Environmental Risk Assessment

TOWNSHIP ROAD 510
ROAD RECONSTRUCTION

November 2016

WSP File #: 161-14623-01
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1 SITE OVERVIEW

Parkland County retained WSP Canada Inc. (WSP) to undertake an Environmental Risk Assessment for Township Road 510 (the project). The project is located 13 km southeast of Tomahawk, Alberta (Appendix A). The proposed project is the reconstruction of a 3.4 km section of Township Road 510 between Range Road 45 and Range Road 51.

The project is situated in the Dry Mixedwood Subregion of the Boreal Natural Region of Alberta. A search of Abacus Datagraphics on November 28, 2016 showed no First Nation Reserves or Environmentally Significant Areas within the construction boundaries (Abacus Datagraphics, 2008).

2 HISTORICAL RESOURCES

According to Abacus Datagraphics land with assigned historic resource values (HRV) are located within the construction boundaries. Table 1 lists the locations, HRV and Class (Appendix B). The HRV 4 “a” is for an area that contains a historical resource of archaeological significance that may require avoidance. However, it must be noted that information can be incomplete and historical resources may exist in the project limits.

**TABLE 1: Historical Resource Areas**

<table>
<thead>
<tr>
<th>Legal Location</th>
<th>HRV</th>
<th>Class</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE-35-50-05-W5M NW-36-50-05-W5M NW-31-50-04-W5M SE-36-51-04-W5M SW-05-51-04-W5M</td>
<td>5</td>
<td>a</td>
<td>Areas that is believed to contain a historical resource of archaeological significance</td>
</tr>
<tr>
<td>SE-36-51-04-W5M SW-05-51-04-W5M NE-31-50-04-W5M NW-32-50-04-W5M</td>
<td>4</td>
<td>A</td>
<td>Area that contains a historical resource of archaeological significance that may require avoidance</td>
</tr>
</tbody>
</table>

3 WATER RESOURCES

Desktop review showed three unnamed tributaries crossing Township Road 510 (Table 2; and shown on the drawing in Appendix C). The three unnamed tributaries are unmapped Class C watercourse with a restricted activity period between April 16 and June 30 of any year. No in-stream activity will be permitted within the waterbodies unless approvals from Alberta Environment and Parks (AEP) and the Department of Fisheries and Oceans (DFO) are obtained.
TABLE 2: WATERCOURSES

<table>
<thead>
<tr>
<th>Waterbody Number</th>
<th>Type</th>
<th>Class</th>
<th>Restricted Activity Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shoal Lake Creek</td>
<td>C</td>
<td>September 16 to July 31</td>
</tr>
<tr>
<td>2</td>
<td>Stream</td>
<td>C</td>
<td>September 16 to July 31</td>
</tr>
<tr>
<td>3</td>
<td>Stream</td>
<td>C</td>
<td>September 16 to July 31</td>
</tr>
</tbody>
</table>

Care must be taken during culvert work to avoid ditch erosion, sediment transportation and associated hazards. Well maintained temporary erosion and sediment controls will be implemented. The Contractor will assure run-on water is diverted around the active construction location, lay down sites and storage area. No water shall be released from the construction site unless it is of equal or better quality in relation to the receiving water body. The Consultant shall approve any and all dewatering operations prior to release to the waterbody. The care of water plan will be incorporated into the ECO Plan for the work as a separate appendix. The plan should include all locations where water management will be implemented, a rough description of the measures to be implemented and the Contractors monitoring plan to assure the quality of water leaving the site at any location.

A 100 m buffer is required between refueling, tack oil storage, laydown and maintenance areas and any water body adjacent to the project site.

4  SOILS

Site specific project soils are unknown as a soils investigation was not undertaken. Soils in the region are typical of Typic Mesisol on Fen Peat to Rego Humic Gleysol on moderately fine textured sediments.

Temporary erosion and sediment control measures for the site shall be designed and presented in a Temporary Erosion and Sediment Control Plan. The Plan will be developed as per the requirements in the Erosion and Sediment Control Manual (Alberta Transportation [AT] 2011). This plan shall be included in the ECO Plan and shall include site diagram(s) indicating the type and progression of sediment and erosion control with the progression of work during all stages of construction. Measures must be consistent with containment of sediments from flowing water and ensure the well sorted, non-colloidal materials can be prevented from eroding into any waterbody.

The Contractor is responsible for the supply, installation and maintenance of temporary sediment and erosion control on the site. Protection of any waterbody will be deemed as a priority in placement and selection of control measures.

