

4.4. Wetlands

4.4.1. Introduction

This section includes a description of wetland resources from the January 2006 EA (Jones & Stokes 2006) as well as additional resource information, impact analysis, and identification of mitigation measures for the proposed action.

Several public comments were received on the January 2006 EA, specifically regarding the extent or nature of impacts on wetlands (Appendix 3, category 30.0 wetlands). Of these comments, two questioned whether three locally known wetland areas were considered within the EA, specifically the following:

- wetland known as Sullivan's Pond located just northeast of the intersection of Bigelow Gulch Road and East Wilding Avenue;
- pond located just northwest of the intersection of Bigelow Gulch Road and Palmer Road; and
- wetland area along Sullivan Road adjacent to the west border of the high school.

Three other wetland comments questioned the existence or nature of mitigation for direct or indirect impacts on wetlands and/or related impacts on groundwater quality. The final wetland comment requested more details regarding how surface water discharges to wetlands would be limited. These concerns are addressed in Section 4.4.5. The County also received three less specific comments regarding wetlands and streams in general, and two comments regarding the extent to which the current and/or proposed roadway has caused or would cause drainage problems (Appendix 3, category 20.0 Groundwater Resources). These comments are addressed in Appendix 3 and in the sections to follow. Of the three less specific comments, two concerned impacts on local wetlands along Forker Road (Wetlands 5, 6, and 7) (see Figure 4.3-1) and one was in support of the proposed alignment because it would decrease the proximity of the roadway to Stream 1 (Bigelow Gulch Creek) (Figure 4.3-1).

4.4.2. What wetlands are present in the project area?

The location and approximate extent of wetlands within the project area has been determined based on a review of existing mapping resources (National Wetlands Inventory [NWI] maps, USGS topographic quadrangles, and County soil surveys), and aerial photographs, combined with field reconnaissance along the existing alignment of Bigelow Gulch and Forker Roads and along the proposed Forker modification between Jacobs and Progress roads. Field reconnaissance included observations from and along the existing roadway where it overlaps with the

proposed alignment without trespassing on private property. Detailed field delineation, description, and categorization of all wetlands would occur through the design and permitting stages.

A total of 16 wetlands were identified from NWI information, interpretation of aerial photographs, and field reconnaissance during 2002 and 2007. The wetlands are depicted on Figure 4.3-1. The depictions were based on identification of the wetland boundary from underlying aerial photographs (i.e., not delineated or surveyed boundaries), with the descriptions based on field reconnaissance data.

Wetland categories (Table 4.4-1) and buffer widths (Table 4.4-2) were determined based on field reconnaissance data and the requirements of Chapter 11.20.050(b) - Wetlands of the SCC (November 16, 2006). Of the 16 wetlands identified, 14 are associated with either Stream 1 (Bigelow Gulch Creek) or with Stream 8 (paralleling Forker Road), and are therefore considered Category 2 wetlands by SCC as they are “riparian” wetlands. The other two wetlands are not associated with streams and appear to meet SCC requirements for Category 4 wetlands. Detailed wetland ratings would be conducted according to Ecology’s *Wetland Rating System for Eastern Washington* (Hruby 2004) as prescribed by the SCC, during project design and permitting.

Table 4.4-1 has been revised from the January 2006 EA. It includes additional wetlands identified during 2007 surveys, minor typographical errors regarding the category of Wetland 7, and the relationship of these wetlands to the mapped and numbered streams as presented herein and discussed further in Section 4.5, *Streams*.

The wetland/pond described in public comments as “Sullivan’s Pond” is located just northeast of the intersection of Bigelow Gulch Road and East Wilding Avenue. This wetland was originally not included in Figure 10 or Table 4-3 of the January 2006 EA because it is located in an area where the proposed alignment would bypass the existing Bigelow Gulch Road. Thus, the wetland would be more than 800 feet north and upslope from the proposed action, and therefore unlikely to be affected. This wetland has been added as Wetland 16 to Figure 4.3-1 (see Section 4.3, *Floodplains*) and to Table 4.4-1 in response to public comments.

Table 4.4-1. Wetlands Identified along the Proposed Urban Connector Alignment based on Wetland Reconnaissance

