STATE ENVIRONMENTAL POLICY ACT
MITIGATED DETERMINATION OF NONSIGNIFICANCE
POTHOLES SUPPLEMENTAL FEED ROUTE PROJECT - PHASE 2

Description of proposal:

The Bureau of Reclamation (Reclamation), in cooperation with the Washington Department of Ecology (Ecology), proposes to develop supplemental feed routes to convey water from Banks Lake to Potholes Reservoir. Banks Lake and Potholes Reservoir are part of the Columbia Basin Project, Reclamation's irrigation project supplied by Grand Coulee Dam and Lake Roosevelt. The Columbia Basin Project is designed so that return flows from irrigation and naturally occurring flows in the northern half of the project, generally the area north of Potholes Reservoir, would flow to Potholes Reservoir and supply the southern portion of the project, generally the area south of Potholes Reservoir. Because the Columbia Basin Project has not been completely developed, there are not adequate return flows in the northern portion of the project to provide a reliable supply of irrigation water to the southern portion of the project. To meet that need, water is diverted from Banks Lake to Potholes Reservoir. This diverted water is called feed water. At present, the Potholes Canal serves approximately 231,000 acres, requiring up to 990,000 acre-feet of water annually from Potholes Reservoir. Of that amount, about 350,000 acre-feet is feed water from Banks Lake. There are currently three feed routes that use canals and existing waterways. The primary route is through the East Low Canal to Rocky Coulee Wasteway then into middle Crab Creek, Moses Lake, and finally into Potholes Reservoir. The two secondary routes are through East Low Canal to the Lind Coulee Wasteway and through West Canal to the Frenchman Hills Wasteway.

The purpose of the Supplemental Feed Route Project is to improve the reliability of the supply of feed water to Potholes Reservoir. Reclamation and Ecology originally considered three possible routes—Crab Creek, W20 Lateral, and Frenchman Hills Wasteway. Based on evaluations of potential routes documented in Ecology's 2007 State Environmental Policy Act (SEPA) *Final Programmatic Environmental Impact Statement for the Columbia River Water Management Program* and Reclamation's 2007 National Environmental Policy Act (NEPA) Finding of No Significant Impact and Environmental Assessment for the project, Reclamation identified a preferred alternative that involves use of both the Crab Creek and Frenchman Hills Wasteway Feed Routes. Using both routes will allow Reclamation more flexibility in routing water to Potholes Reservoir and to respond to requests from the Washington Department of Fish and Wildlife (WDFW) to occasionally operate Crab Creek with only spring flow, rather than on a year-round basis.

Reclamation is developing the Supplemental Feed Route in two phases. Phase I involved expanding the capacity of the Frenchman Hills Wasteway Feed Route from 21,000 acre-feet to 46,000 acre-feet of feed by enlarging culverts at the Road C SE crossing of the wasteway. That project was addressed in a SEPA Mitigated Determination of Nonsignificance (MDNS) and environmental checklist released on January 17, 2008. Construction was completed in April 2008.

This MDNS addresses Phase II of the project, development of the Crab Creek Feed Route. The project will allow a base flow of 100 cubic feet per second (cfs) to be released from Pinto Dam year round and up to 500 cfs to be released between April 1 and June 30. Total annual feed through Crab Creek could be as much as 126,000 acre-feet. The feed water would replace water currently being fed down Reclamation's East Low Canal and would not increase total feed to Potholes Reservoir or result in additional diversions from the Columbia River.

During some years, operation of the Crab Creek Feed Route would be modified by releasing water during only a portion of the year. This would allow side channels and ponds created by the feed water to dry up periodically for purposes of controlling invasive species of plants, fish, and amphibians.

Elements of the Crab Creek Feed Route project include:

- Modification of the 4-by-4 outlet gate at Pinto Dam (Billy Clapp Lake) as well as construction of an energy dissipater and spillway below the outlet gate,
- Construction of a concrete weir at the outlet of Brook Lake to control releases from the lake,
- Removal of obstructions in Crab Creek,
- Installation of culverts at the Road 16 NE crossing of the creek,
- Construction of fish passage barriers to control invasive fish and amphibian movement along Crab Creek, and
- Acquisition of lands and that would potentially be affected by inundation or water encroachment as well as relocation of affected facilities or structures.

Proponent: U.S. Department of Interior, Bureau of Reclamation (Reclamation) and Washington State Department of Ecology (Ecology)

Location of proposal, including street address, if any: The project site is located in Grant County in eastern Washington State. The Crab Creek Feed Route begins at Pinto Dam, just north of State Route 28 approximately 11.5 miles east of Soap Lake, Washington. From Pinto Dam, feed water would be released to Brook Lake, located

immediately below the dam. Brook Lake discharges to Crab Creek, through which the feed water would travel until it discharges into the Parker Horn of Moses Lake. Once in Moses Lake, the feed water would pass through the Moses Lake Outlet into the Potholes Reservoir.

SEPA Lead agency: Washington State Department of Ecology

Responsible official: Derek I. Sandison

Position/title: Director, Office of Columbia River, Washington State Department of Ecology

Address:

303 S Mission Street, Ste. 200
Wenatchee, WA 98801

Email: dsan461@ecy.wa.gov

Threshold determination: The lead agency has determined that this proposal, with mitigation described in the attached Environmental Checklist, will not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030 (2)(c).

This MDNS is issued under provisions of WAC 197-11-340 and WAC 197-11-350; the lead agency will not act on this proposal for at least 14 days from May 14, 2009. Comments must be submitted by May 29, 2009 (an additional day will be provided because the comment period includes a holiday).

Date: May 14, 2009

Signature of Responsible Official:

Potholes Reservoir Supplemental Feed Route—Crab Creek Route

SEPA Checklist

May 2009

PREPARED FOR:

WASHINGTON STATE DEPARTMENT OF ECOLOGY
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ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. Name of the proposed project:

Potholes Reservoir Supplemental Feed Route—Crab Creek Route

2. Name of Proponent:

U.S. Bureau of Reclamation (Reclamation) and Washington State Department of Ecology (Ecology)

3. Address and telephone number of applicant and contact person:

Derek Sandison, Director
Office of Columbia River
Department of Ecology
303 S. Mission St. Ste. 200
Wenatchee, WA 98801

4. Date checklist prepared:

May 2009

5. Agency requesting checklist:

Washington State Department of Ecology

6. Proposed timing or schedule (including phasing, if applicable):

The Crab Creek Route is the second phase of Reclamation's plans to improve the delivery of feed water to Potholes Reservoir. Depending on funding, Reclamation and Ecology intend to begin construction associated with the Crab Creek route in 2009. Construction is estimated to last approximately 5 years.

Reclamation and Ecology have completed work on the first phase of the project—Frenchman Hills Route. Expansion of road culverts at the Road C SE crossing of the Frenchman Hills Wasteway was completed in March 2008.

7. Plans for future additions, expansion, or further activity related to or connected with this proposal:

No further construction activity is planned for the Supplemental Feed Route—Crab Creek Route. Additional flows would not be routed through Crab Creek until Reclamation completes property or easement acquisition to mitigate for inundation of private property. No additional activity is proposed for the Supplemental Feed Route, although Reclamation does have additional plans for improvements to the Columbia Basin Project as described in the *Potholes*

Reservoir Supplemental Feed Route Environmental Assessment and Finding of No Significant Impact. Reclamation is beginning a National Environmental Policy Act (NEPA) review of the Odessa Subarea Special Study which is investigating alternatives to supply Columbia Basin Project water to the Odessa Subarea to replace existing ground water withdrawals.

8. Environmental information that has been prepared, or will be prepared, directly related to this project:

- Potholes Reservoir Supplemental Feed Route Environmental Assessment and Finding of No Significant Impact, Bureau of Reclamation, Pacific Northwest Region, August 2007 (adopted as an addendum to the Final Programmatic Environmental Impact Statement for the Columbia River Water Management Program).

- Technical Memorandum Alternative A—Crab Creek Route. Potholes Reservoir Supplemental Feed Route Draft Environmental Assessment, Bureau of Reclamation, Pacific Northwest Region, April 2007.

- Final Programmatic Environmental Impact Statement for the Columbia River Water Management Program, Washington State Department of Ecology, February 15, 2007.

- Potholes Reservoir Supplemental Feed Route—Frenchman Hills Route SEPA Checklist, Washington State Department of Ecology, January 2008.

- Supplemental Feed Route Road C SE Culvert Crossing of Frenchman Hills Wasteway, Wetland and Stream Delineation. Memorandum to Derek Sandison, Washington State Department of Ecology from ESA Adolfson. January 18, 2008.

- Frenchman Hills Route Wetland Rating and Classification. Memorandum to Derek Sandison, Washington State Department of Ecology from ESA Adolfson. January 22, 2008.

- Crab Creek Project, Potential Impact Areas. Memorandum to Derek Sandison, Washington State Department of Ecology from ESA Adolfson. May 2009.

