

Exhibit 3.4.2.1-2
Wallula Power Project
Wetland Evaluation Report

July 2001

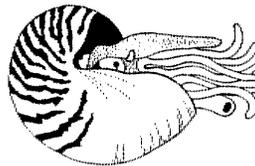
Prepared for:

Wallula Generation, LLC

Prepared by:

Smayda Environmental Associates, Incorporated
139 NE 61st Street
Seattle, WA 98115

Kathy Smayda
(206) 522-6199



Wallula Power Project Wetland Evaluation Report

Introduction

The Applicant proposes to build a 1,300-megawatt, natural gas-fueled combustion gas turbine power plant on a 175.48-acre, industrially zoned site near Wallula, Walla Walla County, Washington. The project site is located east of U.S. Highway 12 and is currently used for agriculture. Lateral facilities for the project would be located on adjacent parcels of land, primarily south and east of the project site. These facilities include a 500-kV electrical transmission line (not part of this Application), natural gas supply pipeline, access road, and makeup water supply pipeline.

Lands that may be affected by the proposed power plant and pipeline lateral facilities were evaluated for the presence of jurisdictional wetlands. This report identifies wetland and open water habitats in the vicinity of the proposed project and addresses the issue of jurisdiction by the U.S. Army Corps Of Engineers and state of Washington Department Of Ecology. A separate effects analysis document will describe the specific direct and indirect effects of the proposed development on wetland habitats. The effects analysis will also consider the impacts of the proposed U.S. Highway 12 widening project to be located on the western portion of the project site.

Methods

Wetlands and open water habitats on the 175.48-acre project site and adjacent parcels to the north and south were mapped from 1998 aerial photography (Figure 1). Where hydrophytic vegetation was present, the outer extent of areas dominated by hydrophytic vegetation, including facultative species (Reed 1988), was mapped (Figure 2). Open water and wetland habitats were classified by wetland type per Cowardin (1979), with the addition of a modifier to indicate those wetlands created and maintained by irrigation practices. Maps were field verified, including identification of plant species, on August 22, October 19, and November 9 and 10, 2000. The wetland maps were compared with National Wetland Inventory maps (U.S. Fish And Wildlife Service 1992) and Washington State Department Of Fish And Wildlife (WDFW) Priority Habitats And Species Data (WDFW 2000). Information on vegetation, soils, and hydrology from a 1997 SEPA checklist for the site was also reviewed (Kleinfelder And EnviroNet AeroScience 1997). Elevations are based on USGS topographic maps, Humorist, Wallula, Slater, and Zangar Junction 7.5 minute quadrangles, dated 1991 and 1992, and land surveys of the project area by Tomkins (1994), Norwest Engineering (1997), and Western Pacific Engineering, Inc. (2000).

Lands that may be affected by the proposed 500-kV transmission line, natural gas pipeline, and makeup water supply pipeline were also evaluated for the presence of jurisdictional wetlands. This evaluation was accomplished primarily through a review of

1998 aerial photography. Figure 3 shows the proposed locations of the pipeline laterals. The pipeline laterals were overlain on 1998 aerial photography (Figure 4), National Wetland Inventory maps, Washington State Department Of Fish And Wildlife Priority Habitats And Species data and USGS topographic quads. The proposed locations of the pipeline laterals were field checked on August 22, 2000 and March 1, 2001 by driving accessible roads adjacent to the pipeline laterals. No wetlands are known or suspected to be present on these sites. Man-made irrigation ponds are present at several locations (Figure 3).

Determination of Jurisdiction

Section 404 of the Clean Water Act Of 1987 gives the U.S. Army Corps of Engineers and state agencies (as approved by the Environmental Protection Agency) the authority to regulate discharges of dredge and fill material into waters of the United States, including wetlands. Certain types of man-made wetlands are exempt from regulation under the Clean Water Act.

Direction provided in the 1987 Corps Of Engineers Wetlands Delineation Manual, Section F, Subsection 4 states that "*If hydrophytic vegetation is being maintained only because of man-induced wetland hydrology that would no longer exist if the activity (e.g. irrigation) were to be terminated, the area should not be considered a wetland*". Tim Erkel, Eastern Washington Coordinator for the Seattle District of the U.S. Army Corps Of Engineers (Corps), provided the following list of questions to be answered in order to determine jurisdiction under the Corps regulations (Erkel 2000):

1. Are the irrigation ponds, drainageways, and associated wetlands excavated, or are they located in natural depressions?
2. Were they constructed in upland or wetland soils?
3. Were they constructed in a former stream channel?
4. Have they been abandoned for more than 10 years?

