

Examination of Traditional Use of Bingo (Spy) Hill and Potential Mitigation

1.0 BACKGROUND

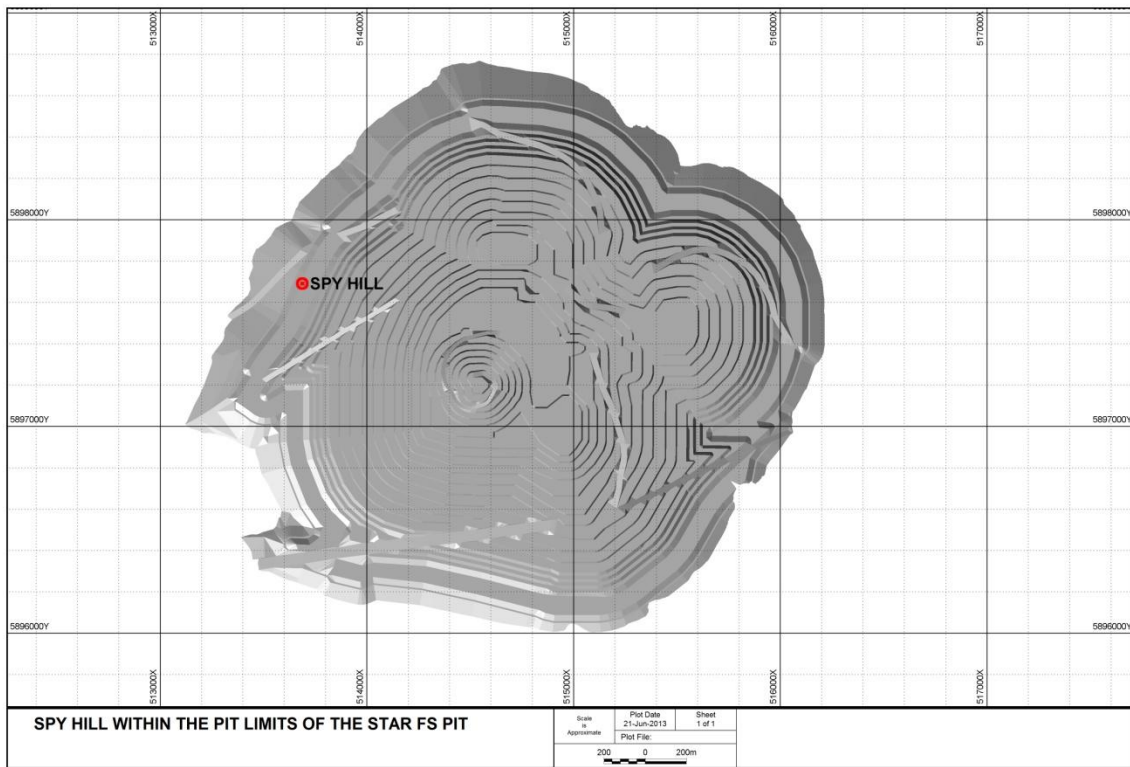
Bingo Hill (also known as Spy Hill) is located approximately 270 m within the Star feasibility study open pit (Figure 1). As such, it would be completely removed by development of the Project as proposed. Bingo Hill is the highest point of land within the Local Study Area (LSA); however, a similar and slightly higher feature exists to the west of the LSA.

Information for Bingo Hill was collected as part of the archeological and Traditional Land Use studies presented in the Revised EIS (Section 5.4 and 6.4). Bingo Hill was first identified as an archeological site in 2005 during the construction of a bladed trail that passed along the base of Bingo Hill to access the 134 and 101 kimberlite bodies (Appendix 5.4.5-A of the Revised EIS). During subsequent baseline archeological studies, a large number of artifacts (n=26,304) were recovered from 80 m² of excavation. The vast majority of the artifacts were debitage (n=25,099), and 3 of the artifacts recovered were diagnostic projectile points. Other tools were also recovered. The artifacts found indicate that this site was likely used as a lithic reduction (e.g., tool making) and camping site dating to ca. 4,100 to 3,100 rcybp (Appendix 5.4.5-B). Impacts to archeological resources on Bingo Hill are considered fully mitigated by the Heritage Branch of the Saskatchewan Ministry of Parks, Culture, and Sport.

