SR 161, 36th Street East to Milton Way Widening (Walker Pond) Mitigation Site

USACE NWS-2009-1404

Olympic Region

2015 MONITORING REPORT

Wetlands Program

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General Site Information		
USACE IP Number	NWS-2009-1404	
Mitigation Location	South of 13th Street in Edgewood, Pierce County, WA	
Construction Date	2012-2013	
Monitoring Period	2015-2024	
Year of Monitoring	1 of 10	
Area of Project Impact[1]	Permanent	Temporary
	0.12	0.04
Type of Mitigation	Wetland Enhancement	
Planned Area of Mitigation	0.78 acres	

[1] Impacts and mitigation acreages taken from (WSDOT 2010).

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Summary of Monitoring Results and Management Activities (2015)

Performance Standards	2015 Results[1]	Management Activities
Wetland hydrology present	To be determined.	
Achieve native woody density of 8 plants/200ft^2	9.2 plants/200ft^2 ($CI_{80\%}$ = 8-9.4)	
Phalaris arundinacea will not exceed 25% aerial cover over the entire mitigation site.	25% cover ($CI_{80\%}$ = 20-29%)	14 separate weed control visits in 2015
Noxious weeds, excluding *Phalaris arundinacea* (reed canarygrass), will not exceed 20% aerial cover over the entire mitigation site.	10% cover	14 separate weed control visits in 2015
Polygonum bohemicum (Bohemian knotweed*), Polygonum cuspidatum* (Japanese knotweed), *Polygonum polystachyum* (Himalayan knotweed), and *Polygonum sachalinense* (giant knotweed) shall not be present at the mitigation site	None observed on site.	

Report Introduction

This report summarizes first-year (Year-1) monitoring activities at the State Route (SR) 161 Walker Pond Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site development. Monitoring activities included vegetation surveys, photo-documentation, and assessments of wetland hydrology. Hydrology visits occurred on March 31, April 14 and 23, 2015. Vegetation surveys occurred on July 27-29, 2015.

[1] Estimated values are presented with their corresponding statistical confidence interval. For example, 9.2 plants/200ft^2 ($CI_{80\%}$ = 8-9.4) means we are 80% confident that the true density value is between 8and 9.4 plants/200ft^2.

What is the SR 161 Walker Pond Mitigation Site?

This 3.34-acre mitigation site (Figure 1) is a wetland and buffer enhancement area located on the western edge of the 33-acre Walker Pond wetland complex located within the city of Edgewood. This site was established to compensate for the loss of 0.12 acre of wetland and 0.55 acre of wetland buffer due to road improvements along SR 161. Following the installation of native woody vegetation the plant species diversity and structure of habitat on the mitigation site will increase, providing additional opportunities for wildlife from the adjacent wetland complex.