9. Applications that are pending for governmental approvals or other proposals directly affecting the property covered by the proposal:

No other applications or proposals are pending.

10. List of governmental approvals or permits that may be needed for the proposal:

- Section 404 Permit, Corps of Engineers

- Hydraulic Project Approval, Washington Department of Fish and Wildlife (WDFW)
- Shoreline Substantial Development Permit, Grant County
- Construction Stormwater Permits, Ecology
- Right-of- Way Permit, Grant County
- Critical Areas Review, Grant County
- Shoreline Substantial Development Permit, Grant County

11. Brief, complete description of the proposal, including the proposed uses and the size of the project and site:

The Bureau of Reclamation (Reclamation), in cooperation with the Washington Department of Ecology (Ecology), proposes to develop a Supplemental Feed Route to convey water from Banks Lake to Potholes Reservoir. Potholes Reservoir is part of the Columbia Basin Project, Reclamation's irrigation project supplied by Grand Coulee Dam. Water for the Columbia Basin Project is pumped from Lake Roosevelt behind Grand Coulee Dam to Banks Lake (Figure 1). Irrigation water is distributed from Banks Lake through the Main Canal, which flows south to Billy Clapp Lake. The Main Canal continues south from Pinto Dam at the south end of Billy Clapp Lake. The Main Canal divides into the West and East Low Canals at a point southwest of Pinto Dam. The West Canal flows around the northwest edge of the Columbia Basin Project boundary and flows south toward Frenchman Hills Wasteway. The East Low Canal flows south, passing near the cities of Moses Lake and Warden, and ending east of the Scooteney Reservoir south of Othello.

The Columbia Basin Project is designed so that return flows from irrigation and naturally occurring flows in the northern half of the project, generally the area north of Potholes Reservoir, would flow to Potholes Reservoir and supply the southern portion of the project, which is generally the area south of Potholes Reservoir. Potholes Reservoir receives and stores runoff water from the Upper Crab Creek Basin and return flows from irrigated land served by the West and East Low Canals. Water is released from Potholes Reservoir through the Potholes Canal to supply the South Columbia Basin Irrigation District. Because the Columbia Basin Project has not been completely developed, there is not adequate return flow in the northern portion of the project to provide a reliable supply of irrigation water to the South and East Columbia Basin Irrigation Districts. To help meet that need, water is diverted from Banks Lake to Potholes Reservoir. This diverted water is called feed water. At present, the Potholes Canal serves approximately 231,000 acres, requiring up to 990,000 acre-feet of water annually from Potholes Reservoir. Of that amount, about 350,000 acre-feet is feed water from Banks Lake.

There are currently three feed routes that use canals and existing waterways (Figure 1). The primary route is through the East Low Canal to Rocky Coulee Wasteway then into middle Crab Creek, Moses Lake, and finally into Potholes Reservoir. The two secondary routes are through Lind Coulee Wasteway and through Frenchman Hills Wasteway. Water is spilled from the East Low Canal to Lind Coulee Wasteway, which flows directly to Potholes Reservoir. The other secondary route spills water from the West Canal to the Frenchman Hills Wasteway, which also flows directly to Potholes Reservoir.

The purpose of the Supplemental Feed Route Project is to improve the reliability and safety in the ability to supply feed water to Potholes Reservoir. Reclamation and Ecology originally considered three possible routes—Crab Creek, W20 Canal, and Frenchman Hills Waterway (Figure 2). Based on technical studies of the three routes, the SEPA EIS on the Columbia River Water Management Program (Ecology, 2007), and the NEPA EA (Reclamation, 2007a), Reclamation has selected a Supplemental Feed Route that would utilize both Crab Creek and Frenchman Hills Wasteway. Utilizing both routes would allow Reclamation more flexibility in routing water to Potholes Reservoir and to respond to the Washington Department of Fish and Wildlife (WDFW) request to maintain Crab Creek with only spring flow every few years.

Reclamation is developing the Supplemental Feed Route in two phases. Phase I involved expanding the capacity of the Frenchman Hills Wasteway Feed Route. Reclamation expanded culverts at the Road C SE crossing of the Wasteway in March 2008 to allow additional flows in Frenchman Hills Wasteway. The impacts of the culvert expansion were evaluated in a SEPA Checklist (Ecology, 2008). Reclamation anticipates using this route beginning in 2010.

Phase II of the project would involve routing water from Billy Clapp Lake through Crab Creek to Moses Lake and Potholes Reservoir. This SEPA Checklist evaluates the potential impacts associated with the Crab Creek Route.

A base flow of approximately 100 cubic feet per second (cfs) would be released from Pinto Dam year round. The base flow would add 30,000 acre-feet to the winter inflows to Potholes Reservoir. Up to 500 cfs would be released from Pinto Dam between April 1 and June 30. The additional spring and summer water releases would be used during dry years when existing feed routes are at capacity and water is still needed to fill Potholes Reservoir. The exact amount of water released in the spring and summer would vary with runoff and irrigation demands. The 500 cfs releases between April 1 and June 30 would supply 54,000 acre-feet to Potholes Reservoir. The total annual feed through the Crab Creek Route could be 126,000 acre-feet. The water would replace existing feed water, primarily down the Rocky Coulee Wasteway, and would not increase the total amount of water supplied to Potholes Reservoir, or result in additional diversions from the Columbia River.

During some years, operations of the Crab Creek Feed Route would be modified by releasing water during only a portion of the year. This would allow side channels and ponds to be dried periodically to reduce the incidence of invasive species of weeds, fish, and amphibians. This partial year regime would be

implemented with the input of fish and wildlife agencies. The partial year regime would last no longer than two seasons, then year round flows would be resumed. The flow regime cycle would be repeated approximately every decade.

Routing additional water through Crab Creek would require modifications to existing facilities at Pinto Dam and Brook Lake and improvements along Crab Creek. Specific projects include:

- Modification of the 4-by-4 outlet gate at Pinto Dam to accommodate ongoing releases of water.
- Construction of an energy dissipater and spillway at the outlet of Pinto Dam to control erosion. The structure would connect to the existing Pinto Dam outlet pipe. It would be approximately 200 feet long with a rip rapped channel extending for approximately another 200 feet.
- Construction of a concrete weir at the outlet of Brook Lake to control releases from the lake. An existing rock dam located just north of the Highway 28 bridge would be removed and replaced with a submerged concrete weir approximately 100 feet long.
- Removal of obstructions in Crab Creek. There are several obstructions located in the first 5 miles of the channel below Brook Lake. These include a rock structure near the inlet to Round Lake and two obstructions that appear to be beaver dams, located downstream of the second railroad bridge.
- Construction of a fish barrier at the lower end of Loan Springs to limit fish from traveling up into Crab Creek. This structure will be constructed of concrete and will prevent fish passage by a vertical drop with a concrete apron sufficient to limit fish movement upstream.
- Road crossing improvements at Road 16 NE. The existing crossing is a ford of the creek which would not be passable with increased flows. The roadway needs to be elevated approximately 8 feet and six 72-inch diameter culverts installed. The improved crossing will be located several hundred feet downstream of the current site to avoid the crossing washing out during high flows.
- Construction of fish passage barriers to control fish movement along Crab Creek and to preserve existing habitat and create new habitat. Fish passage barriers are proposed at the following locations:
    - Old Railroad Station between Stratford and Adrian. The barrier would block downstream carp movement and upstream trout movement. The barrier would span the entire 180-foot width of the channel and would have a 25-foot concrete apron with a 20-foot rip rap apron.
    - North and South Flood Flats south of Adrian. WDFW would construct berms and swales to provide habitat for the Northern Leopard Frog. At North Flood Flat, inlet and outlet berms would be constructed along with two swales. At South Flood Flat, one berm and one swale would be constructed and an existing berm would be repaired.

- Upper Wildlife Structure. Improvements to the existing structure include installing new gates, sealing abutments, and repairing the existing berm.
- Upper Loan Springs Diversion. A fish passage barrier would be constructed to block carp access to Loan Springs, a side channel of Crab Creek. The barrier would be approximately 400 feet long and would be permeable to allow water flow, but would prevent fish access.
- Road 16 NE and Lower Loan Springs Structure. A fish barrier would be constructed at the lower end of Loan Springs to limit fish from traveling up into Crab Creek. This structure will be constructed of concrete and will prevent fish passage by a vertical drop with a concrete apron sufficient to limit fish movement upstream.
- Spud Field Isolation Berms and Swale, located between Road 16 and Road 12. New habitat would be created for the Northern Leopard Frog by constructing a berm to isolate a section of the Spud Field from Crab Creek. A swale would also be constructed.
- Lower Wildlife (Spud Field) Structure. The existing structure would be replaced so that it can be operated to control water levels for waterfowl habitat.