The area around Bingo Hill was identified as a traditional hunting area by members of the James Smith Cree Nation (JSCN) (Appendix 5.4.2-B), and to a lesser extent as an area for gathering berries. JSCN also identified the majority of the Fort a la Corne Forest as a traditional hunting area. One interviewee identified Bingo Hill as a sacred site, while others identified it as a camping area.

Other specific Traditional Land Use studies carried out for other Aboriginal groups as part of the Project do not mention Bingo (Spy) Hill.

Figure 1: Location of Bingo (Spy) Hill within the Star Open Pit



2.0 CURRENT USE

Although it is not possible to ascertain exact current usage beyond the extent already provided by the Traditional Land Use Studies presented in the EIS, Shore employees have been on site for over ten years and have observed activities within the Project area. Since 2007, there have been no known traditional uses of Bingo Hill or requests to access Bingo Hill for traditional use forwarded to Shore since 2007. During the winter of 2007, members of JSCN inquired about using Bingo Hill as a check point for a Poker Rally. A Poker Rally is a common event in Saskatchewan categorized as recreational use, where snowmobile riders travel to various check points as part of an organized social event. At the time, Shore offered to supply hot beverages and use of portable facilities to warm up in; however, the event did not proceed.

Prior to 2005, Bingo Hill was not accessible by truck, but could be accessed by all terrain vehicle or by foot. From 2005 to 2007 Bingo Hill was accessible by truck. Since 2007, direct access to Bingo Hill by truck is not possible, as the road constructed in 2005 along the base of Bingo Hill connecting to Shore Road was closed as a result of discussions with the Saskatchewan Ministry of Environment and James Smith Cree Nation. Truck access to Shore Road from Division Road has been limited by locked gates since 2009. Shore's policy is only to actively limit access to operating sites where health and safety concerns warrant. Shore has not limited access to the site via all terrain vehicles or foot. Shore would also accommodate reasonable requests for access beyond the locked gate at Division Road; however, no such

requests related to Bingo Hill have been received since 2007 other than that mentioned above. Bingo Hill remains accessible by all terrain vehicles and by foot.

Archaeological studies were performed on Bingo Hill over a 5 year period from 2005 to 2010 with multiple site visits over each summer. During these studies, no evidence of current spiritual or cultural use was noted.

3.0 Traditional Land Use

Traditional Land Use studies were supported by Shore Gold through the development of Information Gathering Agreements with seven Aboriginal groups: the Three Bands of the James Smith Cree Nation (JSCN), Muskoday First Nation, Wahpeton Dakota First Nation, Sturgeon Lake First Nation, Red Earth Cree Nation, Metis Nation of Saskatchewan Eastern Region II, and Metis Nation of Saskatchewan Western Region II. Study authors were selected and managed by each Aboriginal group. Appropriate summaries of these studies are included in the revised EIS.

The revised EIS TLU effects assessment described JSCN cultural sites, including Bingo Hill:

There is a current camping area and sacred site located between the overburden pile and the Star Pit which will be partly inaccessible during the project due to the brush barrier. The area was identified by JSCN members as a proposed conservation site. A large camping 'zone' that follows the Saskatchewan River will also have a small area removed from potential use from the brush barrier. Additionally, Bingo Hill (or 'Spy Hill' as it is alternatively known) will be likely removed as it is within the boundary of the Star Pit. As stated in the TLU study, "JSCN15 explained that Bingo Hill (located within the Project Area) is a sacred site for JSCN as it has been used for ceremonies and is the highest peak in the area and JSCN members used to always travel through Bingo Hill" (Calliou Group 2011: 55). Access to Bingo Hill has been restricted recently at the request of the JSCN.

Additionally, a cabin is located in the JSCN reserve on the north side of the Saskatchewan River. It is not within the project area but is widely used by JSCN members and is accessed by Lars Road.

Camping sites and other sites near the mine may be impacted by visual and noise effects.

According to the JSCN TLU report, "Bingo Hill is a camping, hunting and sacred area" (Calliou Group 2011:3). The report also indicates that three interviewees use Bingo Hill during big-game hunting, and others use it for 'unspecified' hunting. Several interviewees indicated they use the hill for berry picking. Another interviewee noted the hill was both a sacred site and a travel route to resource-gathering area, "JSCN15 explained that Bingo Hill (located within the Project Area) is a sacred site for JSCN as it has been used for ceremonies and is the highest peak in the area and JSCN members used to always travel through Bingo Hill" (Calliou Group 2011:55). The site was noted as a possible conservation area by interviewees as well.