Wetland No.	Type ¹	Location and Description	Dominant Vegetation	Category
1	PFO/PSS	Ditch located along northern edge of original Bigelow Gulch Rd and approx. 900 ft west of Palmer Rd.	Black cottonwood (<i>Populus balsamifera</i> spp. <i>trichocarpa</i>), willow (<i>Salix</i> sp.), and red osier dogwood (<i>Cornus sericea</i>)	2
2	POW/PSS	North side of Bigelow Gulch Rd, just west of Palmer Rd. Associated with Stream 1 (Bigelow Gulch Creek).	Cattail (<i>Typha</i> sp.), birch (<i>Betula</i> sp.), red osier dogwood (<i>Cornus sericea</i>), and willow (<i>Salix</i> sp.)	2
3	PEM/PSS	South of Bigelow Gulch Rd and across from Palmer Rd. Associated with Stream 1 (Bigelow Gulch Creek). Small portion of wetland impacted by past grading activities.	Cattail (<i>Typha</i> sp.), creeping buttercup (<i>Ranunculus repens</i>), touch me not (<i>Impatiens capensis</i>), Canadian thistle (<i>Cirsium arvense</i>), cottonwood (<i>Populus balsamifera</i> spp. <i>trichocarpa</i>), stinging nettle (<i>Urtica dioica</i>), red osier dogwood (<i>Cornus sericea</i>), alder (<i>Alnus</i> spp.), small-fruited bulrush (<i>Scirpus microcarpus</i>), and giant knotweed (<i>Polygonum sachalinense</i>)	2
4	PSS	South of Bigelow Gulch Rd, between Palmer Rd and Weile Ave. Associated with Stream 1 (Bigelow Gulch Creek).	Willows (<i>Salix</i> spp.)	2
5	Artificial Pond - POW	Just beyond west side of Forker Rd. Hydrology appears to be from human influence. Associated with Stream 8.	Open water component with some fringing wetland vegetation	2
6	PSS	Seep wetland just south of Jacobs Rd.	Red osier dogwood (<i>Cornus sericea</i>) and small-fruited bulrush (<i>Scirpus microcarpus</i>)	2
7	Artificial Pond - POW	West side of Forker Rd north of Forker Ridge Lane. Stream 8 flows in and out of artificial pond/Wetland 7.	Open water with small areas of cattail (<i>Typha</i> sp.) around edge.	2
8	POW/PEM	Small depression just south of and connected to Wetland 8 (via Stream 8). Appears to be seasonally flooded.	At time of survey, wetland covered with desiccated duckweed (<i>Lemna minor</i>)	2
9	PFO/PSS	South of Bigelow Gulch Rd, between E. Wilding Ave. and Weile Ave. Associated with Stream 1 (Bigelow Gulch Creek).	Willows (<i>Salix</i> spp.), buttercup (<i>Ranunculus repens</i>), and black cottonwood (<i>Populus balsamifera</i> spp. <i>trichocarpa</i>)	2
10	PEM	South of Bigelow Gulch Rd, between E. Wilding Ave. and Weile Ave. Associated with Stream 1 (Bigelow Gulch Creek).	Buttercup (<i>Ranunculus repens</i>)	2
11	PEM	South of Bigelow Gulch Road, between E. Wilding Ave. and Weile Ave. Associated with Stream 1 (Bigelow Gulch Creek).	Buttercup (<i>Ranunculus repens</i>)	2
12	Artificial pond POW	Located west of Forker Rd. Associated with Stream 8.	Small artificial pond with steep side banks, narrow fringe of emergent plants	2
13	PFO/PSS	East side of Forker Rd associated with Stream 9.	Alder (<i>Alnus</i> spp.) and willow (<i>Salix</i> sp.)	2

Wetland No.	Type ¹	Location and Description	Dominant Vegetation	Category
14	PEM	Hillside seep appears to have been disturbed site used as stock watering area.	Reed canarygrass (<i>Phalaris arundinacea</i>)	4
15	PSS	Located east of Sullivan Road and north of high school football field.	Red-osier dogwood (<i>Cornus sericea</i>), birch (<i>Betula</i> sp.), alder (<i>Alnus</i> sp.), and willow (<i>Salix</i> sp.)	4
16	PFO/PSS	Located east of Bigelow Gulch Rd and north of E. Wilding Ave.	Willows (<i>Salix</i> sp.), cattail (<i>Typha</i> sp.)	2

¹ Wetland type based on the USFWS wetland classification system (Cowardin et al. 1979), which categorizes wetlands primarily based on vegetation type. The wetland types are: POW (palustrine open water), PEM (palustrine emergent), PSS (palustrine scrub-shrub wetland), and PFO (palustrine forested).

Table 4.4-2. Estimate of Wetland and Buffer Impacts of the Proposed Urban Connector Alignment

Wetland	Wetland Rating	Standard Buffer Width (feet)	Estimated Total Wetland Area (acres) ¹	Estimated Impacts (acres) ¹	
				Wetland Impact	Buffer Impact
1	2	150	0.57	0.02	0.75
2	2	150	0.30	0.00	0.00
3	2	150	0.78	0.35	1.30
4	2	150	0.04	0.00	0.20
5	2	150	0.07	0.07	n/a ²
6	2	150	0.05	0.05	n/a ²
7	2	150	0.28	0.00	0.47
8	2	150	0.03	0.00	0.13
9	2	150	0.27	0.14	1.89
10	2	150	0.02	0.00	0.00
11	2	150	0.04	0.00	0.00
12	2	150	0.06	0.00	0.45
13	2	150	0.14	0.00	0.36
14	4	25	0.26	0.08	0.10
15	4	25	0.37	0.00	0.00
16	2	150	2.80	0.00	0.00
Estimated Totals			6.08	0.71	5.65

¹ All wetland and impact areas are approximate based on field reconnaissance and calculations based on aerial photo overlays.

² Because both Wetlands 5 and 6 would be entirely removed, they would no longer have buffers. Thus there would not be any buffer impacts.

The wetland/pond described in public comments just northwest of the intersection of Bigelow Gulch Road and Palmer Road was depicted and described in the January 2006 EA as Wetland 2, and is associated with Stream 1 (Bigelow Gulch Creek). A wetland area was described in public comments as along Sullivan Road adjacent to the west border of the high school. This wetland was identified during 2007 field reconnaissance and has also been added as Wetland 15 to Figure 4.3-1 and to Table 4.4-1.

4.4.3. What regulations apply to wetland resources?

Federal Regulations

The Corps administers Section 404 of the Clean Water Act, which regulates the discharge of dredged or fill materials into waters of the United States, including wetlands. For projects requiring Section 404 permits, the Corps makes the final determination as to whether the area meets the definition of a jurisdictional wetland.

Two types of permits, individual and general, are issued by the Corps to authorize activities that would result in the discharge of dredge or fill material into waters of the United States, including wetlands. Individual permits are required for specific activities that require compliance with the Corps formal review process. General permits are issued for certain projects that would cause only minimal adverse environmental effects. Nationwide permits are a type of general permit that have a set of national and regional conditions. These conditions must be met before the permit issuance. Permit notification requirements and regional conditions depend on the specific activity.

