PORT OF PORTLAND

Mitigation Management Program

Site Status Report 2021-2022


Dawson Creek Enhancement 2021


Government Island 2021


Randall 2021


T-5 Powerline Site 2021

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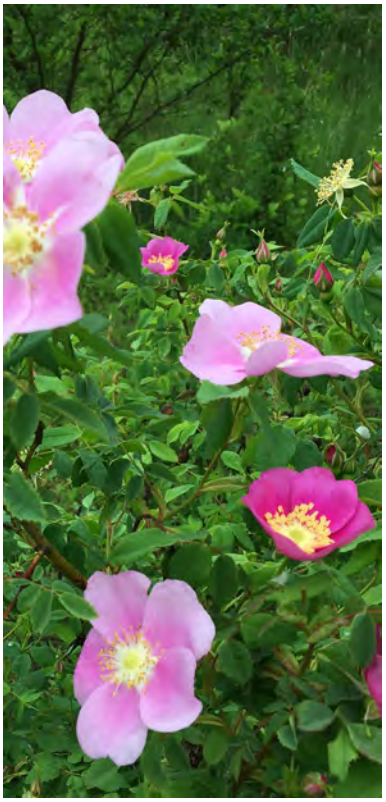
Land Acknowledgment

We acknowledge that the Port of Portland is located on lands that have been occupied and stewarded since time immemorial by people from the Cascade, Clackamas and Multnomah Bands of the Chinook Tribe.

Many other indigenous peoples have their homes in, travel through, harvest and use the plentiful natural resources of the Columbia River, Willamette River, and the other lands and waters within the Port's district.

The Port of Portland respects the history of the federally recognized sovereign Tribal Nations of the Northwest, whose people were forcibly dispossessed and removed from their homes and lands by the United States government following treaties entered into between 1851 and 1855. And we are committed to recognizing the ongoing relationship that exists between indigenous peoples and these places.



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ABBREVIATIONS USED IN THIS REPORT

AAHU	average annual habitat units
BES	Bureau of Environmental Services (City of Portland)
BMP	best management practice
BPA	Bonneville Power Administration
CAC	PDX Community Advisory Committee
COP	City of Portland
Corps	United States Army Corps of Engineers
CNLM	Center for Natural Lands Management
CSWC	Columbia Slough Watershed Council
CWS	Clean Water Services
DEQ	Oregon Department of Environmental Quality
DSL	Oregon Department of State Lands
EMS	Environmental Management System
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
GIS	geographic information system
HEP	habitat evaluation procedure
HIO	Portland-Hillsboro Airport
IGA	Intergovernmental Agreement
ITP	Incidental Take Permit
IPM	Integrated Pest Management
JBWP	Jackson Bottom Wetland Preserve
LUR	Land Use Review (City of Portland)
LTMP	Long-Term Management Plan
MCDD	Multnomah County Drainage District
MCT	Mitigation Core Team
MCVC	Multnomah County Vector Control
Metro	Metropolitan Service District
MMS	Mitigation Management Schedules
MOA	memorandum of agreement
MSE	mechanically stabilized earth
NGVD	National Geodetic Vertical Datum
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRI	Natural Resources Inventory
NGVD	National Geodetic Vertical Datum

NWI	National Wetland Inventory
NW PARC	Northwest Regional Chapter of Partners in Amphibian and Reptile Conservation
NW Swale	Northwest Swale
NWYC	Northwest Youth Corps
OHW	Ordinary High Water
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OPRD	Oregon Parks and Recreation Department
OWRD	Oregon Water Resources Department
PDX	Portland International Airport
PEMC	palustrine emergent seasonally flooded
PEM	palustrine emergent
PFO	palustrine forested
PIC	Portland International Center
PSS	palustrine scrub-shrub
PWS	Professional Wetland Scientist
RGID	Rivergate Industrial District
RID	Regional Illegal Dumping
SBWNA	Smith and Bybee Wetlands Natural Area
T	Terminal (e.g., T-5)
TMDL	Total Maximum Daily Load
TRIP	Troutdale Reynolds Industrial Park
USACE	U.S. Army Corps of Engineers
USDA-ADC	U.S. Department of Agriculture, Animal Damage Control
USDA-APHIS	U.S. Department of Agriculture, Animal and Plant Health Inspection Service
USFWS	U.S. Fish and Wildlife Service
WC	Washington County
WET	wetland evaluation technique
WCS	water control structure
WMP	wetland management plan
Xerces	Xerces Society for Invertebrate Conservation

SECTION I. MITIGATION MANAGEMENT PROGRAM

INTRODUCTION

The Port of Portland (Port) manage over 900 acres of wetland and upland mitigation and enhancement sites. These managed natural areas provide compensation for temporary and unavoidable, permanent impacts to wetlands and other natural resources from our development or operational activities. Compensatory mitigation is required when activities result in unavoidable permitted impacts to regulated resources such as wetlands, waters, grasslands, or regulated uplands. Regulatory agencies often require that resources be mitigated by creating, restoring, enhancing, or preserving resources either onsite, offsite, or through the purchase of mitigation credits from an approved mitigation bank. Mitigation must be approved by the regulatory agency in advance of the impact and once implemented, there are ongoing monitoring and reporting requirements for a period determined by the agency.

Port initiated their Mitigation Management Program in 1997 to respond to ongoing and proposed mitigation requirements and mandates from various regulatory agencies. At the start of the program, nine Port mitigation sites already existed, and monitoring requirements had been completed for one site (Portland International Center [PIC]). The Port's Mitigation Management Team currently manage over 900 acres of mitigation sites and natural areas (see Figure I and Sections II.B and II.C). The Port also shares a mitigation bank at the Jackson Bottom Wetland Preserve (JBWP) with the Oregon Department of Transportation (ODOT); however, this site is managed, maintained, and monitored by the City of Hillsboro (see Bobcat Marsh, Section II.C). By the end of 2021, Port sites under local, State and/or Federal regulatory obligations included Dahl Beach, Dawson Creek Vegetated Corridor, McBride Slough the Sandy Island Conservation site, Taxiway A Vegetated Corridor and West Sundial Wetlands. This Mitigation Management Program report provides updated information for the management of all Port sites conducted in 2021 and 2022. See Figure I-1 for site locations.

Mitigation and other natural resource enhancement projects are designed to provide several 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; and providing valuable 'greenspace' in highly urbanized areas. Mitigation planning, designing, monitoring, and reporting follow federal and state regulations, general authorizations, and guidelines.

The Mitigation Management Program is continually evolving and is influenced by the development of new or improved management techniques, increased coordination with other regional partners and conservation organizations, and changes in federal, state, and local regulations. In addition, as the Port's Environmental Management System (EMS) moves forward, Port policies and procedures that relate to mitigation management are being incorporated to ensure that mitigation activities are consistent with the Port's natural resources policy.

PROGRAM GOALS

The Mitigation Management Program seeks to:

- Achieve regulatory compliance.
- Attain and maintain a high quality of functional performance and increased habitat value on mitigation sites and Port-owned natural area properties.
- Through management actions, strive to achieve sites that are more sustainable.
- Document best management practices (BMPs).

- Promote programs and projects that better the Port's relationships with the community and regulatory agencies.
- Support staff training with respect to new methodologies, technologies, and BMPs.
- Improve communication with stakeholders within the Port and the community.

MANAGEMENT RESPONSIBILITY

The Port's Mitigation Management Program resides within the Environmental Operations Department's Natural Resources Program. From 2021 through 2022, the Port Natural Resources Team comprised the following:

Nick Atwell	Senior Manager, Natural Resources
Maureen Minister	Conservation Manager
Carrie Butler*	Senior Conservation Ecologist
Sarah Wilson*	Conservation Ecologist/Mitigation Site Specialist
Matt Paroulek	Natural Resource Ecologist, PWS
Mosaic Ecology, LLC	Landscape contractor for natural area maintenance

*Port staff with primary responsibility for the Mitigation Management Program

PORT ENVIRONMENTAL POLICIES

The Port has adopted a number of administrative policies that form the guiding principles for all its environmental activities. Of particular relevance to the Mitigation Management Program are the Port's Environmental Policy, Natural Resources Policy and Sustainability Policy.

<u>Environmental Policy - adopted February 9, 2000</u>

The Port of Portland will achieve its mission through responsible environmental stewardship and the implementation of proactive environmental programs. The Port will integrate environmental considerations into all aspects of its strategic planning and business decision-making. The Port will actively seek resolutions to environmental issues by endeavoring to achieve the following goals:

- *Compliance: Comply fully and promptly with all applicable environmental laws, regulations, and Port policies.*
- *Planning: Integrate environmental costs, risks, impacts, and public concerns into operating decisions and facility development planning processes.*
- *Natural Resources: Minimize impacts and seek opportunities to enhance natural resources while carrying out Port projects.*
- *Pollution Prevention: Minimize pollution and waste through source reduction, reuse, or recycling.*
- *Management Commitment: Communicate this policy and its requirements and deliver the training, tools, and resources required to implement this policy.*
- *Government Relations: Develop cooperative working relationships with agencies and promote development of sound environmental legislation and regulation.*
- *Community Relations: Provide community outreach and leadership on environmental issues and respond in a timely fashion to inquiries or expressions of concern regarding environmental issues related to Port and tenant activities.*
- *Performance: Improve the Port's environmental performance through regular monitoring and evaluations.*
- *Quality: Achieve superior environmental performance and work product.*

- *Continuous Improvement: Continuously improve the effectiveness of the Port's environmental program.*

Natural Resources Policy – adopted December 27, 2000 and revised February 26, 2014
The Port will identify its impacts and will first attempt to avoid, then seek ways to minimize impacts when they cannot be avoided. When impacts to natural resources occur, appropriate mitigation methods will be implemented to enhance, restore, maintain, or replicate ecosystem functions and values, and ensure regulatory compliance.

The Port will manage its lands for their intended purpose, recognizing that not all the dedicated land uses that the Port is engaged in are compatible with natural resources conservation. The Port will manage natural resources in a manner that:

- *Protects the integrity of the natural environment,*
- *Promotes natural ecosystems that favor native biodiversity, reduced ecological fragmentation, and ecological connectivity, and*
- *Protects and enhances natural resources of ecological significance.*

The Port will seek opportunities to enhance natural resources that occur within the inventory of Port owned and managed lands. The Port also acknowledges its broader role in support of regional conservation goals and initiatives to actively participate with federal, state, and local partners as appropriate within the context of the Port's mission.

The Port is committed to ongoing improvement of its Natural Resources Program through review, monitoring, and adaptive management, which uses science-based methods to provide information, evaluate programs and adjust future management actions accordingly.

Sustainability Policy – adopted January 12, 2010 and revised May 7, 2014
The Port's actions affect and influence the lives of future generations and the environment where we live and work. The Port operates sustainably when we make business decisions that support long-term economic health, integrate community concerns into our work, and reflect a deep and broad commitment to environmental stewardship for the benefit of future generations.

This means as we pursue our mandate from the Oregon Legislature to meet the trade and transportation needs of our customers and community, we respect the resources that make our work possible. As a public agency, we have a specific and enduring role in the community; we recognize that clean air, healthy waters, and productive landscapes help facilitate our mission to move goods and people efficiently.

The principles below provide guidance as we operate an efficient and economically viable port now and into the future. They acknowledge the ethic and culture we will promote to ensure that we thrive as a port and conduct our business, so that we contribute to the long-term economic, social and environmental health of the region in which we live and operate. The Port will:

- *Foster a culture that maximizes the efficiency of staff and resources, minimizes waste, and strives for continual improvement.*
- *Exhibit leadership in the community and industry through implementation of innovative, triple-bottom-line approaches based on sound science and informed decision-making.*
- *Encourage partnerships by engaging customers, the community, and key stakeholders to ensure input is integrated into short and long-term planning and implementation.*

REGULATORY REQUIREMENTS

If impacts to wetlands or other regulated natural resources are proposed, 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 impact to the regulated resources. Mitigation is usually in the form of restoration, establishment (creation), enhancement, or preservation of the habitats and functions lost through the proposed impact.

Permitting and compliance responsibilities for all mitigation sites are enforced by the following federal and state agencies: U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (EPA), Oregon Department of State Lands (DSL), and Oregon Department of Environmental Quality (DEQ), with associated federal, state, and local agencies providing input on permit conditions. Mitigation and enhancement may also be required by local jurisdictions such as through the City of Portland's (COP) land use process as a condition of project approval or Clean Water Services (CWS) environmental review in Washington County.

List of Concerned Agencies

Federal

- Environmental Protection Agency (EPA)
- Federal Aviation Administration (FAA)
- Federal Emergency Management Agency (FEMA)
- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- National Oceanic and Atmospheric Administration (NOAA)

State

- Oregon Department of State Lands (DSL)
- Oregon Department of Environmental Quality (DEQ)
- Oregon Department of Fish and Wildlife (ODFW)

Local

- City of Portland (COP)
- City of Troutdale
- City of Hillsboro
- City of Gresham
- Metropolitan Service District (Metro)
- Multnomah County Drainage District (MCDD)
- Sandy Drainage Improvement Company (SDIC)
- Departments of Washington County
- Clean Water Services (CWS), Washington County

KEY MANAGEMENT ISSUES AND ACTIONS

The Port's mitigation sites are selected and designed using professional expertise from both within the Port and from external sources, such as local conservation organizations and environmental consulting firms. Depending on the complexity of the mitigation plan, construction is carried out either by the Port or by experienced contractors under the direction of Port engineers and Mitigation Management Team. Once constructed, mitigation sites typically require a minimum of 5 years of maintenance, monitoring, and reporting to meet permit requirements. Once the permit requirements are satisfied, voluntary maintenance and site inspections continue, but they can be gradually reduced over time as the site becomes more self-sustaining. The Port uses adaptive management to meet the changing conditions of each site. Site maintenance and monitoring is completed by Port mitigation staff, experienced consultants, and

contractors. There is a strong commitment from the Mitigation Management Team and Port management to meet the program goals as previously listed. The following topics are fundamental to the successful management of the sites:

Reference Sites
Reference sites provide valuable information when developing design and success criteria for mitigation sites. Hydrology, soil characteristics, species composition, and planting density are all components of a mitigation site that determine how well the site is performing in relation to natural sites or previously established successful mitigation sites. Information from a reference site aids in the formulation of effective mitigation design parameters and serves as a benchmark to compare progress and setbacks. Most Port mitigation sites include a reference site or reference sites; these are used as needed for setting design criteria and monitoring site performance.

Achieving Wetland Hydrology
Wetland hydrology is the most important factor that determines the ultimate success of a wetland mitigation site. Achieving ideal wetland hydrology can be challenging on Port restoration sites where dredge or fill material has altered the site's original topography and where sites may have a direct connection to river hydrology without water control structures. The Port monitors groundwater levels before final design whenever possible and incorporates this information into the grading plan. Other factors considered in the design phase include current and historical rainfall patterns, historical river level data, soil type, and surrounding topographical features. Groundwater monitoring and surface water monitoring continues following excavation to provide evidence for regulatory compliance that wetland hydrology has been achieved and to identify conditions that may negatively affect mitigation efforts as early as possible.

Invasive Species Management
Control of invasive, non-native plant species presents a constant challenge. Current management techniques used by the Mitigation Management Team include mowing, selective removal by hand, seasonal flooding, herbicide applications at selected times of the year (depending on the plant's life cycle), and shading. Biological control, as administered by the Oregon Department of Agriculture (ODA), may be employed to control targeted invasive species. The need for weed control on each Port site is assessed during the growing season, and priority is given to removing species ranked A–C in the COP Nuisance Plants List section of the *Portland Plant List* (City of Portland, 2016). These are species known to be invasive, known to occur in our region, and can spread rapidly. Locations of invasive weeds are mapped for each site, and these areas are targeted for regular control. Herbicide use is conducted in line with the National Marine Fisheries Service (NMFS) approved program specified by the COP and is limited to those chemicals that have minimal impacts to the environment.

Weed management is labor intensive but is recognized as being necessary to ensure that habitat functions and values replaced through mitigation are not lost in the long term. The Port has compiled a *Vegetation Management Plan* (Port of Portland, 2020) that is designed as a field manual for management of weeds and invasive plants on Port mitigation and enhancement sites to ensure that appropriate weeds are targeted on each site with minimal environmental harm or wildlife impact. The *Vegetation Management Plan* is periodically updated (approximately every two years) and available on the Port's public website: https://www.portofportland.com/Environment/Mitigation.

Wildlife Foraging Management
The Port mitigation sites are designed to improve habitat value and their connectivity with surrounding habitat. As a result, the sites are susceptible to foraging by wildlife not necessarily resident on the site, such as rabbits, deer, nutria, and beaver. Techniques such as over-planting, planting species not favored

by beaver, and protecting selected plants are also employed where beaver or deer damage is known to be a problem. Fences and other plant protectors are removed when they are no longer needed.

Irrigation
During the plant establishment period (typically during the first 1–3 years), mitigation sites may require irrigation for promoting and sustaining plant growth during the dry season. Supplying water to plants during the establishment period can be difficult if a site is remote or has no access to a water source. Irrigation methods used by the Port include manual watering and temporary irrigation systems. Other methods Port staff employ for reducing the need for water include using mulch around new plantings to help retain soil moisture and minimize weed growth and using synthetic absorption gels, which absorb and store water that can be released over time. Soil amendments may also be incorporated to improve water-holding capacity. The goal is to ensure that sites become self-sustaining and not maintained by artificial hydrology.

Site Prep and Establishment
Plant establishment at mitigation sites can be hindered by animal foraging, human disturbances, dry weather periods, flooding, and/or weed invasion. One of the Port's mitigation objectives is to reduce the need for replanting. Plant species are selected based on habitat type, site hydrology and soil type to increase the likelihood of survival. Initial planting is typically dense and protective fencing is sometimes installed if there is a high potential for herbivory. Site prep is key, before planting a new site typically all non-native plants are treated over a two-year period with herbicide and seeded with a native species (preferably flowering forbs for pollinator habitat) the fall before planting.

Site Inspections and Monitoring
The objective of inspecting or monitoring site conditions is twofold: 1) to document on-the-ground conditions of each site for annual reporting requirements and 2) to provide a feedback loop to mitigation staff on the condition of the site to implement remedial actions and adaptive management measures. Site inspections take place approximately once per month during the regulatory period and quarterly, at a minimum, for sites that have been released from regulatory obligations. Notable observations and site activities (i.e. vandalism, fence repair, sign installation, enhancements) are documented in the field using the Veoci app and later recorded in a site activity database used primarily for annual reporting. Protocols have been established for monitoring vegetation, wildlife, and groundwater. Most wildlife and vegetation monitoring are performed by Port staff; however, consultants may be used when needed. Long-term monitoring continues for each site until an alternate, satisfactory, long-term management strategy is determined (possibly by turning over the management to conservation-oriented entities, such as a land trust).

Human Disturbance
The Portland metropolitan region is growing, and open spaces, such as mitigation sites, are increasingly trespassed for bird watching, dog walking, mushroom collecting, illegal dumping, fishing, hunting, and unauthorized camping. Although some activities do not significantly disturb mitigation areas, newly planted sites are more susceptible to minor disturbances than fully established sites. Many sites are fenced to limit disturbance, and all sites are posted as a mitigation site or natural area (Figure I-2). "No Trespass" and "Wildlife Habitat Area" signs are posted to discourage public access. Site inspections identify if there is a need for increased protection from human disturbance. For more about the Port's management of unauthorized camping and dumping, see Section II.

Staff Resources
To ensure that maintenance, monitoring, and recommended site actions are carried out effectively and efficiently, staff resources are continually evaluated. The staffing needs of the mitigation program must be balanced with the needs of other Port natural resources programs. As additional resource needs are

identified, actions are initiated to adjust the staffing needs and maintenance and monitoring priorities at each site. Currently, mitigation maintenance and other related activities are overseen by two full-time Port mitigation staff members, a part-time maintenance contractor, and contracted consultants as needed.

MITIGATION SITE PROFILES

Sections II.B and II.C of this document contains site-specific information on the Port's mitigation and enhancement sites. Each of these sections presents permits and agreements, background, mitigation plan information, permitting requirements and site performance (where applicable), stewardship activities, and a site map. These sections are updated every two years.

INFORMATION GATHERING AND DISSEMINATION

To ensure that the Port is using the best management techniques and methods, mitigation staff make every effort to review new literature, exchange information with other organizations, and participate in relevant trainings, seminars, and conferences.

The Port's Public Affairs Department publishes news releases periodically to inform the public of events taking place on the mitigation sites. In addition, Port mitigation management information and documentation is available online through the Port's website (www.portofportland.com/environment/mitigation). This site is updated periodically.

INTEGRATION WITH OTHER PORT PROGRAMS

The Mitigation Management Program is linked to three internal Port programs:

Environmental Management System

The Port's EMS was designed to conform to the International Environmental Management System standard ISO 14001. The Port certified to the ISO 14001:2004 in 2014 and recertified to 14001:2015 in 2017. While still following the guiding principles for ISO 14001 the Port no longer applies for the ISO 14001 certification, instead choosing to focus on known and upcoming potential risks and compliance issues for a more robust EMS program. As part of continuous improvements, the Port conducts environmental inspections collaborating with internal and external stakeholders to ensure compliance with requirements and conformance to our EMS. In 2018, an environmental audit of the Mitigation program found a robust, efficient program using effective adaptive management, that operates above and beyond regulatory requirements.

The Port's EMS is an integrated approach to managing environmental responsibilities and objectives to ensure continual improvement of environmental performance. The EMS was created to proactively identify, integrate consideration of, and systematically reduce the impact of the Port's activities on the Environment. The EMS establishes environmental management as an intrinsic part of the Port's overall business philosophy and management of operations. With a foundation in the Port Commission's Environmental Policy, the EMS provides a consistent approach for assessing, managing, and correcting environmental issues. As policies and procedures are developed or updated related to land management, they are incorporated into the Mitigation Management Program. Additionally, mitigation staff work to incorporate EMS work instructions for mitigation procedures into the Port's EMS. Compliance, policies, work instructions, training, and other environmental elements are tracked through the EMS "Plan, Do, Check, Act" cycle.

Natural Resources Coordination Group

The Natural Resources Coordination Group (NRCG) is a cross-discipline working group within the Port that meets regularly to address Port-wide natural resources issues including mitigation needs. The purpose of the NRCG is to ensure the development and maintenance of a consistent, ecosystem-based framework for all decisions involving natural resources at the Port.

Water Quality Program
The Port's mitigation and revegetation sites play a critical compliance role with respect to the Willamette Basin temperature Total Maximum Daily Load (TMDL). The Port TMDL implementation plan requires the continued management of these sites to prevent invasive plants from impacting maturation of native plantings. As sites mature, they will help increase the amount of shade and stormwater infiltration contributing to lower water temperatures in the lower Columbia Slough. This metric is tracked through documentation of the annual inspections, site maintenance and herbicide use on these sites. These activities constitute the core of the Port's TMDL temperature implementation strategy and are included in the Port's annual progress reports to DEQ.

INTERACTION WITH ENVIRONMENTAL AGENCIES AND COMMUNITY CONSERVATION PROGRAMS

One goal of the Mitigation Management Program is to increase interaction and cooperation with other local and regional conservation programs, as follows:

City of Portland Bureau of Environmental Services
The Port and the Bureau of Environmental Services (BES) have collaborated on several projects along the Columbia Slough, including revegetation of several Port-owned properties (see Section II.C) and a tree caging project called the "Better Beaver Behavior" project. The Port partnered with the City and others to improve salmon habitat at the Columbia Slough confluence. The Columbia Slough confluence project was completed in 2010 and consisted of several elements, including placement and anchoring of large woody material, revegetation, and the installation of bird and bat boxes that are monitored by community volunteers. Port Natural Resource staff also work with BES staff on the Airport Futures natural resource projects – see below.

Federal and State Conservation Agencies
The Port works closely with the ODFW, USFWS, and EPA in monitoring mitigation site habitat use by wildlife and in improving habitat for wildlife (particularly those species that are listed as state sensitive). Agency staff may accompany Port staff on monitoring surveys when possible.

Smith and Bybee Advisory Committee
The Port owns a portion of the Smith and Bybee Wetlands Natural Area (SBWNA) and has a seat on the Smith and Bybee Wetlands Advisory Committee (Committee). Information sharing and joint participation in the conservation/enhancement of properties of mutual interest is on-going. In 2021/2022 Port mitigation staff completed a restoration of a buffer area between the Port's Leadbetter site and Bybee Lake. The 1.5-acre site was treated with herbicide for the invasive reed canarygrass and planted with native plants.

The Smith and Bybee Comprehensive Natural Resource Plan (CNRP) will sunset in June 2023. Metro staff and the Committee are collaborating on an interim Master Plan to guide management decisions about the natural area until a new plan with more public engagement can be completed.

