WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

US Army Corps of Engineers ®
Seattle District

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Fairview Road Culvert Replacement Project

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Cook, Mark – Kittitas County Public Works Director			
2b. Organization (If applicable)			
Kittitas County Public Works			
2c. Mailing Address (Street or PO Box)			
411 N. Ruby St. Ste. 1			
2d. City, State, Zip			
Ellensburg, WA 98926			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
509-962-7692			Mark.cook@co.kittitas.wa.us

[1]Additional forms may be required for the following permits:
- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- If your project might affect species listed under the Endangered Species Act, you will need to fill out a Specific Project Information Form (SPIF) or prepare a Biological Evaluation. Forms can be found at http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook/EndangeredSpecies.aspx.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Broadhead, Craig D.			
3b. Organization (If applicable)			
Jacobs Engineering Group Inc.			
3c. Mailing Address (Street or PO Box)			
32 N. 3rd St. Ste. 304			
3d. City, State, Zip			
Yakima, WA 98901			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
509-312-0375			Craig.Broadhead@jacobs.com

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☐ Same as applicant. (Skip to Part 5.)

☒ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☐ Private
☐ Federal
☒ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

Fairview Rd (see 5p for driving directions).

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Ellensburg, WA 98926

5d. County [help]

Kittitas

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
SW	14	18N	19E

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

47.048599°, -120.435097°

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

There is no tax parcel number for the project location. Adjacent properties are listed in 5h.

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
Schnebly Family Farm Partnership	6281 Brick Mill Rd Ellensburg, WA 98926	804334, 844334
Stephen A Etux Langley	8800 Fairview Rd Ellensburg, WA 98926	196036
Megan K Walsh	8700 Fairview Rd Ellensburg, WA 98926	186036
Purnell Family LLC	3249 NW 57th St Seattle WA, 98107-3328	534334, 957223
Lois J Pollard	8910 Fairview Rd	544736

Sherrie A Soderquist	Ellensburg, WA 98926	

5i. List all wetlands on or adjacent to the project location. [help]

There are no wetlands associated with this project.

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

Coleman Creek runs through the project site.

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

Vegetation and habitat in the project area consist of a riparian buffer along Coleman Creek and adjacent agricultural fields. Vegetation within the riparian buffer is comprised of Douglas hawthorn (*Craetagus douglasii*), European hawthorn (*Craetagus monogyna*), Pacific willow (*Salix lasiandra*), crack willow (*Salix fragilis*), coyote willow (*Salix exigua*), roses (*Rosa spp.*), snowberry (*Symphoricarpos albus*), with an understory that is primarily invasive reed canarygrass (*Phalaris arundinacea*) with patches of bulrush (*Scirpus microcarpus*) along the edge of the creek. Land adjacent to the narrow band of riparian vegetation are agricultural fields.

5m. Describe how the property is currently used. [help]

The property is currently used for public travel and right-of-way associated with Fairview Road. The project area occupies Fairview Road roadway, three existing culverts, and Coleman Creek bed and streambank upstream and downstream of the existing culverts. Prior to construction, the portion of the project area currently owned by Purnell Family Farms LLC, which is used for agricultural purposes will be purchased.

5n. Describe how the adjacent properties are currently used. [help]

The land immediately adjacent to the project is privately owned and primarily agricultural fields with a few residences to the north of the project area.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

Fairview Road and three associated culverts occur on the property. Two of the three culverts are failing and in a state of emergency repair. The culverts are also undersized and fish passage barriers. The immediate replacement of these culverts with one new culvert approximately 140 feet downstream is necessary. There are also a few small irrigation diversion structures within this section of the creek that are associated with the adjacent agricultural fields.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

Exit from Interstate 90 at Exit 115 toward Kittitas. Continue on Main St for 1.1 miles. Turn left onto Kittitas Hwy/Patrick Rd for 0.8 miles. Turn right onto Fairview Rd for 4.3 miles. The project area begins approximately 140 feet south of existing culvert where Coleman Creek flows parallel to Fairview Road (installation site of proposed culvert).

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

Kittitas County needs to improve safety by widening the roadway to standards and replacing failed, undersized culverts conveying Coleman Creek on Fairview Road near Ellensburg, Washington. This will provide an immediate habitat benefit by eliminating three crossings that are partial fish passage barriers and

removing the current altered and straightened stream channel from the roadside and replacing it with a new alignment with more natural channel function and habitat.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

Coleman Creek in the project area has historically been highly altered and channelized. The creek currently crosses Fairview Road three times in approximately 600 feet (Attachment 1, Sheet 1). Two of the existing crossings (Culverts 1 and 3) are deficient and failing (Attachment 1, Sheet 1) and require immediate repair. Though Culvert 2 is not failing or requiring immediate repair, the County is proposing a new stream channel alignment that will replace all three undersized culverts with one, new larger fish passable structure.

The project will abandon approximately 5,350 square feet [(SF), 714 linear feet (LF)] of the existing Coleman Creek channel, which primarily functions as a roadside ditch, and create approximately 19,000 SF (662 LF) of new channel which will meander along the east side of Fairview Road, greatly increasing the ecological function of this section of Coleman Creek (Attachment 1, Sheets 2, 3, and 4). Coleman Creek between existing culverts 2 and 3 will be left in place, since this section provides the highest existing habitat benefit with overstory vegetation and some stream sinuosity (Attachment 1, Sheets 1 and 3). A new 18-foot wide by 6.5-foot high culvert is proposed downstream (approximately 140 feet south of Culvert 3) which will convey Coleman Creek under Fairview Road and tie into the existing downstream channel (Attachment 1 – Sheets 2 and 5). This larger culvert will provide fish passage and eliminate maintenance requirements. The three existing culverts will be removed at which time the road will be widened to meet current safety standards. Due to the failed state of the existing culverts, extremely narrow roadway, and continued and chronic impacts from flooding, the immediate replacement of the existing culverts and wider roadway is necessary.

6c. Indicate the project category. (Check all that apply) [help]

☐ Commercial ☐ Residential ☐ Institutional ☒ Transportation ☐ Recreational
☐ Maintenance ☒ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☒ Culvert	☐ Float	☐ Retaining Wall (upland)
☐ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☒ Road
☐ Boat House	☐ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☐ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☐ Outfall Structure	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☒ Channel Modification	☐ Fishway	☐ Raft	

☐ Other:

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

Construction Access, Staging, and Temporary Detour

Staging of equipment and materials will be isolated from traffic within the project area on the existing closed roadway. Equipment and material transport to the project site will occur via existing County roads. The contractor is responsible for obtaining permits and clearances for the use of any alternate staging areas.

Fairview Road will be closed between Brick Mill Road and Rader Road for the construction of the new culvert and stream channel and removal of existing culvert 3. After the new crossing and channel are completed and Coleman Creek is reconnected, the roadway will likely be opened to one-way alternating traffic for the remainder of the project. During the full road closure, traffic will be detoured around the project limits on existing county roads.

Worksite Isolation and Stream Bypass

During the construction of the new culvert and stream channel, flows from Coleman Creek will need to be diverted to isolate the work area. The Contractor will determine whether a full bypass is necessary or if Coleman Creek will remain in the existing channel with smaller diversions around each stream tie-in and the new culvert location. A full bypass would likely consist of an agreement with Kittitas Reclamation District to divert water into the adjacent irrigation canal to the west of Fairview Road for the length of the project. An equivalent amount of water would then be pumped back into the Coleman Creek channel just downstream of the new culvert location to maintain flows in Coleman Creek below the work area for the duration of construction.

If a full bypass is not implemented, small sandbags will be used to divert flows around each work area during construction of the new culvert and stream tie-ins (Attachment 1, Sheets 2, 3, and 4). The Contractor will likely utilize sandbags to isolate the work area and pump flows back into the stream channel downstream. The isolation structures are yet to be determined, but may consist of sandbags, super sacks, or water bladders. For the purpose of permitting, it is assumed the isolation structures will consist of temporary fill such as sandbags or super sack(s). The maximum amount of temporary fill below the ordinary high water mark (OHWM) required for the isolation is approximately 30 cubic yards (cy). The duration of use will extend throughout the approved in-water work window (up to 16 weeks). This will maintain water quality within State standards by completing the work in isolation with no potential for sedimentation or turbidity. All pumps will be set up and operational prior to completely blocking flows, to minimize the duration of downstream dewatering.

As the isolation structure and diversions are constructed, qualified biologists will be on-site to monitor flows as they recede and to remove any fish from the dewatered area. Small pumps may be used to completely dewater holding pools, if necessary, and manage any hyporheic flows that may continually be present behind the isolation structure. This bypass will remain in place until the new stream channel and culvert are completed and Coleman Creek is flowing in the new channel. Therefore, the bypass will be removed completely in the dry. All pumps used during stream dewatering activities will be screened to Washington Department of Fish (WDFW) and Wildlife or National Marine Fisheries Service (NMFS) criteria.

Culvert Construction

After flows are isolated as described above, the new culvert will be constructed at the new crossing location. The 18-foot wide by 6.5-foot tall culvert can be placed from the existing roadway. The area beneath the roadway will be over-excavated in the culvert footprint, and spalls or suitable base material will be placed and compacted to form the foundation for the culvert bottom (Attachment 1, Sheet 5). Any groundwater encountered during excavation or removal of the culvert will be pumped to an upland area such as roadside ditches for infiltration. The new culvert will consist of pre-cast concrete sections that will be placed with a crane and connected. Wingwalls or culvert headwalls will be precast concrete that are installed and connected to the new structure. Once installed, natural streambed material will be placed in the culvert to a depth of at least two feet.

New Stream Channel Construction

The new stream channel will be constructed in two sections, north and south of the existing stream section to remain (Attachment 1, Sheets 2, 3, and 4). Most of the new stream channel can be constructed completely in the dry, in isolation from the flows of Coleman Creek. The Contractor will determine whether a full bypass is necessary or if they will leave Coleman Creek in the existing channel with smaller diversions around each stream tie-in and the new culvert location.

The new stream channel area will be over-excavated to a depth that allows placement of natural bottom stream material (Attachment 1, Sheet 6). The stream bed mix will be appropriately sized and will include larger boulders partially buried for roughness and habitat value. Several large wood habitat features will also be placed throughout the channel and will be anchored with large rock or wood piles (Attachment 1, Sheet 2, 3, and 4). These structures will each consist of at least two logs with rootwads. Structures placed at tie-in locations or areas that require scour protection will consist of anchored logs with large rock incorporated (Attachment 1, Sheets 11 and 12).

When the new stream channel sections and new culvert are completed, the Contractor will be required to wash the new streambed with a low volume, high-pressure hose to work fines into the stream bed prior to the introduction of water. This will ensure flows stay on the surface and minimize sediment mobilization during rewatering. During this activity, best management practices (BMPs) will be used to ensure wash water does not mix with clean water downstream. The Contractor will likely capture all streambed wash water and pump to an upland location for infiltration. After it is ensured that flows remain on the surface and the new channel is clean, the isolation structures will be slowly removed to reconnect Coleman Creek to the new channel. This process will be done over several hours, to prevent any velocity scour, minimize downstream turbidity, and allow the dewatered channel to return to a natural flow pattern.

During stream reconnection, qualified biologists will be on-site to remove any stranded fish from the dewatered abandoned stream channel.

Roadway Widening and Culvert Removal

Once the stream is placed into the new Coleman Creek channel and culvert, the roadway can be widened to meet standards and the three existing culverts can be removed. Clean borrow material will be used to rebuild the roadway in the locations of the removed culverts and fill the abandoned Coleman Creek stream channel. The roadway will be reconstructed, paved, striped, and signage placed as the last order of work before completion. BMP placement will prevent any discharge to Coleman Creek during road building activities.

Planting and Site Restoration

Current riparian vegetation on the impacted sections of Coleman Creek is non-native and invasive species, mostly all reed canarygrass. The existing channel will be filled and replanted with a native grass mix appropriate for roadsides.

The new stream channel will be planted with native vegetation (Attachment 1, Sheets 7, 8, 9, and 10). Native willow cuttings harvested from on-site will provide the best likelihood for success in the new stream bank area, with dogwood and cottonwood also planted where suitable saturation occurs during the growing season. Woods' rose, snowberry, blue elderberry, and golden current will also be planted in drier stream bank locations. Plants will be harvested from a local source or purchased from a native plant nursery. Disturbed roadside, new embankment areas, and location of existing channel, that are not rock will be seeded with a native roadside and erosion control mix and stabilized with mulch cover prior to project completion (Attachment 1, Sheets 7, 8, 9).

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start Date: July 2019 End Date: November 2019 ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

$500,000

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☒ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☒ Not applicable

There are no wetlands associated with this project.

7b. Will the project impact wetlands? [help]

☐ Yes ☒ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☐ Yes ☒ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☐ Yes ☐ No N/A

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☐ Yes ☐ No ☐ Don't know N/A

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☐ No ☐ Don't know N/A

N/A

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

N/A

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

N/A

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

N/A – there will be no excavation of wetlands for this project.

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

Construction of the new culvert and channel will occur in isolation from the flows of Coleman Creek. Culvert removal work will also be completed in isolation from the flows of Coleman Creek. Water quality will be maintained at all times within the Washington State Department of Ecology guidelines in Washington Administrative Code (WAC) 173-201A. Minimization measures that will further minimize or prevent impacts are below.

The County and the Contractor will implement several minimization measures (MM) to avoid or minimize impacts to species, habitats, and the environment. A summary of these measures is below.

MM 1 – Culvert and channel work below the OHWM will only occur in an isolated condition.

MM 2 – All work below the OHWM will be conducted during the identified in-water work window to remain protective of aquatic species.

MM 3 – All equipment will be inspected for leaks prior to work each day.

MM 4 – All equipment that works below the OHWM will contain vegetable oil or other biodegradable alternative to hydraulic fluid.

MM 5 – Equipment staging and fueling will occur more than 50 feet from the OHWM of Coleman Creek.

MM 6 – Worksite isolation and fish exclusion will be conducted by qualified biologists in accordance with the 2016 Washington State Department of Transportation Fish Exclusion Protocols and Standards.

MM 7 – Electrofishing will not be used.

MM 8 – Small pumps, if used to dewater holding pools or hyporheic flows, will be screened to NMFS criteria.

MM 9 – BMPs such as wattles or silt fence will be used to prevent the discharge of any material into flowing water.

MM 10 – Vegetation removal required for access that is not part of the permanent impact limits will be cut, but not grubbed, to allow natural regeneration.

MM 11 – All turbid water associated with construction will be pumped to an upland area for infiltration. At no time will sediment-laden water be allowed to mix with clean flows in Coleman Creek.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☐ Yes ☒ No ☐ Don't know

The project will create approximately 19,000 SF (662 LF) of new, higher-functioning stream channel and 42,450 SF of enhanced stream buffer to replace approximately 5,350 SF (714 LF) of existing channelized stream channel and 1,500 SF of roadside stream buffer that will be abandoned. The existing channel segments to be abandoned primarily function as channelized roadside ditches that compromise the structural integrity of Fairview Road and water quality within the creek. The new sections of channel will meander along the east side of Fairview Road and will tie into the existing bend in the creek that occurs in the project area. The Fairview Aquatic Resources and Mitigation Memo (Attachment 3) describes the specifics and the functional lift of these mitigation actions in more detail. Jacobs does not recommend additional mitigation because all impacts associated with this project will be restored on-site and are considered self-mitigating.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

N/A

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Fill (isolation structure)	Coleman Creek	Below OHWM	Temporary	Appx. 30 cy	200 sq. ft.

Fill (abandoned channel)	Coleman Creek	Below OHWM	Permanent	220 cy	5,350 sq. ft.
Excavation (at stream tie-ins)	Coleman Creek	Below OHWM	Permanent	20 cy	1,100 sq. ft.
Dewatered Area	Coleman Creek	Below OHWM	Temporary	N/A	maximum of 10,580 sq. ft.

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

Fill

If filled sandbags or super sacks are used for the isolation structure(s) and temporary bypass(es), up to approximately 30 cy will be considered fill below the OWHM.

Streambed mix will be used as fill for placement of the new culvert, both at and above the OHWM. Fill will also be used for armoring around the new wingwalls. Clean borrow material will be used to rebuild the roadway in the locations of the removed culverts and fill the abandoned Coleman Creek stream channel. Even though the abandoned creek channel will be filled, an equivalent or greater amount of excavation will occur in the uplands to create a new creek channel.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

Excavation

The placement of the new culvert and the stream tie-in locations will require permanent excavation. Approximately 20 cy (1,100 SF) of existing Coleman Creek streambed will be excavated to connect the existing and proposed channel.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
WDFW	Jennifer Nelson	509-952-1013	2/15/19
USACE	David Moore	206-316-3166	12/4/2018

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: http://www.ecy.wa.gov/programs/wq/303d/.

☐ Yes ☒ No

N/A

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

170300010403 – Coleman Creek

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to http://www.ecy.wa.gov/water/wria/index.html to find the WRIA #.

39 – Upper Yakima

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to http://www.ecy.wa.gov/programs/wq/swqs/criteria.html for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: http://www.ecy.wa.gov/programs/sea/sma/laws_rules/173-26/211_designations.html.

☐ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☒ Other: N/A

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☐ Shoreline ☒ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No Minor increase in impervious surface is 100% infiltrated.

Name of manual: _____

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☐ Yes ☒ No

9j. If you know what the property was used for in the past, describe below. [help]

The project site has been maintained County right-of-way adjacent to the bed and bank of Coleman Creek.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☒ Yes ☐ No – See Report (Attachment 4).

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

Refer to ESA no effect letter (Attachment 5)

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

The project will not affect any priority habitat or species.

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to www.ecy.wa.gov/programs/sea/sepa/e-review.html.

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☒ A SEPA determination is pending with Kittitas County (lead agency). The expected decision date is 3/10/19.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt? _____

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☐ Substantial Development ☐ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain): There are no designated shorelines within the project limits.