Section 401 of the Clean Water Act requires applicants for Section 404 permits to obtain 401 water quality certification from the certifying agency. In Washington, that agency is Ecology. Section 401 certification ensures that projects discharging to waters of the United States, including wetlands, meet state water quality standards. Conditions of the 401 certification become conditions of the Corps 404 permit. Project information should be submitted to Ecology (as well as to the Corps) for Section 404 and 401 verification and approval.

Section 404 and 401 permits require the submittal of a Joint Aquatic Resources Permit Application (JARPA) to these agencies for approval before initiating any activities within wetlands identified within a project area. Plans and reports to be submitted depend on the proposed activity that occurs in the wetland. Both a wetland delineation report and a wetland mitigation plan demonstrating compensation for unavoidable impacts on wetlands and other waters of the United States are typically requested by the Corps, Ecology, and the local jurisdiction as part of the JARPA submittal. The federal Section 404 permitting process also requires demonstrated compliance with Section 7 of the Endangered Species Act through preparation of a Biological Assessment. Compliance with Section 106 of the National Historic Preservation Act must also be demonstrated through preparation of a Cultural Resources Survey Assessment. Compliance with these acts is required as part of the Corps permitting process for impacts on wetlands.

State Regulations

As mentioned above, Washington State regulates wetlands primarily under Section 401 of the Clean Water Act. Ecology also identifies their regulatory

authority over wetlands through the State Water Pollution Control Act (Chapter 98.48 RCW) and where applicable, the Shoreline Management Act (Chapter 90.58). Wetlands within 200 feet of shorelines of the state, (i.e., streams with greater than 20 cubic feet per second mean annual flow, or lakes/ponds greater than 20 acres) or continuous with those shorelines, are regulated under the Shoreline Management Act. Applicable Washington State Department of Fish and Wildlife (WDFW) regulations include a Hydraulic Permit Approval (HPA). This permit is required for any form of work that uses, diverts, obstructs, or changes the natural flow or bed of any fresh water or saltwater of the state.

Local Regulations

Applicable Spokane County regulations include the Critical Areas Regulations (Chapter 11.20.050) (Spokane County 1997). Critical area review is required for any activities that directly impact or can impair the functions and values of critical areas or their buffers, including wetlands.

Applicable policies related to wetlands are also found in the Natural Environment Goals, Objectives, and Policies section of the Spokane County Comprehensive Plan and include the following:

- **Goal NE.13.** Ensure no net loss of wetland functions, value, and quantity as a result of land use activities and establish a long-term goal of measurable gain of wetland function and value.
- **Goal NE.14.** Establish wetland management programs that include identification of wetlands and a classification system.

Policies

- **NE.13.4.** When new development impacts wetlands, mitigation of impacts may include enhancement or rehabilitation of previously degraded wetlands and creation of new wetlands.
- **Goal NE.14.** Establish wetland management programs that include identification of wetlands and a classification system.
- **NE.14.4.** Wetland alteration from development or other activities should not cause adverse impacts on wetland or its buffer area; however, where no reasonable alternative is feasible, wetland degradation shall be mitigated.
- **NE.14.6.** Proposals for wetland restoration, creation, or enhancement shall include consultation with the appropriate agencies to ensure adequate design and consistency with other applicable regulations.

4.4.4. How were potential effects evaluated?

The analysis of impacts involved the compilation and review of NWI maps, aerial photographs, review of the Spokane County CAO, and field reconnaissance surveys along the proposed alignment.

Of importance in the impact analysis were the identification of wetlands and calculations of impact based on estimated wetland boundaries. Overlaying the proposed limit of disturbance associated with roadway construction on those estimated boundaries was also an important aspect of analysis.

4.4.5. What impacts would the Urban Connector Alignment have on wetland resources?

Proposed Action

Federal, state, and local requirements dictate that impacts on wetlands be avoided, minimized, repaired, or reduced if possible, and then compensated for through mitigation for unavoidable impacts. Potential impacts on the 16 identified wetlands were calculated by use of AutoCAD and Geographic Information Systems (GIS) overlays of the proposed alignment onto approximate wetland boundaries derived from field reconnaissance and aerial photographs. Table 4.4-2 summarizes estimated impacts on wetlands and their buffers for the proposed Urban Connector Alignment.

Table 4.4-2 was revised from the January 2006 EA to reflect information from additional wetland reconnaissance of the project area. The revision also reflects the County's subsequent design modifications to the proposed alignment on Forker Road intended to minimize impacts on Wetlands 7 and 8 (see Figure 2-5 of this Revised EA). Table 4.4-2 also incorporates information on additional engineering design work to minimize impacts associated with access from Palmer Road and the bypassed portion of East Bigelow Gulch Road and East Weile Avenue in the vicinity of Wetlands 3, 4, and 9.

Construction of the proposed Urban Connector Alignment would result in unavoidable impacts on approximately 0.71 acre in six of 16 wetlands identified within the project area. The six impacted wetlands are variously characterized as open water, emergent, or scrub-shrub, or as combinations of scrub-shrub and emergent or scrub-shrub and forested wetlands (Cowardin et al. 1979). Wetlands 5 (0.07 acre) and 6 (0.05 acre) would be removed (filled), while only portions of the other four wetlands would be impacted (filled) by the new roadway alignment (see Table 4.4-2).

How would construction affect wetland resources?

