I-5 SR 501 Ridgefield Interchange
McCormick Creek Mitigation Site

USACE NWP (23) NWS-2008-1303

Southwest Region

2014 MONITORING REPORT

Wetlands Program

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General Site Information	
USACE NWP 23 Number	NWS-2008-1303
Mitigation Location	One mile east of I-5 on NW 289th St Clark County
LLID Number	1226747458305
Construction Date	1998
Monitoring Period	2014-2023
Year of Monitoring	1 of 10
Area of Project Impact[1]	1.78 acres
Type of Mitigation	Wetland Establishment
Planned Area of Mitigation[2]	2.70 acres

[1] Area of project impact taken from USACE 2008.

[2] Planned area of mitigation taken from WSDOT 2009

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Summary of Monitoring Results and Management Activities (2014)

Performance Standards	2014 Results[3]	Management Activities
Wetland Hydrology	Not present in all intended areas	
At monitoring year 1, there will be a minimum survival rate of 90% in area identified on the Planting Plan as Forested, Scrub Shrub, Emergent, and Buffer areas.	PEM - 95% cover ($CI_{80\%}$ = 91-99%) PSS - 87% survival ($CI_{80\%}$ = 81-94%) Buffer - 87% survival ($CI_{80\%}$ = 83-91%)	3,500 additional native woody species were planted in the buffer and 2,150 additional native woody species were planted in the wetland in March 2014
The aerial extent of Blackberry Species and Class A noxious weeds will not exceed 15% in the combined emergent, scrub shrub, forest, and buffer planting areas of the Johnson mitigation site.	One percent cover of Himalayan blackberry across site	
Japanese Knotweed shall not be present in any amount within the mitigation site.	None observed	
The aerial extent of Reed Canarygrass in the Johnson mitigation site will be managed at a threshold 10% below the existing baseline conditions established in Performance Standard 6A.	Three percent cover of reed canarygrass across site	6 separate weed control visits occurred in 2014

Report Introduction

This report summarizes first-year (Year-1) monitoring activities at the Interstate (I) 5 McCormick Creek 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 monitoring took place on March 6, 19, And April 10. Vegetation surveys took place on August 25 and 26, 2014.

[3] Estimated values are presented with their corresponding statistical confidence interval. For example, 95% ($CI_{80\%}$ = 91-99% cover) means we are 80% confident that the true cover value is between 91% and 99%.

What is the I-5 McCormick Creek Mitigation Site?

This 7.8-acre mitigation site (Figure 1) comprises new wetlands, enhanced riparian areas, and forested preserve areas created adjacent to the headwaters of McCormick Creek. This site was created to compensate for the loss of 1.78 acres of wetlands due to road improvements to the I-5/SR 501 Interchange. The two seasonally ponded depressions and surrounding scrub-shrub and forested preserve areas are designed to provide mitigation for lost wetland functions including water quality, hydrologic, and habitat functions.

