

**US 101 Middle Nemah River Bridge Replacement MP 33.70  
to MP33.99 (Middle Nemah) Mitigation Site**

**USACE NWP (23) NWS-2012-134**

**Southwest Region**

**2015 MONITORING REPORT**

**Wetlands Program**

*Issued March 2016*



**Washington State  
Department of Transportation**

Environmental Services Office

**Author:**

Jennie Husby

**Editor:**

Doug Littauer

**Contributors:**

Doug Littauer

For additional information about this report or the WSDOT Wetlands Program, please contact:

Doug Littauer, Wetlands Program  
WSDOT, Environmental Services Office  
P. O. Box 47332, Olympia, WA 98504  
Phone: 360-570-2579 E-mail: littaud@wsdot.wa.gov

Monitoring reports are published on the web at: <http://www.wsdot.wa.gov/Environment/Wetlands/Monitoring/reports.htm>

# US 101 Middle Nemah River Bridge Replacement MP 33.70 to MP33.99 (Middle Nemah) Mitigation Site

## USACE NWP (23) NWS-2012-134



General Site Information			
<b>USACE NWP 23 Number</b>	NWS-2012-134		
<b>HPA</b>	125861-1		
<b>Mitigation Location</b>	US 101 MP 33.70 to 33.99, Pacific County		
<b>LLID Number</b>	1238883464937		
<b>Construction Date</b>	2012-2014		
<b>Monitoring Period</b>	2015-2019		
<b>Year of Monitoring</b>	1 of 5		
<b>Type of Project Impact<sup>1</sup></b>	Temporary Wetland	Permanent Buffer	Temporary Buffer
<b>Area of Project Impact</b>	0.37 acre	0.25 acre	0.042 acre
<b>Type of Mitigation</b>	Wetland Re-Establishment	Buffer Establishment	Buffer Re-Establishment
<b>Planned Area of Mitigation</b>	0.37 acre	0.25 acre	0.042 acre

<sup>1</sup>Additional mitigation for 1.05 acres permanent wetland impacts for this project is provided by the Tarlatt Slough Mitigation Site which is reported on separately.

The impact and mitigation acreages are referenced from the *Final Critical Areas Mitigation Report US 101 – Middle Nemah Bridge Replacement MP 33.70 to MP 33.99* (WSDOT 2012).

This Page Intentionally Left Blank

## Summary of Monitoring Results and Management Activities (2015)

Performance Standards	2015 Results <sup>2</sup>	Management Activities
90% survival in palustrine scrub-shrub restoration areas	91% survival	1,200 salmonberry ( <i>Rubus spectabilis</i> ), 200 Hooker's willow ( <i>Salix hookeriana</i> ), 650 twinberry honeysuckle ( <i>Lonicera involucrata</i> ), and 400 red elderberry ( <i>Sambucus racemosa</i> ) planted in the wetland areas on 1/12 and 1/13 in 2015
90% survival in buffer restoration areas	89% survival (CI <sub>80%</sub> = 80-97%) in the buffer restoration and establishment areas combined	20 Sitka spruce ( <i>Picea sitchensis</i> ) and 25 western red cedar ( <i>Thuja plicata</i> ) planted in the buffer areas on 10/26/2015
90% survival in buffer establishment areas	See above	
Reed canarygrass ( <i>Phalaris arundinacea</i> ), purple loosestrife ( <i>Lythrum salicaria</i> ), and paleyellow iris ( <i>Iris pseudacorus</i> ) documented and removed	Reed canarygrass present	Weed control activity occurred on 4/14, 6/16, 8/25, and 10/27 in 2015
Less than 15% cover blackberry ( <i>Rubus</i> species) and Class A noxious weeds in the on-site mitigation areas.	None observed	
<b>HPA Standard</b>		
80% survival vegetative cuttings in the riparian areas	Survival is low; many plants appear to have been removed	

