



STAR-ORION SOUTH DIAMOND PROJECT  
ENVIRONMENTAL IMPACT ASSESSMENT

**APPENDIX 2-A**

**SaskPower**

**Shore Gold Diamond Mine 230 kV Transmission Line Interconnection  
Primary Project Description**

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## 1.0 Introduction

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SaskPower is proposing to construct a 230kV overhead transmission line to provide service to the Shore Gold Inc. diamond mine proposed to be located within the Fort à la Corne Provincial Forest, south of Smeaton SK. The Shore Gold mine is going through an environmental assessment process (both federally and provincially). This 230 kV line is considered an ancillary project to the proposed mine and is being carried through its own separate environmental approval.

The transmission line will be routed through the Fort à la Corne Provincial Forest and cross the Saskatchewan River at a location near the proposed diamond mine. The transmission line will tap from the existing C1B 230kV transmission line and connect to a Shore Gold substation proposed to be located within 19-49-19 W2M. The general study area is illustrated on the maps in Appendix A.

The following sections provide an overview of SaskPower's planning information for the proposed Shore Gold Diamond Mine 230kV transmission line interconnection. It is important to note that no construction activity will occur for this project until Shore Gold Inc. receives environmental approval to develop their proposed diamond mine. However, SaskPower is proceeding with the process of obtaining the appropriate environmental approvals so that timelines can be met if the diamond mine project goes ahead.

## 2.0 Project Details

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### 2.1 TRANSMISSION LINE ROUTE

SaskPower is currently evaluating four route options for the interconnection of the C1B transmission line to the proposed Shore Gold substation (Appendix A, Figure 1). No preferred route has been selected at this time. Several environmental and engineering factors are being considered in developing the options, including:

- The location of C1B and the proposed Shore Gold substation
- The presence of already disturbed forest. For example, the route options being considered take advantage of an area recently disturbed by the Beaver Fire of 2000, which has subsequently been harvested (Appendix A, Figure3).
- The location of known rare and endangered species and heritage resources, based upon information obtained from the Saskatchewan Conservation Data Centre, the Saskatchewan Ministry of Environment, and ecological studies completed by Shore Gold Inc. at their proposed mine site.
- Presence of existing access roads (Appendix A, Figure 4). To minimize forest clearing and environmental disturbances during construction, proximity to existing trails is an important consideration. The study area does provide limited opportunities to utilize existing trails for either routing or construction access.
- Saskatchewan River crossing. The potential crossing locations are being evaluated based upon their span length, the valley topography, ease of construction and maintenance access, and the locations of several ravines in the area.
- The constraints and opportunities provided by the Fort à la Corne Provincial Forest Draft Integrated Forest Land Use Plan (2006) supplied by the Ministry of Environment.
- The constraints provided by the proposed Shore Gold diamond mine project. Several proposed mine activity areas, roads, and buildings must be considered in accessing the proposed substation site. These include active mine pits and blasting areas, a reservoir, mine buildings, and waste mine material storage areas.

### 2.2 TRANSMISSION LINE DETAILS

Detailed transmission line design will not be completed until after a preferred location has been determined. However, general characteristics are:

- The 230kV line will use steel H-frame construction and will connect to the existing C1B 230kV transmission line.
- SaskPower uses information gathered through environmental and archaeological studies, as well as public consultation to assist in transmission line routing and designs.
- The river crossing will be designed to meet all Transport Canada requirements related to the Navigable Waters Protection Program. No structures will be placed within the river, nor will construction activity occur within the river. Special structures (i.e., non H-frame) may be required for the crossing location.
- Route length is to be determined. Current route options vary from approximately 16 to 18.5 km.
- The transmission line will be routed entirely within crown lands.

### **2.3 ANCILLARY FEATURES**

There is a possibility that a fibre optic communication cable will be installed within the right-of-way using a plough-in method on the uplands. The cable would be installed overhead over the Saskatchewan River, along with the conductors.

