

## 3.2 Floodplains and Wetlands

### 3.2.1 Floodplains

The Federal Emergency Management Agency (FEMA) identifies areas that have a one-percent chance of being flooded in a given year as 100-year floodplains. Areas identified as 100-year floodplains are shown on Flood Insurance Rate Maps. Areas where line segments would cross floodplains shown on FEMA maps are listed in Table 3.2-1, *Potential Crossings of 100-Year Floodplains*, and shown on Map 4, *Water Resources*.

**Table 3.2-1  
Potential Crossings of 100-Year Floodplains**

| Water Feature                 | Line Segments |   |   |   |   |   | V-C*<br>Fiber<br>Optic<br>Line |
|-------------------------------|---------------|---|---|---|---|---|--------------------------------|
|                               | A             | B | C | D | E | F |                                |
| Wilson/Naneum Creek crossings | ■             |   |   |   |   |   |                                |
| Cooke Creek                   | ■             |   |   |   |   |   |                                |
| Columbia River crossings      |               | ■ |   | ■ | ■ | ■ |                                |
| Lower Crab Creek              |               |   |   | ■ | ■ | ■ |                                |
| Nunnally Lake                 |               |   |   |   | ■ |   |                                |
| Dry Creek                     |               |   | ■ | ■ |   |   |                                |
| Mosses Coulee                 |               |   |   |   |   |   | ■                              |
| Lynch Coulee                  |               |   |   |   |   |   | ■                              |
| Quincy Lakes                  |               |   |   |   |   |   | ■                              |
| Un-named Creek                |               |   |   |   |   |   | ■                              |
| Sand Hollow Creek             |               |   |   |   |   |   | ■                              |

\* Vantage-Columbia.

Table has been updated for the FEIS.

The main water feature in the study area is the Columbia River. The 100-year floodplain is relatively narrow along the Columbia River because dams in the study area regulate flows. The largest flood in recent times occurred in 1948; it is very unlikely that large scale flooding would recur because of the construction of several flood-control/water-storage dams upstream of the study area since 1948.

Several FEMA floodplain areas are located in Segment A. In the Sickler-Schultz relocation area, Naneum and Wilson Creeks meander near each other eventually joining just south of the existing Schultz-Vantage line (See Figure 2.1, *Sickler-Schultz Reroute*.) Near their intersection the two creeks essentially share one floodplain area, which is broad tree and shrub lined containing the braided channels of both creeks. At the northern crossing of Naneum Creek, the floodplain is located within a narrow canyon. The Cooke Creek

floodplain crossing consists of several narrow, rocky creek channels in a fairly level area.

Segment B would cross the Columbia River south of Wanapum Dam and north of Priest Rapids Dam. See Map 4, *Water Resources*. In this portion of the river, the river is impounded and flows are regulated by discharges at Wanapum Dam. The structures on existing BPA transmission lines near the area where Segment B would cross are all outside the 100-year floodplain.

At the southern end of Segments C and D, the Dry Creek floodplain is located immediately to the south of the proposed Wautoma substation. The substation would be located outside of the area mapped as the 100-year floodplain along Dry Creek although one existing BPA structure is located within the floodplain.

Segments D, E, and F would cross the Columbia River downstream from Priest Rapids Dam. This portion of the Columbia River is the only unimpounded stretch of the Columbia River in the United States. Known as the Hanford Reach, flows fluctuate considerably but they are controlled by releases from Priest Rapids Dam. Existing BPA transmission lines span the Columbia River near each of the proposed crossings and all existing BPA structures are located outside the 100-year floodplain.

Two additional floodplains within the study area are identified on FEMA floodplain maps: Nunnally Lake, located north of Lower Crab Creek along Segment F; and the main channel of Lower Crab Creek crossed by Segments D, E, and F.

The fiber optic line between Vantage and Columbia would cross 5 floodplains as identified on the FEMA floodplain maps. The fiber line would cross the Sand Hollow floodplain, located adjacent to Highway 26, an unnamed creek just 2 miles north of Interstate 90, the Quincy Lakes within the Quincy Wildlife Area, Lynch Coulee near Highway 28, and Mosses Coulee near the Burlington Northern line and Highway 28.

### **3.2.2 Wetlands**

Wetlands are uncommon within the shrub-steppe areas of eastern Washington. Wetlands found in this area typically are supported by water sources such as springs, surface runoff, and riparian areas. The presence of wetlands in the study area (defined as 500 feet either side of the proposed line) was initially investigated using National Wetlands Inventory (NWI) maps. NWI maps depict natural and human-made wetlands and other special aquatic features.