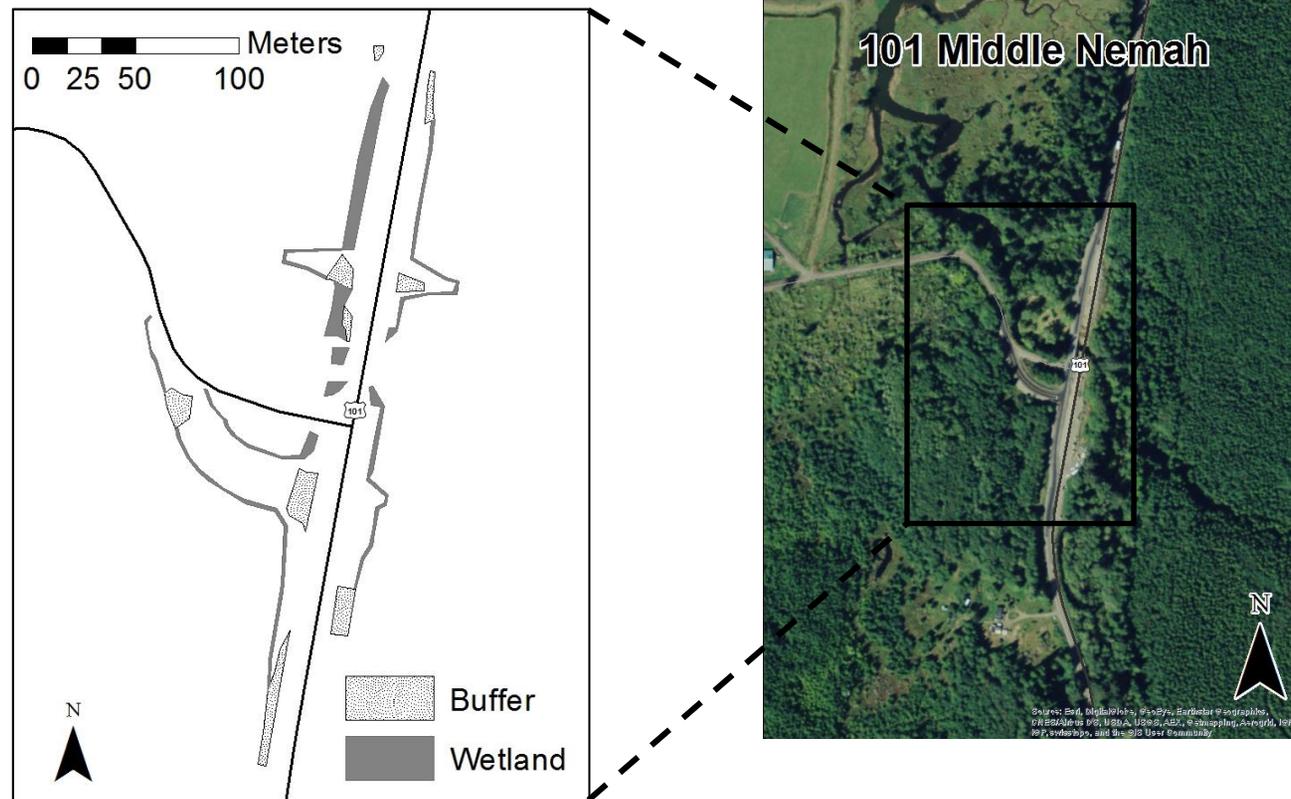
## Report Introduction

This report summarizes first-year (Year-1) monitoring activities at the United States (US) 101 Middle Nemah 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 and photo-documentation on August 10, 2015.

<sup>1</sup> Estimated values are presented with their corresponding statistical confidence interval. For example, 89% survival (CI<sub>80%</sub> = 80-97% cover) means we are 80% confident that the true survival value is between 80% and 97%.

## What is the US 101 Middle Nemah Mitigation Site?

This mitigation site (Figure 1) is a re-established wetland and buffer, and newly established buffer area adjacent to the US 101 Middle Nemah Bridge Replacement project. This site was created to compensate for the temporary impacts to 0.37 acre of wetlands and 0.042 acre buffer, and permanent impacts to 0.25 acre buffer due to construction during the bridge replacement. The wetland and buffer areas are designed to provide mitigation for lost wetland and buffer functions including wildlife habitat, biological support, and flood flow alteration.