Further details on the communications cable will be provided once it is determined if this will be installed or not.

### **2.4 PROJECT SCHEDULE**

The SaskPower project is dependent upon Shore Gold Inc. receiving environmental approval to develop their proposed diamond mine. Shore Gold Inc. anticipates having that approval in place early enough that their proposed energization requirement will be March 31, 2013. Based upon that assumption, SaskPower is required to begin the process of gathering data and information, and of obtaining environmental approvals in order to meet the customer's energization requirement. A tentative schedule was developed and is summarized below.

**Table 1: Project Schedule (Tentative)\***

<b>Project Activity</b>	<b>Proposed Schedule</b>
<b>Develop Route Options</b>	April – July, 2010
<b>Preliminary Ecological and Heritage Resource Investigations</b>	July - August 2010
<b>Evaluate Route Options</b>	Fall 2010
<b>Public Consultation</b>	Fall 2010 and Jan/Feb 2011
<b>Submit Project Proposal or Environmental Impact Statement as requested by the Ministry of Environment</b>	March 2011
<b>Obtain Environmental Approval</b>	May 2012
<b>Transmission Line Design and Survey*</b>	2011-2012
<b>Right-of-way Clearing*</b>	Winter 2012
<b>Construction*</b>	Winter 2012-13
<b>Energization*</b>	March 2013

\*NOTE: this schedule is dependent upon Shore Gold Inc. receiving environmental approval for their diamond mine project.

### 3.0 Environmental Considerations

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#### 3.1 ROUTE PLANNING

Digital information was collected for a broad study area and included data from the Saskatchewan Conservation Data Centre (SKCDC), the Heritage Resource Branch Archaeological Inventory database, SaskPower’s Environmental Screening System, and the Ministry of Environment’s digital files for the Fort à la Corne Draft Integrated Forest Land Use Plan. That digital information was combined with high resolution imagery provided by Shore Gold Inc. A map with the various layers was produced and a route option study area was refined and four options were identified (Appendix A). The study area was selected based upon several characteristics which included the environmental and archaeological considerations described in Table 2.

**Table 2: Environmental Considerations – Route Option Study Area**

<b>Fort à la Corne Provincial Forest</b>	<ul style="list-style-type: none"> <li>• All route options will be on crown lands within the forest</li> <li>• The majority of route(s) are located on lands designated as “Management Zone”</li> <li>• The proposed mine and a portion of some route options cross lands designated as “Sensitive Zone”</li> <li>• Lands adjacent to the Saskatchewan River are designated as “Protection Zone”. The width of the protection zone varies from about 100 to 200m in the route option study area.</li> <li>• All route options avoid historic sites identified in the Management Plan, although there are two records of historic cabins in the Route Option study area.</li> </ul>
<b>Previously Disturbed Lands</b>	<ul style="list-style-type: none"> <li>• The route option study area includes a large portion of lands burnt over by the Beaver Fire of 2000 (Appendix A, Figure 3). Much of that land has since been harvested. Route options have been selected to take advantage</li> </ul>

	<p>of as much of this disturbed land as possible.</p> <ul style="list-style-type: none"> <li>• Some options are considering the feasibility of using existing trails within the Forest</li> </ul>
<p><b>Rare and/or Endangered Species</b></p>	<p>No rare or endangered species records exist within close proximity to the route options being evaluated. One plant species record (non-SARA) is located within the study area and a bald eagle nest is located within one kilometre of a route option (Figures 2 and 5, Appendix A, illustrate some of these locations).</p>
<p><b>Heritage Resources</b></p>	<p>Heritage resource studies for the Shore Gold Inc. development have discovered a variety of archaeological finds within the mining area. There are no specific records for known heritage resources associated with the route options south of the river or along the river valley. However, the heritage potential is high along the river valley and this area was not investigated during the Shore Gold Inc. studies. Preliminary studies in 2010 found more heritage sites which have been avoided by the route options (Figure 5, Appendix A).</p>
<p><b>Aquatic Resources</b></p>	<p>There are several small coulees and streams draining into the Saskatchewan River. Route options attempt to minimize these areas as much as possible. While the transmission line may need to cross them, the access roads will be routed around the streams where feasible. However, there will be no structures or instream construction activity required for the crossing of the Saskatchewan River.</p>

