

## **Mining Plan of Operations and Reclamation**

**for:**

Hotham Peak Quarry  
P.O. Box 209  
Noorvik, Alaska 99763

### **Material Site Manager Contact(s):**

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**Plan Date:**

**8/31/2017**

Revision 2

## ***Table of Contents***

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<b>SECTION 1: CONTRACTUAL REQUIREMENTS.....</b>	<b>1</b>
1.1 MINING & RECLAMATION PLAN .....	1
1.2 ENVIRONMENTAL COMPLIANCE, PERMITS, AND PLANS .....	1
<b>SECTION 2: EXISTING CONDITIONS .....</b>	<b>2</b>
2.1 SITE LOCATION INFORMATION .....	2
2.2 SITE OWNERSHIP AND MANAGEMENT.....	2
2.3 OVERVIEW AND GENERAL SUMMARY OF THE MINING OPERATION .....	3
2.4 SITE DATA .....	3
2.5 ACTIVITIES AT THE FACILITY .....	4
<b>SECTION 3: DETAILED MINING OPERATIONS .....</b>	<b>6</b>
3.1 GEOLOGIC COMPOSITION AND DEPTH OF MINERAL DEPOSIT .....	6
3.2 EXISTING TOPOGRAPHY .....	6
3.3 SITE VEGETATION .....	6
3.4 GROUNDWATER INFORMATION.....	6
3.5 SURFACE WATERS & SITE DRAINAGE .....	7
3.6 AERIAL EXTENT AND PHASING OF OPERATIONS.....	7
<b>SECTION 4: INTERIM/FINAL RECLAMATION AND POST-MINING LAND USE.....</b>	<b>13</b>
4.1 RECLAMATION EQUIPMENT AND EXTENT .....	13
4.2 INTERIM RECLAMATION .....	15
4.3 FINAL RECLAMATION.....	16
4.4 PERMANENT STRUCTURES.....	17
4.5 REVEGETATION PLAN .....	17
4.6 REVEGETATION STANDARDS .....	17
4.7 ANNUAL RECLAMATION STATEMENT.....	18
<b>SECTION 5: INSPECTIONS AND SITE MAINTENANCE.....</b>	<b>19</b>
5.1 STORMWATER INSPECTIONS .....	19
5.2 ROUTINE INSPECTIONS.....	19
5.3 FOLLOW-UP INSPECTIONS .....	19
5.4 SITE MAINTENANCE .....	20
<b>SECTION 6: SITE CLOSURE.....</b>	<b>21</b>
6.1 FINAL SITE ACTIONS .....	21
6.2 CRITERIA FOR SUCCESSFUL RECLAMATION.....	21
6.3 FINANCIAL ASSURANCE .....	21
<b>SECTION 7: TRAINING.....</b>	<b>22</b>
<b>SECTION 8: CERTIFICATION OF THE RECLAMATION PLAN.....</b>	<b>23</b>
<b>SECTION 9: PLAN MODIFICATIONS.....</b>	<b>24</b>
<b>SECTION 10: REFERENCES.....</b>	<b>25</b>
<b>SECTION 11: ATTACHMENTS.....</b>	<b>26</b>

## SECTION 1: CONTRACTUAL REQUIREMENTS

### ***1.1 Mining & Reclamation Plan***

The Mineral Materials Management Agreement (MMA) between NANA Regional Corporation (NRC) and the Native Community of Noorvik (Manager), effective August 31, 2017 through August 31, 2022, establishes regulatory requirements that the Manager must fulfill. A key element (Article 3.01 of the MMA) requires the Manager to prepare and implement a Mining & Reclamation Plan (“Plan”) that must be approved by NRC prior to material mining. Pursuant to the MMA Section 3.10, the Manager is responsible for the cost and preparation of the Plan. NRC prepared the original version of this Plan as a courtesy to the Manager to mitigate site problems resulting from the failure to follow a mining plan. Such preparation by NRC does not alter the MMA Article 3.10 or in any way shift the responsibility for the Manager to comply with local, state, and federal statutes and regulations. This revision and all future revisions will be prepared by the Manager. The Manager is solely responsible to make and assume the costs to comply with this Plan, and for any revisions to this and/or futures plans.