Columbia Slough Watershed Council
The Port is a member of the Columbia Slough Watershed Council (CSWC) and takes part in and supports activities promoted by the CSWC. The Port works with CSWC to identify areas within the Columbia Slough Watershed that could benefit from enhancements. Port mitigation staff also participate on the CSWC technical team.

Oregon Native Turtle Working Group – Lower Willamette Chapter
The Oregon Native Turtle Working Group (Working Group) was formed to share expertise among various organizations and agencies involved in turtle conservation and to promote appreciation and

conservation of turtles by all Oregonians. Port mitigation staff attend quarterly meetings and participate in activities that promote conservation efforts of Oregon's native turtle species. The Port worked with ODFW to design and produce a turtle BMP booklet developed by the Working Group to support the Oregon Conservation Strategy. Oregon turtle sightings can be reported online at https://www.oregonturtles.org/.

Partners in Amphibian and Reptile Conservation
Partners in Amphibian and Reptile Conservation (NW PARC) is an inclusive partnership dedicated to the conservation of herpetofauna (reptiles and amphibians) and their habitat. The NW PARC region includes eight northwestern U.S. states and three Canadian provinces and territories. Port mitigation staff attend local meetings, conferences, and training opportunities when possible.

Airport Futures
In 2011, the Port and COP signed an Intergovernmental Agreement (IGA) for natural resources related to the Airport Futures Project. The IGA is effective for 25 years and requires the Port to implement four natural resource obligations. The Port reports annually to PDX Community Advisory Committee (CAC) on the progress and status of these obligations. The IGA includes requirement for the Port to conduct grassland enhancement on Government Island (see Section II.C) as compensation for impacts to four properties at PDX.

The IGA also requires the Port to make annual monetary contributions for 25 years to enhance the urban tree canopy ($20,000 per year) and to enhance the Columbia Slough watershed ($30,000 per year). The Port and COP agreed to work cooperatively in the selection of projects for funding and will solicit advice from the PDX CAC and a natural resources sub-committee. In 2021 and 2022 the Airport Futures IGA funded multiple projects involving restoration and outreach in the Wilkes Creek natural area, dubbed Greening Wilkes. The projects were accomplished by a collaborative of organizations including the CSWC, Friends of Trees, Audubon and Verde. Continuation of this project in 2023 was approved for funding. Port Natural Resource staff facilitate and participate in a CAC sub-committee that oversees project selection for Slough enhancements and urban tree canopy.

In addition, the IGA requires the Port to convert a 6.2-acre site referred to as the "Portland International Center (PIC) Wetland " from a weedy mix of grasses and forbs to native shrub cover. The site was originally planted in February 2014, and plantings included 14 different species of native shrubs. See section II.C for an update on this site.

The Xerces Society for Invertebrate Conservation
The Port has collaborated with the Xerces Society for Invertebrate Conservation (Xerces) on multiple projects over the years, including assessing wetland invertebrates and establishing pollinator habitat. The Port also engaged Xerces to assist with grassland mitigation efforts on Government Island. Xerces scientists monitored the site for pollinator use and assisted with native seed acquisition in conjunction with other ecological guidance. Xerces processed the data and provided the Port with a pre- and post-establishment assessment of pollinator use in the project area.

4-County Cooperative Weed Management Association (CWMA)
The 4-County CWMA includes Clackamas, Clark, Multnomah, and Washington County CWMA and was established to create and support collaborative weed management among land managers and owners in and around the greater metropolitan area of Portland Oregon. Noxious weeds extend across multiple ownerships and travel over the landscape. For this reason, collaboration and partnerships are essential for effective management. In addition, partnerships can provide access to new sources of funding and increase implementation efficiency. The CWMA promotes weed education/outreach, weed inventory and

prevention, technical resources, and weed control activities. Port Natural Resources staff regularly attend CWMA meetings and share information internally.

Other Programs
Other opportunities for coordination and partnership are regularly explored. The Port is open to collaborating with agencies, non-profits, schools and others on research, outreach, education, enhancement, and restoration opportunities.

LONG-TERM MANAGEMENT

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 "strive to achieve sites that are more sustainable," the Port will continue to maintain and monitor the mitigation sites as part of ongoing property management even after there is no regulatory requirement to do so. Long-term maintenance will help to ensure habitat integrity continues to improve and that the sites sustain their enhanced condition with minimal intervention. However, as the number and overall acreage of Port mitigation sites continue to grow, Port resources for their management remain nearly constant. It is becoming necessary to look to conservation groups, land trusts, and local agencies to continue managing these sites.

To further demonstrate the Port's commitment to long-term management and conservation, Long-Term Management Plans (LTMP's) are being developed for most sites, especially those with a high potential for transferal to a land trust or some other entity. The Port has completed LTMP's for Randall, Vanport Wetlands, Rivergate Enhancement and the TRIP Phase I mitigation sites. The Port also completed a Management Plan for Government Island.

Long-term Protection Instrument
An integral part of ensuring the success of a mitigation site after permitting and construction is the provision for ensuring long-term site protection. Regulatory agencies are becoming more concerned with preserving and maintaining the long-term functions and values of mitigation projects. One important means of accomplishing this is through the establishment of conservation easements or deed restrictions on mitigation sites. The Port works with the agencies to identify and implement the most appropriate means for long-term site protection. Some Port sites may not have a protection instrument but are otherwise bound by the language of the permit to be managed in perpetuity as a habitat area. If applicable, conservation instruments are noted in Sections II.B and II.C for each site.

PROGRAM COSTS AND FUNDING

The Port's mitigation projects represent an investment of over $24 million since 1997. This investment requires a long-term maintenance and management commitment on the part of the Port. Following the initial capital investment during construction and design, ongoing management for each site is funded by the Port operating area responsible for initiating the project. Projected annual operating costs for the fiscal year 2023 are shown at the end of this section.

The cost of site monitoring is generally consistent over the life of the project following a prescribed regimen of data collection and regular monthly inspections and maintenance actions. However, site circumstances may necessitate interim cost increases, such as specialized testing or additional data collection, new equipment, replacement planting, etc. Over a 5 to 7-year period, maintenance tasks on a site will vary each year, with costs generally decreasing over the life of the project. However, interim costs may increase if a site is not meeting permit requirements or other expectations for plant survival or if a site is impacted by natural events (e.g., herbivory, weather, hydrology).

The following table provides the projected site maintenance costs for the coming fiscal year. When reviewing Table 1, it is also important to consider economies of scale and to recognize that each site is unique, each with unique challenges that may increase costs. An example of this could be a small site with extremely challenging soils that requires intense hand watering to get plants established versus a large site that requires no watering. Some sites are weedier than others requiring additional herbicide application, other weed control efforts and inter-planting. A site with prolonged inundation may require frequent interplanting and reseeding to meet regulatory success criteria. For all these reasons it's difficult to provide a flat cost per acre for mitigation sites and enhancement projects however, it can be possible to develop a site-specific maintenance cost per acre.

TABLE 1: MITIGATION PROGRAM OPERATING BUDGET, YEAR 2022-2023

MITIGATION OR ENHANCEMENT PROJECT NAME	ACRES	TOTAL PROJECTED FISCAL YEAR 2022/2023
PROJECTS UNDER COMPLIANCE THROUGH 2022		
DAWSON CREEK VEGETATED CORRIDOR	4.16	11,000
McBRIDE SLOUGH	3.00	5,500
SANDY ISLAND CONSERVATION SITE	32.00	20,000
TAXIWAY A VEGETATED CORRIDOR	0.53	20,500
WEST SUNDIAL WETLANDS (TRIP PHASE II/III)	84.00	173,546
PROJECTS RELEASED OF REGULATORY OBLIGATION		
BOBCAT MARSH MITIGATION BANK	15.66	N/A
BUFFALO STREET	15.60	5,500
COLUMBIA SLOUGH REVEGETATION	73.50	8,000
DAHL BEACH	0.50	N/A
ELROD ROAD	10.00	4,000
GOVERNMENT ISLAND GRASSLAND I	58.00	60,000
HIO TREE RESTORATION SITE	0.93	7,500
JEWETT LAKE	426.20	10,000
PDX ECONOMY LOT E-ZONE CONVERSION PROJECT	9.00	7,000
PIC E-ZONE	3.80	4,000
PIC WETLAND ENHANCEMENT	6.20	9,500
RAMSEY LAKES	16.00	14,000
RANDALL	22.30	6,000
RIVERGATE ENHANCEMENT SITES	43.70	15,000
T-5 POWERLINE	10.70	4,000
TRIP PHASE I, COMPANY & EAST LAKE & TREE SITES	11.42	9,000
VANPORT WETLANDS	90.44	71,828
WEST HAYDEN ISLAND MITIGATION	3.40	2,000
WEST WYE	2.40	N/A
TOTALS:	**943**	**$467,874**

Fig. I-1 Mitigation and Enhancement Site Overview

SECTION II. PROGRAM STATUS REPORT

Mitigation staff participate in activities associated with Port mitigation sites and natural areas which are in addition to permit requirements. Below is a summary of completed or ongoing projects and relevant studies that were incorporated into the work accomplished by the end of 2022.

MARX SITE OAK PLANTING

The Marx site is a Port property south of PDX adjacent to NE 82nd Avenue and north of Columbia Blvd. The property was identified as having very little development potential due to its location and size. However, because this property is adjacent to a major slough channel and habitat corridor, as well as being highly visible to the public, Port Natural Resource staff determined that an oak woodland planting would be an ideal habitat conversion. In addition, this project also supports our continued leadership in implementing our tree programmatic permit and the Port's commitment to enhancing the urban canopy. Site prep began in the summer and fall of 2018 and included mowing and herbicide application to control invasive vegetation. In the spring of 2019, a tree planting event was coordinated with team members from Port Environmental Operations and 39 native Oregon white oaks of varying age classes were planted throughout the site. Once planted, the bases of the trees were mulched, and the area was watered every other week throughout the summer of 2019, 2020 and 2021. In 2020, the Port partnered with Northwest Youth Corps (NWYC) to remove encroaching vegetation around the plantings. In 2021 and 2022, the site was mowed to ensure good establishment and survival.

NATIVE TURTLE NESTS AND AMPHIBIAN EGG MASS SURVEYS

Port mitigation staff periodically monitor sites for turtle species, numbers, and disturbed nests. Disturbed nests are mapped to provide information about nesting site preference and predator damage. This monitoring helps determine whether sites may be enhanced to provide better overall habitat for native turtles, which are negatively impacted by many human activities. The Port also monitors for amphibian egg masses at mitigation sites that support pond-breeding amphibians. This information helps inform future maintenance needs and helps staff understand the health of populations over time.

HYDROLOGY, VEGETATION, AND WILDLIFE OBSERVATIONS

Port mitigation staff monitor hydrology, vegetation, and/or wildlife as needed on mitigation sites. In addition, specific wildlife surveys may be conducted for pollinators, bats, amphibians, migratory songbirds, and nesting waterfowl. These data help to guide site management decisions and may provide input to natural resource management planning efforts at the city or regional level.

STEWARDSHIP OF RELEASED MITIGATION SITES

As of 2022, sites where regulatory compliance was met include Bobcat Marsh, Buffalo Street, Dahl Beach, Elrod Road, Government Island Grassland Phase I, Jewett Lake, PIC E-zone, Ramsey Lakes, Randall, Rivergate Enhancement, T-5 Powerline, TRIP Phase I (Company & East Lakes), riverbank projects (Toyota, Berths 408, 503, and 607 outfall repair, Honda Dock, and Pier 2), Vanport Wetlands, West Hayden Island, and West Wye. Port mitigation staff continue to maintain and improve these sites post-compliance through weed control, maintenance, and habitat enhancement.

MANAGEMENT OF UNAUTHORIZED CAMPING AND DUMPING

The frequency of unauthorized camping and illegal dumping in natural areas is on the rise in Portland. The Port tracks these instances electronically as they are discovered, and quarterly reports are submitted to management for review. A Port property manager coordinates debris removal through an outside contractor. In 2019 the Port entered into an agreement with Metro's Regional Illegal Dumping (RID) Patrol for additional support of this important issue. The agreement was suspended in 2020 due to the COVID-19 pandemic and resumed in late 2021. Pressures on open space remain high resulting in the

need for increased levels of camp cleanups and site restoration which impact the property management and mitigation budgets.

WILDLIFE PROTECTION

The Port's Natural Resources department has developed procedures that outline strategies for avoiding impacts to state and federally listed wildlife species as well as guidance for avoiding other native species during Port and tenant construction projects. The primary goals of the Port's wildlife avoidance procedure are: 1) If appropriate, conduct pre-construction wildlife surveys to determine potential wildlife impacts that may occur during a project. 2) Determine if any wildlife-related permits are required such as a Capture Handle Transport and Relocate (CHTR) permit through ODFW; 3) Incorporate wildlife avoidance strategies in the planning process of construction projects; and 4) Avoid impacts to listed species during construction activity and to the best of our ability, and within reason, avoid impacts to other native wildlife during construction activity.

SECTION II.A. POTENTIAL FUTURE PROJECTS

Future mitigation may be required as development projects result in unavoidable impacts to wetlands and other identified natural resources. The extent of the impacts and the type of compensatory mitigation will be determined on a project-by-project basis.

FORCE AVENUE

An exchange of property between Metro and the Port resulted in the Port taking ownership of a 6-acre parcel of wetlands and uplands adjacent to the Vanport Wetlands in 2003. A habitat characterization study and conceptual restoration plan for this property were prepared. The site may serve the Port as tree mitigation in the future.

GOVERNMENT ISLAND GRASSLAND II

Although there is currently no requirement to do so, Port Conservation staff began limited site prep for the Phase II grassland mitigation project in fall of 2014. Blackberry and fence removal on the parcel were conducted by NWYC on multiple occasions. Port contractors mow a 30-foot buffer between Phase I and Phase II as needed to manage invasive species.

OTHER MITIGATION OPPORTUNITIES

Other mitigation opportunities will be explored by the Port to meet Marine, Aviation, and Property and Development Services needs and to improve ecological functions in watersheds or drainage basins in which the Port is, or will be, operating. For example, the Port may partner with other agencies to produce larger mitigation sites on Port-owned or non-Port-owned properties, such as doing projects already identified by the Columbia Slough Watershed Council as part of their Action Plan, and to use mitigation banks as they become available in the region.

SECTION II.B. PROJECTS UNDER COMPLIANCE THROUGH 2022

DAWSON CREEK VEGETATED CORRIDOR

Mitigation location: northeast intersection of NE Airport Road and NE Brookwood Parkway in Hillsboro, Washington County, Oregon (Tax Lot 1552 of Tax Map 1N 2 28)
Location of impact: Hillsboro Airport, runway rehabilitation

Permits and Agreements

- CWS Service Provider Letter No. 18-000286, November 5, 2018

Background

To address the unique challenges and requirements of the airfield at Hillsboro Airport (HIO), the Port opted to approach Vegetative Corridor (VECO) enhancement requirements off-airfield at a nearby Port-owned property in the Dawson Creek drainage. Clean Water Services (CWS) has existing enhancement projects upstream, so the Port's efforts will expand the VECO enhancement on Port property. This project will reduce cover of invasive species and increase native shrub, tree, and groundcover in an important riparian corridor.

The extent of replacement vegetated corridor enhancement area will not exceed 200 feet from the edge of the wetland boundary. Most of the replacement enhancement area consisted of a grass area, lacking native trees and shrubs, and was documented to be in degraded condition. Other portions of the replacement areas were determined to be in marginal condition. The marginal condition planting areas generally contained at least 50% tree canopy (which already meets good condition standards), however, the understory lacked structure and native diversity.

Mitigation Plan

A total of 4.16 acres of vegetated corridor enhancement is required on the Dawson Creek site. A total of 1.51 acres of existing marginal and degraded condition vegetated corridor was documented on the site and will be enhanced to good condition. CWS District staff agreed to allow 1:1 enhancement credit for enhancement within the first 50 feet of existing vegetated corridor. To accommodate the remaining vegetated corridor enhancement requirements, a total of 2.65 acres of replacement vegetated corridor (located adjacent to the existing 50-foot-wide vegetated corridor) will be enhanced to good condition.

The recommended enhancement plant palate was designed to create oak woodland (a declining habitat in the Hillsboro area). Since the marginal condition planting areas already contain an average of 50% tree canopy cover, only 10% of the trees typically required per CWS plant density requirements are recommended. In addition, only 80% of the required shrub densities are proposed, as native shrubs exist in the marginal condition planting area.

The degraded planting area is in close proximity to the end of the Hillsboro Airport primary runway, near Brookwood Parkway. Therefore, fruiting plant species cannot be used, as they are attractive to avian wildlife species (particularly starlings) that pose a risk to safe aircraft operations. Therefore, only non-fruiting woody vegetation species will be used, and an open area used by geese will be converted to a wooded area. Fruiting woody species can be installed within the marginal condition planting areas as these areas already contain an existing tree canopy and is not expected to draw in significant numbers of birds due to the lack of direct exposure.

Mitigation Success Criteria

CWS requires a two-year maintenance period for vegetated corridor plantings. The enhanced Vegetated Corridor is to be inspected annually and a minimum of two times during the growing season, by June 1 and September 30. The degraded and marginal condition sites shall be restored to Good Corridor Condition as defined by CWS: a combination of native trees, shrubs, and groundcover covering greater than 80% of the community and greater than 50% tree canopy exists (areal measure).

CWS success criterion for vegetated corridor enhancement is 80% survival of tree and shrub plantings during the two years following planting. If any mortality is noted on the site, the factor likely to have caused mortality of the plantings is to be determined and corrected if possible. If survival falls below 80% at any time during the two-year maintenance period, the plantings shall be replaced and other corrective measures, such as mulching or irrigation, may need to be implemented. If replanting is necessary, the maintenance period will be extended for two years from the date of replanting.

2022 Site Performance

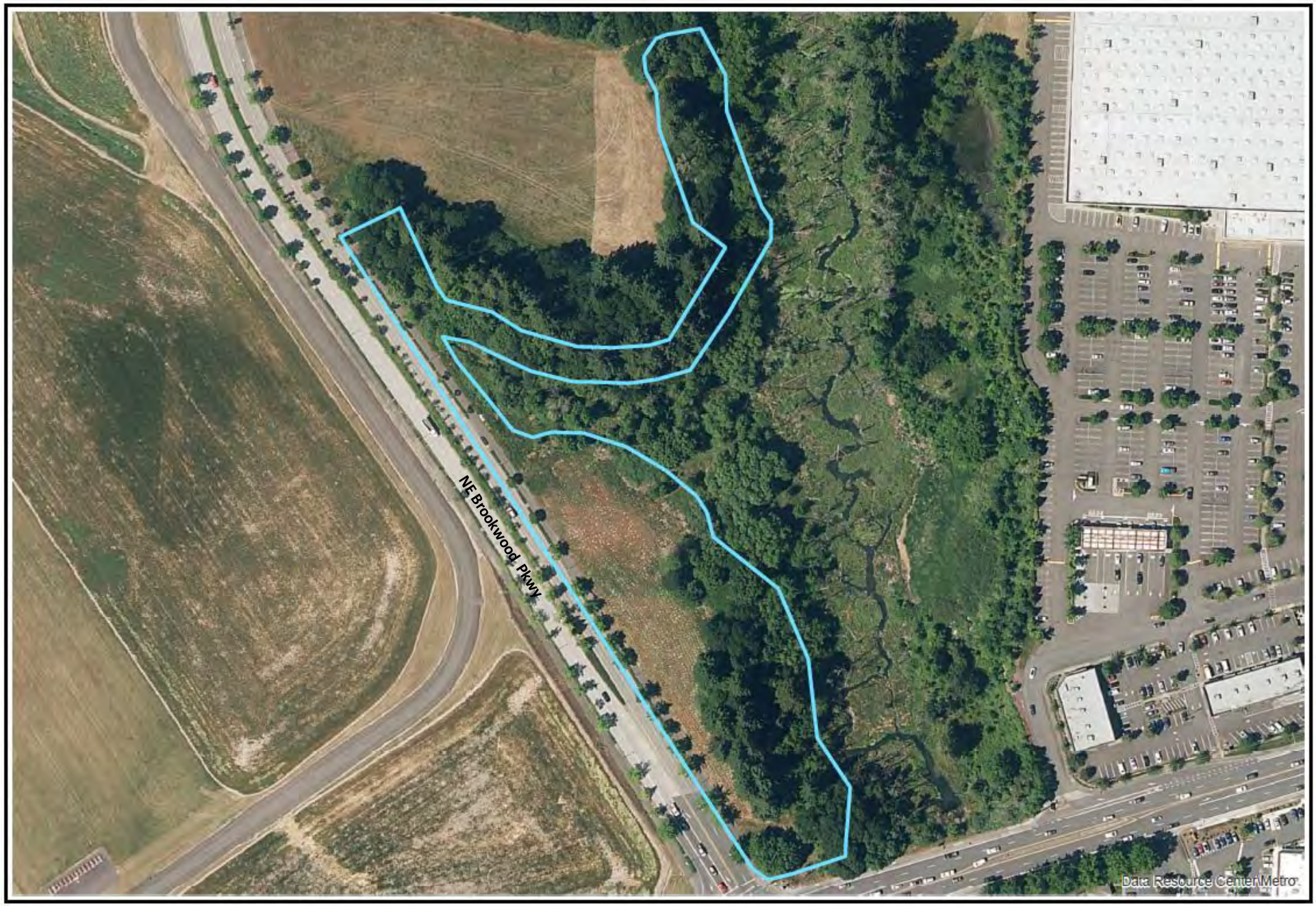
In 2021 percent survival in the Marginal to Good Condition area exceeded 100% as did the Degraded to Good Condition forested planted area. By 2022, the open planted area of the Degraded to Good Condition area met the percent survival criteria with 80.6% for a total percent survival in the Degraded to Good Condition area of 87.4%.

2021-2022 Site Activity Update

2021	
JAN	Spot treat invasive species
MAR	Interplanted 400 oceanspray and 50 Oregon white oak; mulched plantings
MAY	Spot treat invasive species
JUL-AUG	Spot treat invasive species, watered plants
OCT	Spot treat invasive species; monitored site for plant survival
2022	
FEB-MAR	Interplanted 1,975 native trees and shrubs
JUN	Spot treat invasive species
JUL	Mulched and watered plantings
AUG	Watered plants, spot treat invasive species, monitored open field for plant survival
SEP	Ordered 700 native plants for the open field area, watered plants

Action Plan for Dawson Creek

2023	
MAR	Interplant with 700 native trees and shrubs in the open field area
MAY	Spot treat invasive species throughout the site
JUL-AUG	Water plants, spot treat invasive species, monitor open field for plant survival
SEPT	Spot treat invasive species throughout the site.
2024	
MAR	Interplant as needed
MAY	Spot treat invasive species throughout site
AUG	Monitor open field for plant survival (if needed)



Site Boundary

N

0 Feet 440

II.B-1 Dawson Creek

MCBRIDE SLOUGH

Mitigation location: McBride Slough near the 8000 block of NE Alderwood Road
Location of impact: McBride Slough near the 8000 block of NE Alderwood Road

Permits and Agreements

- COP LU15-277509 EN (Colwood Pipe Project)
- DSL Removal/Fill – 58604-RF – monitoring requirement for 2019 (Colwood Pipe)
- DSL Permit Waiver – 60534-PW (McBride Slough Cleanup)
- USACOE NWP 38: NWP-2016-159 (McBride Slough Cleanup)
- COP Zoning Permit 17-275682 ZP (McBride Slough Cleanup)
- DEQ 401 WQ Cert 2016-00159 (McBride Slough Cleanup)
- DEQ Consent Order No. LQSR-NWR-12-06, July 3, 2012 (McBride Slough Cleanup)
- DSL Permit Wavier – 60534-PW (McBride Slough Cleanup)
- USACE-NWP-2003-688-3 MCDD Dredging Permit (McBride Slough Cleanup)

Background

The McBride Slough site incorporates multiple projects, mitigation obligations, and voluntary enhancement efforts. The entire site is approximately 3.3 acres and includes an established cottonwood dominated forest, open water channel and steep degraded banks. In 2016 the Port installed a larger pipe to replace a 100-year-old pipe that connected McBride Slough with the main stem of the Columbia Slough. As part of this project, a portion of the riparian area was cleared to provide access for construction of the new pipe. Approximately 0.33 acres of COP environmental zones was impacted as part of this project. Mitigation for this impact to the environmental zones consisted of restoration of the disturbance profile and additional enhancement of 0.33 acres in the wooded area to the west.