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### 3.2 PLANNED ENVIRONMENTAL STUDIES

The preferred route option will be chosen by the project team using various information, including technical, environmental, archaeological and public feedback data. Prior to confirming the preferred route option, SaskPower will undertake specific environmental, archaeological and ground truthing studies as outlined in Table 3. Preliminary ecological and heritage studies were conducted in the summer of 2010 and information obtained was used to refine the route options (Appendix A, Figure 5).

**Table 3: Anticipated Field Investigation Requirements**

<p><b>Heritage Resources</b></p>	<p>The Saskatchewan River valley has high potential for finding previously undiscovered heritage resources. A Heritage Resource Impact Assessment (HRIA) was conducted in August 2010 and no heritage sites were noted at any of the potential stream crossings. However, the HRIA recommendation is that further studies be conducted along the preferred route.</p>
<p><b>Rare and/or Endangered Species</b></p>	<p>While much of the route length will be through old forest fire and timber harvest areas, there remain segments of forest and riparian areas that will be investigated for the presence of rare and/or endangered species.</p>
<p><b>River Crossing Location</b></p>	<p>A reconnaissance of the proposed river crossing locations was conducted to assist in selecting a preferred route option. Characteristics of the river valley (steepness, ease of access, suitability for structure locations, etc.) are being considered in developing crossing options and design considerations.</p>

### 3.3 PUBLIC INVOLVEMENT

As with all transmission projects, SaskPower has initiated a public involvement program where affected and nearby landowners and tenants, as well as local municipalities and First Nations communities were met with and were provided with information on the project and opportunities to provide any feedback. Public open houses were conducted at Melfort and Choiceland in late September (project overview and preliminary routes).

Meetings are being held with Aboriginal groups to discuss traditional land use concerns. Another set of open houses will be conducted in early 2011 to provide information on the preferred route and to obtain further comment from interested participants. Information gathered throughout the public involvement will be used in the environmental assessment and in the preferred route option analysis.

### **3.4 MINIMIZATION OF IMPACTS**

SaskPower uses the following steps to minimize environmental, archaeological and social impacts:

1. Identification of alternative routes focus on capitalizing on opportunities to mitigate impacts in the following categories (based on primary and secondary screening information):
  - environmental impacts;
  - agricultural impacts;
  - social impacts; and
  - economic impacts.
2. Principals of SERM's Guidelines for Environmental Protection from the Development of Electrical Transmission Lines (1993) are applied in identifying alternative routes.
3. Information from SaskPower's Environmental Screening System is used as the primary data source in identifying alternative routes. Figure 2, Appendix A, presents results from SaskPower's Screening System:
4. Secondary screening is performed to supplement information used in identifying alternative routes, including:
  - habitat analysis (satellite imagery);
  - SKCDC data for rare/endangered species; and
  - other sources of information (Canadian Wildlife Service, Nature Saskatchewan, Royal Saskatchewan Museum, etc.).
5. Effective mitigation strategies to address possible situations within alternative routes under consideration are identified that minimize possible residual impacts, including strategies for
  - wetlands;
  - lakes;
  - streams – permanent;
  - streams - intermittent and ephemeral;
  - grasslands;
  - shrub and tree areas;
  - forage land;
  - cultivated land; and
  - endangered species.