Sites that were excavated in upland soils, outside of natural depressions and stream channels, and have not been abandoned for more than 10 years would be non-jurisdictional, and therefore not regulated by the Corps. The Corps also noted that wetlands created unintentionally as a result of filling the McNary Reservoir are considered jurisdictional (Ackerman 2000a).

The state of Washington Department Of Ecology also has regulatory authority over wetlands and acts as consultant to Walla Walla County in implementation of the county's Critical Areas Ordinance. The Washington State Wetlands Identification And Delineation Manual (Washington Department Of Ecology 1997) reflects the direction provided in the 1987 Federal Manual regarding treatment of atypical, human-induced wetlands. Chris Merker of the Spokane, Washington office of the Department Of Ecology noted that the state standards for determining jurisdiction are generally the same as the Corps' standards (Merker 2000). The following must be shown for the state to make a determination of non-jurisdiction:

1. The wetlands must have been excavated at an upland site.
2. The wetlands must have been created purposefully, not unintentionally. This would include irrigation ditches, irrigation ponds, and the wetland vegetation surrounding them.

Walla Walla County's Critical Areas Ordinance, Chapter 18.08, Section 030, defines wetlands as follows: "*For the purposes of this ordinance, regulated wetlands will be determined using the 1987 Federal Manual for Identifying Jurisdictional Wetlands*".

Each wetland and waterbody at the proposed site of the Wallula Power Project (including laterals) was evaluated against the U.S. Army Corps Of Engineers and state of Washington Department Of Ecology jurisdictional criteria. Aerial photographs from 1941 (U.S. Department of Agriculture) provided information about the project vicinity prior to irrigated farming and the construction of the McNary Dam. A draft report by Ackerman (2000b) was referenced for photos of project area habitats in 1960. Farm Service Agency photographs of the project vicinity in 1969 were also reviewed for information regarding the initiation of irrigation at the project site. A 1993 Phase I Environmental Site Assessment for the property (Chen-Northern 1993) and a 1997 SEPA Checklist and Biological Assessment (Kleinfelder And EnviroNet AeroScience 1997) provided additional information on land use of the project site and adjacent lands.

Wetland A, Main Irrigation Pond. The main irrigation pond is located in the northeast corner of the project site (Figure 2). The pond is triangular in shape with a surface area (when full) of approximately three acres. The pond is surrounded by a berm of excavated soils, limiting wetland vegetation to a narrow band (less than 1 acre) of cottonwood, Russian olive, cattails, hardstem bulrush, reed canarygrass, smartweed and burdock. The top of dike is located at elevation 405.66 feet msl (Western Pacific Engineering, Incorporated 2000).

Aerial photos from 1941 (Figure 5) show that the site was previously upland and vegetated with sagebrush and grasses. The underlying soils are classified as Quincy-Duneland complex (Soil Survey Of Walla Walla County, Harrison 1964). Soils in the Quincy series are excessively drained and somewhat excessively drained and are coarse-textured. The Quincy-Duneland soils consist of blowouts, small dunes, and areas of severely eroded Quincy soils that support little vegetation.

Irrigated farming began on the project site about 1978 (Chen-Northern 1993). The irrigation pond was constructed to store water delivered from the South Columbia Basin Irrigation System for use in irrigating a crop circle on the project site. Material excavated from the pond was placed in a berm surrounding the pond. Without irrigation on the project site, Wetland A would revert to upland habitat.

Wetland B, Irrigation Facilities. Wetland B is associated with a small, deep excavation located in the southwestern corner of the property (Figure 2). A large diameter irrigation pipe with a T-connection is located in the excavation. Water accumulates in the bottom of the excavated area, and cattails, hardstem bulrush, and willow are present. The

excavation includes a ditched area parallel to U.S. Highway 12 that supports a windrow of poplar trees. The area dominated by wetland vegetation is less than one acre in size. The project site is located at approximate elevation 360 feet msl (Norwest Engineering 1997).

Aerial photos from 1941 (Figure 5) indicate that the project site was sparsely vegetated upland. Soil Survey data (Harrison 1964) show the underlying soils to be Quincy-Duneland complex. Soils in the Quincy series are excessively drained and somewhat excessively drained, and are coarse-textured. The Quincy-Duneland soils consist of blowouts, small dunes, and areas of severely eroded Quincy soils that support little vegetation.