As currently proposed, Wetlands 5 and 6 along Forker Road would be filled, impacting wetlands that are predominately open water and scrub-shrub in character.

Approximately half of Wetlands 3 and 9 along the western end of Bigelow Gulch Road would also be filled, impacting wetlands that are a combination of emergent/scrub-shrub (Wetland 3) and forested/scrub-shrub (Wetland 9).

Of the total estimated wetland impact of 0.71 acre, approximately 0.49 acre of impact would be associated with two proposed crossings of Bigelow Gulch Creek where the proposed Urban Connector Alignment would impact Wetlands 3 and 9. The remaining 0.22 acre of impact would occur mostly to Wetlands 5 and 6 (associated with the unnamed creek along Forker Road); Wetland 14, a hillside seep just east of Forker Road; and a small portion of the southern tip of Wetland 1 that would be impacted by widening of the western end of Bigelow Gulch Road.

Approximately 5.65 acres of wetland buffer would also be impacted, mainly associated with Wetlands 1, 3, 9, and 12 (Table 4.4-2). This would result in the loss of scattered forested and open grass areas adjacent to the existing roadway. These areas can support wetland-associated animal species and protect the wetlands and their associated plant and animal species from disturbance. However, the disturbance-limiting capacity of these buffer areas is limited by their close proximity to the current road and to the proposed Urban Connector Alignment. Some portions of the existing roadway within wetland buffers would be removed and restored to native vegetation, ultimately improving buffer functions in those areas.

Unavoidable wetland impacts would result in the loss of approximately 0.71 acre of mainly scrub-shrub and emergent wetland habitats for local plants and wildlife and the loss of related water quality and water retention functions provided by these wetlands. Construction of the Urban Connector Alignment may also result in changes to the wetland hydrology within the remaining portions of Wetlands 3 and 9; changes in wetland-associated localized contributions to groundwater may also occur as a result of construction of the project. A detailed analysis of hydrology (including groundwater) for the creeks and associated wetlands would be a part of the project design.

Without implementation of BMPs, roadway construction could also result in short-term impacts on water quality in other wetlands. Clearing and grading for roadway approaches could result in increased sedimentation of the wetlands and associated streams. Construction equipment in the vicinity of wetlands could result in accidental spills into the wetlands.

How would operation of the project affect wetland resources?

Without proper controls, runoff from the roadway could potentially enter wetlands, resulting in water quality impacts and pollutant loading. Long-term impacts could result from the increase in pollution-generating impervious surfaces in the area. Although the climate in the region is semi-arid, storm events do occur that could wash potential contaminants, including petroleum hydrocarbons and metals, into

these systems. In addition, the increased amount of impervious surface in the project area could create the potential for increases in the hydroperiod fluctuation to the wetlands in the project area.

The stormwater program described in Chapter 2 and analyzed in Section 4.5, *Streams*, would provide control of runoff and potential pollutants to wetlands.

What are the indirect effects on wetland resources?

Indirect effects are those caused by the proposed action that are later in time or farther removed in distance, but still reasonably foreseeable.

The proposed Urban Connector Alignment could lead to impacts on wetland resources such as filling or discharge of stormwater from new development attracted to the area by the proximity of the widened alignment. For example, private properties adjacent to the alignment and closest to the vicinity of the urban growth area (UGA) could request and be granted approval to build some form of development (e.g., residential or commercial) that would impact wetlands.

As required by SCC, all development would be subject to the regulations set forth in the CAO Chapter 11.20 and the requirements associated with permits such as Clean Water Act Section 404 approval from the Corps. Assuming that all requirements associated with these permits would be fulfilled, the indirect impacts would not be considered significant due to the compensatory mitigation required by federal, state, and local authorities to ensure that “no-net-loss” of wetlands results from such impacts.

What measures are proposed to minimize effects to wetland resources?

Spokane County has followed the mitigation sequencing steps defined in the joint agency wetland mitigation guidance documents (Ecology et al. 2006) of avoiding, minimizing, reducing, and then compensating for remaining unavoidable impacts for the Urban Connector Alignment project as described below.

- **Avoid/Reduce.** Spokane County has, through modifications to the proposed alignment, avoided or reduced impacts on wetlands. Modification to a portion of the Forker Road alignment avoided 0.42 acre of impacts on higher quality Wetlands 7 and 8.
- **Minimize.** During the pre-design phase, Spokane County modified the proposed alignment to slightly shift or reduce the footprint of the roadway to reduce and minimize the impacts on wetlands. These modifications were made where the proposed roadway would join the west end of East Weile Avenue at old Bigelow Gulch Road. The footprint of the proposed roadway was reduced through the use of retaining walls and by realigning the proposed intersection at old Bigelow Gulch Road to reduce impact to Wetland 9.

- **Minimize.** During project design, the County will evaluate additional opportunities to further use a variety of engineering techniques to minimize impacts on wetlands. Specifically, the County will evaluate the use of retaining walls or reduced quantities of fill to minimize loss of wetlands and their functions.
- **Compensation.** Table 4.4-3 presents an estimate of compensatory mitigation requirements for the proposed Urban Connector Alignment based on the requirements of Chapter 11.20.050(b) and (d)(2) of the SCC (November 16, 2006).

Table 4.4-3 was revised from the January 2006 EA to correct the mitigation ratio requirement for Category 2 scrub-shrub wetlands (3 acres of mitigation for every acre of wetland impact) and to reflect the revised wetland impacts as presented in Table 4.4-2.