6. First-stage public consultation, including meetings with affected rural municipalities, urban municipalities and First Nations groups (when applicable), as well as open house meetings with potentially affected landowners, are conducted to further assess potential environmental, agricultural, social and economic impacts of the route alternatives under consideration.
7. Routes are compared, considering potential environmental, agricultural, social and economic impacts, and public consultation results; a preferred route is selected for further environmental study (based on primary screening and secondary screening information, and first stage public consultation results).
8. Environmental and archaeological field studies are performed in selected areas along the preferred route.
9. Second-stage public consultation (if required), including meetings with affected rural municipalities, urban municipalities and First Nations groups (when applicable), and open house meetings with potentially affected landowners, are conducted to notify stakeholders regarding the preferred route alternative decision.
10. A Project Proposal describing environmental impacts is prepared for submission to the Saskatchewan Ministry of Environment (MoE), based on a construction proceeding in the preferred route.
11. Identification of structure placement focus on capitalizing on opportunities to mitigate impacts for the approved route. Structure locations are chosen that either avoid environmental impacts or minimize residual environmental impacts by employing effective mitigation strategies that will be described in the Project Proposal.
12. As required, an Aquatic Habitat Protection Permit and approval the Department of Fisheries and Oceans (DFO) and Transport Canada (Navigable Waters Protection Program) and other permits will be obtain once structure placement is determined and prior to construction. The river crossing will be designed to meet Navigable Waters requirements with respect to height about the high water mark. Additionally, aerial marking devices will be installed on the conductors and/or shield wires at the river crossing.

Environmental mitigation commitments, conditions of approval and environmental best practices are included in the construction specifications given to the construction crew.

## **4.0 Conclusion**

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SaskPower is proceeding with conducting its environmental, archaeological, technical and public consultation studies as described in this document. SaskPower is seeking direction from the Ministry of Environment as to what environmental process (Project Proposal, Environmental Protection Plan or Environmental Impact Statement) this project would fall into. This decision can have an impact of the timelines described in this document.



