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Randall Long-Term Management Plan

Prepared for

Port of Portland

Prepared by

SWCA Environmental Consultants

July 2016



RANDALL LONG-TERM MANAGEMENT PLAN

Prepared for

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CONTENTS

1. Mitigation Management Program.....	1
Introduction.....	1
Site Description and History	1
2. Ecological Setting	2
Habitat Description and Corridor Connectivity	2
Surrounding Land Use	2
Hydrology	2
Invasive Species.....	3
Restored Native Vegetation	3
Sensitive Species.....	4
3. Regulatory Framework	5
Federal and State Regulations.....	5
Local Ordinances	6
4. Randall Mitigation Site Permitting	7
Permit Summary	7
Mitigation Plan and Progress	7
Mitigation Results.....	8
Mitigation Criteria	8
Mitigation Success by Criteria.....	8
Current Site Conditions.....	9
5. Conservation and Management Strategy	10
Permanent Protection Instrument.....	11
Limits of Responsibility.....	11
Public Use and Access	11
6. Long-Term Monitoring and Research	12
Previous Monitoring	12
Future Monitoring.....	12
Future Restoration.....	12
Opportunities for Research	13
7. Long-Term Management Actions	14
Best Management Practices	14
On-going Vegetation Management.....	15
Vegetation Succession	16
Maintenance.....	16
8. Long-Term Management Considerations.....	16
Human Influence.....	16
Catastrophic Events.....	17
9. Literature Cited and reviewed.....	18

TABLES

Table 1. Randall Mitigation Site Permits..... 7

APPENDICES

- Appendix A:** Maps
- Appendix B:** Observed Wildlife List
- Appendix C:** Observed Plant Species and Seeding/Planting Lists
- Appendix D:** Randall Mitigation Site Document List
- Appendix E:** Supporting Documents

ABBREVIATIONS

BMP	Best management practice
CWA	Clean Water Act
CWS	Clean Water Services
DEQ	Oregon Department of Environmental Quality
DSL	Oregon Department of State Lands
ESA	Endangered Species Act
HIO	Portland-Hillsboro Airport
JPA	Joint Permit Application
Metro	Metropolitan Service District
NMFS	National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife
ORS	Oregon Revised Statutes
PEM	palustrine emergent
PFO	palustrine forested
Port	Port of Portland
PSS	palustrine scrub-shrub
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WC	Washington County Community Development Code
Xerces	Xerces Society for Invertebrate Conservation

1. MITIGATION MANAGEMENT PROGRAM

Introduction

The Port of Portland (Port) initiated their Mitigation Management Program in 1997 to respond to ongoing and proposed mitigation requirements and mandates from various regulatory agencies to address impacts to wetlands and other natural resources. The Port currently manages 16 mitigation sites and several enhancement sites along the Columbia Slough, the Willamette and Columbia Rivers, and in the Tualatin basin.

Mitigation and other natural resource enhancement projects are designed to provide a number of wildlife, ecological, and community benefits. These include increasing wildlife value by enhancing or creating nesting, foraging, and resting habitat; creating and enhancing riparian zone functions; improving connectivity between wildlife areas; improving or restoring wetland hydrological functions; improving water quality; providing flood attenuation through water storage; reducing and controlling the spread of invasive weeds; improving habitat for wildlife including avifauna, sensitive turtles, and pollinators while providing valuable “green space” in highly urbanized areas. Mitigation planning, designing, monitoring, and reporting follow federal and state regulations, general authorizations, and guidelines.

Permit requirements by the Oregon Department of State Lands (DSL) and the United States Army Corps of Engineers (USACE) in 2015 for the Randall Mitigation site have been met and the site was subsequently released from regulatory obligations. However, to meet the Port’s objective to “achieve sites that are self-sustaining and self-maintaining,” stewardship over the Randall Mitigation site will need to be continued into the future. Long-term management will help to ensure habitat integrity continues to improve and that the site sustains its enhanced condition with minimal intervention.

The long-term management of mitigation sites is vital to ensure that these areas continue to provide ecological benefits to the community and local wildlife. The Port’s primary mission is “to enhance the region's economy and quality of life by providing efficient cargo and air passenger access to national and global markets.” Given this, the Port’s stewardship practices ensure that ecological site functions continue beyond the immediately foreseeable future. As the number and overall acreage of Port mitigation sites continue to grow, it has become necessary to look to conservation groups and land trusts to continue managing the Port’s mitigation lands which have met regulatory obligations, including the Randall property. The conservation group or land trust that assumes responsibility for the ongoing management of this site shall be referred to as the “Steward” for the remainder of this document.

Site Description and History

The Randall Mitigation site is located in Washington County on both sides of NW 334th Avenue, west of Dairy Creek and south of the Killarney West Golf Course near Hillsboro in unincorporated Washington County, Oregon (see Appendix A for maps).

At the time of purchase in March 2001, the property included a residence and associated outbuildings in the southwest portion of the property, a small excavated stock pond, a drainage swale, degraded scrub-shrub wetlands, upland and riparian forest, and open fields used as pasture for several decades. The 22.3-acre site was graded in 2002 to provide compensatory wetland mitigation for the Runway Safety Area Project at the Portland-Hillsboro Airport (HIO) and advanced mitigation credits for future projects. Since the site's initial establishment, mitigation credits have been used for five additional projects: Taxiway Alpha, High Speed Exits, Taxiway C, Aero Air Hanger, and Runway 2-20. The site also includes vegetated corridor mitigation of enhanced wetland buffer to comply with Clean Water Services (CWS) Design and Construction Standards for Sensitive Areas and Vegetated Corridors.

2. ECOLOGICAL SETTING

Habitat Description and Corridor Connectivity

The Randall Mitigation site is located in a depressional stream terrace associated with Dairy Creek, which, prior to mitigation activities, consisted of pasture that experienced periodic flooding and also included deciduous forest riparian area in the southeastern portion of the site and along the edge of Dairy Creek. After grading in 2002 and partial re-grading in 2007, the site is now dominated by wetland habitat, which includes Palustrine Emergent (PEM), Scrub-Shrub (PSS), and Palustrine Forested (PFO) wetland areas, as well as some upland herbaceous and forested habitats toward the edges of the site.

Dairy Creek runs along the eastern boundary of the Randall Mitigation site and provides a direct connection to the natural habitat corridors along creeks and other tributaries of the Tualatin River watershed. The long-term protection of the site effectively expands wildlife corridor connectivity for the greater landscape. Wetlands on site provide habitat for many invertebrates, amphibians, reptiles, mammals, and birds. Common species observed on the site throughout the 10 years of monitoring and during wildlife surveys are listed in Appendix B.

Surrounding Land Use

The surrounding landscape is dominated by agriculture, especially to the north, south, and west. In addition, adjacent land uses include rural residential, commercial, and recreational. The properties directly abutting the mitigation site to the east and west are agricultural fields. The properties directly to the south are rural residential, while the property directly to the north is a managed golf course, with agricultural land further north.

Hydrology

The Randall mitigation site receives overland flooding from Council Creek to the west and Dairy Creek to the east usually during winter and spring or after heavy rainfall events. Ponding in wetland depressions persists into the growing season. Water flows from the on-site wetlands into Dairy Creek along the eastern edge of the property, eventually feeding into the Tualatin River approximately 2.0 miles southeast of the mitigation site. The dominant source of water for these

wetlands is surface water, likely originating from nearby agricultural and residential runoff during rainfall events. The regular influx of transient water has promoted wetland hydrology throughout much of the site, but the majority of wetland hydrology occurs in the lower elevation areas, such as the swale, pond, and isolated depressions, where inundation is seasonal. The annual overland flooding also supports the wetland prairie habitat that comprises much of the area on the east side of 334th Avenue. The depressional wetland areas were expanded due to grading activities in 2002 and again in 2007.

Groundwater was routinely monitored using an electronic water level meter and piezometer tube at least every month over the course of 10 years, starting in April 2001 and ending in August 2010. Thirteen observation wells located throughout the site were utilized to collect groundwater depth measurements. These observation wells demonstrated that the wetland portions of the site were saturated within 1 foot below the soil surface for more than 3 consecutive weeks during the early growing season. The field-collected groundwater data will be provided to the Steward upon request.

Invasive Species

Effective invasive species management is a critical component of the Port's internal and external stewardship role. Invasive species can affect both ecological and economic systems and are one of the primary maintenance concerns for the Port's wetland mitigation sites. Once established, invasive species can be costly to remove; therefore, preventing the introduction and establishment of invasive species has been shown to be the most cost-efficient strategy for long-term management. Prior to site grading in 2002, reed canarygrass (*Phalaris arundinacea*) was dominant in the depressional wetland areas of the site. After grading and invasive species management from 2002 to present, reed canarygrass has been almost completely eliminated from the site. Other major invasive species that were initially present on-site included Himalayan blackberry (*Rubus armeniacus*), English hawthorn (*Crataegus monogyna*), Queen Anne's lace (*Daucus carota*), field bindweed (*Convolvulus arvensis*), black locust (*Robinia pseudoacacia*), chicory (*Cichorium intybus*), pale yellow iris (*Iris pseudacorus*), wild radish (*Raphanus raphanistrum*), and Canada thistle (*Cirsium arvense*). Invasive species were managed with a combination of mechanical removal and herbicide treatment. By Year 10 of monitoring (2012), invasive species cover on the site was reduced to less than 1% in sampled areas. The remaining invasive species observed on the site within the last 5 years of monitoring included Canada thistle, meadow foxtail and field bindweed.

Restored Native Vegetation

Most invasive species were mechanically removed during initial grading in 2002. Native vegetation was seeded starting in 2001 and planted starting in 2003 throughout the Randall Mitigation site. The most common species seeded throughout the site were spike bentgrass (*Agrostis exarata*), tufted hairgrass (*Deschampsia cespitosa*), red fescue (*Festuca rubra*), and meadow barley (*Hordeum brachyantherum*), with many other wetland and upland plants seeded in the depressional wetland areas and upland buffers respectively. In addition, a diverse selection of native vegetation was planted in the PEM, PSS, PFO, and upland buffer areas with a combination of bare-root, container, cutting, plug, and tuber methods of planting. Each habitat

type received a customized blend of seeds and plantings to create plant diversity and stratum complexity across the entire site. Refer to Appendix C for a complete list of species seeded and planted on the site.

Native vegetation has been successfully established throughout the Randall Mitigation site, with high levels of species diversity occurring in the PEM, PSS, and PFO areas. Species diversity within the PEM area, encompassing the depressional wetland, emergent pond, and wetland prairie areas, ranged between 30 to 40 species observed during the last 5 years of monitoring. Species diversity within the PSS area, including the enhanced, created, and restored wetland areas, ranged between 20 to 30 herbaceous species, with dominant shrubs observed, including red-osier dogwood (*Cornus stolonifera*), Nootka rose (*Rosa nutkana*), Pacific ninebark (*Physocarpus capitatus*), and spirea (*Spirea douglasii*). Species diversity within the PFO area, including the enhanced and created wetland areas, ranged between 20 to 30 herbaceous species, with red alder (*Alnus rubra*) and Oregon ash (*Fraxinus latifolia*) being the most dominant trees established in that area.

Sensitive Species

The northern red-legged frog (*Rana aurora*), listed as vulnerable by the Oregon Department of Fish and Wildlife (ODFW), has been observed on the Randall Mitigation site during amphibian surveys conducted from February through May 2012. Multiple northern red-legged frog egg masses were observed along the west bank of the cattle pond in the southeastern portion of the site along the edge of the forested area. In addition, an adult northern red-legged frog was observed in May 2006.

The northern red-legged frog prefers wet sites near quiet permanent streams, marshes, ponds, lakes, and other quiet bodies of water. They regularly occur in damp woods and meadows some distance from water, especially during wet weather. In summer, frogs estivate in small mammal burrows, leaf litter, or other moist sites in or within a few hundred feet of riparian areas (Rathbun et al. 1993). Breeding occurs in permanent waters with eggs attached to stiff submerged stems at the surface of the water (Hayes and Miyamoto 1984). The Randall mitigation site provides habitats critical to amphibian life cycles such as seasonal ponds with structure for egg mass attachment and adjacent grasslands, scrub-shrub, and forested wetlands. In Feb 2016, five red-legged frog egg masses were observed in the pond located near the wooded riparian habitat in the southeast area of the site.

Sensitive fish species are also present in the adjacent Dairy Creek and may utilize floodplain wetlands within this site during periods of inundation. According to the StreamNet Mapper (StreamNet 2016), western brook lamprey (*Lampetra richardsoni*) and Pacific lamprey (*Lampetra tridentate*) occur in Dairy Creek and are listed as vulnerable by ODFW. Other fish species that occur in Dairy Creek include reticulate sculpin (*Cottus perplexus*), rainbow trout (*Oncorhynchus mykiss*), and coastal cutthroat trout (*O. clarkii*).