Other City/County permits:

☒ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Washington Department of Natural Resources:

☐ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

FEDERAL GOVERNMENT

United States Department of the Army permits (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☐ Section 10 (work in navigable waters)

United States Coast Guard permits:

☐ General Bridge Act Permit ☐ Private Aids to Navigation (for non-bridge projects)

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. _____ (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. _____ (initial)

Mark Cook	Mark Cook	February 18, 2019
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Craig Broadhead	Craig D Broadhead	February 18, 2019
Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [help]

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-011 rev. 07/2017

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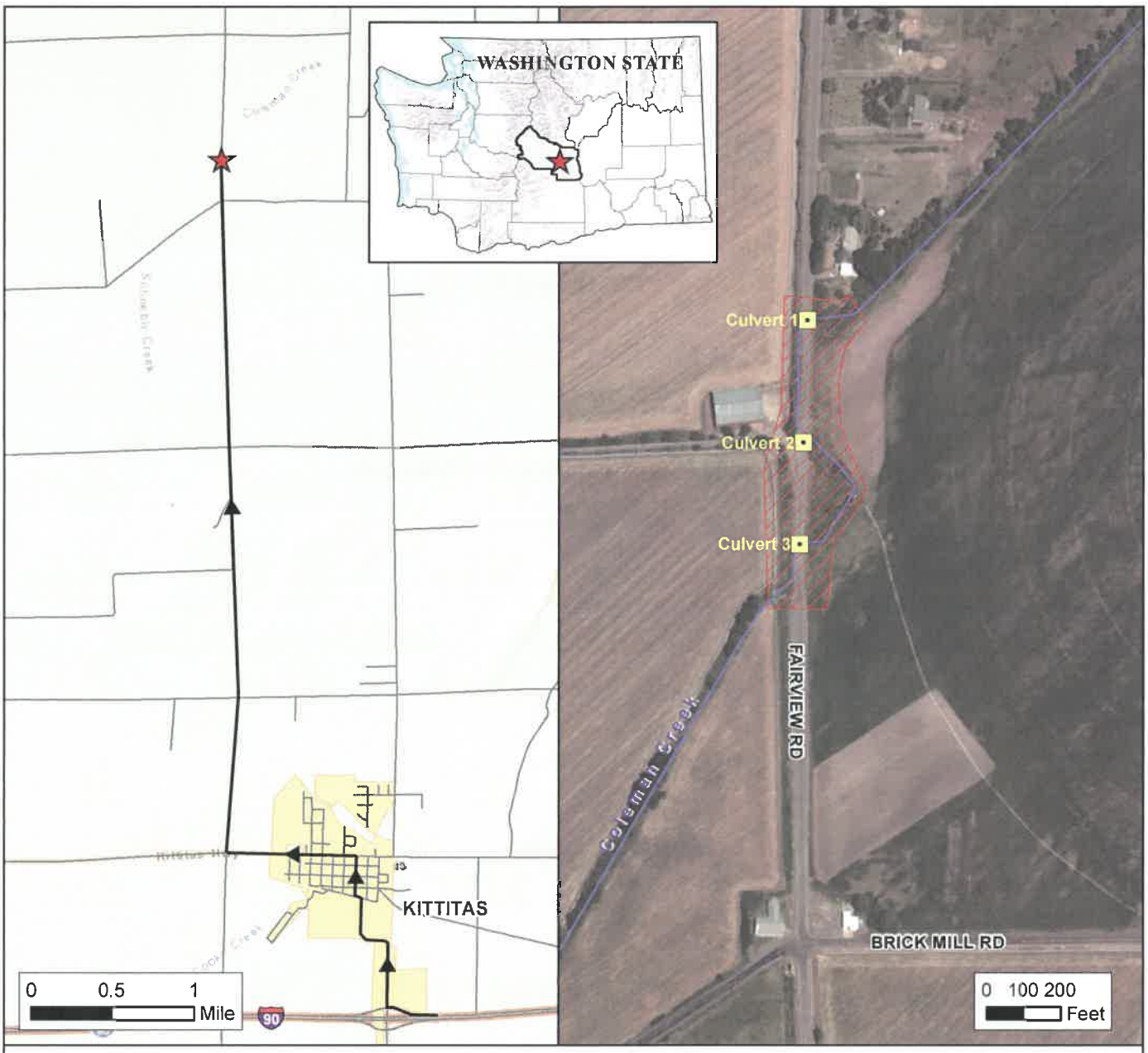
Attachment 1

Vicinity Map, Site Plans, and Drawings



FAIRVIEW ROAD VICINITY MAP

Driving Route

Project Area

Project Location

CULVERT REPLACEMENT BELOW OHWM	
ELEMENT	**VALUE**
LENGTH OF PROJECT	714 LF
EXCAVATION VOLUME	20 CY
FILL VOLUME	220 CY
DEWATERED AREA	10,580 SF

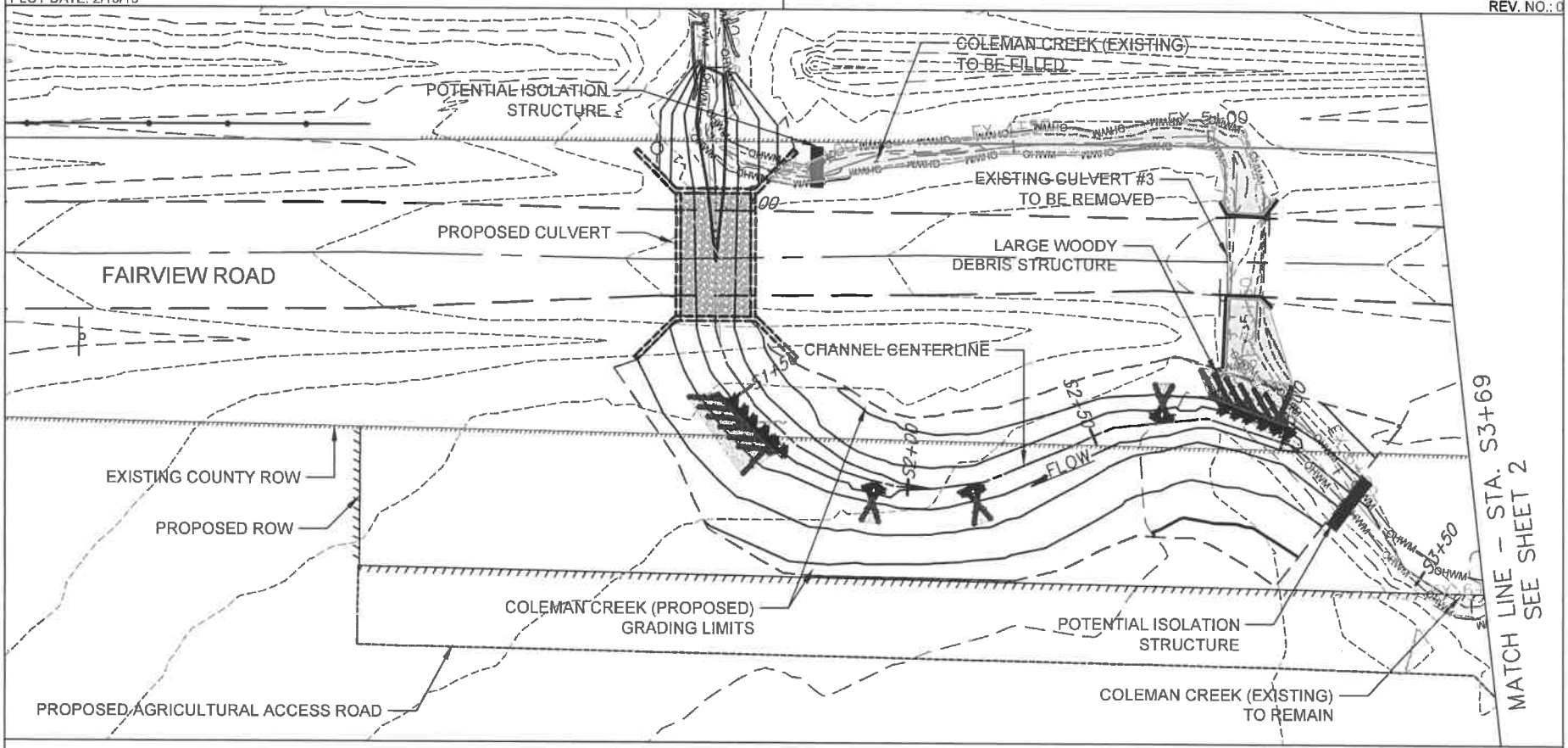
LAT/LONG: 47.048599N/120.435097W
TRS: T18N R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 01/10/2019
IN: FAIRVIEW ROAD
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 1 OF 12

Basemap Source: Esri

PLOT DATE: 2/19/19

REV. NO.: 0



PLAN 1 OF 3

— — — MAJOR CONTOUR (EXISTING)
– – – – – MINOR CONTOUR (EXISTING)
——— MAJOR CONTOUR (PROPOSED)
——— MINOR CONTOUR (PROPOSED)
— – — ROAD CENTER LINE
— — — EDGE OF PAVEMENT

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1100 SF
FILL (PERMANENT)	220 CY	5350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

0 25 50 Feet

FROM THE CASCADES... TO THE COLUMBIA
KITTITAS COUNTY

JACOBS

LAT/LONG: 47.048599/-120.435097
TRS: T18 R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 2 OF 12

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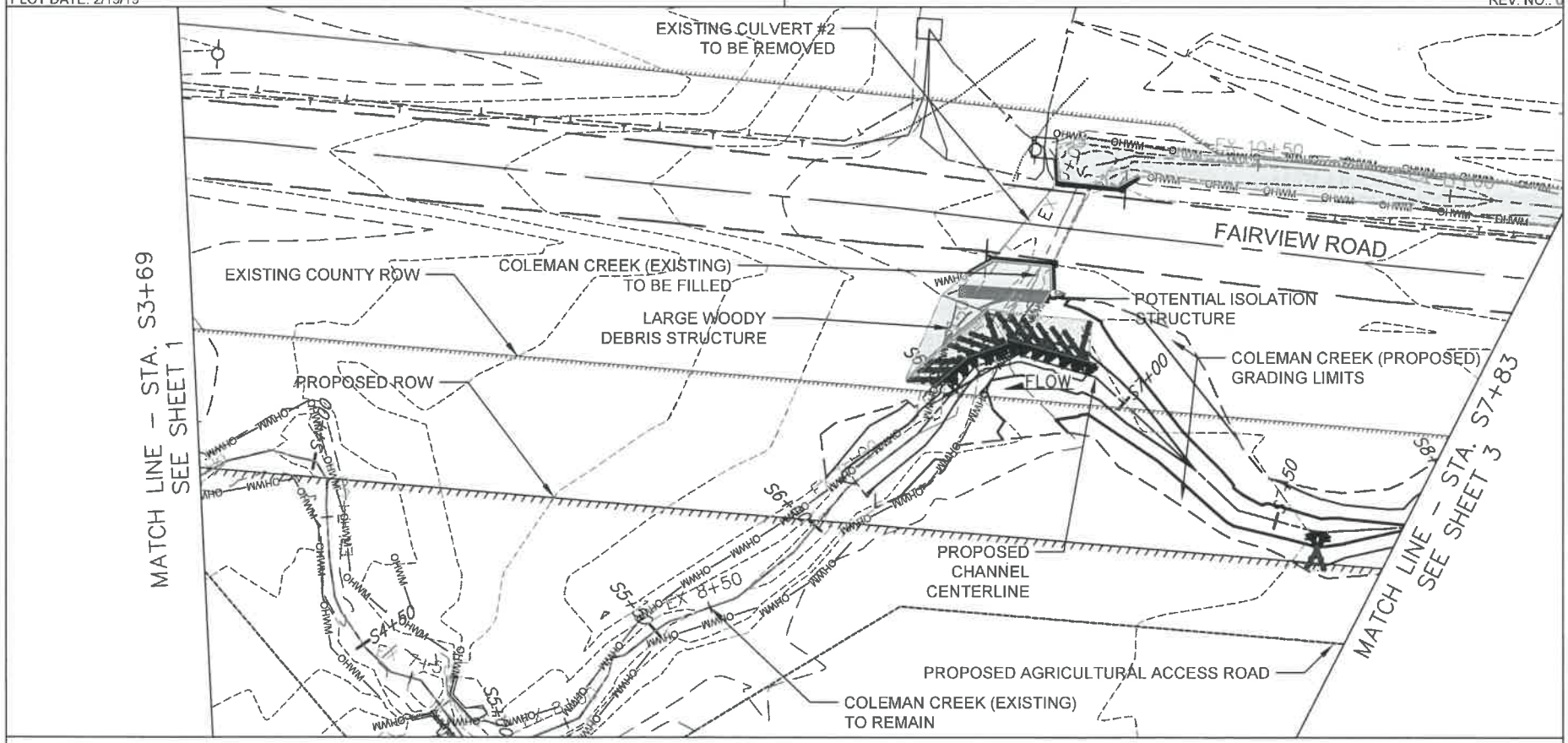
PLOT DATE: 2/19/19

REV. NO.: 0



PLAN 2 OF 3

- MAJOR CONTOUR (EXISTING)
- MINOR CONTOUR (EXISTING)
- MAJOR CONTOUR (PROPOSED)
- MINOR CONTOUR (PROPOSED)
- ROAD CENTER LINE
- EDGE OF PAVEMENT

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1100 SF
FILL (PERMANENT)	220 CY	5350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

0 20 40 Feet

LAT/LONG: 47.048599/-120.435097
TRS: T18 R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 3 OF 12

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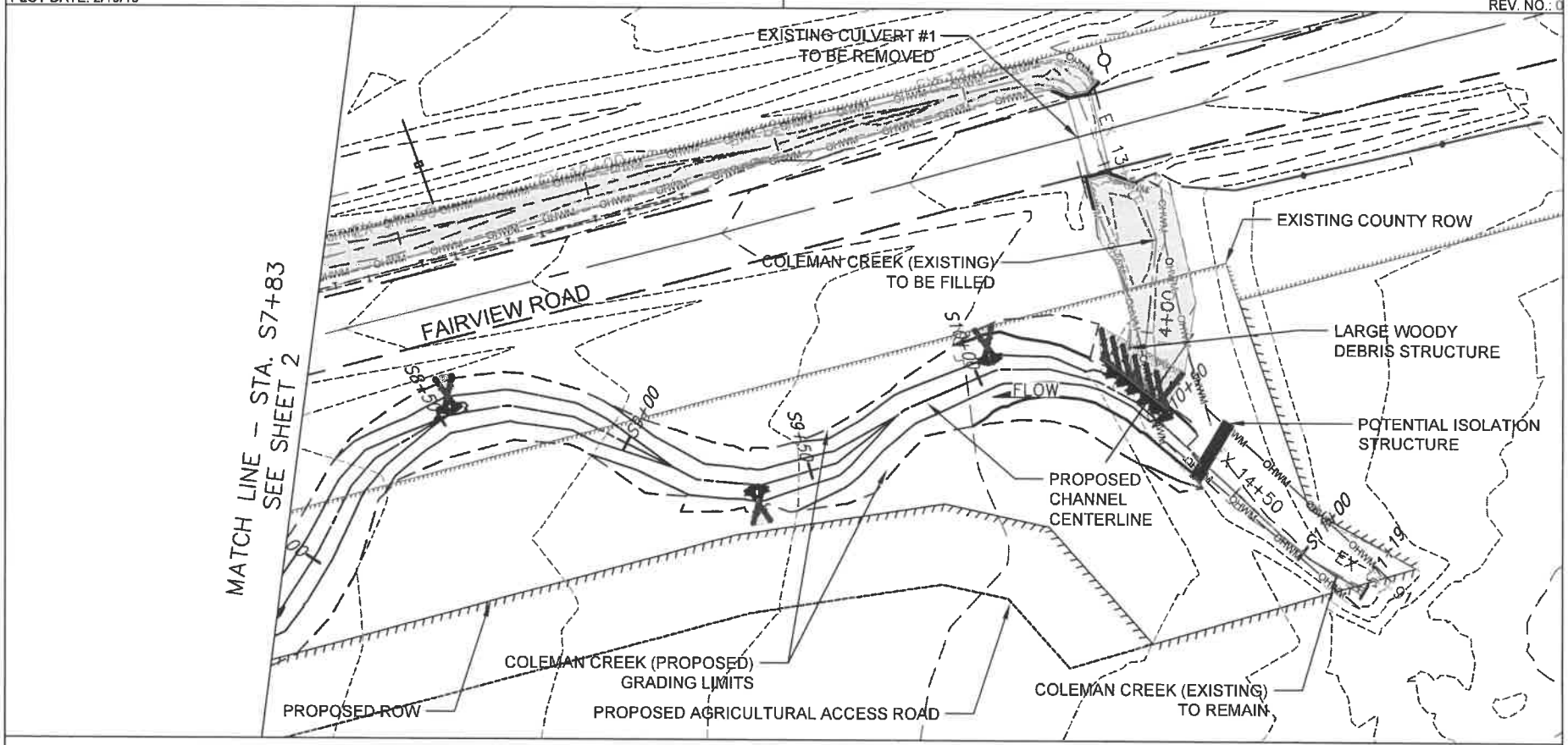
PLOT DATE: 2/19/19

REV. NO.: 0



PLAN 3 OF 3

- MAJOR CONTOUR (EXISTING)
- MINOR CONTOUR (EXISTING)
- MAJOR CONTOUR (PROPOSED)
- MINOR CONTOUR (PROPOSED)
- ROAD CENTER LINE
- EDGE OF PAVEMENT

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1100 SF
FILL (PERMANENT)	220 CY	5350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

0 20 40 Feet

FROM THE CASCADES . . . TO THE COLUMBIA
KITTITAS COUNTY

JACOBS

LAT/LONG: 47.048599/-120.435097
TRS: T18 R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 4 OF 12