# APPENDIX A

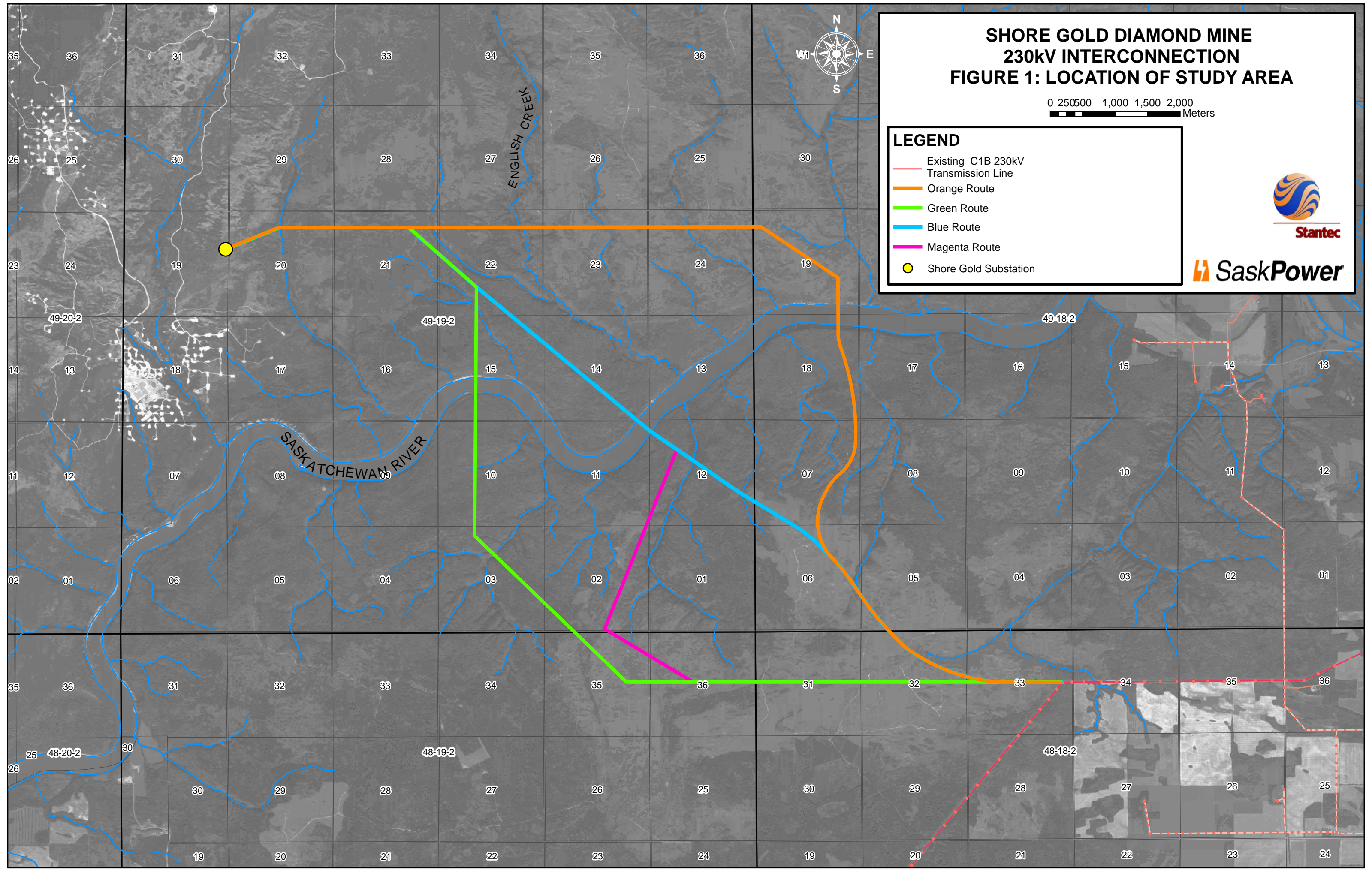
Figures

# SHORE GOLD DIAMOND MINE 230kV INTERCONNECTION FIGURE 1: LOCATION OF STUDY AREA

0 250 500 1,000 1,500 2,000  
Meters

**LEGEND**









- Existing C1B 230kV Transmission Line
- Orange Route
- Green Route
- Blue Route
- Magenta Route
- Shore Gold Substation