3. REGULATORY FRAMEWORK

Port mitigation projects provide compensation for unavoidable permanent and temporary impacts to wetlands and other natural resources resulting from development and operational activities undertaken by the Port. If new development is proposed where wetlands or other regulated natural resources are impacted, federal, state, and local laws and regulations require that project alternatives be evaluated to 1) avoid the impact, 2) minimize the impact, and 3) mitigate or compensate for the unavoidable impacts to these natural resources. Mitigation is usually in the form of restoration, establishment (creation), enhancement, or preservation of the habitats and functions lost through the proposed development activities.

Permitting and compliance responsibilities for all mitigation sites are primarily enforced by USACE, DSL, and Oregon Department of Environmental Quality (DEQ), with associated federal, state, and local agencies having influence and offering comments on permit compliance. Mitigation for development impacts may also be required through local municipal regulations. The Randall mitigation site was released from further obligations by DSL and the USACE in 2015.

Federal and State Regulations

Clean Water Act, Section 404

Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and mining projects. Section 404 requires a permit from the USACE before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities). The applicant must first show that steps have been taken to avoid impacts to wetlands, streams, and other aquatic resources; that potential impacts have been minimized; and that compensation will be provided for all remaining unavoidable impacts. A Joint Permit Application (JPA) satisfies the requirements for Section 404 within the State of Oregon and adheres to the State removal-fill law described below.

Oregon Department of State Lands Removal-Fill Law

DSL's Removal-Fill Law (ORS 196.795-990) requires people who plan to remove or fill material in waters of the state to obtain a permit from DSL. The purpose of the law, enacted in 1967, is to protect public navigation, fishery, and recreational uses of the waters. "Waters of the state" are defined as "natural waterways including all tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in this state, navigable and non-navigable, including that portion of the Pacific Ocean that is in the boundaries of this state." The law applies to all landowners, whether private individuals or public agencies.

Endangered Species Act, Section 7

The purpose of the Endangered Species Act (ESA) is to protect and recover imperiled species and the ecosystems upon which they depend. It is administered by the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS). The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon. Under the ESA, species may be listed as either endangered or threatened. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. The ESA makes it unlawful for a person to take a listed animal without a permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Section 7 of the ESA requires federal agencies to use their legal authorities to promote the conservation purposes of the ESA and to consult with the USFWS and NMFS, as appropriate, to ensure that effects of actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species.

Local Ordinances

Washington County Community Development Code

When a development application is under review, staff uses requirements and standards from the Washington County Community Development Code (WC) to determine whether or not the application may be approved as proposed and which conditions should be applied upon approval. Code standards are adopted in order to protect the health, safety, and welfare of the public by preventing incompatible land uses from being established next to one another. The standards within the WC are based on a collection of standards including Oregon State Statutes, Oregon State Administrative Rules, and ordinances adopted by the Washington County Board of Commissioners. Guidance for protection of wetland resources is included therein.

Clean Water Services Design and Construction Standards

CWS, a special services district that works closely with Washington County, is a water resources management utility in the Tualatin River Watershed that works to improve water quality in local streams, manage flooding, protect fish habitat, manage flow in the Tualatin River, and operate four wastewater treatment facilities. To improve water quality and preserve aquatic species, and meet the intent of both the federal CWA and ESA, CWS developed requirements for planting of Vegetated Corridors, Sensitive Areas, and Stormwater Facilities. CWS Design and Construction Standards describe the administrative and technical requirements for the design and construction of residential or commercially developed sanitary and surface water management systems, erosion control methods, and vegetated corridors.

4. RANDALL MITIGATION SITE PERMITTING

Permit Summary

The Randall Mitigation site has undergone extensive permitting from numerous state, federal, and local laws and ordinances. The Randall site was prepared as a wetland mitigation site for impacts to wetlands in the Runway Safety Area, Taxiway Alpha, High Speed Exits, Taxiway C, Aero Air Hanger, and Runway 2-20 projects for HIO improvements. The following permits were received from USACE, DSL, CWS, and Washington County for the impacts associated with the above projects and establishment of the Randall Mitigation site. Table 1 is a summary of permits under different regulatory bodies for each impact area for which the Randall site mitigates impacts.

Table 1. Randall Mitigation Site Permits

Project Name	Runway Safety Area	Taxiway A	High Speed Exits	Aero Air	Taxiway C	Runway 2-20
USACE Permit No.	2001-00059	2005-00257	NWP 2007-1033	NWP 2008-498	NWP 2007-1033	NWP 2011-514
DSL Permit No.	23613-RF	N/A	40015-FP	41207-FP	40015-FP	48489-RF
Washington County	01-119-FP/W; CWS 782	01-119-FP/W	05229229	05229229	05229229	N/A
CWS	N/A	N/A	N/A	08-000645	08-003416	12-000864
Planting complete	September 2003	September 2003	September 2003/May 2008	September 2003/May 2008	September 2003/May 2008	September 2003/May 2008
Monitoring start date	October 2003	October 2003	October 2008	October 2008	October 2008	October 2008
Impact acres (federal/state)	3.460/5.400	0.110	0.120	0.110	0.057	0.270
USACE mitigation requirement (acres)	8.51	0.17	1.40*	0.17 + 1.40*	0.09 + 1.40*	0.41 + 1.40*
DSL mitigation requirement (acres)	10.67	N/A	0.18	0.17	0.09	0.41
CWS vegetated corridor (acres)	N/A	N/A	N/A	0.060	0.030	0.166
Creation (C)/ enhancement (E)/ restoration (R)	C/E/R	C	C	C	C	C

* 1.4 acres are the portion of Randall that was re-graded in October 2007 and is included in the Runway Safety Area permits; USACE required 5 years of monitoring this area as mitigation, in part, for High Speed Exits, Aero Air, and Taxiway C impacts.

Mitigation Plan and Progress

The goal of the wetland mitigation project was to restore, create, and enhance wetland and riparian conditions to replace wetland functions and values lost as a result of project impacts. The mitigation plan provides for 6.65 acres of enhanced wetland, 3.58 acres of created wetland, and 1.52 acres of restored wetland area, for a total of 11.76 acres of wetland mitigation credit to compensate for the loss of 6.07 acres of wetlands. The objectives of the plan include restoring

wetland hydrology, creating wetland forest and scrub-shrub habitat, enhancing wetland prairie and riparian areas along Dairy Creek, and enhancing and restoring 6.52 acres of upland habitat as buffer.

Site preparation included the removal of all structures on the site, the abandonment of two water wells, and the installation of 11 groundwater monitoring piezometers to establish final grading levels. Excavation and grading of the site were completed in November 2002, and planting was completed in March 2003. Large woody debris, consisting of approximately 14 logs ranging in size from 10 to 20 feet long and 8 to 15 inches in diameter, were anchored in the wetland areas, and approximately 25 logs and 15 stumps were placed unanchored in the upland. Following completion of grading, five piezometers were decommissioned.

Dairy Creek riparian forest adjacent to the property and Jackson Bottom Wetlands Preserve were used as reference sites to identify appropriate species composition and planting densities.

Mitigation Results

Successful mitigation of project impacts was contingent on the success of the Randall Mitigation site's key success criteria expressed in the DSL Permit No. 23613-RF and USACE Permit No. 2001-00059. The required success criteria and relative level of success are listed below based on site characteristics at the end of the monitoring period (2012).

Mitigation Criteria

1. Herbaceous species cover shall be equal to or greater than 50% after the first growing season, at least 70% cover after the second growing season, and at least 80% cover thereafter.
2. Undesirable vegetation cover shall be less than 10–15% for at least 3 years after the second growing season.
3. Reed canarygrass shall be kept to less than 25% cover in the depressional wetland prairie zone.
4. Woody plant survivorship shall be at least 850 shrubs in the shrub wetland community and at least 350 trees with at least a 1-inch diameter in the forested wetland community by Year 5 (USACE permit requirement), and 80% cover for a period of 5 years (DSL permit requirement).
5. Approximately 1.52 acres of restored, 3.59 acres of created, and 6.65 acres of enhanced wetland, totaling 11.76 acres of wetland, shall be established.

Mitigation Success by Criteria

1. In 2012 (Year 10 of monitoring), the mitigation site partially met the herbaceous cover criterion with an average cover of 81% in the created PSS zone but only 71% in the created PFO zone. Herbaceous cover in the PFO zone was the result of prolonged inundation due to the annual overland flooding associated with the area. It is expected that the herbaceous cover will vary from year to year based on

the period of inundation, but it appears to be on an upward trajectory that will meet this criterion in subsequent years.

2. Undesirable invasive species within sampled areas of the site was 0.6% cover in Year 10 of monitoring, which meets this criterion.
3. Reed canarygrass was not present within any quadrants in Year 10 of monitoring, which meets this criterion.
4. After partial re-grading of the site in fall 2007, the site easily exceeded the criterion for required numbers of living trees and shrubs in Year 10 of monitoring. Tree surveys conducted in November 2012 in the re-graded area found that 283 trees exceeded 1 inch in diameter at 5 inches above ground. DSL concurs with the Port that the site is positively trending towards meeting the 350 trees with at least a 1-inch diameter criterion within the next two growing seasons following Year 10 of monitoring.
5. Re-grading was conducted in 2007 to correct an approximately 1.4-acre shortfall in required wetland acreage. The re-graded area now has wetland hydrology and brings the total wetland acreage up to 11.76 acres (as delineated by the Port in June 2010), which meets the acreage requirement for this criterion.

Current Site Conditions

The Randall Mitigation site met all permit requirements and was released from obligation by DSL and USACE on May 18 and June 11, 2015, respectively. The following summary of the current state of the Randall mitigation site is based on wildlife data and site observations collected during site inspections. Current site conditions are also based on a wetland delineation—light conducted in April 2013 on the re-graded area and three amphibian egg mass surveys conducted in March 2014, January 2015 and February 2016.

The mitigation site was designed to provide habitat for native amphibians, reptiles, birds, and mammals. Baseline vegetation, wildlife, and hydrology data were collected in 2001 and 2002; post-project herbaceous vegetation species cover, tree/shrub survival, wildlife, and hydrology data were collected annually from 2003 to 2012. The site was periodically inspected for maintenance purposes and to collect wildlife data from 2013 to present.

The Randall Mitigation site receives annual overland flooding each winter and spring when Council and Dairy Creeks rise. These conditions promote wetland hydrology throughout the site and provide a valuable influx of seed for natural recruitment. High surface water often lingers during the growing season and delays or impacts herbaceous and woody growth which helps maintain wet prairie conditions.

Wildlife use of the site includes a variety of bird, mammal, amphibians, reptiles, and macroinvertebrate species. Savannah sparrow (*Passerculus sandwichensis*) and Wilson's snipe (*Gallinago delicata*) are often found in the wet prairie habitat while songbirds and woodpeckers inhabit the upland and wetland woodlands. Long-toed salamander (*Ambystoma macrodactylum*), pacific chorus frog (*Pseudacris regilla*) and northern red-legged frog egg masses and adults have

been observed in the depressional wetlands and riparian areas. Adult rough-skinned newts (*Taricha granulosa*) have also been observed.

The Randall Mitigation site, along with 49 other freshwater wetlands throughout the Willamette Valley, was included in a 2-year-long study of invertebrate communities and basic water chemistry parameters to aid in the development of a monitoring tool to assess biological integrity of Pacific Northwest wetlands (Xerces 2009). Detailed data on the invertebrate community and water chemistry parameters were collected at this site and available from the Port upon request.

A complete list of wetland delineation, annual monitoring, and amphibian survey reports are listed in the Randall Mitigation Site Documentation List in Appendix D. Also included on this list are mitigation plans, soil data, water quality data, grading plans, and more.

5. CONSERVATION AND MANAGEMENT STRATEGY

The goal for long-term management of the Randall Mitigation site is to conserve and maintain natural conditions through continued monitoring and management of on-site natural resources. Long-term management is intended to be adaptive; therefore, adaptive management should be implemented, as defined in the federal mitigation rule 33CFR2.332 (2008):

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

Most permit requirements specify that mitigation sites be monitored for 5 years; however, after such a short period of time, the functions and values of mitigation sites rarely match those of natural sites. To meet the Port's objective to "achieve sites that are self-sustaining and self-maintaining," the Port's stewardship over the Randall Mitigation site will be passed to the Steward, who will continue monitoring and managing the site beyond the immediately foreseeable future even after there is no regulatory requirement to do so. Long-term maintenance will help to ensure that habitat integrity continues to improve and the site sustains its enhanced condition with minimal intervention.

