Izok Corridor Project Proposal

SECTION 8

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8 POTENTIAL PROJECT SOCIO-ECONOMIC AND CULTURAL EFFECTS

8.1 Socio-economic Environment

8.1.1 Key Issues and Concerns

Community consultation undertaken in April and May of 2012 (refer to section 3) revealed that residents of the Kitikmeot and the regulatory agencies in Nunavut had a number of issues and concerns and positive comments about the proposed Project. Key interests focused on possible opportunities for employment, training and contracting. Residents of Gjoa Haven and Taloyoak were also interested in the shipping aspect of the Project.

8.1.2 Identification of Potential Project Effects

As discussed in section 7.1, preliminary identification of potential Project effects is based on an initial scoping exercise that considered pre-feasibility design for the Project. A detailed assessment of potential socio-economic and cultural effects of the Project and development of appropriate mitigation will be conducted as part of the feasibility study and environmental assessment (EA) phase of the Project and will be presented in the Draft Environmental Impact Statement (DEIS).

Key elements of the initial scoping process include consideration of all Project-related issues identified to date through engagement with regulatory agencies and communities, and identification of potential interactions between the Project and selected Valued Socio-economic Components (VSECs). These are summarized in Appendix B, as contained within NIRB's Project Specific Information Requirements (Part 2 Form). Possible mitigation measures and monitoring for these potential effects are also described below.

8.1.3 Potential Project Effects and Mitigation

Potential direct effects of the Project on the socio-economic environment are largely determined by:

- Employment directly with MMG, or with a contractor
- Payment of royalties, taxes and other forms of compensation
- Changes to the biophysical environment in relation to human activities or perception

The direct socio-economic effects of the Project can be largely and effectively mitigated through measures aimed at managing human resources, protecting public and workers safety, enhancing business development, and protecting traditional land use.

Indirect and induced effects may be related to the response of individuals, families and communities, and governments and other organizations (i.e., Regional Inuit Organizations, Nunavut Tunngavik Inc. (NTI) etc.) to direct Project effects on the socio-economic effects, on the natural environment, and from the Project as a whole.

The interaction between the various effects of the Project will result in various outcomes on community well-being in terms of individual and family wellness, community wellness, and personal security. The manner in which they are managed will determine whether these outcomes are beneficial or adverse.

To this end, the indirect socio-economic effects of the Project can be effectively managed through adaptive approaches and collaborative problem solving such that the desired outcome is achieved. The following section discusses the key potential effects of the Project on the socio-economic environment, and MMG's proposed approach to managing these effects. The section is organized according to the five core assets that collectively form individual and community wellness, which is a reflection of cumulative effects.

Potential effects of the Project on natural assets such as wildlife are not addressed in this section. A discussion of potential effects of the biophysical environment is presented in section 7.

8.1.3.1 Human Assets

Human Assets encompass the skills and knowledge inherent in the community, opportunities for growth and learning, access to skills and knowledge, and access to essential services that are fundamental to maintaining individual, family and community wellness.

The total construction workforce will be approximately 1,140 workers, including management, trades people and labourers taking into consideration shifts and rotation. During the operations phase, the total workforce is estimated to be in the order of 710 people. Given the demand for labour with the Izok Corridor Project, Kitikmeot residents can expect opportunities for employment and chances for developing skills and knowledge.

The Project may indirectly increase the population in some communities and possibly induce increased demands for health, safety, and social services as people may relocate to access jobs. As this will be a fly-in and fly-out (FIFO) operation, major population moves from inside the Kitikmeot region are not expected to occur, but individuals and families from points not part of the pick-up communities may relocate to take advantage of jobs. Decisions to migrate into the region are considered more likely to occur during the early years of operations, as people adjust to opportunities offered by the Project.

The Project demand for labour, particularly trades people, may be a catalyst for more proactive and sustained initiatives by government, other employers, labour groups and educational institutions aimed at establishing a stable, qualified workforce. This may result in the creation of new apprenticeship opportunities that will generate a number of new certified trades people available for the Project itself and/or Nunavut's general labour market and in the communities.

The Project will contribute to the expansion of the skills base over the long term. As such, the Project may also be a catalyst for increased enrollment in post-secondary educational programs that provide degrees or certificates and other training programs that support certification in a skilled trade. MMG is already engaged in a stay-in-school initiative.

8.1.3.2 Economic Assets

The Economic Assets considers opportunities for employment and participation in the economic life of the community and region, including the monetary or financial resources that people and governments use to achieve their economic objectives. It also includes the payment of royalties and other fees that MMG will make to the federal and territorial governments, NTI and the Kitikmeot Inuit Association (KIA). Economic assets are key determinants of economic vitality.