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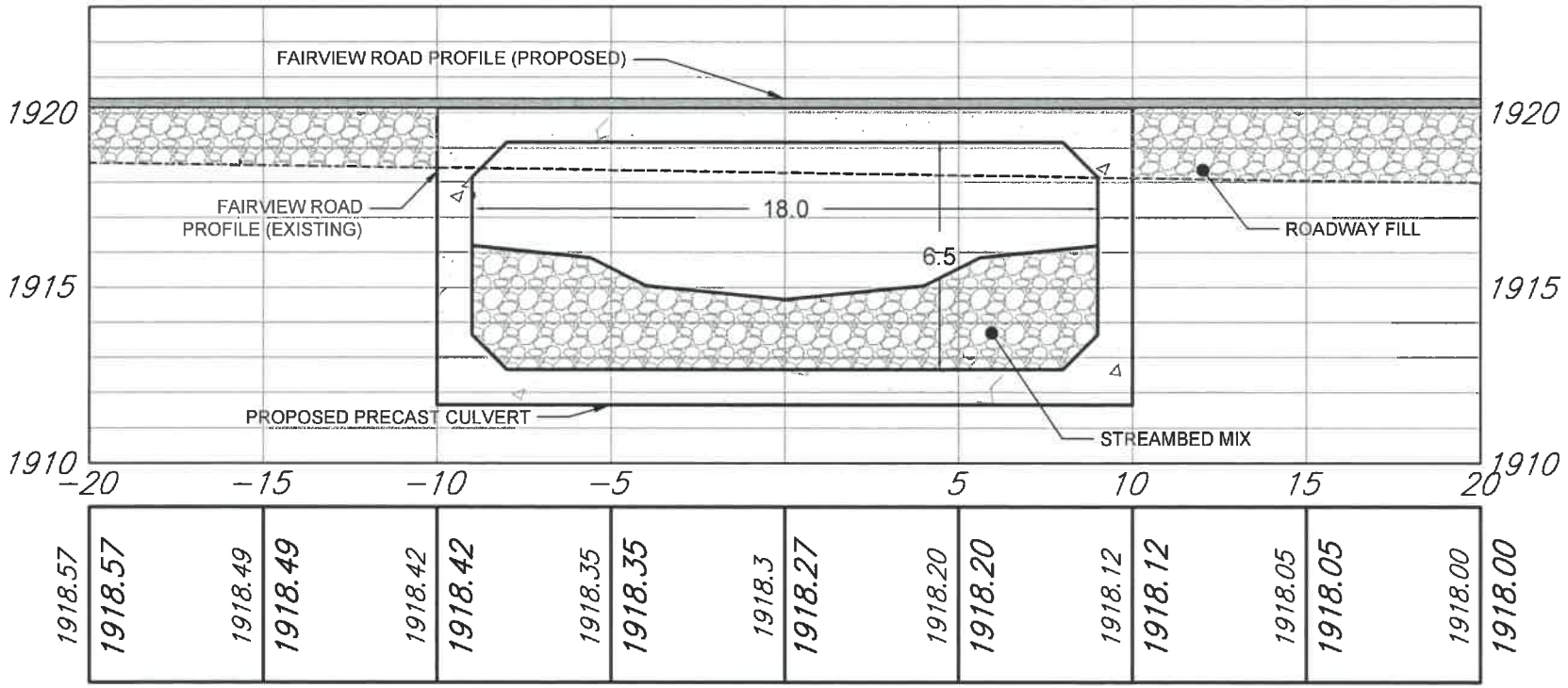


PROPOSED CULVERT CROSS SECTION

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1,100 SF
FILL (PERMANENT)	220 CY	5,350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

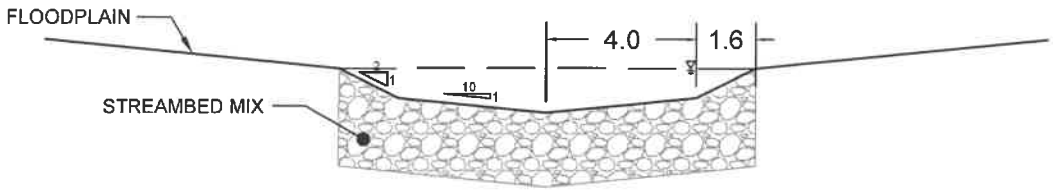
FROM THE CASCADES...TO THE COLUMBIA
KITTITAS COUNTY

JACOBS

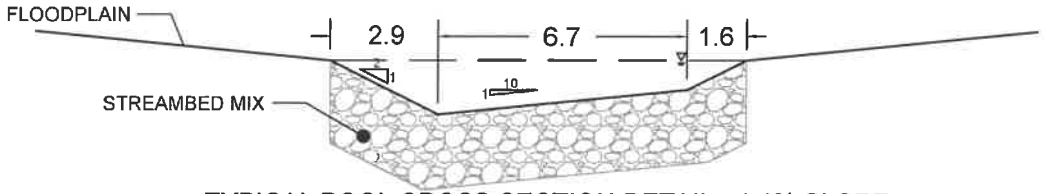
LAT/LONG: 47.048599/-120.435097
TRS: T18 R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 5 OF 12

SOUTH REACH

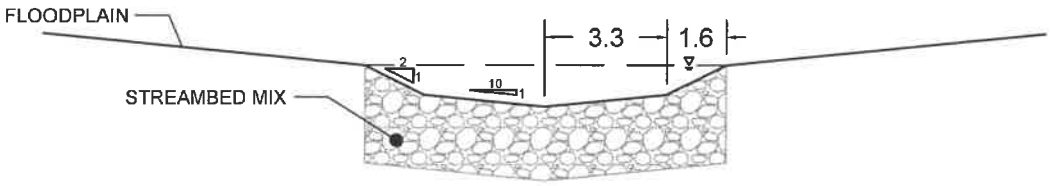


TYPICAL RIFFLE CROSS SECTION DETAIL - 1.1% SLOPE
NTS



TYPICAL POOL CROSS SECTION DETAIL - 1.1% SLOPE
NTS

NORTH REACH



TYPICAL RIFFLE CROSS SECTION DETAIL - 1.4% SLOPE
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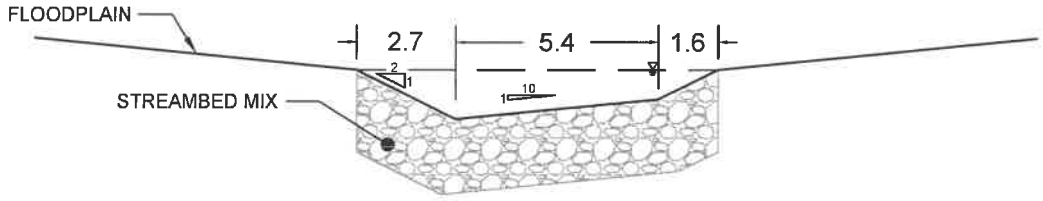

TYPICAL POOL CROSS SECTION DETAIL - 1.4% SLOPE
NTS

TYPICAL STREAM CROSS SECTIONS

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1100 SF
FILL (PERMANENT)	220 CY	5350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

FROM THE CASCADES...TO THE COLUMBIA
KITTITAS COUNTY

JACOBS

LAT/LONG: 47.048599/-120.435097
TRS: T18N R19E S14
PROPOSED PROJECT: FAIRVIEW RD. CULVERT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 6 OF 12

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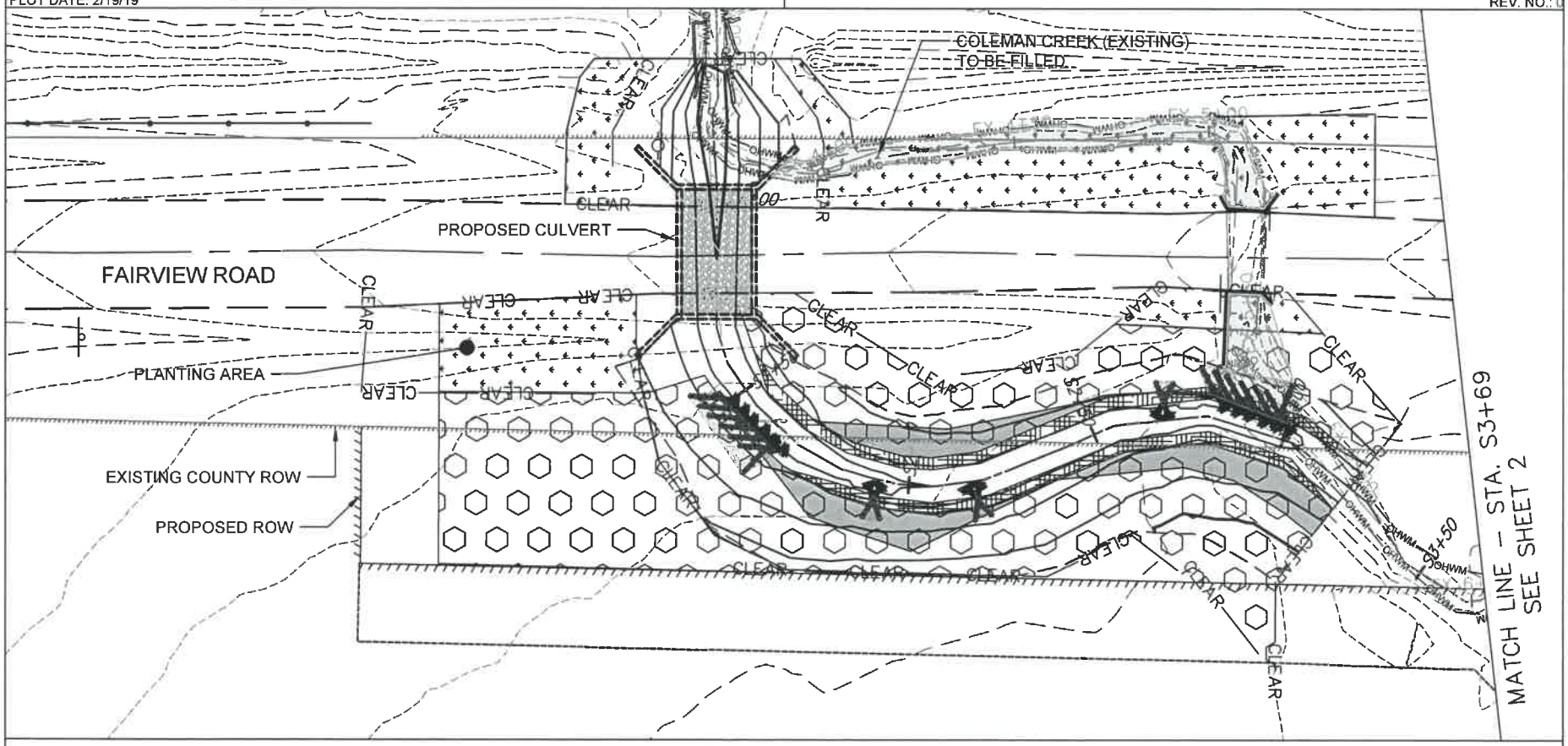
PLOT DATE: 2/19/19

REV. NO.: 0



CLEARING AND PLANTING PLAN 1 OF 3

- MAJOR CONTOUR (EXISTING)
- MINOR CONTOUR (EXISTING)
- MAJOR CONTOUR (PROPOSED)
- MINOR CONTOUR (PROPOSED)
- ROAD CENTER LINE
- EDGE OF PAVEMENT
- CLEAR — CLEARING LIMITS

- SEEDING AND MULCHING
- LIVE POLE PLANTINGS
- SCRUB-SHRUB AND TREES

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1,100 SF
FILL (PERMANENT)	220 CY	5,350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

0 20 40 Feet

FROM THE CASCADES...TO THE COLUMBIA
KITTITAS COUNTY

JACOBS

LAT/LONG: 47.048599/-120.435097
TRS: T18 R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 7 OF 12

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PLOT DATE: 2/19/19

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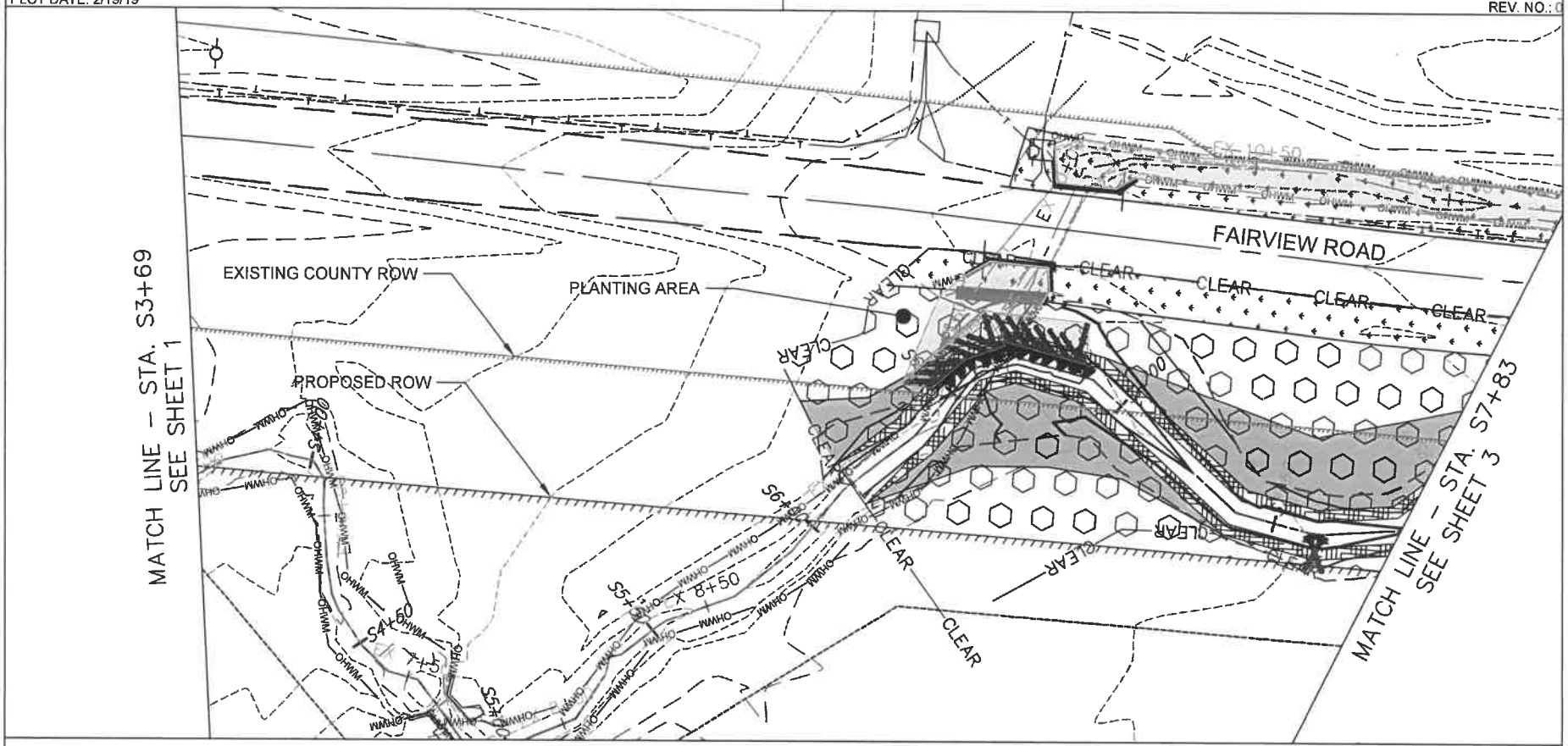

CLEARING AND PLANTING PLAN 2 OF 3

- MAJOR CONTOUR (EXISTING)
- MINOR CONTOUR (EXISTING)
- MAJOR CONTOUR (PROPOSED)
- MINOR CONTOUR (PROPOSED)
- ROAD CENTER LINE
- EDGE OF PAVEMENT
- CLEAR — CLEARING LIMITS

- SEEDING AND MULCHING
- LIVE POLE PLANTINGS
- SCRUB-SHRUB AND TREES

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1,100 SF
FILL (PERMANENT)	220 CY	5,350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

0 20 40 Feet

FROM THE CASCADES...TO THE COLUMBIA
KITTITAS COUNTY

JACOBS

LAT/LONG: 47.048599/-120.435097
TRS: T18 R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 8 OF 12

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PLOT DATE: 2/19/19

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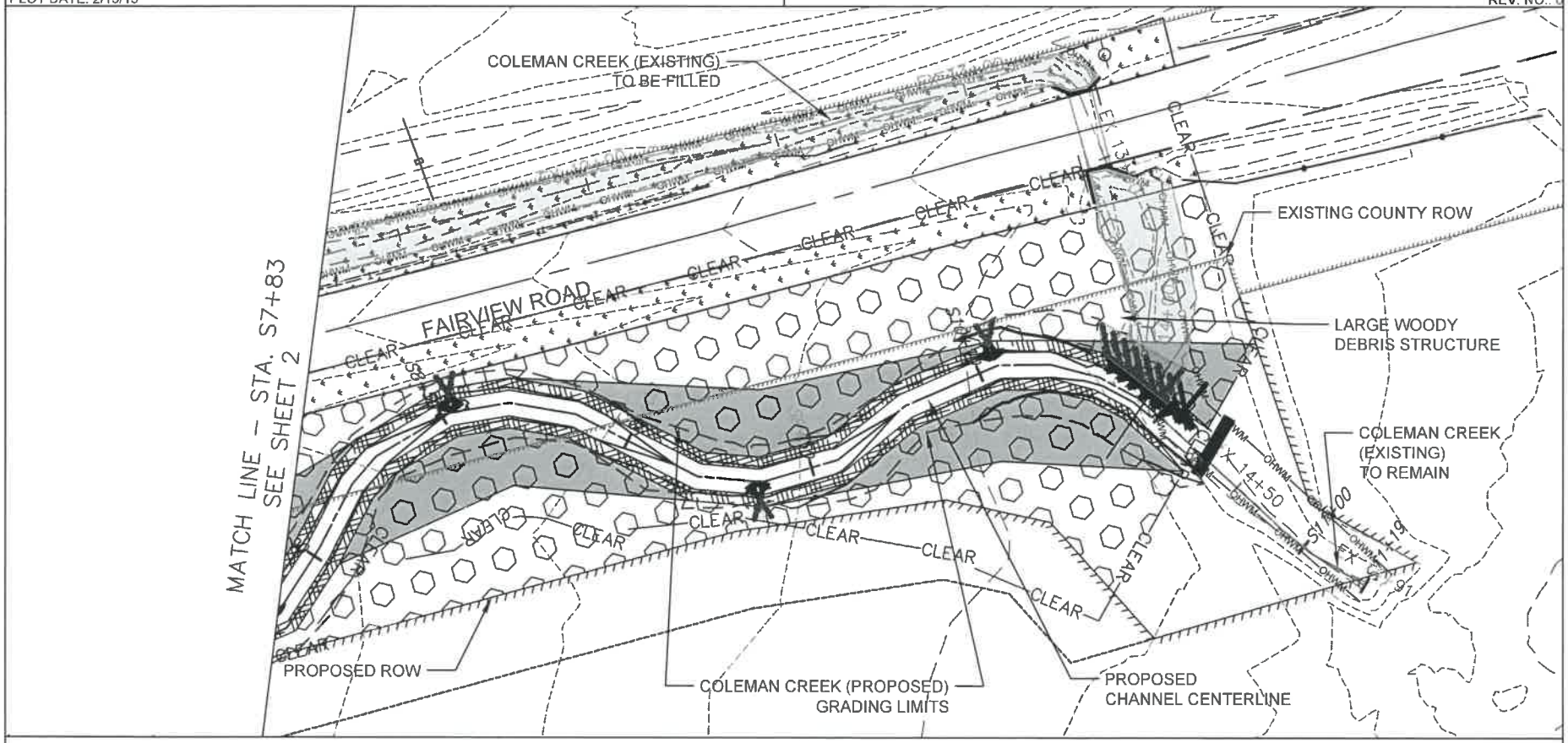