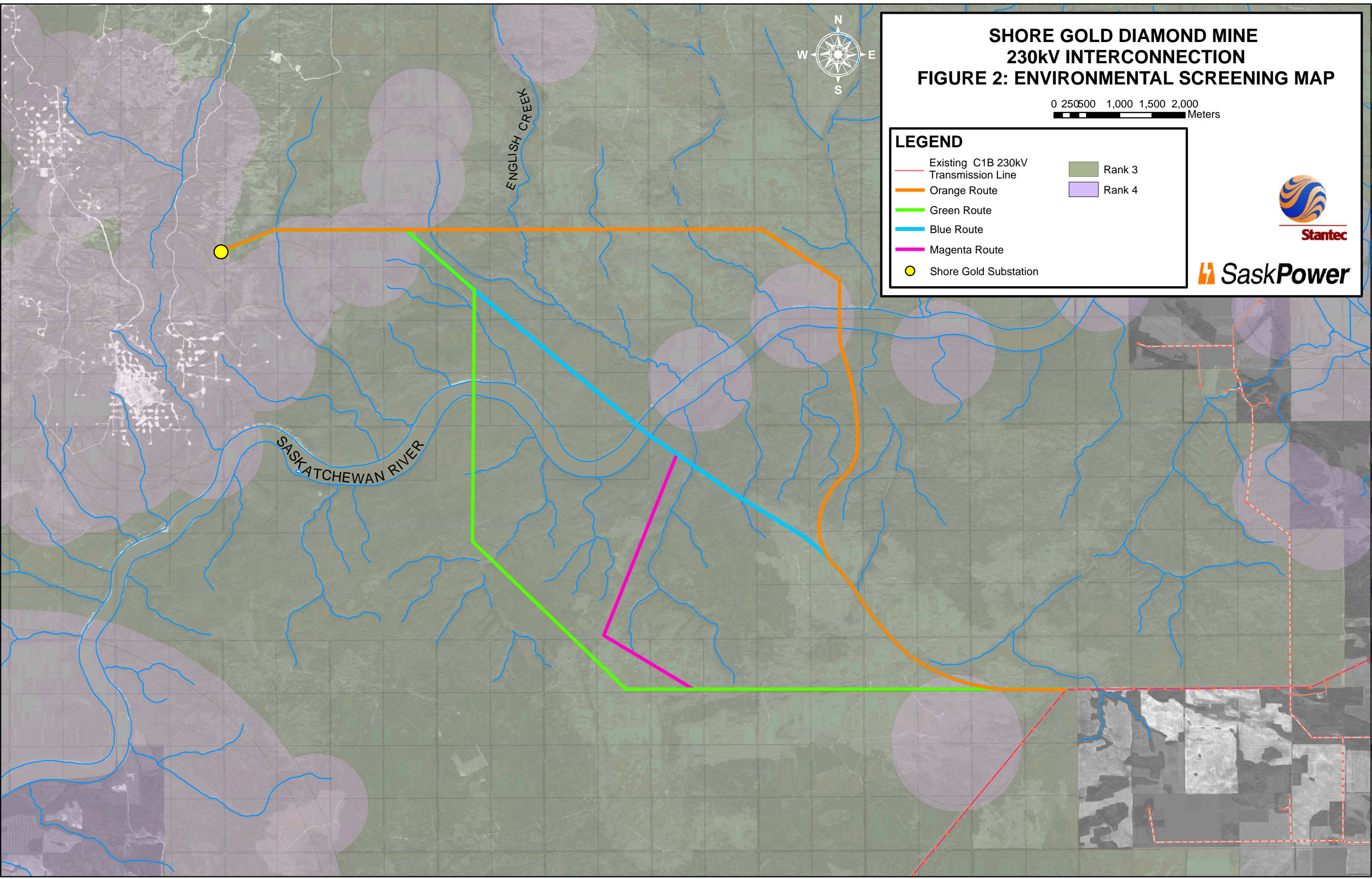


# SHORE GOLD DIAMOND MINE 230kV INTERCONNECTION FIGURE 2: ENVIRONMENTAL SCREENING MAP

0 250 500 1,000 1,500 2,000 Meters

**LEGEND**

 Existing C1B 230kV Transmission Line	 Rank 3
 Orange Route	 Rank 4
 Green Route	
 Blue Route	
 Magenta Route	
 Shore Gold Substation	