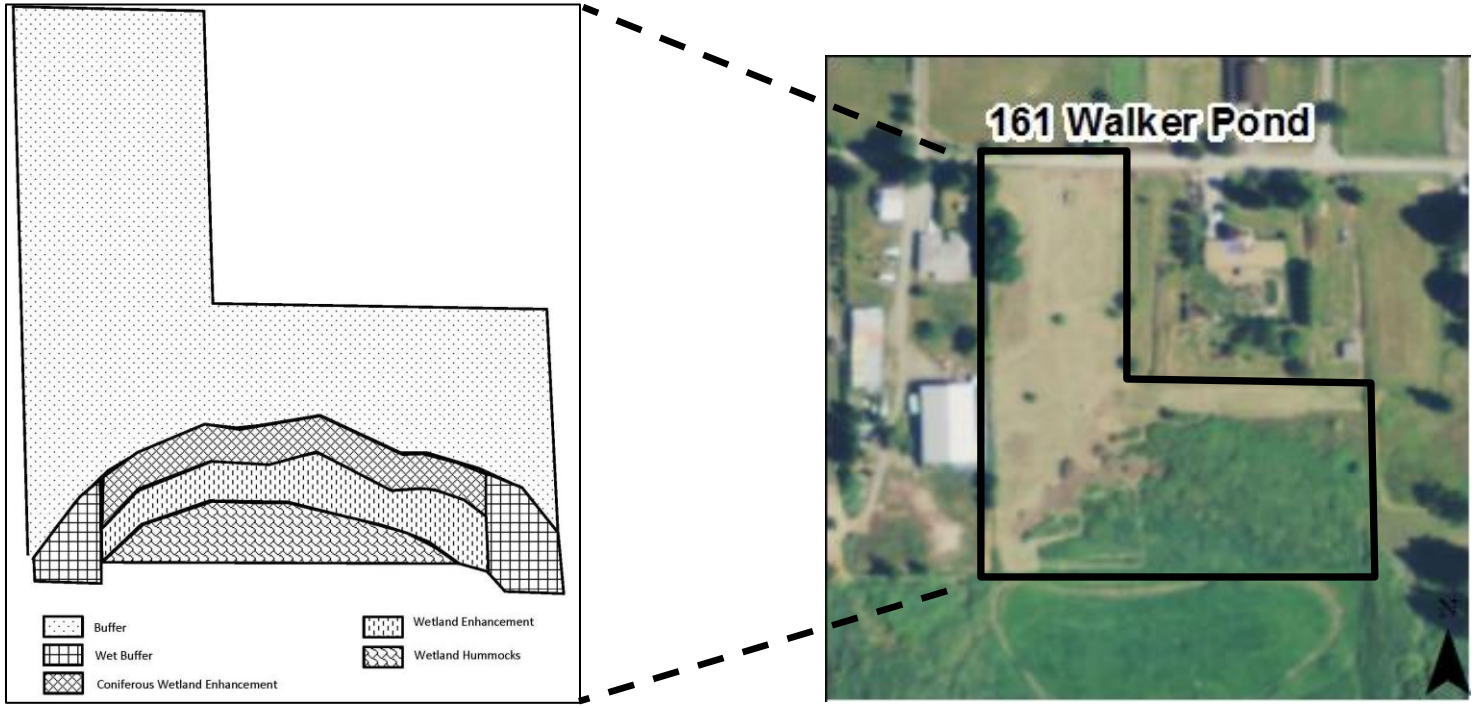


Figure 1 Site Sketch

The SR 161 Walker Pond Mitigation Site contributes to the enhancement of a locally important wetland complex that provides valuable water quality and flood storage functions for the community of Edgewood. The enhancement of the degraded portion of Walker Pond aids in accomplishing the goals of the City of Edgewood Comprehensive Plan, maintaining and preserving wetlands in their natural state and restoring degraded wetlands when practicable (Edgewood 2003). Appendix 2 includes site directions.

What are the performance standards for this site?

Year 1

Performance Standard 1
The soils in the wetland enhancement hummock planting area will be inundated, saturated to the surface, or ground water will be present within 12 inches of the surface for at least 4 consecutive weeks (10 percent) of the growing season in years when rainfall meets or exceeds the 30-year average.

Performance Standard 2
Achieve a density of 8 native woody plants, including native natural recruitment, per 200 square feet in all of the planting areas.

Performance Standard 3
Phalaris arundinacea will not exceed 25% aerial cover over the entire mitigation site.

Performance Standard 4
Noxious weeds, excluding *Phalaris arundinacea* (reed canarygrass), will not exceed 20% aerial cover over the entire mitigation site.

Performance Standard 5
Polygonum bohemicum (Bohemian knotweed), *Polygonum cuspidatum* (Japanese knotweed), *Polygonum polystachyum* (Himalayan knotweed), and *Polygonum sachalinense* (giant knotweed) shall not be present at the mitigation site.

Appendix 1 shows the planting plan (WSDOT 2010).

How were the performance standards evaluated?

WSDOT staff collected hydrology data and performed a wetland delineation using methods described in the *Corps of Engineers Wetlands Delineation* Manual (Environmental Laboratory 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (USACE 2010) (Performance Standard 1).

The tables below document the sampling methodology utilized for all of the/the remaining performance standards (PS)/performance criteria (PC) as required by the mitigation plan or permits. For additional details on the methods see the WSDOT Wetland Mitigation Site Monitoring Methods Paper (WSDOT 2008).