CLEARING AND PLANTING PLAN 3 OF 3

- MAJOR CONTOUR (EXISTING)
- MINOR CONTOUR (EXISTING)
- MAJOR CONTOUR (PROPOSED)
- MINOR CONTOUR (PROPOSED)
- ROAD CENTER LINE
- EDGE OF PAVEMENT
- CLEAR — CLEARING LIMITS

- SEEDING AND MULCHING
- LIVE POLE PLANTINGS
- SCRUB-SHRUB AND TREES

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1,100 SF
FILL (PERMANENT)	220 CY	5,350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

0 20 40 Feet

KITTITAS COUNTY

JACOBS

LAT/LONG: 47.048599/-120.435097
TRS: T18 R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 9 OF 12

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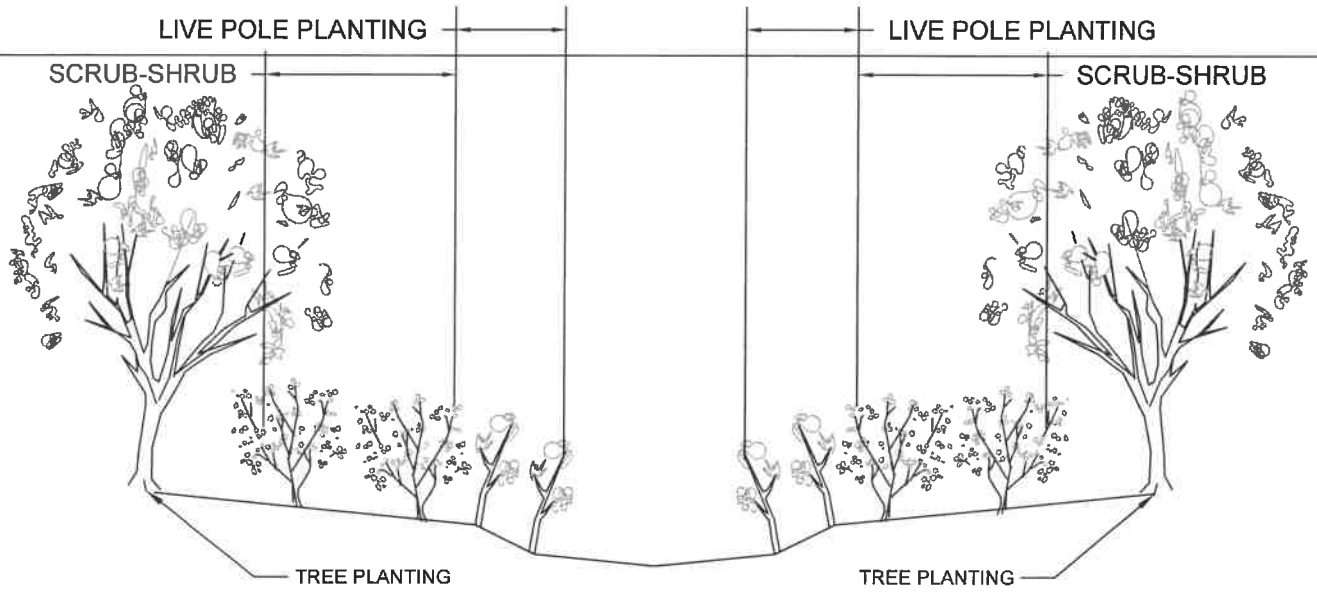
SEEDING AND MULCHING

LIVE POLE PLANTINGS (2FT. O.C.)
- COYOTE WILLOW

CONTAINER PLANTS (4FT. O.C.)
- WOODS ROSE
- SNOW BERRY
- BLUE ELDERBERRY
- GOLDEN CURRENT
- RED OSIER DOGWOOD

CONTAINER PLANTS (10FT O.C.)
- BLACK COTTONWOOD



PLANTING CROSS SECTION DETAIL
NTS

PLANTING DETAILS

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1,100 SF
FILL (PERMANENT)	220 CY	5,350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

FROM THE CASCADES . . . TO THE COLUMBIA
KITTITAS COUNTY

JACOBS

LAT/LONG: 47.048599/-120.435097
TRS: T18N R19E S14
PROPOSED PROJECT: FAIRVIEW RD. CULVERT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 10 OF 12

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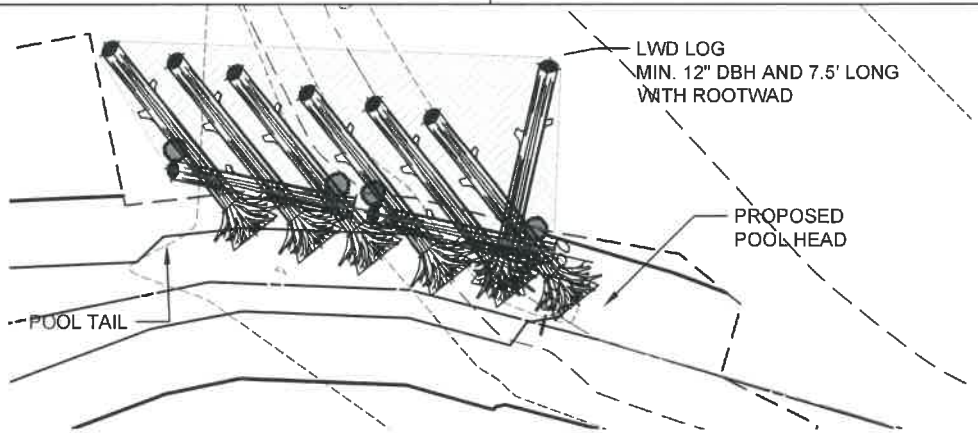
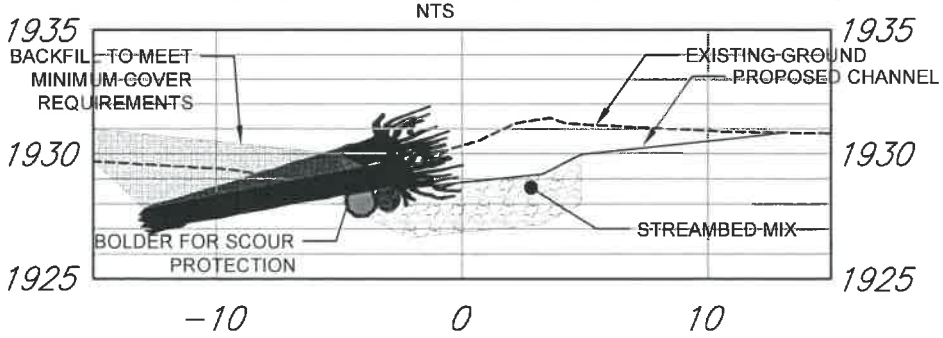


LARGE WOODY DEBRIS FOR SCOUR PROTECTION DETAIL- PLAN

NTS



LARGE WOODY DEBRIS FOR SCOUR PROTECTION DETAIL- SECTION

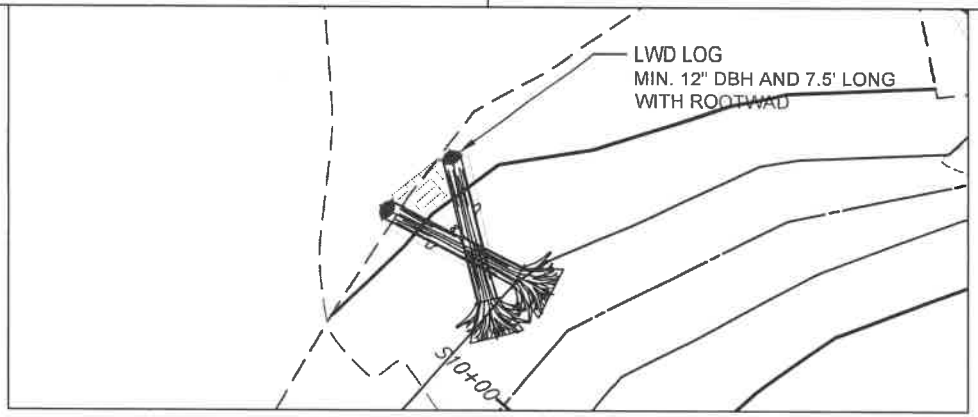
NTS

LARGE WOODY DEBRIS DETAILS

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1,100 SF
FILL (PERMANENT)	220 CY	5,350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

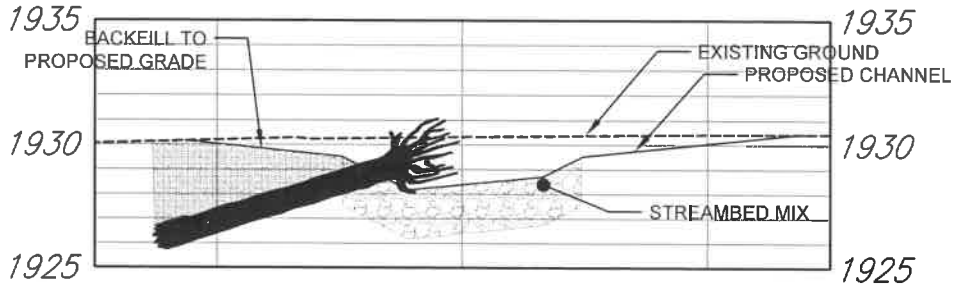
LAT/LONG: 47.048599/-120.435097
TRS: T18 R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 11 OF 12



LARGE WOODY DEBRIS CORNER POOL DETAIL- PLAN

NTS



LARGE WOODY DEBRIS CORNER POOL DETAIL- SECTION

NTS

LARGE WOODY DEBRIS DETAILS

IMPACTS		
VOLUME/AREA BELOW OHWM	CREEK	
LENGTH OF PROJECT	714 LF	N/A
EXCAVATION (PERMANENT)	20 CY	1,100 SF
FILL (PERMANENT)	220 CY	5,350 SF
TEMP. FILL (ISO STRUCTURES)	30 CY	200 SF
TEMP. DEWATERED AREA	10,580 SF	N/A

LAT/LONG: 47.048599/-120.435097
TRS: T18 R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT
ADJACENT PROPERTY OWNERS: SEE JARPA
APPLICANT: KITTITAS COUNTY PUBLIC WORKS
REFERENCE NO.:

DATE: 02/19/2019
IN: COLEMAN CRK.
COUNTY: KITTITAS
NEAR: ELLENSBURG
STATE: WA
SHEET: 12 OF 12

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Attachment 2

Photographs

Figure 1. Photo of Coleman Creek looking downstream, taken from upstream of Culvert 1, likely impacted.

Figure 2. Photos of Coleman Creek looking downstream (south) from Culvert 1 (left) and upstream (north) from Culvert 2 (right), likely impacted.

Figure 3. Photos of Coleman Creek Segment 3 looking downstream at riparian habitat along the creek (left) and at irrigation diversion structure within this segment (right), not likely impacted.

Figure 4. Photos of Coleman Creek Segment 4 looking west from Fairview Road at outlet from Culvert 3 (left) and south at Coleman Creek as it exits the project limits (right), will be impacted.

Figure 5. Photos of New Channel Location east of the road between existing Culverts 1 and 2 looking north (left) and south (right), will be impacted.

Figure 6. Photo of Coleman Creek at Culvert 3 looking northeast, likely impacted.

Attachment 3

Aquatic Resources Mitigation Memorandum

JACOBS

Memorandum

32 North 3rd
Street Suite 304
Yakima, WA 98901, USA
1.509.899.5256

Date February 18, 2019

To Mark Cook, Kittitas County Public Works

From Jennifer Bader, Jacobs

Subject Fairview Road Culvert Replacement – Aquatic Resources and Mitigation Summary

Purpose

Kittitas County is proposing to replace three undersized culverts conveying Coleman Creek under Fairview Road near Ellensburg, Washington. Two of the existing culverts are deficient and failing. The lack of capacity of the existing structures requires constant maintenance and increases flood hazard to adjoining properties and roadway infrastructure.

The project will abandon approximately 714 feet of the existing Coleman Creek channel and create a new channel which will meander along the east side of Fairview Road. A new 18 ft wide by 6.5 ft high culvert is proposed downstream (approximately 140 feet south of Culvert 3) which will convey Coleman Creek under Fairview Road and tie into the existing downstream channel (Figure 1). Due to the lack of capacity of the existing culverts, and continued and chronic impacts from flooding, the immediate replacement of the existing culverts is necessary.

The purpose of this memorandum is to provide a summary of aquatic resource inventory efforts at this location. This memorandum will also describe mitigation efforts that have been incorporated into the project design.

Methods

Jacobs biologists performed a background review of the following resources to gather information about environmental conditions.

- Precipitation data from the National Oceanic and Atmospheric Administration (NOAA) Regional Climate Centers (2018) and Western Regional Climate Centers (WRCC 2018).
- Natural Resources Conservation Service (NRCS) Web Soil Survey interactive mapping application (2018)
- Statewide Integrated Fish Distribution (SWIFD) Web Map (2018)
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Wetlands Mapper, Internet mapping service (2018)
- U.S. Geological Survey National Hydrography Geodatabase (2013)
- Washington Department of Fish and Wildlife (WDFW) SalmonScape interactive mapping application (2018)
- WDFW Washington State Fish Passage Map Application (2018)

Jacobs biologists, Rose Whitson and Craig Broadhead, assessed existing conditions and delineated the boundaries of aquatic resources within the proposed project site on October 22, 2018. The site was assessed for wetland presence in accordance with the U.S. Army Corps of Engineers wetland determination protocol (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Valleys, Mountains, and Coast Region (Version 2.0)* (Corps 2008). This methodology uses the triple-parameter approach by evaluating vegetation types, soils indicators, and hydrology indicators. Two sample plots were recorded using wetland data determination forms (Attachment A).

Watercourses were assessed and delineated by analyzing physical and natural indicators of bed and bank, scour, vegetation, and hydrology. The ordinary high water mark (OHWM) was delineated for Coleman Creek within the project limits (Figure 1) using a combination of the above physical parameters and data evaluation, including LiDAR and survey information.

Existing Conditions

The property is currently used for public travel and right-of-way (ROW) associated with Fairview Road. The project area occupies Fairview Road roadway, culverts, and Coleman Creek bed and streambank upstream and downstream of the three existing culverts (Figure 1). A portion of the project will occur on property currently owned by Purnell Family Farms LLC; however, this will be purchased prior to construction.

Precipitation data indicates the three months preceding the October site visit were drier than normal; however, October was wetter than normal. Vegetation outside of the stream and riparian buffer consists primarily of timothy hay (*Phleum pratense*) fields. The NRCS web soil survey indicates the project goes through two different soil series, including Reeser ashy clay loam and Naneum ashy loam which form on alluvial fans and terraces. Neither of these soil series are listed as hydric soils in Kittitas County.

The National Wetland Inventory (NWI) maps Coleman Creek as a freshwater forested/shrub wetland and riverine wetland. Mapped NWI wetlands adjacent to the project limits occur west of Fairview Road and include an irrigation ditch that runs parallel to the road and a large freshwater emergent wetland in a nearby agricultural field.

Delineation Results

Wetlands

Field verification indicated there are no wetlands or wetland buffers within the project limits. Some of the terraces outside of the OHWM of Coleman Creek contained characteristic hydric vegetation, such as small-fruited bulrush (*Scirpus microcarpus,* OBL) and reed canarygrass (*Phalaris arundinacea*, FACW); however, these sites did not meet criteria for hydric soils or wetland hydrology. Data plots were taken at two such locations to document these conditions (Figure 2, Attachment A).

Watercourses

One fish-bearing perennial stream, Coleman Creek, flows south through the project site crossing Fairview Road three times (Figure 1). Coleman Creek is a tributary to Naneum Creek, which flows to Wilson Creek and ultimately to the Yakima River. The SWIFD Web Map indicates that Coleman Creek within the project area historically contained Summer Steelhead, Coho, and

Spring Chinook, as well as current documented presence of resident Rainbow Trout. Until several fish passage barriers are removed, including an impassible dam approximately 3.5 miles downstream near Vantage Highway, anadromous fish are unable to access the project site.

Due to the variability in habitat in Coleman Creek and the associated riparian areas within the project limits, these areas were broken into four segments (Figure 1).

Segment 1 occurs upstream of Culvert 1 and flows south and west before crossing under Fairview Road at Culvert 1 (Figures 1 and 3). The stream bed substrate consists of a mixture of medium to very coarse gravel, as documented by a Wolman pebble count conducted by Jacobs engineers for the hydraulic analysis. The streambed is incised, with the banks somewhat disconnected from the adjacent riparian buffers. The riparian buffer on both sides consists of a narrow strip of Douglas hawthorn (*Craetagus douglasii,* UPL), invasive crack willow (*Salix fragilis*, FACW), and snowberry (*Symphoricarpos albus,* FACU). The canopy cover over the creek is extensive, providing good shading within this segment. The riparian buffer transitions to grasses and agricultural fields that are regularly mowed.