5  TOPSOIL HANDLING

A site specific soils assessment has not been completed. Soil stripping will be guided by colour change. All soil should be stripped and stockpiled separately. Mineral and organic soils shall be
stockpiled separately with a 5 m buffer maintained between the soil types and ensure that all stockpiles are at least 10 m from any water conducting areas or the edge of any waterbody.

Topsoil will be stockpiled using the guide “like on like” with topsoil stockpiled on topsoil and subsoil stockpiled on subsoil. Wet or water influenced soils will be stripped and stored separately. These wet soils shall be used on the areas adjacent to water to increase the establishment of wet species.

The Contractor shall contact the local municipal Agricultural Fieldmen to ascertain if there is Club Root or other weed control practices which need to be implemented. The Agricultural Fieldmen for Parkland County is James Leskiw at 780-968-8467.

6 VEGETATION

The Alberta Conservation Information Management System (ACIMS) has a database of vascular and non-vascular plants and invertebrate species of special conservation concern. Non-Sensitive Elemental Occurrences are rare species or communities which are of conservation concern. A search of the ACIMS database on November 28, 2016 showed no elements of concern in the project area (Alberta Environment and Parks [AEP], 2016a); however it must be noted that information can be incomplete and species of special concern may exist in the project limits.

From Downing and Pettapiece (2006), common vegetation in the Dry Mixedwood of the Boreal Natural Region is presented in Table 3.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunchberry</td>
<td><em>Cornus canadensis</em></td>
<td>Beaked hazelnut</td>
<td><em>Corylus cornuta</em></td>
</tr>
<tr>
<td>Wild sarsaparilla</td>
<td><em>Aralia nudicaulis</em></td>
<td>Wild lily-of-the-valley</td>
<td><em>Maianthemum canadense</em></td>
</tr>
<tr>
<td>June grass</td>
<td><em>Koeleria macrantha</em></td>
<td>Western porcupine grass</td>
<td><em>Hesperostipa spartea</em></td>
</tr>
<tr>
<td>Pasture sagewort</td>
<td><em>Artemisia frigida</em></td>
<td>Prickly rose</td>
<td><em>Rosa acicularis</em></td>
</tr>
<tr>
<td>Saskatoon</td>
<td><em>Amelanchier alnifolia</em></td>
<td>Northern wheatgrass</td>
<td></td>
</tr>
<tr>
<td>Trembling aspen</td>
<td><em>Populus tremuloides</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Contractor must be aware that weed species may exist on the site and proper sanitation and control methods should be employed to reduce chance spreading via soil borne seed or the transportation of plant materials on equipment.

All equipment must be cleaned of dirt, vegetation or organic materials prior to arriving at the site.
7 WILDLIFE

A search of AEP’s designated species of special concern was completed to locate habitat in the project area. A total of nine species (Table 4) had habitat range in the project area.

TABLE 4: PROVINCIALY RECOGNIZED SPECIES OF CONCERN

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western grebe</td>
<td>Aechmophorus occidentalis</td>
</tr>
<tr>
<td>Black-throated green warbler</td>
<td>Dendroica virens</td>
</tr>
<tr>
<td>Peregrine falcon</td>
<td>Falco peregrinus</td>
</tr>
<tr>
<td>White-winged scoter</td>
<td>Melanitta fusca deglandi</td>
</tr>
<tr>
<td>Barred owl</td>
<td>Strix varia</td>
</tr>
<tr>
<td>Bull trout</td>
<td>Salvelinus confluentus</td>
</tr>
<tr>
<td>Lake sturgeon</td>
<td>Acipenser fulvescens</td>
</tr>
<tr>
<td>Northern leopard frog</td>
<td>Rana pipiens</td>
</tr>
<tr>
<td>Grizzly Bear</td>
<td>Ursus arctos</td>
</tr>
</tbody>
</table>

A search of AEP’s Fish and Wildlife Management Information System (FWMIS) was undertaken for the project area within a 3 km radius on November 28, 2016. The search found three species that have been observed within 3 km of the project area (Table 5; AEP, 2016b).

TABLE 5: FWMIS FISH AND WILDLIFE SPECIES

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountain whitefish</td>
<td>Prosopium williamsoni</td>
</tr>
<tr>
<td>Northern pike</td>
<td>Esox lucius</td>
</tr>
<tr>
<td>White sucker</td>
<td>Catostomus commersoni</td>
</tr>
</tbody>
</table>

8 REGULATORY REQUIREMENTS

1. The Water Act. Works must comply with the Code of Practice for Watercourse Crossings for work in creeks, rivers and other watercourses. Any work in wetlands, inside or outside the right-of-way, will require an approval.