Overall, the Izok Corridor Project is likely to improve the economic assets of various parties across Nunavut and beyond. MMG is planning for local hires and local contractors. This will create new employment and business opportunities in Nunavut.

As a result of these opportunities, community economies may grow. Further, with increasing job experience, education and training, and contracting over time, the Project will enhance the capacity of the labour force overall. MMG's influence will be a sustained demand on the existing labour force and result in increased competition for skilled workers, particularly trades people.

The Project may be a catalyst for increased local and regional economic development during construction, operation and decommissioning, and may attract investment and/or new business operations to the Kitikmeot and Nunavut in general as a result of spending of new disposable income and from MMG's expenditures in the communities.

The benefits of economic opportunities to Nunavummiut and Kitikmeot residents in particular are expected to gain momentum with time. As a result, it is expected that total household income in the Kitikmeot will increase over time and result in lower requirements for income support.

Increased income has potential to cause both beneficial and adverse effects on individual and community well-being. Increased incomes will improve people's financial security and ability to spend. Indirectly, this same increase in ability to spend may reduce the need and interest to participate in traditional non-wage economy. This may have a longer term effect on the transfer of cultural knowledge to family members. This might be countered by community-based programs where they exist.

The financial capacity of various governments and organizations will likely improve as a result of the Project. For example, the Government of Nunavut (GN) is anticipated to benefit from increased personal, corporate and fuel tax revenue generated directly and indirectly by the Project. In addition to the increase in the GN's financial capacity, the NTI will gain royalties from the Project, and KIA will likely benefit from the financial provisions of an Inuit Impact and Benefit Agreement (IIBA) and fees paid for leases related to surface access rights. All together, the implementation of an IIBA and possibly a Development Partnership Agreement (DPA) with the GN could be used to off-set potential Project-related operating costs incurred by communities and the GN.

8.1.3.3 Physical Assets

The Physical Assets consider the basic infrastructure that allows a community to function effectively, through the availability and quality of assets that attract and retain people and investments within a community.

Mining projects have been known to place demands on housing stock and transportation infrastructure. As the Project is located 180 km from the nearest community, Kugluktuk, communities will likely not become hubs for transportation of supplies, goods and equipment. The demand on transport will be to move local workers to the Izok Mine site or the High Lake site. Since the Izok Corridor Project will operate on a FIFO rotational system, it will not likely have a direct measureable effect on housing or transportation infrastructure. Rather, the FIFO system is the primary mitigation to avoid such effects.

8.1.3.4 Social Assets

The Social Assets include traditional and other community activities in which people participate, and the facilities or amenities that they draw upon in pursuit of their personal and community objectives. The cultural, archaeological and paleontological resources of the Inuit people, the traditional activities undertaken on the land and recreational facilities that serve the community help maintain traditional Inuit knowledge, networks within the community and among communities, increase connectivity among people, and generate relationships across generations.

The most direct effects of the Project on social assets may be the loss of access to lands and waters and the physical disturbance to cultural, archaeological and paleontological resources present within or in the vicinity of the mines, road and port facility. The Project may also affect traditional activities through the direct loss of fish and wildlife (Refer to sections 5 and 8.2 for a detailed discussion of potential Project effects on the natural environment and archaeological resources, respectively).

Indirect effects of the Project may also occur as a result of the creation of employment and business opportunities, which may affect traditional activities, as more people participate in the wage-based economy. While increased wage income and rotational work can provide the financial resources and maintain opportunities for harvesting for those who choose to continue their traditional activities; the corollary is that for some individuals there may be less time or desire to practice these activities.

The growing support and commitment among governments, Inuit organizations and others toward the maintenance of traditional culture is expected be a positive influence on the retention of traditional skills, language, values and knowledge over the long term. As a worst case, the Project may reduce traditional activities and knowledge, but will certainly not result in a loss of these social assets. Nevertheless, any erosion of traditional culture can have negative effects on some individuals' sense of well-being, particularly on women and family elders.

Finally, the manner in which the roads, mine sites and related infrastructure are decommissioned and restored during the post-closure phase of the Project has the potential to directly affect traditional activities and the perceptions of environmental quality.

8.1.3.5 Individual and Community Wellness

Individual and community wellness sits at the intersection of the assets. It is the summation of the assets combined and a reflection of cumulative contributions. For example, a reduction of harvesting or sharing of harvest has potential to adversely affect food security. To the extent possible, the synergistic effects that result from direct Project effects will be considered under individual and community wellness.

