

**I-405/NE 8th St to SR 520 Braided Ramps (Sturtevant Creek)
Mitigation Site**

USACE NWP (14) NWS-2008-504

Northwest Region

2014 MONITORING REPORT

Wetlands Program

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General Site Information	
USACE NWP 14 Number	NWS-2008-504
Mitigation Location	NE 2 nd Pl in downtown Bellevue, adjacent to exit 13A.
LLID Number	1221875476128
Construction Date	2010-2011
Monitoring Period	2012-2016
Year of Monitoring	3 of 5
Area of Stream Impact¹	0.04 acre
Area of Stream Buffer Impact	0.15 acre
Type of Mitigation	Stream and Buffer Restoration
Area of Mitigation	0.34 acres

¹Impact and mitigation acreages from (Small 2009)

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Summary of Monitoring Results and Management Activities (2014)

Performance Standards	2014 Results ²	Management Activities
Native woody species will maintain a density of 4plants/100ft ²	5.8 plants/100ft ² (CI _{80%} = 5.3-6.2)	
Invasive species will not exceed 20% cover	3% cover	4 separate weed control visits were conducted in 2014
Japanese knotweed shall not be present	None observed	

Report Introduction

This report summarizes third-year (Year-3) monitoring activities at the Interstate (I) 504 Sturtevant Creek (Bellevue Braids) 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. Monitoring activities occurred on August 19, 2014.

² Estimated values are presented with their corresponding statistical confidence interval. For example, 5.8 plants/100ft² (CI_{80%} = 5.3-6.2) means we are 80% confident that the true density value is between 5.3 plants/100ft² and 6.2 plants/100ft².

What is the I-405 Sturtevant Creek Mitigation Site?

This mitigation site (Figure 1) consists of 200 ft. of relocated stream channel and 0.34-acre of riparian buffer established adjacent to the exit 13B off ramp in downtown Bellevue. This site was created to compensate for the loss of 0.04-acre of stream channel and 0.15-acre of riparian buffer due to road improvements at the I-405 and SR 520 interchange. The addition of large woody debris structures and riparian plantings are designed to provide mitigation for lost stream functions including organic input, in-stream primary productivity, channel complexity and roughness.