The long-term vision of management actions should be based on the following key parameters:

- Continual monitoring of vegetation and hydrology
- Control of invasive species and promotion of native vegetation
- Providing wetland and riparian habitat for wildlife
- Achieving self-sustaining and self-maintaining natural processes within the site

- Protecting the site from incompatible land uses

Permanent Protection Instrument

As required by DSL Permit No. 23613-RF and USACE Permit No. 2001-00059, a restrictive covenant has been secured to protect and enhance the ecological and aesthetic value of the Randall Mitigation site (Property) in perpetuity regardless of ownership. According to the Declaration of Restrictive Covenants No. 2001081934 (2001), “The Property shall be maintained in a natural condition, in order to promote the conditions on the Property as a wetland and upland environment with native vegetation.” The restrictive covenant is an explicit condition of the DSL permit. The Steward would be required to comply with the DSL and USACE permits mentioned above to achieve the stated purpose. If the Steward fails to keep the Property in its “natural condition,” then DSL and USACE may enforce the restrictive covenant against them. The Declaration of Restrictive Covenant is included in Appendix E.

Financing for continued management of the site would be negotiated between the Steward and DSL upon transfer of ownership. The Port would not be responsible for continued financing of the site.

Limits of Responsibility

The Steward will not be responsible for future failure of the Randall Mitigation site attributed to natural catastrophes such as flood, drought, disease, regional pest infestation, and others that are beyond their reasonable control. Active management is not expected in the event of natural ecological change that comes about as a result of processes such as climate change, sedimentation due to flooding, excessive drought, and other naturally-occurring events that were not caused or that could not have been prevented by on-site management activities. Over time, natural processes could occur that may reduce wetland function or reduce the current wetland habitat acreage. For example, deposition of sediments during high flows and flooding in parts of the wetland could result in a natural filling of some areas. Regular, frequent management activities to prevent this natural filling are unnecessary.

Public Use and Access

To protect the site from vandalism, weeds, and disturbances to wildlife, access to the Randall Mitigation site is currently restricted by fencing and a locked gate. In the future, the site will continue to be protected with fencing and a gate maintained by the Steward. The site will be protected from trespassing and vandalism, and access will only be allowed for monitoring, management, or restoration activities. Future public access may include limited access for research and educational opportunities, such as bird watching or plant identification, if the Steward determines that these uses will not conflict with the terms of the restrictive covenant. The site is intended to remain a natural area with no development of infrastructure including access roads as was determined in 2014 when a neighbor requested that the Port allow access through the mitigation site during periods of overland flooding. The Port’s legal department and DSL agreed this was not in compliance with the deed restriction.

6. LONG-TERM MONITORING AND RESEARCH

Previous Monitoring

The Randall Mitigation site has been regularly monitored since 2000 and has involved many different organizations and consultants. After initial site grading in 2002, the site was monitored for 10 years, during which multiple rounds of seeding and planting occurred, as well as re-grading of the southeastern portion of the site in 2007. Previous monitoring efforts focused on these key aspects of site characteristics:

- On-site hydrology (groundwater levels, inundation, etc.)
- Invasive species presence and cover
- Vegetation quality (species richness, cover, tree mortality, etc.)
- Amphibian presence/absence and egg mass surveys
- Wildlife observations (birds, reptiles, mammals, fish, and invertebrates)
- Macroinvertebrate surveys by The Xerces Society for Invertebrate Conservation (Xerces)

A complete list of monitoring and delineation reports can be found in the Randall Mitigation Site Documentation List in Appendix D. In particular, there are monitoring details that can be found in the Randall Mitigation Site Mitigation Monitoring Reports for Years 1–10.

Future Monitoring

Future monitoring activities on the Randall Mitigation site are not mandated by DSL or USACE, but the Port would prefer to have monitoring continue on the site to ensure conservation of habitat and wetland functionality. Future hydrology monitoring on the site could involve continued surface water observation, as well as new lines of monitoring, which could either study site specific characteristics or be a part of a larger watershed study. Additional future monitoring activities should include continued invasive species monitoring to ensure proper control of invasive species. Other possible monitoring activities could include monitoring plant growth (herbaceous productivity, tree/shrub growth, etc.) and avian utilization of the site.

Additionally, amphibian monitoring on the Randall Mitigation site should continue, especially in regards to the vulnerable northern red-legged frog population. Winter egg mass surveys should continue to both monitor northern red-legged frog population and the relative health of amphibian populations on-site. Monitoring of on-site amphibians can provide insights into the health of the local ecosystem.

Future Restoration

Continued restoration or enhancement of on-site natural resources could increase ecological functions on the Randall Mitigation site to benefit both the local community and natural environment. Future restoration programs could involve enhancement of one or more functions,

such as improving nesting bird habitat through the creation of snags, and enhancement of upland buffers by increasing native plant diversity. Other restoration opportunities may present themselves in the future and could be pursued in conjunction with other monitoring and research efforts. Adjacent land holdings may provide opportunities for increased habitat connectivity. Any alteration of the site would be subject to local, state, and federal permitting.

Opportunities for Research

Long-term management of the Randall Mitigation site could allow for multiple research opportunities in the future, which could be undertaken by the Steward or an outside research institution. Many research ideas could be implemented in conjunction with regular management activities with minimal additional cost. Information resulting from research conducted on the site would help to inform future management actions that could support enhancements of ecological functions using the best available science. Understanding the effectiveness of conservation strategies could help inform future wetland mitigation programs. Select research studies may be eligible for additional funding from outside sources to aid in implementation. The research opportunities discussed below are just some of the possible ideas for long-term research that could be conducted at this site.

Vegetation

- Vegetation growth and productivity could be studied over a long-term study for various native species, especially palustrine wetland forest.
- Research could be conducted on how succession naturally occurs on wetland mitigation sites.
- Study could take place on how different management techniques produce different results in planting and seeding.

Invasive Species

- Invasive species have been reduced on this site; however, research on invasive species encroachment or various management practices on invasive species could have interesting results without additional risks of spreading invasive species.
- Long-term study could be conducted on the effects of annual overbank flooding on species richness, diversity, and native/non-native competition.

Hydrology

- Long-term studies could be conducted on site hydrology and how it affects the local watershed.
- Research could be conducted on groundwater fluctuations over time that could be impacted by local water use and natural events.

Wildlife

- Study could take place on local pollinators' use of the site and ways to increase their usage of this site, assuming proper management of chemicals on-site (i.e., no use of pesticides).
- Northern red-legged frog studies could be implemented to improve habitat structure and study population dynamics.
- Avian studies could include creating snags and other structures to determine the best ways to efficiently improve bird habitat.
- Fish studies could be carried out on the effects of increased water shading on trout and lamprey present in the adjacent Dairy Creek, along with effects on prey species in the food chain.
- Further studies on wetland invertebrates and water quality could be conducted, building on the existing Xerces data.

7. LONG-TERM MANAGEMENT ACTIONS

Management actions will need to be taken to insure continued wetland and habitat functions. These actions should be based on results of annual monitoring and may change over time in response to changes in site conditions. Management activities may include restoring hydrology, replanting or reseedling if native plant diversity declines significantly, treating non-native invasive plant species, replanting shrubs, and/or repairing wildlife structures. Details of preferred best management practices (BMPs), vegetation management, and site maintenance are described in this section.

Best Management Practices

BMPs should be implemented for all management actions, including surface disturbances, herbicide applications, seed applications, and planting. BMPs are especially important when handling and applying herbicides on-site, because misuse of these chemicals can cause negative impacts to native plants, wildlife, and water quality. The Port's *Vegetation Management Plan* details many aspects on how to properly manage herbicide applications. It includes a graphic list of invasive species commonly encountered at Randall Mitigation site and details regarding each, the types of herbicides to use, handling and operation of relevant equipment, and BMPs regarding prevention, monitoring, wildlife, equipment cleaning, and long-term herbicide use considerations. The latest version is available online: <http://www2.portofportland.com/Inside/MitigationManagement>.

An invasive species control plan is important to establish before implementation of new methods or use of new applications. The plan should include the specific species that will be controlled by the measures and the strategies that will most efficiently control them. These strategies should attempt to integrate the use of mechanical, chemical, and biological methods of controlling the target species, as opposed to relying on one single method of control. Herbicides should always

be applied according to their labels and the BMPs described in the most recent *Port Vegetation Management Plan*.

One of the primary goals of the site is to establish a diverse, native wetland plant community. As such, it is very important to use chemicals selectively on the target species in order to avoid contact and harm to native plants. In general, herbicides will be applied by spot spraying or wicking rather than broadcast spraying in order to avoid native plants. All herbicide applicators must be certified and licensed by the Oregon Department of Agriculture.

On-going Vegetation Management

Prior to the creation of the Randall Mitigation site, the property had numerous invasive and non-native species present on the site, dominated largely by reed canarygrass and Himalayan blackberry. Through restoration and expansion of the original wetlands, these invasive and non-native species have been largely reduced. However, because management of these species on adjacent properties is not within the control of the Port (and will not be within the control of the Steward either), possible reintroduction and spread of invasive species is a continual threat to the site.

The best management strategy to prevent the colonization of invasive species is to maintain a healthy, diverse native plant community. Plant communities that have a complex and diverse composition are typically more resilient in the face of invasive and non-native species encroachment. However, if invasive species manage to become established within the site, then the following guidelines can help control them.

An adaptive management strategy is the best approach for developing long-term management actions to prevent the establishment and spread of non-native and invasive species. Management actions should be tailored to the specific situation and conditions whenever possible to achieve the best results. These actions should entail identifying weeds on the site, mapping the distribution of these weeds, researching currently accepted methods for control, implementing weed control plans for each species, and monitoring the efficacy of control efforts.

Specific objectives to be achieved through adaptive non-native and invasive species management include:

1. Protect and maintain healthy plant communities by minimizing unnatural ground disturbance that promotes the invasion of non-native/invasive species.
2. Prevent the establishment of new non-native/invasive infestations.
3. Reduce the vigor of existing non-native/invasive populations and limit their spread.
4. Eliminate non-native/invasive plant populations or portions of populations.
5. Exhaust the non-native/invasive seed bank: prevent seed production and eradicate established plants.
6. Conduct regular surveillance for new non-native/invasive infestations—practice Early Detection Rapid Response.

7. Monitor efficacy of control methods.
8. As infestations decrease in size, locate and monitor isolated patches.
9. Reevaluate species and control methods.
10. Seed areas that have been disturbed or treated for invasive species with native species to establish native plant communities.

These guidelines are circular and reflect an adaptive management approach to controlling non-native and invasive species. The intensity of the monitoring and management actions should depend on the relative threat the invasive species pose to the site's integrity and ecosystem and the speed at which the particular species can become established and spread within the site.

Vegetation Succession

Vegetation succession is a constant driver upon the landscape. In most situations, given a lack of human or natural controls, vegetation will trend towards becoming a mature forested community. Portions of the Randall Mitigation site may transition into a fully forested wetland; however, the majority of the site will likely remain a wet prairie due to seasonal overland flooding reducing the likelihood of tree establishment and growth. Some natural succession may occur in PSS areas, converting them to PFO, with adjacent upland areas trending towards forested upland. While wetland functionality would not likely be negatively impacted by this process, the habitat complexity of the site would decrease as a result. Wetlands on this site are not required to remain within their original wetland types, as long as wetland characteristics persist; however, retaining a higher diversity of community types would be more beneficial to wildlife (e.g., bird species). Even with the goal of creating self-sustaining and self-managing natural processes on the Randall Mitigation site, continued vegetation management will likely be required in perpetuity to protect the existing habitat diversity on the site.

Maintenance

The Steward will be responsible for maintaining the existing fences and gates surrounding the Randall Mitigation site. Any signs that are erected in the future will also be maintained by the Steward. The Steward will remove any trash found during monitoring site visits and work to correct any damage resulting from trespassing or vandalism. Trees directly adjacent to or overhanging NW 334th Avenue and adjacent properties may require periodic maintenance such as pruning or removal of dead trees.

8. LONG-TERM MANAGEMENT CONSIDERATIONS

Human Influence

Human influences could occur on the Randall Mitigation site in multiple forms, including vandalism, unauthorized habitation, trespassing, and littering. Regular site visits and maintenance may be necessary to address these issues. Regular site clean-ups could be implemented as part of a community volunteer program or non-profit organization's operations.

During regular site visits, the site can be checked for the presence of transients living on the site and vandalism.