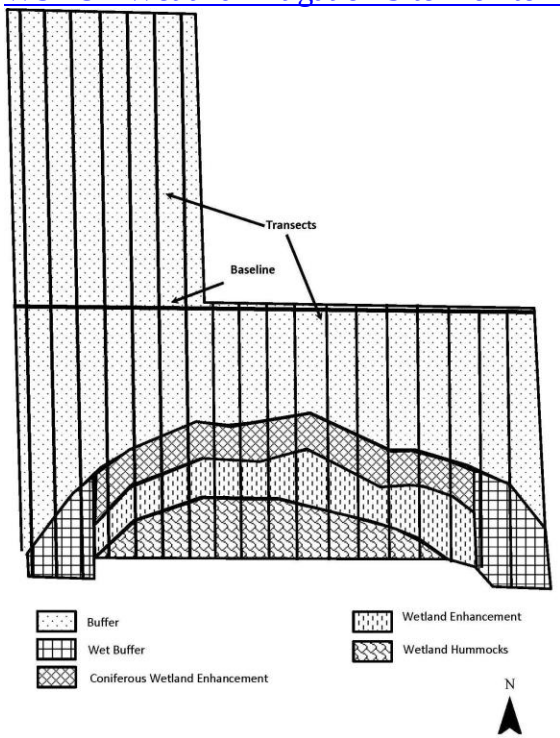


Figure 2 Site Sampling Design (2015)

Placement of Baseline: West to East through the center of the site. Transects 1-19.

	PS 2	PS 3	PS 4	PS 5
Attribute	Density	Cover	Cover	Presence/ Absence
Target pop.	Native Woody	Reed Canarygrass	Noxious Weeds	Knotweed species
Zone	Entire site	Entire site	Entire site	Entire site
Sample method	UBT	Point Line	Qualitative	Qualitative
SU length	Variable	20	N/A	N/A
SU width	1	N/A	N/A	N/A
Points per SU	N/A	20	N/A	N/A
Total # of SU	N/A	57	N/A	N/A

How is the site developing?

The site is currently meeting all of the first year vegetative performance standards. However, the wetland enhancement zone has experienced apparent die-off of willow stakes and evidence of stressed redosier dogwood (*Cornus alba*) and Sitka spruce (*Picea sitchensis*). Volunteer hardhack (*Spiraea douglasii*) provides 27 percent of the relative abundance of the stems counted within the wetland enhancement areas.

The cover of reed canarygrass (*Phalaris arundinacea*) across the site is on the verge of exceeding the performance standard. The majority of this is located within the wetland enhancement areas. A total of 217 personnel hours were spent in 2015 conducting weed control. Noxious weeds will continue to be problematic within the first couple years as the native woody species establish.

The site objective of replacing non-native species with a pallet of native wetland and upland species has been accomplished. A total of 24 species are now establishing throughout the site. Songbirds were observed utilizing the native woody species and deer scat was observed on site as well.

Results for Performance Standard 1
(Wetland hydrology present):

It was determined that the ground monitoring wells were not installed within the hummock planting area (as required by the performance standard). The wells were installed upslope from this area but still within the overall wetland enhancement area. One out of three wells exhibited water within 12 inches of the soil surface on the first visit on March 31. All three wells were dry on the next two visits. See Appendix 3 for results. Inundation was observed in the hummock planting area on site March 26 and 31 visits but was dry on the April 23 visit (Photo 1). Additional wells located in the proper zone will be added in spring of 2016.

Results for Performance Standard 2
(Native woody density of 8 plants/200ft^2):

The native woody density is estimated at 9.2 plants/200ft^2 ($CI_{80\%}$ = 8-9.4) across the mitigation site. Survival appears to be higher in the upland planting area than the wetland planting areas (Photos 2 and 3). Dominant species in the buffer include Nootka rose (*Rosa nutkana*) and snowberry (*Symphoricarpos albus*). Dominant species in the wetland enhancement are Pacific willow (*Salix lasiandra*) and volunteer hardhack (*Spiraea douglasii*). Survival on the hummocks is high and willows appear to be thriving.

Photo 1
Wetland hydrology (March 2015)

Photo 2
Native woody density in the wetland (July 2015)

Results for Performance Standard 3
(No more than 25% cover of reed canarygrass (*Phalaris arundinacea*):

The cover of reed canarygrass across the site is estimated at 25% cover ($CI_{80\%}$ = 20-29%). The vast majority is located in the wetland enhancement areas and cover within this area is qualitatively estimated at 40 percent.