### ***1.2 Environmental Compliance, Permits, and Plans***

As stated in Article 3.10 of the MMA, the Manager must obtain and pay for all permits, plans, and/or authorizations that are required to operate the material site in accordance with local, state, and federal rules and regulations. In addition, the Manager must provide NRC with copies of all permits, plans, and consents/authorizations prior to commencing material mining activity. NRC can stop mining at any time if current permits and or plans have not been received.

For assistance with permitting requirements, contact the Alaska Department of Natural Resources (ADNR) Northern Region Lands Office (907-451-2740).

See attached NRC Material Site Permit and Plan Checklist to Obtain or Renew a Material Management Agreement, completed on \_\_\_\_\_ (date) by the Noorvik Native Community (NNC).

## SECTION 2: EXISTING CONDITIONS

### 2.1 Site Location Information

**Legal Description** T 16N R 10W Sec 3 SW 1/4 Kateel River Meridian  
T 16N R 10W Sec 4 SE 1/4 Kateel River Meridian

**Latitude/Longitude** (specify method)

Latitude: 66 ° 48.782' N (degrees, minutes, decimal) Longitude: 160 ° 49.156' W (degrees, minutes, decimal)

Method for determining latitude/longitude:

GPS

Mining period (number of years) covered under this Plan: 2017 – 2022

Existing acreage of mined area (including disturbed area that has not yet been reclaimed, but counting only acreage **disturbed after October 15, 1991**): 18 acres (25 acres expected by end of mining)

Estimated area of mining activity/ ground to be disturbed in **a single year**: ≤5 acres

Estimated total **volume** of material to be mined or disturbed in **a single year**, including overburden: ≤60,000 CY

Type of material to be mined: Sand and gravel

*The Hotham Peak Material Site is comprised of four sites: Material Sites A, B, C, and D. This Plan applies only to Site A; there is currently no mining planned for Sites B, C, and/or D. Mining in these areas will require revisions to the Plan and may affect site permits.*

### 2.2 Site Ownership and Management

Surface and subsurface rights are owned by NANA Regional Corporation, Inc. (NRC). NRC and the Noorvik Native Community (NNC) entered an agreement that began on October 30, 2009 for the extraction of approximately 170,000 cubic yards from the Hotham Peak Quarry. This agreement was extended in 2015 and 2016 while revisions to the Plan were pending. The agreement was renewed on August 31, 2017 and extends through August 31, 2022.

#### Facility Land Owner:

Company/Entity: NANA Regional Corporation, Inc.  
Department: Natural Resources Department  
Address: 909 West 9<sup>th</sup> Avenue  
City, State, Zip Code: Anchorage, Alaska, 99501  
Primary Point of Contact: Gravel Manager  
Telephone Number: 907-265-4100  
Email address: [gravel@nana.com](mailto:gravel@nana.com)

#### Facility Manager:

Company/Entity: Noorvik Native Community  
Address: PO Box 209  
City, State, Zip Code: Noorvik, Alaska, 99763  
Primary Point of Contact: Berenda Newlin  
Telephone Number: 907-636-2144  
Email address: [transportation@nuurvik.org](mailto:transportation@nuurvik.org)

**Is there an Operator, other than NRC or the Manager, who will mine and/or move earth at the site?**

No

*NOTE: If the Manager opts to use an Operator to mine the site, the Manager must notify the NRC Resource Specialist and obtain NRC approval of the revised Plan.*

**Mineral Materials Management Agreement Information:**

Is an NRC Agreement in effect? Yes

Agreement Number: 10-02-118 Date Signed: 06/12/2013 Effective Through: 06/12/2018

Maximum allowable volume of material to be mined (if applicable): N/A

**2.3 Overview and General Summary of the Mining Operation**

The Hotham Peak Quarry is located approximately 7 miles east from the village of Noorvik and consists of common forms of gravel, sand, and silt. The site is within the Northwest Arctic Borough Priority Subsistence Use Area for the Kobuk River. All project uses will follow methods to minimize the impacts toward fish and wildlife according to any local, state, and federal laws/permits.

The material site was originally developed by the State of Alaska Department of Transportation and Public Facilities (ADOT&PF) for the Noorvik Airport Relocation and Hotham Peak Road projects. Currently, the Manager has an agreement to extract and sell gravel and sand for shareholder personal use, community development projects, and other projects. Four material sites have been identified for use; however three are undeveloped with no immediate future plans to extract materials. This Plan addresses four phases of mining associated with Material Site A.