12. Location of the proposal, including street address, if any, and section, township, and range; legal description; site plan; vicinity map; and topographical map, if reasonably available:

All facilities associated with the Crab Creek Supplemental Feed Route are located in Grant County, Washington. The route begins at Reclamation's Pinto Dam and Brook Lake near Stratford. Crab Creek flows south from Brook Lake to the Parker Horn (or arm) of Moses Lake and through Moses Lake to Potholes Reservoir south of the City of Moses Lake (see Figure 3).

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site:

The topography along the Crab Creek Route is generally flat with a gentle slope to the south.

b. What is the steepest slope on the site (approximate percent slope)?

The Columbia Basin Project, including the Crab Creek Supplemental Feed Route, is located in a flat area between the Beezley Hills to the north and the Saddle Mountains to the south. Middle Crab Creek flows through a flat area with a gradient change of approximately 300 feet between Pinto

Dam and Potholes Reservoir. Steep slopes along the Crab Creek Route are limited to the stream banks and those are generally gently sloping.

Pinto Dam is at elevation 1,742 feet above mean sea level (msl) with Moses Lake and Potholes Reservoir at 1,046 and 1,040 feet msl, respectively.

c. What general types of soils are found on the site (for example clay, sand, gravel, peat, muck)? Specify the classification of agricultural soils and note any prime farmland.

A wide variety of soil types are located adjacent to Crab Creek. The majority of the soils are deep, well drained loams (NRCS, 2005). Some hydric soils are located along the creek, notably in the Gloyd Seeps area east of the Grant County International Airport.

There are several areas of soil types classified as prime farmland along the Crab Creek Route. The existing agricultural activities on these soils would not be converted as a result of this project.

d. Are there any surface indications or a history of unstable soils in the immediate vicinity? If so, describe.

There are no indications of unstable soils in the immediate vicinity. The soil types along the creek have a slight hazard for water erosion because of the flat terrain, high permeability, and limited runoff (NRCS, 2005).

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate the source of the fill.

Construction of the spillway at the outlet of Pinto Dam would involve approximately 228 cubic yards of rock excavation, 120 cubic yards of rock fill under the spillway slab, 490 cubic yards of concrete, and 795 cubic yards of rock for riprap. The new weir at the outlet of Brook Lake would require approximately 1,100 cubic yards of grading and approximately 68 cubic yards of concrete. The amount of excavation required to remove the two beaver dams and the rock structure near Round lake is unknown at this time, but is expected to be relatively minor. The fish passage barrier across Loan Springs would require approximately 2,500 cubic yards of excavation, 30,000 cubic yards of fill, 1,300 square yards of final grade embankment, and 300 cubic yards of rock for the rock apron. The road crossing improvements at Road 16 NE would require 7,250 cubic yards of grading and fill.

All of the fish passage barriers and other habitat structures proposed by WDFW would also require filling and grading, but the amount of material is not known at this time for all structures. Construction of the North Flood Flat Berm would require 2,900 cubic yards of fill and 1,300 cubic

yards of grading. The south Flood flat Berm would require 2,700 cubic yards of fill and 500 cubic yards of grading.

Any excavated material would be disposed of at an approved disposal site. All fill materials would come from an approved source, either a Washington Department of Transportation (WSDOT) certified pit or another similarly approved site.

f. Could erosion occur as a result of clearing, construction, or use?

Limited erosion could occur as a result of removal of obstructions from the creek channel, construction of the fish passage barrier across Loan Springs, and road improvements. These activities could expose additional areas to potential erosion. Erosion is expected to be minimal because of the flat topography and limited construction activities.

Sediment transportation studies indicate that only minor amounts of sediment would be transported through the system (Reclamation, 2007b). Crab Creek has a low gradient and numerous ponded areas in the channel that provide opportunities for sediment load to be deposited and not transported. Model results of sediment transport indicate that approximately 2,013 tons (895 cubic yards) of sediment would be deposited annually in Moses Lake with a year-round release of 150 cfs and 2,157 tons (959 cubic yards) of sediment with a release of 500 cfs for two months. This would result in a total annual deposition in Moses Lake of 4,171 tons (1,854 cubic yards).

g. About what percent of the site will be covered with impervious surfaces after project construction (for example buildings or asphalt)?

The improvements that would add impervious surfaces to the project area include the outlet structure and energy dissipater at Pinto Dam, the concrete overflow weir at the outlet of Brook Lake, and the improved roadway crossing of Road 16 NE. These would result in limited amounts of additional impervious surfaces.

h. Describe the proposed measures to reduce or control erosion, or other impacts to the earth, if any.

Best management practices (BMPs) and Temporary Erosion and Sediment Control (TESC) measures would be implemented during construction. A Stormwater Pollution Prevention Plan (SWPPP) would be prepared in accordance with Department of Ecology guidelines to further reduce potential for erosion. Measures to control erosion during construction may include:

- the use of silt fences or straw bales,

- covering stockpiled material,
- replanting with native vegetation following construction, and
- maintaining erosion control measures until bare soils have been successfully revegetated.

Because the increased flows are not expected to substantially increase erosion, no mitigation measures are proposed for operation of the project.

2. Air

a. What types of emissions to the air would result from the proposal (e.g. dust, automobile, odors, industrial, wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities, if known.

The only emissions to the air that would result from the project would be minor increases in dust and vehicular emissions during the construction projects required to accommodate the increased flows in Crab Creek. The operation of construction vehicles and equipment would result in slight increases in greenhouse gas emissions.

b. Are there any off-site sources of emissions or odors that may affect your proposal? If so, generally describe.

No off-site emissions or odors would affect the project.

Impacts of climate change could affect water management in the Columbia Basin Project by altering the amount and timing of water available at Grand Coulee Dam and by changing crop demand for irrigation. The Crab Creek Supplemental Feed Route does not increase the amount of water that would be released from the reservoir, but is intended to improve the efficiency of delivering the same amount of water to Potholes Reservoir.

c. Describe proposed measures to reduce or control emissions or other impacts to air, if any.

Impacts of dust and emissions are expected to be minor and temporary. The construction sites are located in a rural area and emissions are expected to disperse quickly. Any fill material or gravel needed for the road crossing would be brought to the site as needed, to minimize the amount of material that would be stockpiled.

If the amount of water and timing of runoff changes as a result of climate change, Reclamation would adaptively manage the irrigation project, including the Crab Creek Supplemental Feed Route. Reclamation would

coordinate with other Columbia River managing agencies to adapt to changes.

3. Water

a. Surface:

1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, and wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Surface water bodies in the area include Billy Clapp Lake, Brook Lake, Crab Creek, Rocky Ford Creek, Moses Lake, and Potholes Reservoir (Figure 2).

Billy Clapp Lake is the reservoir formed by Pinto Dam. The lake is an equalizing reservoir located on the Main Canal that delivers irrigation water from Banks Lake. Two or more seeps are located on a bench above the outfall from Pinto Dam. Based on field reconnaissance, the vegetation, hydrology, and soils of the seeps meet the criteria for wetlands (see Appendix A).

Brook Lake is a natural lake located within the Crab Creek Channel. Emergent and open water wetlands occur at the western edge of Brook Lake and along Crab Creek, north of Round Lake and south of the East Low Canal (USFWS, 1976). Vegetation and soils at the site of the rock weir meet the criteria for wetlands, but at the time of an October field reconnaissance, wetland hydrology was not observed (see Appendix A). However, indicators of seasonal water presence were observed.

Crab Creek is a natural stream that flows from near Davenport, Washington east to Adrian, south to Moses Lake and Potholes Reservoir, and east to its confluence with the Columbia River near Schawana. Upper Crab Creek between Davenport and Brook Lake flows year-round as does Lower Crab Creek below Moses Lake. Flows in Middle Crab Creek between Brook Lake and Gloyd Springs are intermittent. Wetlands occur throughout Crab Creek and are characterized by seasonal flow, emergent and scrub-shrub vegetation (USFWS, 1976). Based on a field reconnaissance of the Lone Springs and Road 16 NE crossing areas, the soils, vegetation, and hydrology meet the criteria for wetlands (see Appendix A).

Moses Lake is a natural lake formed by drifting sand dunes that impounded Crab Creek. Crab Creek enters the lake from the east through Parker Horn and Rocky Ford Creek, which flows into the lake from the west.

Potholes Reservoir was constructed by Reclamation as part of the Columbia Basin Project. It is impounded by O'Sullivan Dam. The reservoir stores natural and irrigation runoff. Water from Potholes Reservoir is used to irrigate the South Columbia Basin Irrigation District. The reservoir is connected to Moses Lake. Moses Lake and Potholes Reservoir have densely mapped wetlands that are typically emergent and open water (USFWS, 1976).

2. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Construction would occur at the outlets of Pinto Dam (Billy Clapp Lake) and Brook Lake and at various locations in Crab Creek between Brook Lake and Road 16 NE. See Question A.11 for a description of these projects.