Table 4.4-3. Estimated Wetland Mitigation Ratios and Mitigation Area Requirements

Wetland	Category	Dominant Type	Estimated Wetland Impact (acre) ¹	Spokane County Mitigation Ratio ²	Joint Agency Guidance Mitigation Ratio ³	Preliminary Mitigation Area Required (acre) ¹
1	2	Forested	0.02	3:1	3:1	0.06
3	2	Shrub	0.35	3:1	3:1	1.05
5	2	Emergent	0.07	1.5:1	3:1	0.21
6	2	Shrub	0.05	3:1	3:1	0.15
9	2	Forested	0.14	3:1	3:1	0.42
14	4	Emergent	0.08	1:25:1	1.5:1	0.12
Preliminary Totals			0.71			2.01

¹ All wetland and impact areas are approximate based on field reconnaissance and calculations based on aerial photo overlays; required mitigation area is based on Joint Agency Guidance ratios recommended by Ecology and US Army Corps of Engineers.

² Spokane County Chapter 11.20.050(d)(2) Wetland Mitigation Ratios: impact area: compensatory mitigation area required:

Category 1 - 1: 6

Category 2 or 3 - Forested 1: 3, Scrub-Scrub 1: 3, Emergent 1: 1.5

Category 4 - 1: 1.25

³ Ecology, Corps /Seattle District, EPA Region 10. 2006. Wetland Mitigation in Washington State.

Source: SCC Chapter 1.20.050 (d)(2)

Under the proposed Urban Connector Alignment, approximately 0.71 acre of the 6.08 acres of identified wetlands would be impacted; these estimated impacts require creation of a minimum of 2.01 acres of wetland to compensate for those impacts if the mitigation is accomplished after the impact has occurred (post-project). The County may permit lower mitigation ratios if replacement wetlands are created prior

to impacting existing wetlands, per SCC Chapter 11.20.050(d)(6) – predevelopment mitigation ratios; however the Corps and Ecology would need to approve any proposed change to the mitigation ratios.

Creating and restoring wetlands at one designated mitigation site in the vicinity of Bigelow Creek west of Palmer Road and a second site near Progress and Forker Roads, will compensate for unavoidable impacts on the 0.71 acre of wetlands. Discussions of wetland mitigation sites and conceptual plans are presented below.

Palmer Road Mitigation Site

The 4.7-acre site includes approximately 0.7 acre of existing Bigelow Gulch Road roadway and remnants of a portion of the original, old Bigelow Gulch roadway vacated by Spokane County when the existing road was constructed in 1960. A field visit to the proposed mitigation site was conducted in March 2007. Cottonwood trees and a variety of shrubs were observed growing through the pavement of the old roadway and wetland vegetation, hydric soils, and surface water were observed in Wetland 1 adjacent to the old roadway. Review of 1950s-era aerial photographs indicated that much of the old vacated roadway and the existing operational roadway were constructed on fill placed on agricultural land adjacent to (i.e., within the floodplain of) Bigelow Gulch Creek (named Stream 1 on Figure 4.3-1). These site conditions indicate a high probability that wetland conditions could be reestablished at this location and that wetland mitigation would be successful once the old roadway and associated fill material were removed and native soils amended as/if necessary. Based on the profile of the vacated roadway, it is anticipated that approximately 3 to 4 feet of excavation would be required. Additional surface profiling information would be gathered during the design phase to determine the extent and degree of compaction of native soils.

An additional benefit of the proposed site is the aspect (i.e., located on the north side of a ridge of hills), which would provide shade to the mitigation area. This factor and the presence of surface water make this portion of the site particularly suitable for creation of a forested/shrub-scrub wetland type. Figures 4.4-1 and 4.4-2 (photos) show existing conditions along the vacated roadway at the Palmer Road site.