Irrigated farming began on the project site about 1978. The excavated area irrigation facilities and drainageway were created to transport irrigation water on the project site. Spoils material was placed adjacent to the excavated areas.

Wetland C, Irrigation Pond. Wetland C is associated with a narrow, steep-banked irrigation pond located in the southwest quarter of the property (Figure 2). The irrigation pond is less than one acre in size, and is clearly man-made with a berm of excavated material surrounding it. The eastern shoreline has a low berm and supports a narrow, discontinuous band of predominantly emergent wetland species including cattail, hardstem bulrush, American bulrush, and reed canarygrass. On the western shoreline, the high berm is vegetated with big sagebrush and weedy grass species. Two ponderosa pine saplings are present. The pond is located at approximate elevation 360 feet msl (Norwest Engineering 1997).

Aerial photos from 1941 (Figure 5) show that the wetland C site was upland, vegetated with grasses and sagebrush. The underlying soils at the wetland C site are Quincy-Duneland complex (Harrison 1964). Soils in the Quincy series are excessively drained and somewhat excessively drained and are coarse-textured. The Quincy-Duneland soils consist of blowouts, small dunes, and areas of severely eroded Quincy soils that support little vegetation.

Irrigated farming began on the wetland C site about 1978. The irrigation pond was created to store water for irrigating orchard lands located in the southwest corner of the property. Excavated material was placed in a berm surrounding the pond.

Wetland D, Irrigation Ponds And Drainageways. Wetland D is the largest irrigation pond/agricultural wetland complex on the project site. It is located in the northwest corner of the property (Figure 2) and consists of two irrigation ponds with an interconnecting drainageway and a drainageway carrying water off the project site. Vegetation surrounding the ponds and channel includes emergent wetland species as well as shrubs and small trees, including weeping willow, Pacific willow, and Russian olive. Emergent species include common cattail, hardstem bulrush, reed canarygrass, common burdock, and purple looserife. Estimated area of the wetland is five acres. The wetland is located at approximate elevation 365 feet msl (Norwest Engineering 1997).

The northernmost irrigation pond is drained at its northwest corner by an approximately 8-inch diameter pipe that leads to a drainageway paralleling U.S. Highway 12. The wasteway drains to the north, crosses under the driveway to the property, and continues northward for another 50 feet before crossing under U.S. Highway 12 through an approximately 10-inch culvert pipe.

Aerial photos from 1941 show the wetland D site as upland (Figure 5). The underlying soils at the wetland D site include both Quincy-Duneland complex and Quincy loamy fine sand, moderately deep over gravel, 0-8% slopes, eroded (Harrison 1964). Soils in the Quincy series are excessively drained and somewhat excessively drained, and are coarse-textured. Aerial photos from 1960, after the filling of the McNary pool behind McNary Dam but prior to irrigated agriculture on the project site, show the wetland D site as upland (Ackerman 2000b). The 1998 aerial photo of the wetland D site (Figure 1) indicates the presence of the excavated ponds and drainageways and the growth of wetland vegetation adjacent to these irrigation facilities.

Irrigated farming began on the project site about 1978. The irrigation ponds were excavated to store water for irrigating orchard lands located in the northwest corner of the property. The drainageway exiting the project site to the west was excavated to carry drain water off the wetland D site. Excavated material was placed in berms surrounding the ponds and drainageways.

Wetland E, Irrigation Pond And Canal On Adjacent Property To The North.

Wetland E is located in the northeast corner of the property adjacent to the north boundary of the project site (Figure 2). The project may utilize an easement along the northeast boundary of the property. Along the northern half of the easement, an excavated irrigation canal and pond are present. Both the canal and pond are steep-banked, and water supply to them is periodic during the growing season. Vegetation surrounding these irrigation facilities includes a narrow band of reed canarygrass, western dock, mullein, yellow foxtail, pale smartweed and scattered individual cottonwood and willow (less than one acre). The wetland is located at approximate elevation 410 feet msl (Tomkins 1994).

Aerial photos from 1941 (Figure 5) show the wetland E site as upland. Soils underlying the wetland E site are Quincy loamy fine sand, 0-8% slopes, eroded (Harrison 1964). Soils in the Quincy series are excessively drained and somewhat excessively drained, and are coarse-textured.