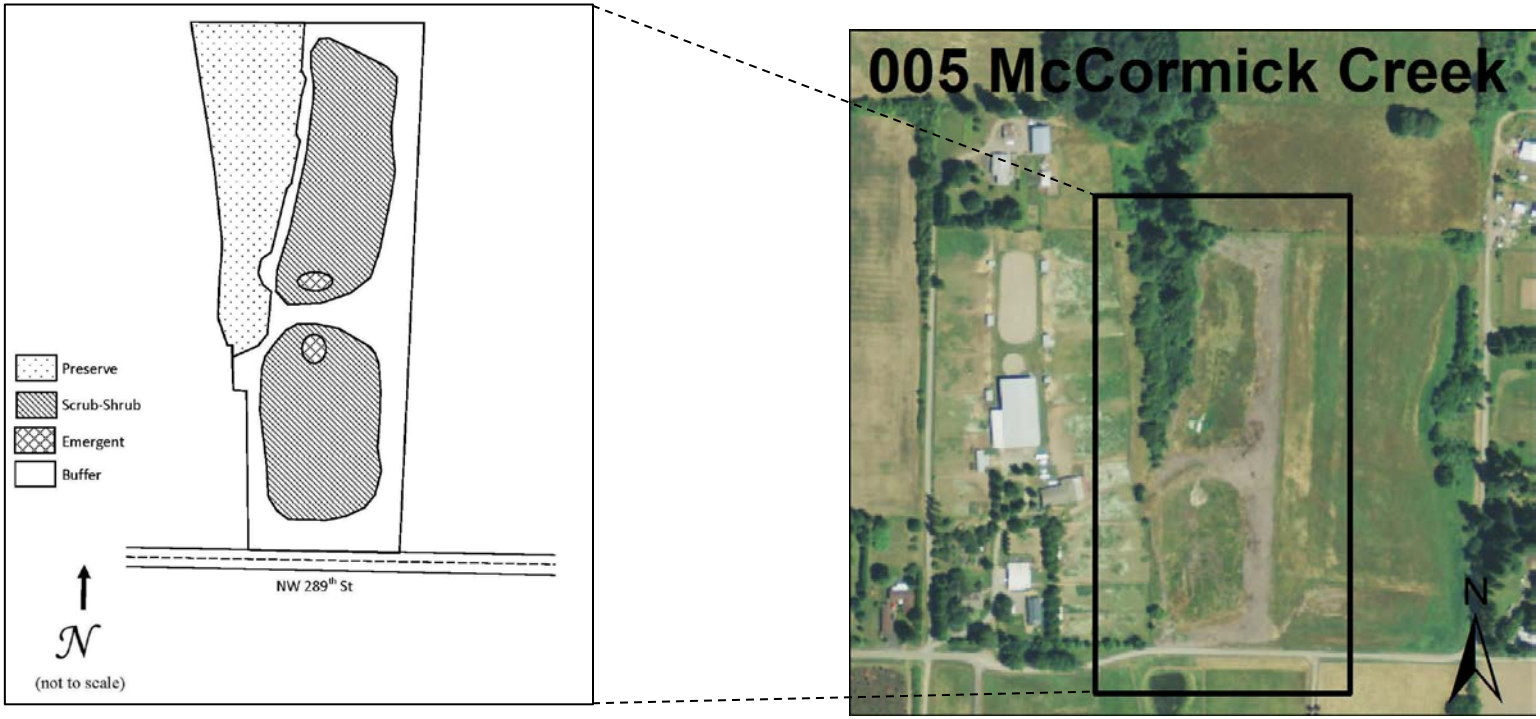


Figure 1 Site Sketch

The I-5 McCormick Mitigation Site contains two depressions surrounded by scrub-shrub wetlands, upland buffers and forested preservation areas. Appendix 2 includes site directions.

What are the performance standards for this site?

Year 1

Performance Standard 1
The soils will be saturated to the surface, or standing water will be present 12 inches or less below the surface for at least 10% of the growing season (growing season as defined in the Soil Survey of Clark County Area, Washington [USDA, 1972]) in years when rainfall meets or exceeds the 30-year precipitation average.

Performance Standard 2
At monitoring year 1, there will be a minimum survival rate of 90% in area identified on the Planting Plan as Forested, Scrub-Shrub, Emergent, and Buffer areas.

Performance Standard 3
The aerial extent of blackberry species and Class A noxious weeds will not exceed 15% in the combined emergent, scrub-shrub, forest, and buffer planting areas of the mitigation site.

Performance Standard 4
Japanese knotweed shall not be present in any amount within the mitigation site.

Performance Standard 5
The aerial extent of Reed Canarygrass in the Johnson mitigation site will be managed at a threshold 10% below the existing baseline conditions established in Performance Standard 6A.

Appendix 1 shows the grading plan (WSDOT 2010).

How were the performance standards evaluated?