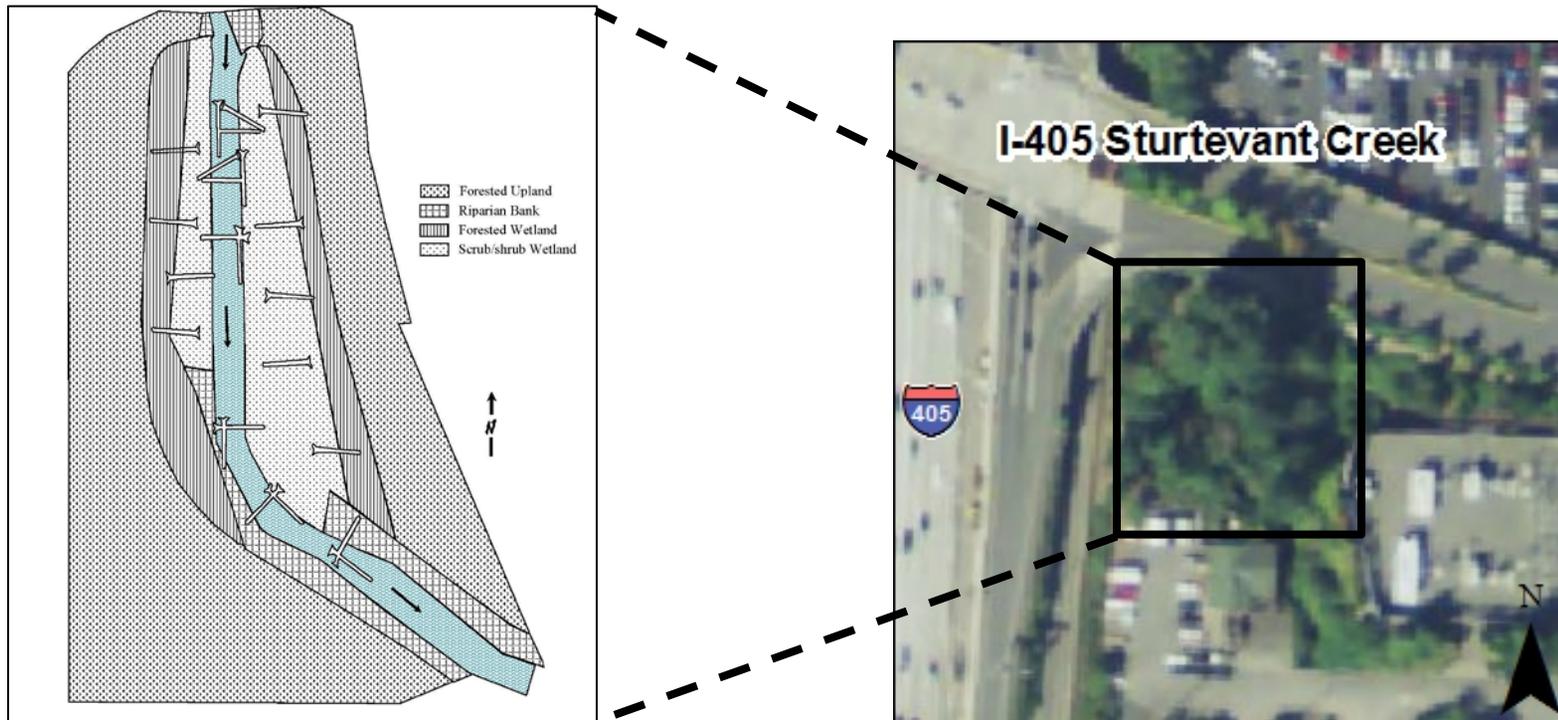


Figure 1 Site Sketch

The I-405 Sturtevant Creek (Bellevue Braids) Stream Mitigation Site contains enhanced forested and scrub-shrub wetland areas on both sides of Sturtevant Creek. Forested uplands flank the wetland areas. Appendix 1 includes site directions.

What are the performance standards for this site?

Year-3

USACE Performance Standard 1

The native woody species will maintain a density of four plants per 100 square feet in each riparian plant community.

USACE Performance Standard 2

King County listed Class A weeds and reed canarygrass, purple loosestrife, non-native blackberries, English ivy, and Scot's broom will not exceed 20 percent aerial cover at the mitigation. If this cover threshold is exceeded, weed eradication or control measures will be implemented as part of the contingency plan.

Japanese Knotweed shall not be present at the Sturtevant Creek stream mitigation site. If it is discovered during monitoring, eradication methods will be implemented immediately.

Appendix 1 shows the planting plan (Small 2010).

How were the performance standards evaluated?

To evaluate standards for vegetative cover, a baseline was established more or less parallel to the eastern site border (Figure 2). Ten sampling transects were randomly placed perpendicular to the baseline. The unequal belt transect method was used to determine woody density (Performance Standard 1). Ten one-meter wide belt transects were sampled. Invasive species cover was completed qualitatively with visual estimates (Performance Standard 2).

For additional details on the methods, see the [WSDOT Wetland Mitigation Site Monitoring Methods Paper](#) (WSDOT 2008).

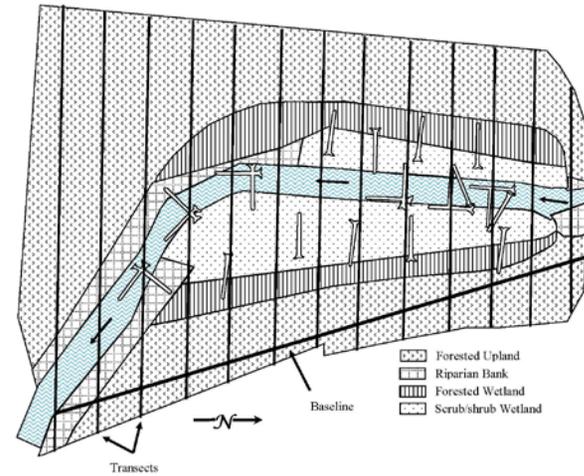


Figure 2 Site Sampling Design (2014)

How is the site developing?

In general the site is developing as planned and continues to meet the performance standards. Its proximity to the highway and urban development has resulted in a bit of garbage starting to collect on site. Other than that, it appears that shading, flood flow attenuation and other functions are being provided on this site.

The site is intended to increase the quality and complexity of the in stream habitat, increase the complexity and biodiversity of the riparian buffer, and increase the hydrological connectivity between the stream and riparian wetlands. Grading, plant establishment, and the addition of large woody debris have likely helped to facilitate the intended functional lift.

Results for Performance Standard 1

(Density of native woody species 4 plants/100ft²):

The density of native woody species is estimated at 5.8 plants/100ft² (CI_{80%} = 5.3-6.2) (Photo 1). A diverse assemblage of species is present on site with over thirty separate species documented. Dominant species include western red cedar (*Thuja plicata*), Indian plum (*Oemleria cerasiformis*), and salmonberry (*Rubus spectabilis*).

Results for Performance Standard 2

(No more than 20% cover by targeted invasive species):

The cover of the listed species is estimated at three percent. This consists of predominately climbing nightshade (*Solanum dulcamara*) near the creek channel and Himalayan blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*) encroaching from the eastern border of the site.

Japanese knotweed was not observed within the stream mitigation site.

What is planned for this site?