**2.4 Site Data**

Refer to the maps included in Attachment A for available site data. Most information available on the Hotham Peak Pit is outdated and of poor quality or detail. Assumptions in this report or based on best-available information. A list of the included figures is provided in Table 1.

<b>TABLE 1: LIST OF TABLES INCLUDED IN ATTACHMENT A</b>	
Figure 1	Hotham Peak Quarry Location Map
Figure 2	Aerial Extent of Mine with Delineation of Mining Phases
Figure 3	2017 Mining Operations Setup
Figure 4a	Boring Locations at Hotham Peak Material Site (HDR, 1997)
Figure 4b	Cross Section of Hotham Peak Investigation (HDR, 1997)
Figure 5	Approximate Life-of-Mine Reclamation Schedule

Figures 4a and 4b are courtesy of the “*Geotechnical Investigation, Airport Material Sites, Noorvik, Alaska*” report published by HDR Engineering for the ADOT&PF in July of 1997 (HDR, 1997). The investigation is

the most recent and complete geotechnical investigation of the Hotham Peak material site available at the time of this Plan revision. The report includes eleven borings that were drilled along the length of the pit. Assumptions for this report were extrapolated from these logs to estimate terrain, material classifications, water table depth, and overburden and gravel thicknesses. Note that the information is limited and further geotechnical investigation would be beneficial for future updates to this Plan.

## ***2.5 Activities at the Facility***

The use of the Hotham Peak Material Site is limited to mining material for construction or personal use activities. Extraction is intermittent during construction season and based on community need. Mined material is stockpiled in a location at the southwest entrance to the pit and is accessible by loader and truck for hauling. Generally one to two operators are on site at any time. All extraction operations cease during the winter months.

No blasting or crushing operations occur on-site. No future blasting can occur without express written permission of NRC. In the event that the Manager intends and NRC approves blasting:

- The Manager is responsible for revising the Plan to include blasting operations (revisions must be approved by NRC and the ADNR prior to initiating blasting).
- The Manager must obtain the required blasting and crushing permits and provide copies of all permits to NRC prior to initiating blasting.
- Blasting operations must be performed by an approved Contractor, at the Manager's expense. The Contractor will be responsible for any equipment and supplies needed for blasting and crushing.
- Drilling-and-blasting operations will not be approved by the NRC until all usable material within the previously disturbed area is mined using traditional methods that include stripping with a dozer; removal with excavators, loaders, and dump trucks; and re-use for on-site reclamation and/or project sites around Noorvik.
- The Manager and NRC must evaluate whether additional material is accessible via drill-and-blast mining within the existing disturbed area prior to disturbing additional tundra for blasting.

A Chieftan 1700 Powerscreen (capable of up to 500 tons per hour), or equivalent, is occasionally located on site to mechanically grade material for use on larger-scale road construction projects. The majority of material is not currently mechanically screened. The Manager is interested in the purchase of a permanent screen to produce graded material suitable for sale to Contractors, particularly for development in the Ambler Mining District. The Manager will notify NRC and update the Plan accordingly if this procurement takes place within the mining period covered in this Plan.

Fuel is not stored on-site. However, fueling of vehicles occurs on-site using a fuel truck. The use of secondary containment is required for all fuel transfers, regardless of volume, and spill prevention and clean-up supplies must be on site during all fuel transfers. If fuel or oil spills occur, it is the Manager's responsibility to ensure that spills are cleaned up and reported. Any spills to the ground or ice must be reported immediately to NRC and to any other applicable agency.

SPILL REPORTING CONTACT:  
NRC Director of Natural Resources  
(907) 265-4360  
E-mail: [naturalresources@nana.com](mailto:naturalresources@nana.com)

No dewatering occurs on site and all surface water is contained within the pit boundaries. The Manager installed and maintains berms around the perimeter of the pit to ensure that stormwater is not discharged from the site. During spring break-up and periods of rain, surface water is controlled using Best Management Practices (BMPs) to minimize erosion and prevent interference with extraction operations. If site dewatering or stormwater discharge is required in the future, the Manager must obtain all necessary permits. See Sections 3.4 and 3.5 for more information.