Adjacent land uses may also have an effect on the Randall Mitigation site. On-site hydrology could be affected by changes in adjacent land use, such as changes in watering practices on the golf course and changes in local water use that could affect groundwater levels. Invasive species can encroach on the site from adjacent properties, which could create management challenges. In addition, increased development of the surrounding area could alter site hydrology, introduce new invasive species, increase vandalism and transients, and create other human pressures on the site.

Catastrophic Events

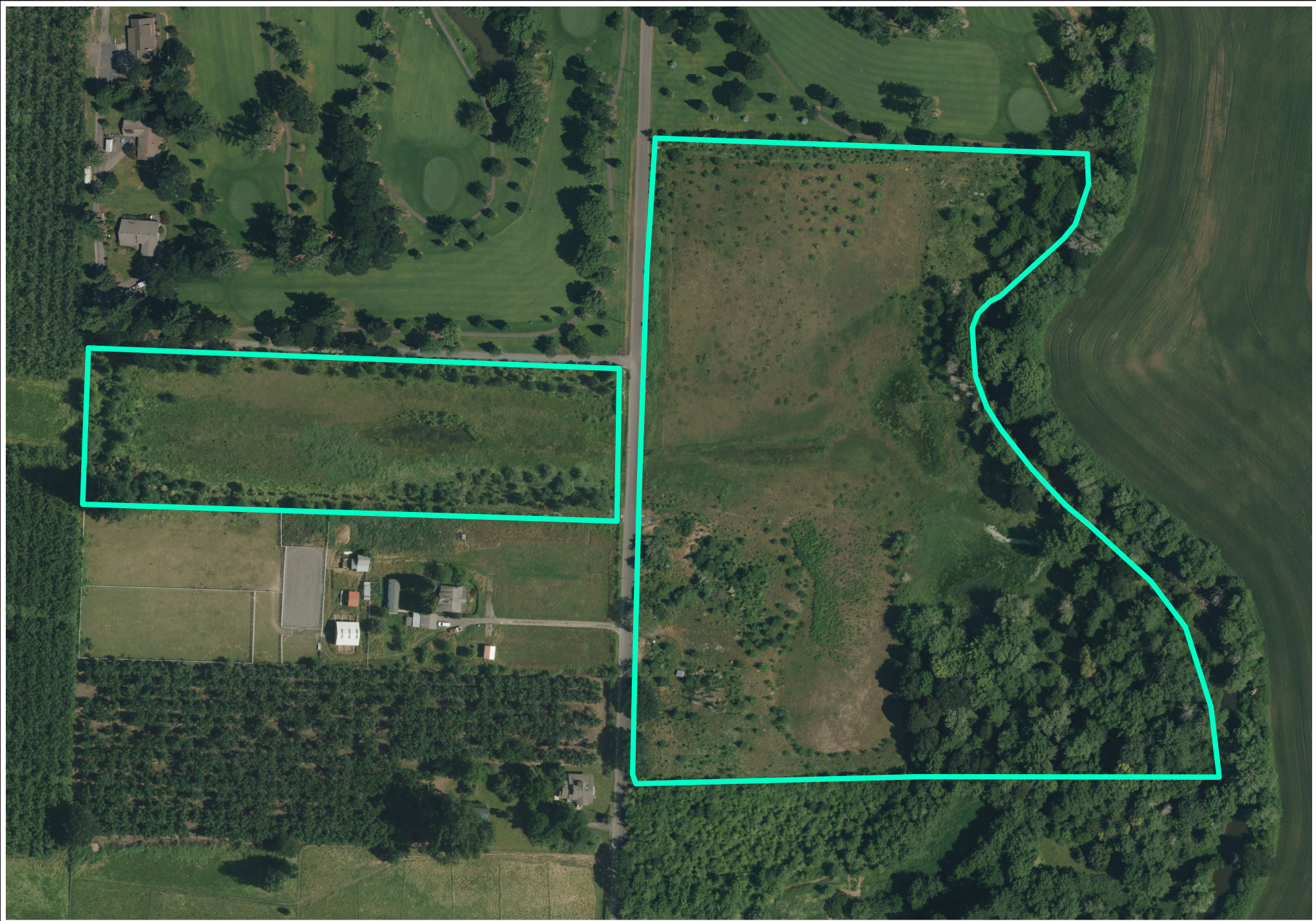
Catastrophic events could be naturally driven or human caused. The possible catastrophic events may include fires, massive floods, new species invasions, diseases, excessive long-term drought, etc. These rare events seldom occur in the area but could cause drastic changes to the Randall Mitigation site. If they were to occur, they may affect the Steward's ability to meet the biological goals and objectives in the future. If such events were to occur, the ecological functions of the site should be documented and analyzed to determine future management goals. The management plan could then be revised based on the new site conditions and environmental/human drivers.

9. LITERATURE CITED AND REVIEWED

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APPENDIX A

MAPS



 **PORT OF PORTLAND**

 Site Boundary

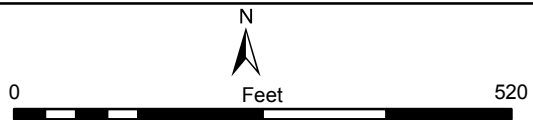
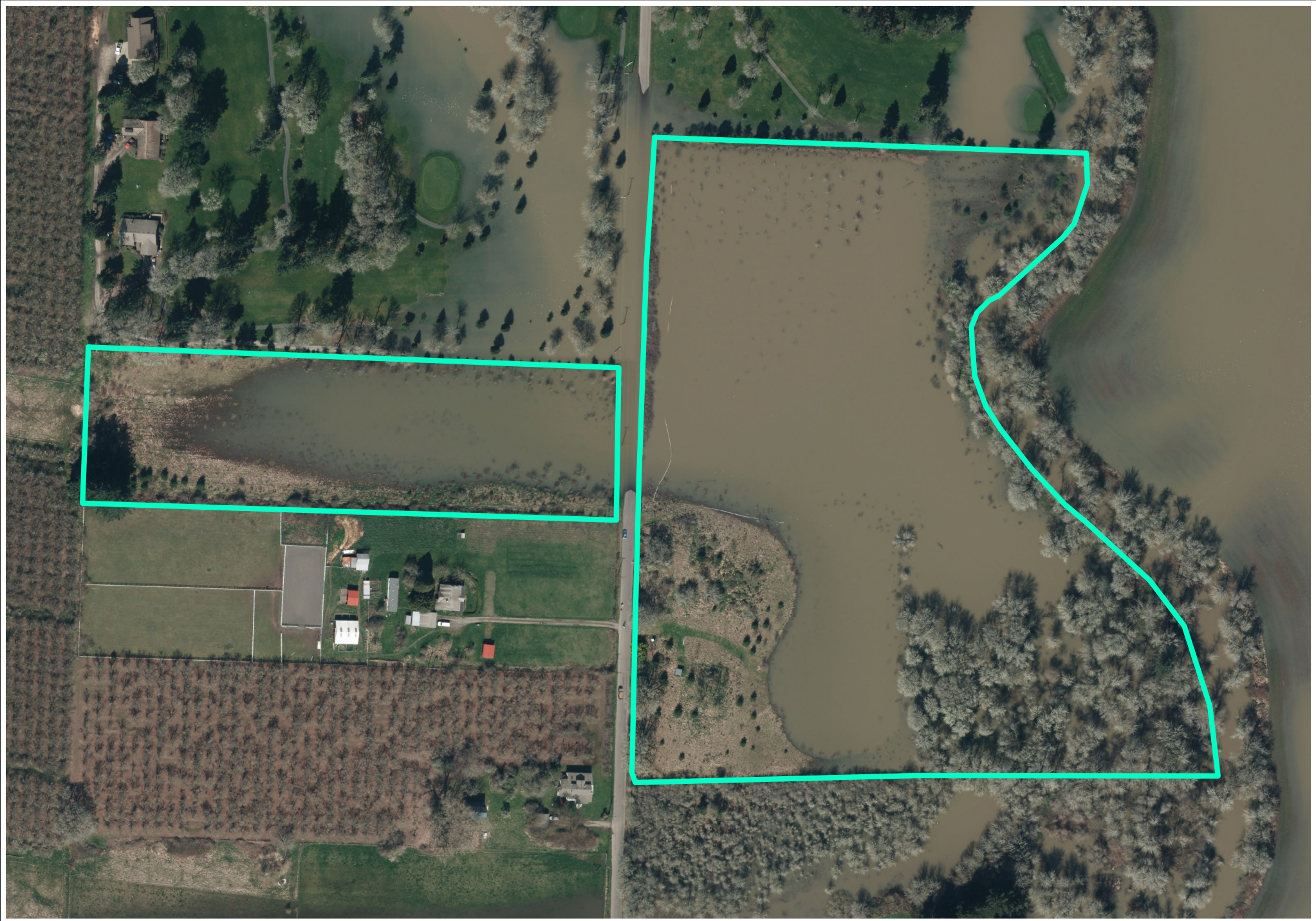


Figure 2
Randall Site Boundary
2013 aerial photo



PORT OF PORTLAND



Site Boundary

0



Feet

520

Figure 3
Randall Site Flooding

2012 leaf off aerial photo

APPENDIX B

OBSERVED WILDLIFE LIST

WILDLIFE SPECIES OBSERVED AT RANDALL 2001 - 2016

BIRDS

Species	Scientific Name
Accipiter	<i>Accipiter sp.</i>
American crow	<i>Corvus brachyrhyncos</i>
American goldfinch	<i>Carduelis tristis</i>
American kestrel	<i>Falco sparverius</i>
American robin	<i>Turdus migratorius</i>
American wigeon	<i>Anas americana</i>
Anna's hummingbird	<i>Calypte anna</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
band-tailed pigeon	<i>Columbia fasciata</i>
Barn swallow	<i>Hirundo rustica</i>
Belted kingfisher	<i>Ceryle alcyon</i>
Bewick's wren	<i>Thryomanes bewickii</i>
Black-capped chickadee	<i>Poecile atricapillus</i>
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Brown creeper	<i>Certhia americana</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Bufflehead	<i>Bucephala albeola</i>
Bullock's oriole	<i>Icterus bullockii</i>
Bushtit	<i>Psaltiriparus minimus</i>
California quail	<i>Callipepla californica</i>
cackling goose	<i>Branta canadensis minima</i>
Canada goose	<i>Branta canadensis</i>
Cedar waxwing	<i>Bombycilla cedrorum</i>
Chipping sparrow	<i>Spizella passerina</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
Common snipe	<i>Gallinago gallinago</i>
Common yellowthroat	<i>Geothlypis trichas</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Dark-eyed junco (Oregon)	<i>Junco hyemalis thurberi</i>
Dark-eyed junco (slate)	<i>Junco hyemalis hyemalis</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>
Downy woodpecker	<i>Picoides pubescens</i>
English house sparrow	<i>Passer domesticus</i>
European starling	<i>Sturnus vulgaris</i>
Flycatcher, unidentified	<i>Contopus sp.</i>
Fox sparrow	<i>Passerella iliaca</i>
Gadwall	<i>Anas strepera</i>
Golden-crowned kinglet	<i>Regulus satrapa</i>
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>
Great blue heron	<i>Ardea herodias</i>
Great egret	<i>Ardea alba</i>
Greater yellowlegs	<i>Tringa melanoleuca</i>
Green heron	<i>Butorides virescens</i>
Green-winged teal	<i>Anas crecca</i>
Gull, unidentified	<i>Larus sp.</i>
Hooded merganser	<i>Lophodytes cucullatus</i>

Species	Scientific Name
House finch	<i>Carpodacus mexicanus</i>
House wren	<i>Troglodytes aedon</i>
Killdeer	<i>Charadrius vociferus</i>
Kinglet, unidentified	<i>Regulus</i> sp.
Lesser goldfinch	<i>Carduelis psaltria</i>
Lincoln sparrow	<i>Melospiza lincolnii</i>
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>
Mallard	<i>Anas platyrhynchos</i>
Mourning dove	<i>Zenaida macroura</i>
Northern flicker	<i>Colaptes auratus</i>
Northern harrier	<i>Circus cyaneus</i>
Northern pintail	<i>Anas acuta</i>
Northern shoveler	<i>Anas clypeata</i>
Orange-crowned warbler	<i>Vermivora celata</i>
Peregrine falcon	<i>Falco peregrinus</i>
Pigeon	<i>Columbia livia</i>
Red-breasted nuthatch	<i>Sitta canadensis</i>
Red-breasted sapsucker	<i>Sphyrapicus ruber</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Ring-necked duck	<i>Aythya collaris</i>
Ring-necked pheasant	<i>Phasianus colchicus</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Rufous hummingbird	<i>Selasphorus rufus</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Snow goose	<i>Chen caerulescens</i>
Song sparrow	<i>Melospiza melodia</i>
Spotted sandpiper	<i>Actitis macularia</i>
Spotted towhee	<i>Pipilo maculatus</i>
Steller's jay	<i>Cyanocitta stelleri</i>
Swan, unidentified	<i>Cygnus</i> sp.
Tree swallow	<i>Tachycineta bicolor</i>
Tundra Swan	<i>Cygnus columbianus</i>
Turkey vulture	<i>Cathartes aura</i>
Varied thrush	<i>Ixoreus naevius</i>
Vaux's swift	<i>Chaetura vauxi</i>
Violet-green swallow	<i>Tachycineta thalassina</i>
Warbling vireo	<i>Vireo gilvus</i>
Western scrub jay	<i>Aphelocoma californica</i>
Western wood peewee	<i>Contopus sordidulus</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Willow flycatcher	<i>Empidonax trailii</i>
Wilson's snipe	<i>Gallinago gallinago</i>
Wood duck	<i>Aix sponsa</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>