Irrigated farming of potatoes began on this wetland E site sometime before 1969 (FSA 1969, Chen-Northern 1993). The irrigation pond was constructed to store water delivered from the South Columbia Basin Irrigation District for use in irrigating a crop circle on the wetland E site. The irrigation canal delivers water to the property to the south. Material excavated from the pond and canals was placed adjacent to the excavated areas.

Wetland F, Irrigation Drainage Wetland On Adjacent Property To The South.

Wetland vegetation is present in the northwest portion of the Jaussaud property, located south of the project site (Figures 1 and 2). The area is a mosaic of wetland and non-wetland habitats dominated by Russian olive, cottonwood, and occasional clumps of hardstem bulrush, cattail, and reed canarygrass. Other understory dominants include knapweed, Russian thistle, cheatgrass, and white goosefoot. The area dominated by hydrophytic vegetation (primarily facultative species) is approximately four acres. This wetland is mapped on the National Wetlands Inventory Map (U.S. Fish And Wildlife Service 1992), and is located at approximate elevation 365 feet msl (Norwest Engineering).

Aerial photos from 1941 show the wetland F site as upland (Figure 5). The underlying soils are Quincy-Duneland complex (Harrison 1964). Soils in the Quincy series are excessively drained and somewhat excessively drained and are coarse-textured. The Quincy-Duneland soils consist of blowouts, small dunes, and areas of severely eroded Quincy soils that support little vegetation.

The Jaussaud property is not currently farmed, nor are any excavated irrigation features present. Wetland F is located southwest and downslope of the irrigated crop circle on the project site, and it appears that drainage water from the irrigated circle is supporting the growth of hydrophytic species.

Proposed Makeup Water Supply Pipeline. The proposed makeup water supply pipeline (Figure 3) would extend south from the southeast corner of the project site, then diagonally to the southeast corner of Section 3, T7N, R31E, and would continue south along the section line onto the Boise Cascade Wallula Corporation tree farm. The pipeline would continue within the tree farm to link five existing wells in the southwest corner of Section 11, T7N, R31E and five existing wells in the eastern half of Section 14, T7N, R31E. The overall length of the makeup water supply pipeline is approximately 4.6 miles from the project site to the southernmost Boise Cascade Corporation well.

No wetlands are present along the proposed route of the makeup water supply pipeline. Two irrigation storage ponds are present in the vicinity of the proposed makeup water supply pipeline (Irrigation Ponds C and D, Figure 4) along the northern boundary of Section 14, T7N, R31E. These irrigation storage ponds are man-made and do not support wetland vegetation. Aerial photography from 1941 shows the Irrigation Ponds C and D sites as upland habitat.

Proposed Natural Gas Pipeline Route. The proposed natural gas pipeline (Figure 3) would extend from the southeast corner of the project site, south along the eastern boundary of the Jaussaud property, southeast to the southeast corner of Section 3 of T7N, R31E, then south along the section line to the intersection with an existing farm road. From this point, the natural gas pipeline would extend east-southeast adjacent to the farm road to the tap point with the existing PG&E Gas Transmission-Northwest (GTN) natural gas pipeline, about one mile north of the Walla Walla River. The overall length of the proposed natural gas pipeline is 5.9 miles.

No wetlands are located along the natural gas pipeline route. A man-made irrigation storage pond (Figure 4, Irrigation Pond A) is located in the southwest quarter of Section 12, T7N, R31E. This pond is about one acre in size and is not associated with hydrophytic vegetation. Aerial photography from 1941 shows the Irrigation Pond A site as upland habitat.

Wetlands Created by the McNary Reservoir. Ackerman (2000b) evaluated and mapped wetlands located along the U.S. Highway 12 corridor between Burbank and Wallula Junction. The analysis identified wetlands formed by the construction of McNary Dam and the filling, beginning in 1953, of the McNary Reservoir. Through comparison of 1950 and 1960 aerial photos, Ackerman demonstrated that the majority of the wetlands along the highway alignment were created by inundation of the McNary Reservoir.

One wetland reviewed in the Ackerman study was not created by the McNary Reservoir: the Iowa Beef Processors, Incorporated Irrigation Wasteway wetland located in the northwestern corner of the project site and extending under U.S. Highway 12 via a culvert. The Irrigation Wasteway wetland of Ackerman's report is the Wetland D of this report. Ackerman's 1960 photographs show the Irrigation Wasteway site (Wetland D) and the adjacent sites (wetlands B and C) as dry grassland habitats. The photos indicate that Wetlands B, C, and D were not created as a result of the filling of McNary Reservoir. The same locations are shown as open water and wetland habitats in Ackerman's 1987 aerial photos, when irrigation of the project site was well-established.