When the project is complete, the volume of water in Middle Crab Creek would increase by 100 to 500 cfs. This would result in flows below Willow Lake slightly above the 2-year flood level (2-year recurrence interval peak discharge), which is recorded at 322 cfs at Road 7 NE. Above Willow Lake, the flows would be increased below the 2-year peak discharge. The increased flows in Crab Creek are not expected to increase peak flows below the confluence with Rocky Coulee Wasteway.

Some of the increased flows in Crab Creek would infiltrate to ground water (Reclamation, 2007). Approximately 80 percent of the ground water is expected to resurface in Rocky Ford Creek, increasing surface water flow in that creek. The remaining ground water would enter Moses Lake from springs along the east shore of the lake. Infiltration is expected to range from 60 to 20 percent based on the low to high flow rates respectively. Flows in Rocky Ford Creek are expected to increase by 60 to 80 cfs with a year round release from Billy Clapp Reservoir of 100 cfs and by 20 to 40 cfs with spring releases of 500 cfs. The delay between water infiltrating along Crab Creek and water emerging in Rocky Ford Creek is expected to be approximately six weeks.

3. Estimate the amount of fill and dredge material that could be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill materials.

No fill would be placed in or removed from surface water or wetlands along the Supplemental Feed Route except at specific construction sites as described below. Impacts to wetlands may

require a Section 404 permit from the Corps of Engineers and Grant County critical area review.

No fill would be placed in the seeps above the outlet to Pinto Dam. Construction activities could temporarily disturb the wetlands if construction equipment is located on the bench above the outlet.

Construction of the new concrete weir at the outlet to Brook Lake could result in fill and disturbance of the lacustrine wetlands associated with the lake.

Road crossing improvements at Road 16 NE could require fill of wetlands adjacent to the creek. Construction of the fish passage barrier at Loan Springs could also require fill of wetlands. The barrier is intended to prevent carp from infesting the channel adjacent to Crab Creek. The barrier would not obstruct Crab Creek.

Construction of the fish passage barriers and other habitat structures would require the placement of fill in wetlands and associated with Crab Creek. The fish passage barriers and berms are intended to improve habitat and conditions for fish.

Details about the impacts to streams and wetlands will be provided in the Joint Aquatic Resources Permit Application (JARPA) which is being prepared for the project.

Material for all construction activities would come from an approved site, either a Washington Department of Transportation (WSDOT) certified pit or another similarly approved site.

4. Will the proposal require surface water withdrawals or diversion? Give general description, purpose, and approximate quantities, if known.

The project would not require new surface water withdrawals. The Supplemental Feed Route project is intended to improve the reliability of flows delivered to Potholes Reservoir, but would not supply additional water to the reservoir. Crab Creek would carry more water than it currently does, but that water is being rerouted from current routes.

5. Does the proposal lie within a 100-year flood plain? If so, note location on the site plan.

Crab Creek has a mapped 100-year flood plain. Construction to remove creek obstructions, build a fish passage barrier at Loan Springs, and improve the crossing at Road 16 NE would occur within the 100-year flood plain.

Reclamation's modeling indicates that approximately 2,422 acres would be inundated along Crab Creek as a result of increased flows. The inundation is expected to occur primarily adjacent to the creek. It appears that 757 acres (31.1 percent) may already be wet naturally as either open water or wetland. The remaining new inundated land consists of:

1,156 acres of shrub-steppe,
343 acres of cropland,
78 acres of forest/shrub, and
88 acres of barren land.

Approximately 965 acres of the inundated area are privately owned, consisting of 178 separate tax parcels. Six structures are located within the potential inundation area. Reclamation currently has flowage easements on approximately 192 of the 965 privately owned acres.

The Dieringer Dairy is located south of Road 10 NE west of Crab Creek. The test flows through Crab Creek in 2006 created changes in water levels and flow paths on the dairy property. When flow increased in Crab Creek, the swale on the Dieringer property south of the dairy began to fill with water. When the test flow was stopped, the water level quickly receded. There was no observed overland flow that contributed to the water in the swale.

6. Does the proposal involve discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

The project does not involve the discharge of waste materials to surface waters.

b. Ground

1. Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No ground water would be withdrawn and no water would be directly discharged to ground water. As described in Section 3.a.2, some of the increased flows in Crab Creek would infiltrate to ground water. This may result in changes to ground water levels in the area. A portion of the inundation effects described in Part 5, above, would be the result of increased ground water levels in the vicinity of the creek. In addition, the project may increase ground water discharges to lower Rocky Ford Creek.

2. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any. Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) is expected to serve.

The project would not generate waste material that would be discharged into the ground. As discussed above, the project would change ground water flow in the area with ground water flowing from Crab Creek to Rocky Ford Creek. A study of potential interaction between Crab Creek flows and the Moses Lake Superfund Site determined that the increased ground water would not affect the Superfund site (Golder Associates, 2007). The increased ground water would not reach the contaminated area because it is located away from the creek and in a geologic formation not connected to Crab Creek ground water.

c. Water Runoff (including storm water)

1. Describe the source of runoff (including storm water) and method of collection and disposal, if any (including quantities if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The project is intended to increase flows in Crab Creek to provide a more reliable supply for Potholes Reservoir. The water would flow to Potholes Reservoir, but would not increase the actual volume of water supplied to the reservoir. None of the construction activities to facilitate increased flows would result in increased runoff or stormwater generation.

2. Could waste materials enter ground or surface waters? If so, generally describe.

No waste material is expected to enter ground or surface waters. The source of water for the Supplemental Feed Route would be the same as under current conditions. Water would be diverted from Lake Roosevelt to Banks Lake, flow through the Main Canal to Billy Clapp Lake, and be released from Pinto Dam to Crab Creek.

Reclamation concluded in its Environmental Assessment on the Crab Creek Supplemental Feed Route that increased flows in Crab Creek are not expected to negatively affect water quality in Crab Creek, Rocky Ford Creek, Moses Lake, Potholes Reservoir, or ground water in the area (Reclamation, 2007a).

d. Describe proposed measures to reduce or control surface, ground, and runoff water impacts, if any.

The small increases in impervious surface created by the projects at Pinto Dam and Brook Lake are not expected to increase runoff water impacts. Runoff from the spillway would flow into Brook Lake and the overflow weir at the outlet of Brook Lake is intended to channel flow into the creek. Road crossing improvements would be gravel crossings over culverts. None of these projects would significantly increase runoff; therefore, no measures are proposed to reduce runoff impacts.

As noted above in Section 1.h, a SWPPP would be prepared for the project, in accordance with Department of Ecology guidelines. The SWPPP would help to minimize the potential for impacts from the project during and following construction.

Reclamation would work with private property owners to identify potential impacts from increased inundation on private property. Reclamation would develop appropriate mitigation measures such as purchase of flowage easements or property.

Reclamation proposes to relocate the Dieringer Dairy to Reclamation owned land near the existing dairy. A field reconnaissance of the proposed relocated site did not identify any wetland indicators and the property is not located near any surface water bodies.

Reclamation would comply with applicable federal, state, and local permits for any fill or other impacts to wetlands.

4. Plants

a. Types of vegetation found on-site:

Historically, the native vegetation along Crab Creek was shrub-steppe and was dominated by perennial grasses with a discontinuous overstory of shrubs such as sagebrush, rabbitbrush, bitterbrush, grease wood, and spiny hopsage with a layer of perennial grasses (KWA Ecological Sciences Inc. 2004). The dominant grasses currently are native bunchgrasses (*Poa*, *Stipa*, and *Agropyron* spp.) and non-native downy brome.

Most of the land adjacent to Crab Creek has been developed and is actively used for irrigated agriculture in the area between Brook Lake and Adrian and from Road 10 NE south to Moses Lake. Areas of shrub-steppe vegetation remain between Adrian and Road 10 NE, especially in the Willow Lake and Gloyd Seeps areas. Crab Creek is bordered by riparian vegetation in some places, which is a mix of native and invasive species. Invasive species include purple loosestrife, common reed, and Russian olive.

b. What kind and amount of vegetation will be removed or altered?

Some vegetation would be removed for the construction projects associated with the increased flows, but the only significant amount of vegetation that would be removed would be at the Brook Lake outlet. Vegetation at Brook Lake outlet would be removed and replaced with a concrete weir. The area is vegetated predominantly with cocklebur (*Xanthium strumarium*), ragweed (*Ambrosia artemesiifolia*), sulphur cinquefoil (*Potentilla recta*), and smartweed (*Polygonum* sp.), with scattered Russian olive trees (*Eleaegnus angustifolia*).

No vegetation would be removed along Crab Creek. The specific amount and kind of vegetation that would be removed for any of the construction projects is unknown at this time.