Species	Scientific Name
MAMMALS	
Species	Scientific Name
Beaver	<i>Castor canadensis</i>
Black-tailed deer	<i>Odocoileus hemionus</i>
Canine, unknown	<i>Canis</i> sp.
Chipmunk (unidentified)	unidentified
Coyote	<i>Canis latrans</i>
Mole	<i>Scapanus</i> sp.
Muskrat	<i>Ondatra zibethicus</i>
Nutria	<i>Myocastor coypus</i>
Opossum	<i>Didelphis virginianus</i>
Raccoon	<i>Procyon lotor</i>
Gray squirrel	<i>Sciurus</i> sp.
Vole	<i>Microtus</i> sp.
HERPTILES	
Species	Scientific Name
Bullfrog	<i>Rana catesbeiana</i>
Frog larvae, unidentified	unidentified
Garter snake	<i>Thamnophis</i> sp.
Long-toed salamander	<i>Ambystoma macrodactylum</i>
Northern red-legged frog	<i>Rana aurora aurora</i>
Northwestern garter snake	<i>Thamnophis ordinoides</i>
Pacific treefrog	<i>Psuedacris regilla</i>
Roughskin newt	<i>Taricha granulosa</i>
Salamander, unidentified	unidentified
FISH	
Species	Scientific Name
Mosquito fish	<i>Gambusia affinis</i>
Crayfish	unidentified
Common carp	<i>Cyprinus carpio</i>
Fish, unidentified	unidentified
MACROINVERTEBRATES	
Species	ORDER
Predaceous diving beetle	Coleoptera
Water strider	Heteroptera
Damselfly	Odonata
Caddisfly	Trichoptera
Blood worms (midge)	Diptera
Backswimmer	Heteroptera
Beetle, unidentified	Coleoptera
Water boatman	Heteroptera
Dragonfly	Odonata
Water scorpion	Nepidae
Aquatic sow bug	Crustacea

Species	Scientific Name
OTHER	
Species	CLASS or species if known
Dragon flies	<i>unidentified</i>
Bumblebees	<i>unidentified</i>
Western tiger swallowtail	<i>Papilio rutulus</i>
Skipper (butterfly)	<i>unidentified</i>
Grasshoppers	<i>unidentified</i>
Fishing spider	Arachnida
Clam	Bivalvia
Leech	Hirudinea
Water mite	Arachnida
Snail	Gastropoda

APPENDIX C

OBSERVED PLANT SPECIES AND SEEDING/PLANTING LISTS

RANDALL PRE-CONSTRUCTION VEGETATION SURVEY 2001

RIPARIAN CORRIDOR (NGVD 131-140)		
Botanical Name	Common Name	Regional Indicator
<i>Acer macrophyllum</i>	bigleaf maple	FACU
<i>Acer circinatum</i>	vine maple	FAC-
<i>Alopecurus pratensis</i>	meadow foxtail	FACW
<i>Amelanchier alnifolia</i>	serviceberry	FACU
<i>Carex deweyana</i>	Dewey sedge	FAC+
<i>Cirsium arvense</i>	Canada thistle	FACU+
<i>Cirsium vulgare</i>	bull thistle	FACU
<i>Convolvulus arvensis</i>	field bindweed	UPL
<i>Convolvulus</i> sp.	Morning glory sp.	
<i>Cornus sericea</i>	red-osier dogwood	FACW
<i>Corylus cornuta</i>	beaked hazelnut	FACU
<i>Fraxinus latifolia</i>	Oregon ash	FACW
<i>Mertensia</i> sp.	bluebells	
<i>Phalaris arundinacea</i>	reed canarygrass	FACW
<i>Prunus virginiana</i>	common choke cherry	FACU
<i>Quercus garryana</i>	Oregon white oak	UPL
<i>Ranunculus repens</i>	creeping buttercup	FACW
<i>Rhamnus purshiana</i>	casara	FAC-
<i>Robinia pseudoacacia</i>	black locust	FACU-
<i>Rosa nutkana</i>	Nootka rose	FAC
<i>Rosa pisocarpa</i>	clustered wild rose	FAC
<i>Rubus procerus</i>	Himalayan blackberry	FACU
<i>Rubus parviflorus</i>	thimbleberry	FAC-
<i>Rubus ursinus</i>	trailing blackberry	FACU
<i>Rumex obtusifolius</i>	Bitter dock	FAC
<i>Salix lasiandra</i>	Pacific willow	FACW+
<i>Salix sitchensis</i>	Sitka willow	FACW
<i>Smilacina stellata</i>	False-Solomon's seal	FAC-
<i>Spirea douglasii</i>	spirea (hardhack)	FACW
<i>Symphoricarpos albus</i>	common snowberry	FACU
<i>Tellima grandiflora</i>	fringecup	UPL
<i>Toxicodendron diversilobum</i>	Poison oak	UPL
<i>Veronica scutellata</i>	marsh speedwell	OBL
POND AND BANKS (NGVD 128.5-131)		
<i>Agrostis</i> sp.	bentgrass sp.	
<i>Alisma plantago-aquatica</i>	American water-plantain	OBL
<i>Alopecurus</i> sp.	foxtail	OBL
<i>Anthemis cotula</i>	stinking chamomile	FACU
<i>Bidens frondosa</i>	Common beggar-ticks	FACW+
<i>Eleocharis ovata</i>	Ovate spikerush	OBL
<i>Eleocharis palustris</i>	creeping spikerush	OBL
<i>Ludwigia palustris</i>	water-purslane	OBL
<i>Phalaris arundinacea</i>	reed canarygrass	FACW
<i>Polygonum amphibium</i>	lady's thumb polygonum	OBL
<i>Potentilla</i> sp.	(Not <i>P. palustris</i>)	OBL
<i>Sparganium</i> sp.	burreed sp.	OBL

Botanical Name	Common Name	Regional Indicator
UPLAND PASTURE; SOUTHEASTERN AREA (NGVD 139-150)		
<i>Trifolium pratense</i>	red clover	FACU
<i>Trifolium repens</i>	white clover	FAC
<i>Hypochaeris radicata</i>	spotted Cats ear	FACU
<i>Agrostis</i> sp.	bentrass sp.	
<i>Cichorium intybus</i>	chicory	UPL
<i>Daucus carota</i>	queen Anne's lace	UPL
<i>Convolvulus arvensis</i>	field bindweed	UPL
<i>Cirsium vulgare</i>	bull thistle	FACU
<i>Cirsium arvense</i>	Canada thistle	FACU+
<i>Elymus glaucus</i>	blue wildrye	FACU
<i>Parentucellia viscosa</i>	yellow parentucellia	FAC-
WETLAND ON EASTERN HALF OF PROPERTY (NGVD 134-138)		
<i>Alopecurus pratensis</i>	Meadow foxtail	FACW
<i>Carex</i> sp.	Sedge species	
<i>Eleocharis ovata</i>	Ovoid spikerush	OBL
<i>Phalaris arundinacea</i>	reed canarygrass	FACW
<i>Potentilla</i> sp.	(Not <i>P. palustris</i>)	OBL
<i>Veronica americana</i>	American brooklime	OBL
SLOPE ON EASTERN HALF OF PROPERTY (NGVD 138-140)		
<i>Alopecurus pratensis</i>	Meadow foxtail	FACW
<i>Camassia quamash</i>	common camas	FACW
Unknown	Grass species	
UPLAND ADJACENT TO GOLF COURSE (EAST) (NGVD 140-141.5)		
<i>Alopecurus pratensis</i>	meadow foxtail	FACW
<i>Cichorium intybus</i>	chickory	UPL
Unknown	Grass sp.	
WETLAND ON WESTERN HALF OF PROPERTY (NGVD 138-142)		
<i>Alopecurus pratensis</i>	meadow foxtail	FACW
<i>Carex leporina</i> (I think)	Sedge sp.	FACW
<i>Carex obnupta</i>	slough sedge	OBL
<i>Carex stipata</i>	sawbeak sedge	OBL
<i>Carex unilateralis</i>	one-sided sedge	FACW
<i>Juncus effusus</i>	soft rush	FACW
<i>Phalaris arundinacea</i>	reed canarygrass	FACW
SLOPE ON WEST HALF OF PROPERTY (NGVD 140-145)		
<i>Camassia quamash</i>	Common camas	FACW
<i>Juncus effusus</i>	Soft rush	FACW
<i>Salix lasiandra</i>	Pacific willow	FACW+
<i>Phalaris arundinacea</i>	Reed canary grass	FACW

Botanical Name	Common Name	Regional Indicator
UPLAND ADJACENT TO GOLF COURSE (WEST) (NGVD 139.5-145.5)		
<i>Alopecurus pratensis</i>	Meadow foxtail	FACW
<i>Vicia</i> sp.	Vetch species	
<i>Festuca</i> sp.	Fescue species	
<i>Spirea douglasii</i>	Spirea (hardhack)	FACW
<i>Crataegus douglasii</i>	Black hawthorn	FAC
<i>Rosa pisocarpa</i>	Clustered wild rose	FAC
<i>Rubus procerus</i>	Himalayan blackberry	FACU
EAST, WEST, AND SOUTH EDGE OF WEST HALF OF PROPERTY (NGVD 138.5-152)		
<i>Abies grandis</i>	Grand fir	UPL
<i>Alnus rubra</i>	Red alder	FAC
<i>Alopecurus pratensis</i>	Meadow foxtail	FACW
<i>Amelanchier alnifolia</i>	Serviceberry (Saskatoon)	FACU
<i>Cirsium avense</i>	Canada thistle	FACU+
<i>Corylus cornuta</i>	California hazelnut	FACU
<i>Crataegus douglasii</i>	Black hawthorn	FAC
<i>Holodiscus discolor</i>	Oceanspray	UPL
<i>Juncus effusus</i>	Soft rush	FACW
<i>Lonicera ciliosa</i>	Western trumpet honeysuckle	UPL
<i>Pteridium aquilinum</i>	Bracken fern	FACU
<i>Quercus garryana</i>	Oregon white oak	UPL
<i>Rosa pisocarpa</i>	Clustered wild rose	FAC
<i>Rubus procerus</i>	Himalayan blackberry	FACU
<i>Rubus ursinus</i>	Trailing blackberry	FACU
<i>Salix lasiandra</i>	Pacific willow	FACW+
<i>Spirea douglasii</i>	Spirea (hardhack)	FACW
<i>Symphoricarpos albus</i>	Common snowberry	FACU
<i>Toxicodendron diversilobum</i>	Poison oak	UPL
<i>Vicia</i> sp.	Vetch sp.	

Carrie Stevenson and Nick Atwell conducted a general inventory of the plant species present on the Randall Mitigation site in June 2001. The data was collected by walking throughout the site and recording species by habitat community. The data are listed in the tables below and on the attached figure, which presents the habitat communities shown with a number; the numbers correspond to those in the tables.