NWI mapped wetland and other special aquatic features were identified within the study area and are summarized below and shown on Map 5, *Wetlands/Plant Associations*. Of the NWI features identified, most do not meet the technical definition of wetlands used for regulatory purposes. Only the Preferred Alternative was field verified for wetlands. If another alternative is chosen, field studies would be needed to verify the presence of wetlands.

### 3.2.2.1 Segment A

Fifteen NWI mapped features in Segment A are associated with either intermittent or perennial creeks (See Table 3.2-2, *Wetlands Located Along Segment A*). With the exception of Wilson, Naneum, and Cooke Creeks, all are located along narrow drainages, with a narrow band of vegetation. The field survey verified the presence of six wetlands. Five are associated with creeks (shown in bold in Table 3.2-2) while one is associated with an ephemeral drainage.

Naneum and Wilson Creeks would both be crossed twice. In the crossing to the north (Sickler-Schultz Reroute) the two creeks are separated by approximately 0.5 mi. Naneum Creek has a narrow band of **emergent wetlands** associated with it in the area of the proposed crossing, and Wilson Creek has several braided channels in the area of the proposed line. One of these channels of Wilson Creek has a narrow band of **forested wetland**, the other channels are emergent wetlands.

Naneum and Wilson Creeks flow very close to each other in the crossing to the south at the existing Vantage-Schultz crossing. Field survey found **scrub-shrub and emergent wetland** vegetated with scattered shrubs, wavy-leaved alder, bittercherry, and occasional black cottonwoods.

Cooke Creek runs through a fairly level area and it consists of several narrow, rocky creek channels. The dominant woody species along Cooke Creek are black cottonwood, black hawthorn, and willows.

#### For Your Information

**Emergent wetlands** are wetlands dominated by herbaceous plants.

**Forested wetlands** are wetlands with a tree canopy.

**Scrub-shrub wetlands** are wetlands dominated by shrubby plants and low-growing woody species with multiple stems.

**Table 3.2-2  
NWI Features Located Along Segment A**

**➔ For Your Information**

Palustrine wetlands are nontidal wetlands dominated by trees, shrubs, persistent emergents, mosses and lichens.

Riverine wetlands are any wetland or deepwater habitat contained within a stream channel.

| Feature                                 | Location      | NWI Classification   |
|---|---------------|--|
| <b>Naneum Creek</b><br>(north crossing) | T19N -R19E-20 | riverine, palustrine, emergent, seasonally to permanently flooded  |
| <b>Wilson Creek</b><br>(north crossing) | T19N -R19E-20 | palustrine, emergent, seasonally flooded   |
| <b>Naneum/Wilson Creek</b><br>crossing  | T19N -R19E-20 | palustrine, emergent and scrub-shrub, seasonally flooded, or riverine, open water, permanently flooded                                       |
| Cave Canyon Creek                       | T19N -R19E-28 | palustrine, scrub-shrub wetland, seasonally flooded  |
| Creek                                   | T19N -R19E-27 | riverine, seasonally flooded   |
| Charlton Canyon Creek                   | T19N -R19E-27 | riverine, seasonally flooded   |
| Tributary of creek in Charlton Canyon   | T19N -R19E-27 | riverine, temporarily flooded  |
| Creek in Schnebly Canyon                | T19N -R19E-26 | palustrine, scrub-shrub wetland, seasonally flooded  |
| Coleman Creek                           | T19N -R19E-36 | 3 channels designated as riverine, open water, permanently flooded   |
| <b>Cooke Creek</b>                      | T18N -R20E-6  | palustrine, forested wetland, seasonally flooded   |
| Trail Creek                             | T18N -R20E-5  | riverine, seasonally flooded   |
| <b>Caribou Creek</b>                    | T18N -R20E-8  | palustrine, emergent wetland, seasonally to permanently flooded  |
| Tributary of Caribou Creek              | T18N -R20E-16 | About 0.5 mile to the north: riverine, seasonally flooded<br>About 0.5 mile to the south palustrine, scrub-shrub wetland, seasonally flooded |
| Parke Creek                             | T18N -R20E-27 | riverine, seasonally flooded   |
| Creek                                   | T17N -R21E-20 | palustrine, emergent wetland, with persistent vegetation, temporarily flooded  |

Field survey found wetlands associated with the features in **bold**. One additional wetland associated with an ephemeral drainage not found on the NWI maps was also located. Table has been updated for the FEIS.

