> </u> River <u> </u> Other Campground			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>29</u> ¼ sec: <u>NW</u> of ¼ sec: <u>SE</u>			

Site Data Information

Target Species Code: CEST		Common Name: Spotted Knapweed	
Scientific Name: <i>Centaurea stoebe</i> Synonym (<i>Centaurea maculosa</i>)		Phenology: R__ B__ FL <u>X</u> S	
Distribution: C Lumped__ Linear__ SE Scattered even__ SP Scattered Patchy <u>X</u> Continuous__			
Total Acres: 26	Percent Infested: <1%	Infested Acres: ~0.25	
% Cover or Count (weeds): dozens		Understory Cover % (all): 40-90%	
Potential to Spread: High <u>x</u> Med__ Low__		Distance to Water: >30m	
Water Type: Perennial__ Ephemeral__		System: Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2-10%, Aspect variable	
Other Species on Site:			

Comments

Map of Site



Invasive Plant Inventory Form

General Site Information

Site Name: Wallowa Falls Hydroelectric Project		Date: 8 July 2018	
Photo Point (GPS):		Ownership/District: USFS, WWNF, Eagle Cap	
Photo Name:		Examiner: Kendrick Moholt, Bio-Resources, Inc.	
Botanist Initial:	Elevation: 5500'	GPS Coordinates: 0484018E 5011521N	Datum: UTM (NAD 27) Zone 11
Wildlife Biologist:			
EDRR: __Y__N	GPS File Name:	Other Observations:	
Access: Road__ Trail <u>X</u> River__ Other____#			
Township: <u>3S</u> Range: <u>45E</u> Section: <u>33</u> ¼ sec: <u>NW</u>			

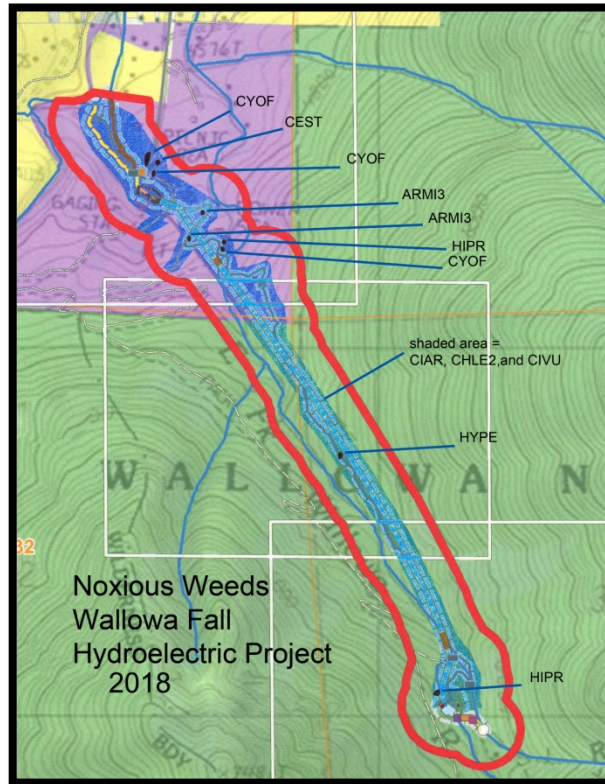
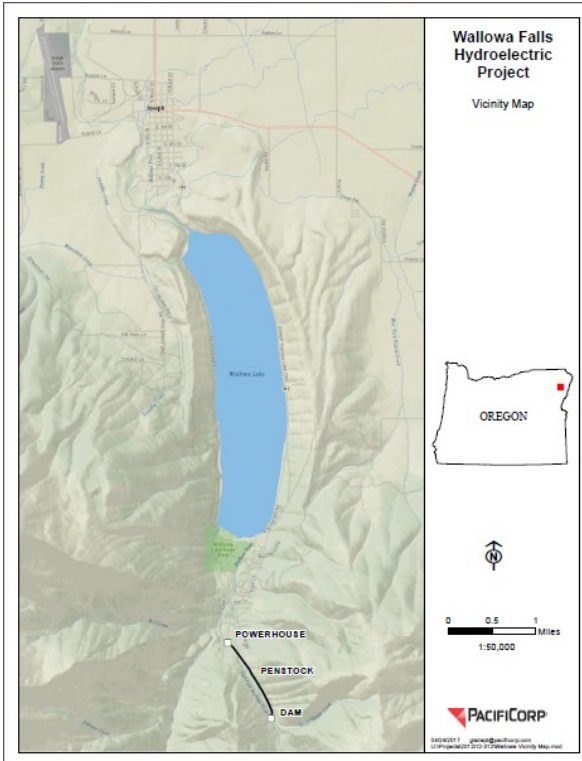
Site Data Information

