SR 14 Marble Rd Vic. To Belle Center Rd Vic. Safety Improvements (Marble Road NSA) Mitigation Site

USACE NWP (23) NWS-2011-544

Southwest Region

2015 MONITORING REPORT

Wetlands Program

Issued March 2016

Washington State Department of Transportation

Environmental Services Office

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General Site Information		
USACE NWP 23 Number	NWS-2011-544	
Mitigation Location	About10 miles west of Skamania, WA	
LLID Number	1222270455635	
Construction Date	2013–2014	
Monitoring Period	2015–2024	
Year of Monitoring	1 of 10	
Type of Project Impact	Wetland	Oak Woodland
Area of Project Impact[1]	0.16 acre	2.25 acres
Type of Mitigation	Oak Woodland Restoration	
Planned Area of Mitigation[1,2]	1.5 acres	

[1] The project impact and mitigation areas were referenced from the mitigation plan (WSDOT 2012).
[2] Additional mitigation for impacts associated with this project is provided at the SR 14 Homestead Lake Mitigation Site, the SR 14 Cleveland Oak Mitigation Site, and the Wind Mountain Oak Preservation Site. See the mitigation plan for details (WSDOT 2012).

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Summary of Monitoring Results and Management Activities (2015)

Performance Standards	2015 Results	Management Activities
Minimum 90% survival in all woody species planting areas	86% survival	Driwater installed to tree plantings on 2 dates in 2014
Maximum 15% cover of blackberries and Class B noxious weeds	Less than 1%	Weed control conducted on 3 dates in 2014
Japanese knotweed, purple loosestrife, and Class A noxious weeds will be eradicated if present	None observed	
Maximum 25% cover of reed canarygrass	None observed	

Report Introduction

This report summarizes first-year (Year-1) monitoring activities at the State Route (SR) 14 Marble Road NSA Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site development. Monitoring activities in 2015 included vegetation surveys and photo-documentation and was conducted on August 19.

What is the SR 14 Marble Road NSA Mitigation Site?

This 1.5-acre mitigation site (Figure 1) consists of on-site restoration of impacted Oregon white oak forest. This site was created as partial compensation for the loss of 2.25 acres of oak woodlands due to safety improvements on SR 14 from the Marble Road vicinity to the Belle Center Road vicinity.