The McBride Slough cleanup project began shortly after the completion of the Colwood pipe project. Testing of the sediments during an emergency dredging project by MCDD found that the accumulated sediment in McBride Slough contained contamination from historical operations at PDX. The purpose of the project was to maintain adequate stormwater conveyance and storage capacity within the slough and reduce ecological risk by remediating contaminated sediment in McBride Slough. As part of this project the Port agreed to mitigate for environmental zone impacts and improve the overall ecological functions of McBride Slough.

Mitigation Plans

The Colwood pipe project impacted 0.33 acres of COP conservation and protection environmental zones. Mitigation for this impact was to plant 86 native trees and 111 native shrubs in the disturbance profiles and to enhance the adjacent woodland by removing non-native invasive species and planting 600 native understory shrubs. In March of 2017, there were worries that vegetative coverage, particularly ground cover, was not enough to address erosion concerns. The site was reseeded in late March with a hardy seed mix of native forbs and quick establishing grasses. A large portion of the plants on both sides of the project site died due to drought stress over the summer of 2017 and in November 2017, 90 additional native shrubs and trees were planted on the north side to replace the loss. High mortality and less than vigorous growth resulted in a total of approximately 75 to 100 live stems currently established on the north side and only 2 trees and 5 shrubs remaining on the south side. In the Winter of 2018, 44 native trees and shrubs were planted on the south side mitigation and 120 were installed on the north side. In 2020, additional bare root shrubs and trees, as well as 16 large caliper (2”) native trees were planted in the project area. Because of high mortality due to dry conditions, the area was watered bi-monthly to improve establishment.

The McBride slough project also impacted 2,224 square feet of COP environmental zones above ordinary high water (OHW). For areas of direct, temporary impact within the environmental zones above OHW, the Port proposed to fully revegetate areas on the banks within the project area with native shrubs and trees at an average density of 1 tree and 2 shrubs per 50 square feet. Willow and dogwood stakes were installed at and below OHW and all areas were seeded to establish full groundcover. As part of this project the Port also mitigated for environmental zone impacts ultimately improving the overall ecological functions of McBride Slough. The mitigation work is focused on enhancing functions that are compatible with airport operations wildlife hazard management and MCDD flood water protection mandates. This was accomplished by removing invasive species and enhancing the most degraded banks with sufficient native cover. In addition, function was improved by removal of non-native vegetation along the entirety of the NE bank and selective removal of non-native invasive vegetation (mostly blackberry) on the SW bank followed by native shrub, tree, stakes, and groundcover seeding.

In addition to the above required activities, the Port also restored the remaining 0.75 acres to the west, previously planted by COP Revegetation Program, by controlling and/or removing invasive species and interplanting with native understory shrubs and trees where appropriate.

Mitigation Success Criteria

Colwood Pipe Project

The COP states that the Port will be responsible for monitoring and maintenance of this area. The Port will also be responsible for maintenance and monitoring of the replanted area bordering the Columbia Slough. The Port will work with the COP, Parks and Recreation Department, and BES to modify easements as part of the final permitting process to the satisfaction of all parties involved.

DSL has required performance standards to be met and reported on one year after initial planting:

- Bare Substrate Cover: Bare substrate represents no more than 20% cover.
- Woody Vegetation: The density of woody vegetation is at least 1,600 live native plants (shrubs) and/or stems (trees) per acre OR the cover of native woody vegetation on the site is at least 50%. Native species volunteering on the site may be included, dead plants do not count, and the standard must be achieved for 2 years without irrigation.
- Reporting is due on 12/31 of each year until met for one year/growing season.

2022 Site Performance

The additional plantings installed in 2020 have established and native recruitment has increased the overall stem count. Native vegetation coverage exceeded 50% in 2021.

2021-2022 Site Activity Update

2021	
MAY	Spot treated invasive species
DEC	Seeded with native pollinator mix
2022	
FEB	Interplanted with 1,300 native shrubs
JUN	Spot treated invasive species

Action Plan for McBride Slough

2023	
MAR	Interplant as needed
MAY	Spot treat invasive species
SEP	Spot treat invasive species

2024	
MAR	Interplant as needed
MAY	Spot treat invasive species
SEP	Spot treat invasive species

Site Boundary

N

0 Feet 400

II.B-2 McBride Slough

SANDY ISLAND CONSERVATION AREA

Mitigation location: Sandy Island, Columbia River (near Kalama, WA)
Location of impact: PDX, Rivergate

Permits

- USFWS Incidental Take Permit (ITP) Number TE38529C-0
- DSL (Conservation) Easement No. 58544 EA, 30-year term

Background

The U.S. Fish and Wildlife Service (USFWS) listed the streaked horned lark (*Eremophila alpestris strigata*; SHLA) as threatened under the Endangered Species Act (ESA) in October 2013. The Port owns and manages lands occupied by nesting and wintering SHLA, including undeveloped lands within Rivergate and PDX.

The Port prepared a Habitat Conservation Plan (HCP) and an Environmental Assessment (EA) in support of an Incidental Take Permit (ITP) under Section 10(a)(1)(B) of the ESA to address incidental take of SHLA related to commercial and industrial land development within the Project Areas, as well as aviation wildlife hazard management activities at PDX. In accordance with the ITP, take is authorized for up to 12 nesting pairs of the SHLA at the Rivergate Development project area, and 30 nesting pairs of the SHLA within the PDX Intermediate Zone from covered activities over the 30-year term of the permit (June 2017 through June 2047). As part of the terms of the ITP, the Port created the Sandy Island Conservation Area to mitigate for the anticipated take of SHLA from the implementation of covered activities at the Project Areas permitted under the take request.

It should be noted that current suitable habitat within the Project Areas are maintained inadvertently by site management activities implemented by the Port in preparation for development or as a component of the PDX WHMP. The Sandy Island Conservation Area did not receive routine vegetation management prior to the HCP and project implementation. Without habitat management activities described in the HCP, habitat for SHLA at these sites would transition out of suitability for this species in the near term. Implementation of habitat management activities proposed in the Port's HCP supports essential physical and biological features of SHLA habitat and therefore provides a clear benefit to the species.

Mitigation Plan

The primary goal of the Conservation Area is to mitigate the impacts of the taking by protecting and managing approximately 32 acres of SHLA designated critical habitat for a term of 30 years.

Under the ITP, the Port has entered a 30-year term conservation easement with DSL establishing the Sandy Island Conservation Area. The conservation easement provides for the protection, management, and monitoring of approximately 32 acres of currently suitable and restorable SHLA habitat at the Conservation Area.

Initial site preparation activities to manage and create suitable habitat for nesting SHLAs at the Sandy Island Conservation Site were conducted in March 2017. Activities included a pre-construction nesting bird survey (no nesting birds were observed), 0.75 acres of tree removal, Scotch broom removal, recontouring, and sign installation (see graphic provided below).

To maintain suitable habitat at the Sandy Island Conservation area, the Port discs or scrapes approximately 50% of the site (approximately 16 acres) every 3-5 years to support a mosaic of vegetation in various stages of early succession. Alternate methods for managing vegetation that the Port may explore as part of the adaptive management program, may include disturbing vegetation by using all-terrain vehicles to drag rakes or other attachments across the ground surface. This schedule of partial

coverage ensures that a portion of the proposed Sandy Island Conservation Area remains in a state that is suitable for use by the subspecies each year. The Port will only implement this management activity outside of the SHLA nesting season, between September 1 and March 14.

Monitoring of Sandy Island includes SHLA abundance and presence/absence surveys in addition to vegetation cover monitoring. Three abundance surveys for SHLA are conducted between early May and late June. A presence/absence survey is completed during the winter months anytime from December through February when conditions permit. Vegetation cover point intercept surveys are conducted once annually between late May and early June to collect data on the amount of vegetation, moss, and bare ground.

2022 Site Performance
No SHLA individuals or their nests were identified at Sandy Island in Year 6. It is expected that removal of a thick layer of moss in November 2022 will provide suitable habitat for nesting SHLA in future years.

2021-2022 Site Activity Update

2021	
JAN	Winter avian survey
MAY	Breeding season avian survey
JUN	Breeding season avian survey x2; vegetation survey
SEP	Coordination with USFWS regarding moss
OCT	Coordination with the Science Advisory Team regarding moss; hand pulled invasive species, removed trash
DEC	Submitted Year 5 report to USFWS
2022	
FEB	Winter avian survey
MAY	Breeding season avian survey x2
JUN	Breeding season avian survey x3; vegetation survey
AUG	Received approval from USFWS for moss removal
NOV	Moss removal (scraping); site inspection
DEC	Submitted Year 6 memo report to USFWS

Action Plan for Sandy Island

2023	
JAN	Winter avian survey
FEB	Seed scraped area with low-growing native mix
MAY	Breeding season avian survey
JUN	Breeding season avian survey x2; vegetation survey
OCT	Site inspection, weed management, trash removal
DEC	Submit Year 7 memo report to USFWS
2024	
JAN	Winter avian survey
MAY	Breeding season avian survey
JUN	Breeding season avian survey x2; vegetation survey
OCT	Site inspection, weed management, trash removal
DEC	Submit Year 8 memo report to USFWS

PORT OF PORTLAND

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II. B-3 Sandy Island Habitat Conservation Area

TAXIWAY A VEGETATED CORRIDOR ENHANCEMENT

Mitigation location: northeast intersection of NE Airport Road and NE Brookwood Parkway in Hillsboro, Washington County, Oregon (Tax Lot 1552 of Tax Map 1N 2 28)
Location of impact: Hillsboro Airport, Taxiway A Rehabilitation

Permits and Agreements

- CWS Service Provider Letter No. 20-002983, December 8, 2020

Background

The Port conducted 0.53 acres of vegetated corridor enhancement adjacent to Dawson Creek (see Figure 1) for the Hillsboro Airport Taxiway A Rehabilitation project (SPL #20- 002983). A two-year maintenance and monitoring period is required after initial planting to ensure the site continued to meet Clean Water Services (CWS) requirements. The following is a summary of the maintenance and monitoring that occurred, along with monitoring results and photo point pictures.

Mitigation Plan

The Vegetated Corridor enhancement project area is located within an open grass field adjacent to an oak/fir forest community. The area qualified as *degraded* condition according to CWS standards due to lack of any native trees or shrubs. The planting plan included Oregon white oak, vine maple, ocean spray and bald hip rose at stem densities for enhancement from *degraded* to *good* condition. In addition, non-native pasture grasses and invasive species were treated with herbicide prior to planting and the site was seeded with the native grasses California brome and blue wildrye. The enhancement plant palate was designed to create oak woodland (a declining habitat in the Hillsboro area).

The enhancement site is near the end of the Hillsboro Airport primary runway, near Brookwood Parkway. Therefore, fruiting plant species could not be planted, as they are attractive to avian wildlife species (particularly starlings) that pose a risk to safe aircraft operations. Therefore, only non-fruiting woody vegetation species were planted in the *degraded* condition planting area. Planting non-fruiting woody species will provide a long-term benefit to aviation wildlife management, as the existing open area, that could be used by geese for loafing and feeding, will be converted to a wooded area.

Mitigation Success Criteria

CWS requires a two-year maintenance period for vegetated corridor plantings. The enhanced Vegetated Corridor is to be inspected annually and a minimum of two times during the growing season, by June 1 and September 30. The degraded condition site shall be restored to Good Corridor Condition as defined by CWS: a combination of native trees, shrubs, and groundcover covering greater than 80% of the community and greater than 50% tree canopy exists (areal measure).

CWS success criterion for vegetated corridor enhancement is 80% survival of tree and shrub plantings during the two years following planting. If any mortality is noted on the site, the factor likely to have caused mortality of the plantings is to be determined and corrected if possible. If survival falls below 80% at any time during the two-year maintenance period, the plantings shall be replaced and other corrective measures, such as mulching or irrigation, may need to be implemented. If replanting is necessary, the maintenance period will be extended for two years from the date of replanting.

2022 Site Performance

The survival requirement was not met in 2022 with 67% survival.

2021-2022 Site Activity Update

2021	
MAY	Boom sprayed entire site
AUG	Spot treated invasive species
OCT	Broadcast sprayed entire site to prep for seeding; seeded site with native grasses
2022	
MAR	Installed native plants
JUN	Spot treated invasive species
JUL	Hand cut weeds, mulched plants, and hand watered
AUG	Spot treated invasive species
SEP	Hand watered plants, monitored site for plant survival

Action Plan for Taxiway A

2023	
MAR	Interplant with 1,450 native trees and shrubs
MAY	Spot treat invasive species
JUL	Water plants
SEP	Spot treat invasive species, water plants, monitor site for plant survival
2024	
MAR	Interplant if needed
JUN	Spot treat invasive species if needed

Site Boundary

N

0 Feet 360

II.B-4 Taxiway A

WEST SUNDIAL WETLANDS (TRIP PHASE II/III MITIGATION)

Mitigation location: Troutdale, Multnomah County, Oregon
Location of impact: Troutdale, Multnomah County, Oregon, TRIP development

Permits and Agreements

- Restrictive Covenant, December 29, 2015, Amended, April 25, 2018
- USACE Permit No. NWP-2007-889 (1), January 9, 2015
- Oregon DSL Permit No. 54848-RF, August 7, 2014, Modified May 11, 2015
- Oregon DSL Permit No. 58816-RF, SDIC for weir impacts

Background

Located northwest of the Troutdale Airport, near the confluence of the Sandy and Columbia Rivers in Troutdale, Oregon, the Troutdale Reynolds Industrial Park (TRIP) was previously the site of the Reynolds Metals Corporation (RCM) Troutdale Aluminum Plant. The Port purchased the property in December 2007 with plans to develop the site in phases for industrial use.

In 1994, the site was listed as a Superfund site by the U.S. Environmental Protection Agency (EPA). Since that time, RMC was engaged in clean-up of the site, including demolition of virtually all plant-related structures. EPA issued its Record of Decision in September 2006 indicating that the level of clean-up of the Troutdale site is suitable for industrial use, but not residential or commercial use.

Mitigation Plan

In 2015 the Port obtained permits to begin filling 37.41 acres of jurisdictional wetlands and 1.82 acres (4,180 linear feet) of drainage ditch for the purpose of industrial lot development. Mitigation for these impacts occurred on site and includes the following ecological improvements as constructed:

- **West Sundial Wetlands Mitigation**– Upon completion of construction in October 2018, 37.95 acres of wetland mitigation were created, and 41.82 acres were enhanced for a total of 79.77 acres of wetland mitigation. The mitigation site is screened from the development lots with a 50-foot buffer that includes 3.5 acres of created palustrine scrub-shrub (PSS) habitat, 0.88 acres of enhanced palustrine scrub-shrub (for a total of 84.15 acres created and enhanced wetlands including the mitigation areas), 3.15 acres of upland slope scrub-shrub and herbaceous habitat, and 1.55 acres of upland set back (10 feet) on three lots for a total buffer acreage of 9.08. Other new wetland communities include enhanced and created palustrine emergent (PEM) and enhanced palustrine forest (PFO), all planted and seeded with native species.
    - Salmon Creek realignment – 2,627 linear feet of Salmon Creek west of Sundial Road was realigned to increase sinuosity and wetland habitat value.
    - Sundial Channel – 4,678 linear feet of new channel was constructed within the new wetland to enhance habitat, improve floodplain and connectivity, and provide additional flood water storage west of Sundial Road.
- **Salmon Creek East of Sundial Road** – 1,155 linear feet of Salmon Creek from Sundial Road to Graham Road was altered to provide a 2-foot-wide channel with a 23-foot-wide floodplain access bench and 6:1 slope. No performance standards were required for the channel improvement other than completion.
- **Tree Mitigation** – the City of Troutdale required tree mitigation for 1,290 trees removed in conjunction with lot development, primarily east of Sundial Road. The 1:1 mitigation is located north of the levee adjacent to the Phase I 300 Trees site. This was a requirement of the City of Troutdale only and there were no compliance standards other than completion of tree planting. Initial planting of the site occurred in early March 2016 along with seeding with a native pollinator mix.

TABLE 2: WEST SUNDIAL WETLANDS CREDIT LEDGER

MITIGATION: WEST SUNDIAL WETLANDS	ACRES	RATIO	CREDITS	PEM (ac)	PSS (ac)	PFO (ac)
West Sundial Wetland Mitigation (Creation Credits)	37.95	1.5:1	25.30	6.40	31.54	0.01
West Sundial Wetland Mitigation (Enhancement Credits)	41.82	3:1	13.94	8.57	30.26	2.99
Subtotals:	**79.77**	---	**39.24**	14.97	61.80	3.00
IMPACTS APPLIED TO CREDITS	**ACRES**		**CREDITS**	**PEM (ac)**	**PSS (ac)**	**PFO (ac)**
TRIP Phase II/III (DSL 54848-RF, USACE NWP-2007-889(1))	37.33	---	---	14.97	57.13	2.10
SDIC Weir (DSL 58816)	0.075	---	---	0.00	0.075	0.00
Subtotals:	**37.41**	---	---	14.97	57.21	2.10
Advance credits/acres remaining at West Sundial Wetland:	---	---	**1.83**	0.00	4.59	0.90

Note: all advance credits remaining are Enhancement credits and only available upon agency approval.

TABLE 3: WEST SUNDIAL WETLANDS MITIGATION SUCCESS CRITERIA

CRITERIA	DESCRIPTION
Term of Monitoring	Entire site will be monitored for a minimum of 5 years as per DSL and USACE permits. The PFO habitat will be monitored for a minimum of 10 years as per the USACE permit.
Hydrology	No portion of the compensatory wetland mitigation area (excluding the managed Sundial Channel and Salmon Creek waterways) will contain sustained surface water between August 1 and August 31 of each year.
Native Cover in Herbaceous Wetlands, Shrub-dominated, and Forested Wetlands and Buffers	The cover of native species, as defined in the USDA Plants Database, in the herbaceous stratum is at least 60%.
Invasive Species Cover	The cover of invasive species is no more than 10%. A plant species should automatically be labeled as invasive if it appears on the current Oregon Department of Agriculture noxious weed list, plus known problem species including *Phalaris arundinacea, Mentha pulegium, Holcus lanatus, Anthoxanthum odoratum*, and the last crop plant if it is non-native. Non-native plants should be labeled as such if they are listed as non-native on the USDA Plants Database. Beginning Year 2 of monitoring, DSL will consider a non-native plant species invasive if it comprises more than 15% cover in 10% or more of the sample plots in any habitat class and increases in cover or frequency from the previous monitoring period. Plants that meet this definition will be considered invasive for all successive years of monitoring.
Bare substrate cover	Bare substrate represents no more than 20% cover.
Species Diversity in Herbaceous and Shrub-dominated Wetlands	By Year 3 and thereafter, there are at least 6 different native species. To qualify, a species must have at least 5% average cover in the habitat class and occur in at least 10% of the plots sampled.

CRITERIA	DESCRIPTION
Moisture Prevalence Index	Prevalence Index is <3.0 (in Herbaceous, Shrub-dominated and Forested Wetlands, and Wetland Buffers)
Woody Veg in Shrub-dominated and Forested Wetlands	The density of woody vegetation is at least 1,600 live native plants (shrubs) and/or stems (trees) per acre OR the cover of native woody vegetation on the site is at least 50%. Native volunteers count; dead plants do not count, and the standard must be achieved for 2 years without irrigation.
Woody Veg in Wetland AND Upland Buffers	The density of woody vegetation in wetlands and upland buffer areas is at least 2,400 live native plants (shrubs) and/or stems (trees) per acre. Native species volunteering on the site may be included, dead plants do not count, and the standard must be achieved for 2 years without irrigation.
1st Annual Report	Establishment of permanent monitoring location; Vegetation performance standards; Demonstration that wetland hydrology has been accomplished; Evidence that water rights are secured or are not required
2nd Annual Report	Vegetation performance standards
3rd and 4th Annual Report	Vegetation performance standards; actual acreage achieved by HGM and Cowardin Class
5th Annual Report (or final DSL report if the monitoring period has not been extended	Vegetation performance standards; Functional Assessment; Long-term maintenance plan
Monitoring reports	Mitigation monitoring reports will be due annually by December 31 for 5 consecutive years for the emergent and scrub-shrub systems and for Years 1 through 5, 7, and 10 for forested systems.
Native Cover	Native plants shall maintain at least 60% cover during Year 5.
Wetland Acreage	The permittee shall conduct a wetland delineation after 5 years to document that wetland plant, soil, and hydrologic indicators are present in the boundaries of the created wetlands. Provide copy to Corps. If site is not developing wetland characteristics, the applicant and Corps will discuss a contingency plan.
Replanting	Individual plants may be replaced with native species during the first 5 years following completion of the mitigation site.
Contingency Plan	Permittee shall develop a contingency plan should the vegetation areas not become established as described in the approved plan by Year 5 at the request of the Corps if the site is not on track to meet the identified success criteria. The contingency plan shall be submitted with the annual monitoring report for the Corps review and approval, and corrective actions implemented within one year of the Corps approval of the plan. Subsequent monitoring reports should document the corrective actions that have occurred, date the actions were implemented, and any results of the actions.

2022 Site Performance

By the end of 2022, Year 4, the mitigation site was continuing to develop well, providing excellent habitat for many birds, mammals and amphibians including the State Sensitive Species, northern red-legged frog. Most performance goals were met with a few exceptions: invasive plant cover exceeded 10% in the scrub-shrub and upland buffer by just 1-2 points; woody stem density fell below 2,400 stems/acre in the wetland buffer, and native plant cover was less than 60% in the upland buffer. Additional planting and seeding are planned for 2023 as remediation. A wetland delineation was required by permit at Year 4 or 5. The 2022 delineation resulted in 94 acres of wetland including the majority of Sundial Channel.

2021-2022 Site Activity Update

2021	
JAN	Collected willow cuttings on-site and installed in wetlands buffers
FEB	Planted bareroot/container plants in upland and wetland buffers
MAR	Amphibian egg mass survey: 57 Northern red-legged frog, 26 long-toed salamander and 81 Pacific chorus frog; spot treat invasive species; installed willow cuttings
APR-OCT	Trash removal and vegetation management
JUL	Vegetation monitoring
DEC	Year 3 annual report submitted to DSL and USACE; planted collected cuttings
2022	
JAN-FEB	Planted collected cuttings
MAR	Amphibian egg mass survey: 3 Northern red-legged frog, 8 long-toed salamander and 38 Pacific chorus frog
APR-OCT	Vegetation management
JUN-JUL	Vegetation monitoring and delineation light
SEP	Mowed buffer areas to prep for treatment and planting, cut and spot sprayed invasive species
DEC	Year 4 annual report submitted to DSL and USACE

Action Plan for West Sundial Wetlands

2023	
JAN	Collect and install willow cuttings if needed
FEB-MAR	Interplant if needed; amphibian egg mass survey
APR-OCT	Trash removal and vegetation management
JUN-JUL	Vegetation monitoring
OCT	Reseed if needed
DEC	Submit Year 5 annual report to DSL and USACE
2024	
JAN	Collect and install willow cuttings if needed
FEB-MAR	Interplant if needed; amphibian egg mass survey
APR-OCT	Trash removal and vegetation management
JUN-JUL	Vegetation monitoring
OCT	Reseed if needed
DEC	Submit Year 6 annual report to USACE (and potentially DSL)

Site Boundary

N

0 Feet 1,480

II. B-5 TRIP Phase II/III, West Sundial Wetlands

SECTION II.C. PROJECTS RELEASED OF REGULATORY OBLIGATION

BOBCAT MARSH MITIGATION BANK

Mitigation location: Jackson Bottom Wetlands Preserve (JBWP), 2600 Southwest Hillsboro Highway, Hillsboro, Oregon 97123
Location of impact: Portland-Hillsboro Airport (HIO) for Parallel Runway Project
Year released: 2018

Permits and Agreements

- USACE Permit No. NWP-2008-658 (Parallel Runway Project)
- USACE Permit No. NWP-2008-658-1 (Bobcat Marsh Phase II)
- Oregon DSL Permit No. 43502-RF (Parallel Runway Project)
- CWS File No. 09-002218 (Parallel Runway Project)

Background

The HIO Parallel Runway project was proposed to impact 1.92 acres of wetland. The alignment of the new runway and taxiways could not completely avoid wetland impacts. To mitigate these wetland impacts, and future impacts (1.67 wetland credits) at HIO, the Port entered into an agreement with ODOT, City of Hillsboro, and CWS to develop a wetland mitigation bank. The 18-acre wetland mitigation bank known as Bobcat Marsh is on City of Hillsboro land on the 725-acre JBWP. Before implementation, the mitigation site contained several large mounds of material that was excavated in the early 1980s to create nearby ponds. The material was placed on agricultural fields that were drained in the 1920s by a drainage ditch, known as the Jackson Slough. Excavation and grading of the mitigation site occurred in 2010 and 2011, and the site was planted in the spring of 2011 and 2012.