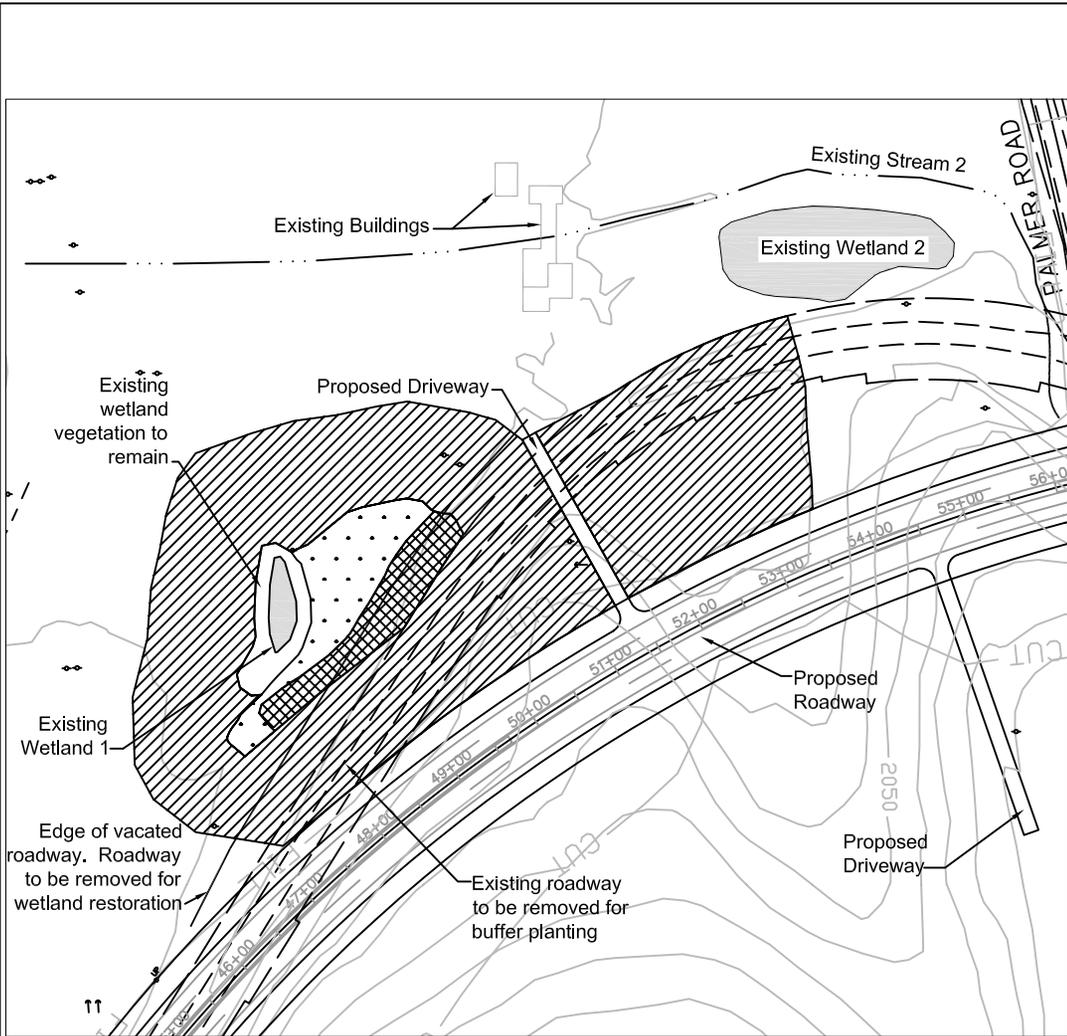
A portion of the site would be used to create 0.57 acre of palustrine wetland with a diversity of native wetland plant species found within the impacted wetlands and a variety of vegetation classes (i.e., emergent, scrub-shrub, and forested). This wetland mitigation would add to the existing wetlands (i.e., Wetland 1 located northwest of the site). The plant species proposed for the mitigation site and shown in Figure 4.4-3 are based on Washington Natural Heritage (Crawford 2003), Natural Resource Conservation Service (NRCS 2005) information on wetland and riparian vegetation of Eastern Washington, as well as on observations of existing wetland communities along Bigelow Creek and Bigelow Gulch Road.

Figure 4.4-1. Palmer Road Wetland Mitigation Site -Vacated Roadway with Wetland 1 to the Right

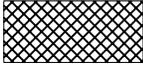
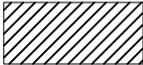


Figure 4.4-2. Palmer Road Wetland Mitigation Site – Vacated Roadway Looking West



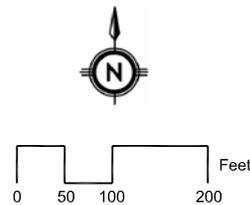


PLANTING LEGEND

HABITAT TYPE	PLANT SPECIES	
	SCIENTIFIC NAME	COMMON NAME
FORESTED/ SHRUB-SCRUB 0.24 ACRES 	<i>BETULA OCCIDENTALIS</i>	WATER BIRCH
	<i>CORNUS SERICEA</i>	RED-OSIER DOGWOOD
	<i>CRATAGEUS DOUGLASII</i>	DOUGLAS HAWTHORN
	<i>PHILADELPHUS LEWISII</i> *	LEWIS' MOCKORANGE
	<i>POPULUS TREMULOIDES</i>	QUAKING ASPEN
	<i>POPULUS BALSAMIFERA</i> <i>SSP. TRICHOCARPA</i>	BLACK COTTONWOOD
	<i>RIBES AUREUM</i> *	GOLDEN CURRANT
	<i>ROSA NUTKANA</i>	NOOTKA ROSE
	<i>SALIX EXIGUA</i>	SANDBAR WILLOW
	<i>SALIX LUCIDA</i> <i>SSP. LASIANDRA</i>	PACIFIC WILLOW
EMERGENT 0.33 ACRES 	<i>CAREX UTRICULATA</i>	NORTHWESTERN TERRITORY SEDGE
	<i>ELEOCHARIS PALUSTRIS</i>	COMMON SPIKERUSH
	<i>JUNCUS ACUMINATUS</i>	TAPERTIP RUSH
	<i>JUNCUS ENSIFOLIUS</i>	DAGGERLEAF RUSH
	<i>JUNCUS TENUIS</i>	SLENDER RUSH
	<i>SCHOENOPLECTUS ACUTUS</i>	HARD STEM BULRUSH
	<i>SCIRPUS MICROCARPUS</i>	SMALL FRUITED BULRUSH
	<i>PINUS PONDEROSA</i>	PONDEROSA PINE
BUFFER 4.02 ACRES 	<i>PRUNUS VIRGINIANA</i>	COMMON CHOKECHERRY
	<i>PSEUDOTSUGA MENZIESII</i>	DOUGLAS FIR
	<i>ROSA GYMNOCARPA</i>	BALDHIP ROSE
	<i>SAMBUCUS NIGRA</i> <i>SSP. CERULEA</i>	BLUE ELDERBERRY
	<i>SYMPHOROCARPOS ALBA</i>	SNOWBERRY
		EXISTING 10' CONTOURS
	UP	Utility Pole
	UPA	Utility Pole Anchor

* WILL BE PLANTED IN LOWER DENSITIES THAN THE OTHER SPECIES LISTED

Figure 4.4-3
Conceptual Wetland Mitigation Plan
Palmer Road Site



Potential conflicts with the existing electrical transmission lines to the west of the proposed mitigation site would be avoided by establishing low-growing emergent vegetation closest to the lines with the forested and shrub-scrub wetland located further to the southeast portion of the wetland. The transmission lines will be identified on the plan sheets when site access is secured and tree and shrub vegetation will be located outside the maintained transmission line corridor.