Ackerman's report indicated that wetlands created by the filling of the McNary Reservoir were formed at elevations of 341 feet msl and lower along the reach between the communities of Burbank and Wallula Junction. U.S. Geological Survey topographic maps show that Wetlands B, C, and D, along with Wetland F, are the lowest elevation wetlands within the project area, located at approximate elevation 360 to 365 feet msl. It is unlikely that the McNary Reservoir has contributed to the creation or maintenance of any of the wetlands mapped on the project site and adjacent lands, as all of these wetlands are located at elevation 360 feet msl or greater.

Conclusions

Wetlands A, B, C, and D on the project site, and Wetland E on the adjacent property to the north, are all man-made wetlands, excavated in upland soils for the purposes of storing and conveying irrigation water. None of these irrigation features was constructed in an existing wetland or streamcourse, and none have been abandoned for more than ten years. These wetlands are all located well above the 341-foot contour, which was shown by Ackerman (2000b) to be the upper limit of wetlands created by filling of the McNary Reservoir. Thus, by both the Army Corps of Engineers' and Washington State standards, these wetlands are non-jurisdictional. No permits are needed for activities involving dredging or fill of these wetlands.

Wetland F on the Jaussaud property to the south of the project site is also man-induced, by the Corps and Washington State definitions. Evidence of excavated ponds, drainageways, irrigation canals, or other such features was not found. The wetland is located well above the 341-foot contour which was shown by Ackerman (2000b) to be the upper limit of wetlands created by filling of the McNary Reservoir. The wetland appears to be maintained by drainage water from the adjacent irrigated lands. Clarification will be sought from the Corps and WDOE regarding the need for permits for project development activities that may affect this wetland.

Lagoons A and B and Irrigation Ponds A, B, C, and D, located near the proposed natural gas pipeline, electrical transmission line, and makeup water supply pipeline, are man-made water bodies, excavated in upland soils for the purposes of storing or conveying irrigation water or site drainage water. None of these features was constructed in an existing wetland or streamcourse, and none has been abandoned for more than ten years. These water features are all located well above the 341-foot contour, which was shown by Ackerman (2000b) to be the upper limit of wetlands created by filling of the McNary Reservoir. Thus, by both the Army Corps Of Engineers' and Washington State standards, these wetlands are non-jurisdictional.

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Figure 2. Project Area Cover Type Map

Figure 3. Preliminary Electric Transmission And Natural Gas Routing Map

Figure 4. 1998 Aerial Photograph Of Electric Transmission And Gas Routing Area

Figure 5. 1941 Aerial Photograph Of The Project Area

List of Tables

Table 1. Project Area Cover Types

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Table 1
Wallula Power Project Area Cover Types

Map Code	Cover Type Description
AGa	Agriculture, irrigated annual cropland
AGo	Agriculture, irrigated orchards
AGd	Agriculture, developed lands
AGf	Agriculture, fallow lands
C	Canal or irrigation ditch
DSS	Disturbed shrub-steppe
IND	Industrial lands
OWi	Open water, irrigation created
PEMi	Palustrine emergent wetland, irrigation created
PFOi	Palustrine forested wetland, irrigation created
PSSi	Palustrine scrub/shrub wetland, irrigation created
R	Unpaved farm road
RR	Railroad

Appendix A

Descriptions Of Project Area Wetlands

Project Site: Main Irrigation Storage Pond, Northeast Corner (Wetland A). The primary irrigation storage pond is located in the northeast corner of the property. It is fed by pipe from the irrigation pond and canal located on the property to the north. The pond is approximately three acres in surface area, triangular in shape, and is surrounded by a berm of excavated spoils approximately 6 feet high. The pond is used for storage of irrigation water during the growing season.

The northeast corner of the pond supports a narrow band of small- to medium-sized cottonwood trees (*Populus* sp.) along the berm. Several of the trees are greater than 20 inches in diameter.