Target Species Code: HIPE		Common Name: St. John's Wort	
Scientific Name: <i>Hypericum perforatum</i>		Phenology: R__ B__ FL <u>X</u> S	
Distribution: C Lumped__ Linear__ SE Scattered even__ S P Scattered Patchy <u>X</u> Continuous____			
Total Acres: 26	Percent Infested: <1%	Infested Acres: ~0.1	
% Cover or Count (weeds): ~50		Understory Cover % (all): 90%	
Potential to Spread: High__ Med__ Low <u>X</u>		Distance to Water: >30m	
Water Type: Perennial__ Ephemeral__		System: Lake__ River__ Spring__ Stream	
Soil Types: sandy loam		Slope % aspect: 2%, 230°	
Other Species on Site:			

Comments

Approximately 1 mile from trailhead on Wallowa Falls Maintenance Road (NE of the FS1804 trail switchback on the Sec. 32/33 border).

Map of Site



Herbicide Application (2510) Data Form

General Treatment Data

Treatment Area Name	Owner	FACTS ID #	Subunit	Project
Wallowa Falls Hydroelectric Project	USFS & PacifiCorp	_____	—	Wallowa Falls Hydroelectric Project
Equipment	Fund Code	Comments		
4-Wheeler spray rig, backpack spray rig	NA			

Infestation/Target Species

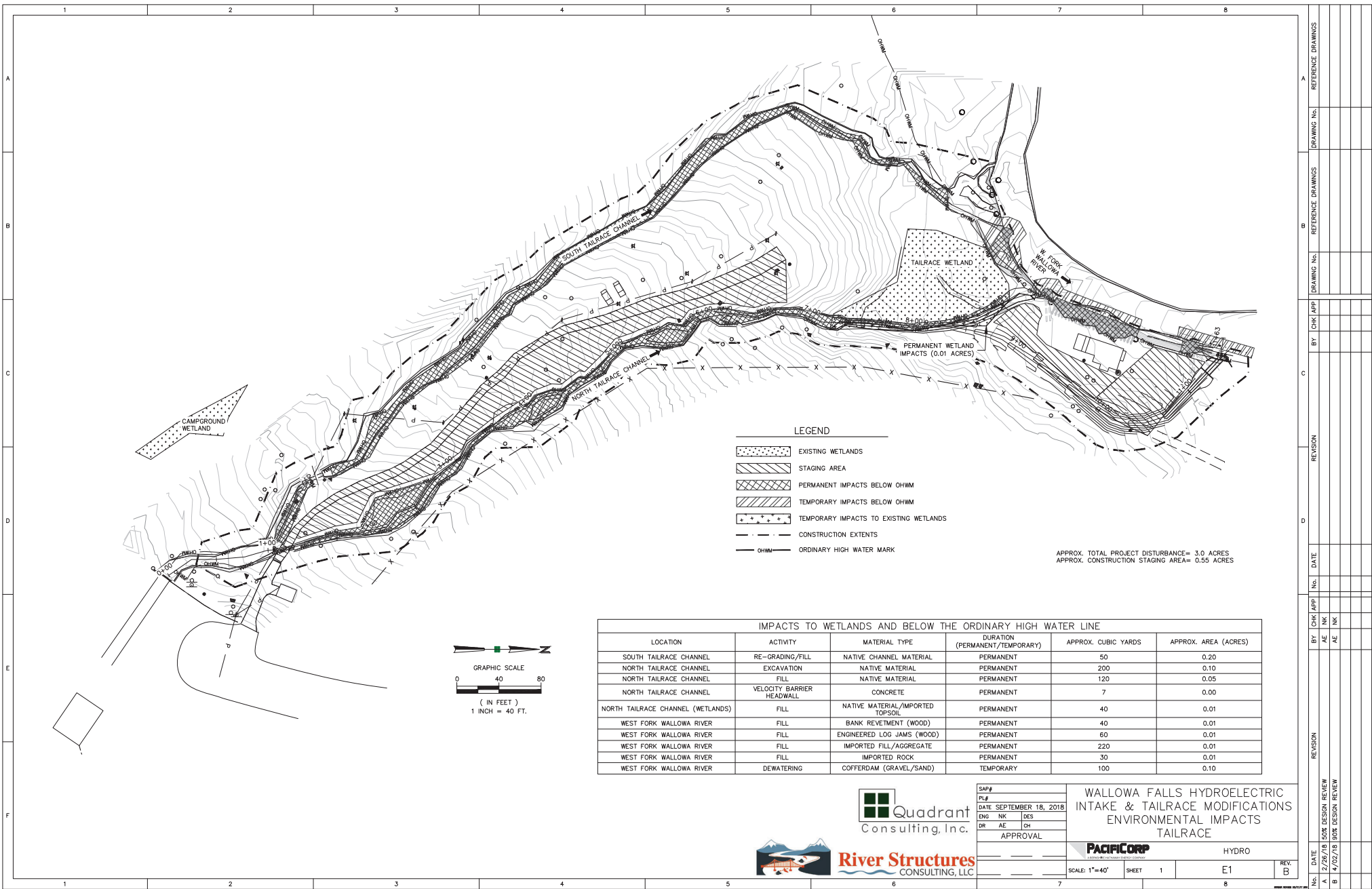
INFESTATION_ID	Species Name	% Infested	Infested Area Treat	Phenology
TBD	Meadow Hawkweed <i>Hieracium caespitosum</i>	<1%	0.10 ac USFS (spot app) 0.05ac PacifiCorp (spot app)	Flowering
TBD	Bull Thistle <i>Cirsium vulgare</i>	<1%	0.10 ac USFS (spot app) 0.05ac PacifiCorp (spot app)	Flowering
TBD	Canada Thistle <i>Cirsium arvense</i>	<1%	0.25ac USFS (spot app) 0.05ac PacifiCorp (spot app)	Flowering
TBD	Common Burdock <i>Arctium minus</i>	<1%	0.10ac PacifiCorp (spot app)	Flowering
TBD	Hounds' Tongue <i>Cynoglossum officinale</i>	<1%	0.15ac PacifiCorp (spot app)	Flowering
TBD	Oxeye Daisy <i>Leucanthemum vulgare</i>	<1%	0.25ac USFS (spot app) 0.05ac PacifiCorp (spot app)	Flowering
TBD	Spotted Knapweed <i>Centaurea stoebe</i>	<1%	0.25ac PacifiCorp (spot app)	Flowering
TBD	St. John's Wort <i>Hypericum perforatum</i>	<1%	0.10ac USFS (spot app)	Flowering