According to the report, general concerns about the Project affecting Bingo Hill includes diminished access to the site, and whether the site will remain in place or be overprinted/removed from mining infrastructure (the open pit). Other general concerns which may relate to cultural sites include decreased access and increased traffic.

A burial area and ceremonial site were also identified in the TLU EA, they will be avoided by Shore Gold as indicated.

Information on frequency of use of Bingo Hill and other camping or cultural sites is not included in the JSCN report (Calliou Group 2011). Seasonality of use of Bingo Hill was not provided. However, berry harvest activities would likely take place in the summer and fall (although cranberries can be harvested frozen throughout the winter), and hunting generally takes place in the fall although can be done throughout the year (Calliou Group 2011). Travel through the area, it is assumed, could be at any time in the year but if associated with resource gathering, would be most often undertaken in the summer and fall.

4.0 Traditional Land Use Assessment

Traditional Land Use Valued Components (VCs) were assessed based on several different aspects based on a methodology developed in coordination with JSCN. The potential effect on each VC was then determined by integration of each aspect that makes up the VC. Within the Revised EIS, potential impacts to one aspect of the combined Cultural Sites VC, the biophysical aspect in the Local Study Area, was rated as significant for JSCN, but with uncertainty. The combined Cultural Sites Valued Component considered biophysical, economic and socio-cultural aspects in its assessment. The final assessment of Cultural Sites for JSCN was rated as not significant to significant due to uncertainty regarding Bingo Hill, as JSCN chose not to provide feedback to Shore on this matter.

Although JSCN participated in the development of the assessment methodology, once the assessment was completed, JSCN indicated that it would be inappropriate to discuss mitigation of any effects on TLU, including the proposed impacts to or removal of Bingo Hill until they had reviewed the full, final EIS. This position was communicated to Shore and to a representative of the Department of Fisheries and Oceans in a meeting held on April 20, 2012 at JSCN (Table 4.4-1 of the revised EIS). As such, no additional information about mitigations was presented in the Revised EIS as to not presuppose JSCN's position. As noted in the EIS, "Shore proposes to discuss this potential impact with JSCN, Provincial and Federal Regulators and other Aboriginal groups as appropriate to determine the best mitigation". Shore has continued to attempt to meet with JSCN as documented in Section 4 of the EIS.

Prior to 2005, as part of the process to develop the draft Fort a la Corne Land Use Plan, James Smith Cree Nation traditional use information was collected, however the base data for this study has subsequently been lost. In the draft Land Use Plan, the MoE (2005) states:

"The James Smith Cree Nation (JSCN) has identified Aboriginal sites as having traditional and cultural importance. They include burial sites, ceremonial grounds, sacred sites and traditional areas of harvest for medicinal and spiritual plants. Sacred and Aboriginal sites identified during the planning process were all within the Protected Zone, and are protected from development. For further identification of these sites, consultation with James Smith Cree Nation is required."

Note that the location of Bingo Hill, and the entirety of the Star open pit lie outside of the Protected Zones.

5.0 POTENTIAL MITIGATION

Given the context, identification of appropriate mitigation discussed here should be considered a starting point only, as JSCN has declined to provide input. This discussion is included upon request of the Canadian Environmental Assessment Agency and represented the results of internal Shore analysis. Options for potential mitigation considered include:

1. Avoidance;
 - a. pit slope refinement;
 - b. steepening of the slopes by engineered methods;
 - c. sterilization of ore;
2. Relocation; and
3. Mitigation through socio-cultural benefits.

Each option is qualitatively assessed based on three variables: feasibility, effectiveness and economic implications.

Feasibility is simply rated based on the technical probability of successfully implementing the proposed mitigation. High feasibility is defined for cases where several similar mitigations have been successfully implemented in other projects, or where competent qualified persons have determined that the option can be achieved. Moderate feasibility is defined for cases where there is at least one other example of similar mitigation or where a qualified person determines that the option is likely to be possible. Low feasibility is defined where there are no similar cases, or where a qualified person determines that it is unlikely to be successful. Unfeasible is defined as cases where a qualified person has determined that the option is not possible.