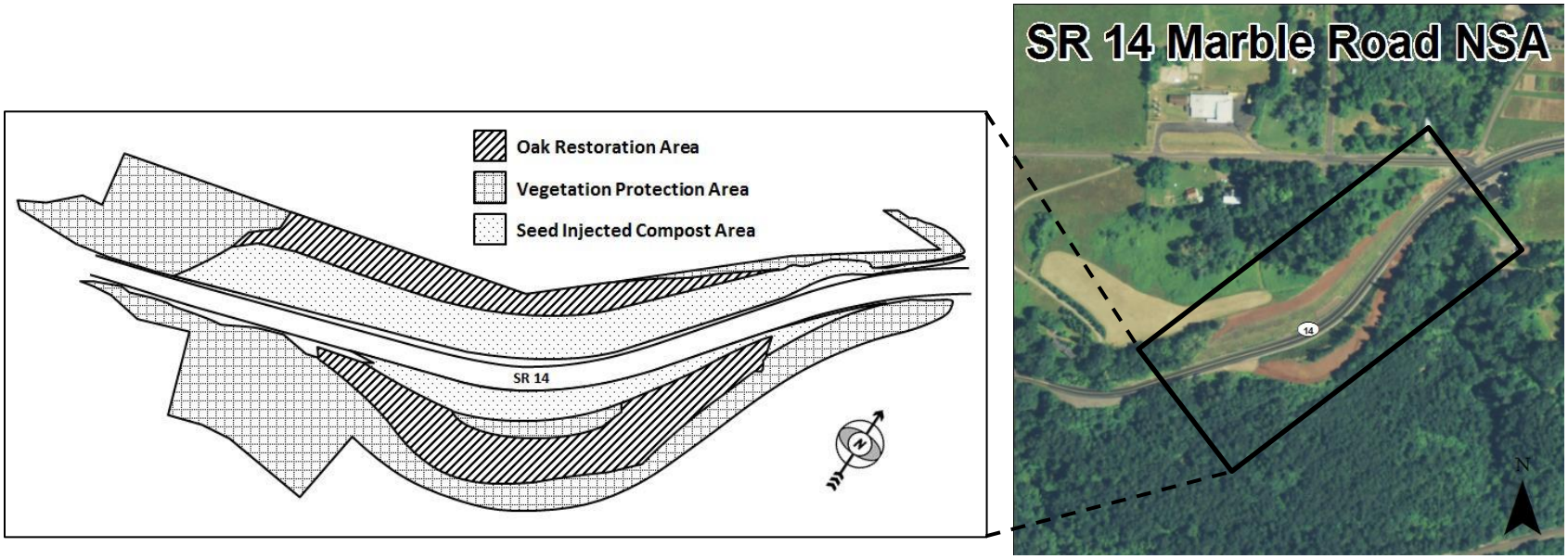

Figure 1 Site Sketch

The SR 14 Marble Road NSA Mitigation Site contains two oak restoration areas, one on either side of SR 14, planted with Oregon white oak and other native trees and shrubs. Appendix 2 includes site directions.

What are the performance standards for this site?

Performance Standard 1
At monitoring year 1, there will be a minimum survival rate of 90% in all woody species planting areas, including Oregon White Oak trees planted within Oak Savannah areas at the Cleveland mitigation site. Seeded herbaceous areas will exhibit uniform germination and active growth during the growing season.

Performance Standard 2
The aerial extent of Blackberry Species and Class B noxious weeds will not exceed 15% in the combined scrub shrub, buffer, and riparian planting areas, exclusive to each mitigation site (ie- invasive species totals at both sites shall not be added together to create a single % cover for reporting purposes).

Performance Standard 3
If/when detected, Class A Noxious Weeds, Japanese Knotweed, and Purple Loosestrife shall be treated so that the species do not exist on the site. These species shall not be included in the 15% cover allowed for invasive species.

Performance Standard 4
At monitoring years 1, 3, 5, and 7, the aerial extent of Reed Canarygrass at each mitigation site shall not exceed 25% total cover in the wetland creation or buffer enhancement areas.

Appendix 1 shows the planting plan (from WSDOT 2012).

How were the performance standards evaluated?

The table below documents the sampling methodology utilized for the performance standards (PS). For additional details on the methods see the WSDOT Wetland Mitigation Site Monitoring Methods Paper (WSDOT 2008).

	PS 1	PS 2, 3, 4
Attribute	Survival	Cover/Presence
Target pop.	Native Woody	Noxious Weeds
Zone	Entire site	Entire site
Sample method	Total Count	Visual Estimate

How is the site developing?

This mitigation site is generally doing well at this early stage in its development. The survival of planted woody species, although below the targeted threshold of 90% (Performance Standard 1), is still relatively high at 86%, particularly considering how dry the spring and summer were in 2015. The sheet mulching and other weed control measures appear to have been effective in limiting noxious weed growth so far, as noxious weeds are not a significant problem on-site at this time. Much of the mulch in the planting area on the northwest side of SR 14, however, has blown away due to high winds coming in off the Columbia River. This lack of mulch and the drying effects of the wind itself could hamper survival and development of the plantings in this area in the years to come.

Results for Performance Standard 1
(Minimum 90% survival in all woody species planting areas):

The survival of planted woody species in the oak restoration area (Photo 1) was determined to be 86% (5,586 live plants out of 6,643 total plants counted). The most abundant species present in this area by far is snowberry (*Symphoricarpos albus*), followed by western serviceberry (*Amelanchier alnifolia*), dull oregongrape (*Mahonia nervosa*), Indian plum (*Oemleria cerasiformis*), bigleaf maple (*Acer macrophyllum*), and Oregon white oak (*Quercus garryana*).

Results for Performance Standard 2
(Maximum 15% cover of blackberries and Class B noxious weeds):

No Class B noxious weeds were observed on-site. Himalayan blackberry (*Rubus armeniacus*) was present in small scattered patches, but was visually estimated at less than 1 percent cover across the entire site.

Photo 1
Woody survival in the oak restoration area (August 2015)

Results for Performance Standard 3
(Japanese knotweed, purple loosestrife, and Class A noxious weeds will be eradicated if present):

No Japanese knotweed (*Reynoutria japonica*), purple loosestrife (*Lythrum salicaria*), or Class A noxious weeds were observed on-site.

Results for Performance Standard 4
(Maximum 25% cover of reed canarygrass):

No reed canarygrass (*Phalaris arundinacea*) was observed on-site.

What is planned for this site?

Vegetation management will occur throughout the 2016 growing season to eliminate grasses and other non-planted invasive species. Replanting of trees and shrubs will occur during the 2016-2017 dormant planting season.