**3.2.2.2 Segment B**

**Option B<sub>NORTH</sub>** – The NWI map identifies two narrow wetlands along Option B<sub>NORTH</sub> are associated with two creeks, Johnson Creek and an unnamed creek (See Table 3.2-3, NWI Features Located Along Option B<sub>NORTH</sub>). The associated wetland at Johnson Creek is classified an emergent wetland and the wetland at the unnamed creek is classified as a riverine system. The Columbia River is noted on the NWI maps as a lake, but does not have wetlands on either side of it; rather a sparse upland plant community dominated by rabbitbrush and **forbs** grows almost to the edge of the water with occasional willows next to the water.

**Forbs** are herbaceous species other than grass.

**Table 3.2-3**  
**NWI Features Located Along Option B<sub>NORTH</sub>**

| Feature        | Location     | NWI Classification   |
|----------------|--------------|--|
| Johnson Creek  | T16N-R22E-15 | palustrine, emergent wetland, persistent vegetation, temporarily flooded     |
| Unnamed Creek  | T16N-R22E-23 | riverine, seasonally flooded   |
| Columbia River | T16N-R23E-20 | lake, <b>limnetic</b> , open water, permanently flooded, and diked/impounded |

Table has been updated for the FEIS.

**→ For Your Information**

*Limnetic is an open water zone of a water body too deep to support rooted aquatic vegetation.*

**Option B<sub>SOUTH</sub>** – According to the NWI, three narrow riverine wetlands are associated with tributaries of Johnson Creek along Option B<sub>SOUTH</sub> (See Table 3.2-4, *NWI Features Located Along Option B<sub>SOUTH</sub>*). The Columbia River crossing is described in Option B<sub>NORTH</sub> above. The field survey verified that no wetlands exist within this segment.

**Table 3.2-4**  
**NWI Features Located Along Option B<sub>SOUTH</sub>**

| Feature                    | Location     | NWI Classification   |
|----------------------------|--------------|--|
| Tributary of Johnson Creek | T16N-R22E-21 | riverine seasonally flooded  |
| Tributary of Johnson Creek | T16N-R22E-22 | riverine, seasonally flooded   |
| Tributary of Johnson Creek | T16N-R22E-23 | riverine, seasonally flooded   |
| Columbia River             | T16N-R23E-20 | lake, limnetic, open water, permanently flooded, and diked/impounded |

Table has been updated for the FEIS.

### 3.2.2.3 Segment C

Along Segment C there are 12 features crossed. (See Table 3.2-5, *NWI Features Located Along Segment C*). The NWI indicates that these creeks have a narrow band of wetland vegetation, with an abrupt transition to upland communities.

One scrub-shrub wetland occurs in Corral Canyon on the YTC. The YTC Management Plan describes scrub-shrub wetlands on YTC as generally dominated by willows, which may be associated with other shrub species including chokecherry, mock orange, Wood's rose, and red-osier dogwood (USDOA, 1996).

Five emergent wetlands are mapped in the YTC portion of Segment C. Emergent wetlands on YTC are typically dominated by

rushes, cattails, sedges, saltgrass, rabbitsfoot grass, mint, stinging nettle, and teasel (USDOA, 1996).

The remaining wetlands in Segment C include seven riverine wetlands, all characterized as intermittent, with a definite streambed. These areas may be riparian in nature. It is not known if any seeps or springs occur in the area of Segment C.

YTC has analyzed the condition of riparian areas and examined human activities that have had detrimental effects on water resources (USDOA, 1996). Past grazing has had the greatest effect on riparian/wetland systems in the Cold Creek, Hanson, Johnson, and Middle Canyon drainages. Fire has had the greatest effect within the Corral Canyon drainage. The Alkali Canyon drainage has been affected by both fire and grazing. YTC has initiated riparian restoration projects that have improved riparian conditions in the study area.