DailyLog

Application Site		Licensed Applicator Name and License #				Applicators (other)			
Wallowa Falls Hydroelectric Project campground, trail and fore bay area		Veezy Contracting #AG-L 1009406 CPA				—			
Application Date	Application Area (Acres)	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	RH%	Water Distance
09 July 2018	1.5	0800	1600	60-70°F	1-5	NW	clear	30	>30m
Calibrated Volume		UOM	Volume Applied		UOM		Mix (oz/gal)		Dilutant
16		Gal/Acre	24		Gal		0.44		Water
Herb Product Name		EPA Reg #		Product Rate	UOM	Additives		Rate	UOM
Milestone		62719-519		7	Oz/Ac	INSIST 90		12	Oz/Ac

Remarks: Bio-Resources, Inc contract botanist, Kendrick Moholt, on site during application.

Appendix C
Tailrace reroute and Royal Purple
Pipe extension construction limits



IMPACTS TO WETLANDS AND BELOW THE ORDINARY HIGH WATER LINE					
LOCATION	ACTIVITY	MATERIAL TYPE	DURATION (PERMANENT/TEMPORARY)	APPROX. CUBIC YARDS	APPROX. AREA (ACRES)
SOUTH TAILRACE CHANNEL	RE-GRADING/FILL	NATIVE CHANNEL MATERIAL	PERMANENT	50	0.20
NORTH TAILRACE CHANNEL	EXCAVATION	NATIVE MATERIAL	PERMANENT	200	0.10
NORTH TAILRACE CHANNEL	FILL	NATIVE MATERIAL	PERMANENT	120	0.05
NORTH TAILRACE CHANNEL	VELOCITY BARRIER HEADWALL	CONCRETE	PERMANENT	7	0.00
NORTH TAILRACE CHANNEL (WETLANDS)	FILL	NATIVE MATERIAL/IMPORTED TOPSOIL	PERMANENT	40	0.01
WEST FORK WALLOWA RIVER	FILL	BANK REVETMENT (WOOD)	PERMANENT	40	0.01
WEST FORK WALLOWA RIVER	FILL	ENGINEERED LOG JAMS (WOOD)	PERMANENT	60	0.01
WEST FORK WALLOWA RIVER	FILL	IMPORTED FILL/AGGREGATE	PERMANENT	220	0.01
WEST FORK WALLOWA RIVER	FILL	IMPORTED ROCK	PERMANENT	30	0.01
WEST FORK WALLOWA RIVER	DEWATERING	COFFERDAM (GRAVEL/SAND)	TEMPORARY	100	0.10

Quadrant
Consulting, Inc.



River Structures
CONSULTING, LLC

SAP
DATE: SEPTEMBER 18, 2018
DNG NK DES
DR AE CH

WALLOWA FALLS HYDROELECTRIC
INTAKE & TAILRACE MODIFICATIONS
ENVIRONMENTAL IMPACTS
TAILRACE

PACIFICORP

HYDRO

SCALE: 1"=40'

SHEET 1

E1

REV. B