Segment 2 flows south in a roadside ditch along the west side of Fairview Road between Culvert 1 and Culvert 2 (Figures 1 and 4). Stormwater runoff has direct input into the creek and during high flow events, this segment of the creek overtops its bank and comingles with the adjacent irrigation ditch. The stream bed consists of a mixture of medium and coarse gravel with some fines. The ditched creek contained water about 1 foot deep at the time of the site visit. The streambed itself is largely unvegetated, with some small-fruited bulrush along the outer wetted edges. The vegetation along the banks consist primarily of reed canarygrass with the occasional clump of coyote willow (*Salix exigua,* FACW). The creek is largely exposed along this segment.

Segment 3 occurs east of Fairview Road between Culvert 2 and Culvert 3 and includes a wide meander that extends outside the current ROW (Figures 1 and 5). During high flows, the majority of water within Coleman Creek bypasses Culvert 2 and Segment 3 of the creek. This results in the majority of water within the creek remaining west of Fairview Road within the roadside ditch and adjacent irrigation canal until it connects to Segment 4. The stream bed substrate in Segment 3 consists of a mixture of medium to very coarse gravel, as documented by a Wolman pebble count conducted by Jacobs engineers for the hydraulic analysis. The streambed is incised to start, with the banks somewhat disconnected from the adjacent riparian buffers. After passing through an irrigation structure and bending back towards the road, the stream is less incised and more connected to the banks. The riparian buffers upstream of the irrigation structure consist of both European hawthorn (*Crataegus monogyna,* FAC), Douglas hawthorn, invasive crack willow, coyote willow, roses (*Rosa spp.*), and a mixture of grasses and thistles. A large crack willow does provide good shade coverage here. Downstream of the control structure, the riparian area east of the creek is emergent with a mixture of small-fruited bulrush and soft rush near the water's edge, transitioning to reed canary grass and other grasses. The canopy cover over the creek is good along the upstream portion of the reach and exposed after the control structure. The riparian buffer to the east transitions to grasses and agricultural fields that are regularly mowed. This segment of the creek has the highest existing function and riparian value and will not be impacted by construction.

Segment 4 flows south from the outlet of Culvert 3 for approximately 150 feet in a roadside ditch west of Fairview Road before heading southwest away from Fairview Road (Figures 1 and 6). Similar to Segment 1, this section of the creek has direct input from stormwater runoff and

comingles with the adjacent irrigation ditch during high flows. The stream bed consists of a mixture of medium and coarse gravel with some fines. The streambed itself is largely unvegetated, with some broadleaf cattail (*Typha latifolia,* OBL) within and along the outer wetted edges. The vegetation along the banks consist primarily of reed canarygrass. The creek is largely exposed along this segment of the creek.

Stream Buffer

Under Kittitas County Code (KCC) 17A, Coleman Creek meets criteria for a Type 2 stream and would have a buffer of 40-100 feet, as set by the County Director based on intensity of the proposed use; the presence of a threatened, endangered, or sensitive species or anadromous fish; the shoreline's historical and current susceptibility to severe erosion, channel instability, or aggrading; the presence of multiple channels or islands; use of a buffer enhancement plan; and the width of the stream.

Mitigation Sequencing

The project was designed per the mitigation sequencing of avoiding, minimizing, rectifying, restoring, and mitigating for impacts to Coleman Creek.

Measures to Avoid and Minimize Impacts

Because the culverts are undersized and two are failing, the immediate replacement of all three culverts is unavoidable. To minimize project impacts, the project will reduce the number of culverts from three to one instead of replacing all three. The new culvert will be replaced in the alignment of the existing roadway, which minimizes impacts to the vegetated buffer. The roadway will be widened to the minimum necessary to improve safety. Creating a new stream channel away from the roadway and creating functioning roadside ditches will prevent direct stormwater runoff from entering Coleman Creek. In addition, the following avoidance and minimization measures will be incorporated into the project and are designed to reduce potential effects to the creek and its buffer.

Water quality will be maintained at all times within the Washington State Department of Ecology guidelines in Washington Administrative Code (WAC) 173-201A. The County and the contractor will implement several minimization measures (MM) to avoid or minimize impacts to species, habitats, and the environment. A summary of these measures is below.

MM 1 – Culvert and channel work below the OHWM will only occur in an isolated condition. A process known as ramping will be used to slowly introduce flow into the new channel. The barrier separating the two channels will be removed slowly over several hours to prevent velocity scour, minimize downstream turbidity, and allow the dewatered channel to return to a natural flow pattern. Any area of new or disturbed streambed will be washed with a low volume, high-pressure hose to work fines into the stream bed prior to the introduction of water. This will ensure flows stay on the surface and minimize sediment mobilization during rewatering. During this activity, BMPs will be used to ensure wash water does not mix with clean water downstream.

MM 2 – All work below the OHWM will be conducted during the identified in-water work window to remain protective of aquatic species.

MM 3 – All equipment will be inspected for leaks prior to work each day.

MM 4 – All equipment that works below the OHWM will contain vegetable oil or other biodegradable alternative to hydraulic fluid.

MM 5 – Equipment staging and fueling will occur more than 50 feet from the OHWM of Story Creek.

MM 6 – Worksite isolation and fish exclusion will be conducted by qualified biologists in accordance with the 2016 Washington State Department of Transportation Fish Exclusion Protocols and Standards.

MM 7 – Electrofishing will not be used.

MM 8 – Small pumps, if used to dewater holding pools or hyporheic flows, will be screened to NMFS criteria.

MM 9 – BMPs such as wattles or silt fence will be used to prevent the discharge of any material into flowing water.

MM 10 – Vegetation removal required for access that is not part of the permanent impact limits will be cut, but not grubbed, to allow natural regeneration.

Measures to Rectify and Restore Impacts

Restoration of impacted areas will include removing fill and other construction-related materials from the site and replanting these areas. Native plant communities will be selected for each temporarily impacted area to meet site conditions (i.e., sunny, shady, wet, or dry) and growth preferences (i.e., tall or short tree, shrub, or groundcover). The wetlands and buffer areas along the corridor are currently dominated by invasive species, such as crack willow and reed canarygrass. When possible, non-native invasive species adjacent to temporarily affected areas will be cleared so as not to interfere with native plant establishment. Replacing these monocultures of non-native vegetation with native vegetation communities is expected to increase the functions and values in these areas.

Impacts and Mitigation

The project will permanently impact 5,350 square feet (SF) of existing stream channel and 1,500 SF of stream buffer (Table 1). The project will mitigate for these impacts by creating a new, higher-functioning stream channel that provides over three times as much in-stream habitat (19,000 SF), creating approximately 42,450 SF of enhanced stream buffer, and restoring areas where the existing channel will be filled. The section below describes the specifics and the functional lift of these mitigation actions in more detail. The impacts from this project are self-mitigating in that all impacted resources will be restored on-site to a much higher functional value.

The project will create approximately 19,000 SF (662 LF) of new channel to replace approximately 5,350 SF (714 LF) of existing stream channel that will be abandoned. The existing channel segments to be abandoned primarily function as channelized roadside ditches that compromise the structural integrity of Fairview Road and water quality within the creek. The new sections of channel will meander along the east side of Fairview Road and will tie into the existing bend in the creek that occurs in Segment 3 as described above (Figure 1). Realigning the channel will reduce the potential for flooding and erosion by increasing roughness. It will also improve water quality by removing the ditched creek portions of Segment 2 and Segment 4

of the existing channel and by implementing roadside ditches to collect future stormwater runoff from the roadway that would otherwise runoff into the creek. The new alignment will also reduce the likelihood that Coleman Creek will co-mingle with water in the irrigation ditch during high flow events.

Table 1. Impacts associated with Fairview Road Culvert Replacement Project.

Location / Impact	Existing Condition	Proposed Condition	Change in Condition
Coleman Creek			
Channel Length	Abandon 714 LF	Create 662 LF	- 52 LF
Channel Surface Area	Abandon 5,350 SF	Create 19,000 SF	13,650 SF
Stream Buffer			
Riparian Vegetation	Abandon 1,500 SF	Create 42,450 SF	40,950 SF

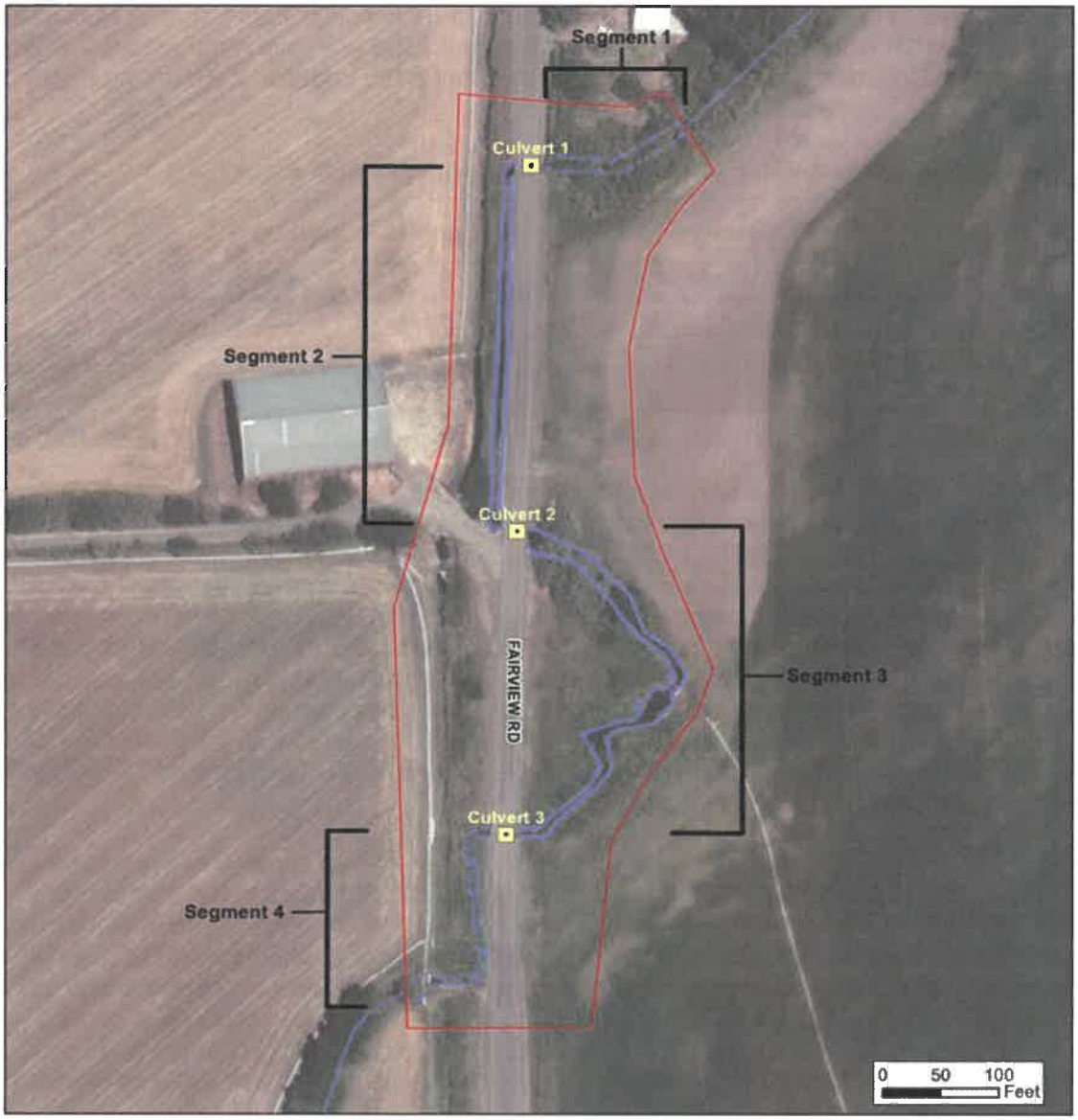
The new stream channel will also provide a functional habitat lift by placing large woody debris (LWD) structures throughout the channel to increase habitat complexity (see JARPA Attachment 1, Sheets 1, 2, and 3). In addition, the new stream channel buffer will be planted with native vegetation to provide a functional riparian buffer. Native willow cuttings will provide the best likelihood for success in the new stream bank area, with dogwood, cottonwood, Wood's rose, snowberry, and golden current also planted where suitable saturation occurs during the growing season (see JARPA Attachment 1, Sheets 4, 5, 6, and 7). Plants will be harvested from a local source or purchased from a native plant nursery. Disturbed roadside, new embankment areas, and location of existing channel, that are not rock will be seeded with a native roadside and erosion control mix and stabilized with mulch cover prior to project completion. All planted areas will be monitored to ensure survival.

Widening the road within the project area will create 3,200 SF of new impervious surface which will decrease approximately 1,500 SF square feet of the degraded stream buffer consisting primarily of a monoculture of reed canarygrass with sporadic riparian shrubs. The buffer impact is unavoidable because the existing roadway is narrow and devoid of shoulders and does not meet current safety standards. Approximately 42,450 SF of the new stream channel buffer will be planted with native vegetation as buffer creation to mitigate for the permanently impacted stream buffer (see JARPA Attachment 1, Sheets 4, 5, and 6). The additional impervious surface will be treated to current stormwater treatment standards with no untreated stormwater entering the stream.

Limitations

This report was prepared for the exclusive use of Kittitas County and their representatives. The findings and conclusions documented in this report have been prepared for specific application to this Project. They have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. The conclusions and recommendations presented in this report are professional opinions based on interpretation of information currently available to Jacobs and made within the operational scope, budget, and schedule constraints of this Project. No warranty, express or implied, is made.

If you have any questions regarding the findings and recommendations in this report, please contact Jennifer Bader at (509) 899-5256 or jennifer.bader@jacobs.com.



FAIRVIEW AQUATIC RESOURCES MAP

Estimated OHWM
Surveyed OHWM
Project Area

DATE: 01/10/2019
LAT/LONG: 47.048599N/120.435097W
TRS: T18N R19E S14
PROPOSED PROJECT: FAIRVIEW ROAD CULVERT REPLACEMENT

Figure 1. Project Site Map indicating the existing and proposed Coleman Creek channel within the project limits.

Figure 2. Photos of Data Plots SP1 (left) and SP2 (right) in Coleman Creek Segment 3.

Figure 3. Photo of Coleman Creek Segment 1 looking west towards the creek.

Figure 3. Photos of Coleman Creek Segment 2 looking downstream (south) from Culvert 1 (left) and upstream (north) from Culvert 2 (right).

Figure 4. Photos of Coleman Creek Segment 3 looking downstream at riparian habitat along the creek (left) and at irrigation diversion structure within this segment (right).

Figure 6. Photos of Coleman Creek Segment 4 looking west from Fairview Road at outlet from Culvert 3 (left) and south at Coleman Creek as it exits the project limits (right).

Figure 7. Photos of New Channel Location east of the road between existing Culverts 1 and 2 looking north (left) and south (right).

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Attachment A

Corps Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Fairview Road Culvert City/County: Ellensburg / Kittitas Sampling Date: 10/22/2018

Applicant/Owner: Kittitas Reclamation District State: WA Sampling Point: SP-1

Investigator(s): R. Whitson (Jacobs Engineering) Section, Township, Range: 14-18N-19E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): slightly concave Slope (%): <1%

Subregion (LRR): B Lat: 47.04851 Long: -120.43473 Datum: NAD83*

Soil Map Unit Name: Reeser ashy clay loam, 2 to 5 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation _____, Soil _____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: East of Fairview Road, adjacent to Coleman Creek on a terrace about 2-3 feet above the incised creekbed.
Precipitation data indicates that three months preceding October were drier than normal. October itself was wetter than normal.
*NAD 83 Washington State Plane South (US FEET)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft (10m))	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft (3m))			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5ft (1.3m))			
1. Phalaris arundinacea	100	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:

SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	100	-	-	-	-	loam	some organic matter present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soils were damp, but not saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Non riverine**)
- ☐ Sediment Deposits (B2) (**Non riverine**)
- ☐ Drift Deposits (B3) (**Non riverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Fairview Road Culvert City/County: Ellensburg / Kittitas Sampling Date: 10/22/2018

Applicant/Owner: Kittitas Reclamation District State: WA Sampling Point: SP-2

Investigator(s): R. Whitson (Jacobs Engineering) Section, Township, Range: 14-18N-19E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1%

Subregion (LRR): B Lat: 47.04820 Long: -120.43465 Datum: NAD83*

Soil Map Unit Name: Reeser ashy clay loam, 2 to 5 percent slopes NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation _____, Soil _____, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: East of Fairview Road, adjacent to Coleman Creek on a terrace about 2-3 feet above the incised creekbed.
Precipitation data indicates that three months preceding October were drier than normal. October itself was wetter than normal.
*NAD 83 Washington State Plane South (US FEET)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft (10m))	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft (3m))			
1. Salix exigua	15	Y	FACW
2. Salix lasiandra	15	Y	FACW
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 5ft (1.3m))			
1. Phalaris arundinacea	100	Y	FACW
2. Scirpus microcarpus	25	N	OBL
3. Cirsium arvense	2	N	FACU
4.			
5.			
6.			
7.			
8.			
	127 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	100	-	-	-	-	loam	some organic matter present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: Soils were damp, but not saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Non riverine)**
- ☐ Sediment Deposits (B2) **(Non riverine)**
- ☐ Drift Deposits (B3) **(Non riverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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Attachment 4

Cultural Resources Report

CULTURAL RESOURCES REPORT COVER SHEET

Author: Michael Chidley

Title of Report: Cultural Resources Assessment for the Fairview Road Culvert Replacement Project, Kittitas County, Washington

Date of Report: January 2019

County(ies): Kittitas Section: 14, 15 Township: 18 N Range: 19 E

Quad: Colockum Pass SW Acres: 4.6

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Export Files submitted? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

DAHP Archaeological Site #:
N/A

Cultural Resources Assessment for the Fairview Road Culvert Replacement Project, Kittitas County, Washington

Prepared for:

Kittitas County

Department of Public Works

411 N Ruby St, Suite 1
Ellensburg, Washington 98926

Prepared by:

JACOBS

1100 112th Avenue NE, Suite 500
Bellevue, Washington 98004

Authors:

Michael D. Farrell and Michael Chidley

January 2019

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FIGURES

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APPENDIX

ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effects
BP	before present
CFR	Code of Federal Regulations
cm	centimeter
cmbs	centimeters below surface
County	Kittitas County
DAHP	Washington State Department of Archaeology and Historic Preservation
ft	feet
GLO	General Land Office
Jacobs	Jacobs Engineering Group Inc.
Km	kilometer
m	meter
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
RCW	Revised Code of Washington
SHPO	State Historic Preservation Officer
STP	shovel test pit
WISAARD	Washington Information System for Architectural and Archaeological Research Data

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SUMMARY OF FINDINGS

A cultural resources inventory was conducted in advance of a culvert replacement at the proposed location for the Fairview Road Culvert Replacement Project. One survey area was investigated totaling approximately 4.6 acres. A pedestrian survey and a series of shovel test pits were completed across the proposed location to identify and assess any subsurface archaeological deposits. As a result of the survey, no archaeological deposits were identified. Jacobs recommends that the proposed construction of Fairview Road Culvert Replacement Project will have no effect upon historic properties.