Mitigation Plan

The goal of the mitigation project was to restore 4.52 acres of wetlands and enhance 11.14 acres of wetlands to result in 8.23 wetland credits. The mitigation project removed 30,000 cubic yards of material and restored hydrology to the previously filled wetlands. Degraded wetlands were enhanced by increasing the hydroperiod and replacing the reed canarygrass dominated site with native plant species. A shallow, braided linear swale was created through the restored and enhanced wetlands, and a portion of Jackson Slough was filled and rerouted to flow through the swale. Large wood and root wads were added to provide wildlife refugia and perches. The Bobcat Marsh Mitigation Bank is a riverine flow-through system and is hydrologically connected to the Tualatin River. It consists of a combination of palustrine forested (PFO), palustrine scrub-shrub (PSS), and palustrine emergent (PEM) wetlands. A portion of the mitigation bank (0.87 acre of wetland restoration) was completed by ODOT before the Port was involved in the project.

Reference Site

A site located east of the experimental wetland on the east-central side of JBWP was used as a reference site to identify plant species, structure, and density that the Port hopes to achieve at the mitigation site.

TABLE 4: BOBCAT MARSH MITIGATION BANK ACREAGE

Mitigation Method	Acres			
	PFO-PSS	**PSS**	**PSS-PEM**	**ACRES**
Restoration	1.06	1.69	1.77	4.52
Enhancement	0.85	7.49	2.80	11.14
Total	**1.91**	**9.18**	**4.57**	**15.66**

TABLE 5: BOBCAT MARSH MITIGATION BANK CREDIT DISTRIBUTION

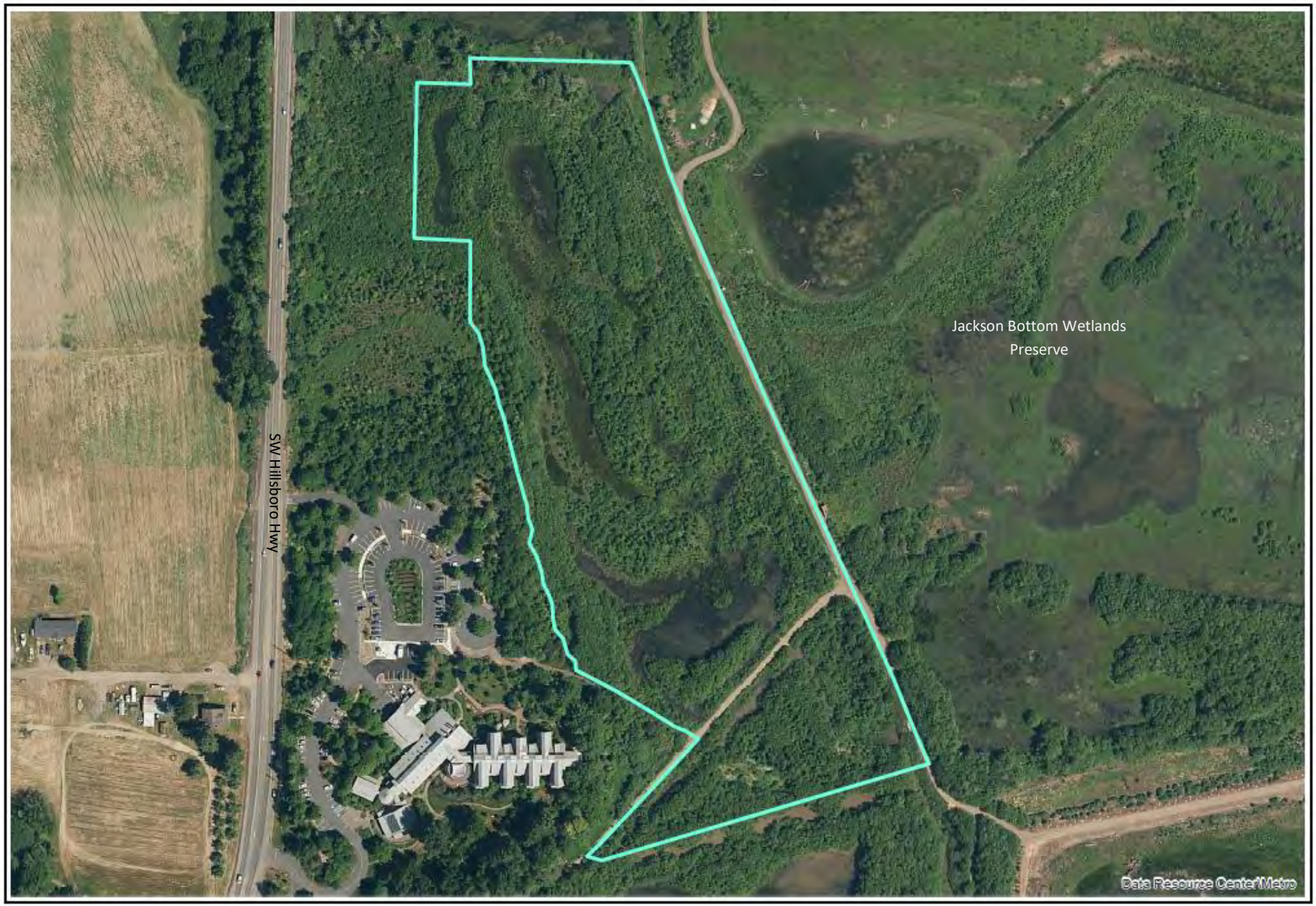
CREDITS			
Mitigation Type	**Acres**	**Ratio**	**Credit**
ODOT restoration	0.87	1:1	0.87
Phase I restoration	3.65	1:1	3.65
Phase I enhancement	9.93	3:1	3.31
Phase II enhancement	1.21	3:1	0.4
Total credits	**15.66**		**8.23**

TABLE 6: BOBCAT MARSH MITIGATION BANK CREDIT LEDGER

Transaction Date	Transaction Type (Credit release or withdrawal)	Jurisdiction (Federal, State or both)	Number of Credits	Credit Unit (acre)	State Permit Number	Federal Permit Number	Credit Type (HGM, Cowardin, other)	Balance of released credits
12/29/11 (official letter 1/11/12)	10% certification release (MBI signed)		+0.526					0.526
	10% certification release (initial planting)		0.526					1.052
	10% certification release (as-built grading approval)		+0.526					1.578
1/4/12	US 26/ Glencoe Interchange KN12885	Both	-1.15	1.15	RF 48453	NWP-2011-147	Riverine flow-through/Slope, PEM	0.428
1/11/12	US 26: W. Fork Dairy Creek Bridge KN14838	Both	-0.021	0.021	GP 48453	NWP-2011-509	Depressional Outflow, PEM/PSS/PFO	0.407
8/12	OR 217 ATM	Both	-0.05	0.05	51205	2012-282	RFT/PEM	0.357
12/12	US26: Cornell-185	Both	-0.12	0.12	DSL43826-GA	NWP2009-4912	Depressional outflow and Slope Headwaters/PEM	0.237
3/13	US 26 @ Shute Rd. (Brookwood)	Both	-0.12	0.12	52921	NWP2103-63	Depressional-outflow, PEM	0.117
4/20/2013	OR99-I5 ramps	Both	-0.03	0.03	52674	NWP2013-37	RFT/Depressional-outflow/PEM	0.087
12-13	20%LTMP		+1.052					1.139
15-Apr	Performance release		1.578					2.717
6/26/2016	US26NW Cornelius Pass	both	-0.006	0.006	RF58505	NWP2015-417	RFT/Depressional Outflow/PEM	2.711
4/20/2017	Performance release		1.05					3.761
4/12/2021	OR 217	both	-1.3	1.3	APP0063184	NWP-2018-150	Various	2.46
11/18/2021	Hillsboro Airport Safety	both	-1.67	1.67	63538-RF	NWP2017-433	various	0.79
11/22/2021	OR 47: W. Fk. Dairy Cr.	both	-0.01	0.01	63520-RF	NWP-2021-453	same	0.78
10/10/2022	Hillsboro Airport amendment	both	-0.26	0.26	63538-RF	NWP2017-433		0.52

Stewardship Summary

The Bobcat Marsh mitigation bank met regulatory performance criteria by 2018 and continues to be managed by staff at JBWP as part of the overall natural area. Until all of the credits are used, an annual memo is submitted to the agencies with qualitative site assessment results, photo monitoring, and an updated ledger. The Port used up the last of their credits from the bank in 2022 for the Hillsboro Airport Runway Safety Area Improvement Project.



Site Boundary

N

0 Feet 560

II.C-1 Bobcat Marsh Mitigation Bank

BUFFALO STREET

Mitigation location: NE Buffalo Street, Portland, Oregon 97211
Location of impact: Southwest Quadrant, PDX
Year released: 2003

Permits and Agreements

- USACE Permit No. 009753
- Oregon DSL Permit No. 6273
- Oregon DSL Permit No. 21869
- Correspondence from Oregon DEQ to USACE, January 6, 1993
- Memorandum of agreement (MOA), 1994
- COP LUR 93-00539EN
- Restrictive Covenant, February 14, 2003

Background

The Port filled approximately 65 acres of wetland at the SW Quad of PDX in 1993. Most of the required wetland mitigation took place at the Jewett Lake site on Government Island; however, the permit also included upland and riparian mitigation at Buffalo Street (approximately 15.6 acres) and Elrod Road (approximately 10 acres). The Buffalo Street site is located on NE Buffalo Street west of NE 42nd Avenue and is surrounded on three sides by slough channels, including the Columbia Slough and Buffalo Slough.

A MOA to "implement a mitigation program for wetland impacts at the PDX and provide a means to identify future airport development projects that may result in wetland losses" was a requirement of the DSL removal/fill permit and DEQ's Section 401 Water Quality Certification. The MOA has specific requirements for the upland sites at Buffalo Street and is referenced in the DSL permit conditions. The MOA is an agreement between the Port, DSL, USACE, DEQ, ODFW, EPA, and USFWS.

The site was first planted in November 1994. In 1998, vegetation survival was estimated to be 57%, and did not meet the 80% requested by DSL in their letter to the Port on March 30, 1998. Replanting of portions of the site was conducted in the fall of 1998, early in 1999, and again in early 2001. A status report documenting survival of areas that had been replanted since 1999 was submitted to USACE and DSL in June 2001. At the request of the agencies, continued monitoring and reporting for the permit occurred through 2002.

The mitigation site was designed to promote habitat connectivity and to provide nesting habitat, food, and cover for a variety of terrestrial and avian species. Compliance monitoring of the site took place between 1995 and 2003. Regulatory agencies released the site from further obligation to monitor and report in 2003 (DSL, September 2003; USACE, November 2003).

Mitigation Plan

The goal for the Buffalo Street mitigation was to create connectivity between existing natural areas in the Columbia South Shore Plan District. The plan included enhancing the slough banks, riparian woodland, emergent wetland, and upland meadow habitat (approximately 15.56 acres) to provide cover to the slough and nesting habitat, food, and cover for a variety of terrestrial and avian species. Additional habitat improvements included construction of hibernacula for reptiles and placement of large woody debris throughout the site. DSL requested 80% survival of vegetation in their letter to the Port dated March 30, 1998.

2021-2022 Site Activity Update

2021	
APR	Spot treated invasive species
AUG	Hand cut invasive species
DEC	Spot treated invasive species
2022	
FEB-MAR	Interplanted along Slough top of bank with 500 native shrubs
AUG	Spot treated invasive species

Action Plan for the Buffalo Street Site

2023	
APR	Spot treat invasive species
SEP	Hand cut and spot treat invasive species
2024	
FEB	Plant bareroot shrubs along Columbia Slough.
APR	Spot treat invasive species
AUG	Hand cut and spot treat invasive species

Site Boundary

N

0 Feet 400

II.C-2 Buffalo Street

COLUMBIA SLOUGH REVEGETATION

Site locations: adjacent to Columbia Slough in PIC, PDX, Rivergate Industrial District

Permits and Agreements

- Intergovernmental Agreement for Columbia Slough Revegetation. Port IGA No. 2000-039 superseded by IGA No. 2002-080
- Update letter of June 20, 2003: Port of Portland to COP, BES
- Update letter of October 21, 2003: Port of Portland to COP, BES

Background

Oregon DEQ has designated the Columbia Slough as a 303(d) water quality limited stream under the Clean Water Act. The Port entered into an agreement with the COP BES to fund work revegetating portions of the Columbia Slough riparian area owned by the Port. The revegetation projects were undertaken to improve water quality within the Columbia Slough and tributaries. The work was coordinated with MCDD. Some portions of the Slough owned by the Port were not recommended for planting due to operational, regulatory, and/or litigation issues.

The goal of these projects is to make substantial vegetative improvements along the banks of the slough(s) in order to

- Filter stormwater runoff.
- Provide shading to reduce surface water temperature.
- Provide diversity in vegetation and habitat structure.
- Provide food and shelter for wildlife.
- Establish connectivity between open/natural spaces.
- Provide continuity of cover and wildlife corridors.
- Reduce water velocities and potential erosion.

The Port's mitigation and revegetation sites play a critical compliance role with respect to the Willamette River TMDL. The TMDL implementation plan requires the continued management of these sites to provide increased shade on the Columbia Slough. This metric will be tracked through documentation of the annual maintenance (including inter-planting) performed on these sites. These activities constitute the core of the Port's TMDL temperature implementation strategy and are included in the Port's annual progress reports to DEQ.

As of fall of 2007, BES fulfilled their maintenance and monitoring obligations under the IGA except for Kelley Point Park, which they continue to maintain. The Port continues to manage all other sites and inspects for invasive species management needs and enhancement opportunities.

Projects

The following projects, totaling 73.5 acres, were initiated with BES as part of this program and are now all complete:

TABLE 7: COLUMBIA SLOUGH REVEGETATION PROJECTS

Site Name	Area	Year Planted	Description
Columbia Grain	RGID	2000	From the mouth of the Columbia Slough to the Union Pacific Railroad on the south side (3 acres).
Kelley Point Park	RGID	2000	Kelley Point Park from the park boundary to the road bridge between the waterline and the top of bank (1.5 acres). Top of bank and road on hold

Site Name	Area	Year Planted	Description
			pending completion of the trail (2 acres). Now managed by BES.
92nd–I-205	PIC	2000 (slope) 2001 (TZ)	PIC 92nd to I-205 from the waterline to the top of bank (0.78 acre) and from the top of bank to edge of 50-foot transition zone (2.69 acres).
82nd–92nd	PIC	2000	PIC 92nd west to 82nd from the waterline to the top of bank (1.6 acres) and from the top of bank to the edge of transition zone or edge of tenant landscaping.
Buffalo	PDX	2000	Buffalo Street Mitigation Site from waterline to top of bank (2.3 acres).
Elrod	PDX	2000	Elrod Road Mitigation Site from the waterline to the top of bank (1 acre). This site was planted by BES but is maintained by the Port as part of its mitigation activities for this site.
West of 47th Avenue - AMC Site	PDX	2000	From the waterline to the top of bank (1.25 acres).
Port Maintenance Building (Meyers Marx)	PDX	2000	From the waterline to the top of bank and 50-foot E-zone (3.7 acres).
Cornfoot Road	PDX	2000	Tree planting only (4.3 acres)
North Marine Drive Overpass	RGID	2000	Abutment from base of slope to the top of bank (6 acres).
Alderwood Slough	PIC	2000–2001	Between 82nd and Alderwood Road from waterline to 10 feet landward of the top of bank on north and south sides (1.7 acres).
Alderwood Corner	PIC	2000–2001	Replaces a portion of a project that could not be completed.
Rail Bridge to North Slough	RGID	2001–2002	From the top of bank landward to toe of Leadbetter slope on north side of slough (30 acres).
Trail south of railroad bridge	RGID	2002–2003	Planting adjacent to the 40-mile loop trail for a length of 5,274 feet.
Rivergate Bridges banks	RGID	2002–2004	Blackberry and broadleaf weed removal only; seeding; top of bank to ordinary high-water mark from Lombard/North Marine Drive bridge on north end to the railroad bridge on the south end; two treatments each year, 2002–2004.
Bonneville Pond	RGID	2005–2006	Unsuccessful. Abandoned.
92nd to I205 bank stabilization	PIC	2003–2004	Re-planting and 5-year maintenance of approximately 1.6 acres along the regraded bank.
Beaver protection installation	PDX	2003–2004	Installation of 100 beaver protection cages around alder and cottonwood trees on the Buffalo Street site.

2021-2022 Site Activity Update

2021	
AUG	Hack and squirt blackberry, sign install/repair at Alderwood Corner
DEC	Installed beaver fencing around priority trees at 92-I205
2022	
JAN	Installed beaver fencing around priority trees at 92-I205
FEB	Planted 500 native shrubs at 92nd-I-205

Action Plan for the Columbia Slough Revegetation Sites

2023	
APR-OCT	Invasive species control measures
2024	
APR-OCT	Invasive species control measures

Enhancement Site

N

0 Feet 3,680

II.C-3.1 Columbia Slough Revegetation Sites, Rivergate

Enhancement Site

N

0 Feet 3,400

II.C-3.2 Columbia Slough Revegetation Sites, PDX-PIC

DAHL BEACH

Mitigation location: Gladstone, OR
Location of impact: Portland Harbor
Year released: 2022

Permits and Agreements

- U. S. Army Corps of Engineers (Corps) NWP 27 Reference # NWP-2015-429
- Oregon Department of State Lands (DSL) Permit # 59054-RF
- IGA between Port of Portland and City of Gladstone # 2016-055, April 26, 2016
- Conservation Easement & Equitable Servitude # 2016-173, November 9, 2016

Background

The Dahl Beach Mitigation Project is a partnership between the City of Gladstone and the Port of Portland to restore habitat along the Willamette River at the confluence of the Clackamas River at Meldrum Bar Park. The project addressed the Port's priorities to restore habitat for mitigation and the City's to remove a safety and maintenance issue while enhancing the park's natural resources. It replaced a failing bulkhead and parking area in the floodplain with improvements that stabilized the bank, prevented erosion, and created habitat along the river's edge.

The Port and the City of Gladstone began working together when the Port was seeking a project for a Marine Terminal 4 mitigation requirement. The City expressed interest in receiving funding to enhance their parks and address several planning and construction priorities. Initially, the project assumed removal of the entire lower parking area and did not include removal of the bulkhead. Through the City process, the project was modified to address the bulkhead and minimize parking space impacts. The final project design resulted in removal of a portion of the lower parking area and removal of the bulkhead with restoration of the riverbank in both areas. The City Council passed a Resolution on November 10, 2015, approving the project. The Port continues to work with the City of Gladstone to track project interest and inform stakeholders of the project establishment and status.

The Dahl Beach Mitigation Project provides restoration and enhancement of active channel margin (ACM) and shallow water habitats in the Lower Willamette River to provide benefit for local ESA listed salmon and steelhead populations, as well as other aquatic species that rely on shallow water areas. The Project also restored adjacent riparian habitat, which was intended to increase the function of the adjacent shallow water and ACM habitats by shading open water and help to reduce water temperatures, and provide cover from predators, as well as food supply for fry, juvenile, and smolt salmon and steelhead.

Mitigation Plan

The Dahl Beach Mitigation Site is located along the northeast bank of the confluence of the Clackamas and Willamette Rivers (near Willamette River mile 25) in the City of Gladstone, Oregon. It is composed of two mitigation work areas totaling about 0.5 acres: the Parking Lot Area and the Bulkhead Removal Area located approximately 600 feet downstream. Project implementation included the following:

Parking Lot Area:

- Removal of invasive vegetation.
- Removal of approximately 53% of the existing parking lot asphalt; removal of boulders, riprap, gravel, and debris on the northern edge of the lower parking lot.
- Re-contouring of the previously paved area to a more natural ACM profile.
- Placement of two large wood habitat structures to increase habitat complexity.
- Installation of signage to protect native plantings.
- Restoration of native vegetation above the scour line by seeding and installing native species, controlling invasive species, and retaining existing native vegetation where present.
- Construction of a shallow stormwater treatment basin from existing parking lot, immediately upslope of the restoration area.

Bulkhead Removal Area:

- Removal of invasive vegetation.
- Removal of sheet pile bulkhead and its associated appurtenances (cables, anchoring blocks, and riprap);
- Grading of the ACM to a profile of 2H:1V to establish stable slope conditions that will engage riverine processes and allow for some minor erosion and evolution of the ACM over time.
- Installation of signage to prohibit trespassing.
- Restoration of native vegetation above the scour line by seeding and installing native species, controlling invasive species, and retaining existing native vegetation where present.

The Work Plan was approved by the Corps, EPA, and NMFS in March 2016. Site construction and as-built monitoring occurred from July to October 2016. Plant installation took place in March 2017 and supplemental planting occurred in winter 2018. The Bulkhead Removal Area experienced toe erosion over winter 2016-2017 due to high winter flows and the placement of bank material that included a disproportionate amount of finer sized particles during construction. The toe erosion prompted adaptive management actions that included the placement of approximately 660 cubic yards of rounded river cobbles, along with sand and gravel, to stabilize the slope. The repair resulted in conversion of approximately 0.05 acres of planting area at the Bulkhead Removal Area to cobble beach area.

2021* Site Performance

The Year 5 monitoring results indicated that the site achieved all performance standards. See Table 8.

*The Dahl Beach site was released from further regulatory obligation on March 9, 2022, by the EPA. As a result, compliance activities (monitoring, restoration maintenance, or reporting activities) are no longer required. Rather, maintenance activities will be similar to routine park maintenance activities moving forward and managed by the City of Gladstone. The site is protected in perpetuity under a Conservation Easement.

2021 Site Activity Update

JUL	Vegetation monitoring; spot treated invasive species; watered plants in the Bulkhead Removal Area
AUG	Watered plants in the Bulkhead Removal Area and Parking Lot Area; spot treated invasive species
DEC	Year 5 compliance report submitted to EPA

TABLE 8: DAHL BEACH MITIGATION SUCCESS CRITERIA AND 2021 SITE PERFORMANCE

Performance Standard	2021 Monitoring Results
The mitigation areas will contain 20% or less aerial cover of invasive species in Years 2 to 5.	Parking Lot Area: 4.3% mean cover Bulkhead Removal Area: 3.9% mean cover
The forested riparian and forested ACM planting areas of the Parking Lot Area and Bulkhead Removal Area will include at least 1,200 total living native stems per acre in Years 2 to 5 of monitoring.	ACM Zone: 4,733 stems/acre Riparian Zone: 1,735 stems/acre
Signage depicted on project plans will be installed and retained on site throughout the monitoring period. Signs will be legible and relocated, if obscured by vegetation, to maintain effectiveness.	All signs present and unobscured
Evidence of public damage to the mitigation site, such as damaged plantings or habitat structures, will trigger notification to permitting agencies. Notification will include description of the occurrence and management response. A log of occurrences of damage will be maintained to identify trends and monitor effectiveness of management activities.	Previously report footpaths are being obscured by vegetation, indicating less trespass is occuring due to both maturing vegetation and the fence extension at the Bulkhead Area.

Site Boundary

N

0 Feet 440

II.C-4 Dahl Beach

ELROD ROAD

Mitigation location: PDX
Location of impact: Southwest Quadrant, PDX
Year released: 2003

Permits and Agreements

- USACE Permit No. 009753
- Oregon DSL Permit No. 6273
- Oregon DSL Permit No. 21869
- Correspondence from Oregon DEQ to USACE January 6, 1993
- MOA (1994)
- COP LUR 93-00538EN
- Restrictive Covenant, March 5, 2003

Background

The Port filled approximately 65 acres of wetland at the SW Quad of PDX in 1993. Most of the required mitigation took place at the Jewett Lake site on Government Island; however, the permit also included upland and riparian mitigation at Buffalo Street (approximately 15.6 acres) and Elrod Road (approximately 10 acres). The Elrod Road site is located at NE Elrod Road and NE 33rd Avenue and is bordered on two sides by the Elrod Ditch. The central portion of the site is reserved for a flood storage/water-quality facility to treat stormwater runoff from future development on the SW Quad property.

A MOA to "implement a mitigation program for wetland impacts at PDX and provide a means to identify future airport development projects that may result in wetland losses" was a requirement of the DSL removal/fill permit and DEQ's Section 401 Water Quality Certification. The MOA has specific requirements for the upland sites at Elrod Road and is referenced in the DSL permit conditions. The MOA is an agreement between the Port, DSL, USACE, DEQ, ODFW, EPA, and USFWS.

The site was first planted in November 1994 and met the minimum of 80% tree/shrub survival during each year of the 5-year monitoring period. Despite this, new plantings were installed by Port staff in January 2000 to increase plant densities in some areas and help control weed invasion. In January 2001, sections along the East Slough were inter-planted by BES to increase plant densities. A status report documenting survival of areas, which had been replanted since 1999, was submitted to USACE and DSL in June 2001.