Currently, access to the Hotham Peak Quarry is not physically restricted and the area is occasionally used for recreational activities by community members during non-operating hours. The pit is accessible by foot, bicycle, and all-terrain vehicle. The area immediately surrounding the pit is also used by community members for berry picking and hunting. For safety purposes, restricted access gates, warning signs, and educational fliers/pamphlets will be implemented to minimize unauthorized use.

## **SECTION 3: DETAILED MINING OPERATIONS**

### ***3.1 Geologic Composition and Depth of Mineral Deposit***

The Hotham Peak Quarry is located on the edge of tundra adjacent to the Kobuk River. During the Pleistocene glaciation, large glaciers flowed out of the Brooks Range, scouring out valleys and depositing sand and gravel through the major river valleys. Large volumes of wind-blown sand and silt covered the region adjacent to the glacial sediment (Kobuk Sand Dunes) and the major rivers continued to rework these sediments as the ice receded, forming more modern features like the Kobuk Delta.

The Hotham Peak Quarry is composed primarily of gravelly sand (SP-SM) with interbedded layers of silty sand (SM), sandy gravel (GP-GM), and silty gravel (GM). The silt content of the granular material ranges from 5 percent to 24 percent, and appears to increase towards the southern end of the pit area (HDR, 1997). Probe holes drilled for ADOT&PF material investigation projects in 1973 (ADOT&PF, 1973) and 1997 (HDR, 1997) indicate that the granular deposit is approximately 30 feet thick with silt overburden layers that range from a few inches to as much as 12 feet thick. Undisturbed areas are typically blanketed with a three- to four-inch organic mat.

### ***3.2 Existing Topography***

Noorvik is located in the Kobuk-Selawik lowlands of western Alaska situated along the south bank of the Nazuruk Channel, one of the major channels of the Kobuk River. The area is characterized by numerous thaw lakes and anastomosing channels surrounded by glacial moraine topography. Geotechnical site investigations (ADOT&PF, 1973) describe relief in the vicinity of Noorvik to range between 0 and 100 feet in elevation, made up of rounded knolls of the moraine topography and numerous degraded floodplain channels of the Kobuk River. The Baird Mountains are to the north and the Waring Mountains to the east. Hotham Peak and the Hockley Hills are at the western end of the Waring Mountains.

### ***3.3 Site Vegetation***

Vegetation in the vicinity of Hotham Peak Quarry consists of tundra landscape adjacent to stream channels and thaw lakes. Tundra vegetation includes sphagnum mosses, lichens, sedges, low-growing shrubs such as blueberry and labrador tea bushes, and some scattered alder brush and black spruce trees (ADOT&PF, 1973).

### ***3.4 Groundwater Information***

No groundwater wells exist in the vicinity of the Hotham Peak Quarry to determine groundwater levels. A material investigation of the area (HDR, 1997) indicated that subsurface drainage is at least partially blocked by a frozen silt cover that is often oversaturated. During the summer, low areas of the pit frequently contain standing water, indicating either a perched or shallow water table.



Excavations are currently not dewatered and no plans to begin dewatering are anticipated. If this changes for any reason, the Manager shall revise this Plan accordingly and obtain all appropriate permits associated with dewatering and surface water discharge. This includes, but is not limited to, an Alaska Pollutant Discharge Elimination System (APDES) Multi-Sector General Permit (MSGP) for stormwater discharges and an Alaska Department of Environmental Conservation (ADEC) Excavation Dewatering General Permit.

### **3.5 Surface Waters & Site Drainage**

The eastern disturbance limits of the Hotham Peak Quarry are within approximately 100 to 230 feet of a small unnamed creek flowing south to north at the base of Hotham Peak. This area acts as an intact vegetated buffer zone between mining activities and surface water. Active extraction operations are between 750 and 1,000 feet from the creek. Mining east of the existing disturbance boundary is prohibited to prevent encroaching further towards the unnamed creek.

Site observations at the pit have shown that surface water collects at several low points on the east side of quarry, particularly during spring break-up and periods of rain. The majority of these low points are outside of active extraction areas and do not impact operations; although one approximately 60-foot segment of road frequently floods in the spring due to snow melt. Low areas will be maintained throughout the life of the mine to provide capacity for surface water runoff.