INTRODUCTION

Project Location and Description

Kittitas County (County) needs to improve safety by widening the roadway to standards and replacing failed, undersized culverts conveying Coleman Creek on Fairview Road near Ellensburg, Washington, located in Township 18 North, Range 19 East, portions of Sections 14 and 15 (**Figure 1**). Coleman Creek in the project area has historically been highly altered and channelized. The creek currently crosses Fairview Road three times in approximately 600 feet (ft). Two of the existing crossings (Culverts 1 and 3) are deficient and failing and require immediate repair. Though Culvert 2 is not failing or requiring immediate repair, the County is proposing a new stream channel alignment that will replace all three undersized culverts with one, new larger fish passable structure. This will provide immediate habitat benefit by eliminating three crossings that are likely barriers and removing the current altered and straightened stream channel from the roadside and replacing it with a new alignment with more natural channel function and habitat.

The project will abandon approximately 1,050 feet of the existing Coleman Creek channel, which primarily functions as a roadside ditch, and create a new channel that is equivalent in length, which will meander along the east side of Fairview Road. Coleman Creek between existing Culverts 2 and 3 will be left in place, since this section provides relatively the highest existing habitat benefit with overstory vegetation and some stream sinuosity. A new 18 ft wide by 5.5 ft high culvert is proposed downstream (approximately 140 ft south of Culvert 3) which will convey Coleman Creek under Fairview Road and tie into the existing downstream channel. The three existing culverts will be removed, at which time the road will be widened to meet current safety standards. Due to the failed state of the existing culverts, extremely narrow roadway, and continued and chronic impacts from flooding, the immediate replacement of the existing culverts and wider roadway is necessary.

This technical report provides the results of a cultural resources inventory survey for the purpose of assessing the potential for unrecorded cultural resources within the project area.

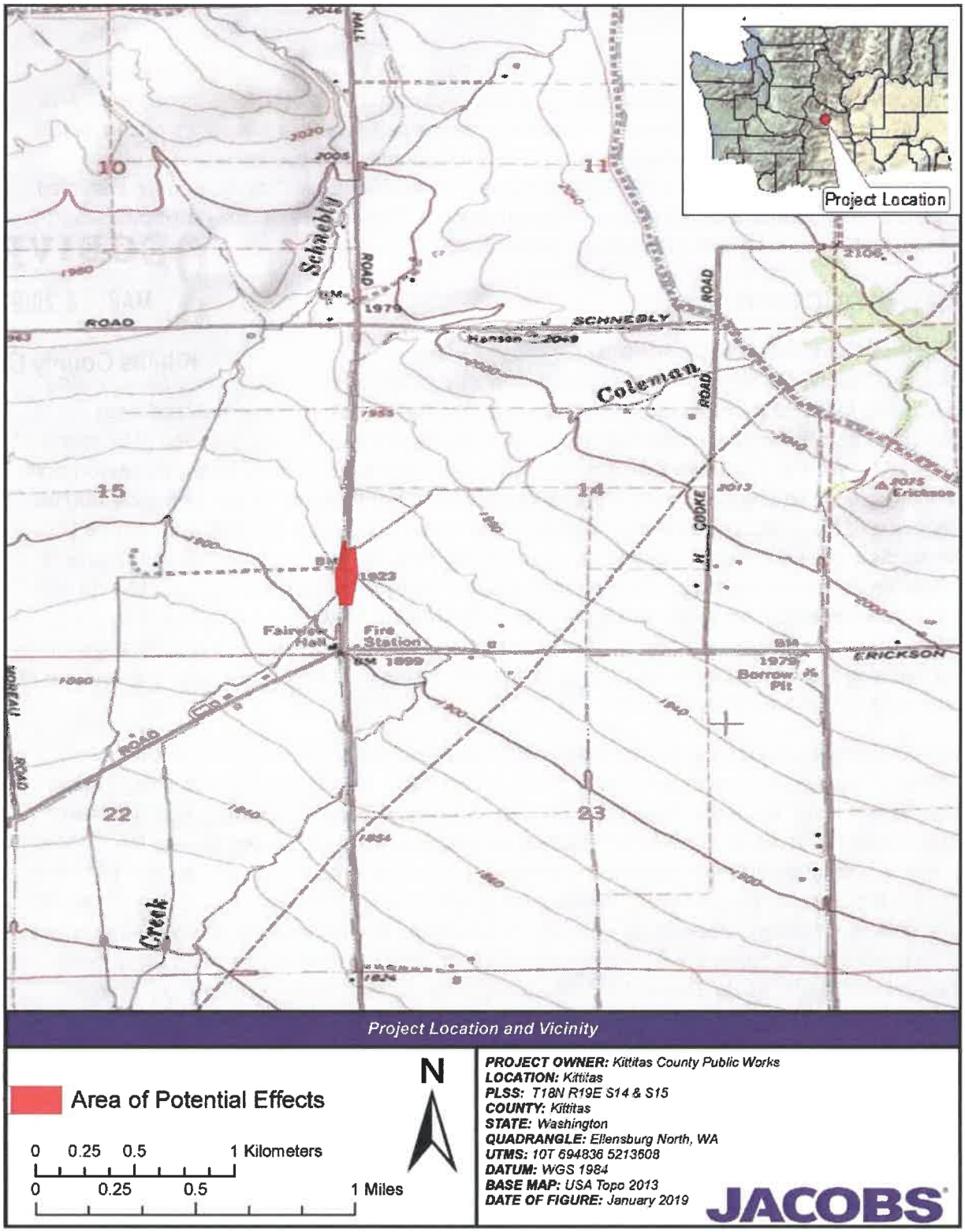

Figure 1. Fairview Road Culvert Replacement Project location.

Regulatory Context

This project will require federal funding, permits, or approvals, therefore compliance with Section 106 of the National Historic Preservation Act (NHPA) is necessary.

National Historic Preservation Act

Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on historic properties (i.e., any district, site, building, structure, or object that is listed in, or eligible for listing in, the National Register of Historic Places [NRHP]). Undertakings include any project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by, or on behalf of, a federal agency; those carried out with federal financial assistance; and those requiring a federal permit, license or approval. Under 36 Code of Federal Regulations (CFR) part 800.2(c) of the NHPA's implementing regulations, compliance also requires federal agencies to consult with various parties that may have consulting roles in the Section 106 process. These include the affected State Historic Preservation Officer (SHPO), Indian tribes, and other stakeholders and interested parties. Depending on the circumstances, this may also include the Advisory Council on Historic Preservation, which oversees the Section 106 process.

The Fairview Road Culvert Replacement Project is a federal undertaking because the project will be regulated by the U.S. Army Corps of Engineers and is therefore subject to Section 106 of the NHPA. An adverse effect on a historic property is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion in the NRHP in a manner that would diminish the integrity of the historic property's location, design, setting, materials, workmanship, feeling, or association. The assessment of adverse effects on historic properties is conducted in accordance with the guidelines set forth in 36 CFR part 800.5.

National Register of Historic Places

The NRHP was authorized by the NHPA in 1966 and the official list of historic properties is maintained and expanded by the U.S. Secretary of the Interior. Eligibility for listing in the NRHP requires properties to be significant at the national, state, and/or local levels. In accordance with the criteria set forth in 36 CFR part 60.4, the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. Properties that are eligible for listing on the NRHP are properties that retain their integrity and meet one or more of the four criteria listed below. In addition, unless a property possesses exceptional significance, it must also be at least 50 years old.

A resource can be considered for inclusion on the NRHP if it meets at least one of the following criteria (36 CFR 60):

- Is associated with events that have made a significant contribution to the broad patterns of our history.
- Is associated with the lives of persons significant in our past.
- Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represents a significant and distinguishable entity whose components might lack individual distinction.
- Has yielded, or may be likely to yield, information important in prehistory or history.

Individually eligible properties and historic districts must retain key character-defining features, or integrity, to convey the significance of a resource. Integrity specifically refers to the ability of a property to convey its significance. In other words, a historic property must have enough intact physical characteristics or features to communicate its significance under one or more of the NRHP criteria. NRHP guidelines recognize seven aspects, or qualities, that define integrity. The Secretary of the Interior defines these aspects as follows (36 CFR 60):

Location. Is the location/site where the resource was originally constructed?

Design. Is the design in its original form, plan, and style of the property intact?

Setting. Have the physical surroundings of a property been compromised?

Materials. Are the physical components used in construction of the property still present?

Workmanship. Is there evidence of craftsmanship?

Feeling. Is the property able to express a sense of time?

Association. Is the "direct link" evident between the property and an important event or person?

Description of the Proposed Area of Potential Effects

The proposed Area of Potential Effects (APE) includes the horizontal and vertical extent of construction, staging, and water management, including vehicle access. The proposed APE includes the geographic areas where construction and vehicle access may directly or indirectly cause change of character or use of historic properties (e.g., archaeological sites, traditional cultural properties, and/or built environment resources).

For this project, the proposed APE consists of approximately 4.6 acres of existing roadway, road shoulders, and agricultural land (see **Figure 1**).

Key Personnel

Jacobs archaeologists and historians conducted background research and field survey, recorded and evaluated cultural resources older than 50 years of age for listing on the NRHP, and authored the report. Michael Chidley, Senior Archaeologist, served as principal investigator and meets the Secretary of Interior's Standards for a professional archaeologist.

A desktop records search was conducted by archaeologist Michael Farrell to determine if previously recorded archaeological and historic resources are located within the proposed APE. Additional research, fieldwork, and report contributions were completed by Jacobs archaeologists Michael Chidley, MA, Michael Farrell, MSc, and Jane Wiegand, MSc.

ENVIRONMENTAL AND CULTURAL SETTING

Environmental Context

The Project Area is located in southeastern part of the Kittitas Valley, approximately 7.1 kilometers (km) northwest of the Kittitas and approximately 8.2 km northeast of the City of Ellensburg. The terrain is generally flat, and lies within the large, defuse Yakima River floodplain. The Yakima River itself is located approximately 14.5 km to the south.

Native vegetation in this area would have been typical of the sagebrush steppe zone (Franklin and Dyrness 1988). This zone conforms to the semiarid Xeric regime. Predominant species include shrubs, dominated by mature big sagebrush (*Artemisia tridentate),* with minor presence of rabbitbrush (*Chrysothamnus viscidiflorus)* and threetip sagebrush *(Artemisia tripartite).* Perennial grasses such as blue bunchgrass, cheatgrass, rice grass, and Idaho fescue (*Festuca idahoensis*) are also common in this zone.

The modern landscape of the project area consists of an agricultural field. Vegetation on the site consists of close-cropped grasses and forbs, including invasive weeds such as cheatgrass. The eastern portion of the proposed APE consists of an actively planted and tilled agricultural field, and a culvert constraining Coleman Creek transects the northern section of the eastern proposed APE. The western side of the APE consists of ditch and fallow agricultural field.

The soils in the proposed APE are mapped as Nanum ashy loam, Brickmill Gravelly ashy loam, Reeser ashy clay loam, Opnish ashy loam, and Nack-Opnish complex with 0 to 5 percent slopes (NRCS 2018). The landform is considered a mixture of remnant alluvial fans or terraces

with the soils derived from alluvium, aeolian deposits, glacial drift, and volcanic ash. The typical soil profile consists of a thin upper horizon of ashy loam (0 - 8 inches [0 - 20 cm] deep), followed by an ashy clay loam (8 - 13 inches (20 - 33 cm), a clay loam (13 - 26 inches (20 - 66 cm), and an extremely gravelly sandy clay loam (26 - 60 inches (66 - 152 cm).

Cultural Context

Plateau Culture Area and Ethnographic Cultures

The Columbia Plateau is a broad physiographic region formed of a large trough, underlain by deep basaltic bedrock, drained by the Columbia River and its major tributaries, such as the Okanogan, Spokane, Yakima, Snake, John Day, and Deschutes Rivers. The Middle Columbia River region encompasses the Yakima River and the Snake River to the Okanogan River. The Middle Columbia region was traditionally occupied by several cultural groups, some of whose descendants are now represented by the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Colville Reservation, the Wanapum Band, and other smaller tribes of the Plateau region. The project area lies within the ceded lands of the Yakama Nation as a result of the Treaty of 1855.

The Plateau cultures have been recognized as complexes of deeply-rooted cohesive cultural traits well-adapted to the semi-arid climate of the region, focused on subsistence strategies exploiting edible roots and anadromous fish, and deeply involved in a cross-regional trade and travel network that included the surrounding regions (Ray 1936, 1939; Schalk and Cleveland 1983; Walker 1998).

During the early historic period, speakers of the Sahaptian and Interior Salishan languages were predominant in the Middle Columbia region. Ethnographic data indicates that the geographic division between these language groups was roughly coincident with the upper Yakima River drainages (Walker 1998). The area of this survey was the ethnographically known domain of the Kittitas (Schuster 1998:327-328). The largest villages in the area were "about two miles below the present town of Ellensburg on the west side of the Yakima River" and "one mile above Thorp, opposite the mouth of Taneum creek" (Ray 1936:143).

Ethnographic and early historic peoples of the Middle Columbia were known to be mobile hunter-fisher-gatherers, moving from winter villages to other seasonally productive resource bases. Each group worked cooperatively with their neighbors to accommodate and gain access to environmentally variable plant and animal resources. Hunting and fishing both were important subsistence systems, substantially supplemented by vital root and plant gathering and processing. Trade with neighboring groups and neighboring regions was facilitated by a complex and productive trade system centered upon the Columbia River with inter- and intra-regional routes and centers. Ethnographic material culture has been documented as earthlodge and mat lodge structures with increasing use of skin lodges and tents though time, dugout canoes of cottonwood, pine, and driftwood cedar, well-crafted basketry intensively used for cooking, processing, storage and transport of food and trade items, and a complex of lithic and other tool systems (knapped stone, groundstone, bone, wood, and shell implements). Offensive

weaponry is known to have included the bow and arrow, thrusting spears, clubs, and knives (Chidley 2009).

Precontact Archaeological Context

Paleoarchaic (pre-11,000 - 8000 BP)

The Paleoarchaic period includes the period of earliest recognized occupation of the Columbia Plateau, including the two earliest artifactual cultures - the fluted point and western stemmed-point traditions. Andrefsky (2004) combines these type traditions into the Paleoarchaic. The Paleoarchaic includes Ames et al.'s (1998) Period 1A (11,500 - 11,000 BP) and Period 1B (11,000 BP - 7000/6400 BP), and King and Putnam's (1994) Clovis period and Windust Phase. The fluted point tradition, defined by the presence of large spear points exhibiting basally-originating long flaked flutes, encompasses the commonly known Clovis and Folsom traditions, Fluted points in the region are most notably known from the East Wenatchee cache site (Mehringer and Foit 1990) and other isolated contexts. The fluted point tradition is indicative of the earliest recognized culture in North America (and the Plateau), and although there is increasing argument for a pre-fluted point occupation, it is typically dated to the 1000-year period beginning 11,500 BP.

The western stemmed-point occupation of the Columbia Plateau, which in some instances appears to pre-date fluted point types, is comprised generally of the Windust, Lind Coulee, early Cascade, and similar type artifacts. The western stemmed-point tradition occurs coincident and/or continues later than the fluted point traditions, with dated contexts as late as 8000 BP or later. Western stemmed-point assemblages have been found throughout the Plateau and Middle Columbia reach, including an early occurrence on the Yakima Training Center at the Sentinel Gap site (10,100 - 10,600 BP) (Galm and Gough 2005). The Paleoarchaic cultures are interpreted as mobile broad-spectrum hunters and foragers, with what appears to be a common use of pluvial lake margins and rockshelters (Andrefsky 2004).

Early Archaic (8000 - 5000 BP)

The Early Archaic roughly coincides with increasing warmth and dryness during the Anithermal environmental conditions. Material culture of this period exhibits a continuation and/or alteration of Paleoarchaic characteristics and subsistence. While several Paleoarchaic adaptations persist into the Early Archaic period, regionally specific patterns develop in the area in response to local adaptations and activities. In the Middle Columbia, these are recognized as two somewhat contemporaneous and overlapping phases - the Cascade and Vantage Phases. Noted projectile point types include: the shouldered lanceolate Mahkin Shouldered point/knife (8000 - 5000 BP); the large triangular Cold Springs Side-notched type (6000 - 4000 BP); the Cascade projectile type group, consisting of three variants of a small lenticular, lanceolate point (8000 - 5000 BP) (Lohse and Schou 2008); and other non-specific stemmed shouldered lanceolates (Herbel and Bowden 2005).