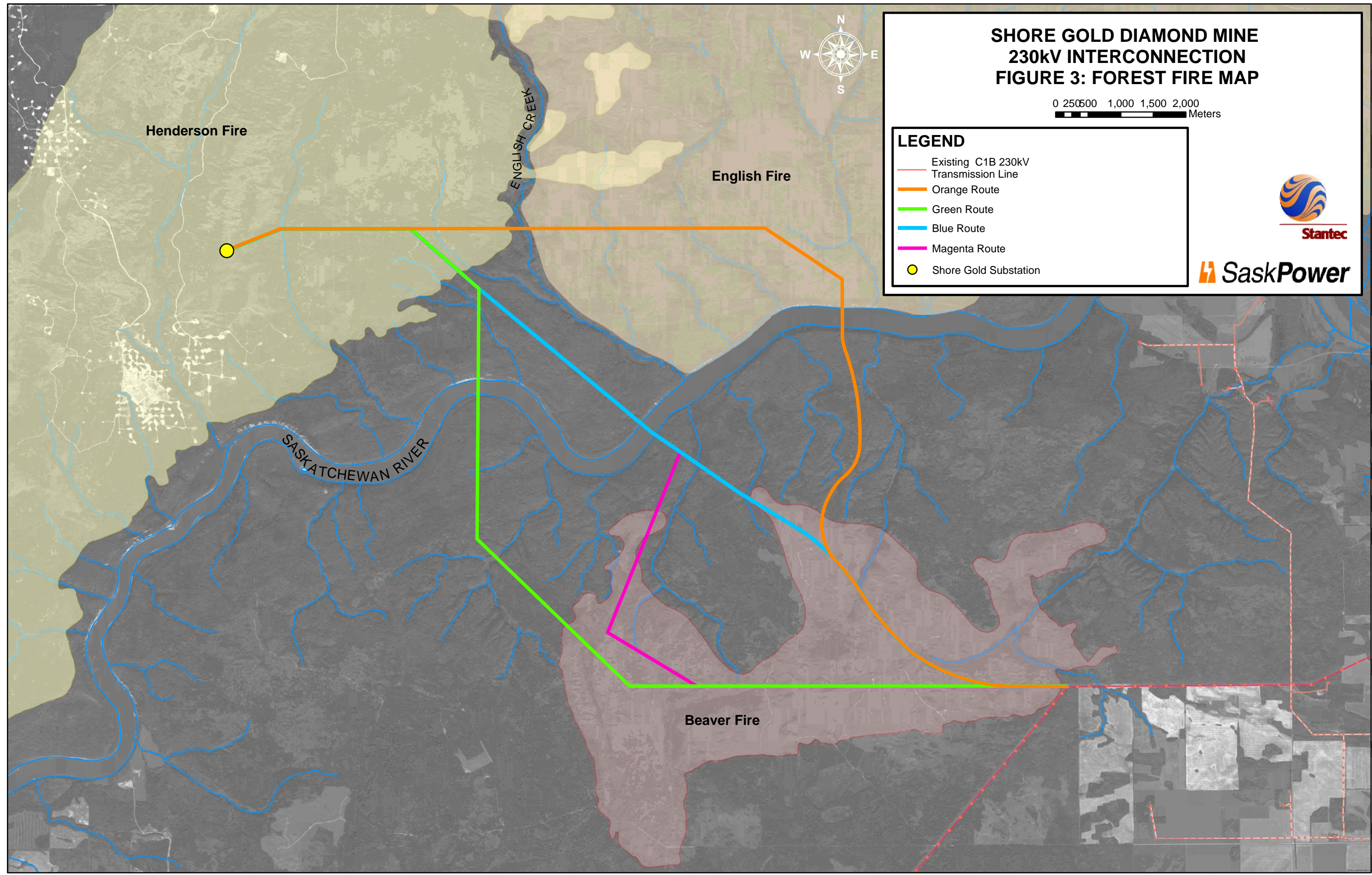
# SHORE GOLD DIAMOND MINE 230kV INTERCONNECTION FIGURE 3: FOREST FIRE MAP

0 250 500 1,000 1,500 2,000 Meters



**LEGEND**

- Existing C1B 230kV Transmission Line
- Orange Route
- Green Route
- Blue Route
- Magenta Route
- Shore Gold Substation