NATIVE SPECIES PLANTED OR SEEDED AT RANDALL MITIGATION SITE 2002/2003

Botanical Name	Common Name
<i>Acer circinatum</i>	Vine maple
<i>Acer macrophyllum</i>	Big leaf maple
<i>Agrostis exarata</i>	Spike bentgrass
<i>Alisma plantago-aquatica</i>	Broad-leaf water-plantain
<i>Alnus rubra</i>	Red alder
<i>Alopecurus geniculatus</i>	Water foxtail
<i>Amelanchier alnifolia</i>	Serviceberry
<i>Beckmannia syzigachne</i>	American sloughgrass
<i>Bromus carinatus</i>	California brome
<i>Caltha palustris</i> var. <i>asssarifolia</i>	Yellow marsh-marigold
<i>Camassia quamash</i>	Camas lily
<i>Carex densa</i>	Dense sedge
<i>Carex deweyana</i>	Dewey's sedge
<i>Carex obnupta</i>	Slough sedge
<i>Carex rostrata</i>	Beaked sedge
<i>Carex scoparia</i>	Pointed broom sedge
<i>Carex stipata</i>	Saw-beaked sedge
<i>Cornus sericea</i>	Red-osier dogwood
<i>Crataegus douglasii</i>	Douglas' hawthorn
<i>Deschampsia cespitosa</i>	Tufted hairgrass
<i>Eleocharis ovata</i>	Ovate spikerush
<i>Eleocharis palustris</i>	Creeping spikerush
<i>Elymus glaucus</i>	Blue Wildrye
<i>Festuca occidentalis</i>	Western fescue
<i>Festuca rubra</i>	Red fescue
<i>Fraxinus latifolia</i>	Oregon Ash
<i>Glyceria occidentalis</i>	Northwest mannagrass
<i>Holodiscus discolor</i>	Oceanspray
<i>Juncus acuminatus</i>	Taper-tipped rush
<i>Juncus balticus</i>	Baltic rush
<i>Juncus bufonius</i>	Toad rush
<i>Juncus ensifolius</i>	Dagger-leaf rush
<i>Juncus patens</i>	Grooved rush
<i>Lupinus albicaulus</i>	Sicklekeel lupine
<i>Lupinus polyphyllis</i>	Bigleaf lupine
<i>Lysichiton americanum</i>	Skunk cabbage
<i>Oenanthe sarmentosa</i>	Water parsley
<i>Physocarpus capitatus</i>	Pacific ninebark
<i>Polystichum munitum</i>	Sword fern
<i>Prunus virginiana</i>	Choke cherry
<i>Pseudotsuga menziesii</i>	Douglas-fir
<i>Quercus garryana</i>	Oregon white oak
<i>Rhamnus purshiana</i>	Cascara
<i>Rosa gymnocarpa</i>	Baldhip rose

Botanical Name	Common Name
<i>Rosa nutkana</i>	Nootka rose
<i>Rubus spectabilis</i>	Salmonberry
<i>Sagittaria latifolia</i>	Wapato
<i>Salix scoulerana</i>	Scouler's willow
<i>Salix sitchensis</i>	Sitka willow
<i>Scirpus microcarpus</i>	Small-fruited bulrush
<i>Sparganium sp.</i>	Bur-reed
<i>Spiraea douglasii</i>	Hardhack
<i>Symphoricarpos albus</i>	Snowberry
<i>Wheatgrass x wheat</i>	Sterile wheat (Regreen)
<i>Yarrow millefolium</i>	Western yarrow

HERBACEOUS INVENTORY JUNE 2002

Botanical Name	Common Name	Regional Indicator
<i>Agropyron repens</i>	quackgrass	FACU
<i>Agrostis tenuis</i>	colonial bentgrass	
<i>Allium sp.</i>	wild garlic	
<i>Alopecurus pratensis</i>	meadow foxtail	FACW
<i>Amelanchier alnifolia</i>	serviceberry	FACU
<i>Bromus mollis</i>	soft brome	
<i>Bromus sitchensis</i>	Alaska brome	
<i>Carex densa</i>	dense sedge	OBL
<i>Carex tumulicola</i>	foothill sedge	
<i>Cerastium sp.</i>	chickweed sp.	
<i>Cichorium intybus</i>	chicory	
<i>Cirsium vulgare</i>	bull thistle	FACU
<i>Crataegus douglasii</i>	black hawthorn	FAC
<i>Crataegus monogyna</i>	English hawthorn	
<i>Dactylis glomerata</i>	orchard grass	FACU
<i>Daucus carota</i>	Queen Anne's lace	
<i>Elymus glaucus</i>	blue wildrye	FACU
<i>Festuca arundinacea</i>	tall fescue	FACU-
<i>Festuca rubra</i>	red fescue	FAC
<i>Fraxinus latifolia</i>	Oregon ash	FACW
<i>Holcus lanatus</i>	velvet grass	FAC
<i>Hypericum perforatum</i>	St. John's wort	
<i>Hypochaeris sp.</i>	spotted cat's ear	
<i>Juncus tenuis</i>	slender rush	FAC
<i>Lactuca sp.</i>	wild lettuce	
<i>Leucanthemum vulgare</i>	oxeye daisy	
<i>Myosotis sp.</i>	forget-me-not	
<i>Parentucellia viscosa</i>	yellow parentucellia	FAC-
<i>Plantago lanceolata</i>	English plantain	FACU+
<i>Poa palustris</i>	fowl bluegrass	FAC
<i>Poa pratensis</i>	Kentucky bluegrass	FACU+
<i>Prunella vulgaris</i>	heal-all	FACU+
<i>Quercus garryana</i>	Oregon white oak	
<i>Rosa sp.</i>	rose sp.	
<i>Rubus procerus</i>	Himalayan blackberry	NI
<i>Rumex acetocella</i>	sheeps sorrel	NI
<i>Rumex crispus</i>	curled dock	FACW
<i>Sisymbrium sp.</i>	mustard sp.	
<i>Spirea douglasii</i>	spirea	FACW
<i>Tanacetum</i>	tansy ragwort	
<i>Trifolium dubium</i>	small hop-clover	
<i>Trifolium pratense</i>	red clover	FACU
<i>Trifolium repens</i>	white clover	FACU+
<i>Vicia sativa</i>	common vetch	

Botanical Name	Common Name	Regional Indicator
<i>Alisma plantago aquatica</i>	water plantain	OBL
<i>Alopecurus geniculatus</i>	water foxtail	OBL
<i>Alopecurus pratensis</i>	meadow foxtail	FACW
<i>Anthemis cotula</i>	mayweed	FACU
<i>Beckmannia syzigachne</i>	American sloughgrass	OBL
<i>Bidens cernua</i>	nodding beggarticks	FACW+
<i>Bidens frondosa</i>	common beggarticks	FACW+
<i>Camassia quamash</i>	common camas	FACW
<i>Capsella bursa-pastoris</i>	shephers's purse	FAC-
<i>Carex athrostachya</i>	slenderbeak sedge	FACW
<i>Carex densa</i>	dense sedge	OBL
<i>Carex lanuginosa</i>	wooly sedge	OBL
<i>Carex leporina</i>	harefoot sedge	FAC
<i>Cerastium sp.</i>	chickweed sp.	
<i>Chenopodium album</i>	lamb's quarters	FAC
<i>Cirsium arvense</i>	Canada thistle	FACU+
<i>Cirsium vulgare</i>	bull thistle	FACU
<i>Conium maculatum</i>	poison hemlock	FACW-
<i>Convolvulus arvensis</i>	field bindweed	
<i>Cryptantha sp.</i>	cryptantha	
<i>Daucus carota</i>	Queen Anne's lace	
<i>Dovingia elegans</i>	common dovingia	OBL
<i>Eleocharis palustris</i>	creeping spikerush	OBL
<i>Epilobium sp.</i>	willowherb sp.	
<i>Epilobium ciliatum</i>	Watson willowherb	FACW-
<i>Festuca arundinacea</i>	tall fescue	FACU-
<i>Galium aparine</i>	cleavers bedstraw	FACU
<i>Geranium sp.</i>	geranium	
<i>Gnaphalium sp.</i>	cudweed	
<i>Gnaphalium palustris</i>	lowland cudweed	
<i>Holcus lanatus</i>	velvet grass	FAC
<i>Hypochaeris radicata</i>	hairy cat's ear	
<i>Juncus acuminatus</i>	tapertip rush	OBL
<i>Juncus balticus</i>	baltic rush	OBL
<i>Juncus bufonius</i>	toad rush	FACW+
<i>Juncus effusus</i>	soft rush	FACW+
<i>Juncus ensifolius</i>	daggerleaf rush	FACW
<i>Juncus patens</i>	spreading rush	FACW
<i>Juncus tenuis</i>	slender rush	FAC
<i>Lactuca serriola</i>	prickly lettuce	FAC-
<i>Lapsana communis</i>	nipplewort	
<i>Leucanthemum vulgare</i>	oxeye daisy	
<i>Lolium sp.</i>	rye sp.	
<i>Lolium perenne</i>	perennial ryegrass	FACU
<i>Lotus corniculatus</i>	birds foot trefoil	FAC

Botanical Name	Common Name	Regional Indicator
<i>Lupinus sp. 1</i>	lupine sp.	
<i>Lupinus sp. 2 (very large)</i>	lupine sp.	
<i>Lythrum portola ??</i>		
<i>Matricharia discoidea</i>	pineapple weed	
<i>Mentha pulegium</i>	penny-royal	OBL
<i>Mimulus guttatus</i>	common monkeyflower	OBL
<i>Montia sp.</i>	montia sp.	
<i>Myosotis sp.</i>	forget-me-not	
<i>Myosotis discolor</i>	common forget-me-not	FACW
<i>Myosotis laxa</i>	small-flowered forget-me-not	OBL
<i>Navarretia squarrosa</i>	skunkweed	
<i>Panicum sp.</i>	panic grass sp.	
<i>Parentucellia viscosa</i>	yellow parentucellia	FAC-
<i>Phalaris arundinacea</i>	reed canarygrass	FACW
<i>Plantago lanceolata</i>	English plantain	FACU+
<i>Plantago major</i>	common plantain	FAC+
<i>Poa sp.</i>	poa sp.	
<i>Poa annua</i>	annual bluegrass	FAC-
<i>Poa palustris</i>	fowl bluegrass	FAC
<i>Poa pratensis</i>	Kentucky bluegrass	FACU+
<i>Polygonum arvense ?</i>	knotweed sp.	
<i>Polygonum persicaria</i>	lady's thumb	FACW
<i>Ranunculus sp. 1</i>	buttercup	
<i>Ranunculus sp. 2</i>	buttercup	
<i>Ranunculus sp. 3</i>	buttercup	
<i>Rorippa curvisiliqua</i>	western yellow cress	FACW+
<i>Rosa sp.</i>	rose sp.	
<i>Rubus procerus</i>	Himalayan blackberry	NI
<i>Rubus ursinus</i>	trailing blackberry	
<i>Rumex conglomeratus</i>	clustered dock	FACW
<i>Rumex crispus</i>	curled dock	FACW
<i>Rumex obtusifolius</i>	bitter dock	FAC
<i>Solanum dulcamara</i>	climbing nightshade	FAC
<i>Spirea douglasii</i>	spirea	FACW
<i>Symphoricarpus albus</i>	common snowberry	FACU
<i>Trifolium sp.</i>	clover	
<i>Trifolium dubium</i>	small hop-clover	
<i>Trifolium repens</i>	white clover	FACU+
<i>Typha sp.</i>	cattail	OBL
<i>Veronica sp.</i>	speedwell	
<i>Veronica americana</i>	American brooklime	OBL
<i>Vicia americana</i>	American vetch	NI
<i>Vicia hirsuta</i>	hairy vetch	
<i>Vicia tetrasperma</i>	vetch sp	
<i>Regreen</i>	sterile wheat	

RANDALL VEGETATION SURVEY 2003

30-Jun-03

Loverna Wilson
Carrie Stevenson (POP)