The mitigation site was designed to promote habitat connectivity and to provide nesting habitat, food, and cover for a variety of terrestrial and avian species. Compliance monitoring of the site took place between 1995 and 2003. Confirmation that all mitigation obligations had been met was received from DSL (September 2003) and USACE (November 2003). Additional habitat improvements have included construction of hibernacula for reptiles, placement of large woody debris throughout the site, and caging some trees to protect them from beaver damage.

Mitigation Plan

The goal for the Elrod Road mitigation site was to create connectivity between existing natural areas in the Columbia South Shore Plan District. The plan included enhancing habitat surrounding the proposed water quality treatment facility to attract passerine birds, small mammals, and reptiles while discouraging potential aviation hazards such as waterfowl. Approximately 10 acres of upland woodland were planted

with deciduous and coniferous trees and shrubs in two locations, referred to as the north and south fields. DSL requested 80% survival of vegetation in their letter to the Port dated March 30, 1998.

2021-2022 Site Activity Update

2021	No activity due to budget constraints
2022	
JAN	Spot treated blackberry, ivy, holly
MAR	Planted 1,125 native shrubs
AUG	Treated invasive broadleaf species

Action Plan for Elrod Road Site

2023	
MAY	Spot treat invasive species
SEP	Spot treat invasive species
2024	
MAR	Interplant as needed

Site Boundary

N

0 Feet 500

II.C-5 Elrod Road

GOVERNMENT ISLAND GRASSLAND PHASE I

Mitigation location: Government Island, Multnomah County, Oregon
Location of impact: Near PDX to be determined, mitigation in advance of impact

Permits and Agreements

- Intergovernmental Agreement for Airport Futures Project. Port IGA No. 2011-065, effective May 13, 2011.

Background

Airport Futures was a collaborative effort between the Port, COP, and the Portland-Vancouver metropolitan community to create an integrated long-range development plan for PDX. One result of Airport Futures was an IGA between the COP and the Port for natural resource mitigation. The IGA requires that the Port mitigate for 300 acres of upland grassland resources in lieu of having four PDX properties (totaling approximately 268 acres) zoned as environmental overlays. The IGA states that the first 50 acres of mitigation must occur on the island in advance of any development on one or more of the four PDX properties identified in the IGA. Future grassland mitigation on the island, above the initial 50 acres, would be triggered when development on the four properties exceeds 25 acres.

The Government Island Grassland mitigation site is on Government Island outside of the COP boundaries and northeast of PDX. Government Island is owned by the Port and portions are managed by the OPRD. The mitigation site was created to offset future impacts to four properties at PDX and is a mitigation requirement resulting from the IGA between the COP and the Port as part of the Airport Futures planning process. It was selected because of its size and existing degraded grasslands that are dominated by non-native and invasive species such as pasture grasses, Himalayan blackberry (*Rubus armeniacus*), Canada thistle (*Cirsium arvense*), and teasel (*Dipsacus*). Up to 300 acres of grassland mitigation will occur on Government Island in 50-acre increments. The IGA is effective for 25 years and assumes that mitigation will cost approximately $600,000 per 50-acre parcel over the 25-year period. At the expiration or earlier termination of the IGA, the Port will be entitled to develop land in the amount of 0.89 times the amount of mitigation at the time of termination, not to exceed 268 acres for 300 acres of mitigation. The COP will apply the Conservation Overlay Zone on the balance of the land remaining. The final draft of the proposed mitigation plan for the first 50 acres was submitted to the COP in June 2012.

Mitigation Plan

The goal of the grassland mitigation project is to enhance the structure and species richness of grassland habitat by replacing non-native and invasive vegetation with a mosaic of diverse native forbs and grasses that can support grassland associated wildlife and insect populations. Plant species were selected to attract and maintain native pollinator species that are experiencing significant declines locally. Overall, the species palette was intended to provide the structure and function necessary to meet the habitat requirements for other grassland associated species. The site received over 2 years of extensive site preparation prior to seeding to help facilitate native seed germination.

Mitigation Success Criteria

Site-specific success criteria were not established; however, the following two sources were used to develop a list of habitat conditions that we will aim to achieve: USFWS's 2010 *Recovery Plan for the Prairie Species of Western Oregon and Southwest Washington* (Appendix D: Guidelines for Assessment of Prairie Quality and Diversity) and the Oregon Conservation Strategy's 2011 *Willamette Valley Landowner's Guide to Creating Habitat for Grassland Birds*. The targeted habitat conditions include the following:

1) Relative cover of native plant species 50% or more.
2) Little to no woody vegetation (less than 15%).
3) Approximately 10% – 30% cover by forbs.
4) Greater than 5% bare ground, but no more than 20%.
5a) No single non-native plant having more than 50% cover on-site.
5b) Invasive non-native species targeted for appropriate level of control.
6a) Plant species richness greater than 10 species.
6b) Preferably three species of grasses and 10 species of forbs, but at a minimum one species of bunch grass and no fewer than seven species of forbs.
7) Mean vegetation height of 12–24 inches (measured in mid to late May), including
    a) less than 25% of the vegetation between 6 and 12 inches,
    b) greater than 50% of the vegetation between 12 and 24 inches, and
    c) less than 25% of the vegetation greater than 24 inches.

In addition to evaluating vegetation criteria and avian fauna, the Port teamed up with the Xerces Society, a Portland-based non-profit organization, to monitor pollinator communities within the mitigation site before and after treatments to measure whether habitat enhancement improves native pollinator abundance and diversity. The Port hired Xerces to develop a monitoring approach and to conduct the pollinator monitoring. Xerces scientists are nationally recognized invertebrate experts who work internationally with scientists, land managers, and the public to conduct applied research, conservation advocacy and environmental education.

In February of 2020 the Port submitted their final formal monitoring report for the Phase 1 Grassland Project. Data analyses continue to indicate a stable trajectory for the site. Monitoring and maintenance will continue at a slightly reduced rate and an annual memo will summarize results in February.

2022 Site Performance

Table 9 below summarizes vegetation monitoring results in 2022.

TABLE 9: GRASSLAND MITIGATION TARGETS AND 2022 SITE PERFORMANCE

		July 5 & 6, 2022	
Success Measure	**Target**	**Overall**	**Native Species**
*Relative % cover of native species	50% or more	N/A	31.86%
*Relative % cover of woody vegetation	Less than 15%	1.04%	0.00%
*Relative % cover by forbs	Approximately 10-30%	25.34%	8.52%
*Relative % cover of bare ground	Greater than 5%, but no more than 20%	3.57%	N/A
†Number of single non-native plants with more than 50% cover	No single non-native plant will have more than 50% cover on site	0	N/A

		July 5 & 6, 2022	
Success Measure	**Target**	**Overall**	**Native Species**
*Relative % cover of invasive, non-native species	Less than 25% overall cover	0.68%	N/A
†Plant species richness	At least 10 native species	48	24
†Number of grass species	3 species of native grasses	19	10
†Number of bunch-type grass species	At least 1 native species of bunch grass	9	7
†Number of forb species	Preferably 10 native species of forbs but no less than 7 native forb species	27	13
◊Mean height (inches) of vegetation	12 – 24 inches	16.91”	N/A
◊Vegetation between 6-12"	Less than 25%	37%	N/A
◊Vegetation between 12-24"	Greater than 50%	32%	N/A
◊Vegetation greater than 24"	Less than 25%	31%	N/A

2021-2022 Site Activity Update

2021	
FEB	Bird survey, site inspection
APR	Herbicide application
MAY	Herbicide application
JUN	Bird survey, site inspection, herbicide application
JUL	Vegetation monitoring, herbicide application
SEP	Herbicide application, half of site mowed
OCT	Bird survey, site inspection
2022	
MAR	Bird survey, site inspection
APR	Herbicide application
MAY	Herbicide application
JUN	Site inspection, flooding
JUL	Bird survey; site inspection, vegetation monitoring
AUG	Site inspection
OCT	Herbicide application
NOV	Bird survey, site inspection

Action Plan for Government Island Grassland I

2023	
FEB	Bird survey, site inspection
MAR	Install 2,700 bare root plants along the north facing slope of Commodore Cove at a 5'X5' spacing. Seed areas treated for velvet grass.
MAY	Broadcast spray grass specific herbicide across entire treatment area. Could be done prior and independent to hand crew applications. Spot spray priority weeds (blackberry, thistle, teasel). Velvet grass if determined necessary and effective.
JUN	Bird survey, site inspection
JUL	Vegetation monitoring

SEP	Spot spray the site, buffers, and tree islands for target invasive species. Order plants for re-plant of Commodore Cove sloped buffer and tree island. Order seed for re-seed of areas treated for velvet grass (forbs only). Re-treat for velvet grass and other invasive species.
OCT	Bird survey, site inspection
2024	
FEB	Bird survey, site inspection
MAR	Plant bareroot shrubs along the sloped buffer of Commodore Cove.
MAY	Herbicide application
JUN	Bird survey, site inspection
JUL	Vegetation monitoring
SEP	Herbicide application, mow half of site
OCT	Bird survey, site inspection

Site Boundary

N

0 Feet 1,000

II.C-6 Government Island Grassland I

JEWETT LAKE

Mitigation location: Government Island
Location of impact: Southwest Quadrant, PDX
Year released: 2003
Management Plan: 2021

Permits and Agreements

- USACE Permit No. 009753
- Oregon DSL Permit No. 6273
- Oregon DSL Permit No. 21869
- Correspondence from Oregon DEQ to USACE dated January 6, 1993, supersedes letter dated February 5, 1992
- MOA, 1994
- Restrictive Covenant 03-039, February 14, 2003

Background

The Port filled approximately 65 acres of wetland at the SW Quad of PDX in 1993. Most of the compensatory mitigation occurred at the Jewett Lake site. Additional mitigation for upland and riparian impacts occurred at the Buffalo Street and Elrod Road mitigation sites.

The 427-acre Jewett Lake mitigation site, located on Government Island, was a shallow basin that had been connected to the Columbia River by a human-made channel. The channel allowed water to flow into the lake whenever river elevations exceeded 10.7 feet. However, water also flowed out of the lake when river levels dropped below this elevation, which resulted in the lake and wetlands drying in the summer. The mitigation plan was designed to increase water retention in the lake and enhance and restore adjacent wetlands.

A Memorandum of Agreement (MOA) to "implement a mitigation program for wetland impacts at PDX and provide a means to identify future airport development projects that may result in wetland losses" was a requirement of the DSL removal/fill permit and DEQ's Section 401 Water Quality Certification. The MOA includes specific requirements for the Jewett Lake site and is referenced in the DSL permit conditions. The MOA is an agreement between the Port, DSL, USACE, DEQ, ODFW, EPA, and USFWS.

Permit conditions required using a habitat evaluation procedure (HEP) as the methodology for measuring mitigation success. An interagency HEP review team visited the site and met four times to discuss HEP methodology, species model assumptions, and field data. Wildlife habitat conditions at both the SW Quad and Jewett Lake were documented with HEP analyses before filling and mitigation actions and again at Jewett Lake 5 years after construction. Compliance monitoring began in 1993 and was completed in 1999. The final monitoring report, including the Jewett Lake HEP review analysis, was submitted to USACE and DSL in January 2000. The HEP analysis demonstrated that the mitigation site had exceeded predictions; in addition to meeting the permit requirements of replacing 149 average annual habitat units (AAHU) impacted at SW Quad, the mitigation resulted in creation of 58 acres of wetlands and an additional 100 AAHU. The Port received confirmation of permit closure from regulatory agencies in 2003 (DSL, September 2003; USACE, November 2003).

Mitigation Plan

The goal of the Jewett Lake mitigation project was to diversify winter waterfowl habitat because this was the primary wetland function lost at SW Quad. The mitigation plan included installing a water control and fish exclusion structure to increase the water retention time in Jewett Lake, creating approximately 30

acres of wetland, and enhancing the remaining wetland and upland areas of the site through cattle exclusion, and vegetation management. The water control and fish exclusion structure were completed in 1993. Compliance monitoring of vegetation and wildlife was required for 5 years.

Government Island Management Plan
As part of the MOA, the Port was required to develop a management plan for Government Island. The Port's first management plan, completed in 2002, focused on preservation of natural resources, compatibility with airport operations, recreation, and site management through the agreement with OPRD. The Port recently replaced the older plan with a new Government Island Management Plan completed in March 2021. The new plan reevaluates management needs through a conservation lens as natural resources conservation has been determined to be the highest and best use for these lands. The purpose of the new management plan is to establish clear management goals, objectives, and conservation targets against which all activities proposed for the islands will be assessed.

Oregon Parks and Recreation Department
In December 1998, the Port Commission approved a 99-year lease of Government Island, McGuire Island, and Lemon Island to the OPRD. The 99-year lease was dissolved in 2016 and replaced with a Management Agreement that will be extended until approximately 2026. OPRD's responsibilities include monitoring and deterring trespassing, vagrancy, dumping, and other illegal or unapproved activities. OPRD maintains the recreational aspects of Government Island in a clean and safe condition, while the Port remains responsible for the 427-acre Jewett Lake mitigation site and the more recent 50-acre grassland site.

Stewardship
In coordination with the Port, the Columbia River Estuary Study Taskforce (CREST) completed the Government Island Restoration Project in 2020. The project benefits juvenile salmonids, while balancing the Port's existing mitigation requirements at Jewett Lake. CREST is responsible for maintenance and monitoring for a minimum of two growing seasons after project completion. Once the project is released by the regulating agencies, the Port will resume long-term management of the site.

Following a feasibility and alternatives analysis study, a suite of restoration actions was selected for advancement into the final designs for the CREST project. These actions include:

- Removal of a tide gated water control structure that currently excludes fish access from much of the floodplain interior habitats of Government Island.
- Large wood installation to facilitate fish passage, herptile and beaver habitat enhancement, and maintenance of the Port's waterfowl mitigation wetland acreage.
- Removal of riprap bank protection that is currently impeding the occurrence of natural physical processes.
- Reconnection of a historical wetland swale along the upstream portion of the island to enhance fish and wildlife access and habitat function.
- Removal of invasive plant species and revegetation with a native plant palette specified by habitat zones (e.g., low to mid-elevation emergent marsh, high marsh, and riparian/upland); and,
- Enhancement of riparian and upland wildlife habitats through construction of hibernacula and habitat piles.

2021-2022 Site Activity Update

2021	
FEB	CREST installed 1,100 additional native plants in the restoration areas
JUN	CREST took project aerial via drone
SEP	CREST conducted vegetation monitoring at restoration sites; Port contractor treated reed canarygrass and blackberry on CREST site
NOV	CREST submitted annual monitoring report to agencies
2022	
MAY-JUN	CREST took aerial imagery via drone; Port obtained a Limited License through OWRD so that CREST could irrigate new plants during the dry season.
JUL-SEP	CREST irrigated plants, installed shade cloth on some plants to protect from heat; CREST conducted vegetation monitoring at restoration sites
OCT	Port obtained a Temporary Transfer through OWRD that would allow irrigation through 2024 if needed
NOV	CREST submitted annual monitoring report to agencies

Action Plan for Jewett Lake

2023	
JUL-SEP	CREST to conduct vegetation monitoring at restoration sites if required, may irrigate plantings if needed
SEP	Port contractor may treat invasive species at Jewett Channel restoration sites if needed
NOV	CREST to submit annual monitoring report to agencies if required

Site Boundary

N

0 Feet 3,000

II.C-7 Jewett Lake

PDX ECONOMY LOT E-ZONE CONVERSION PROJECT

Site location: PDX, Economy Parking Blue Lot
Location of impact: PDX, Economy Parking Blue Lot
Year released: Final Permit Inspection by the COP occurred April 28, 2015

Permits and Agreements

- IGA for Airport Futures Project. Port IGA No. 2011-065, effective May 13, 2011
- COP Zoning Permit – 13-192302-000-00-ZP (Plan Check)

Background

In 2000, The Port of Portland (Port) became aware that several cottonwood trees had reached a height that encroached into protected PDX airspace, causing a direct concern to aircraft safety. Because of the density of the stand, it was clear that many more trees would grow into the airspace over time. The upper portions of the trees were removed (topped) to address the immediate risk, providing for 10 years of further growth before they were expected to reenter the critical approach path. Topping can severely impact the tree's health and (especially in the case of cottonwoods) create an extremely hazardous situation in terms of worker and public safety on or around these trees. It was also acknowledged that topping the trees was a temporary and unsustainable solution as the trees would continue to grow into the airspace.

The Portland International Airport (PDX) Economy Parking Lot Environmental Zone Conversion Project was implemented in 2013 as part of an Airport Futures project agreement. In 2013 the Port implemented a project to sustainably address this stand of trees that were again beginning to penetrate the protected airspace of the north runway.

Mitigation Plan

The objective of this project was to permanently protect regulated airspace by converting the stand of cottonwood trees to a habitat consisting of low growing native plants, bringing the site into compliance with the FAA regulatory guidance and to height limits outlined in City zoning code. By shifting the species from a cottonwood dominated forest to a low-growing, highly diverse, scrub-shrub habitat it was expected that some ecological functions and values would be preserved and others potentially enhanced.

The long-term management goals are to establish a self-sufficient and resilient site that requires minimal maintenance, maintain a site that is dominated by native species, maintain similar levels of ecological function and value, protect the airspace from height obstructions, and ensure that the site is not providing habitat for wildlife species of concern for aviation safety.

Approximately 300 cottonwood trees were felled, limbed and removed in September of 2013. Stump removal took place in August of 2014 when the site was dry. Nearly all the stumps in the main project area were reused in local natural resource projects and several were left in-place as habitat and to enhance the structural diversity of the central portion of the project site. The rest of the material (smaller stumps, branches and leaves) was mulched and spread onsite. Stump holes were filled and leveled, and additional mulch was brought in to prepare the ground for planting and to provide a weed barrier prior to planting.

In February 2015, the site was seeded with 100 lbs. (20 lbs./acre) of a native upland seed mix comprised of California brome (*Bromus carinatus),* blue wildrye (*Elymus glaucus),* riverbank lupine (*Lupinus rivularis),* and western yarrow (*Achillea millefolium).* An additional 5 pounds of a diverse wildflower seed mix was seeded in the southwest corner. One week later, 23,000 bareroot shrubs of 16 native species were installed across the site. Wetland, upland, and transition habitat zones had been identified throughout the site according to elevation and the appropriate species were planted in suitable zones. The

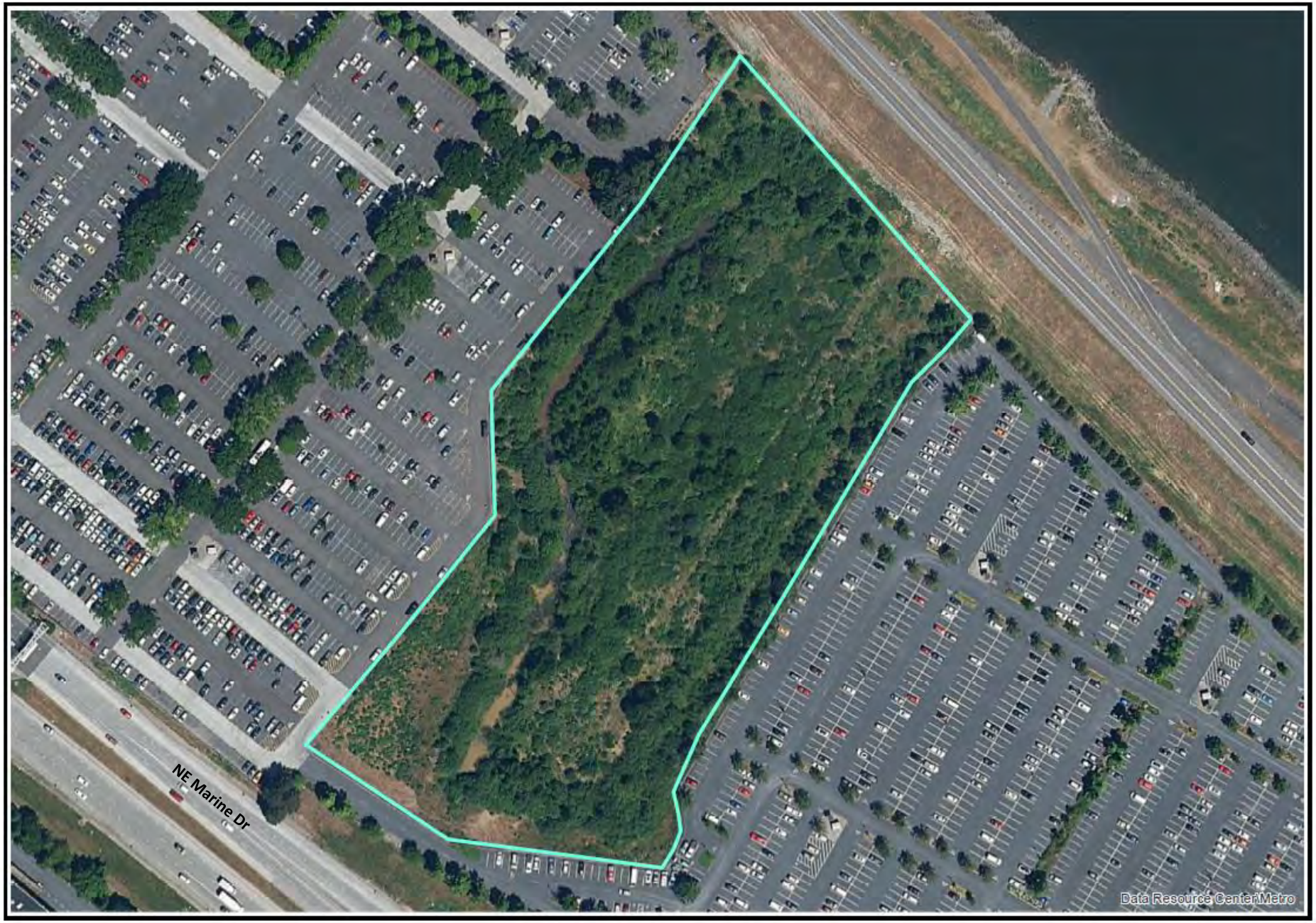
native species selected to replace the cottonwood trees were based on maximum height at maturity, the attractiveness of wildlife species of concern to aviation, and ecological value.

2021-2022 Site Activity Update

2021	
AUG	Hack and squirt; hand cut invasive species
OCT	Hack and squirt; hand cut invasive species
NOV	Hack and squirt; hand cut invasive species

Action Plan for PDX Economy Lot Conversion

2023	
MAY	Treat invasive species throughout the site. Remove trash. Treat any cottonwood trees.
SEP	Treat invasive species throughout the site. Remove trash. Treat any cottonwood trees.



Site Boundary

N

0 Feet 320

II.C-8 PDX Economy Lot E-Zone Conversion

PIC E-ZONE

Mitigation location: Portland International Center
Location of impact: Cascade Station Development, Zone Map Correction by COP
Year released: 2005

Permits and Agreements

- COP LUR-99-00120 EN ZC, Decision recorded August 16, 2000 (Landscape permit 00-124792-ZP)
- COP LUR-99-00071 EN, Decision rendered February 24, 1999
- USACE 071-OYA-4-007950, 1989
- DSL 4925, 1989

Background

The PIC E-Zone enhancement planting project resulted from a Type II Environmental Review by the COP in 1999 for removal of the E-zone designation from 2.04 acres of drainageways in the Columbia South Shore Plan District. These drainages were filled as a result of activities associated with the Cascade Station development. The mitigation includes sites adjacent to a 2.5-acre USACE wetland mitigation site that was constructed in 1989 (USACE 071-OYA-4-007950 and DSL 4925), which is now managed as a part of the PIC E-zone mitigation. The project is also adjacent to the 40-mile loop trail that parallels Northeast Alderwood Road at PIC.

This Environmental Review was linked to a second Type II Environmental Review in 1999 for impacts to the E-Zone from the construction of a bridge over the Columbia Slough (LUR-99-00071EN) as part of the Tri-Met light rail project. The Port was responsible for implementing a portion of the mitigation that consisted of revegetation of approximately 4.5 acres of the E-zone (Transition) along the Columbia Slough between Northeast 82nd Street and Northeast Glass Plant Road. This enhancement project was included as part of the IGA with the BES.

PIC E-Zone

The goal of this mitigation project was to increase the habitat value of wetland and upland scrub-shrub habitat along drainageways where these communities had been degraded. Monitoring began in 2000; vegetation performance data were collected from 2000 through 2005, and wildlife use was recorded from 2001 through 2008. The Port met its 5-year permit monitoring obligation in 2005. The final monitoring report demonstrated at least 80% plant survival with 100% aerial cover in some areas. The Port continues to manage and maintain the site through seasonal inspections, invasive species control, and other maintenance such as trash removal at least three times per year.