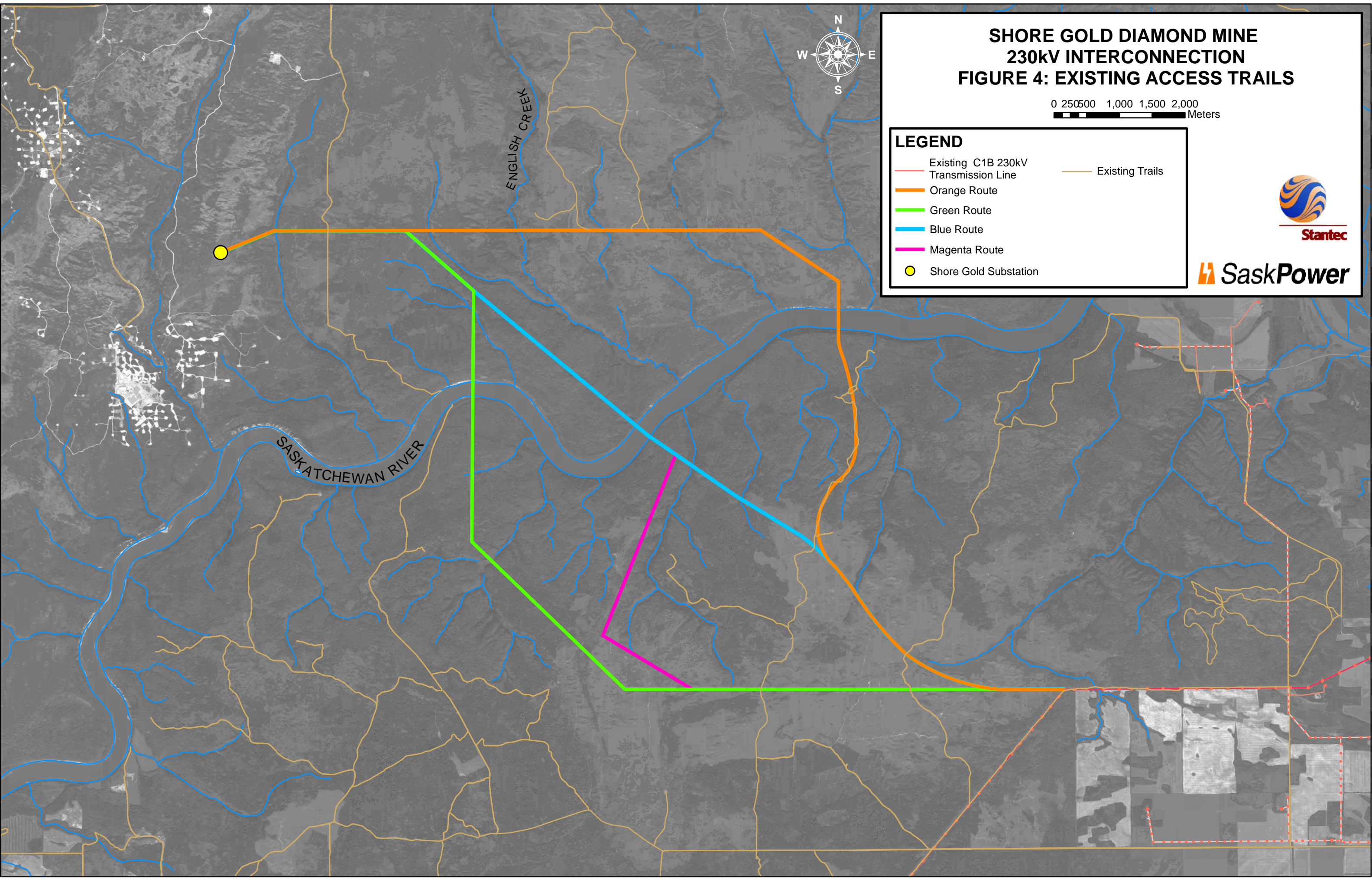
# SHORE GOLD DIAMOND MINE 230kV INTERCONNECTION FIGURE 4: EXISTING ACCESS TRAILS

0 250 500 1,000 1,500 2,000 Meters



**LEGEND**









- Existing C1B 230kV Transmission Line
- Orange Route
- Green Route
- Blue Route
- Magenta Route
- Shore Gold Substation
- Existing Trails



# SHORE GOLD DIAMOND MINE 230kV INTERCONNECTION FIGURE 5: 2010 FIELD RESULTS

0 250 500 1,000 1,500 2,000  
Meters

**LEGEND**

 Existing C1B 230kV Transmission Line	 Heritage Resources
 Orange Route	 Active Stick Nest
 Green Route	
 Blue Route	
 Magenta Route	
 Shore Gold Substation	