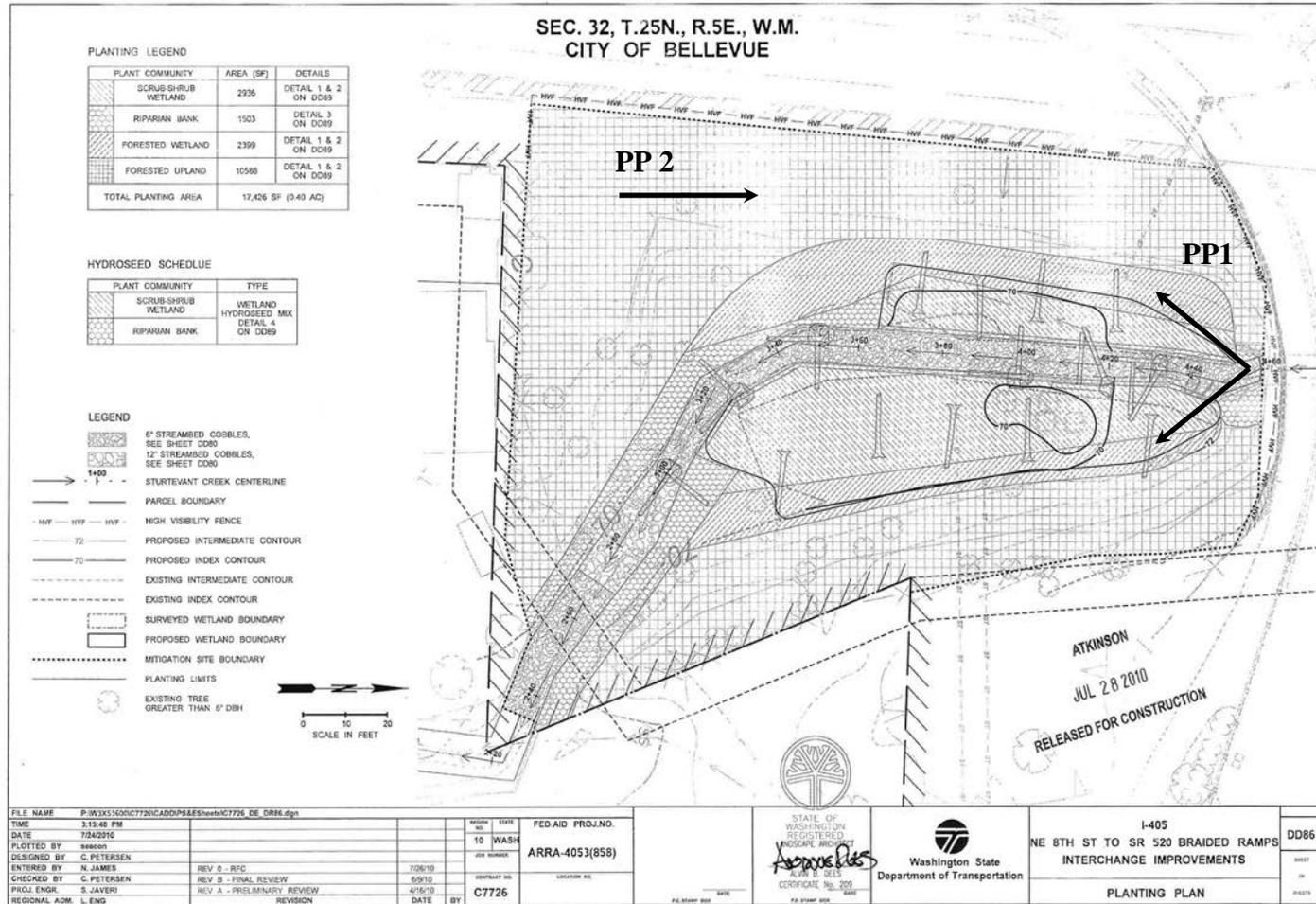
The region has plans to continue weed control as needed.



Photo 1
Woody density (August 2014)

Appendix 1 – Planting Plan and Photopoint Map

(from Small 2010)



Driving Directions:

From I-5 take Exit 142a to SR 18. Take SR18 to I-405. From I-405 take exit 13A toward NE 4th St. Turn right onto NE 4th St. Turn right onto 116th Ave NE. Turn right onto NE 2nd Pl. Park at the end of the road.

Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on August 19, 2014 and document current site development.



Photo Point 1a



Photo Point 1b



Photo Point 2

Literature Cited

1. [USACE] US Army Corps of Engineers. 2008. Department of the Army Individual Permit Number NWS-2008-504.
2. Small, J. Anchor Environmental. 2008. I-405/NE 8th St to SR 520 Braided Ramps Project Final Stream Mitigation Report. Seattle (WA): Washington State Department of Transportation, Urban Corridors Office.
3. [WDFW] Washington Department of Fish and Wildlife. 2008. Hydraulic Project Approval Permit Number 112779-2
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>