

US 101 Purdy Canyon Vicinity Slide Slope Stabilization (Purdy Canyon) Mitigation Site

USACE NWS-2012-514-DOT

Olympic Region

2015 MONITORING REPORT

Wetlands Program

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General Site Information		
USACE NWS 14 Number	NWS-2012-514-DOT	
Mitigation Location	On US 101 at MP 340.03 to 340.21, Mason County	
LLID Number	1231792472937	
Construction Date	2013-2014	
Monitoring Period	2015-2019	
Year of Monitoring	1 of 5	
Type of Impact¹	Permanent Wetland	Buffer
Area of Project Impact	0.37 acre	3.03 acres
Type of Mitigation	Wetland Re-establishment	
Planned Area of Mitigation	0.37 acre	

¹Type and area of project impacts and mitigation were sourced from US 101 Purdy Canyon Vicinity Slide Slope Stabilization Conceptual Wetland Mitigation Report (WSDOT 2013).

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Summary of Monitoring Results and Management Activities (2015)

Performance Standards	2015 Results	Management Activities
Wetland Hydrology	Present	
85% survival native emergent vegetation in the planted wetland re-establishment area	60-70% cover [survival difficult to determine]	
85% survival native woody vegetation in the planted buffer area	95% survival	
Eradicate Washington State-listed or Mason County-listed Class A and Class B weeds designated for control by the county weed board	None observed	
Immediate removal and control of: purple loosestrife (<i>Lythrum salicaria</i>), paleyellow iris (<i>Iris pseudacorus</i>), non-native knotweeds (<i>Reynoutria cuspidatum</i> , <i>R. polystachyum</i> , <i>R. sachalinense</i> , and <i>P. bohemicum</i>) and similar related species and hybrids	None observed	
Less than 20% cover Class C noxious weeds, including reed canarygrass (<i>Phalaris arundinacea</i>) across the entire site	Bull thistle (<i>Cirsium vulgare</i>) observed	

Report Introduction

This report summarizes first-year (Year-1) monitoring activities at the United States (US) 101 Purdy Canyon 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 on July 6, 2015.

What is the US 101 Purdy Canyon Mitigation Site?

This mitigation site (Figure 1) is a slope wetland along the east side of US 101, re-established after construction for a slope stabilization project designed to flatten the steep, unstable slopes. The wetland and buffer areas are designed to replace wetland area lost as a result of unavoidable impacts. Functions of the original wetland are severely limited due to the steep slope and close proximity of the highway.