The additional flows in Crab Creek may have both positive and negative effects on riparian vegetation. Additional flows would improve and increase riparian vegetation along the creek. WDFW (2007a and b) has identified the following potential negative impacts to vegetation communities:

- Increased advancement of invasive species such as Russian olive, common reed, common cattail, and reed canary grass. This would result from increased perennial water that transports seeds and rhizomes of undesirable plants, as well as the encroachment of undesirable fish and wildlife species.
- Erosion and unstable banks from increased water flow may influence plant survival in riparian areas.

c. List threatened or endangered species or critical habitat known to be on or near the site.

The Washington Department of Natural Resources Natural Heritage Program (WNHP) database of listed plant species records was reviewed for the project area. No records of listed species are found within the Crab Creek drainage (WNHP, 2008). One record of Piper's Daisy (*Erigeron piperianus*) documented in 1996 is noted east of Moses Lake, outside the Crab Creek drainage area.

Information regarding priority habitats and species occurrences in the project area was requested from the WDFW Priority Habitats and Species (PHS) Program. PHS data was received on February 20, 2008. The PHS data for the project area does not include any occurrences or records of threatened or endangered plant species (WDFW, 2008a).

d. Describe proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on-site.

Areas disturbed during construction would be replanted with native vegetation.

As part of the overall Supplemental Feed Route project, Reclamation is working with WDFW to develop a management plan for lands along both Crab Creek and the Frenchman Hills Wasteway. The plan would include ways to mitigate for potential impacts caused by increased flows in the waterways and opportunities for improving habitat. Because the extent of impacts is unknown and may remain unknown for several years in some cases, Reclamation and WDFW would use adaptive management to identify impacts and develop appropriate mitigation strategies. WDFW (2007a and b) has submitted a list of potential habitat improvements measures to Reclamation. Specific measures to reduce impacts include:

- Constructing or improving water control structures,
- Maintaining native vegetation, and
- Developing weed control measures.

5. Animals

a. Underline any birds and animals which have been observed on or near the site or are known to be on or near the site:

The source of the following information is the Washington Department of Fish and Wildlife information on the Gloyd Seeps Wildlife Area (WDFW, 2008b) and the Crab Creek Subbasin Plan (KWA, 2004), which contains a comprehensive list of wildlife species present in the area. The Gloyd Seeps Wildlife Area is 8,000 acres along Crab Creek between Moses Lake and Stratford. Numerous wetlands, ponds, and seeps are surrounded by older shrub steppe uplands and basalt scablands. Fires have created grasslands on most of the area along the west side of Crab Creek. The area contains four diked ponds, four water control structures on four creeks, and several access roads and parking areas.

Fish:

Perch, crappie, sunfish, largemouth bass, smallmouth bass, walleye, mountain whitefish, brown trout, and rainbow trout (stocked).

Birds:

Raptors include resident Prairie Falcon, Red-tailed and Swainson's Hawk, Golden Eagle, wintering Bald Eagle, colonies of Burrowing Owl, and occasional Snowy Owl or Gyrfalcon.

Waterfowl include Canada Goose, Mallard, Redhead, Canvasback, Ring-necked Duck, Ruddy Duck, Gadwall, Blue and Green-winged Teal, Northern Shoveler, Northern Pintail, Common and Barrow's Goldeneye, and Wood Duck.

Game birds include Ring-necked Pheasant, Chukar, Hungarian partridge, and California Quail. Sage and Sharp-tailed Grouse were historically present, but have severely declined in numbers.

Shorebirds abound and Caspian Tern, American White Pelican, Sandhill Crane, swans, and many other rare birds are seen.

Breeding shorebirds include Killdeer, Black-necked Stilt, American Avocet, and migrants utilizing the area include Greater and Lesser Yellowlegs, Dowitcher, Wilson's Phalarope. American White Pelican, and Tundra Swan are also present.

Other species regularly observed include Ring-billed Gull; Brewer's, Red-winged, and Yellow-headed Blackbirds; Western Meadowlark; Horned Lark; Song Sparrow; and Marsh Wren.

Mammals:

Coyote, mule deer, jackrabbits, marmots, ground squirrels, muskrats, mice, shrews.

b. List any threatened or endangered species or critical habitat near the site.

Information regarding priority habitats and species occurrences in the project area was requested from the Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Program (WDFW, 2008a). PHS data was received on February 20, 2008.

The PHS data includes several records of priority habitats in the project area, including wetlands, riparian, shrub-steppe, waterfowl concentration areas, shorebird concentrations, and specific species breeding or resident territories.

The PHS data includes multiple **waterfowl concentration areas** along the Crab Creek drainage, which support large numbers of migrating or wintering ducks and geese. The data notes that the area contains many seasonally flooded flats that attract large numbers of species. In addition, much of the drainage is also mapped as **riparian** and **wetland** priority habitats. The PHS data characterizes the mapped area as the Gloyd Seeps Wildlife Area and as major wetlands associated with the drainage. Riparian areas support diverse shrubs and trees on the edges of Brook Lake and Crab Creek. Wetlands are dominated by grasses, cattail, bulrush, and rush. Large areas supporting upland vegetation, both east and west of Crab Creek, are also designated as **rural natural open space.**

These areas comprise a buffer between agricultural ground and/or range and Crab Creek wetlands.

The PHS data notes that Brook Lake, 430-acres, is used by both American White Pelican and Tundra Swan. Round Lake and surrounding uplands record annual herd composition counts of **mule deer**. The data notes a large resident population using irrigated alfalfa and wheat habitats with some adjacent shrub-steppe and basalt outcropped hills.

Willow Lake, approximately 60-acres, contains winter habitat for Ring-necked Pheasant. Intermittent lakes to the south (Homestead Creek Area) contain edge vegetation suitable for Northern Leopard Frog, a state endangered species.

The south end of the area includes more intermittent lakes that provide habitat for Western and Clarks Grebe, and American White Pelican. The "Potholes Reservoir-Lind Coulee Arm" is mapped as priority habitats for **waterfowl concentrations** (spring and summer nesting), **shorebird concentrations** (late summer and fall). The PHS data also note one snag-rich wetland and numerous emergent and open water **wetlands** that provide high quality habitat for upland gamebirds, waterfowl, rails, furbearer and other nongame birds.

The PHS data includes multiple records of several priority species occurring in the project area. The following table lists PHS records, beginning with records from Brook Lake and proceeding to the south along the Crab Creek drainage (WDFW, 2008a).

Table 1. Priority Habitat and Species Records for the Crab Creek Supplemental Feed Route

Species	Observation year	Observation type	State Status	Priority?
Washington ground squirrel	1999	Breeding colony	Candidate	Yes
American white pelican	Multiple records (1980s-1990s)	Regular small concentrations and Individual occurrences	Endangered	Yes
Loggerhead shrike	1994 (multiple records)	Breeding	Candidate	Yes
Ring-necked pheasant	1992	Regular concentrations	NA	No
Northern leopard frog	1999	Individual occurrences	Endangered	Yes
Burrowing owl	2002 (multiple records	Breeding burrows east of Gloyd Seeps Unit	Candidate	Yes
Clarks grebe	Multiple records/ongoing	Breeding	Monitor	No

WDFW has identified several potential positive and negative impacts to wildlife from supplying feed water to Potholes Reservoir through Crab Creek (WDFW, 2007 a and b). Positive impacts of the project would be habitat enhancement for birds, reptiles, mammals and plants. WDFW also

notes potential opportunities for increased recreation. Potential negative impacts include:

- Increased advancement of invasive species such as common carp and bullfrog. This would result from increased perennial water supporting encroachment of undesirable fish and wildlife species.
- Increased suitable habitat for beaver. This would likely require additional management responsibilities by the WDFW wildlife area manager for the Gloyd Seeps Unit.
- Flooding of breeding habitats for amphibians, thus reducing habitat suitability.
- Increased risk of common carp entering existing breeding habitats for amphibians (northern leopard frog) due to increased water flow.
- Winter drawdown of Billy Clapp Lake could result in increased fish entrainment and a slight decrease in the reservoir's fishery.

c. Is the site part of a migratory route? If so, explain.

The ponds and wetlands created by development of the Columbia Basin Project provide an important stopover for birds during migration on the Pacific Flyway. Ponds along Crab Creek are used as stopover points for waterfowl and shorebirds.

d. Proposed measures to preserve or enhance wildlife, if any.

As described in Section 4.d above, Reclamation is continuing to work with WDFW to develop a management plan to mitigate potential impacts and improve habitat along Frenchman Hills Wasteway and Crab Creek. The plan would incorporate adaptive management to identify impacts and develop mitigation strategies.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The project would not require any energy.

b. Would the project affect the potential use of solar energy by adjacent properties? If so, explain.

The project would not affect use of solar energy.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.

The Supplemental Feed Route and Crab Creek are gravity systems and do not utilize any energy.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spills, or hazardous waste that could occur as a result of this proposal? If so, describe.