8.1.4 Socio-economic Effects Management and Benefits Enhancement

The overall goal of socio-economic effects management is to ensure that workers, communities and government organizations adversely affected by the Project have the capacity to cope with change and that MMG's effects management and benefits enhancement facilitate the ability to cope.

MMG will be designing the Izok Corridor Project consistent with its corporate standards (refer to sections 1 and 12 for more details). Relevant to the Izok Corridor Project are its draft standards for local

employment, local procurement, community development, cultural awareness, and heritage and social impact management. These draft guidelines are to be approved before the end of 2012. Extracted from these draft guidelines are the following principles that apply to socio-economic effects management and benefits enhancement measures. These principles include:

1) MMG and all other parties involved in Project implementation will ensure that the safety of the environment and protection of human health are paramount in all decision making.

2) Effects management measures that avoid or reduce the severity of direct adverse socio-economic effects will be the primary focus of MMG commitments. Adaptive management and collaborative problem solving will be the primary approaches for addressing indirect socio-economic effects, be they adverse or positive in nature.

3) Those potentially affected by the Izok Corridor Project will be afforded the opportunity to participate in the design and delivery of the socio-economic effects management measures and participate in collaborative problem solving.

4) MMG shall take reasonable actions to ensure that the services and programs offered by various governments and organizations operating in the Kitikmeot region are not undermined by actions or events directly related to the Project and within the control of MMG.

5) Monitoring and surveillance activities shall be undertaken to assist in continual improvement and adaptive management.

6) Ongoing communications are valuable and important activities. Project-related communications will be open, accurate and timely. Communications will be designed to suit the needs of all Nunavummiut.

7) All mechanisms designed for the delivery of socio-economic effects management will be as accessible, user-friendly, culturally appropriate and non-bureaucratic as possible.

To manage the direct socio-economic effects of the Project, MMG will develop management plans in collaboration with various stakeholders, including a Human Resources Management Plan that is aimed at ensuring compliance with applicable human resources legislation and mining industry standards regarding employment, compensation and benefits.

MMG is also considering adaptive management plans for addressing indirect socio-economic effects. Possible plans that may be developed, depending on the outcome of the effects analysis, include:

- An Employee Well-Being Enhancement Plan: MMG shall develop a plan for providing its employees with access to services that are aimed at enhancing their personal security and family wellness.
- A Community Capacity and Well-Being Enhancement Plan: MMG shall develop a plan for its support of various government and Inuit Organization's initiatives aimed at addressing community capacity and wellness priorities. This plan will include the consideration of a Development Partnership Agreement (DPA) with the GN and related measures.
- Closure Transition Plan: MMG is considering the development of a plan aimed at managing the socio-economic effects likely to be felt towards the end of mine operations and post closure.

8.1.5 Socio-economic Monitoring

The management plans will include provisions for monitoring and surveillance, continual improvement and reporting of results to communities, Inuit organizations, the KIA, Institutions of Public Government, and other interests.

8.2 Archaeological Resources

8.2.1 Potential Project Effects

Ground-disturbing activities associated with Project construction, operation and closure will have direct effects on archaeological resources. Construction and operational-related activities that could have direct effects on archaeological sites include: site clearing, vehicular movements, construction of surface facilities, development and maintenance of all site infrastructure including winter and all-season roads, port (blasting, trenching, grading, backfilling, installation of foundations and supports for surface structures and utilities, drainage alteration) utilities, airstrip, stockpiles, quarries and borrow pits, vehicular movement and excavations related to accidents (spill containment).

Key effects on archaeological resources could be expected to occur primarily during the construction phase. However, ongoing activities associated with the operations phase such as road maintenance, stockpiling, activities at borrow and quarry sites and activities associated with closure also have the potential to affect archaeological resources. Winter roads are generally constructed over low lying level ground and frozen water bodies, and their construction and operation are less likely to affect areas of good archaeological potential. The exception to this is at river crossings and some lake entry and exit points. Borrow sites are generally located on ground moraine and esker deposits, which often have good potential for archaeological sites. Quarries are usually located on bedrock outcrops, which can also have archaeological features, particularly at lakeshores or along water courses. Excavations at these types of locations could damage archaeological resources.

During operations, mining is unlikely to further affect archaeological resources, as long as no additional surface disturbance is planned. Any future additional land requirements must be located with full consideration of archaeological sites.

Archaeological inventories will be conducted at all Project locations that entail ground disturbance, including quarries and borrow sites. They will also be conducted on additional land that would be required for closure activities prior to finalization of the closure plans. Once all proposed development areas have been inventoried, the total site population will be known and those that may be affected can be identified. For each site, factors considered in the assessment are proximity of the archaeological site to development activities, the type of effect expected and proportion of the site to be affected. Using these factors in combination with results of detailed site assessments, mitigation measures will be determined on a site-specific basis.