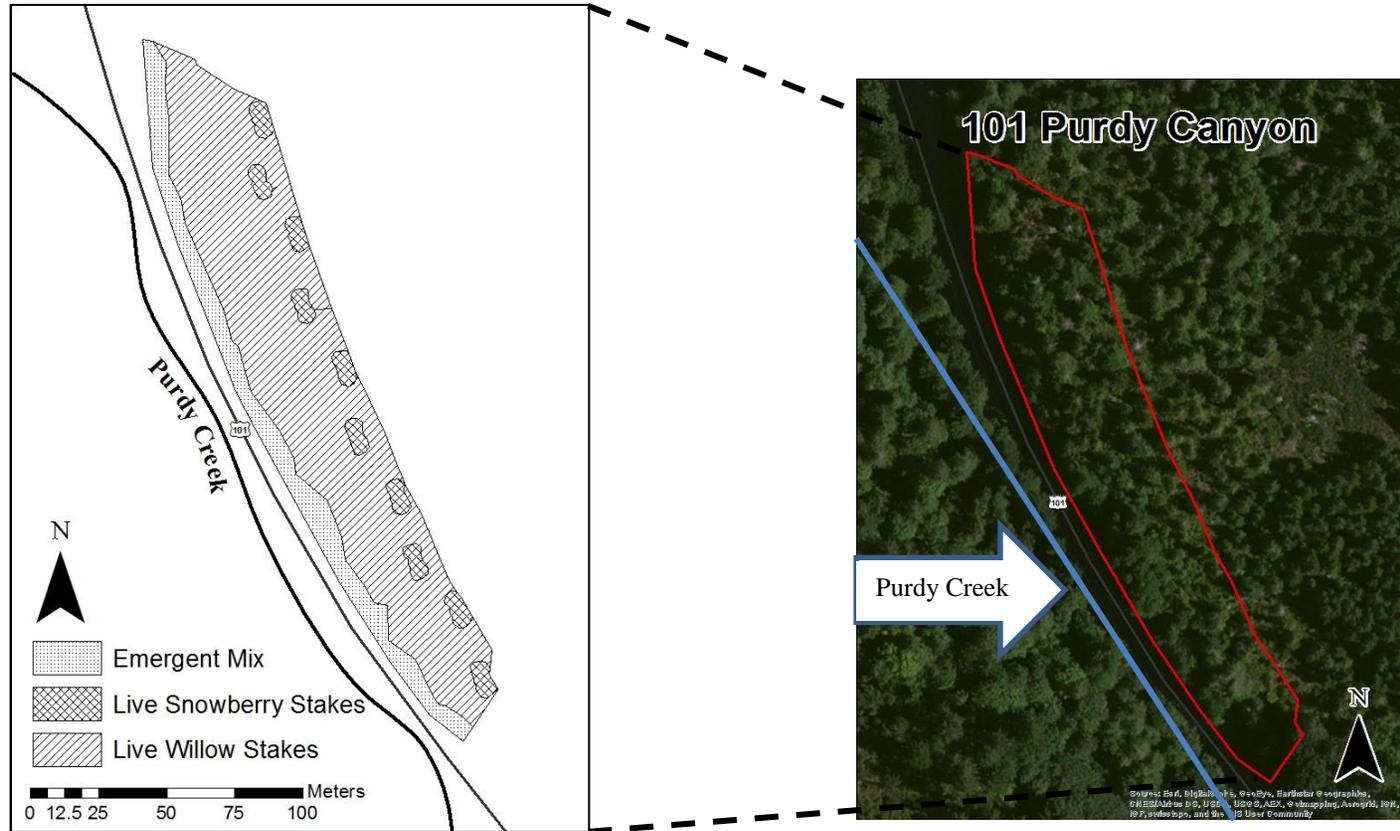


Figure 1 Site Sketch

The US 101 Purdy Canyon Mitigation Site contains a wetland and buffer area that run alongside US 101 along the Purdy Creek drainage to the intersection of US 101 and Purdy Creek cut-off road. Purdy Creek is located directly across the highway. Appendix 2 includes site directions.

What are the performance standards for this site?

Year 1

Performance Standard 1

The soils in the re-established wetland area will be inundated, saturated to the surface, or groundwater will be present within 12 inches of the surface for at least four consecutive weeks (10 percent) of the growing season in years when rainfall meets or exceeds the 30-year average.

Performance Standard 2

Achieve a survival of 85 percent of native emergent vegetation (can include volunteers) in the planted wetland re-establishment area.

Performance Standard 3

Achieve a survival of 85 percent of native woody vegetation (can include volunteers) in the planted buffer area.

Performance Standard 4

Washington State-listed or Mason County-listed Class A weeds and Class B weeds designated for control by the county weed board must be eradicated. All occurrences at the site shall be immediately reported to the site manager and an eradication program will be initiated within 30 days of the report.

Performance Standard 5

If any of the following are found on the site during the monitoring period, the site manager will initiate immediate removal and control: purple loosestrife, yellow-flag iris, non-native knotweeds, and similar related species and hybrids.

Performance Standard 6

Class C noxious weeds, including reed canarygrass, will not exceed 20 percent aerial cover over the entire site.

Appendix 1 shows the planting plan (WSDOT 2013).

How were the performance standards evaluated?

All of the performance standards (PS) as required by the mitigation plan were assessed qualitatively. For additional details on the methods see the [WSDOT Wetland Mitigation Site Monitoring Methods Paper](#) (WSDOT 2008).

How is the site developing?

In general this site appears to be developing as intended, with high rates of survival for native plant species and low cover of invasive species.

Results for Performance Standard 1
(Wetland hydrology present):

Water was present in the ditch at the base of the slope. Multiple seeps were visible 6-30 feet from the toe of the slope. The native hydrophytic shrubs appear to be doing well. (Photo 1)

Results for Performance Standard 2
(85% survival native emergent vegetation in the planted wetland establishment area):

Survival of planted emergent vegetation is extremely difficult to determine. Cover of planted emergent vegetation in the wetland establishment area is qualitatively estimated at 60-70 percent. This cover estimate seems more than adequate for a year-1 site. Dominant species include slough sedge (*Carex obnupta*) and soft rush (*Juncus effusus*). (Photo 2)



Photo 1
Saturated soils on the slope



Photo 2
Cover of emergent vegetation in the planted wetland establishment area (July 2015)

Results for Performance Standard 3

(85% survival native woody vegetation in the planted buffer area):

Survival of native woody vegetation in the planted buffer area is qualitatively estimated at 95 percent. This value exceeds the performance standard target. (Photo 3)

Results for Performance Standard 4

(Eradicate Washington State-listed or Mason County-listed Class A and Class B weeds designated for control by the county weed board):

No Class A or Class B weeds observed at the time of monitoring.

Results for Performance Standard 5

(Immediate removal and control of purple loosestrife, yellow-flag iris, non-native knotweeds, and similar related species and hybrids):

None observed at the time of monitoring.

Results for Performance Standard 6

(Less than 20% cover noxious weeds, including reed canarygrass, across the entire site):

Cover of noxious across the entire site is qualitatively estimated at one percent. This value is below the performance standard threshold. Bull thistle was the only noxious weed species observed.