Botanical Name	Common Name	Transect					Regional Indicator	Characteristic	Native/Intro
		A	B	C	D	E			
<i>Agrostis capillaris</i> (A. tenuis)	colonial bentgrass	0	X	0	0	0	FAC	PIG	Introduced
<i>Agrostis exarata</i>	spike bentgrass	X	X	X	X	X	FACW	PNG	native
<i>Agrostis</i> sp.	bentgrass	0	0	0	0	X			
<i>Agrostis stolonifera</i>	fiorin	0	0	X	0	0	FAC+	PNG	native
<i>Alisma triviale</i> (A. plantago-aquatica)	northern water-plantain	0	0	0	X	X	OBL	PNEF	native
<i>Alopecurus pratensis</i>	meadow foxtail	X	X	X	X	0	FACW	PIG	Introduced
<i>Anthemis cotula</i>	stinking mayweed	X	X	X	X	X	FACU	AIF	Introduced
<i>Asteraceae</i> sp.	unknown composite	0	X	0	0	0			
<i>Beckmannia syzigachne</i>	American sloughgrass	X	X	X	X	X	OBL	ANG	native
<i>Bidens cernua</i>	nodding beggars-tick	0	X	X	X	X	FACW+	AIF	Introduced
<i>Bidens frondosa</i>	leafy beggars-tick	X	X	X	X	X	FACW+	ANF	native
<i>Briza minor</i>	rattlesnake grass	0	X	0	0	0	FAC	AIG	Introduced
<i>Bromus hordeaceus</i> (B. mollis)	soft brome	0	0	0	X	0	FACU	AIG	Introduced
<i>Camassia quamash</i>	common camas	0	X	0	0	0	FACW	PNF	native
<i>Carex densa</i>	dense sedge	0	0	X	0	X	OBL	PNGL	native
<i>Carex obnupta</i>	slough sedge	X	X	X	X	X	OBL	PNGL	native
<i>Carex unilateralis</i>	one-sided sedge	0	0	0	0	X	FACW	PNGL	native
<i>Centaureum erythraea</i> (C. umbellatum)	European centaury	X	X	X	0	0	FAC	AIF	Introduced
<i>Cerastium</i> sp.	chickweed	X	0	0	0	0			
<i>Chenopodium album</i>	lamb's quarters	0	0	0	X	X	FAC	AIF	Introduced
<i>Cichorium intybus</i>	chicory	0	0	0	X	0	NL *	PIF	Introduced
<i>Cirsium arvense</i>	Canada thistle	X	X	X	X	0	FACU+	PIF	Introduced
<i>Cirsium</i> sp.	thistle	0	0	0	X	0			
<i>Cirsium vulgare</i>	bull thistle	X	0	X	0	0	FACU	BIF	Introduced
<i>Crepis setosa</i>	rough hawksbeard	X	0	X	0	0	NL	AIF	Introduced
<i>Daucus carota</i>	Queen Anne's lace	X	0	X	X	0	NL	BIF	Introduced
<i>Deschampsia cespitosa</i>	tufted hairgrass	X	X	X	X	X	FACW	PNG	native
<i>Deschampsia danthonioides</i>	hairgrass	0	X	X	0	0	FACW-	ANG	native
<i>Dipsacus sylvestris</i>	teasel	X	0	0	0	0	FAC	BAIF	Introduced

Botanical Name	Common Name	A	B	C	D	E	Regional Indicator	Characteristic	Native/Intro
<i>Downingia elegans</i>	common dowingia	X	X	X	X	X	OBL	ANF	native
<i>Eleocharis acicularis</i>	needle spike-rush	0	X	0	0	0	OBL	PNEGL	native
<i>Eleocharis ovata</i>	ovoid spike-rush	0	0	0	0	X	OBL	ANEGL	native
<i>Eleocharis palustris</i>	common spike-rush	0	0	X	0	0	OBL	PNEGL	native
<i>Epilobium brachycarpum</i> (<i>E. paniculatum</i>)	autumn willow-herb	0	0	X	X	0	UPL	ANF	native
<i>Epilobium ciliatum</i> spp. <i>watsonii</i> (<i>E. watsonii</i>)	Watson's willow-herb	X	X	X	X	0	FACW-	PNF	native
<i>Epilobium densiflorum</i> (<i>Boisduvalia densiflora</i>)	dense spike-primrose	0	X	X	0	0	FACW-	ANF	native
<i>Epilobium</i> sp.	willow-herb	0	0	0	0	X			
<i>Epilobium torreyi</i> (<i>Boisduvalia stricta</i>)	brook spike-primrose	X	X	X	0	X	FACW	ANF	native
<i>Festuca arundinacea</i>	tall fescue	X	0	0	0	0	FAC-	PIG	Introduced
<i>Festuca myuros</i>	rat-tail fescue	X	X	0	0	0	FAC	AIG	Introduced
<i>Geranium dissectum</i>	cut-leaf geranium	X	X	0	X	0	NL	AIF	Introduced
<i>Gilia capitata</i>	bluefield gilia	X	0	0	0	0	NL	ANF	native
<i>Gnaphalium palustre</i>	lowland cudweed	X	X	X	X	X	FAC+	ANF	native
<i>Gnaphalium uliginosum</i>	marsh cudweed	0	0	0	0	X	FAC+	AIF	Introduced
<i>Gratiola neglecta</i>	common American hyssop	0	0	0	0	X	OBL	ANEF	native
<i>Holcus lanatus</i>	common velvetgrass	X	X	X	0	0	FAC	PNG	native
<i>Hordeum brachyantherum</i>	meadow barley	X	X	X	X	X	FACW-	PNG	native
<i>Hypericum perforatum</i>	St. John's wort	X	0	0	0	0	NL	PIF	Introduced
<i>Hypochaeris radicata</i>	spotted cats-ear	X	X	0	0	0	FACU	PIF	Introduced
<i>Juncus acuminatus</i>	tapered rush	0	X	X	0	0	OBL	PNEGL	native
<i>Juncus bufonius</i>	toad rush	X	X	X	X	X	FACW	ANGL	native
<i>Juncus effusus</i>	soft rush	0	0	X	0	0	FACW	PNEGL	native
<i>Juncus ensifolius</i>	dagger-leaf rush	0	X	X	0	X	FACW	PNGL	native
<i>Juncus patens</i>	spreading rush	0	0	0	0	X	FACW	PNGL	native
<i>Juncus tenuis</i>	slender rush	0	0	X	0	0	FACW-	PNGL	native
<i>Lactuca serriola</i>	prickly lettuce	X	X	0	0	0	FACU	ABIF	Introduced
<i>Leontodon taraxacoides</i> (<i>L. nudicaulis</i>)	hairy hawkbit	X	X	X	X	X	UPL	PIF	Introduced
<i>Leucanthemum vulgare</i> (<i>Chrysanthemum leucanthemum</i>)	oxeye-daisy	X	0	0	0	0	NL	PIF	Introduced
<i>Lolium multiflorum</i>	Italian ryegrass	X	0	0	0	0	NL	ABIG	Introduced
<i>Lolium perenne</i>	perennial ryegrass	0	X	X	X	X	FACU	PIG	Introduced
<i>Lolium temulentum</i>	annual ryegrass; darnel	0	0	0	X	0	NL	AIG	Introduced
<i>Lotus corniculatus</i>	birdsfoot-trefoil	0	0	X	0	0	FAC	PIF	Introduced

Botanical Name	Common Name	A	B	C	D	E	Regional Indicator	Characteristic	Native/Intro
<i>Lotus purshianus</i>	Spanish-clover	X	X	0	X	0	NL	ANF	native
<i>Ludwigia palustris</i>	false loosestrife	0	0	0	0	X	OBL	PNEF	native
<i>Lupinus polyphyllus</i>	bigleaf lupine	X	X	X	0	0	FAC+	PNF	native
<i>Lythrum portula (Peplis portula)</i>	spatula-leaf loosestrife	0	0	X	0	0	NI	AIF	Introduced
<i>Madia sativa</i>	coast tarweed	0	0	X	0	0	NL	ANF	native
<i>Mentha pulegium</i>	pennyroyal	0	0	X	X	X	OBL	PIF	Introduced
<i>Mimulus guttatus</i>	yellow monkey-flower	X	X	X	0	0	OBL	ANF	native
<i>Mimulus</i> sp.	monkey-flower	0	0	0	0	X	OBL	NF	native
<i>Montia linearis</i>	narrow-leaved montia	X	0	0	0	0	NL	ANF	native
<i>Montia</i> sp.	montia	0	0	0	X	0		NF	native
<i>Myosotis laxa</i>	small-flowered forget me not	0	X	X	0	X	OBL	PNF	native
<i>Navarretia intertexta</i>	needle-leaf navarretia	X	0	X	X	0	FACW	ANF	native
<i>Navarretia squarrosa</i>	skunkweed	X	X	X	X	X	NL	ANF	native
<i>Panicum</i> sp.	witchgrass	X	X	X	X	X		NG	native
<i>Parentucellia viscosa</i>	yellow parentucellia	X	X	0	0	X	FAC-	AIF	Introduced
<i>Phalaris arundinacea</i>	reed canarygrass	0	X	X	0	0	FACW	PNG	native
<i>Phlox gracilis (Microsteris gracilis)</i>	false phlox	0	0	0	X	0	FACU	ANF	native
<i>Plagiobothrys</i> sp.	popcorn-flower	X	X	0	0	X		NF	native
<i>Plantago major</i>	common plantain (nippleseed)	X	0	X	X	X	FACU+	PIF	Introduced
<i>Poa annua</i>	annual bluegrass	0	0	0	X	X	FAC	AIG	Introduced
<i>Poa trivialis</i>	roughstalk bluegrass	X	X	X	0	0	FACW	PIG	Introduced
<i>Polygonum aviculare</i>	creeping knotweed	0	0	0	X	X	FACW-	APIF	Introduced
<i>Polygonum persicaria</i>	lady's thumb	0	0	0	0	X	FACW	AIF	Introduced
<i>Prunella vulgaris</i>	heal-all	X	0	0	0	0	FACU+	PIF	Introduced
<i>Psilocarphus</i> sp.	woolly-heads	0	0	0	X	0		ANF	native
<i>Ranunculus sceleratus</i>	celery-leaved buttercup	0	0	0	0	X	OBL	APNEF	native
<i>Ranunculus</i> sp.	buttercup	X	X	X	X	0			
<i>Rorippa curvisiliqua</i>	western yellowcress	0	X	X	X	X	OBL	ANEF	native
<i>Rosa</i> sp.	wild rose	0	0	0	0	X			
<i>Rubus armeniacus (R. discolor)</i>	Himalayan blackberry	X	0	0	0	0	FACU	I	Introduced
<i>Rubus ursinus (R. vitifolius)</i>	Pacific blackberry	X	0	0	0	0	FACU	NS	native
<i>Rumex acetosella</i>	sheep sorrel	X	0	0	X	0	FACU+	PIF	Introduced
<i>Rumex conglomeratus</i>	clustered dock	0	0	X	0	0	FACW	PIF	Introduced

Botanical Name	Common Name	A	B	C	D	E	Regional Indicator	Characteristic	Native/Intro
<i>Rumex crispus</i>	curly dock	X	X	X	X	X	FAC+	PIF	Introduced
<i>Rumex obtusifolius</i>	bitter dock	X	0	0	0	0	FAC	PIF	Introduced
<i>Scirpus microcarpus</i>	small-fruited bulrush	0	X	X	X	X	OBL	PNGL	native
<i>Senecio sylvaticus</i>	wood groundsel	X	0	0	0	0	NL	AIF	Introduced
<i>Sonchus oleraceus</i>	common sow-thistle	X	0	0	X	0	UPL	AIF	Introduced
<i>Stachys mexicana</i>	great betony	0	0	X	0	0	FACW	PNF	native
<i>Taraxacum officinale</i>	common dandelion	X	0	0	0	0	FACU	PIF	Introduced
<i>Trifolium dubium</i>	suckling clover	X	X	X	X	X	UPL	AIF	Introduced
<i>Trifolium hybridum</i>	alsike clover	0	X	X	0	0	FAC	PIF	Introduced
<i>Trifolium pratense</i>	red clover	X	0	0	0	0	FACU	BPIF	Introduced
<i>Trifolium repens</i>	white clover	X	X	X	0	0	FAC	PIF	Introduced
<i>Trifolium</i> sp.	clover	0	0	0	X	0			
<i>Trifolium subterraneum</i>	subterranean clover	0	0	0	X	0	NL	AIF	Introduced
<i>Typha</i> sp.	cat-tail	0	X	0	X	X	OBL	PNEF	native
<i>Verbascum blattaria</i>	moth mullein	X	X	X	0	0	UPL	BIF	Introduced
<i>Veronica</i> sp.	speedwell	0	X	0	0	X			
<i>Vicia hirsuta</i>	hairy vetch	X	0	0	0	0	NL	IF	Introduced
<i>Vicia sativa</i>	common vetch	X	X	0	0	0	UPL	AIF	Introduced
<i>Vicia tetrasperma</i>	slender vetch	X	X	X	0	0	NL	IF	Introduced
<i>Vulpia</i> sp. (annual fescue)	annual fescue	X	X	0	0	0		AG	

*NL = not listed (and usually assumed to be upland)

NI = indicator status not yet selected

Transects A-C: West side, run east-west through central wetland prairie

Transect D-E: East side, run east-west through central prairie and through restored wetland scrub-shrub to north of prairie

Notes from Loverna Wilson

species names based on Jepson

and/or La Rea Dennis Johnston's new edition of Handbook of Northwestern Plants.