Transition Zone

Of the regraded portion of the bank to the Columbia Slough, BES reported adequate survival of planted woody species and patchy but persistent groundcover where the area was seeded in 2006. BES observed a reduction in coverage of Japanese knotweed and suggested caging established trees in the vicinity to protect them from beaver damage.

Mitigation Plan

PIC E-Zone

Mitigation included enhancing 3.8 acres of habitat at PIC, consisting of 1.2 acres of willow scrub-shrub and 2.6 acres of riparian/upland. Following successful completion of the plantings, a total of 6.8 acres, including the mitigation areas, were to be added to the E-Zone.

Planting of the site was completed in April 2000 and 5,927 plants were installed. An additional 910 native plantings were installed in March 2002 to increase plant density in two areas of the site and bare ground in all areas was reseeded with a native seed mix.

Transition Zone

Mitigation for impacts from the construction of a bridge over the Columbia Slough called for enhancement of the 50-foot transition zone on the north shore of the slough. This enhancement project was included as part of the IGA with the COP's BES for Columbia Slough revegetation in March 2000 (Port IGA Number 2000-039; revised June 2002, Port IGA No. 2002-080). Under this agreement, BES was responsible for all ground preparation and planting in accordance with local and state regulations. In July 2001 a total of 2,945 plants were installed, and the area was seeded in October with a native mix. Planting was completed in February 2002 and in all, 4,600 woody plants were installed. BES monitored and maintained the site for 5 years as specified in the IGA. At that time, the Port assumed management responsibilities.

Reference Site

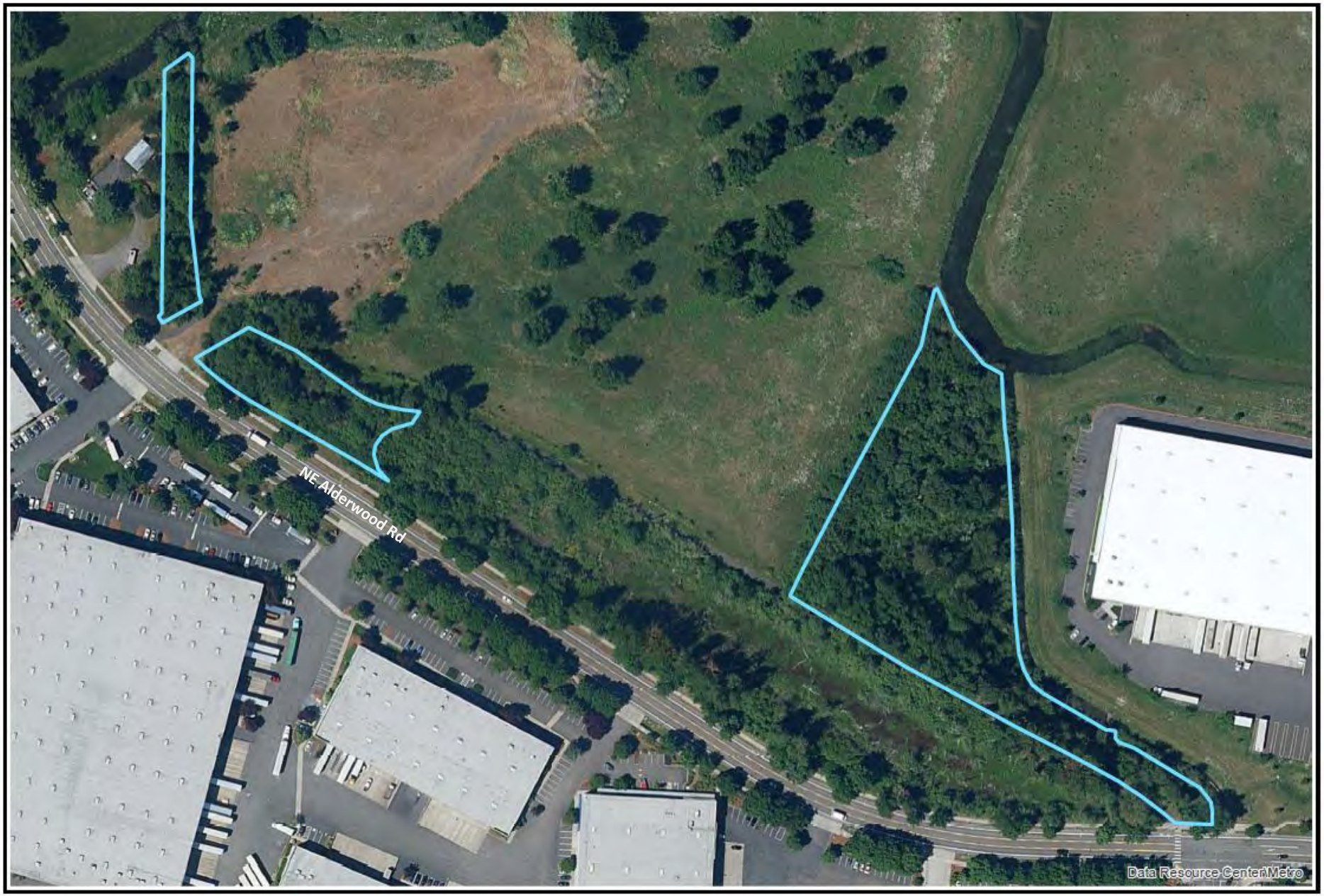
The reference site is adjacent to the mitigation area and is a continuation of the drainageway that is being enhanced. It supports a healthy wetland scrub-shrub/forest community in the lower elevations, and upland scrub-shrub on the slopes.

2021-2022 Site Activity Update

2021	
JUN	Spot treated invasive species throughout site

Action Plan for PIC E-Zone Site

2023	
MAY	Treat invasive species throughout the site. Remove trash. Check trail for fallen branches and remove as needed.
SEP	Treat invasive species throughout the site. Remove trash. Check trail for fallen branches and remove as needed.



Site Boundary

N

0 Feet 500

II.C-9 PIC E-Zone

PIC WETLAND ENHANCEMENT

Mitigation location: Portland International Center, near IKEA and I-205
Location of impact: PDX

Permits and Agreements

- IGA for Airport Futures Project. Port IGA No. 2011-065, effective May 13, 2011.
- COP BDS Zoning Permit 12-109955-000-00-ZP
- COP BDS Zoning Permit 13-228632-000-00-ZP, issued December 13, 2013

Background

As part of Airport Futures, the Port of Portland and the COP entered into an IGA for natural resources enhancements on and around PDX. One natural resource enhancement project that was included in the agreement was Enhancements to the PIC Wetland. The PIC Wetland is directly adjacent to IKEA located west of Interstate 205. The IGA required the Port to convert 6.2 acres of wetland dominated with reed canarygrass and other invasive species to a scrub-shrub community dominated by native shrub species. There were no success criteria required by the COP for this project, nor was there an annual reporting requirement.

Mitigation Plan

The project was planted in two phases. Phase I included 2.36 acres on the western portion of the site and was planted in March 2013. Phase II included 3.84 acres on the eastern side and was planted in February 2014.

There was no soil disturbance associated with this project. Site preparation consisted of mowing and broadleaf invasive species control. Plantings included only native shrubs, which were planted according to hydrologic requirements. In wet areas ("Wet zone"), red-osier dogwood, pacific ninebark (*Physocarpus capitatus*), Sitka willow (*Salix sitchensis*), Douglas spirea (*Spirea douglasii*), and Nootka rose (*Rosa nutkana*) were planted. In transitional areas ("Transitional zone"), tall Oregon grape (*Mahonia aquifolium*), black twinberry (*Lonicera involucrata*), red currant (*Ribes sanguineum*), and thimbleberry (*Rubus parviflorus*) were planted. In the "upland zone", western serviceberry (*Amelanchier alnifolia*), oceanspray (*Holodiscus discolor*), baldhip rose (*Rosa gymnocarpa*), and common snowberry (*Symphoricarpos albus*) were planted.

In the past, invasive species were controlled with mowing but in 2016 more aggressive methods were used; the entire site was treated with herbicide in the spring, summer, and fall of 2016 to reduce the amount of non-native vegetation on site. These areas were then re-planted with 7,350 native shrubs in March, 2017: red current (*Ribes sanguineum* – 1,750 shrubs), black twinberry (*Lonicera involucrate* – 2,000 shrubs), red-osier dogwood (*Cornus sericea* – 900 shrubs), Western serviceberry (*Amelanchier alnifolia* – 900 shrubs), tall Oregon grape (*Mahonia aquifolium* – 900 shrubs) and common snowberry (*Symphoricarpos albus* – 900 shrubs). The lower "wet" (approximately 1 acre) area of Phase II was seeded with a pollinator seed mix. The final goal of this re-plant/seed was to create enhanced pollinator habitat.

As a result of street tree removal during Phase III of the PDX Logistics Center project, tree mitigation was required at the PIC Wetland Enhancement (Phase I) site in 2017. Sixty trees of no less than 5 species were required by the COP for mitigation. Species were chosen to meet these requirements and to also comply with the wildlife hazard management plan for the airport. Tree species and quantity planted at the Phase I site included: 14 red alder (*Alnus rubra*), 14 Pacific madrone (*Arbutus menziesii*), 50 Pacific dogwood (*Cornus nuttallii*), 4 cascara (*Rhamnus purshiana*) and 14 Scouler's willow (*Salix Scouleriana*).

2021-2022 Site Activity Update

2021	
APR-JUN	Hand cut and spot treated invasive species
AUG	Hand cut invasive species
OCT	Spot treated invasive species
NOV	Collected native shrub cuttings for use on other sites
2022	
JAN	Collected native shrub cuttings for use on other sites
FEB	Planted 1,225 native shrubs
APR	Hand cut invasive species
JAN	Collected cuttings on site and installed them in spaces between shrubs.

Action Plan for PIC Wetland Enhancement

2023	
MAR	Treat invasive species throughout phase I and II. Try uprooting field mustard before it goes to bloom.
MAY	Treat invasive species throughout phase I and III.
SEP	Treat invasive species throughout phase I and III. Order plants as needed. Seed areas cleared of milk thistle, velvet grass and mustard.

Site Boundary

N

0 Feet 240

II.C-10 PIC Wetland Enhancement

RANDALL

Mitigation location: 860 NW 334th Avenue, Hillsboro, Oregon
Location of impact: Portland-Hillsboro Airport (HIO), Airport Projects (2001–2011)
Year released: 2015
Long-term Management Plan: July 2016

Permits and Agreements

- Declaration of Restrictive Covenants No. 2001081934
- USACE Permit No. 2001-00059 (Runway Safety Area)
- USACE Permit No. 2005-00257 (Taxiway A)
- USACE NWP 2007-1033 (High Speed Exits and Taxiway C)
- USACE NWP 2008-498 (Aero Air)
- USACE NWP 2011-514 (Runway 2-20)
- Oregon DSL Permit No. 23613-RF (Runway Safety Area)
- Oregon DSL Permit No. 40015-FP (High Speed Exits and Taxiway C)
- Oregon DSL Permit No. 48489-RF (Runway 2-20)
- CWS Washington County File 782
- CWS, Service Provider Letter, File No. 08-000645 (Aero Air)
- CWS, Service Provider Letter, File No. 08-003416 (Taxiway C)
- CWS, Service Provider Letter, File No. 12-000864 (Runway 2-20)
- Washington County Land Use & Transportation Department Review File No. 01-119-FP/W
- Washington County Grading Permit No. 05229229

Background

The Randall Mitigation Site is on both sides of NW 334th Avenue in Hillsboro, Oregon, west of Dairy Creek and south of the Killarney West Golf Course. 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 wetlands (scrub-shrub), upland and riparian forest, and open fields used as pasture for several decades. The 22.3-acre site was constructed in 2003 to provide compensatory wetland mitigation for the Runway Safety Area Project at HIO and advanced mitigation credit for future projects. Since its construction, 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, enhancing the wetland buffer, to comply with CWS.

Mitigation Plan

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 6.68 acres of enhanced wetland, 3.32 acres of created wetland, and 1.82 acres of restored wetland area, for a total of 6.25 acres of wetland mitigation credit to compensate for the loss of 5.92 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 upland habitat.

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.

TABLE 10: 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	0.030	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 regraded 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.

TABLE 11: RANDALL MITIGATION SITE CREDIT BALANCE

Type	PEM-E	PSS-E	PSS-R	PSS-C	PFO-E	PFO-C	*RB	*UFB	*UFR	*RBR	Total *Wetland* Acres
Baseline wetland acreage	6.58	–	–	–	–	0.58	0.74	0	0	0	7.16
Adjusted wetland acreage following mitigation	5.67	0.78	1.52	0.5	0.2	3.59	0.74	2.17	2.94	0.57	12.26
Adjusted wetland acreage following 2006 delineation	5.67	0.78	1.52	0	0.2	2.17	0.74	2.17	2.94	0.57	10.34
Adjusted wetland acreage following 2007 regrade	**5.67**	**0.78**	**1.52**	**0.5**	**0.2**	**3.09**	0.74	2.17	2.94	0.57	**11.76**
Acreage used for Impacts											
Runway Safety Area	5.67	0.78	1.52	0.5	0.2	1.99	–	–	–	–	10.66
Taxiway A	–	–	–	–	–	0.17	–	–	–	–	0.17
High Speed Exits	–	–	–	–	–	0.18	–	–	–	–	0.18
Aero Air	–	–	–	–	–	0.17	–	0.06	–	–	0.17
Taxiway C	–	–	–	–	–	0.09	–	0.03	–	–	0.09
Runway 2-20	–	–	–	–	–	0.41					0.41
Total acreage used to date	5.67	0.78	1.52	0.5	0.2	3.01	0	0.09	0	0	11.68
Total acreage remaining	0	0	0	0	0	0.08	0.74	2.08	2.94	0.57	**0.08**
Total credits remaining	0	0	0	0	0	0.05	–	–	–	–	**0.05**

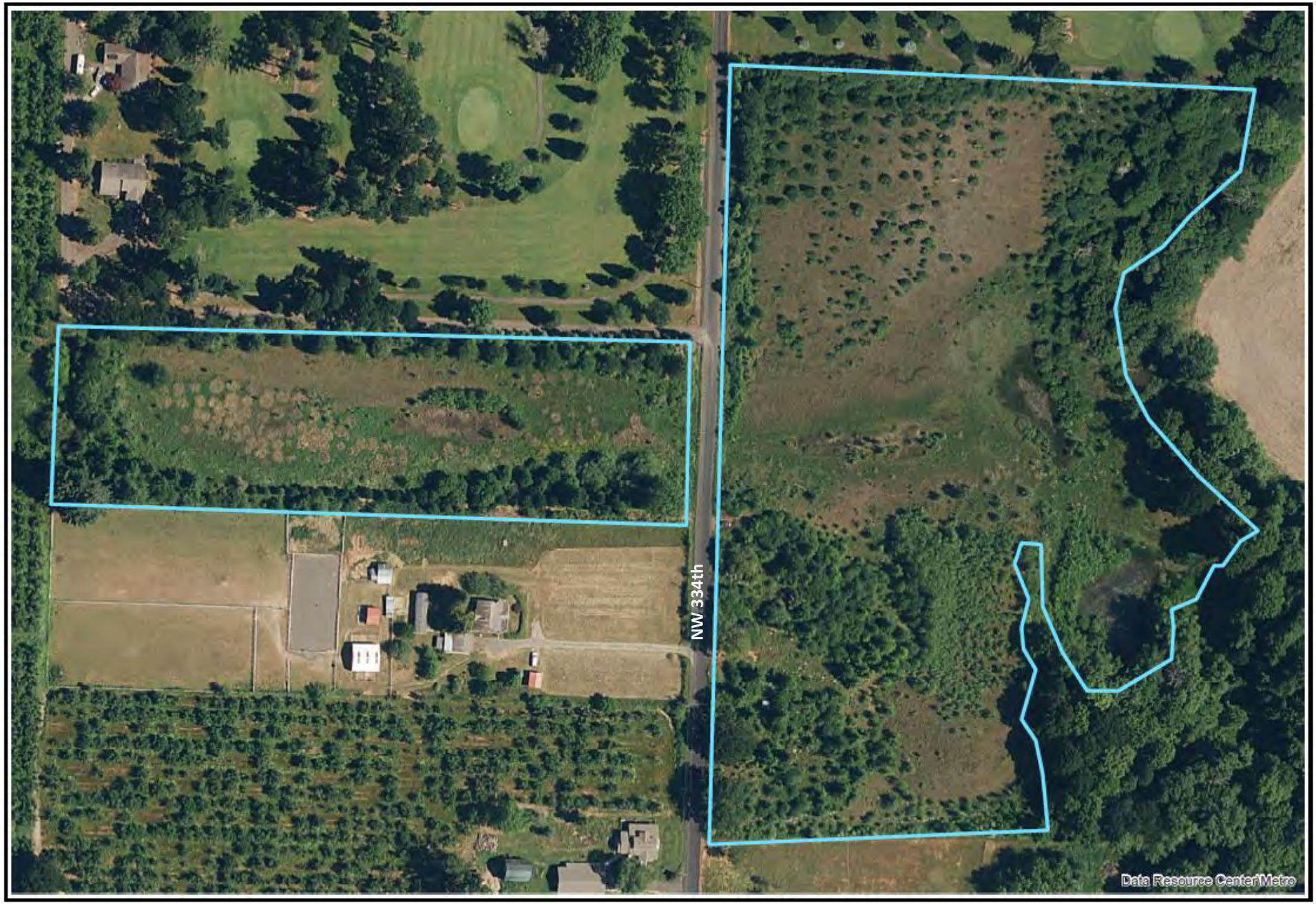
C = creation; E = enhancement; R = restoration; RB = riparian buffer, UFB = upland forest buffer, UFR = upland forest Restoration, RBR = riparian buffer restoration. * Upland acreage not included in total.

2021-2022 Site Activity Update

2021	
MAY	Hack and squirt blackberry
JUN	Spot treated invasive species
2022	
MAR	Planted bareroot/gallon plants in SW corner of East side - 300 C. douglasii, 250 M. aquifolium, 130 M. nervosa and 200 S. racemosa. Planted 300 R. spectabilis along Dairy Creek.
APR	Brushcut around plantings along Dairy Creek; cut/treated large patches of tree-of-heaven, privet, non-native cherry in area east of 334th, between gates. Invasive species handcut or weedwacked include meadow foxtail, mullein, velvetgrass
OCT	Mowed

Action Plan for the Randall Site

2023	
APR	Treat invasive species around new plantings along Dairy Creek and in upland areas.
JUL	Treat invasive species in seasonal wetland areas throughout the site - Target RCG and meadow foxtail.
SEP	Treat blackberry along fenceline and scan entire site for invasive species (especially around new plantings)
2024	
MAR	Plant bareroot shrubs along Dairy Creek.



Site Boundary

N

0 Feet 400

II.C-11 Randall

RIVERBANK PROJECTS

Permits and Agreements

Terminal 4 (T-4), Berth 408
- USACE Permit No. 2000-479 – NWP 03 and 13
- Oregon DSL Permit No. GA-22613
- NMFS Letter of Concurrence, September 14, 2000
- COP LUR 00-00369 GW

T-4, Pier 2, Rail Yard Improvements
- COP LU No. 05-176115 GW
- EPA Administrative Order on Consent for Removal Action

T-4, Toyota Riverbank Restoration
- USACE Permit No. 2001-00553
- Oregon DSL Permit No. 24231-RF
- NOAA Invasive Species Management Permit No. 2004/00423
- COP LU 02-116099 GW

Terminal 5 (T-5), Berth 503
- USACE Permit No. 96-711
- Oregon DSL Permit No. RF-11224
- Oregon DEQ letter dated August 9, 1996

Terminal 6 (T-6), Berth 607
- USACE Permit No. 2000-347–NWP 03 and 13
- Oregon DSL Permit No. 22389-FP
- NMFS Letter of Concurrence, September 14, 2000
- COP LUR 00-00243 EN

T-6, Berth 607, Honda Dock Improvements
- Oregon DSL Permit No. 35399-FP
- USACE Permit No. 2005-00638
- COP, LU 05-174695 EN

Background

The Port's Marine Operations section manages a variety of constructed and natural riverbanks and has initiated a Riparian Zone Management Program to address conditions along the Willamette and Columbia Rivers in association with its other programs. A number of these projects involve vegetation enhancements or stabilization improvements and do not have mitigation permit requirements. These projects are managed entirely by Marine Operations Property Maintenance with natural resource guidance and regulatory monitoring and reporting provided by Natural Resources staff.

The responsibility for design, permitting and maintenance of the Riparian Zone Management Program rests with Marine Operations staff. Maintenance of vegetation and control of invasive weed species are performed by the Port's Marine Operations Landscape Maintenance Group in consultation with Natural Resources and Mitigation staff. Staff provide technical advice regarding plant species selection for vegetation diversity and wildlife value. Staff also monitor the sites for performance and permit compliance, provide guidance for adaptive management, and prepare monitoring reports for submittal to regulatory agencies (when applicable) or to guide future actions. The Port's Marine Operations Landscape Maintenance Group continues to provide invasive species management as necessary to all the Riverbank sites during and after the permit compliance period.

Terminal 4, Berth 408
The Berth 408 project involved stabilizing and replanting approximately 3,200 square feet (0.07 acre) of the Willamette riverbank at T-4, Berth 408. Riprap was placed on the riverbank, and the riprap and upper portions of the bank were planted. Permits required planting 53 (USACE, DSL, DEQ) and 121 (COP) woody plants. In all, 123 trees and shrubs were planted, including black hawthorn, red alder, red-flowering current, common snowberry, and Nootka rose, and live cuttings of local willow species were planted below an elevation of 17 feet. A piped irrigation system was also installed. The work was completed by February 2001. In 2002, eight additional tree/shrubs were planted on the slope. The site was monitored for 3 years. The final monitoring report (2004) indicates that the total survival of plantings exceeded the required 80% and met permit compliance.

T-4, Pier 2, Rail Yard Improvements (Willamette Greenway)
The Willamette Greenway (1,370 linear feet) planting occurred in September 2007 because of rail yard improvements to the adjacent upland at T-4. In November 2007, shortly after planting was complete, heavy rains caused bank erosion adjacent to Wheeler Bay. The erosion was temporarily stabilized with class 50 riprap. During the summer and fall of 2008, as part of the Phase I T-4 Removal Action, the Port restructured the entire slope adjacent to Wheeler Bay to address areas of soil contamination in over-steepened conditions and to prevent future erosion. This action constituted a source control measure required by the Portland Harbor Cleanup. Replanting and seeding of the slope and Greenway was completed in November 2008.

The 1,370 linear feet of Greenway was planted in two sections that are adjacent to an existing Greenway project (LUR 9600269 GW). Plantings included 180 native trees and 850 native shrubs. The regraded Wheeler Bay slope was planted with 120 native trees, and 210 native shrubs in November 2007. The entire slope and Greenway was seeded with native seed mix, including California brome, Sitka brome (*Bromus sitchensis*), California oatgrass (*Danthonia californica*), blue wildrye, slender wheatgrass (*Elymus trachycaulus*), Roemer's fescue (*Festuca idahoensis*), bluefield gilia (*Gilia capitata*), and checkermallow (*Sidalcea* sp.), which was applied at 90 pounds per acre for a total of about 64 pounds. The site was monitored for 3 years. Final monitoring in 2011 indicated that tree and shrub density exceeded Greenway Standards and groundcover averaged 96% cover with no invasive species observed in sampling plots. Mitigation met permit compliance.

T-4, Toyota Riverbank Restoration
The T-4 Toyota site is zoned Heavy Industrial, with a River Industrial Greenway overlay designation. The River Industrial Greenway zone (enforced by COP) encourages and promotes the development of river-dependent and river-related industries that strengthen the economic viability of Portland as a marine shipping and industrial harbor, while preserving and enhancing the riparian habitat. The existing use of the T-4 Toyota site consists of a river-dependent industrial operation for the transfer of vehicles from ocean going vessels to inland destinations. The Greenway Review (LU 02-116099 GW) was approved in July 2002, and work was completed in December 2003. Permits were also obtained through the USACE (2001-00553), DSL (24231-RF), and NOAA Fisheries (2004/00423).

The Toyota Riverbank Restoration site encompasses 11.2 acres (5,250 linear feet) of river frontage at T-4 and includes a regraded shoreline, new outfalls, stormwater containment and treatment swales, native riparian vegetation, anchored logs, and a cellular confinement system to provide bank stabilization. This project required city, state, and federal permits and was completed in December 2003. In all, 541 trees and 11,791 shrubs were installed, and over 2,000 pounds of native seed were applied (Riverbank Planting Seed Mix and Bioswale Seed Mix) at a rate of 200 pounds per acre. Plantings were irrigated with a piped irrigation system, and weeds were controlled by herbicide and non-herbicide methods. The site was monitored for 3 years to meet 80 percent survival of plantings. Final monitoring in 2006 indicated that

plant survival exceeded 100% due to colonization by desirable trees and shrubs and met permit compliance.