Results for Performance Standard 4
(No more than 20% cover of noxious weeds):

The cover of noxious weeds is qualitatively estimated at 10 percent. This consisted of the following species: field bindweed (*Convolvulus arvensis*), bull thistle (*Cirsium vulgare*), common tansy (*Tanacetum vulgare*), field sowthistle (*Sonchus arvensis*), Canada thistle (*Cirsium arvense*), and tansy ragwort (*Senecio jacobaea*). The majority of the cover is provided by field bindweed (*Convolvulus arvensis*) within the wetland enhancement area.

Photo 3
Native woody density in the buffer (July 2015)

Results for Performance Standard 5
(Presence of knotweed species):

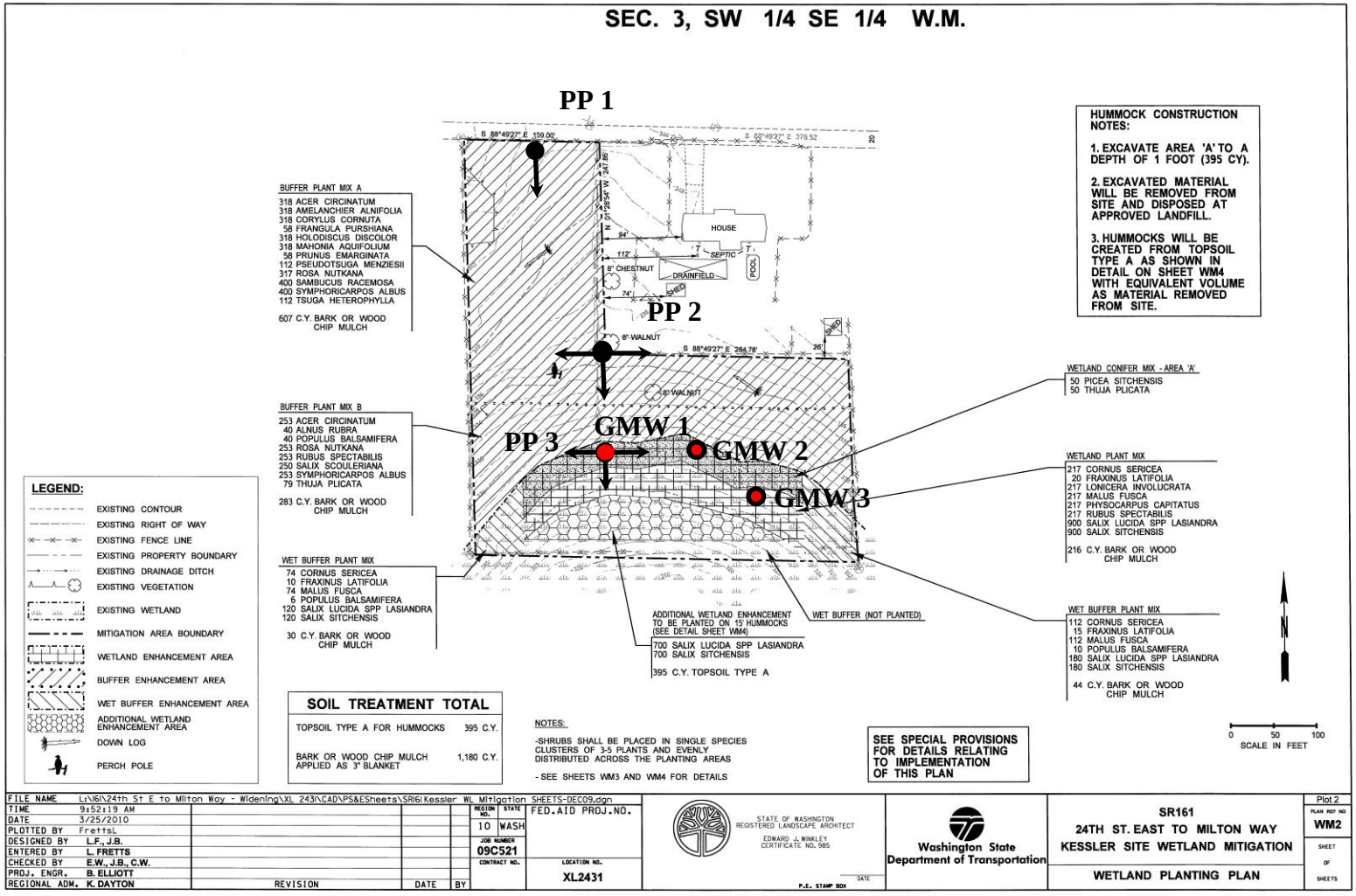
No knotweed species were observed on site.