To evaluate standards for vegetative cover, a baseline was established along the eastern site boundary (Figure 2). Twelve sampling transects were randomly placed perpendicular to the baseline. The unequal-area belt transect method was used to estimate the survival of native woody species in the buffer and scrub-shrub wetland (Performance Standard 2). The point intercept method was used to estimate herbaceous cover because accurately estimating the survival of planted herbaceous vegetation is not a meaningful measurement due to the difficulty of this measurement. Two separate baselines were established through the center of both emergent depressions. Seven ten-meter sample units (twenty points per sample unit) were used to sample this zone. The cover of non-native blackberries and Class A noxious weeds (Performance Standard 3), reed canarygrass (Performance Standard 5), and Japanese knotweed (*Reynoutria japonica*) (Performance Standard 4) were estimated qualitatively.

WSDOT staff collected hydrology data 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 Standard1).

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

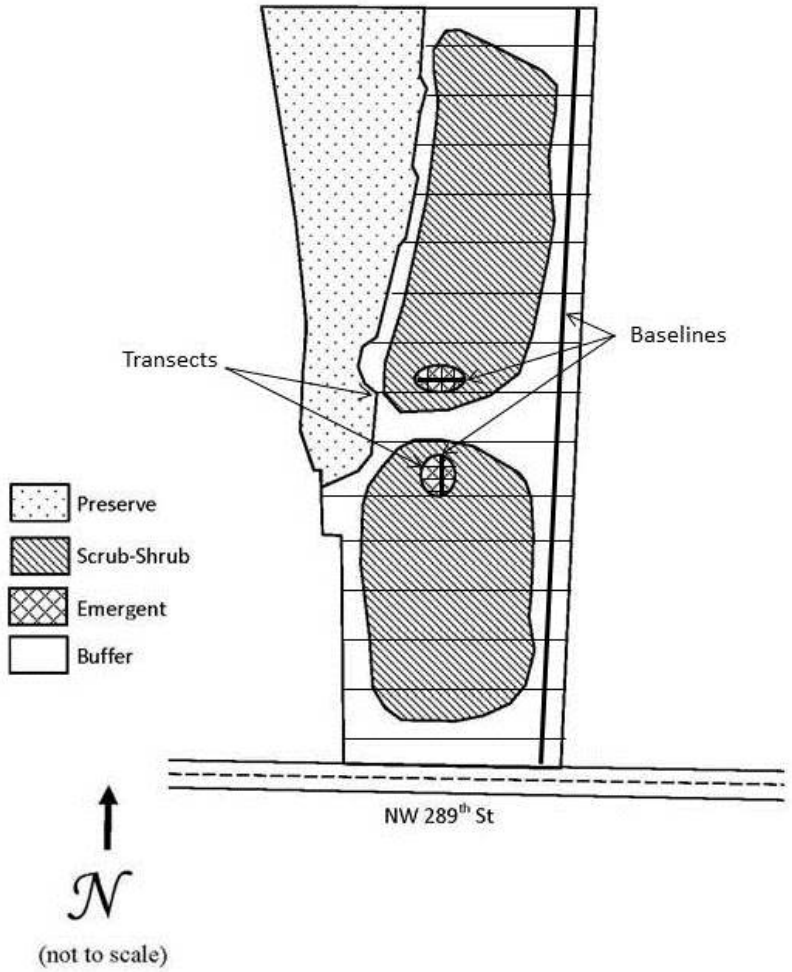


Figure 2 Site Sampling Design (2014)

How is the site developing?

This site is developing as intended in several respects. The emergent area has already almost complete filled in with native herbaceous species. The upland buffer and scrub-shrub/forested wetland planting areas both exhibit relatively high rates of survival, and invasive cover is low across the site.

Results for Performance Standard 1
(Wetland hydrology):

Wetland hydrology was not observed in all intended areas on each visit (Photo 1). Well 1 is installed in an area with very clay rich soils and water was not observed in that well on the second or third visit (wells were installed on the second visit). Well 3 did not meet hydrology criteria on the second visit (Appendix 3, Table 1).