**Table 3.2-5  
NWI Features Located Along Segment C**

| Feature                             | Location      | NWI Classification   |
|-------------------------------------|---------------|--|
| Johnson Creek                       | T16N-R22E-20  | palustrine, emergent wetland, with persistent vegetation, seasonally flooded   |
| Hanson Creek                        | T15N-R22E-8   | palustrine, emergent wetland, with persistent vegetation, seasonally flooded   |
| Cottonwood Creek                    | T15N-R22E-21  | riverine, seasonally flooded, mapped to the east of the proposed line;<br>palustrine, emergent wetland, with persistent vegetation, seasonally flooded, mapped to the west |
| Unnamed creek                       | T15N-R22E-28  | riverine, seasonally flooded (includes two forks of the creek)   |
| Creek in Alkali Canyon              | T14N-R22E-3   | palustrine, emergent wetland, with persistent vegetation, seasonally flooded   |
| Creek in Corral Canyon              | T14N-R22E-15  | palustrine, scrub-shrub wetland, with broadleaf deciduous vegetation, temporarily flooded  |
| Tributary to creek in Corral Canyon | T14N-R22E-14  | palustrine, emergent wetland, with persistent vegetation, seasonally flooded   |
| Tributary to creek in Corral Canyon | T14N-R22E-23  | riverine, seasonally flooded   |
| Creek in Sourdough Canyon           | T14N-R22E-25  | riverine, seasonally flooded   |
| Cold Creek                          | T13N0-R23E-20 | riverine, seasonally flooded   |
| Tributary to Cold Creek             | T13N-R23E-35  | riverine, seasonally flooded   |
| Dry Creek                           | T12N-R24E-20  | riverine, seasonally flooded   |

Table has been updated for the FEIS.

### 3.2.2.4 Segment D

The NWI maps depict six features crossed by Segment D (See Table 3.2-6, NWI Features Located Along Segment D). The field survey verified the presence of one wetland along this segment, associated with Lower Crab Creek.

One NWI feature is a wide band of emergent wetlands on the north side of Lower Crab Creek approximately 50 feet wide. To the south of Lower Crab Creek, a wetland designated as open water, excavated area, is fed by irrigation outflow. The plant community in this area is mostly weedy species, with some natives (Beck, 2001).

Segment D spans the Columbia River. The NWI classifies it as lacustrine open water with no wetlands associated with it on either side.

South of the Columbia River, two narrow wetlands are associated with Cold Creek and an unnamed creek. Both of these areas are riverine systems, with a definite streambed and intermittent flow.

Similar to Segment C, Segment D would end at the site of the proposed Wautoma Substation. No wetlands were found on the substation site.

**Table 3.2-6**  
**NWI Features Located Along Segment D**

| Feature          | Location          | NWI Classification  |
|------------------|-------------------|---|
| Lower Crab Creek | T15N -R23E-2      | palustrine emergent wetland, persistent vegetation, seasonally to permanently flooded |
| Wetland          | T14N -R24E-5      | palustrine, open water, semi-permanently flooded, excavated                           |
| Columbia River   | T13N -R24E-11     | <b>lacustrine</b> , open water, permanently flooded; no adjacent wetlands on shore    |
| Cold Creek       | T13N -R24E-34     | riverine, seasonally flooded  |
| Unnamed Creek    | T13N -R24E-34     | riverine, seasonally flooded  |
| Dry Creek        | T12N -R24E-Sec 20 | riverine, seasonally flooded  |

Table has been updated for the FEIS.

**→ For Your Information**

*Lacustrine wetlands, lakes, reservoirs or any standing water body with a total surface area exceeding 20 acres.*

### 3.2.2.5 Segment E

Ten features are indicated on the NWI maps that are crossed by Segment E (See Table 3.2-7, NWI Features Located Along Segment E).

To the north of Lower Crab Creek, a large wetland area is fed by an outflow channel from Nunnally Lake. In this wetland **complex**, emergent wetlands are located in the area of the proposed line. Two emergent wetlands that are not connected to a watercourse are also located to the north of Lower Crab Creek. Along Lower Crab Creek, the NWI map depicts a wide band of emergent wetlands on the north side of the creek channel.

*A **complex** is a specific watershed area within the YTC. The YTC is divided into ten complexes.*

Within agricultural areas, four irrigation ditches have a riverine designation. Some appear to be historic creek channels, based on

some natural looking meanders, while other areas appear to be straightened and may function as irrigation ditches.

A large wetland area known as the Saddle Mountain Wasteway is located immediately to the north of the Columbia River. A berm separates the river from this wetland so typically there is no surface water connection, but some years in late summer there is surface flow to the river. The water feeding this wetland originates in irrigation ditches to the northeast. The irrigation outflow enters Saddle Mountain Lake, then leaves the lake through a stream channel, flowing into the Saddle Mountain Wasteway, and then on to the Columbia River. Some of the wetland has been excavated; while other areas are labeled as either riverine or emergent wetlands.