When the Hotham Peak Quarry was originally developed, evidence of stormwater discharges off-site towards the unnamed creek was observed on disturbed areas and through breaks in existing vegetated berms. The berms are assumed to be topsoil stockpiles that were established when the pit was originally developed and are now stabilized with vegetation. To eliminate the off-site discharge, the Manager constructed three earthen berms in 2013 to eliminate breaches in the vegetated berms. This allowed runoff from the pit to collect in the natural low points on the east side of the quarry without overtopping the berms and discharging to the creek. Construction of the berms was in response to an agreement between the NRC and ADEC that allowed the Hotham Peak Quarry to operate without the need for an APDES MSGP for stormwater discharges. Per the terms of the amendment, the Manager was required to complete identified reclamation prior to beginning any mining in the 2014 construction season. NRC and ADEC agreed that the completed berms and reclamation efforts would mitigate off-site stormwater discharges and, therefore, allowed the Manager to continue mining without developing a Storm Water Pollution Protection Plan (SWPPP). The Manager must maintain the berms and Best Management Practices (BMPs) to meet the terms of the addendum. Refer to the “*Noorvik Hotham Peak Mining & Reclamation Plan Addendum*”, approved on 9/10/2013, included in Attachment C.

If the current method of controlling stormwater discharge to the unnamed creek is inadequate for any reason in the future, the Manager shall obtain an APDES MSGP, prepare and implement an approved site-specific SWPPP to manage surface water at the site, and revise this Plan accordingly.

### **3.6 Aerial Extent and Phasing of Operations**

The Manager shall employ a phased mining approach at the Hotham Peak Quarry to ensure that maximum yield is mined from the site, to maintain site safety, and to effectively reclaim the site. Field observations

indicate that the four phases in this Plan can produce a product of sufficient quality for general village use such as housing pads, clean backfill, playground material, limited road repair, and other routine uses. If for any reason a Contractor or large project must deviate from this Plan to obtain specific material, that Contractor or the Manager must prepare and submit a site-specific mining and reclamation plan that must be approved by NRC.

The four phases of mining for Material Site A are detailed below. Refer to Attachment A, Figures 2 and 3, for the locations of each respective phase and current (2017) operations within the pit, respectively. The volume of material removed from the site will be measured in two ways – by payload of gravel sold to customers and overburden delivered to reclamation sites. The sum of these two volumes will equal the total volume of material mined in a given year. Volumes will be based on the manufacturer's payload specifications for the equipment used for transport. Gravel sold to customers with personal vehicles (4-wheelers, pick-up trucks, etc.) that do not have payload specifications will be calculated and recorded by struck volume (refer to Attachment B: Forms). Equipment used for mining operations includes the following:

- One (1) Volvo L180G Wheel Loader (5.5 to 6.8 cubic yard payload), or similar;
- One (1) Volvo A30F Articulated Dump Truck (22 cubic yard payload), or similar; and
- One (1) Komatsu D619PX-12 Crawler Tractor Dozer (5 cubic yard blade capacity), or similar.

Additional equipment, such as additional haul trucks for larger construction projects and/or powerscreens, may be rented or purchased by the Manager.

**Phase 1:** Phase 1 was originally developed by ADOT&PF in 2010 for airport resurfacing. The organic cover layer, including vegetation and topsoil, was pushed southeast into stockpiles at the boundaries of the pit to gain access to sand and gravel. Approximately 13,000 cubic yards of gravel material was stockpiled within the boundaries of the pit in 2010, resulting in approximately 1.9 (aerial) acres of disturbed ground. In 2011, approximately 11.5 acres of Phase 1 was developed to mine material for the construction of Cemetery Road. Topsoil was pushed north and east into stockpiles around the perimeter of the pit. Approximately 40,000 CY of material was used for road construction and the rest (approximately 7,000 CY) was sold between 2012 and 2015 by the Manager to residents and local businesses of Noorvik.

Prior to 2017, volumes of overburden silt layers were not well documented because material tracking was limited to loads of material sold to customers. Material investigations (HDR, 1997) indicate that the Phase 1 area contained a very thin silt layer of only a few inches thick. Therefore, very little overburden material was likely stockpiled. The drill logs from 1997 suggest that the overburden thickness increased to about 2 feet deep near the southern edge of Phase 1. It can be roughly estimated that between 8,000 and 12,000 cubic yards of overburden material was removed from Phase 1 and placed within mined-out areas to the north. Interviews with local operators suggest that the overburden material was spread out evenly using a dozer at the end of each construction season. The disbursed material was not seeded, but evidence of natural vegetation encroachment can be seen at the pit boundaries.