**Figure 1** Site Sketch

The US 101 Middle Nemah Mitigation Site contains several re-established wetland and buffer, and newly established buffer areas on both sides of US 101 near the Middle Nemah River Bridge. Appendix 1 includes site directions.

## What are the performance standards for this site?

### Year 1

#### Performance Standard 1

At monitoring year 1, there will be a minimum survival rate of 90 percent in onsite restoration areas identified as palustrine scrub-shrub.

#### Performance Standard 2

At monitoring year 1, there will be a minimum survival rate of 90 percent in areas identified as buffer restoration areas.

#### Performance Standard 3

At monitoring year 1, there will be a minimum survival rate of 90 percent in the buffer establishment area.

#### Performance Standard 4

In all monitoring years, invasive species [reed canarygrass, purple loosestrife, and paleyellow iris] will be documented and completely removed from the site.

#### Performance Standard 5

The aerial extent of blackberry species and Class A noxious weeds in the on-site mitigation areas will not exceed 15 percent of that area.

#### HPA Standard

Within one year of project completion, the banks, including riprap areas, shall be revegetated with native or other approved woody species. Vegetative cuttings shall be planted at a maximum interval of three feet (on center) and maintained as necessary for three years to ensure 80 percent survival.

Appendix 1 shows the planting plan (WSDOT 2012).

## How were the performance standards evaluated?

Appendix 2, Table 1 documents the sampling methodology utilized for all of the performance standards (PS) 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).

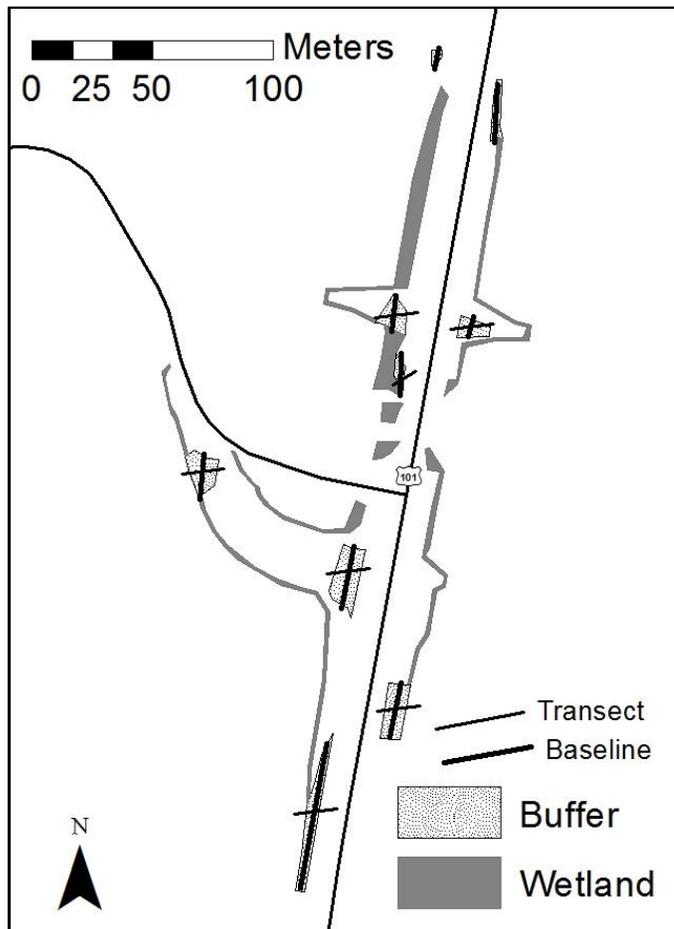


Figure 2 Site Sampling Design (2015)

**Placement of Baseline:** A segmented baseline was placed through the center of each buffer area.  
Total Length 62m, Transects 1-7

## How is the site developing?

The site is becoming established, but supplemental planting is required to meet year 1 performance standards for survival. Some plants appear to have been removed along the revegetated former alignment and the northern wetland area. Invasive cover is low.