2. The Fisheries Act. Requires that projects avoid causing serious harm to fish unless authorized by the Minister of Fisheries and Oceans Canada. Work within a watercourse may require a review by DFO.

3. The Migratory Birds Convention Act. Screening of the site by a qualified biologist may be required to ensure protected bird habitat is not damaged or destroyed. The general migratory bird’s closure period is mid-April to the end of August.

4. The Weed Control Act. No one is allowed to move, or allow the movement, of noxious and prohibited noxious weeds.

5. The Public Lands Act. All activities on Public Lands need to be approved under a disposition. Public land includes the bed and shore of all naturally occurring water bodies. Those water
bodies inside the existing legally surveyed road right-of-way are not considered part of the Public Land.

9 PROJECT RISK ASSESSMENT

Based on the information provided, the following considerations should be used in the planning, construction and reclamation of the project:

1. The Contractor shall not commence in-stream or near water works until all permits, approvals and notifications are complete and available to the Contractor. Copies of all approvals must be included in the Contractors ECO Plan. The Contractor must follow all conditions included in the approvals at all times.

2. The Contractor’s ECO Plan must include a Temporary Erosion and Sediment Control Plan as described in the Erosion and Sediment Control Manual from Alberta Transportation (June 2011). This shall include drawings and diagrams showing the progression of controls with the changes in the work site. These shall be included in the ECO Plan document.

3. No rare, provincially or federally recognized vascular or non-vascular plants of special concern were noted in the project area. Any clearing activities, including those for lay-down, maintenance areas and borrow sites, may require a biologist on-site to ensure no wildlife habitat is damaged or destroyed.

4. As designated species of special concern occur close to the project area, Contractors will adhere to all restriction periods to ensure that wildlife habitat is not disturbed or destroyed. A qualified biologist may need to assess potential habitat within the project prior to clearing and soil disturbance activities. Prior to any clearing activities, the Contractor must be assured and provide such assurance to the Consultant that the operations are compliant with both the Migratory Birds Convention Act and the Raptor closure windows as found in the Wildlife Act.

5. Any borrow sources will need to be assessed according to Alberta Transportation’s Pre-Disturbance Assessment Procedures for Borrow Excavations for Road Construction (2013) and Post-Disturbance Assessment Procedures for Borrow Excavations for Road Construction (2013). The Contractor attention is drawn to the new version for this document as requirements have changed for the pre and post site assessments.

6. An ECO Plan must be submitted to the Consultant for review and accepted before construction begins. Effective measures to reduce spills or releases of harmful substances into adjacent water bodies needs to be discussed in the ECO Plan. The ECO Plan Framework, 2016 is the most up-to-date version and needs to be consulted to ensure all sections of the ECO Plan are included.

7. No work shall be undertaken until the ECO Plan and all of its components are reviewed and accepted. The process for review takes a minimum of two weeks and as such the Contractor shall have no claim for delays if plans / documents are not presented at least two weeks prior to the preconstruction meeting.
8. Pursuant to Section 31 of the Historical Resources Act, at the discovery of archeological or historical resources during construction, the Consultant will be immediately informed and work will be halted until a decision is reached.

9. All equipment shall be clean prior to arrival on site.

10. The Contractor shall contact the local Agricultural Fieldmen regarding weeds and Club Root.

11. Reclamation activities will follow the Alberta Transportation and Alberta Environment and Parks guidelines.
10 REFERENCES

   http://www.abacusdatagraphics.com/abadata/mgFrames.asp


Alberta Environment and Parks, 2016a. *Alberta Conservation and Management System (ACIMS).*
   Alberta Tourism Parks and Recreation, Edmonton, Alberta. [Online]


   http://www.transportation.alberta.ca/Content/docType372/Production/ErosionControlManual.pdf

Downing, D.J. and W.W. Pettapiece (compilers), 2006. *Natural Regions and Subregions of Alberta.*
11 CLOSURE
We trust that the information presented in this report satisfies the requirements of Parkland County. Please contact our Red Deer office at your earliest convenience, should you have any questions.

Sincerely,
WSP Canada Inc.

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Reviewed by:
Rola Hogan, B.Sc., CPESC
Manager Environment, Civil and Transportation

Third Party Disclaimer
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APPENDIX A: PROJECT AREA
APPENDIX B: HISTORIC RESOURCES