Results for Performance Standard 2
(There will be a minimum survival rate of 90% in area identified on the Planting Plan as Forested, Scrub-Shrub, Emergent, and Buffer areas):

Survival was evaluated in the scrub-shrub wetland and upland buffer. Since it is extremely difficult to determine the survival of planted/seeded herbaceous vegetation, cover was evaluated in the emergent zones. The survival of planted woody vegetation in the scrub-shrub wetland is 87% ($CI_{80\%}$ = 81-94%). The survival of planted woody vegetation in the upland buffer is 87% ($CI_{80\%}$ = 83-91%) (Photo 2). These survival estimates are slightly below the performance standard target. The cover of native emergent vegetation in the emergent wetland is 95% ($CI_{80\%}$ = 91-99%) (Photo 3).

Photo 1
Shallow inundation in scrub-shrub wetland (March 2014)

Results for Performance Standard 3
(The aerial extent of blackberry species and Class A noxious weeds will not exceed 15% in the combined emergent, scrub-shrub, forest, and buffer planting areas):

The cover of non-native blackberries is qualitatively estimated at one percent. The few plants that were observed were found along the western site boundary. No Class A noxious weeds were observed on this site in 2014.

Results for Performance Standard 4
(Japanese knotweed shall not be present in any amount within the mitigation site):

Japanese knotweed (*Reynoutria japonica*) was not observed within the site boundaries in 2014.

Results for Performance Standard 5
(The aerial extent of reed canarygrass in the mitigation site will be managed at a threshold 10% below the existing baseline conditions and the aerial extent of Reed Canarygrass in the Johnson mitigation site will be managed at a threshold 10% below the existing baseline conditions established in Performance Standard 6A):

According to the Final Critical Areas Mitigation Report (WSDOT 2009) the existing wetland was dominated by reed canarygrass (*Phalaris arundinacea*). Currently, reed canarygrass provides three percent cover across the mitigation site.

What is planned for this site?

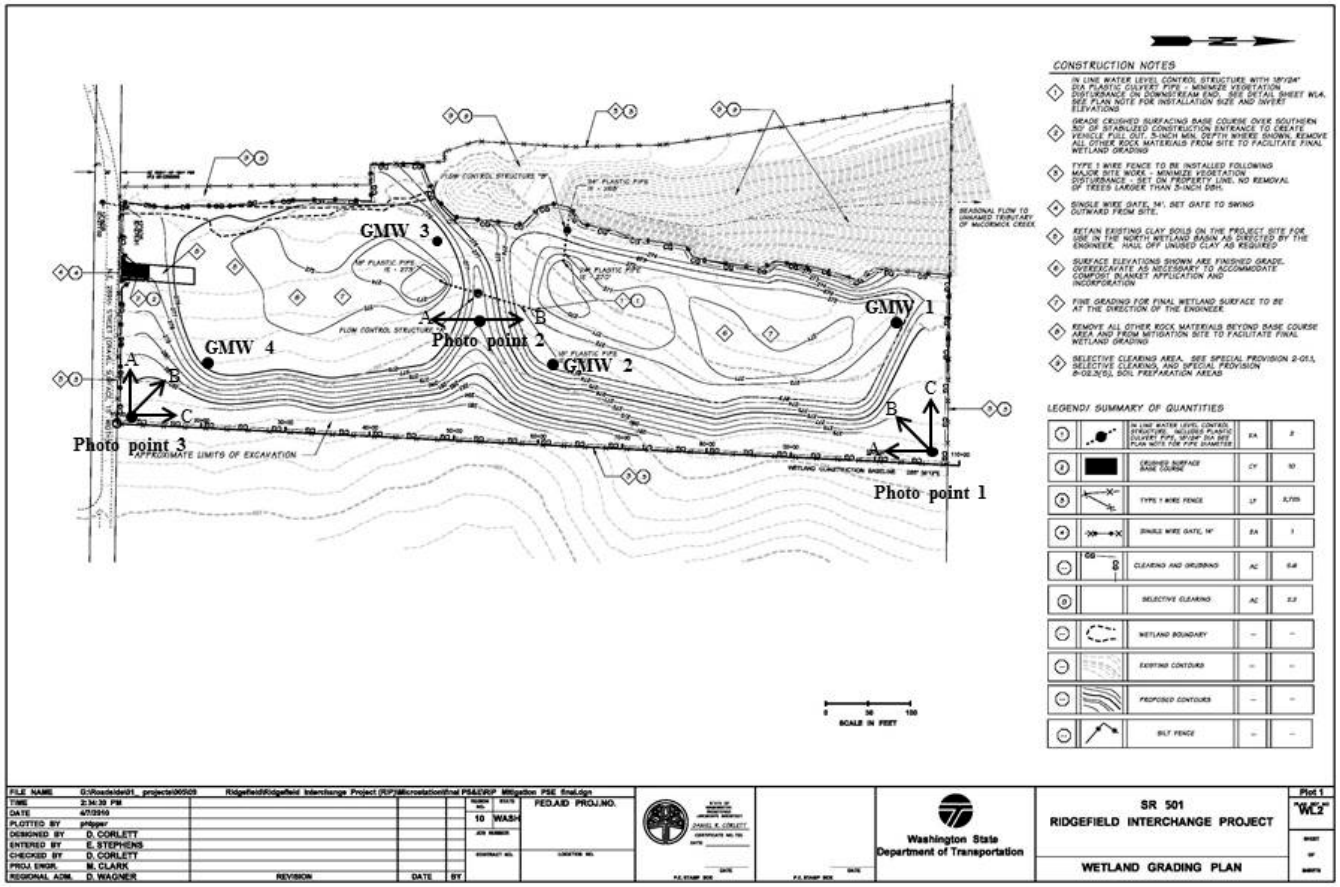
Routine weed control will continue in 2015.