The northwest corner of the pond supports the growth of emergent wetland plants including common cattail (*Typha latifolia*) and hardstem bulrush (*Scirpus acutus*). These patches are narrow, extending only 10 to 15 feet out from the shore, and exhibit dieback caused by low water levels. Along the berm, honey locust (*Gleditsia* sp.) and Russian olive (*Eleagnus angustifolia*) are present.

The shoreline of the pond along its southern half does not support any well-developed wetland vegetation. Pale smartweed (*Polygonum lapathifolium*), common burdock (*Arctium minus*), reed canarygrass (*Phalaris arundinacea*), and yellow foxtail (*Setaria glauca*) are scattered along the lower edge of the shoreline. The eastern portion of the berm is vegetated with a row of mesquite trees with an understory of weedy grasses and forbs including cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola iberica*), and yellow starthistle (*Centaurea solstitialis*). On the western edge, the berm is vegetated with dense growth of Russian olive with cheatgrass, knapweed (*Centaurea* sp.), and Russian thistle. A few individual sandbar willow shrubs (*Salix exigua*) are present on the berm near the outlet structure.

A windrow of poplar (*Populus* sp.) has been planted along the northern boundary of the property outside of the irrigation pond berm.

Project Site: Irrigation Facilities, Southwest Corner (Wetland B). A small, deep excavation is located in the southwestern corner of the property near the property line. A large diameter pipe with a T-connection is located in the excavation. Water accumulates in the bottom of the excavated area, and cattails, hardstem bulrush, Russian olive, and willow (*Salix* sp.) are present. The excavation includes a ditched area parallel to U.S. Highway 12 which supports a windrow of Lombardy poplar (*Populus nigra* var. *italica*) trees.

Project Site: Irrigation Pond, Southwest Quarter (Wetland C). A narrow, steep-banked irrigation pond is located in the southwest quarter of the property, adjacent to the access road that borders the irrigated circle. The pond is clearly man-made with a berm of excavated material surrounding it. The eastern shoreline has a low berm and supports a narrow, discontinuous band of cattail, hardstem bulrush, and American bulrush (*Scirpus americanus*). Reed canarygrass, Pacific willow (*Salix lasiandra*), sand bar willow (*Salix exigua*), Russian olive, cottonwood, and western dock are present above the emergent wetland. On the western shoreline, the high berm is vegetated predominantly with big sagebrush (*Artemisia tridentata*) and weedy species including cheatgrass and knapweed. Two ponderosa pine (*Pinus ponderosa*) saplings are present.

Project Site: Irrigation Ponds And Drainageway, Northwest Corner (Wetland D). Two excavated irrigation ponds are present in the northwest corner, connected by an excavated channel. Vegetation surrounding the ponds and channel includes emergent wetland species as well as shrubs and small trees, including weeping willow (*Salix babylonica*), Pacific willow, and Russian olive. Emergent species include common cattail, hardstem bulrush, American bulrush, and Torrey's rush (*Juncus torreyi*). The weedy species reed canarygrass, purple loosetrife (*Lythrum salicaria*), pale smartweed, panic grass (*Panicum capillare*), perennial pepperweed (*Lepidium latifolium*), and common burdock are also present.

The northernmost pond is drained by an approximately 8-inch diameter pipe leading to a drainageway paralleling U.S. Highway 12. The drainageway heads north, crossing under the driveway to the property, and continuing northward for another 50 feet before crossing under U.S. Highway 12 through an approximately 10-inch culvert pipe. West of the highway, cattails are present at the site of the drainage outfall. Wetland D is the 'Iowa Beef Processors, Incorporated Irrigation Wasteway' wetland described by Ackerman (2000b).

North Property (Wetland E). The project may utilize an easement along the northeast boundary of the property. Along the northern half of the easement, an excavated irrigation canal and pond are present. Both the canal and pond are steep-banked, and water supply to them is periodic during the growing season. Vegetation surrounding these irrigation facilities includes a narrow band of reed canarygrass, western dock and other weedy species.

South Property (Wetland F). Wetland vegetation is present in the northwest portion of the south property. The area is a mosaic of wetland and non-wetland habitats dominated by large diameter (12 inch and greater) Russian olive, cottonwood (both large and small diameter), and occasional clumps of hardstem bulrush, cattail, and reed canarygrass. Other understory dominants include knapweed, Russian thistle, cheatgrass, and white goosefoot (*Chenopodium album*).

The deep-rooted wetland species present at this site appear to be supported by irrigation water draining off of the adjacent alfalfa field. No evidence of excavated drainageways or ponds was noted.