Effectiveness is a qualitative rating base on Shore Gold's assumptions about the acceptability of the proposed measure and the overall protection of the resource mitigated. High effectiveness is defined as complete preservation of the resource in an unchanged state, or where mitigation creates benefit that outweighs the residual effect. Moderate effectiveness is defined as preservation of the function of the resource but with changes, or the creation of an equivalent benefit to the residual impact. Low effectiveness is defined as a change in the resource and change in use of the resource, or creation of benefits that are less than the residual effect. Non-effective is defined as the case where no use of the resource is possible or no benefit is created.

Economic implications refer to the effect of the mitigation on project economics, either by estimated changes to net present value (NPV) or internal rate of return (IRR) of the Project and modified by a qualitative assessment on the impact of these changes on the ability of the Project to proceed. A low economic implication refers to the case where changes to the NPV or IRR are negligible or accounted for in the current feasibility study and do not change the ability of the Project to move forward. Moderate economic implication refers to the case where NVP or IRR are likely to be lower, or where it is possible that the ability of the Project to proceed is impaired. High economic implication refers to the case where NVP or IRR are expected to change significantly and it is expected that the ability for the Project to proceed is impaired. Uneconomic refers to the case where NVP or IRR are affected in such a way that the Project will not proceed as planned.

The rating system used for this analysis is presented in Table 1 below. Final rankings will be determined by taking the product of each numerical value of each variable.

Table 1: Variables and Numerical Score Used in the Assessment

	Feasibility	Effectiveness	Economic Implications
Low	1	1	3
Moderate	2	2	2
High	3	3	1
Unfeasible Non-effective Uneconomic	0	0	0

5.1 PIT SLOPE REFINEMENT

Pit slope refinement is the possibility of re-designing pit slopes or pit configuration in a way to avoid impacts to Bingo Hill. Feasibility level pit slopes were engineered and signed off by Wayne Clifton, a qualified person under National Instrument 43-101 regulations. In the feasibility level analysis, Clifton examined all available data to design an appropriate pit slope. As such, no further refinement is possible without additional data. Drilling and data collection for the feasibility study was deemed adequate. Additional data may be collected during construction, in particular during excavation of the starter pit, which may lead to refinements of the pit slopes. This information can only be collected during construction.

Current pit design is based on optimizing payback period and minimizing capitol costs. As such, access ramps are placed on the west part of the Star pit, near the current location of Bingo Hill, and closest to the overburden pile. Ramp placement influences the pit slopes in this area, and re-design of pit access may reduce the width of the pit in this area. Comparison of slopes without ramps and ones with ramps in the Star pit indicate that slopes without ramps are approximately 100 m narrower than those with ramps, and thus is unlikely to easily yield results that avoid impacts to Bingo Hill. More detailed analysis would require considerable effort, including a complete revision of the feasibility study, re-optimization of mining, re-engineering of overburden handling, and recalculation of Project economics based on the new mining sequence and conveyance design. Revision of the feasibility study would create a minimum of a 12 month delay, and up to 1.5 million dollars of consultant costs with an unknown impact on overall Project economics. However, as the feasibility study was economically optimized, any change is very likely to reduce Project economics, especially as Bingo Hill lies in the Star Phase 1 pit which has been optimized as the most economic starting point for the Project.

This option is rated as low feasibility, moderate effectiveness as surrounding activities would potentially impact traditional uses on Bingo Hill, and, at a minimum, a moderate economic implication.

5.2 ENGINEERED STEEPENING

This option includes the evaluation of engineered slope stabilization methods such as grout, retaining walls, piles, and shear keys to strengthen soil such that slopes can be increased to avoid direct impacts to Bingo Hill. Within the feasibility study, these methods were considered on a large scale to steepen slopes, as the cost of overburden removal is a key cost to the Project. As a result of this analysis, Clifton, and a qualified person, determined that a granular shear key could be placed at the till-shale contact to reduce the width of the large lower bench above the shale. This mitigation is already included in the slope design, and Clifton did not identify any other methods feasible at the scales required to further steepen slopes. Even if feasible, the economic implications are substantial. Rough estimates to place engineered methods along the roughly 2 kilometer pit edge along the west side of Star pit would significantly increase

construction capital and negatively affect Project economics. Effects on Project economics would be somewhat mitigated by the reduction in the volume of overburden removed.

This option is rated as unfeasible, moderate effectiveness as surrounding activities would potentially impact traditional uses on Bingo Hill, and high economic implications.