T-4 Berth 411 Underdeck Walkway Access Project
The T4 B411 Underdeck Walkway Access Project was in support of a walkway ramp at the southeast corner of Berth 411. The new walkway ramp replaced a primitive trail used to access the underside of the dock with some serious safety concerns related to access. This project permanently impacted 75 square feet of riverbank within the Greenway setback and required replanting and enhancement of the area immediately surrounding. The area of permanent disturbance to construct the upper landing was approximately 80 square feet and included a concrete slab supporting the terminus (landside) portion of the walkway. The area of temporary disturbance was an additional 50 square feet. The area of disturbance is above top of bank and relatively devoid of shrub strata vegetation and was dominated primarily by Canada goldenrod. The installation of the proposed walkway ramp did not compromise the function of the Greenway and a majority of the structure is elevated above steep non-vegetated ground, the temporary disturbance area was restored with native shrub plantings at 1 shrub every 4 feet on center (10 – 12 shrubs). Three small pine trees impacted by the permanent disturbance were replaced with three additional native trees appropriate for the location and structure design. Restoration of the area at the top of the stairs, an area of approximately 50 square feet, was completed with several shrub plantings (5 additional shrubs) and native grass seeding. All disturbed ground resulting from activities was seeded with native grass after completion of the project in spring 2019.

Terminal 5, Berth 503
Bank stabilization at Berth 503 was undertaken to repair damage caused by the 1996 flood to the Willamette River frontage at T-5. The bank was reconstructed using sand fill, rock, and riprap up to 20 feet National Geodetic Vertical Datum (NGVD) and mechanically stabilized earth (MSE) above 20 feet NGVD. The MSE of the slope was planted initially in spring 1997 with red-osier dogwood and Sitka willow live stakes. A number of these live stakes did not survive, and the area was replanted in March 1999 and again in October 2000 with supplemental plantings, including Scouler's willow and Sitka willow, which are more tolerant of drier conditions than the original plantings. In December 2002, other areas of the site were planted with red alder, red elderberry, Indian plum, and black cottonwood. The upland area adjacent to the slope is in the COP's Greenway and was planted to exceed Greenway planting requirements. The total mitigation area, including the slope and Greenway, is approximately 34,000 square feet (0.8 acre). An irrigation system was installed and used until the plants became established. Beaver protection around selected trees was used to limit damage. The site was monitored for 3 years to meet 70 percent survival of planted trees and shrubs. Final monitoring in 2005 indicated 78% plant survival and met permit compliance.

Terminal 6, Berth 607
Mitigation at Berth 607 was a result of impacts to surrounding habitat caused by repairing two outfalls on the Columbia River that were heavily eroded in 2000. The two areas were repaired by April 2001 and planted with native trees and shrubs to provide stabilization of the outfalls and riverbank. The permit required planting approximately 23,200 square feet (0.5 acre) with 1,690 woody plants. Planting occurred over a slightly larger area (0.7 acre) and consisted of 2,560 native trees and shrubs, including black hawthorn, Oregon ash, red alder, Indian plum, Oregon crab apple, red flowering current, salmonberry, common snowberry, red-osier dogwood, and Pacific willow. Invasive vegetation was removed, silt loam was spread over the sand, and MSE and a piped irrigation system were installed.

Mitigation success required 80% survival of the total number of plantings (minimum of 1,352 plants) after 3 years (DSL) and 5 years (DEQ), with replacement of dead plants equaling at least 90% of the original number during the first 2 years (COP). The COP also required that plantings achieve 90% cover of all exposed soils above 14 feet elevation within 2 years of project completion. DSL also required no

more than 20% cover of exotic species after the third monitoring year, whereas the COP required continued removal of all invasive species during the monitoring period. Year 3 (2004) monitoring results indicated that plant survival exceeded 80% and invasive weed cover was less than 20% and met all permit requirements.

Honda Dock Improvements (T-6, Berth 607)
In 2006, the Port replaced a portion of the Honda facility to improve operational efficiency and safety. The improvements included widening the access ramp to Berth 607, repairing deteriorated pilings, removing creosote-treated dolphins, installing new steel dolphins, and adjusting the ballast from the floating dock. Native planting was required due to construction-related bank disturbances within the E-zone (COP).

The planting plan was designed to complement existing native vegetation and to allow an unobstructed view of the unloading area from the building. It was also designed to maintain a 25-foot security corridor between the fence and the plantings. Plantings were interplanted among existing native trees and shrubs. The planting area covered approximately 6,300 square feet (0.14 acre) of the 1.21-acre mitigation area from the top of bank landward to within 25 feet of the security fence, between and on both sides of the two access bridges for Berth 607. Plantings were installed in March 2007 and included 150 native trees and shrubs, including red alder, Oregon ash, black hawthorn, Indian plum, snowberry, red flowering currant, Nootka rose, tall Oregon grape, twinberry, Douglas' spirea, and mock orange. All disturbed areas were seeded with a native seed mix at a rate of 20 pounds per acre.

The site was monitored for 3 years for 80% survival of planted trees and shrubs and 80% cover of desirable species. Invasive species cover not to exceed 20%. Year 3 (2010) monitoring results indicated that overall tree and shrub survival exceeded 100%, invasive species cover was 1.3%, and desirable cover was 100% and met all performance criteria.

Site Stewardship
Riverbank sites are maintained by the Port's Marine Facilities Maintenance staff. Site activities include invasive species control efforts, litter removal, replacement planting and watering if needed.

Site Boundary

N

0 Feet 2,000

II.C-12.1 Riverbank Projects on the Willamette

II.C-12.2 Riverbank Projects on the Columbia (Honda Dock)

RIVERGATE ENHANCEMENT SITES & RAMSEY LAKES

Mitigation location: Rivergate Industrial District, North Portland
Location of impact: Rivergate Industrial District, North Portland
Year released: 2010 and 1999, respectively
Long-term Management Plan: January 2022

Consent Decree

- Consent Decree, Order of Dismissal with Prejudice and Release. Case No. CV-97-1674-ST, November 22, 2000
- Consent Decree Settling United States' Cross-Claim Against Port of Portland, January 31, 2001
- First Amendment to Consent Decree and to Enforcement Consent Decree, September 20, 2002

Permits and Agreements

- USACE Permit NWP32-2001-00247 August 17, 2001 (Leadbetter)
- USACE Permit NWP32-2001-00247 December 17, 2001 (All, excluding Leadbetter and 40-mile loop trail)
- USACE Permit NWP32-2002-00133 September 24, 2002 (40-mile loop trail)
- Oregon DSL Permit No. 23801-RF (all, excluding 40-mile loop trail)
- Oregon DSL Permit No. 25119-RF (40-mile loop trail)
- NMFS Biological Opinion December 17, 2001 (all, excluding 40-mile loop trail)
- NMFS Biological Opinion August 23, 2002 (40-mile loop trail)
- COP LUR 01-00567EN, recorded February 14, 2002 (South bank, Visual buffer, Culvert removal)
- COP LUR 01-00568EN, recorded December 6, 2001 (Leadbetter, North bank, Lombard undercrossing)
- COP LUR 02-125102EN, recorded September 4, 2002 (Ramsey)
- Declaration of Restrictive Covenant regarding DSL Permit No. 25119, November 2002
- COP LUR 02-134231EN, recorded December 26, 2002 (40-mile loop trail)
- COP LUR 98-00426, 1998
- COP LUR 95-00943 EN, 1998
- NMFS Biological Opinion July 14, 2004 (all Rivergate Enhancement sites and T-4 Toyota)

Background

This project is a result of a federal consent decree settling a citizen lawsuit against the Port (Jones *vs.* Thorne *et al*., 2001) and several other agencies. The consent decree was signed on January 31, 2001, and it specifies mitigation actions for wetland fills that occurred during the development of the Rivergate Industrial Park over the past 30 years. Mitigation was designed to restore and enhance approximately 43.7 acres of wetland and riparian habitat for native plants and wildlife in the Rivergate area. The consent decree supersedes several earlier mitigation projects including the Ramsey Lakes MOA.

The Rivergate Enhancement project includes two other prior mitigation efforts required by the COP in 1998:

- The Pacific Gateway project (LUR 98-00426) was a mitigation requirement for construction of a stormwater outfall within the COP's E-zone on the north bank of the Columbia Slough adjacent to the rail bridge in Rivergate. Mitigation consisted of planting native trees and shrubs (18,500 square feet) on the north side of the slough from the ordinary high water to the top of the natural bank. Mitigation design was based on revegetation standards from the Columbia South Shore Natural Resources Protection Plan. Site preparation included spraying and clearing blackberry

before planting. Live willow stakes were installed within the riprap, and over 600 native trees and shrubs were planted at the top of bank; planting was completed in 1999.

- The Slough Rail project (LUR 95-00943 EN) was a mitigation requirement for a rail crossing over the Columbia Slough to expand capacity and provide more efficient rail service in the Rivergate Industrial District. The site of the crossing was in an E-zone and within the Smith and Bybee Wetlands Natural Area. The construction involved the removal of six trees. Two sites were planted in 1998 as a mitigation requirement for impacts in the COP's E-zone, including 1.4 acres of native understory planting within the 150-foot buffer area on the north side of the slough, and 3.5 acres of native vegetation along the development boundary between the rail yard and the Ramsey Lakes mitigation site. Components of the Rivergate Enhancement project met success criteria in 2009 and were released of further monitoring and reporting obligation in 2010 by the regulating agencies.

Mitigation Plan
The goals of mitigation are to increase or restore the following wetland functions: water storage capacity, thermoregulation, anadromous fish habitat, amphibian habitat, waterfowl habitat, and native plant communities. The mitigation plan is divided into eight discrete elements:

1. Construction of an 8-foot-wide asphalt path under the Lombard Street Bridge.
2. North bank, Columbia Slough: removal of fill to native soils and native plantings over a width of 150 feet and length of approximately 1,400 feet between the Lombard Street bridge and the Columbia Slough rail bridge; slopes no steeper than 3:1; construction of 800 feet of swale at least 10 feet wide and 1–2 feet below native soils and parallel to the Columbia Slough.
3. South bank, Columbia Slough: removal of fill to native soils and native plantings over a width of 50 feet and length of approximately 1,550 feet between the Lombard Street bridge and Columbia Slough rail bridge; slopes no steeper than 3:1.
4. Leadbetter Peninsula: removal of fill to native soils and native plantings over a width of 125 feet around the eastern, southern, and western boundaries of the peninsula, and a contoured slope to have an average of no greater than 4:1 grade for approximately 75 feet on the upland edge beyond the excavated area; construction of 1,500 feet of swale at least 10 feet wide and 2–4 feet below native soils and parallel to the toe of the fill slope.
5. Ramsey Lake visual buffer of native shrubs and trees along a corridor with a width of 10–100 feet at the top of slope west and north of Ramsey Lake mitigation area.
6. Ramsey Lake enhancement: removal of fill to 14 feet NGVD and construction of two meandering swales with a combined length of 2,000 feet and individual width of at least 50 feet at approximately elevation 10 feet NGVD; swales to connect to the slough at the upstream and downstream ends; and native plantings.
7. Culvert removal and removal of existing fill to the bottom of the elevation of the culvert adjacent to and east of the railroad bridge on the south side of the Columbia Slough.
8. Construction of a segment of the 40-mile loop trail from the rail bridge east to the Port's property line and mitigation for impacting 1.67 acres of wetland for trail construction. On-site wetland mitigation consisted of enhancement of 5.0 acres of reed canarygrass dominated wetland adjacent to the 40-mile loop trail near its terminus at the Port's property line. Enhancement measures were designed to re-establish forested wetland with native trees and shrubs and initially control reed canarygrass through a combination of burning, mowing, limited chemical applications, and shading.

Reference Site
The Smith and Bybee Wetlands Natural Area was used as a reference site to identify appropriate species composition and planting densities.

Ramsey Lakes

The Ramsey Lakes site, now managed with the Rivergate Enhancement sites, was established because of the Rivergate Cooperative Agreement in 1988. The agreement was between DSL, ODFW, EPA, USACE, USFWS, and the Port. The cooperative agreement established mitigation obligations for the Port's planned development of the Rivergate Industrial area and included the establishment of Ramsey Lake wetlands. This agreement was superseded by the Rivergate Consent Decree signed on January 31, 2001. The consent decree leaves the Ramsey ponds, slopes to the west of the ponds, and a 100-foot buffer to the east of the ponds intact (approximately 35 acres). The Ramsey Lakes site was released in 1999.

As previously mentioned, primary goals of the mitigation plan were to diversify habitat, enhance emergent and riparian vegetation, and improve wildlife habitat values. Ramsey Lakes wetlands consist of three excavated ponds with a total of at least 16 acres of water surface area. Construction was completed in 1990 and material removed from the lakes was used for construction of adjacent fill dikes or islands and used to enhance upland soil before planting. The wetland fringe and islands associated with the ponds were planted with native vegetation. Following completion of enhancement activities specified by the consent decree, the 100-foot buffer area was set aside as turtle nesting habitat and management activities for this area focused on restoring open native grassland.

2021-2022 Site Activity Update

2021	
FEB	Hack and squirt blackberry on Ramsey islands
MAR	Interplanted Ramsey islands, forest openings and edges; spot treat invasive species
JUN	Broadcast sprayed "RCG Restoration Site" (north buffer to Leadbetter) for multiple invasive species
JUL	Hand-cut/brush-cut invasive species at Ramsey
AUG	Spot treated invasive species on Ramsey islands; cut and treated purple loosestrife at Leadbetter; spot treated invasive species at "RCG Restoration Site"; spot treated *Ludwigia peploides* and other invasive species at Leadbetter; brush-cut 40-Mile-Loop
NOV	Planted "RCG Restoration Site" with 3,000 sedge plugs include *Carex aperta*; planted 210 willow stakes at north edge of restoration site
DEC	Seeded pollinator mix on Ramsey islands and western shoreline
2022	
FEB	Interplanted Ramsey Enhancement area and islands with 2,800 native trees and shrubs; planted 2,300 native trees and shrubs at "RCG Restoration Site"
MAR	Spot treated Ramsey islands for invasive species
AUG	Spot treated Ramsey islands for invasive species
SEP	Spot treated Ramsey islands for invasive species

Action Plan for the Rivergate Enhancement Sites & Ramsey Lakes

2023	
MAR-APR	Clean out and raise purple martin gourds in April. Maintain new plantings on islands/lake edges/forest openings/edges. Treat invasive species throughout the site.
JUL	Maintain new plantings on islands/lake edges/forest openings/edges. Treat invasive species throughout the site.
SEP	Order plants and seed for re-plant of islands/lake edges/forest openings and sandy open areas.
2024	
MAR	Plant bareroot shrubs/trees on islands/lake edges/forest openings.

II.C-13 Rivergate Enhancement Sites & Ramsey Lakes

TRIP PHASE I, COMPANY AND EAST LAKES, & TREE MITIGATION

Mitigation location: Troutdale, Multnomah County, Oregon
Location of impact: Troutdale, Multnomah County, Oregon, TRIP development
Year released: 2020
Long-term Management Plan: December 2022

Permits and Agreements

- Troutdale Conservation Easement with OPRD, 162139, December 13, 2007
- USACE Permit No. NWP-2007-889, May 28, 2009, TRIP Phase I Development
- Oregon DSL Permit No. 40094-RF, February 10, 2011, modified 2014, TRIP Phase I Development
- USACE Permit No. NWP-2011-432, August 9, 2013, PDX Logistics Center

Background

In 2007, the Port purchased the Reynolds Metals Corporation property for development as the Troutdale Reynolds Industrial Park (TRIP). The TRIP project embodies the concept of beneficial reuse of a large brownfield site, in particular a Superfund-designated clean-up site. Development of the site began in 2008 with the Phase I construction of the FedEx Ground automated package distribution center. This development encompassed approximately 142 acres, 8,500 linear feet of paved trail on top of the levee, a new road (NW Swigert Way), the relocation of approximately 1,670 linear feet of Salmon Creek and its tributaries to accommodate the future widening of Sundial Road, the construction of a new utility corridor, and the construction of stormwater facilities for the new development. Phase I development impacted 0.28 acre of degraded wetland that was dominated by reed canarygrass and Himalayan blackberry and 0.53 acre of waters (Salmon Creek and two tributary ditches). Mitigation for Phase I consisted of a 0.42-acre wetland creation at East Lake. The mitigation site also provides advanced mitigation (3.18 credits) for future development (see TRIP Phase II mitigation in Section V of this report). Year 1 monitoring began in 2010. In 2013, the PDX Logistics Center project impacted 0.98 acre of USACE-jurisdictional wetlands near PDX. Advance creation credits at East Lake were approved to mitigate for the impact. By May 2015, due to prolonged inundation, the site was not meeting success criteria for groundcover and tree/shrub establishment, so the Port requested a permit modification to extend monitoring through 2019 (10 years) to allow further opportunity for plant establishment.

Tree Mitigation includes two sites that are adjacent to one another and located north of the levee and east of East Lake. The 300 Trees site was required as mitigation by the USACE for impacts incurred during Phase I of the TRIP development project. The 1290 Trees site was required by the City of Troutdale as mitigation for the removal of trees during Phase II/III of the TRIP development project. The two sites are now well established and managed as a whole.

Mitigation Plan

The goals of the mitigation plan (revised March 2015) for TRIP Phase I are as follows:

- Establish a minimum 0.42-acre created emergent and scrub-shrub wetland at East Lake (1.5:1 ratio) to mitigate for impacts associated with TRIP Phase I development.
- Establish a minimum of 1.47 acres of created emergent and scrub-shrub wetland at East Lake to mitigate for impacts associated with the PDX Logistics Center. In addition, the Phase I mitigation project was to provide advance credits.
- Improve wildlife habitat by diversifying vegetation and installing large woody material and snags.
- Establish wetland hydrology in the mitigation area.
- Create native-dominated wetland community in the mitigation area.

The completed wetland mitigation site includes planted 4:1 and 5:1 slopes, a hummock at 13 feet NGVD, and two shallow swales excavated to approximately 8 feet NGVD. The slopes and wetland bottom were seeded with native species. Silts encountered during grading were stockpiled and used as a 4- to 6-inch amendment to the slopes. Five cottonwood trees were removed from the excavation area, cut into manageable pieces, and stockpiled before excavation began. Eight habitat logs, two with root balls intact, were then placed in the wetland once grading was complete.

Additional Information

As required by the 2018 Year 9 reporting requirements, the Port contracted a third party (SWCA) to conduct a final wetland delineation and vegetation monitoring of the mitigation site. The delineation showed that more area had been created and enhanced than was originally proposed. The table below provides the revised area and credit number which are subject to agency review and approval. This table represents the final ledger approved by DSL upon site release in January 2020.

TABLE 12: TRIP PHASE I MITIGATION SITE CREDIT LEDGER

Wetland Name	PEM Acres-C	PFO/PSS[5] Acres-C	PEM Acres-E	PFO/PSS[5] Acres-E	Total Acres-C[1]	Total Acres-E[1]	Credits-C	Credits-E	Total Credits[1]
East Lake Wetland	1.61	2.55	0.43	0.01	4.16	0.44	2.77	0.15	2.92
Company Lake Wetland	0.59	1.49	0.79	0.49	2.08	1.28	1.39	0.43	1.81
Subtotal	2.20	4.04	1.22	0.50	**6.24**	**1.72**	4.16	0.57	**4.73**
Impacts	**DSL**	**USACE**			**Mitigation Acres Used**		**Mitigation Credits Used**		
Project	**Permit**	**Permit**			**Acres-C**	**Acres-E**	**Credits-C**	**Credits-E**	**Credit Balance**
TRIP Phase I[2]	40094-RF	NWP-2007-889			0.42	0	0.28	0	0.28
PDX Logistics Center[3]	N/A	NWP-2011-432			1.47	0	0.98	0	0.98
Subtotals:					1.89	0	1.26	0	**1.26**
Advance Credit Balance[4]:					4.35	1.72	2.90	0.57	**3.47**

E = enhancement, C = creation

1. Wetlands acres/credits are based on 2018 Wetland Delineation by SWCA.

2. As per modified permit NWP-2007-889, Port shall compensate the loss of 0.28 acre of PEM wetlands with 0.42 acre of creation at the TRIP Phase I mitigation site at East Lake (1.5:1).

3. As per permit NWP-2011-432, Port shall compensate the loss of .98 acre of PEM wetlands by debiting 1.47 acres from the TRIP Advanced Mitigation acreage (1.5:1).

4. Remaining advance mitigation acreage potentially available must be verified by USACE and DSL at the time a project is proposed/application submitted.

5. East Lake acreage is primarily PSS wheras Company Lake is primarily PFO/PSS

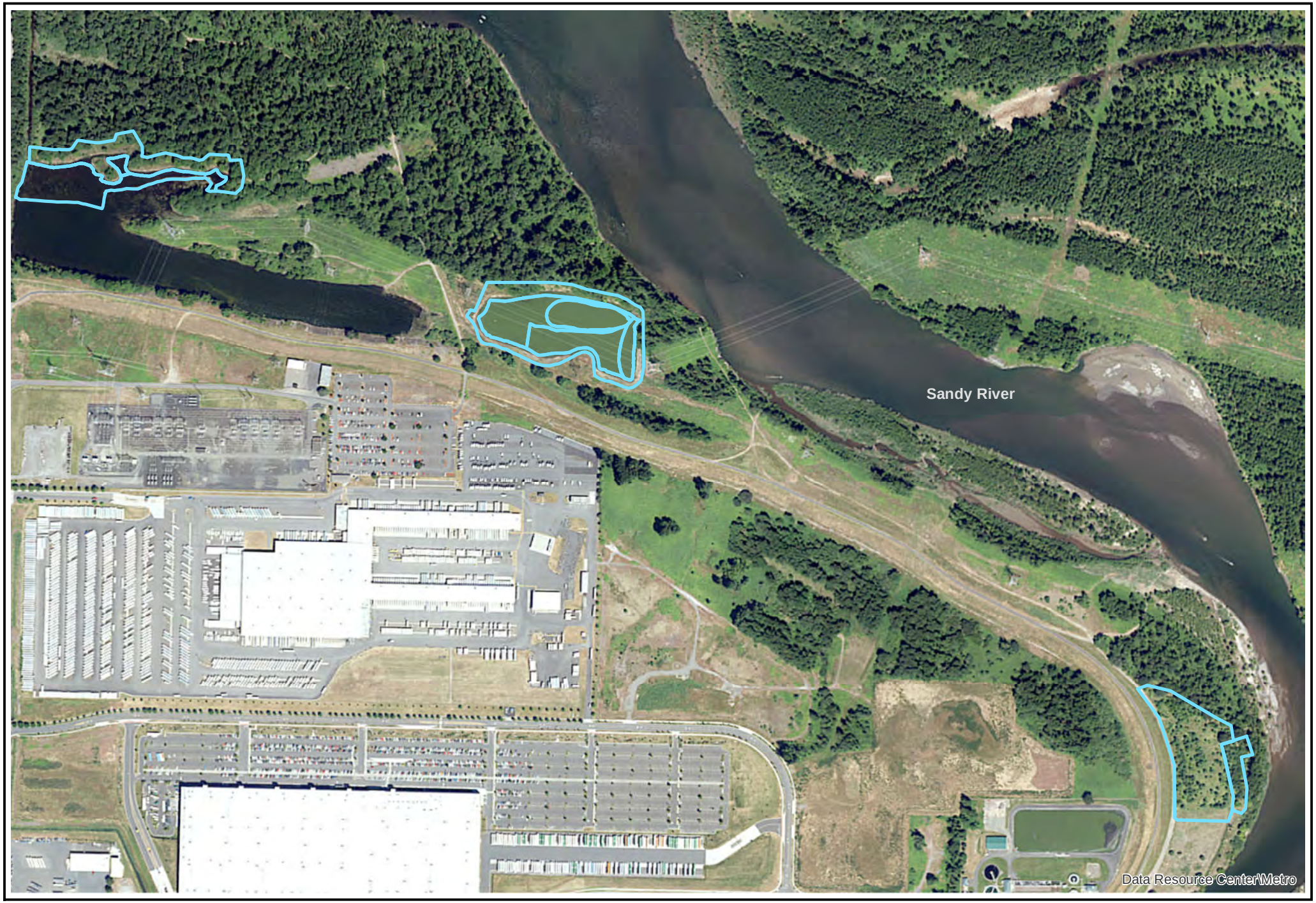
2021-2022 Site Activity Update

2021	
MAR	Planted buffer at 1290 Trees
APR	Spot treated invasive species at 1290 Trees
MAY	Stump cut blackberry and spot treated invasive species in buffer at 1290 Trees
JUN	Constructed turtle nesting habitat patch at East Lake
JUL	Spot treated invasive species in buffer at 1290 Trees
SEP	Spot treated invasive species in buffer at 1290 Trees
OCT	Hand cut and brush-cut invasive species at 1290 Trees; spot treated invasive species in buffer at 1290 Trees; stum-cut Scotch broom and blackberry
NOV	Planted 2,000 *Camassia quamash* in buffer at 1290 Trees; spot treated invasive species in buffer at 1290 Trees
DEC	Seeded pollinator mix in buffer at 1290 Trees
2022	
FEB	Planted 1,400 native herbaceous plugs in buffer at 1290 Trees

APR	Sign installation/repair at Company Lake; spot treated invasive species at 1290 Trees
MAY	Spot treated invasive species in buffer at 1290 Trees
SEP	Mowed at 1290 Trees.
DEC	Completed Long-term Management Plan

Action Plan for Company & East Lakes & Tree Mitigation

2023	
APR	Spring treatments of invasive species if water levels are low enough within wetland areas of East and Company Lake. If it's flooded then focus on treatments of invasive species in upland buffer areas. Maintain turtle nesting patch. Clean out and raise purple martin gourds. Spring treatments of the tree sites.
JUL	Summer treatments of invasive species once water levels have gone down within wetland areas of East and Company Lakes. Maintain turtle nesting patch. Summer treatment of invasive species at the tree sites.
SEP	Fall treatments of invasive species - focus on blackberry and anything missed in the summer. Maintain turtle nesting patch.
2024	
MAR	Plant plugs/shrubs/trees in open areas of East Lake and 1290 Trees.