Wetland buffer would be established surrounding the wetland mitigation area, including the area currently occupied by the existing Bigelow Gulch Road. This would create a buffer at least 100 feet wide around Wetland 1 and the mitigation area. Approximately 4.0 acres of the site would be used to create a 100-foot-wide upland buffer, including the area between the new roadway and the wetland mitigation area (Figure 4.4-3). Buffer plantings would be infilled into existing vegetation, retaining large trees and mature shrubs. This buffer would also provide a more substantial buffer for Wetland 2, which currently abuts the existing Bigelow Gulch roadway.

Forker Road Wetland Mitigation Site

The second proposed wetland mitigation site would be located at the junction of Forker Road and Progress Road at the east end of the roadway project. Figure 4.4-4 and Figure 4.4-5 show the existing conditions at this site. The approximate 4.5-acre site is located within the 100-year floodplain for the Forker Creek drainage, and encompasses approximately 550 linear feet of the existing stream channel and associated ditch that was at one time a portion of an irrigation ditch. The site was chosen because of the presence of surface water associated with the creek, the 100-year floodplain, and the relatively flat topography. Site conditions appear suitable for creation of forested and shrub-scrub wetland types.

A portion of the mitigation site would be converted to 1.44 acres of forested/shrub-scrub wetland with a diversity of native wetland plant species found within the impacted wetlands and appropriate for the site conditions. As with the Palmer Road site previously described, the plant species proposed for the mitigation site and shown in Figure 4.4-6 are based on Washington Natural Heritage (Crawford 2003) and NRCS (2005) information on wetland and riparian vegetation of Eastern Washington, as well as on observations of existing wetland communities along Bigelow Creek and Bigelow Gulch Road.

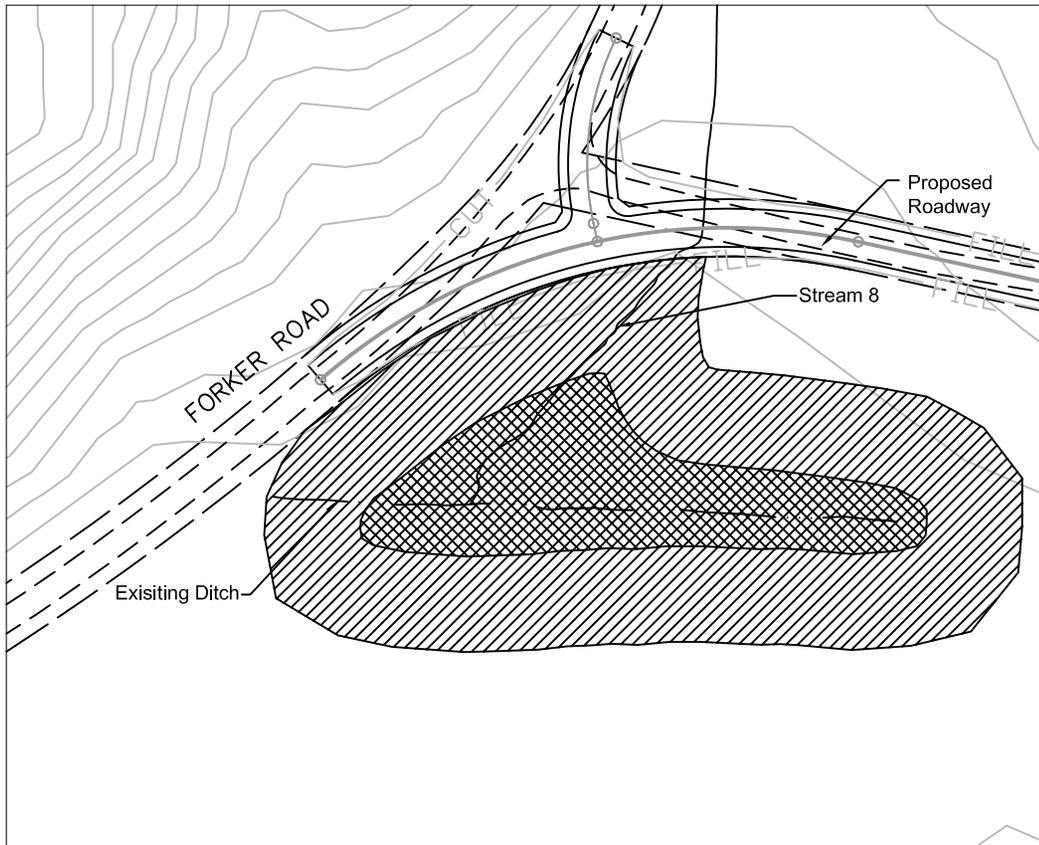
Approximately 3.9 acres of the site would be used to create a 100-foot-wide upland buffer between the new roadway and the wetland mitigation area (Figure 4.4-6). As with the Palmer Road mitigation site, the mitigation site would be designed to avoid potential conflicts with existing utilities, including any electrical power lines. During project design, data will also be gathered regarding depth to groundwater and surface water flows to ensure adequate hydrological for the site. In addition, the site would be fenced to prevent use of the site by off-road vehicles.