The only potential environmental hazards associated with this project would be possible spills of chemicals from vehicles and equipment used in construction projects.

Increased flows in Crab Creek may cause an increase in the mosquito population. The increase is not expected in the lower creek where water currently flows year-round and where population density is highest. The areas where mosquito populations would likely increase are largely uninhabited except for the communities of Stratford and Adrian. In these areas, Crab Creek would be largely confined to a single channel flowing year-round. Few off-channel, stagnant water bodies would be created, limiting suitable breeding areas for mosquitoes.

1. Describe special emergency services that might be required.

The project would not require special emergency services.

2. Describe proposed measures to reduce or control environmental health hazards.

Spill Prevention and Control Plans would be developed to minimize the potential for spills and to contain any spills on site during construction projects.

b. Noise

1. What types of noise exist in the area which may affect your project (for example: traffic, equipment operation, other)?

There are no noise sources in the area that would affect the project. Most of the project is located in a rural, agricultural area. The southern part of Crab Creek before it flows into Moses Lake is in a

more dense agricultural area and an urban area. However, the noise levels in this area are still relatively low.

2. What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example: traffic, construction, operation, other)?

The only noise generated by the project would be short-term construction noises associated with construction equipment at the Pinto Dam and Brook Lake outlets, Loan Springs, and the road crossings. There are a few residences adjacent to the Brook Lake outlet. There are no residences adjacent to the Pinto Dam outlet, Loan Springs, or Road 16 NE construction areas.

3. Describe proposed measures to reduce or control noise impacts, if any.

No measures are required to reduce or control noise impacts because impacts would be minor and temporary.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

The land adjacent to Crab Creek is a mixture of agriculture, wildlife and recreation, and urban lands. Some lands adjacent to Crab Creek are undeveloped shrub-steppe, notably between the community of Adrian and Road 7 NE. The area is part of the Gloyd Seeps Wildlife Area managed by WDFW for recreation purposes and the North Columbia Basin Wildlife Area managed by the U.S. Fish and Wildlife Service.

Agricultural activities are most intense between Brook Lake and Adrian and north of Road 7 NE. South of Road 7 NE, the area becomes more urban and Parker Horn, where Crab Creek enters Moses Lake, is within the City of Moses Lake.

b. Has the site been used for agriculture? If so, describe.

Lands adjacent to Crab Creek are part of the Columbia Basin Project and are used for irrigated agriculture. The project is intended to improve the reliability of water supply to Potholes Reservoir and the South Columbia Basin Irrigation District.

c. Describe any structures on the site.

Structures located along the Crab Creek Route include Pinto Dam, and bridges at Highway 28 and the Burlington Northern Railroad. Along the northern part of the route there are a few residential and agricultural

buildings located in the area, but for the most part the area is undeveloped. There is a dairy located at Road 10 NE. South of Road 7 NE the number of residences and agricultural buildings increase. Within the City of Moses Lake there are a number of residences and commercial buildings typical of an urban area. Several fish passage control structures are located on the creek.

d. Will any structures be demolished? If so, what?

The only structure that would be demolished is the existing rock weir at the outlet of Brook Lake. It would be replaced by a new concrete weir to regulate flows from Brook Lake. Structures at the current dairy location would be demolished and relocated to the new dairy site.

Six structures are located within the area that would be inundated by increased flows (see Section B.3.a.5). At this time it is unknown the extent of impacts to those structures.

e. What is the current zoning classification of the site?

A variety of zoning classifications are located along the Crab Creek Route with the majority of the land zoned Agriculture. The area around Pinto Dam is zoned Public Open Space. Areas immediately downstream of Brook Lake are zoned Rural Residential and Agricultural Service Center. The area around Adrian is zoned Rural Residential. The area in the vicinity of the Road 16 NE crossing is zoned Rural Remote. South of Road 10 NE, the area is zoned Rural Remote and Rural Residential and zoned for the Grant County International Airport. Within the City of Moses Lake and the Urban Growth Boundary, the area is zoned for a mix of urban uses.

f. What is the current comprehensive plan designation of the site?

The comprehensive plan designations along the Crab Creek route are a mix of agriculture, rural residential, and open space.

g. If applicable, what is the current shoreline master program designation of the site?

Crab Creek is regulated as a shoreline of the state from the Grant County boundary with Lincoln County to the mouth of the creek in Parker Horn of Moses Lake. Lakes associated with Crab Creek, including Brook Lake, Willow Lake, South Willow Lake, Round Lake and other unnamed lakes. These lakes are regulated as shorelines of the state. Rocky Ford Creek is regulated as a shoreline of the state from its confluence to its mouth at Moses Lake. Moses Lake and Potholes Reservoir are regulated as shorelines of statewide significance.

The construction sites associated with the project that would occur on shorelines of the state are the weir at the Brook Lake outlet, removal of obstructions in Crab Creek, the Road 16 NE crossing improvements, and the fish passage barrier at Loan Springs.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

A series of wetlands are located along Crab Creek and Crab Creek is a Fish and Wildlife Habitat Conservation Area under Grant County's Critical Areas regulations. As noted in Section B.3.a.1 wetland areas are located at several of the proposed construction sites. Section B.5.b describes priority habitat areas along the Crab Creek route.

i. Approximately how many people would reside or work in the completed project?

The project would not affect the number of people who reside or work in the area. People who reside adjacent to Crab Creek would continue to live there. No additional staff would be required to maintain Crab Creek as a Supplemental Feed Route.

j. Approximately how many people would the completed project displace?

The project would not displace any people. The Dieringer Dairy would be relocated to a site near its current location. The inundation of lands along Crab Creek is not expected to result in any other dislocations.

k. Describe proposed measures to avoid or reduce displacement impacts, if any.

There would be no displacements; therefore, no measures are required to reduce impacts. Reclamation would work with property owners of lands that would be inundated to develop appropriate mitigation. Mitigation may include purchasing land or easements or other compensatory measures to be determined when impacts are known.

l. Describe proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any.

The proposal is compatible with existing and proposed land uses and plans. The project would improve the reliability of water supply to Potholes Reservoir and the delivery of water to irrigated agricultural lands in the East and South Columbia Basin Irrigation Districts.

Reclamation would work with all landowners (public and private) affected by increased inundation to determine appropriate mitigation for increased

inundation. Mitigation measures may include purchasing land or easements or other compensatory measures.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units would be provided.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units would be eliminated.

c. Describe proposed measures to reduce or control housing impacts, if any.

No impacts to housing would occur; therefore, no mitigation is required.

10. Aesthetics

a. What is the tallest height of any of the proposed structure(s), not including antennas? What is the principal exterior building material(s) proposed?

Structures proposed as part of the project are listed below, along with the height of the facility and construction material:

- Spillway at Pinto Dam outlet—ground level, concrete and rock riprap;
- Weir at Brook Lake outlet—below water level, concrete;
- Fish passage barrier at Loan Springs—10 feet above ground level, earth and rock riprap;
- Culverts at Road 16 NE crossing—1 foot above bank level, gravel roadway with steel culverts.

b. What views in the immediate vicinity would be altered or obstructed?

Most of the structures would not alter or obstruct views. The spillway at Pinto Dam would not be visible to the public and the weir at Brook Lake would be below water level and not visible most of the year. The fish passage barrier at Loan Springs would cause minor changes to views at Willow Lake. The culvert crossing at Road 16 NE would replace an at-grade ford which would alter views, but possibly improve aesthetics by eliminating damage to the streambed by vehicles. Perennial flows in Crab

Creek are expected to allow increased riparian vegetation to establish along the creek.

c. Describe proposed measures to reduce aesthetic impacts, if any.

There would be only minor impacts to aesthetics; therefore, no mitigation is required. The additional riparian vegetation along the creek could be considered a benefit to aesthetics.

11. Light and Glare

a. What type of light and glare will the proposal produce? What time of day would it mainly occur?

The proposal would not produce any light or glare.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Since no light or glare would be produced, there would be no impacts on safety or views.

c. What existing off-site sources of light or glare may affect your proposal?

No sources or light or glare would affect the project.

d. Describe the proposed measures to reduce or control light and glare impacts, if any.

There would be no impacts associated with light and glare; therefore, no mitigations measures are required.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Billy Clapp Lake, Moses Lake and Potholes Reservoir all provide opportunities for boating, fishing, and other water sports.

The area of Crab Creek between Adrian and the City of Moses Lake are within WDFW's Gloyd Seeps Wildlife Area. WDFW also manages some lands owned by Reclamation for recreation purposes. Other Reclamation lands not managed by WDFW are open to the public for recreational activities. The Gloyd Seeps Wildlife Area provides opportunities for hunting, wildlife viewing, birding, and fishing. WDFW provides access points to the area from county roads.