5.3 STERILIZATION OF ORE/RESERVE AND POTENTIAL MINERAL DEPOSIT WITHIN THE 134 KIMBERLITE

This option would see the preservation of Bingo Hill by leaving kimberlite ore in the ground. Some of this ore within Star is part of the Project Mineral Reserve and some of it is an inferred resource with known economic potential. In addition to kimberlite classified as ore in the N.I. 43-101 compliant resource for Star, additional kimberlite lies beneath Bingo Hill including but not limited to, the 134 Kimberlite. This additional kimberlite has unknown diamond populations and therefore unknown economic feasibility.

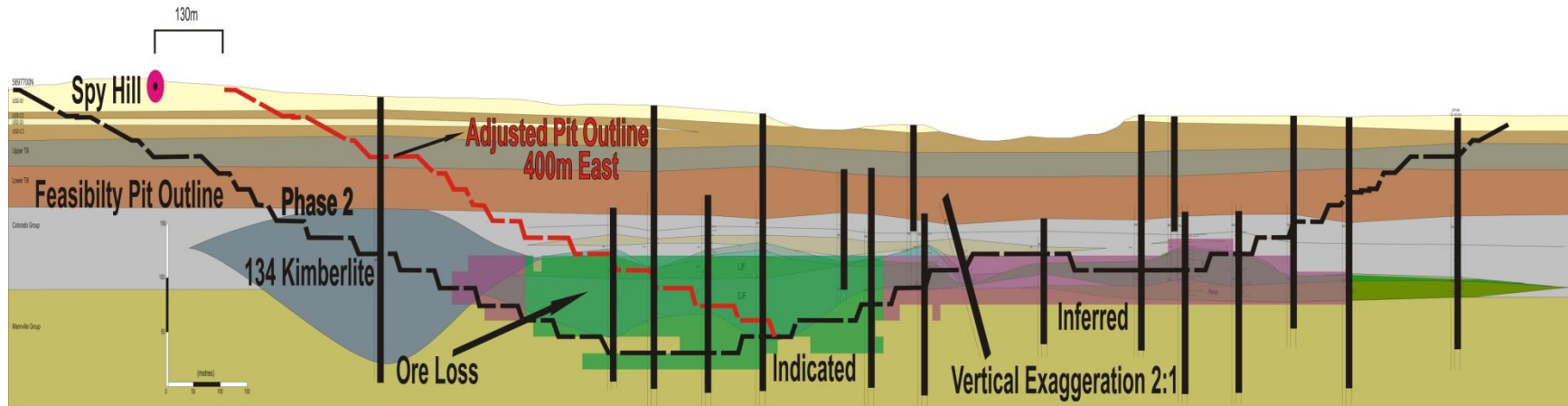
In the feasibility mine plan, the location of Bingo Hill is mined in Phase 2. Phases 1 and 2 are designed to minimize pay-back period (and hence maximize cash flow). Much of the ore mined in these phases is high value, containing high grade kimberlite, and minimal waste rock or other kimberlite. This is illustrated in Figure 2, which was selected to show the ‘worst case’ cross section. Figure 2 shows the impact of simply moving the pit edge far enough to avoid Bingo Hill. The new pit outline is shown (Figure 2) to cut through large thicknesses of ore, leaving a substantial amount of economical and potentially economical kimberlite in the ground. Rough estimates based on simple spatial analysis to determine kimberlite directly impacted by the new pit outline (i.e., the pit shell was not re-optimized to account for ore left in the ground, thus additional ore blocks may be affected) show a potential reduction of up to 5% of the Cantuar and Early Joli Fou kimberlite mined at Star, and, more importantly, possibly up to 20% of the kimberlite mined in Phase 2 of Star. Sterilization of this revenue would have serious implications on the economic feasibility of the Project, including increasing the pay-back period of the Project and negatively affecting NPV and IRR. Due to the time value of money, revenue (and conversely, costs) in the early stages of the Project has a greater impact on Project economics than those later in the Project. To exactly quantify the effect of this a complete redesign of the pit as well as a complete re-optimization of the mine plan and economic model would be required.

This option is rated as high feasibility, moderate effectiveness as surrounding activities would potentially impact traditional uses on Bingo Hill, and uneconomic.