APPENDIX D

RANDALL MITIGATION SITE DOCUMENT LIST

Table D-1. Randall Mitigation Site Document List

Document	Author	Date
Randall Property Wetland Delineation Report	Entranco, Inc.	June 2000
Compensatory Mitigation Plan	Entranco, Inc.	December 2000
Washington County 421 Compliance Report for Proposed Randall Site Mitigation	Entranco, Inc.	December 2000
Grading Plan for Randall Mitigation Site	Entranco, Inc.	December 2000
Cultural Resources Study for the Randall Property Wetland Mitigation Area, Washington County	Archaeological Investigations Northwest, Inc.	January 2001
Wildlife Census Study Randall Property/Port of Portland Mitigation Site	Entranco, Inc.	March 2001
Randall Property Observation Well Soil Data	URS Corporation	April 2001
Randall Pre-construction Vegetation Survey	Port of Portland	June 2001
Declaration of Restrictive Covenant	Port of Portland	August 2001
Randall Property, Evaluation of Proposed Grading Plan Against Hydrology Data	URS Corporation	April 2002
Graphical Soil Analysis Report	A&L Engineering and Consulting, Inc. (A&L)	May 2002
Vegetation Survey of Randall Property Washington County, Oregon	L. Wilson	July 2002
Randall Property, Piezometer Installation, 12 and 13	URS Corporation	August 2002
Graphical Soil Analysis Report	A&L	September 2002
Randall Water Quality Sampling	Port of Portland	May 2003
Vegetation Survey of Randall Property Washington County, Oregon	L. Wilson	June 2003
Randall Mitigation Site, Final As-built Report, July 2003	Port of Portland	July 2003
Randall Mitigation Site Mitigation Monitoring Report Year 1 of 5	URS Corporation	October 2003
Randall Water Quality Sampling	Port of Portland	June 2004
Randall Mitigation Site Mitigation Monitoring Report Year 2 of 5	Jones & Stokes Associates	January 2005
Randall Mitigation Site Mitigation Monitoring Report Year 3 of 5	Jones & Stokes Associates	December 2005
Randall Mitigation Site Mitigation Monitoring Report Year 4 of 5	Jones & Stokes Associates	December 2006
Randall Mitigation Site Mitigation Monitoring Report Year 5 of 5	Jones & Stokes Associates	December 2007
Randall Mitigation Site Mitigation Monitoring Report Year 6	Jones & Stokes Associates	October 2008
Randall Mitigation Site Mitigation Monitoring Report Year 7	Jones & Stokes Associates	December 2009
Xerces Society Project Completion Report to OWEB	Xerces Society for Invertebrate Conservation	August 2009
Randall Mitigation Site Mitigation Monitoring Report Year 8	Port of Portland	December 2010
Randall Mitigation Site Mitigation Monitoring Report Year 9	Port of Portland	December 2011
Randall Mitigation Site Mitigation Monitoring Report Year 10	Port of Portland	December 2012
Wetland Delineation Light Report	SWCA Environmental Consultants	May 2013
Oregon Department of State Lands Site Release Letter	Oregon Department of State Lands	May 2015
U.S. Army Corps of Engineers Site Release Letter	U.S. Army Corps of Engineers	June 2015

APPENDIX E

SUPPORTING DOCUMENTS

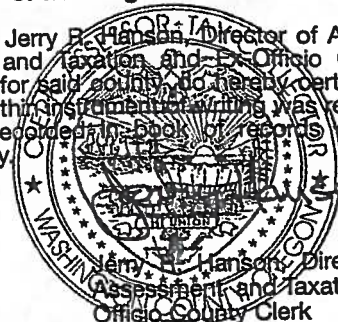
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Denise Kennis
COPY

STATE OF OREGON
County of Washington }

SS

I, Jerry B. Hanson, Director of Assessment and Taxation, and Ex-Officio County Clerk for said county, do hereby certify that the within instrument or writing was received and recorded in Book of records of said county.



Doc : 2001081934

Rect: 285547

42.00

08/14/2001 12:18:10pm

RECORDING COVER SHEET

TRANSACTION(S): Declaration of Restrictive Covenants

GRANTOR(S): Port of Portland

GRANTEE(S): Port of Portland

AFTER RECORDING
RETURN TO:

Troy Graham
Administrative Supervisor/Legal Assistant
Port of Portland
Legal Department
PO Box 3529
Portland, Oregon 97208

COVER SHEET
PREPARED AND
SUBMITTED BY:

Troy Graham

[NOTE: This cover sheet is presented for recording purposes and is not intended to be a part of the attached documents. Any errors in this cover sheet shall not affect the terms and conditions contained in the recorded instrument(s)].

**DECLARATION OF RESTRICTIVE COVENANTS
OF
PORT OF PORTLAND**

The Port of Portland, a port district of the State of Oregon ("the Owner"), is the fee owner of real property located in Washington County, Oregon, as legally described in Exhibit A, which by reference is incorporated herein. This real property is referred to as the "Property" in this declaration. The Property is also depicted on a wetland mitigation site map, which is attached hereto as Exhibit B and by reference is made a part of this declaration.

The purpose of this declaration is to protect and enhance the ecological and aesthetic value of the Property as a natural area. The Owner intends that this declaration shall be understood and construed to achieve that purpose. Therefore, the Owner makes the following declarations as to the limitations, restrictions, benefits, and uses to which the Property may be put, and specifies that such declaration shall constitute covenants to run with the Property and shall be binding on all present and future owners to the Property, including the successor and assigns of the Owner.

The Property is a compensatory mitigation site and is subject to the terms and conditions of Permit #2001-00059, issued by the U.S. Army Corps of Engineers, Portland District, and Permit #23613-RF, issued by the Oregon Division of State Lands, as they may be modified from time to time. The Owner declares that the Property shall be used only as a natural area in accordance with the terms and conditions of those permits. Those permits are incorporated by reference herein as if fully set forth.

The Property shall be maintained in a natural condition, in order to promote the conditions on the Property as a wetland and upland environment with native vegetation. To achieve the stated purpose of this declaration, the Owner shall comply with the requirements of each of the above-described permits.

Domestic livestock shall not be allowed on the Property. Agricultural activity shall be permitted upon the Property only as needed to encourage the establishment of the wetland, riparian, or upland community and to control invasive or non-native plant species.

The Owner shall take reasonable care to prevent any petroleum products, chemical, or other deleterious materials from entering any water body on the Property. The Owner shall also take reasonable care to minimize turbidity increases in any water body on the Property so as to protect water quality and reduce damage to aquatic life.

No part of this declaration may be terminated, amended, modified, or revoked without the written approval of an authorized official representative of the U.S. Army Corps of Engineers and the Oregon Division of State Lands. If one or more of these covenants or restrictions become illegal, null or void for any reason, or is held by any court of

competent jurisdiction to be so, the remaining portions shall remain in full force and effect.

The U.S. Army Corps of Engineers or its assigns and the Oregon Division of State Lands shall have the right to enforce these covenants and restrictions.

No breach or violation of these covenants and restrictions shall terminate this declaration. Failure of the U.S. Army Corps of Engineers or the Oregon Division of State Lands to insist upon the strict performance of any one or more of these covenants shall not be construed as a waiver or a relinquishment for the future violation of any covenants or restrictions.

Any instrument of transfer, conveyance, or encumbrance affecting all or part of the Property shall be subject to this declaration.

Nothing contained in this declaration shall be deemed to be a gift or a declaration of any of the Property to the general public or for the use of the general public or for any public purpose whatsoever, it being the intention that this declaration will be strictly limited to the purpose stated herein.

These covenants do not in any way affect the Owner's water right in any surface water outside the boundaries of the Property.

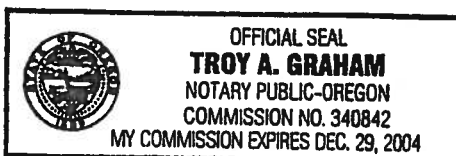
IN WITNESS WHEREOF, the undersigned Executive Director of the Port of Portland has hereunto set his hand(s) this 9 day of August, 2001.

PORT OF PORTLAND

BY: E.B. Galligan
E.B. Galligan, Executive Director

STATE OF OREGON)
) ss.
Multnomah County)

This instrument was acknowledged before me on August 9, 2001
by E.B. Galligan, Executive Director of the Port of Portland, an Oregon port district.



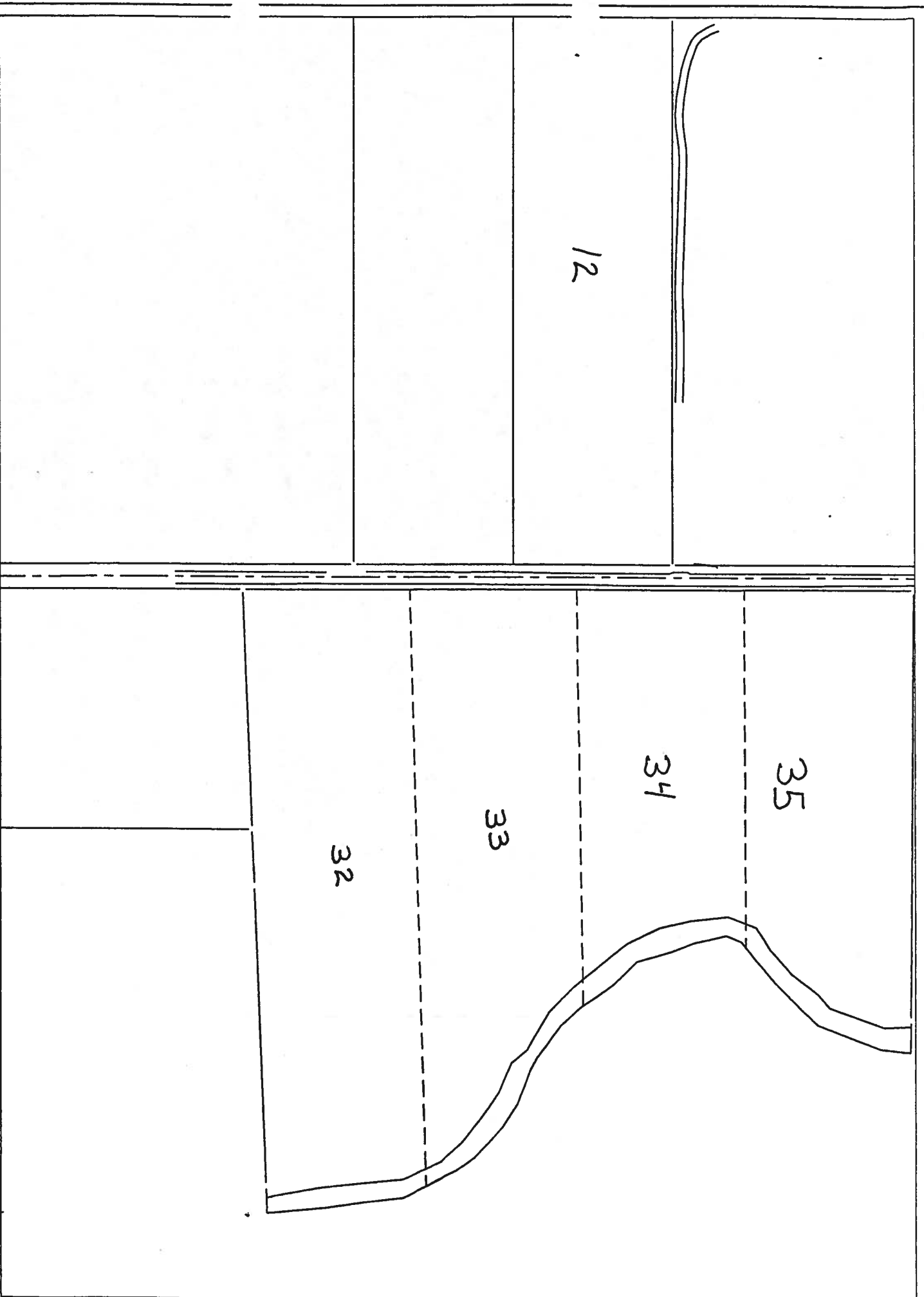
[Signature]
Notary Public for Oregon

EXHIBIT A
LEGAL DESCRIPTION

DESCRIPTION

Lots 12, 32, 33, 34 and 35, OAK PARK, in the County of Washington and State of Oregon.

EXCEPTING THEREFROM the ownership of the State of Oregon in that portion lying below the line of mean high water.



PORT OF PORTLAND
PLANNING DEPARTMENT

817404.0050000
4-1783-0083

SPANASOTI DWS
23838-132

DESIGN NUMBER
18881D098

PROJECT NUMBER

DESIGNED BY

W. FARRER

DRAWN BY

S. GRUBBS

CHECKED BY

D. ANDERSON

DATE

FEB. 2001

SCALE

NOT TO SCALE

RANDALL PROPERTY

LAND TITLE SURVEY
HILLSBORO, WASHINGTON COUNTY, OR

SUBMITTED BY

MANAGER SURVEY

BS

PHA 2001-501

1/1

C-1