The Crab Creek area is part of the Coulee Corridor Scenic Byway, a scenic route that highlights the geology and wildlife in the area. The Byway includes several opportunities for birding.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The project is not expected to affect recreational uses of Moses Lake or Potholes Reservoir. The winter drawdown of Billy Clapp Lake could result in increased fish entrainment and a slight decrease in the reservoir's fishery.

Generally the project is expected to improve recreational opportunities along Crab Creek by enhancing habitat. The perennial flows in the creek may cause some upland bird habitat to be replaced by riparian vegetation. The additional flows may improve fishing opportunities in the creek. The additional open water may attract waterfowl, which would enhance hunting opportunities.

c. Describe proposed measures to reduce or control impacts on recreation, including recreational opportunities to be provided by the project or applicant.

WDFW may create new fishing regulations to balance fishing opportunities with the goal of reducing disturbance to waterfowl. No other mitigation is proposed at this time; however, Reclamation and WDFW may identify other measures to enhance recreation opportunities as part of the adaptive management program described in Section B.4.d.

13. Historic and Cultural Preservation

a. Are there any places or objects listed on or eligible for national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

There are 33 recorded cultural resources located within 5 miles of the Crab Creek Supplemental Feed Route (Ecology, 2007). Sites include archaeological and historic resources ranging from lithic material to historical agriculture. One of these sites, the Stratford School, is listed on the Natural Register of Historic Places (NRHP). None of the other sites have been formally evaluated and should be presumed eligible in lieu of a formal determination of eligibility. In addition, there is one probable burial site located within five miles of Crab Creek.

b. Generally describe any landmarks or evidence of historic, archeological, scientific, or cultural importance known to be on or next to the site.

See the response to Section B.13.a above.

c. Describe proposed measures to reduce or control impacts, if any.

Prior to implementing the proposed action, Reclamation will fulfill the requirements of Section 106 of the National Historic Preservation Act. This will include a survey to identify historic properties and the required reporting. The report will include a literature review, results of a field survey, evaluation of identified resources, and appropriate mitigation. Reclamation will also consult with the Washington State Historic Preservation Officer (SHPO) and all appropriate Indian Tribes. If the Reclamation survey identifies historic properties, including Traditional Cultural Properties, eligible for inclusion on the National Register that may be affected by the proposed action, Reclamation would work with the SHPO to determine the appropriate course of action. If impacts to the eligible historic property cannot be avoided, mitigation measures would be formulated in coordination with the SHPO.

The following standard inadvertent discovery language will be added to the permit conditions:

> Should archaeological materials (e.g., bones, shell, stone tools, beads, ceramics, old bottles, hearths, etc.) or human remains be observed during project activities, all work in the immediate vicinity should stop. The State Department of Archaeology and Historic Preservation (360-586-3065), the County/City planning office, the affected Tribe(s) and the county coroner (if applicable) should be contacted immediately in order to help assess the situation and determine how to preserve the resource(s). Compliance with all applicable laws pertaining to archaeological resources (RCW 27.53, 27.44 and WAC 25-48) is required. Failure to comply with this requirement could constitute a Class C Felony.

Reclamation will also comply with the requirements of the Native American Graves Protection and Repatriation Act regarding any accidentally discovered burials.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on-site plans, if any.

The project area is accessed by state and county roads. The project area is located north of Interstate 90 and generally south of State Route 28 with the exception of Brook Lake and Pinto Dam which are located just north of State Route 28 (Figure 3). Most of Crab Creek can be accessed by county roads off of Stratford Road (County Road J NE).

b. Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

There are no public transit facilities in or near the project area.

c. How many parking spaces would the completed project have? How many would the project eliminate?

The project would not have any parking spaces and would not eliminate any parking spaces.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe.

The proposal would require improvements to the Road 16 NE crossings of Crab Creek and Loan Springs Channel. As described in Section A.11, the improvements include installing culverts to replace the existing at-grade crossings. The road is used primarily for recreation access. Construction may require temporary closures or detours around the existing crossings.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project would not use or occur in the immediate vicinity of water, rail, or air transportation. Crab Creek is located approximately 1.5 miles east of the Grant County International Airport, but construction and implementation of the Supplemental Feed Route would not affect the airport.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

The project would not generate any additional vehicular trips. The current trips for occasional maintenance would continue. There would be temporary increases in traffic during construction projects.

g. Describe proposed measures to reduce or control transportation impacts, if any.

No impacts to transportation are anticipated except at the Road 16 NE crossing. Construction would be timed to minimize impacts if the roadway is closed. Installation of culverts at the Road 16 NE is intended as mitigation for flooding of the existing at-grade crossing by increased flows in the creek.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally explain.

The project would not result in an increased need for public services.

b. Describe proposed measures to reduce or control direct impacts on public services.

No impacts to public services are anticipated; therefore, no measures to reduce impacts are required.

16. Utilities

a. Underline utilities currently available at the site:

Electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic systems, other

A variety of utilities are located in the general project area. Electrical and telephone lines are located adjacent to roadways. These utilities would not be affected or disturbed by the project.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

No utilities are proposed for the project. The Supplemental Feed Route would operate by gravity.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name: Derek I. Sandison

Title: Director, Office of Columbia River, Department of Ecology

Date: May 14, 2009

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Golder Associates, Inc. 2007. Information review regarding the potential for impacts to the Moses Lake Superfund Site from proposed water conveyance in Crab Creek. Technical Memorandum prepared for the Washington State Department of Ecology. July 25, 2007.