What is planned for this site?

The region has plans to continue aggressively treating noxious and nuisance weeds across the site.

Appendix 1 – Planting Plan, Photo Point, and Ground Monitoring Well Map

(from WSDOT 2010)



Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on July 29, 2015 and document current site development.

Photo Point 1

Photo Point 2a

Photo Point 2b

Photo Point 2c

Photo Point 3a

Photo Point 3c

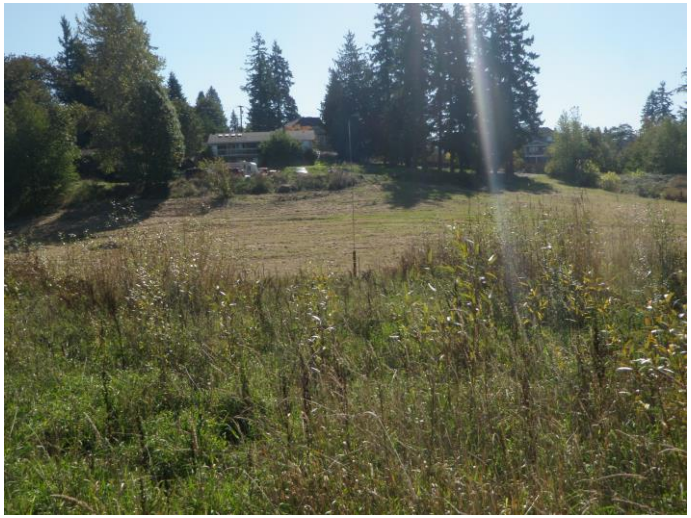


Photo Point 3b

Driving Directions:

From I-5 N. Take exit 127 toWA-512 E, merge onto WA 167 N. Take the Stewart RD/8th St toward Pacific/Milton. Follow Jovita Blvd E and 114th Ave E to 13th St E.

Appendix 3 – Hydrology Data

Table 1. Hydrology Observations.

Date	Surface Observations	Well ID #	Water Level (inches below soil surface unless otherwise noted)
March 31, 2015	The seasonal stream was inundated as well as the bottom half of the wetland hummock planting zone.	1	Dry to bottom of well"
		2	12"
		3	Dry to bottom of well"
April 14, 2015	The seasonal stream that enters from the north end of the parcel is saturated with minimal inundation as it leaves the sight at the south end of the site.	1	Dry to 27”
		2	Dry to 26”
		3	Dry to 27”
April 23, 2015	No inundation or surface saturation present on-site. Pond appears to be completely dried up from what can be seen from site.	1	Dry to bottom of well"
		2	Dry to bottom of well"
		3	Dry to bottom of well"

Literature Cited

1. Edgewood, City of. 2003. City of Edgewood Comprehensive Plan. http://www.cityofedgewood.org/Comp%20Plan/Current%

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3. [USACE] US Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), Wakeley JS, Lichvar RW, Noble CV, editors. Vicksburg (MS): US Army Engineer Research and Development Center. ERDC/EL TR-10-3. Available at: http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp.pdf

4. [WSDOT] Washington State Department of Transportation. 2010. SR 161, 36th Street East to Milton Way Widening. Tumwater (WA): Washington State Department of Transportation, Olympic Region.

5. [WSDOT] Washington State Department of Transportation. 2008. WSDOT Wetland Mitigation Site Monitoring Methods. http://www.wsdot.wa.gov/NR/rdonlyres/C211AB59-D5A2-4AA2-8A76-3D9A77E01203/0/MethodsWhitePaper052004.pdf