Site Boundary

N

0 Feet 1,500

III.C-14 TRIP Phase I
Company Lake and East Lake & Tree Mitigation

T-5 POWERLINE

Mitigation location: Rivergate Industrial District, South Rivergate Corridor
Location of impact: Terminal 5
Year released: 2008

Permits

- USACE Permit No. 95-534
- Oregon DSL Permit No. 9836 Renewal
- Oregon DEQ – Letter of September 29, 1995

Background

The Port filled approximately 12.5 acres of USACE jurisdictional wetlands (9.4 acres DSL jurisdictional) at the T-5 property for development of a bulk commodities' marine terminal facility. The T-5 Powerline site was chosen for mitigation because it offered an opportunity to restore wetlands adjacent to the Willamette River and along a corridor that connected the river with the Smith and Bybee Wetlands Natural Area. There are two mitigation sites associated with the T-5 development. The first, the T-5 Powerline site, is located along the Willamette River at approximately river mile 3 and is divided into an east and west section by Time Oil Road. Historically, it was part of a large wetland complex in the Ramsey Lake area and was filled with dredge material in the early 1940s. The second is the Vanport Wetlands site, and mitigation status at this site is addressed in the Vanport Wetlands section of this report.

Compliance monitoring of the site took place from 1996 through 2007. The performance criteria for the section of the site east of Time Oil Road were met in 2003. Monitoring of performance criteria west of Time Oil Road continued through 2007 when the mitigation project received regulatory compliance. Since 2003, wildlife observations on the site have included over 60 species of birds, three amphibian species, three species of reptiles (western painted turtle, common garter snake, and western terrestrial garter snake), and 12 species of mammals, including river otters.

Biological control agents were released by ODA and USDA-APHIS from 1997 through 2001 to control purple loosestrife. The Port periodically checks loosestrife leaves for shot-hole to ensure that biological controls are still active.

Mitigation Plan

The goals for this site were to 1) restore wetland hydrology; 2) establish emergent, scrub-shrub and forested wetland; and 3) establish a buffer around the wetland area. Target wetland functions and values included 1) diversifying wildlife habitat and enhancing the wildlife corridor between the Willamette River and the Columbia Slough; 2) increasing ecological integrity; and 3) protecting and increasing western painted turtle habitat. The regulatory requirements for the site include restoring 10.7 acres (7 emergent, 1 open water, 2.7 scrub-shrub) of wetland at the T-5 Powerline site and restoring approximately 4 acres of wetland at the Vanport Wetlands site.

The T-5 Powerline site was initially constructed as a 10.7-acre site in 1995. In 1996 and again in 1997, the section west of Time Oil Road was re-excavated to improve wetland hydrology. However, dry conditions in 1999 and 2000 further reduced the wetland footprint. In all, 10 monitoring wells were used to evaluate groundwater levels on the western portion of the site, and information obtained indicated that adequate hydrology could not easily be achieved in the portion of the property closest to the river without jeopardizing the function of the existing wetlands. A modified design for restoring the wetlands was proposed in 2001, which allowed for the restoration of 2.6 acres east of Time Oil Road, re-excavation of approximately 4.4 acres west of Time Oil Road, and approximately 3.7 acres of restoration work at the Vanport Wetlands site. This was accepted by the agencies, and restoration work was completed in 2003.

Phase I of the re-excavation west of Time Oil Road was completed in 2001, and final ground elevations were adjusted in 2002 following review of the winter hydrology monitoring data; grading was completed in 2002. Soil amendments, in the form of DEQ-approved dredged silts from the Willamette and Columbia Rivers, were used to improve soil water-holding capacity along the north slopes and the wetland bottom. The south-facing slopes were left un-amended to provide potential turtle nesting habitat.

All slopes were hydroseeded with a native seed mix in 2001 and broadcast seeded with the same mix in 2002, and the bottom was seeded and raked. Trees and shrubs were planted along the north slopes and in the Greenway; herbaceous vegetation on the south slopes was maintained as potential turtle nesting habitat. Surrounding upland areas were regraded and seeded with native grasses mixed with Re-green to establish grassland prairie habitat. Large woody debris were placed in strategic spots in all ponds including in the wetland emergent area adjacent to Pickle Pond on the eastern side of Time Oil Road.

Additional Information
A road-over-rail project located near the wildlife corridor facilitated an under-crossing tunnel for wildlife below Time Oil Road and the railroad line. The tunnel was completed in the spring of 2004. Motion sensor surveillance has captured numerous animals using the passage, including rodents, river otter, coyote, raccoon, and reptiles. In spring 2007, the Port installed approximately 1,000 new native shrubs along both sides of Time Oil Road. The plantings will enhance the wetland buffer while providing a natural barrier meant to direct wildlife toward the tunnel entrance and keep them off the road.

In 2019, Georgia Pacific located to the north of the site, expanded their operation by constructing a new warehouse, parking and stormwater facilities. The development extended to the edge of the mitigation site and included large areas of de-watering that would later become their stormwater facilities. These activities along with lower than normal rainfall patterns appear to have impacted site hydrology. Port staff will continue to monitor the site with the hope that groundwater will recharge over time under normal rainfall conditions.

2021-2022 Site Activity Update

2021	
JUN	Spot treated invasive species
2022	
FEB	Planted 500 native shrubs near Turtle Pond

Action Plan for the T-5 Powerline Site

2023	
MAY	Spring treatments of invasive species as needed.
JUL	Treat purple loosestrife and reed canarygrass throughout wetland areas of T5.
SEP	Fall treatments of invasive species as needed.
2024	
FEB	Interplant as needed
JUN	Treat invasive species

Site Boundary

N

0 Feet 400

II. C-15 T-5 Powerline

VANPORT WETLANDS

Mitigation location: North Portland, south of Expo Center
Locations of impacts: PIC, PDX, Rivergate Industrial District, T-5 Powerline Mitigation, on site
Year released: 2008
Long-term Management Plan: January 2018

Permits and Agreements

- USACE Permit No. 99-632 (modified), (Cascade Station)
- USACE Permit No. 99-632-1 (PIC)
- USACE Permit No. 2000-043 (Airfield)
- USACE Modification to Permits, Letter of October 4, 2001
- USACE NW Permit No. 2001-00564 (N Simmons Road)
- USACE Permit No. 95-534 (T-5), letter of August 30, 2002
- USACE Permit No. 2004-00091 (SW Quad)
- USACE Permit No. 2005-00131 (Taxiway B, April 2005)
- USACE Permit No. NWP-2010-66 (NREX Taxiway A Ditch, May 2010)
- Oregon DSL Permit No. FP-17198 modified (Cascade Station)
- Oregon DSL Permit No. FP-21878 renewal (Airfield)
- Oregon DSL Modification to Permits, Letter of October 3, 2001
- Oregon DSL Permit No. 24248-FP (N Simmons Road)
- Oregon DSL Permit No. FP-9836 Renewal (T-5)
- Oregon DSL Permit No. 30286-RF (PIC)
- Oregon DSL Permit No. 31722-RF (SW Quad)
- DEQ Certification
- MOA for the Removal of the Radio Towers, December 26, 2000
- First Amendment to MOA for Demolition of KGW Building, September 17, 2004
- COP LUR 00-00365 EN, recorded August 28, 2001
- COP LUR 00-00667EN, recorded November 30, 2000 (Radio wires removal, NW Swale mitigation)
- COP LU 04-028327 EN (SW Quad)
- COP LU 04-043122 EN (KGW Building Demolition)
- Conservation Easement, 2000-100288 July 20, 2000, amended Nov 2001

Background

The 90.5-acre Vanport Wetlands site is west of Interstate 5 and south of the Expo Center in North Portland. This site provides compensatory mitigation for wetland impacts at nine locations on Port property. Historically, the Vanport Wetlands site was part of the Columbia River floodplain; however, the surrounding area has been diked, and now groundwater, precipitation, and stormwater runoff are the sole sources of surface water. Flooding is controlled on the site by a water control structure (WCS) and pump station, which is managed by the MCDD. At the time of purchase in 1999, the site contained the pumping station and slough channels, two radio towers, the KGW transmission building, access roads, and degraded wetlands (62 acres of reed canarygrass monoculture) and uplands (pasture grasses, Himalayan blackberry, black cottonwood) historically used for cattle grazing.

Site modification, planting, and increased flooding have resulted in approximately 65.5 acres of wetland habitat in the original central wetland. All this acreage has been used to meet the Port's mitigation obligations for a number of projects.

Compliance monitoring of the Vanport Wetland site was conducted from 2000 through 2010. The final monitoring report was submitted in 2010 and approved by regulatory agencies. However, maintenance and weed control, primarily for reed canarygrass, thistle, teasel, blackberry, and nightshade, is ongoing. Since completing and meeting the regulatory compliance requirements, the Port cleared a dense thicket of Himalayan blackberry in the southwest corner of the property across from Heron Lakes Golf Course and installed 450 native shrubs to improve wildlife habitat. The Port continues to look for habitat enhancement opportunities that will benefit wildlife at Vanport Wetlands.

Vanport Wetlands provides habitat for over 150 species of birds, including many species that nest and raise young on the site (e.g., great horned owl, yellow-headed blackbird, red-winged blackbird, marsh wren, ruddy duck, American coot, Canada goose, mallard, red-tailed hawk, and American robin). Many mammals have been observed, including small rodents, beaver, muskrat, coyote, and black-tailed deer. Amphibian species that are frequently observed on the site include the Pacific chorus frog, long-toed salamander, and bullfrog. Western painted turtles have been observed infrequently and do not appear to be resident.

Mitigation Plan

The goal of the Wetland Mitigation Plan was to increase diversity of plant and wildlife habitat by establishing a native plant-dominated wetland with a surrounding scrub-shrub or forested buffer. The mitigation plan was designed to alter the site's hydrology by capturing precipitation during the rainy season with a WCS and modifying the existing pumping/drainage regime to allow increased water depth within the wetland basin. This creates an open water habitat in the winter and spring months. The extended duration of inundation was used to stress and ultimately reduce the reed canarygrass so that native wetland species could become established. The design also incorporated a number of physical modifications to the site, including a low, earthen berm in the northern portion of the property to prevent the flooding of Expo Road and the site’s north ditch and reconfiguration of the central drainage channel to provide a meandering swale. The plan included mowing and spraying the reed canarygrass, plowing, seeding, and planting the wetland and enhancing adjacent upland and buffer habitats with native trees, shrubs, and herbaceous species.

Because the entire site falls under the COP E-zone, mitigation also included a requirement to mitigate for the ground disturbance that resulted from the removal of copper wiring associated with radio transmission. The goal was to enhance 0.1 acre of the existing riparian forest habitat in the NW Swale by removing invasive species and planting native trees and shrubs in riparian wetland forest habitat. In addition to removal of the invasive species, the mitigation plan called for the installation of 12 trees (black cottonwood, Oregon ash), 15 red-osier dogwood cuttings, 140 willow stakes, slough sedge, and mannagrass.

The radio towers and underground wires were removed, other physical modifications were completed by December 2001, and planting was completed in March 2003. The KGW transmission building was removed, and soils beneath the building were excavated in 2004 to provide additional emergent wetland mitigation.

The Vanport Wetlands site has received local and state honors. In November 2001, it won the Columbia Slough Watershed Council's Achievement Award, and in 2004, it won the Oregon State Land Board Award for wetland restoration.

Permit Summary
Site modification, planting, and increased flooding have resulted in approximately 65.5 acres of wetland habitat in the original central wetland. This acreage was used to meet the Port's mitigation obligations for multiple projects. Tracking of mitigation acreage requirements is shown in the table below.

Flood management
At the Port's direction, MCDD begins releasing water from the wetland at approximately 3 inches per week starting in June if water levels are high (over 7 feet NGVD29 at MCDD gage) or July if water levels are below 7 feet on June 1. Flooding the site into the growing season helps to suppress reed canarygrass, whereas the drawdown provides mudflat habitat for migrating shorebirds in late summer and promotes the establishment of native emergent vegetation throughout the 65-acre wetland. Drawdown ideally is completed by mid-October when the water elevation in the wetland swale is approximately 2.75 feet NGVD29. In the fall, the WCS is inspected to ensure functionality by MCDD and is closed before the wet season to retain water for the following season.

2021-2022 Site Activity Update

2021	
JAN	Fence repair
FEB	Fence repair
MAR	Interplanted western edge of wetland with native shrubs; fence repair
MAY	Fence repair
JUN	Brush-cut, broadcast and spot treated invasive species
JUL	Trash removal; brush-cut blackberry and reed canarygrass in SE corner and western edge of wetland
AUG	Fence repair
SEP	Spot treated invasive species
OCT	Spot treated invasive species
DEC	Seeded portions of west side with pollinator mix
2022	
FEB	Interplanted west of wetland with 4,400 native trees and shrubs; fence repair
APR	Installed 7 large oak trees in west open field area; spot treated invasive species
AUG	Brush-cut and spot treated invasive species; mowed access roads; watered oak trees; cleared blackberry from fence in SE corner prior to fence repair
SEP	Fence repair at SE corner
OCT	Spot treated west buffer for blackberry, reed canarygrass, tansy, teasel, thistle and velvet grass

Action Plan for Vanport Wetlands

2023	
MAR	Outreach and planting event hosted by CSWC and The Blueprint Foundation
APR	Treat invasive species throughout upland areas where oak trees were planted in 2021-22 and where bareroot shrubs were planted in the north mitigation area SE corner.
JUN	Treat invasive species missed in early spring.
JUL	Water new Oaks 1/wk or as needed.
AUG	Water new Oaks 1/wk or as needed. Treat invasive species throughout wetland areas and around newly planted trees and shrubs.
SEP	Water new Oaks 1/wk or as needed.
2024	
MAR	Treat invasive species and interplant as needed.

TABLE 13: VANPORT WETLANDS PERMITS

Project Name	PDX Airfield Safety	Cascade Station	NW Swale	N Simmons Road	T-5 Powerline Site	PIC Sub-district B*	SW Quad	Taxiway A	Taxiway B
USACE Permit No.	2000-00043	99-632	N/A	2001-00564	1995-00534	1999-00632	2004-00091	NWP-2010-066	2005-00131
DSL Permit No.	FP-21878	FP-17198	N/A	FP-24248	9836	30286-RF	31722-RF	N/A	N/A
COP LUR	00-00365	00-00365	00-00667	N/A	N/A	N/A	04-028327	N/A	N/A
Mitigation start date	June 2000	June 2000	June 2000	June 2000	June 2000	June 2000	January 2005	June 2000	November 2005
Planting complete	March 2003	March 2003	March 2003	March 2003	March 2003	March 2003	January 2005	March 2003	November 2005
Monitoring start date	October 2003	October 2003	October 2003	October 2003	October 2003	October 2003	Novemb er 2005	October 2003	November 2006
Impact acres (federal/state)	8.25	5.77	N/A	0.22	4	5.47/3.41	3.94	0.29	0.435
USACE mitigation requirement	24.75	17.31	N/A	0.22	4	8.55	8.66	0.87	3.04
DSL mitigation requirement	24.75	17.31	N/A	0.22	4	8.55	8.66	N/A	N/A
COP mitigation requirement (E-zone LUR)	N/A	N/A	0.1	N/A	N/A	N/A	N/A	N/A	N/A
Enhancement (E)/ Restoration (R)/Creation (C)	E	E	E	R	R	E	E/R	E	C/E/R

*Original permit required 10.23 acres for mitigation; this was modified to 8.55 acres of mitigation since a portion of the wetland was never filled.

TABLE 14: VANPORT WETLANDS MITIGATION ACREAGE

Type	PEM-E	PEM-R	PSS-E	PSS-R	PSS-C	PFO-E	PFO-R	Upland Forest	*Wetland Outside of Lakebed	Remaining DSL Acres	Remaining DSL/USACE Acres	Total Acres	Credits-E	Credits-R	Credits-C	Remaining DSL Credits	Remaining DSL/USACE Credits
Baseline wetland acreage	59.12	–	–	–	–	–	–	–	2.47			61.59					
Adjusted wetland acreage following mitigation	52.36	0.38	6.06	3.16	0.50	0.70	2.21	–				65.37					
Adjusted wetland acreage following building demo	52.36	0.56	6.06	3.16	0.50	0.70	2.21	–		65.55	65.55	65.55	19.71	5.93	0.33	25.97	25.97
Acreage used as of 2016 for Section 404 Impacts																	
Airfield	21.83	–	2.22	–	–	0.70	–	–	–	24.75	24.75	24.75	8.25			8.25	8.25
Cascade Station	15.84	–	1.47	–	–	–	–	–	–	17.31	17.31	17.31	5.77			5.77	5.77
N Simmons Road	–	–	–	0.22	–	–	–	–	–	0.22	0.22	0.22		0.22		0.22	0.22
T-5 Powerline Compensation	–	–	–	2.51	–	–	1.49	–	–	4.00	4.00	4.00		4.00		4.00	4.00
PIC Subdistrict B	10.05	–	0.18	–	–	–	–	–	–	10.23	10.23	10.23	2.85			2.85	2.85
PIC Subdistrict B Wetland 63 Credit	-1.68	–	–	–	–	–	–	–	–	-1.68	-1.68	-1.68					
SW Quad	4.64	0.38	2.19	0.25	0.50	–	0.70	–	–	8.66	8.66	8.66	2.28	1.33	0.33	3.94	3.94
Taxiway B	–	0.18	–	0.10	–	–	–	-2.76	–		0.28	0.28		0.28			0.28
Taxiway A	0.87	–	–	–	–	–	–	–	–		0.87	0.87	0.29				0.29
Total acreage used to date[1]	51.55	0.56	6.06	3.08	0.50	0.70	2.19	–	–	63.49	64.64	64.64	19.44	5.83	0.33	25.03	25.60
Total acreage remaining	**0.81**	**0.00**	**0.00**	**0.08**	**0.00**	**0.00**	**0.02**	**0.00**		**2.06**	**0.91**	**0.91**	**0.27**	**0.10**	**0.00**	**0.94**	**0.37**

*Wetland outside of lakebed includes *un-enhanced* forested drainage swales located to the north and west of the lakebed.

[1]Assumes ratios of 1:1 for restoration; 3:1 for enhancement, 1.5:1 for creation

Site Boundary

N

0 Feet 1,000

II.C-16 Vanport Wetlands

WEST HAYDEN ISLAND MITIGATION

Mitigation location: West Hayden Island, Columbia River
Location of impact: West Hayden Island, Columbia River
Year released: 2015

Permits

- USACE Permit No. 2001-00062
- Oregon DSL Permit No. 23597-FP

Background

In 2000, the Port began discussions with the USACE and DSL to address mitigation requirements for an alleged inadvertent fill of 1.19 acres of wetland on West Hayden Island in 1996. Compensatory mitigation included restoring 0.21 acre of forested wetland and creating 1.79 acres of scrub-shrub wetland. Excavation was completed in December 2006; planting was completed in March 2007 and vegetation monitoring took place from 2008 through 2014. In 2013 the site was not meeting woody vegetation success criteria due to prolonged inundation. As a result, the Port pursued permit modifications to require a native palustrine emergent community with scattered trees and shrubs for structure. The agencies approved the modification by March 2014 and site was released by both regulating agencies after submittal of the 2014 annual monitoring report.

Mitigation Plan

The goal of the mitigation plan was to create a minimum of 2.26 acres of palustrine emergent/depressional wetland (as per the DSL permit modified in 2014) and to enhance wildlife habitat. The mitigation site is intended to replace the low functions and values lost due to the inadvertent fill of three isolated, degraded emergent wetlands totaling 1.19 acres. The adjacent black cottonwood wetland forest was chosen as the reference site. The site met success criteria and was released in 2015.

2021-2022 Site Activity Update

2021	
JUN	Spot treated invasive species

Action Plan for West Hayden Island

2023	
MAY	Treat invasive species throughout the site.
SEP	Treat invasive species throughout the site.

Site Boundary

N

0 Feet 600

II.C-17 West Hayden Island Mitigation

WEST WYE

Mitigation location: Rivergate Industrial District, South Rivergate Corridor
Location of impact: Rivergate Industrial District, South Rivergate Corridor
Year released: 2003

Permits

- USACE Permit No. 95-986
- Oregon DSL Permit No. FP-10282
- COP LUR 95-00964 EN
- Coast Guard Bridge Permit 1-96-13
- Restrictive Covenant, 2002-068964, April 16, 2002

Background

The Port impacted a total of 1.3 acres of scrub-shrub, emergent, and open water wetlands adjacent to North Lombard Street along the Columbia Slough. This occurred during the expansion of rail capacity to provide more efficient rail service to industries in the southern portion of the Rivergate Industrial District. The West Wye mitigation site is west of the impact area in the same drainage corridor and is immediately adjacent to the T-5 Powerline mitigation site.

The invasive species purple loosestrife spread on the site after the initial excavation. ODA and USDA-APHIS released biological control agents in the area from 1997 to 2001. Although Port mitigation staff discontinued a monitoring program due to inconclusive results after 7 years, the effectiveness of the biological agents will continue to be visually assessed during regular site visits.

The mitigation site was designed to improve wildlife habitat and increase wetland acreage along the corridor between the Willamette River and Smith and Bybee Wetlands Natural Area. Vegetation and wildlife were monitored annually between 1998 through 2002. The final-year monitoring report was submitted to regulatory agencies in 2002, and it showed that overall survival of woody plants and herbaceous species cover exceeded performance criteria. Agency acknowledgement of completion of permit requirements was received in April (USACE) and June (DSL) 2003.

The goal of the mitigation plan was to restore wetland hydrology and increase wildlife habitat diversity by establishing 1.3 acres of wetland surrounding an existing 0.32-acre pond (Nursery Pond) and by enhancing approximately 1.1 acres of surrounding upland habitat. This area is contiguous with the corridor that restores the connection between Smith and Bybee Wetlands Natural Area and the Willamette River.

The mitigation design included excavating dredged sands and planting and seeding with native vegetation. Site construction began in 1996 and planting was completed in 1997. Some replanting took place in 1998 to replace tree/shrub plants that did not survive. Additional habitat improvements included construction of snake hibernacula and placement of large woody debris.

Approximately 70 species of plants, including 35 native plants, have been recorded from the site. The wetland provides valuable scrub-shrub habitat within this wildlife corridor for birds, mammals, amphibians, and reptiles. The Port continues to inspect and manage the site for invasive species and habitat enhancement opportunities.

2021-2022 Site Activity Update

2021	
JUN	Cut and treated reed canarygrass
JUL	Cut and treated blackberry and thistle
AUG	Spot treated invasive species
2022	
OCT	Mowed

Action Plan for West Wye

2023	
MAY	Spring treatments of invasive species as needed.
JUL	Treat purple loosestrife and reed canarygrass throughout wetland areas of T5.
SEP	Fall treatments of invasive species as needed.
2024	
FEB	Interplant as needed
JUN	Treat invasive species

Site Boundary

N

0 Feet 300

II.C-18 West Wye

Citations

City of Portland. 2016. *Portland Plant List.* City of Portland. https://www.portland.gov/bps/planning/environ-planning/portland-plant-list

Port of Portland. 2021. *Vegetation Management Plan.* Port of Portland. https://popcdn.azureedge.net/pdfs/VegMgmtPlan.pdf