Photo 2
Woody cover in upland buffer (August 2014)

Photo 3
Herbaceous vegetation in emergent zone (August 2014)

Appendix 1 – Grading Plan with Photo Point Locations and Well Locations

(WSDOT 2010)



Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on August 26, 2014 and document current site development.

Photo Point 1a

Photo Point 1b

Photo Point 1c

Photo Point 2a

Photo Point 2b

Photo Point 3a

Photo Point 3b

Photo Point 3c

Driving Directions:
From I-5 take exit 14. Turn left onto Pioneer St. Enter roundabout and take the second exit onto S 65th Ave. Turn right onto NW 289th St. The site is on the north side of the road approximately 0.4 miles east of the intersection of N 65th Ave and NW 289th St.

Appendix 3 – Data Tables

Table 1. Hydrology Observations.

Date	Surface Observations	Well ID #	Water Level (inches below soil surface unless otherwise noted)
March 6, 2014	Site is inundated through the middle on both sides of upland berm, deepest near water control structure.	1	2
		2	2.5
		3	0
		4	0
March 19, 2014	Inundation on each side of the water control device. Much of the low areas are saturated to the surface.	1	**No water in well**
		2	3.5
		3	**17**
		4	6.5
April 10, 2014	Most of the site is saturated; the driest area is near Well 1.	1	**No water in well**
		2	0
		3	6.5
		4	2.5

Table 2. Comparison of Observed and Normal Precipitation (NRCS 1997)

Monthly precipitation data for Kalama Falls Hatchery, Cowlitz County

		Long-term rainfall records[a]							
	Month	**3 yrs. in 10 less than**	**Average**	**3 yrs. in 10 more than**	**Rain fall[a]**	**Condition dry, wet, normal[b]**	**Condition Value**	**Month weight value**	**Product of previous two columns**
1st prior month	March	5.53	7.46	8.74	11.96	W	3	3	9
2nd prior month	Feb	5.45	8.0	9.55	8.06	N	2	2	4
3rd prior month	Jan	5.15	9.12	11.11	6.43	N	2	1	2
								Sum	**15**

[a]NRCS 2014
[b] Conditions are considered normal if they fall within the low and high range around the average.

Note: If sum is
- 6 - 9 then prior period has been drier than normal
- 10 - 14 then period has been normal
- 15 - 18 then period has been wetter than normal

Condition value:
- Dry (D) =1
- Normal (N) =2
- Wet (W) =3

Conclusions: Wetter than normal precipitation conditions were present prior to hydrology monitoring visits.

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