Results for Performance Standard 1

(90% survival in the restored palustrine scrub-shrub wetland):

Survival in the restored scrub-shrub wetland areas is estimated at 91 percent. This value exceeds the performance standard target. Some areas appear to have had plants removed, and those areas were not included in this estimate. Dominant species include salmonberry (*Rubus spectabilis*), twinberry honeysuckle (*Lonicera involucrata*), and willows (*Salix* species). (Photo 1)



**Photo 1**  
**Survival in the restored PSS areas (August 2015)**

Results for Performance Standard 2

(90% survival in the buffer restoration areas):

Survival in the combined buffer restoration and establishment areas is estimated at 89% (CI<sub>80%</sub> = 80-97%). This value is just below the performance standard target and does not include areas where plants appear to have been removed. Dominant species include salal (*Gaultheria shallon*) and California huckleberry (*Vaccinium ovatum*). (Photo 2)

Results for Performance Standard 3

(90% survival in the buffer establishment area):

See results for performance standard 2.



**Photo 2**  
**Survival in the buffer areas (August 2015)**

Results for Performance Standard 4

(Reed canarygrass, purple loosestrife, and paleyellow iris documented and completely removed from the site):

One patch of reed canarygrass was observed that appears to have been sprayed with herbicide. No purple loosestrife or paleyellow iris observed at the time of monitoring.

Results for Performance Standard 5

(Less than 15% cover blackberry species and Class A noxious weeds in the onsite mitigation areas):

No blackberry species or Class A noxious weeds observed. Canada thistle (*Cirsium arvense*) and common tansy (*Tanacetum vulgare*) were present.

HPA Standard

(80% survival woody cuttings in the riparian area):

Survival is low. Many plants appear to have been removed

**What is planned for this site?**

Routine weed control and replanting is planned for 2016. The planting that was installed to restore temporary impacts to Wetland C was removed by the property owner (Photo Points 1 and 2, Appendix 1) once the temporary construction easement was released. WSDOT has no legal control over this area or the ability to do additional replanting in Wetland C. Continued work will focus on the Buffer Mitigation Area (Appendix 1), and woody plantings in temporary impacted areas of Wetland B.

# Appendix 1 – Proposed Impact Areas

(from WSDOT 2012)



**Driving Directions:**

From I-5 take Exit 104 for US 101 North. Continue onto US 101 North. Keep left to continue onto State Route 8 and follow signs for WA 8 West/Montesano/Aberdeen. Continue onto US 12 West. Take the exit towards WA 107/Montesano/Raymond. Turn left onto WA 107 South/South Main Street. Turn left onto US 101 South.

## Appendix 2 – Data Table

Table 1. Sampling Methodology

	PS 1	PS 2	PS 3	PS 4	PS 5	HPA
<b>Attribute</b>	Survival	Survival	Survival	Presence	Cover	Survival
<b>Target pop.</b>	Native Woody	Native Woody	Native Woody	Reed Canarygrass, Purple Loosestrife, and Paleyellow Iris	Blackberry species and Class A Noxious Weeds	Woody Cuttings
<b>Zone</b>	Restored PSS	Re- Established Buffer	Established Buffer	Entire Site	Entire Site	Riparian
<b>Sample method</b>	Total Count	UBT	UBT	Qualitative	Qualitative	Qualitative
<b>SU length</b>	NA	NA	NA	NA	NA	NA
<b>SU width</b>	NA	1m	1m	NA	NA	NA
<b>Points per SU</b>	NA	NA	NA	NA	NA	NA
<b>Total # of SU</b>	NA	7	7	NA	NA	NA

## Literature Cited

1. [USACE] US Army Corps of Engineers. 2012. Department of the Army Nationwide Permit 23 Number NWS-2012-134.
2. [WDFW] Washington Fish and Wildlife. 2012. Hydraulic Project Approval Permit # 125861-1.
3. [WSDOT] Washington State Department of Transportation. 2012. Final Critical Areas Mitigation Report US 101 – Middle Nemah River Bridge Replacement MP 33.70 to MP 33.99. Vancouver (WA): Washington State Department of Transportation, Southwest Region.
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>