Indirect effects on archaeological sites could also occur during construction, operation, closure and post closure due to increased numbers of Project personnel engaged in non-project related activities, such as recreation. In addition, improved access to the region from construction of a port at Grays Bay and winter and all-season roads between the Izok and High Lake mines and Grays Bay could also cause an

increase in non-Project related people in the area. Indirect effects could occur close to or at a distance from the development locations and roads.

Improved access and increased use of the area could increase the potential for damage to archaeological sites through increased use of snow machines, all-terrain-vehicles and people walking in the area. This could also lead to a people finding archaeological sites and gathering artifacts. Both of these actions could cause a loss of a site's contextual information.

Effects from Project-related sources would be expected to occur during the construction, operation and closure phases, whereas effects from non-Project related activities would be expected to occur once the transportation infrastructure has been constructed and continue through to the closure phase when the facilities are removed or decommissioned.

8.2.2 Potential Mitigation

Mitigation refers to measures (project design changes, use of best management practices or other measures) that are incorporated into the Project to eliminate or reduce potential effects. There are two types of mitigation measures: mitigation by design and discipline-specific mitigation.

8.2.2.1 Mitigation by Design

The primary mitigation by design measure relating to archaeology is avoidance of archaeological sites or archaeologically sensitive areas by project realignment or redesign. Typically, only minor changes are required due to the limited size and location-specific nature of archaeological sites. This approach eliminates the need for detailed impact assessment and subsequent mitigation actions, as it constitutes adequate mitigation of potential impacts.

An additional mitigation strategy that can be incorporated into the Project design is to minimize the use of eskers. These landscape features typically have high potential for archaeological resources; therefore, this strategy reduces the potential to impact sites.

8.2.2.2 Discipline-Specific Mitigation

As noted above, the first choice for mitigation of project effects on archaeological sites is to avoid the site. Where avoidance of project effects on an archaeological site is not possible, two other strategies can be considered: site protection (either temporary or permanent), or site documentation and data collection, generally called systematic data recovery.

Site protection is used where project activities are temporary or intermittent at a reasonable distance so as to make direct effects unlikely. Construction and maintenance personnel will be made aware of the locations of archaeological resources close to Project infrastructure or activities and the importance of not disturbing them. Forms of site protection can include the creation of a sufficiently large buffer zone within which development will not occur, the erection of physical barriers, or monitoring by a qualified archaeologist. Protective barriers may be temporary (i.e., for the specific period of a limited term project activity), or may be in place over the long term, as in the case of a site close to a road right-of-way.

If neither avoidance nor site protection are possible, then a suite of actions referred to as systematic data recovery will be implemented. These actions include surface collection, detailed mapping, and

subsurface testing to evaluate site deposits and/or excavation of a selected sample of the total site area. The site will be thoroughly documented and a sufficient sample of the cultural information contained in the archaeological site will be collected. As full-scale mitigative excavations destroy heritage resources, they are more appropriately referred to as compensation rather than mitigation. Systematic data recovery is reserved for situations where site disturbance due to development is unavoidable, or when the expected cultural information is considered of sufficient value such that the excavation disturbance is warranted. Very important or sensitive sites, such as burials or unique types or important gathering locales, may need to be preserved, together with representative examples of all other site types. Such decisions are made on a site-specific basis and require consultation with the GN.

The ongoing potential for direct and indirect effects can be minimized by application of access limitations, monitoring and/or surveillance procedures, restricted availability of archaeological site location information and through implementation of an effective education program for all Project personnel.

8.2.3 Potential Monitoring

Follow-up baseline data collection is required for the revised mine and port footprints, and the winter and all-season road alignments. This is most appropriately completed after the road alignments are finalized, but must be completed before construction begins.

Following completion of the baseline data collection, a Heritage Resource Management Plan (refer to section 12.2) will be prepared that will detail the status of all recorded archaeological resources within the LSA, recommend site-specific mitigation or compensation strategies, recommend monitoring programs and outline contingency procedures in the event of unexpected archaeological discoveries during the life of the Project.

Monitoring of sites close to development areas will be undertaken. This will entail periodic inspections of sites by a qualified archaeologist to assess the potential for indirect effects and monitoring of any Project activities close to recorded archaeological resources to ensure successful avoidance. These sites would be within the zone of possible indirect effects. Where potential for Project effects is evident, follow-up will consist of establishing protective barriers or some form of data recovery where appropriate.