This period is characterized by small, low-density sites interpreted as being occupied by small highly-mobile opportunistic foragers, with a broadening base of subsistence and greater inclusion of plan foods. Microblade technology also appears in the artifact assemblages during this period (Andrefsky 2004). A high frequency of salmon bones at Fivemile Rapids (Ames et al. 1998), one of the earliest known intensive fishery sites, represents the emergence and exploitation of that important resource.

Middle Archaic (5000 - 2000 BP)

In the Middle Columbia region, this period is also known as the very late Vantage phase and Frenchman Springs phase. Diagnostic point types of the period and Middle Columbia are: non-Cascade willow leaf-shaped projectile points; Rabbit Island Stemmed, defined as stemmed triangular points with squared shoulders; the Quilomene Bar Corner-Notched, a distinctive triangular point with broad corner notches; and the Columbia Corner-Notched Type A, a large corner notched triangular point with a straight to expanding stem (Herbel and Bowden 2005; Lohse and Schou 2008). Additional technological developments during the Middle Archaic include net sinkers, hopper mortar and pestles, cobble spall tools, and a variety of ground stone implements. The addition of these tools and materials indicates an increase in root crop exploitation around 4000 BP and a shift toward intensive salmon fishing around 3300 and 2200 BP (Andrefsky 2004).

Settlement patterns of the period include the continued use of open campsites and rockshelters, as well as the developing use of semi-subterranean pithouses. Though occurring sporadically very early in the period, pithouses become more common across the region by 4500 BP and appear to be associated with seasonal foragers focused on exploiting local subsistence resources (Ames 1991; Andrefsky 2004; Kimball 2005).

Late Archaic (2000 BP - A.D. 1720)

The Late Archaic period saw the intensification of patterns developed in the Middle Archaic and the emergence of ethnographic characteristics. All available resource niches were intensively occupied and utilized. During this period, regional trade networks involving lithic and other non-local materials developed. Large semi-subterranean pithouse villages were occupied on the primary watercourses and are typically interpreted as indicative of the development of the ethnographically known Plateau hunter-fisher-gatherer adaptations of intensive fishing, lager winter village settlements, and intensive use of communally processed and stored resources (Andrefsky 2004; Browman and Munsell 1969: 260-262; Chatters 2004). On the Middle Columbia, this period is associated with the Cayuse Phase.

Distinctive artifact types of the Cayuse Phase are net weights, adzes, shell beads and jewelry, and small projectile points. Temporally diagnostic point types for the Late Archaic include: the Quilomene Bar Basal-Notched, a stemmed basal-notched point with square to tapering barbs; the Columbia Corner-Notched B, a small corner-notched triangular point with straight to expanding stems; the Columbia Stemmed, a basal-notched triangular point with sharp, blunt, or square barbs; the Wallula Rectangular Stemmed, a small corner-notched triangular point with

long straight stems; and Plateau Side Notched, a small side-notched triangular point with a base (Andrefsky 2004; Herbel and Bowden 2005; Lohse and Schou 2008).

Historic Context

Early Settlement and Industries

The first documented exploration of the Columbia Plateau was in 1805 by Meriwether Lewis and William Clark, who reported extensive salmon fishing economies of indigenous groups settled along the Columbia and Snake rivers. According to Splawn (1917), the territory of the people Lewis and Clark encountered was vast, spanning both banks of the Columbia River from the mouth of the Yakima River to the Saddle Mountains. The Yakima River drainage was occupied by the Kittitas and Yakama bands. The APE is within the area occupied by the Kittitas, who were the uppermost of two bands. The Kittitas are thought to be related linguistically to the Yakama. Both speak dialects of Ichi Skin Sinwit (what ethnographers and linguists refer to as Sahaptin). The Kittitas maintained ties with Salish-speaking tribes like the Wenatchi to the north (Schuster 1998).

Further European contact with Native Americans came with increased competition between fur trading companies navigating the Columbia River. Along this route, fur traders from the Northwest and Pacific Fur companies sought camp at areas occupied by Kittitas and Yakama groups. During an 1813 expedition, Alexander Ross of the Pacific Fur Company documented the indigenous council grounds in the Kittitas Valley. He observed the expansive gathering, which stretched across the landscape for great distances and included activities such as horse- and foot-racing, dancing, gambling, singing, hunting, and root gathering (Ross 1855).

As western ideologies proliferated across North America, the period of extensive European exploration and trade followed with the Euro-American settlement of the Kittitas Valley in 1848 through the establishment of Catholic missions. The influx of Catholicism to the region is thought to be the impetus for settler conflicts with both indigenous peoples and an emigrant population that was predominately of the Protestant faith (Ricard 1976). Perhaps realizing the potential mutualistic benefits, some tribal leaders requested the construction of Catholic missions on their traditional lands. A mission was constructed on the Simcoe River in 1848 at the request of Ka-mi-akin of the Yakamas (Glauert and Kinz 1976). Around the same period, a Catholic priest named Father Pandosy resided at a temporary mission with a Kittitas band living in the Selah Valley (Splawn 1917).

One mission, Holy Cross, is of particular significance in terms of inter-cultural conflict at the onset of the Historic period. Holy Cross was established in 1852 on Ahtanum Creek and was later burned to the ground by Washington Territorial volunteer troops upset with the mission's intervening on behalf of Yakama during a conflict known as the Yakama Wars (Glauert and Kunz 1976). The conflict began in the midst of treaty negotiations between the US government and tribal leaders in 1855. The dialogs were interrupted due to increased trespassing by gold prospectors across Yakama lands, which was met with vehement aggression from Native Americans.

Following the end of the war, the Yakama Treaty of 1855 was eventually signed; and the Yakama Nation, composed of 14 formerly independent bands (including the Kittitas Band), was created (Woody 2009). Provisions of the treaty called for the tribes to cede approximately 29,000 square miles of land, from which 1,875 square miles would be reserved for the sole use of the Yakama (Schuster 1990). These lands today are known as the Ceded Lands and the Yakama Nation Reservation. The Ceded Lands, to which the Yakama Nation maintains legal rights to resource procurement within, encompass the whole of the Kittitas Valley (Woody 2009).

The discovery of gold in portions of the Kittitas Valley in 1873 brought an influx of mining companies who hired Chinese laborers to work deposits along the Columbia River (Camuso and Lally 2012). White cattlemen also flocked to the region during the mid to late nineteenth century, given the suitability of the lush grasslands for ranching. By the 1880s, cattle overgrazing had decimated the landscape in the Yakima and Kittitas valleys. This, along with severe winters that killed large herds of cattle, resulted in setbacks for early ranchers, leaving only enough grassland to support seasonal rounds of grazing sheep (Herbal and Bowden 2005). Sheep herders in the region would winter their flocks near the Columbia River, herd them through the North Cascades to graze in the summer months, and then return to the Kittitas Valley for fall grazing (Shaw 1941).

The utilization of local waterways by Euro-American fur traders also proved viable for the growing logging industry of the late 1870s. The Kittitas Valley afforded this industry large supplies of timber; and, by 1880, several thousand feet of lumber was floated down the Yakima River to the Columbia River (Holstine 1994). The success of the local lumber industry led to numerous sawmills and the construction of railroads, which were used to transport timber by land when river routes were closed by dam and irrigation projects. The Columbia River ferry system was also significant in facilitating the movement of people and goods across the Columbia Plateau from the mid-nineteenth century into the early twentieth century. This form of transportation set the stage for the development of additional land transportation means via the railroad and automobile industries.

In addition to supplying lumber and a means of transporting goods and people, Kittitas Valley river systems played an important role in agriculture, which prospered during the late nineteenth century. The construction of water diversions such as Manastash Canal in 1872, Taneum Ditch in 1873-1874, Ellensburg Town Canal in 1885-1889, Olson Ditch in 1870, Bull Ditch in 1886, and the Cascade Canal in 1903-1904 brought approximately 47,373 acres of Kittitas Valley land under irrigation before 1904 (Woody 2009; Doncaster 2016:7). The federally sponsored irrigation projects that followed during the early twentieth century would lead to improved farming conditions in notoriously arid portions of the Columbia Plateau.

Construction of the first major railroad through the region, the Northern Pacific Railway (NPR), was completed in 1884. Land along the right-of-way was granted to NPR by the federal government as payment for completing the transcontinental railroad; NPR then leased that land to newly arriving settlers and prospectors, while all surrounding area remained open for

homesteading (Meinig 1968). Although many settlers wagered heavily that an economic boom would follow completion of the railroad, this did not occur. Prolonged periods of severe drought at the turn of the century along with the hardships of the Great Depression forced many homesteaders to sell their land, which was purchased by a few successful ranching families (Owens 2005; Doncaster 2016).

The city of Ellensburg was first settled by William Bud Wilson in 1868 and the first store "Robbers Roost" was opened by AJ Splawn and Ben Burch in 1870 to facilitate the trade of furs, supplies, and horses between the settlers and the local Kittitas band and Yakama Nation (City of Ellensburg 2017). Trade and commerce throughout the region flourished during the early part of the 1880s, and the city of Ellensburg was incorporated in 1883, becoming the county seat for Kittitas County that same year (ellensburgdowntown.org). The first election to form the city government was held in 1886 and soon after the North Pacific Railroad reached the city (ellensburgdowntown.org). As the population and commerce of the region expanded and prospered, Central Washington University was founded as the Washington State Normal School at Ellensburgh in 1891 (Mohler 1967). Closely following the commercial success and population in the Yakima Valley, the Town of Kittitas was platted in 1908 and eventually incorporated in 1931 (Becker 2005)

The Early Twentieth Century

Although gold mining operations of the late nineteenth century were relatively short-lived given the lack of significant deposits in the region (Owens 2005), the early twentieth century saw success in mining silica from areas within the Kittitas Valley. The earliest of these operations began in 1915 with the Great Western Silica Company and the American-Japanese Silica Company (Camuso and Lally 2012). Other mining companies such as The Inland Empire Silica Production Company and the Kittitas Diatomite Company began operations in 1919 and 1939, respectively. Silica mining in this region came to an end in the 1950s. Telltale remnants of these operations are observed in open trenches and scattered historical debris at the abandoned mines (Camuso and Lally 2012).

RECORDS AND LITERATURE REVIEW

Jacobs archaeologist Michael Farrell conducted a records search of the proposed project location and the surrounding areas using the Washington Information System for Architectural and Archaeological Records Database (WISAARD). WISAARD contains all cultural resource documents submitted to the Washington State Department of Archaeology and Historic Preservation (DAHP) since 1995. The records searches included the Fairview Road Culvert Replacement Project location and a one-mile surrounding radius area.

Additional sources of background research and information included: historic maps and General Land Office (GLO) records, National Register of Historic Places-Listed properties, historic United States Geological Survey topographic maps, and modern aerial photographs and topographic maps.

The project location has never been surveyed; therefore, there are no previously identified cultural resources recorded in WISAARD within the Project Area. The DAHP Predictive Model indicates portions of the project location range from moderate risk to high risk of encountering cultural resources. Based on review of the setting, landform, and previous disturbance, the project location has a moderate potential for archaeological sites; the location is relatively near the Yakima River, but otherwise lies within an undifferentiated area of the Kittitas Valley. **Tables 1** through **2** contain the records search results.

Table 1. Previous Cultural Resource Studies Conducted within 0.5 mile of the Fairview Road Culvert Replacement Project Location.

Report #	Year	Author	Title	Description
1689096	2017	Doncaster, Kelsey	Historic Resources Survey: Yakima Project Farm Bridges Disposal near Cle Elum, Thorp, Kittitas and Sunnyside	Archival Research/Site Visits

Source: WISAARD (2018)

Table 2. Previously Recorded Cultural Resources within 0.5 mile of the Fairview Road Culvert Replacement Project Location.

Resource #	Distance from Project Location (Miles)	Description	NRHP Eligibility
N/A	0.15 Miles	Kittitas Reclamation District North Branch Mile 20.7 bridge	Not Eligible

Source: WISAARD (2018)

RESEARCH DESIGN

The following section provides an outline of the proposed objectives, expectations and resulting developed methodology. This research design has been developed based upon the preceding information regarding the project setting, review of previous work and documentation, and the preliminary results from the preceding field survey.

Objective and Expectations

The primary objective of the investigation was to conduct an inventory of the APE to assess the presence/absence of previously undiscovered built environment and archaeological resources specifically with regard to potential impacts from construction activities related to the culvert replacement project.

Background research indicated that no known cultural resources have been recorded within the proposed APE. Presumably, precontact occupation and use of the proposed APE vicinity would have included low-intensity hunting and foraging and travel through the area, as well as perhaps

more intensive occupation near the Yakima River. Aerial images and historic maps indicate that the proposed APE has been used historically and currently for agricultural purposes for many years. Agricultural activities have included plowing, grading, ditching, and crop planting, and associated isolated improvements. Such activities would have disturbed archaeological deposits located on or near the surface. Depending on the depth, type, and frequency of disturbance, artifacts associated with archaeological deposits would have been disturbed and likely dispersed throughout the proposed APE.

Based upon that analysis and common archaeological and historic resources in this area, site types potentially located within the proposed APE include: campsites, lithic scatters, lithic quarries, irrigation canals and similar features, herding camps, livestock pens and features, and isolated precontact and historical artifacts.

Field Methods

Field methods consisted of a pedestrian survey and the excavation of shovel test pits (STP). The pedestrian survey consisted of walking interval pedestrian lines on north-south azimuth-oriented transects that were spaced approximately 5 meters (m) apart. Transect survey was completed across approximately 75% of the proposed APE, including the roadway. Right of entry was not provided for that portion of the proposed APE on the west side of the road. Assessment of the western proposed APE was by visual inspection from the roadway easement. Indications of historical and modern development were noted and documented across the proposed APE. In areas of poor visibility, surveyors examined all exposed ground surfaces including erosional features, rodent backdirt piles, and animal paths. Field conditions were noted, and photographs taken to document the encountered conditions.

Placement of STPs within the proposed APE was based upon a cardinal transect line across the east side of the roadway as a single transect line; this was determined by Jacobs archaeologists as the most effective means to identify and assess potential subsurface archaeological deposits. Following the results of the pedestrian survey, a 30 m interval cardinal grid was determined to be sufficient to sample and characterize the proposed APE subsurface. Placement of the STPs was adjusted to limit impact within the portions of the survey area containing planted crops in the agricultural field. All STPs measured approximately 40 centimeters (cm) (13.5 inches) in diameter and were excavated to depths of approximately 25 to 100 cm (0 to 40 inches), when hydric soils, water, dense alluvial rocks and gravel, or very dense subsoils were encountered. Excavated sediment was screened through 0.6-cm (1/4 inch) mesh hardware cloth. Upon completion, representative STP profiles were photographed with a digital camera and backfilled.

Artifact Recovery Protocol

Excavations used hand shovels, hand augers, soil probes, and trowels. Artifacts collected from each level were to be analyzed in the field. Any and all artifacts were to be temporarily reserved through the unit excavation and returned to the base of the hole prior to backfilling. Artifacts were to be returned in their natural state, and were not to be bagged, tagged, or otherwise modified.

Protocol in the Event of Discovery of Human Remains

The discovery of human remains did not occur during the cultural resources investigation. However, in the event of such occurrence, the DAHP policy regarding the Inadvertent Discovery of Human Skeletal Remains on Non-Federal and Non-Tribal Land in the State of Washington (Revised Code of Washington [RCW] 68.50.645, RCW 27.44.055, and RCW 68.60.055) was to be followed.

RESULTS

Field survey of the proposed APE was conducted by Michael Chidley, Michael Farrell, and Jane Wiegand on October 24, 2018. **Figures 2** through **6** provide maps and photographs of the inventory results.

Pedestrian Survey Results

The proposed APE is a relatively flat area containing the roadway and agricultural fields to each side. The western proposed APE is a fallow agricultural field, and the proposed APE on that side consists largely of a small strip of fallow field and an existing ditch, as well as the road shoulder. The eastern proposed APE contains the road shoulder, and grass-covered areas along the western edge. Near the center of the western proposed APE, the creek/ditch meanders create a triangle of grass and tree-covered ground. This area has several dirt push piles and indications of other disturbance. The northern portion of the western proposed APE is also grass and tree-covered at the stream channel. The field has been modified for agricultural purposes, with culvert crossings, and an informal two-track road present in the northern central section of the field on this side of the road. Plowing and grading had compacted and rutted the surface across the entire parcel, and the current Coleman Creek culvert and irrigation ditch traverse the north and central portions of the field.

None of the proposed APE is unaltered by anthropogenic activity. Due to grass vegetation and the plowed agricultural field, surface visibility throughout varied between approximately 0 and 75 percent and averaged around 30 - 50 percent (particularly in the western portion of the proposed APE).

No surface artifacts or indication of historical period structures were identified during the pedestrian survey.

Shovel Test Results

Jacobs completed 11 STPs within the proposed APE. A table of field results from shovel testing is provided in **Appendix A**. No artifacts were recovered from any of the STPs. STPs were assigned numeric designations based upon a 30 m cardinal north-south transect line.

Soil and sediment profiles in the STPs revealed a fairly consistent subsurface stratigraphy with minor fluctuations consistent probable flood events of Coleman Creek and ground disturbance. Within the northern and southern sections of the project area (STPs 1 – 3 and 6 – 9), the soils

consisted of a thick, silty loam plow zone (0 - 40 cm), overlying 35 – 60 centimeter (cm) deep B horizons of silty clay loam containing an abundance of angular/subangular gravels, terminating at a dense gravel/cobble layer 65 – 100 cm below the ground surface (cmbs). The central and western section of the parcel (STPs 4 – 5b), displayed moderately disturbed soil adjacent to the current Coleman Creek entrainment. STP 5 contained ~20 cm of fill consisting of gravels and small fragments of concrete and red brick. To ensure the fragmentary pieces of concrete and brick were not indicative of the presence of a historical resource, STPs 5a and 5b were excavated at 5 m cardinal intervals to the north and east of STP 5, with both radials returning negative results for cultural materials. Supplemental auguring within select STPs in this area indicated that, below 100 cmbs, the soils consist of clayey sand with abundant gravels, and cobbles.