Where segment E crosses the Columbia River there are no adjacent wetland areas at the edge of the river.

**Table 3.2-7  
NWI Features Located Along Segment E**

| Feature   | Location          | NWI Classification  |
|---|-------------------|---|
| Wetland   | T16N-R23E-35      | palustrine, emergent, persistent vegetation, seasonally flooded                             |
| Wetland   | T16N-R23E-Sec 35  | palustrine, emergent, persistent vegetation, seasonally flooded                             |
| Wetland fed by outflow channel from Nunnally Lake | T16N-R23E-Sec 35  | lacustrine, littoral, unconsolidated bottom, permanently flooded and diked/impounded        |
| Lower Crab Creek                                  | T15N-R23E-2       | palustrine, emergent wetland, with persistent vegetation, seasonally to permanently flooded |
| Irrigation ditch                                  | T15N-R24E-25      | riverine, artificially flooded, seasonally flooded, excavated                               |
| Irrigation ditch                                  | T15N-R25E-31      | riverine, excavated   |
| Irrigation Ditch                                  | T15N-R25E-11      | palustrine, open water, semi-permanently flooded, excavated                                 |
| Irrigation Ditch                                  | T14N-R26E-11      | riverine, artificially flooded, seasonally flooded, excavated                               |
| Saddle Mountain Wasteway                          | T14N-R26E-20      | riverine, semipermanently flooded   |
|   | T14N-R26E-20 & 29 | palustrine, emergent, with persistent vegetation, seasonally flooded                        |
| Columbia River                                    | T14N-R26E-29 & 28 | <u>riverine</u> .   |

Table has been updated for the FEIS

### 3.2.2.6 Segment F

Segment F has nine features mapped by the NWI (See Table 3.2-8, *NWI Features Located Along Segment F*).

North of Lower Crab Creek, Nunnally Lake is mapped as an open water, lacustrine wetland. The NWI does not map adjacent wetland areas along the margins of the lake, as verified in the field through an aerial survey. A narrow band of shrubs and trees, probably black cottonwoods and willows, lines the edge of the lake and the plant community abruptly transitions to upland shrub-steppe.

Two emergent wetlands, located to the north of Lower Crab Creek, appear to be isolated wetlands that are not connected to a watercourse. Along Lower Crab Creek, the NWI depicts a wide band of emergent wetland north of the creek channel.

The intermittent creeks that drain down the south slope of the Saddle Mountains do not have adjacent wetland according to the NWI. At the base of the Saddle Mountains, an irrigation ditch is mapped on the NWI.

Two wetland areas occur on the Saddle Mountain Unit of the Hanford Reach National Monument. One is a narrow emergent wetland that was observed in the field and is not mapped on the NWI (St. Hilaire, 2001). The large wetland area to the north of Columbia River (Saddle Mountain Wasteway) and the Columbia River crossing are described under Segment E (See Section 3.2.2.5, *Segment E*).

**Table 3.2-8  
NWI Features Located Along Segment F**

| Feature                                    | Location           | NWI Classification   |
|--|--------------------|--|
| Nunnally Lake                              | T16N -R23E-25 & 36 | lacustrine, limnetic, open water/unknown bottom, permanently flooded                           |
| Wetland                                    | T16N -R23E-36      | palustrine scrub-shrub wetland/emergent wetland with persistent vegetation, seasonally flooded |
| Wetland                                    | T16N -R23E-36      | palustrine, emergent wetland with persistent vegetation, seasonally flooded                    |
| Adjacent wetland north of Lower Crab Creek | T16N -R23E-36      | palustrine, emergent wetland with persistent vegetation, seasonally flooded                    |
| Lower Crab Creek                           | T16N -R23E-36      | riverine, lower perennial, open water, permanently flooded                                     |
| Irrigation Ditch                           | T15N -R26E-21 & 28 | palustrine, open water, semi-permanently flooded, excavated                                    |
| Wetland                                    | T14N -R26E-16 & 21 | palustrine, emergent wetland   |
| Saddle Mountain Wasteway                   | T14N -R26E-20      | riverine, semipermanently flooded  |
|  | T14N -R26E-20 & 29 | palustrine, emergent, with persistent vegetation, seasonally flooded                           |
| Columbia River                             | T14N -R26E-29 & 28 | <u>Riverine</u>  |

Table has been updated for the FEIS.