Figure 4.4-4. Forker Road Wetland Mitigation Site Looking South from Intersection of Forker Road and Progress Road

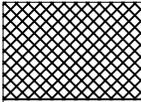
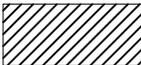


Figure 4.4-5. Forker Road Wetland Mitigation Site Looking East along Existing Constructed Ditch



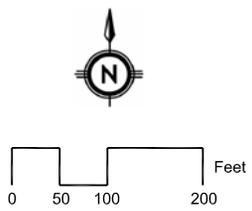


PLANTING LEGEND

HABITAT TYPE	PLANT SPECIES	
	SCIENTIFIC NAME	COMMON NAME
FORESTED/ SHRUB-SCRUB 1.44 ACRES 	<i>BETULA OCCIDENTALIS</i>	WATER BIRCH
	<i>CORNUS SERICEA</i>	RED-OSIER DOGWOOD
	<i>CRATAGEUS DOUGLASII</i>	DOUGLAS HAWTHORN
	<i>PHILADELPHUS LEWISII*</i>	LEWIS' MOCKORANGE
	<i>PHYSOCARPUS CAPITATUS</i>	PACIFIC NINEBARK
	<i>POPULUS TREMULOIDES</i>	QUAKING ASPEN
	<i>POPULUS BALSAMIFERA</i> <i>SSP. TRICHOCARPA</i>	BLACK COTTONWOOD
	<i>ROSA NUTKANA</i>	NOOTKA ROSE
	<i>SALIX EXIGUA</i>	SANDBAR WILLOW
	<i>SALIX LUCIDA SSP. LASIANDRA</i>	PACIFIC WILLOW
	<i>SAMBUCUS NIGRA</i> <i>SSP. CERULEA</i>	BLUE ELDERBERRY
	100' WIDE BUFFER 3.92 ACRES 	<i>PINUS PONDEROSA</i>
<i>PRUNUS VIRGINIANA</i>		COMMON CHOKECHERRY
<i>PSEUDOTSUGA MENZIESII</i>		DOUGLAS FIR
<i>ROSA GYMNOCARPA</i>		BALDHIP ROSE
<i>SYMPHOROCARPOS ALBA</i>		SNOWBERRY
<i>SAMBUCUS NIGRA</i> <i>SSP. CERULEA</i>		BLUE ELDERBERRY
 2250	EXISTING 10' CONTOURS	

* WILL BE PLANTED IN LOWER DENSITIES THAN THE OTHER SPECIES LISTED

Figure 4.4-6
Conceptual Wetland Mitigation Plan
Forker Road Site



Wetland Buffers

As indicated in Table 4.4-2, the proposed roadway would impact approximately 5.65 acres of wetland buffer. Adequate area exists on the Palmer Road and Forker Road mitigation sites to mitigate for these impacts to wetland buffers.

Approximately 7.9 acres of buffer would be established between the two proposed mitigation sites.

Wetland Mitigation Summary

During the design phase, a detailed Wetland Mitigation and Buffer Plan will be developed in conjunction with project permitting through federal and state agencies and land acquisition in this area. The Wetland Mitigation and Buffer Plan will detail site preparation, grading, cross-sections, hydrologic regime, native plants species, maintenance plan, and long-term monitoring plan for the sites. The design will include 5 to 10% extra mitigation area to provide a safety factor and to cover potential unanticipated impacts that might occur during construction, and as insurance that sufficient mitigation area has been created.

Spokane County or an appointed representative will be responsible for long-term monitoring of the wetland and buffer mitigation areas. Wetland monitoring plans are generally required to span 10 years post-construction and are required to contain specific performance standards for vegetative development and hydrology to ensure that the mitigation wetland functionally replaces the wetlands impacted by the project.

The proposed mitigation of 2.01 acres will compensate for the 0.71 acre of direct wetland impact and indirect impacts on existing wetlands and will meet the County goal of no net loss of wetlands for the following reasons:

- Mitigation will be on site and in kind within the Urban Connector Alignment corridor and would result in in-kind mitigation adjacent to Bigelow Gulch Creek and other existing wetlands.
- Mitigation will also include the replacement of functions of impacted wetland (habitats for local plants and wildlife, loss of water quality and water retention functions, and localized contributions to groundwater).
- Wetland creation, restoration, and enhancement at these locations will increase wetland connectivity to and along Bigelow Gulch Creek west of Palmer Road.
- The probability of successful mitigation is high at these sites. Ecological conditions such as site topography, soils, and hydrology favor the planting of forested, scrub-shrub, and emergent wetland species.
- Other mitigation measures designed to prevent project impacts on wetlands during construction will include the following:

- A measure of safety will be added (5 to 15% extra area) to cover unanticipated impacts to wetlands during construction and to ensure that sufficient mitigation area has been created.
- As defined in the TESC plan, discharge of stormwater runoff from construction sites to wetlands will be controlled with sedimentation ponds and swales and use of BMPs such as vegetated buffer areas, silt fences, and wood excelsior bales to minimize the potential for erosion (see Section 4.1, *Geology and Soils*).
- The potential for chemical contamination of wetlands from mechanized equipment will be reduced through implementation of the SPCC Plan (see Section 4.15, *Hazardous Materials*).

Analysis of the effects of the proposed action on wetlands in the project vicinity indicates that none would rise to a level of significance. The mitigation sequencing measures to avoid/reduce, minimize, and compensate for impacts listed in this section were considered in combination with proposed mitigation listed in Section 4.4.3, Bigelow Gulch EA dated January 2006, in reaching this conclusion.

No Action

How would construction affect wetland resources?

Under No Action, there would be no impact to wetlands associated with construction.

How would operation affect wetland resources?

Under No Action, operation of the existing roadway would result in the continued contribution of roadway pollutants into wetlands from untreated runoff. This would result in the incremental reduction in wetland quality over time.