Appendix 1 – Planting Plans with Photo Point Locations

(from WSDOT 2012)

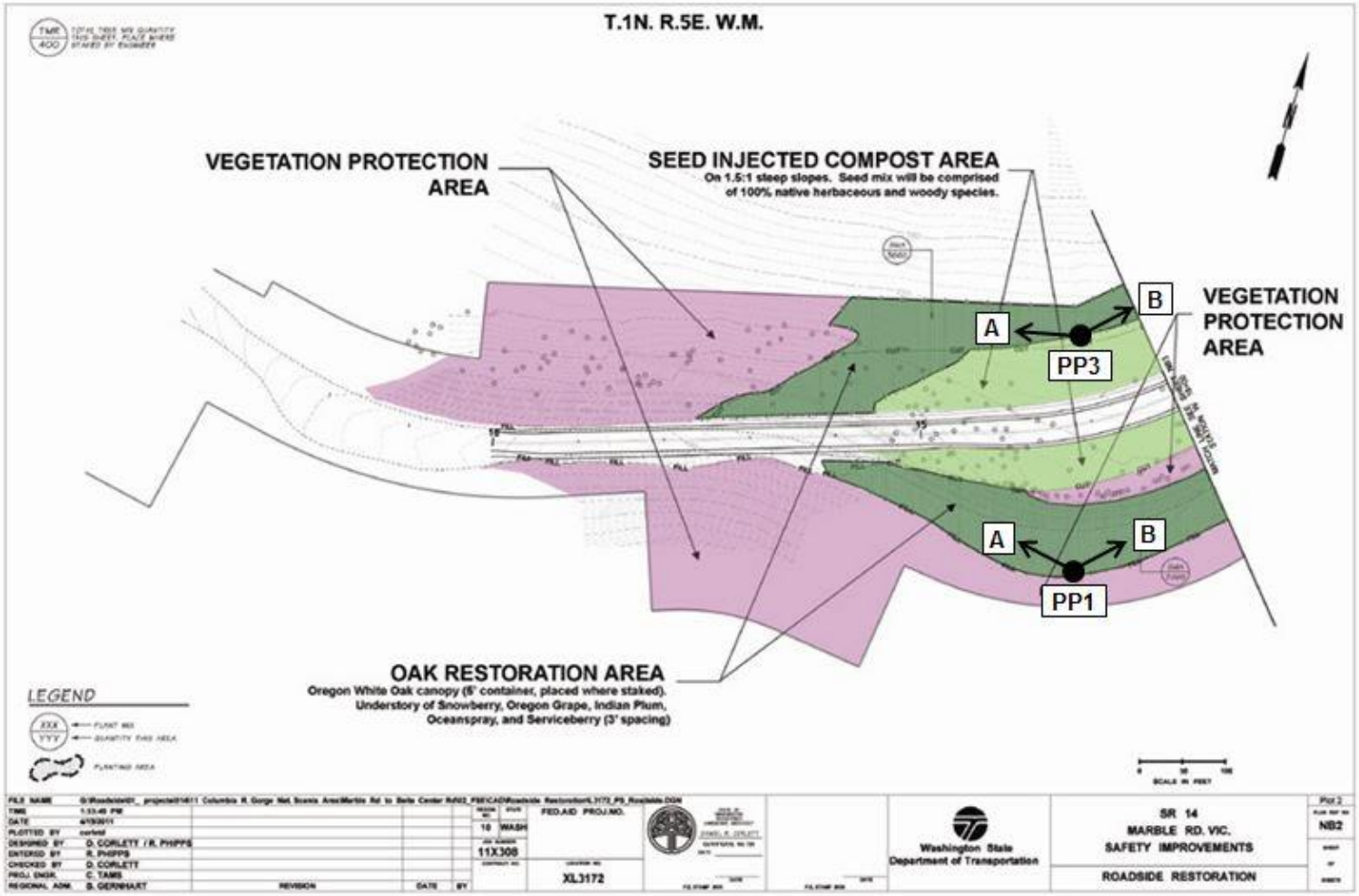

Figure 21. On-site restoration concept - west

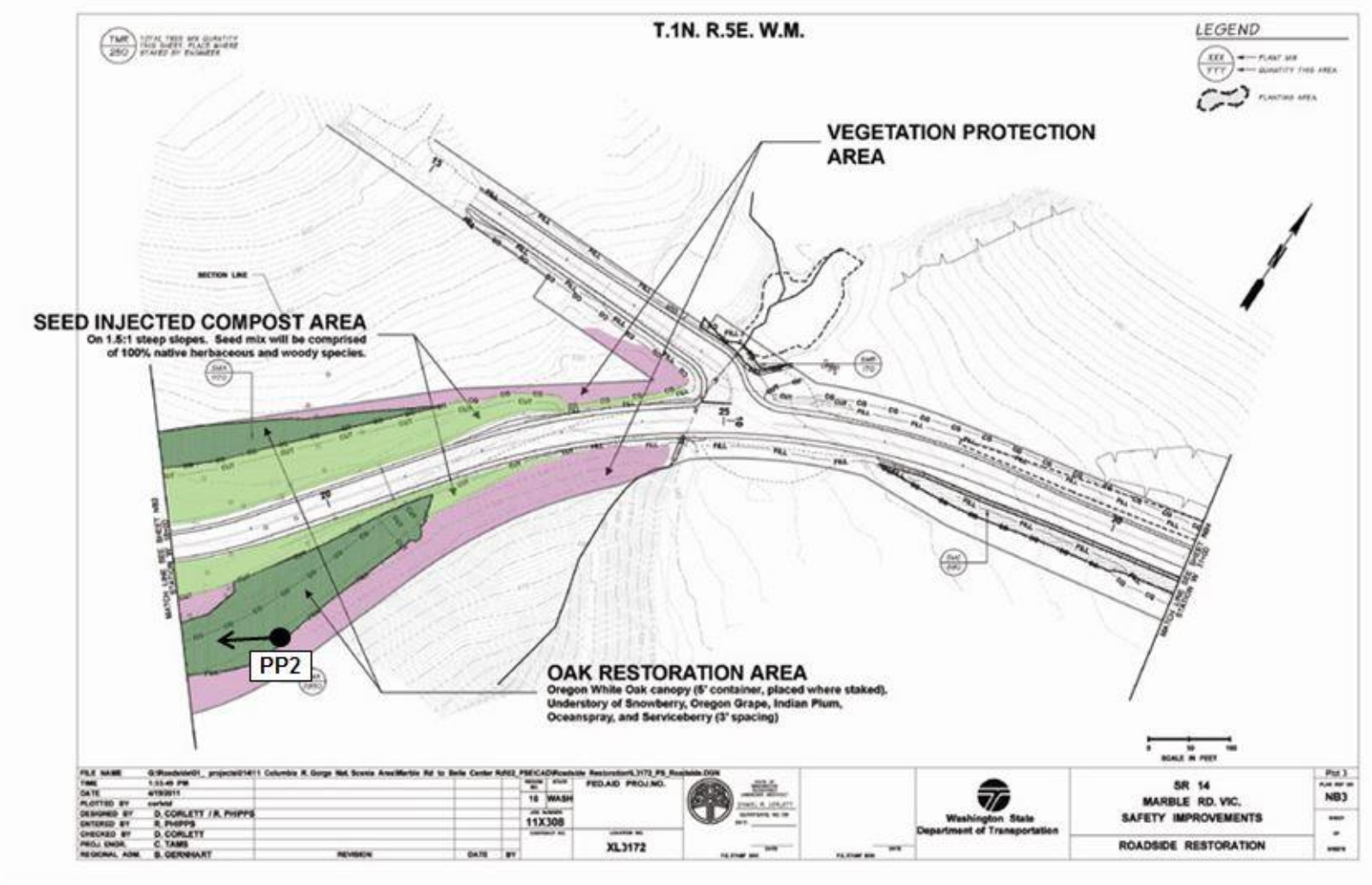

Figure 22. On-site restoration concept - east

Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on August 19, 2015 and document current site development.

Photo Point 1a

Photo Point 1b

Photo Point 2

Photo Point 3a

Photo Point 3b

Driving Directions:
From I-5, take SR 14 east. After 22.2 miles the mitigation site will be on both sides of SR 14.

Literature Cited

1. [USACE] US Army Corps of Engineers. 2012. Department of the Army Nationwide Permit (23) Number NWS-2011-544.

2. [WSDOT] Washington State Department of Transportation. 2012. Final Natural Resource Mitigation Plan SR 14 Marble Rd Vic. To Belle Center Rd Vic. Safety Improvements MP 22.60 to 23.70. Vancouver (WA): Washington State Department of Transportation, Southwest Region.

3. [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