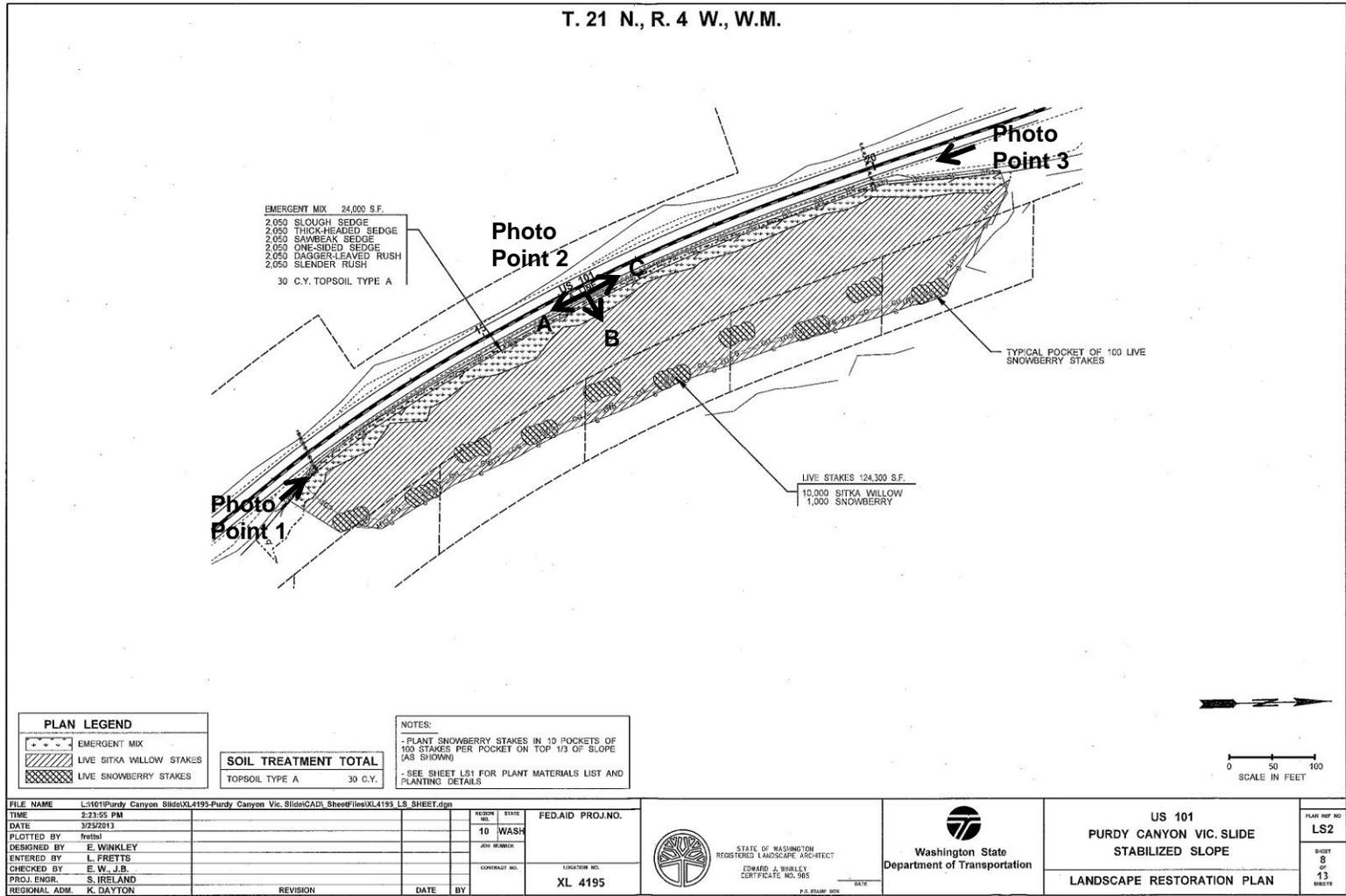
Photo 3
Survival of native woody vegetation in the planted buffer (July 2015)

What is planned for this site?

Minimal routine weed control will continue in 2016.

Appendix 1 – Planting Plan with Photo Point Locations

(from WSDOT 2013)



Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on July 6, 2015 and document current site development.



Photo Point 1



Photo Point 2a



Photo Point 2b



Photo Point 2c



Photo Point 3

Driving Directions:

From I-5 take Exit 104 to SR 101 North. Stay on SR 101 North for 27.4 miles.

Literature Cited

1. [USACE] US Army Corps of Engineers. 2012. Department of the Army Nationwide Permit Number NWS-2012-514.
2. [WSDOT] Washington State Department of Transportation. 2013. US 101 Purdy Canyon Vicinity Slide Slope Stabilization Conceptual Wetland Mitigation Plan. Olympia (WA): Washington State Department of Transportation, Olympic Region.
3. [WSDOT] Washington State Department of Transportation. 2013. US 101 Purdy Canyon Vicinity Slide Slope Stabilization Mitigation Site As-built Planting Plan.
4. [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>