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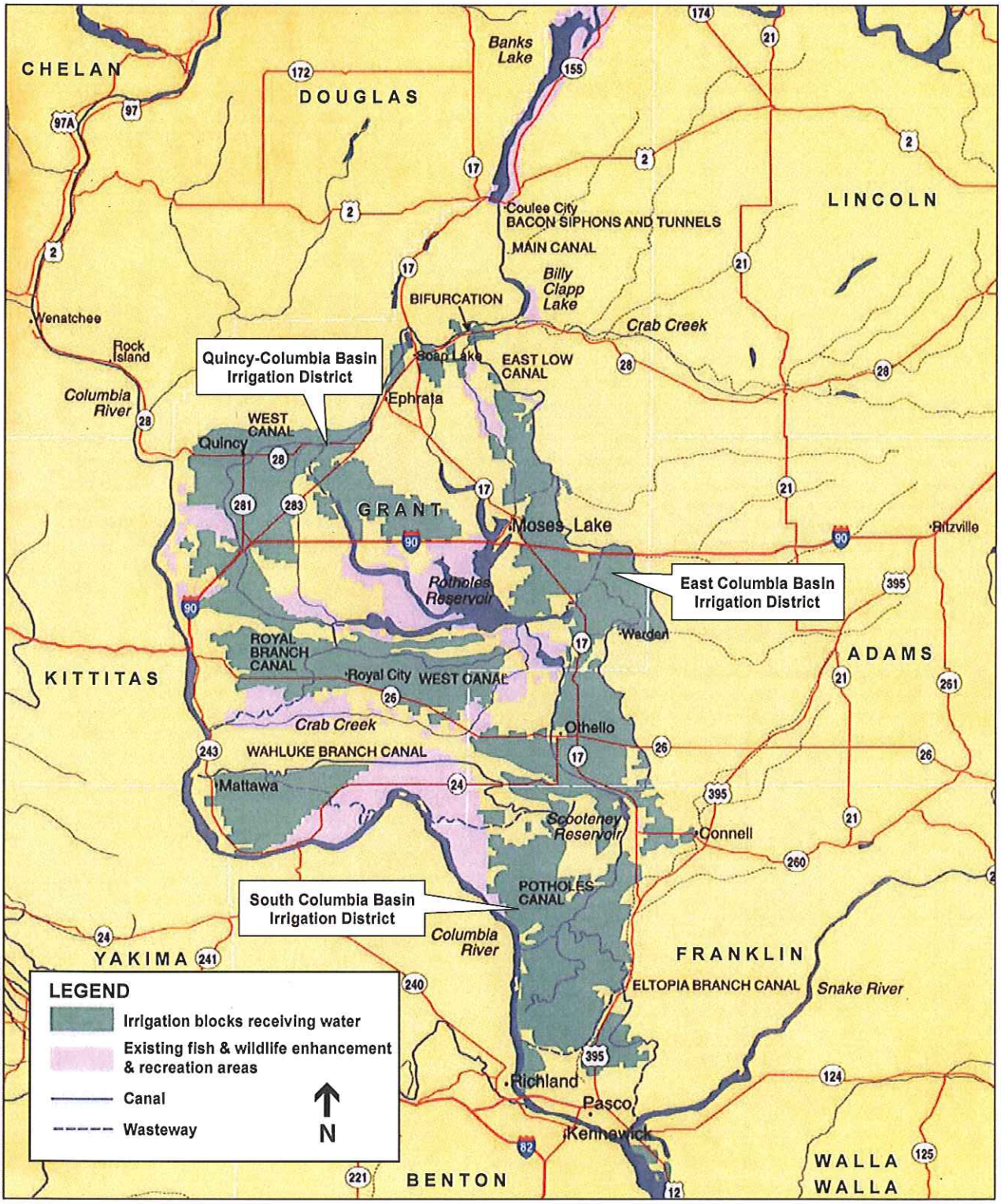
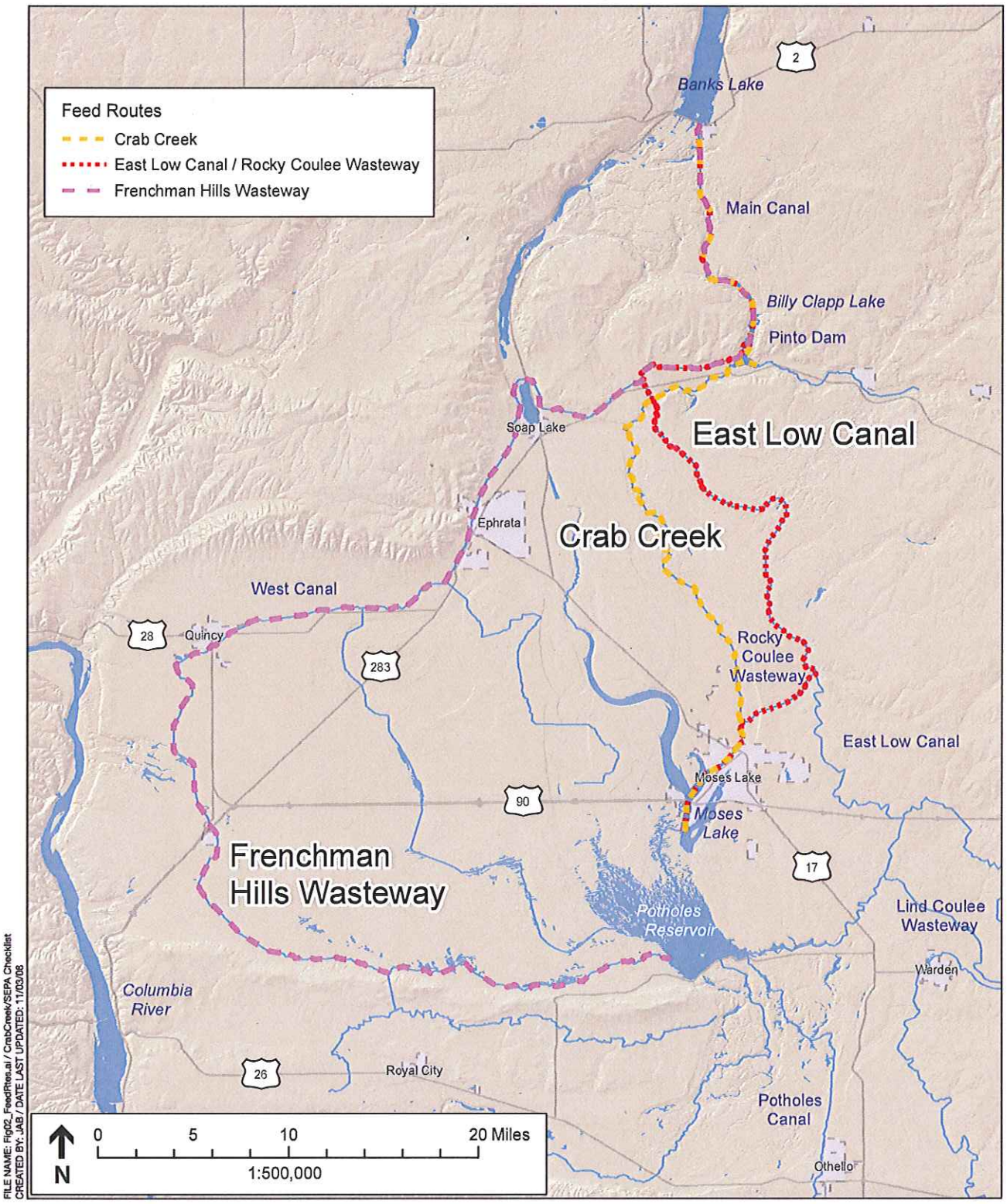
Washington Department of Ecology (Ecology). 2008. Potholes Reservoir Supplemental Feed Route—Frenchman Hills Route SEPA Checklist. January 2008.

FIGURES



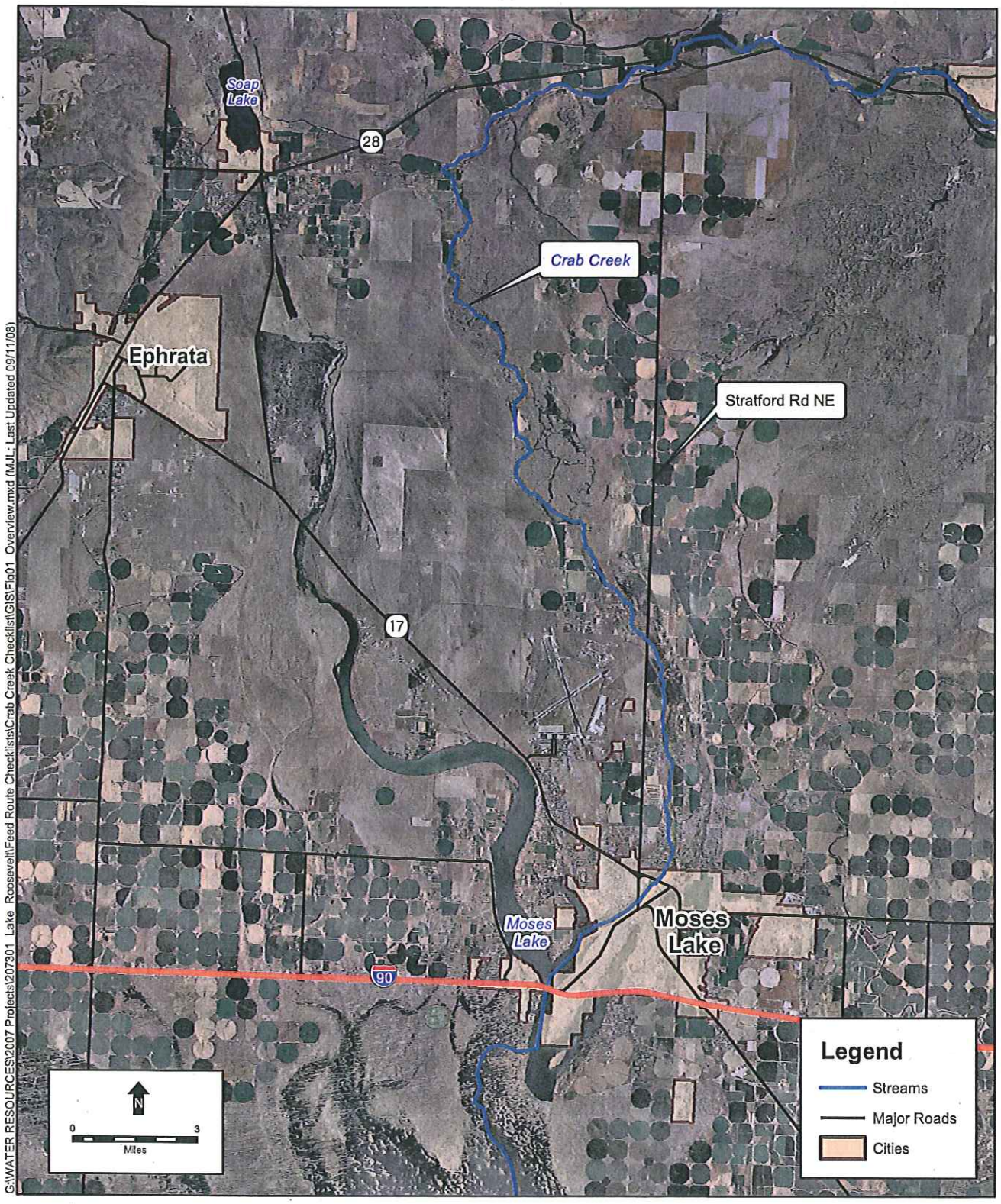
SOURCE: Montgomery Water Group, 2006.

Figure 1
Columbia Basin Project
Washington



SOURCE: Bureau of Reclamation.

Figure 2
Proposed Supplemental Feed Routes
Washington



G:\WATER RESOURCES\2007 Projects\207301 Lake Roosevelt\Feed Route Checklists\Crab Creek Checklist\GIS\Fig01 Overview.mxd (MJL: Last Updated 09/11/08)

SOURCE: Dept. of Ecology, 2006; WSDOT, 2007; NAIP, 2006 (Air Photo)

Crab Creek Supplemental Feed Route . 207301.3

Figure 3
Vicinity Map - Crab Creek
Grant County, Washington