5.4 RELOCATION

Bingo Hill could be excavated and all material from Bingo Hill replaced in a different location (either on the overburden pile or other location) with the same elevation and dimensions as the original Hill. This would be accomplished using equipment specified in the feasibility study and whose costs are already included as this material would need to be moved regardless. Relocation would not affect NPV or IRR. However, it is unknown if this option would allow for equivalent use of the feature in the relocated position. As a result, this option is rated as high feasibility, low effectiveness, and low economic implication.

Figure 2: Adjusted Star Pit Outline



5.5 SOCIO-CULTURAL BENEFITS

This option includes consideration of socio-cultural benefits arising from the Project to provide mitigation to potential effects on Traditional Uses of Bingo Hill. Potential options to consider may include facilitating appropriate activities, supporting programs that would preserve and transfer Traditional Knowledge of the FalC, or sponsoring potential replacement initiatives. As mentioned, JSCN has declined to comment on mitigation, so these examples are useful only as a starting point. Shore remains open to any suggestions that arise through future discussions.

In addition, through Shore's representative workforce policy, it is expected that members of the JSCN will be employed at the Project and that opportunities will exist for businesses to become involved with the Project. Sponsorships and donations will be targeted toward community initiatives throughout the Project. Shore is currently attempting to engage with JSCN, as well as other Aboriginal groups, to discuss these benefits through negotiation of a formal agreement. Note that these discussions are likely to identify responsibilities of the Crown, the proponent and Aboriginal groups.

Similar types of agreements have been established for other Projects. As a result, this option is rated as high feasibility, moderate effectiveness, and low economic implication as costs and contingency within the feasibility study account for reasonable measures to support any such agreement.

6.0 SUMMARY AND IDENTIFICATION OF PREFERRED MITIGATION

Mitigation measures are summarized in Table 2. The final rating (obtained by multiplying each numerical value in a row) identifies socio-cultural benefits as the preferred mitigation for direct impacts to Bingo Hill. The second highest scoring option, relocation, should also be considered in discussions about appropriate mitigation with JSCN and regulators, as the effectiveness would largely depend on views within JSCN.

Table 2: Mitigation Summary and Identification of Preferred Option

Mitigation	Feasibility	Effectiveness	Economic implications	Rating	Preferred Option
Slope refinement	Low (+1)	Moderate (+2)	Moderate (+2)	4	NO
Engineered steepening	Unfeasible (0)	Moderate (+2)	High (+1)	0	NO
Sterilization of Ore	High (+3)	Moderate (+2)	Uneconomic (0)	0	NO
Relocation	High (+3)	Low (+1)	Low (+3)	9	Possible
Socio-Economic Benefits	High (+3)	Moderate (+2)	Low (+3)	18	YES

7.0 CONCLUSION

Bingo Hill is a known landmark in the Fort a la Corne forest, as it is the height of land in the Local Study Area. Archeological evidence indicates use of the site between 5,100 and 4,100 years ago. Traditional land use studies completed by James Smith Cree Nation (JSCN) identified the area around Bingo Hill as a hunting and gathering area, as well as a camping area. One member interviewed during the JSCN study identified Bingo Hill as a sacred site. There have been no known current traditional uses of Bingo Hill

since 2007, and extensive heritage resource surveys did not find any evidence of recent spiritual use of the site.

Potential mitigations for the potential removal of Bingo Hill were qualitatively assessed. The preferred mitigation is through the provision of socio-cultural benefits arising from the Project. A second option, relocation of Bingo Hill, should also be considered for future discussion as Shore's internal analysis has not taken into consideration views from James Smith Cree Nation as the Nation has decided not to discuss mitigation until the EIS is finalized. Shore continues to attempt to meet with James Smith Cree Nation on a regular basis. The outcome of these discussions may identify actions or responsibilities of Shore, James Smith Cree Nation and Governments.

Complete avoidance of Bingo Hill by various methods was determined to be unfeasible, uneconomic, or, for the case of slope redesign and refinement, low feasibility and moderate economic implications.

Given the additional information and analysis contained in this report, Shore concludes that socio-cultural benefits can be expected to mitigate impact to Traditional Use of Bingo Hill given the current and historical information gathered for the EIS. This information reduced the uncertainty in the original assessment, and although the Project will impact traditional uses in the LSA, the impact assessment should conclude that the impacts are not significant on the Cultural Sites VC.

Shore remains committed to follow-up and monitoring and to implement adaptive management where appropriate and agreed upon by the involved parties.