No artifacts were recovered during shovel testing, and no evidence of archaeological potential were observed, such as buried anthropogenic soils or paleosols.

Figure 2. Fairview Road Culvert Replacement Project survey results.

Figure 3. Overview of western proposed APE, view south.

Figure 4. Overview of western proposed APE, view north.

Figure 5. Overview of proposed APE, view north, centered in Fairview Road.

Figure 6. Disturbed area surrounding existing Coleman Creek culvert, view north.

ANALYSIS

No archaeological artifacts, features, or sites were identified during the course of surface and subsurface inventories.

CONCLUSIONS AND RECOMMENDATIONS

The pedestrian survey did not identify any precontact or historical archaeological artifacts or deposits in the proposed APE. Similarly, no archaeological deposits were observed in the STPs. The great majority of the proposed APE has been disturbed by the earlier culvert/ditch construction and the use of land for agricultural purposes. Based on the presence of extensive historic and modern landscape modifications in the proposed APE, there is little apparent potential for intact precontact or unidentified historical archaeological sites within the proposed APE.

No additional cultural resources studies are recommended at this time and archaeological monitoring is not recommended. In the event that archaeological materials are discovered during construction, the contractor is required to halt excavations in the vicinity of the find, have a professional archaeologist assess the significance of the archaeological deposits discovered during construction, and contact Kittitas County and DAHP. If human skeletal remains are discovered, the Kittitas County Sheriff and DAHP must be notified immediately.

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Appendix A

Shovel Test Results

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Test #	Width (cm)	Depth (cm)	Description	Artifacts
1	40	0-90	0-35 - Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels 35-70 - B - silty clay loam, grayish brown (10YR 3/2) 70-90 - sand clay with sub-angular gravels, dark yellowish brown (10YR 3/6 Terminated at 90 cmbs at dense cobbles	No
2	40	0-87	0-36 - Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels Ap - silty loam, dark brown 36-64 – B1 - silty clay loam, grayish brown (10YR 3/2) 64-87 – B2 - sand clay with sub-angular gravels, dark yellowish brown (10YR 3/6 Terminated at 87 cmbs at dense cobbles	No
3	40	0-65	0-41 - Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels 40–65 – B1 – silt clay loam, dark grayish brown (10YR 3/2) gravels abundant Rock refusal at 65cmbs	No
4	40	0-76	0-49 - Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels 49-76 – B1 – silt clay loam, dark grayish brown (10YR 3/2) gravels abundant Area appears disturbed by previous culvert construction. Rock refusal at 76cmbs	No
5	40	0-72	0-20 – Fill with gravels and small brick fragments 20-42 – Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels 42-72 – B1 – silt clay loam, dark grayish brown (10YR 3/2) gravels abundant Area appears disturbed by previous culvert construction. Fragmentary brick imported with gravels highly probable. Rock refusal at 72cmbs	No
5a	40	0-25	0-25 – Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels	No

Test #	Width (cm)	Depth (cm)	Description	Artifacts
			Inundated at 25cmbs. Area appears disturbed by previous culvert construction.	
5b	40	0-75	0-20 – Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels 20-47 – B1 – silt clay loam, dark grayish brown (10YR 3/2) gravels abundant 47-75 – B2 – silt clay loam, dark grayish brown (10YR 3/2) gravels abundant Rock refusal at 75cmbs	No
6	40	0-80	0-35 - Ap - silty loam, dark brown plow zone, gravels 35-70 – B1 - silty clay loam, grayish brown (10YR 3/2) 70-90 - sand clay, dark yellowish brown (10YR 3/6), with sub-angular gravels Terminated at 80 cmbs at dense cobbles	No
7	40	0-95	0-47 - Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels 47–95 – B1 – silt clay loam, dark grayish brown (10YR 3/2) gravels abundant Rock refusal at 95cmbs	No
8	40	0-100	0-22 - Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels 22-100 – B2 - dark yellowish brown (10YR 3/6) silt clay loam with gravels Rock refusal at 100cmbs	No
9	40	0-68	0-38 - Ap - silty loam, dark brown (10YR 2/2) plow zone with gravels 22-100 – B2 - dark yellowish brown (10YR 3/6) silt clay loam with gravels Rock refusal at 68cmbs	No

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Attachment 5

Endangered Species Act

No Effect Letter

JACOBS

32 North 3rd Street
Suite 304
Yakima, WA 98901
www.jacobs.com

February 18, 2019

Attention: **David Moore**
US Army Corps of Engineers
Seattle Regulatory Branch
P.O. Box 3755
Seattle, WA 98124

Subject: **Kittitas County Public Works**
Fairview Road Culvert Replacement
Endangered Species Act No Effect Letter

Dear Mr. Moore,

Kittitas County Public Works (County) needs to improve safety by widening the roadway to standards and replacing failed, undersized culverts conveying Coleman Creek on Fairview Road near Ellensburg, Washington (see vicinity map, Attachment A). The project will construct a new culvert and realign approximately 714 feet of Coleman Creek from a roadside ditch to a new and enhanced stream channel. The project will also abandon three stream crossings under Fairview Road, decreasing fish passage barriers.

We have prepared this assessment on behalf of the U.S. Army Corps of Engineers (Corps) to meet the Section 7 requirements of the Endangered Species Act (ESA), U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). ESA listed species and designated critical habitats are addressed. We also evaluated the presence of Essential Fish Habitat (EFH) as indicated in the Magnuson Stevens Fishery Conservation and Management Act (Magnuson Stevens Act). The federal nexus for this project is an anticipated Corps Nationwide Permit 14 for linear transportation projects.

The USFWS and NMFS species lists were accessed on their websites on December 17, 2018. These indicated the potential presence of the species and critical habitat shown in Table 1.

Table 1. USFWS and NMFS listed species and critical habitat potentially present in the project action area.

Species	Federal Status	Designated Critical Habitat in the Action Area
Canada Lynx	Threatened	No
Gray Wolf	Endangered	No
North American Wolverine	Proposed Threatened	No
Marbled Murrelet	Threatened	No
Yellow-billed Cuckoo	Threatened	No
Bull trout – Columbia River Distinct Population Segment (DPS)	Threatened	No

Steelhead – Middle Columbia River (MCR) Summer - run DPS	Threatened	No

Project Description:

Kittitas County needs to improve safety by widening the roadway to standards and replacing failed, undersized culverts conveying Coleman Creek on Fairview Road near Ellensburg, Washington. Coleman Creek in the project area has historically been highly altered and channelized. The creek currently crosses Fairview Road three times in approximately 600 feet. Two of the existing crossings (Culverts 1 and 3) are deficient and failing and require immediate repair. Though Culvert 2 is not failing or requiring immediate repair, the County is proposing a new stream channel alignment that will replace all three undersized culverts with one, new larger fish passable structure. This will provide immediate habitat benefit by eliminating three crossings that are likely fish passage barriers and removing the current altered and straightened stream channel from the roadside and replacing it with a new alignment with more natural channel function and habitat.

The project will abandon approximately 5,350 square feet (714 linear feet) of the existing Coleman Creek channel, which primarily functions as a roadside ditch, and create approximately 19,000 square feet (662 linear feet) of new channel which will meander along the east side of Fairview Road, greatly increasing the ecological function of this section of Coleman Creek. Coleman Creek between existing culverts 2 and 3 will be left in place, since this section provides the highest existing habitat benefit with overstory vegetation and some stream sinuosity. A new 18-foot wide by 6.5-foot high culvert is proposed downstream (approximately 140 feet south of Culvert 3) which will convey Coleman Creek under Fairview Road and tie into the existing downstream channel. This larger culvert will increase fish passage and decrease maintenance requirements. The three existing culverts will be removed at which time the road will be widened to meet current safety standards. Due to the failed state of the existing culverts, extremely narrow roadway, and continued and chronic impacts from flooding, the immediate replacement of the existing culverts and wider roadway is necessary.

Work below the Ordinary High Water Mark (OHWM) will occur during the approved in-water work window. The Contractor will determine whether a full bypass is necessary or if Coleman Creek will remain in the existing channel with smaller diversions around each stream tie-in and the new culvert location.

As the isolation structure(s) and diversion(s) are constructed, qualified biologists will be on-site to monitor flows as they recede and to remove any fish from the dewatered area. Small pumps may be used to completely dewater holding pools, if necessary, and manage any hyporheic flows that may continually be present behind the isolation structure. The bypass(es) will remain in place until the new stream channel and culvert are completed and Coleman Creek is flowing in the new channel. Therefore, the bypass(es) will be removed completely in the dry. All pumps used during stream dewatering activities will be screened to WDFW or NMFS criteria.

Land Use and Action Area:

Land use in the vicinity of the project area consists of agriculture and low-density rural residences. Terrestrial habitat is limited to a narrow riparian band of Douglas hawthorn, coyote willow, Pacific willow, and non-native invasive crack willow with an understory that is predominantly reed canarygrass (Attachment B). Aquatic habitat is degraded in the project action area due to continuing and chronic flooding events causing sediment aggradation and loss of in-stream habitat structure.

Noise from construction equipment will likely be the primary source of terrestrial disturbance. Equipment to be used will include, but is not limited to: graders, dump trucks, excavators, generators, and front loaders. In addition, heavy equipment will operate below the OHWM and within the dewatered area of Coleman Creek. Using defined FHWA guidance, the terrestrial zone of impact is 1.04 miles. The aquatic zone of impact within the action area is a 864-foot section of Coleman Creek to include 50 feet upstream of the upper isolation structure, the work area where culvert replacement/abandonment and channel realignment will occur, and an additional 100-foot mixing zone. BMPs will be used as needed to limit impacts to Coleman Creek.

Species and Habitat Assessment:

A field review of the project site was conducted on October 22, 2018, by Craig Broadhead and Rose Whitson, Jacobs biologists. This site visit was conducted to assess the potential for habitat presence and to assess potential action impacts.

Canada lynx and North American Wolverine: Canada lynx and wolverine require relatively undisturbed high-elevation montane forests. The project is within a low elevation agricultural area with no forested habitat. The actions will have **No Effect** on Canada lynx because the action area does not contain suitable habitat for this species. Provisionally, these actions will not jeopardize the continued existence of wolverine. Should wolverine be listed prior to the completion of the actions, the actions will have **No Effect** on wolverine because the action area does not contain suitable wolverine habitat.

Gray wolf: Gray wolves are associated with mid- to high-elevation habitat with an abundance of prey species. The project is within a low elevation agricultural area that is primarily low-density rural residences and pasture. The actions will have **No Effect** on gray wolf because the action area does not contain suitable habitat for this species.

Marbled murrelet: Marbled murrelet require mature forested stands with suitable platforms for nesting, generally within 55 miles of marine environments. The action area is not forested and it is greater than 90 miles from marine environments. This project will have **No Effect** on marbled murrelet because there is no suitable habitat for marbled murrelet in the action area.

Yellow-billed cuckoo: Yellow-billed cuckoo require large, intact stands of riparian vegetation and rarely nest in sites that are less than 50 acres in size. Riparian sites under 37 acres are considered unsuitable. There are no large stands of riparian vegetation in the action area. The project will have **No Effect** on yellow-billed cuckoo because there is no suitable habitat for yellow-billed cuckoo in the action area.

MCR DPS Steelhead: Steelhead were historically present in Coleman Creek, but anthropogenic disturbance and development has limited their presence to the lower portions of the creek near the Yakima River. The project action area is approximately 3.5 river miles upstream from a documented barrier adjacent to the Vantage Highway that prevents fish passage. There are between four to seven additional structures that have been identified as partial barriers or having no fish passage information between the project area and the nearest documented steelhead presence, 8.4 miles downstream. The actions will have **No Effect** on steelhead because this species cannot access the action area and will not be exposed to action effects.

MCR DPS Steelhead Designated Critical Habitat: There is no MCR steelhead critical habitat designated within the project action area. The nearest critical habitat reach is over 7 river miles from the project.

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Columbia River DPS Bull trout: Similar to steelhead, bull trout have not been documented in Coleman Creek due to passage barriers and potential impacts from low flows, and elevated temperatures. The actions will have **No Effect** on bull trout because this species cannot access the action area and will not be exposed to project effects.

Columbia River DPS Bull trout Designated Critical Habitat: There is no bull trout critical habitat designated within the project action area. The nearest critical habitat reach is over 12 river miles from the project.

Therefore, we have determined that this project will have **No Effect** on bull trout or MCR steelhead as passage barriers prevent access to the project area. Additionally, the project will have **No Effect** on designated critical habitats for these species because no critical habitat has been designated within the action area.

The Magnuson-Stevens Act mandates that NMFS must identify EFH for federally managed marine fish. Federal agencies are required to consult with NMFS on all activities, or proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH. The Pacific Fishery Management Council (PFMC) has designated EFH for the Pacific salmon fishery, federally managed ground fishes, and coastal pelagic fisheries

EFH for Chinook and coho salmon occurs within the lower reaches of Coleman Creek, where these species currently have access. However, due to the presence of several miles of fish passage barriers as described above, the project will not adversely affect Pacific salmon EFH.

This assessment satisfies the Corps responsibilities under Section 7(c) of the Endangered Species Act and the Magnuson-Stevens Act at this time. We are sending you this copy of our assessment for your files. We will continue to remain aware of any change in status of these species and will be prepared to reevaluate potential project impacts if necessary.

If you require additional information or clarification regarding this project, please contact me at 509-899-5256 or jennifer.bader@jacobs.com.

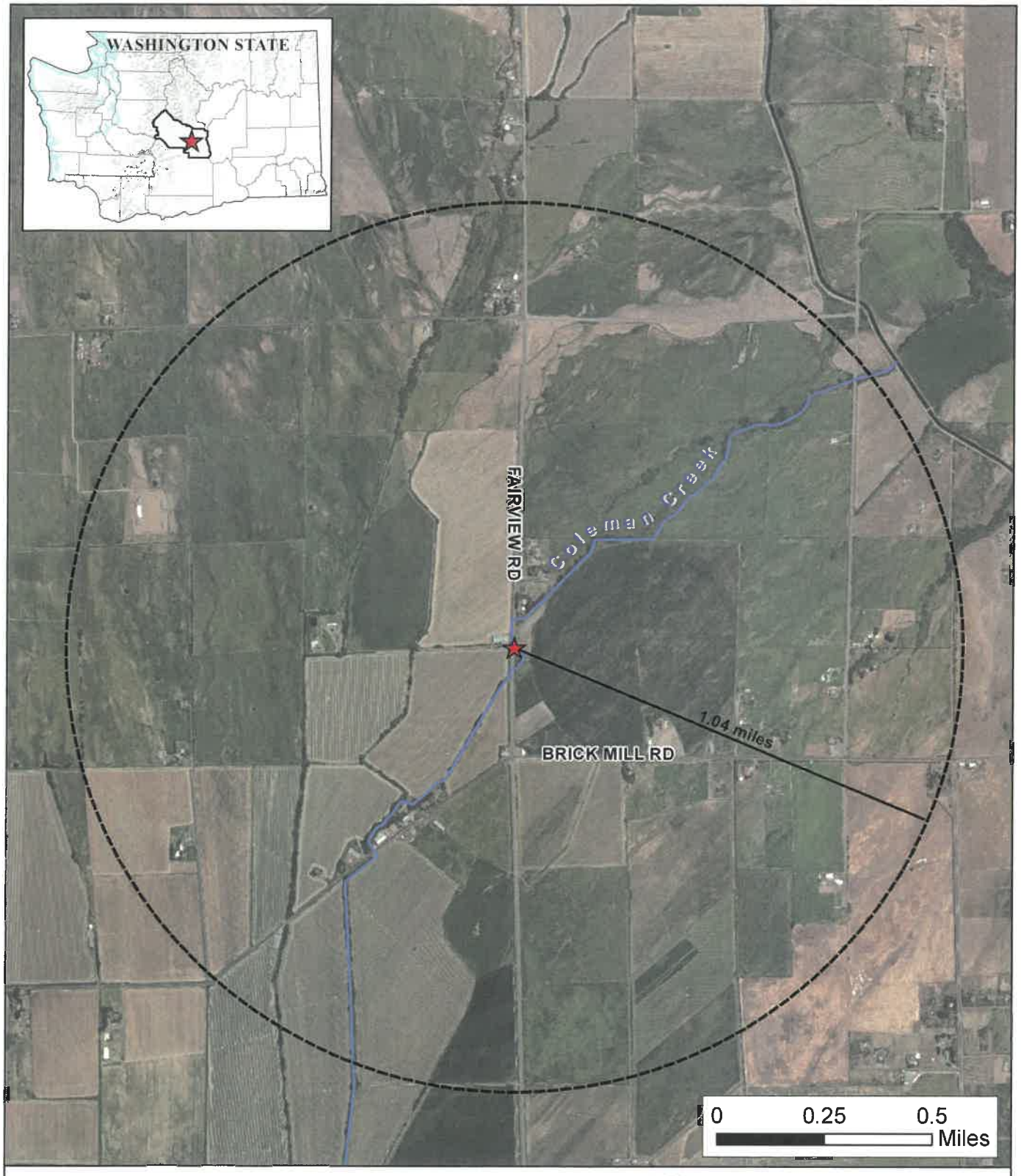
Sincerely,

Jennifer Bader
Biologist
Jacobs Engineering Group

cc: Mark Cook, Kittitas County Public Works Director
Project File

Attachment A

Vicinity Map



FAIRVIEW ROAD CULVERT REPLACEMENT VICINITY MAP

Action Area (1.04 miles)

Project Location

KITTITAS COUNTY

JACOBS

Map Date: Jan 9, 2018 ESRI Image Date: 2016 & 2017

Attachment B

Photographs

Figure 1. Photos of Coleman Creek Segment 2 looking downstream (south) from Culvert 1

Figure 2. Photos of Coleman Creek Segment 3 looking downstream at riparian habitat along the creek (left) and at irrigation diversion structure within this segment (right).

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Figure 3. Photos of Coleman Creek Segment 4 looking west from Fairview Road at outlet from Culvert 3 (left) and south at Coleman Creek as it exits the project limits (right).

Figure 4. Photo of Coleman Creek at Culvert 3 looking northeast.