<b>TABLE 2: PHASE 1 MINING SUMMARY</b>				
Year	Gravel Stockpiled	Gravel Sold	Overburden Volume	Total Material Mined
2010	13,000 CY	13,000 CY	0	13,000 CY
2011	47,000 CY	40,000 CY	8,000-12,000 CY	55,000-59,000 CY
2012	0	2,700 CY		0 CY
2013	0	900 CY		0 CY
2014	0	100 CY		0 CY
2015	0	3,300 CY		0 CY
<b>TOTAL</b>	<b>60,000 CY</b>	<b>60,000 CY</b>	<b>8,000-12,000 CY</b>	<b>68,000-72,000 CY</b>

Phase 1 has not yet been reclaimed because operators want to keep a northern access to Phase 4 available and the area is still being utilized for overburden placement from Phase 2. Future placement will be concentrated at the northeast boundary of Phase 1 to facilitate interim reclamation while still maintaining access to Phase 4. See Section 4 for an approximate reclamation schedule.

**Phase 2:** Phase 1 was stabilized in 2015 and the Manager began mining Phase 2 in 2016. Phase 2 was stripped of topsoil prior to 2016 so no additional land disturbance was required to begin the new phase. Approximately 13,000 cubic yards of gravel material has been extracted and stockpiled in a main stockpile located in the southwest corner of the pit near the main entrance. Approximately 9,800 cubic yards of the material was sold by the Manager in 2016 to residents and local businesses. Approximately 600 cubic yards has been sold as of July 2017.

In August and September of 2016, the Manager contracted Drake, Inc. to provide a powerscreen and produce approximately 2,500 cubic yards of graded material for use as embankment material in the NNC's Noorvik Community Roads project. According to past material investigations, silt content in material at Hotham Peak Quarry ranges between 5 and 24 percent (HDR, 1997). The screen reduced the fines content in the gravel to less than 10 percent to meet ADOT&PF specifications for Borrow Type B. At most, approximately 450 cubic yards of silt material was removed to meet these specifications. The same NNC road project will require an additional 22,300 cubic yards of screened material in 2017. This will likely produce a maximum of 4,000 cubic yards of silt, which will be mixed in with overburden material.

Similar to Phase 1, overburden volumes were not well documented at the start of Phase 2. Past material investigations indicate that the silt overburden in the vicinity of Phase 2 dips from 2 feet deep to between 5 and 8 feet deep as the pit progresses south (HDR, 1997). With a ground area of approximately 5 acres, it can be roughly estimated that approximately 40,000 cubic yards of overburden will be removed by the end of Phase 2. Silt overburden material is currently being hauled to mined-out areas of Phase 1 and stockpiled in small piles across the pit floor. According to local operators, the stockpiles are spread evenly across the floor with a dozer at the end of every construction season. Future overburden will be placed in an area identified as Reclamation Area 1 (RA-1), where it will be graded for interim reclamation at the end of the construction season.

according to an approximate reclamation schedule described in Section 4. Excess overburden will be stockpiled in a designated overburden stockpile and used for future reclamation (see Section 4).

Year	Gravel Stockpiled	Gravel Screened	Gravel Sold	Overburden Volumes	Total Material Mined
2016	9,800 CY		9,800 CY	20,000 CY	29,800 CY
	2,950 CY	2,950 CY	2,500 CY	450 CY	2,950 CY
2017	3,400* CY		3,400 CY	20,000 CY	23,400 CY
	26,300 CY	26,300 CY	22,300 CY	4,000 CY	26,300 CY
<b>TOTAL</b>	<b>42,450 CY</b>	<b>29,250 CY</b>	<b>38,000 CY</b>	<b>44,450 CY</b>	<b>82,450 CY</b>

\*3,400 cubic yards of material is estimated by the end of the 2017 construction season based on average volumes of gravel sold to residents and local businesses from 2012 to 2016.

Interviews with local operators indicate that Phase 2 will be completed by the end of 2017. This assumption suggests a significantly lower yield of gravel from Phase 2 than was originally anticipated. Prior to 2016, an estimated 100,000 cubic yards of usable material was assumed available from Phase 2 while less than 40,000 cubic yards are planned for extraction (not including overburden). This is likely due to limiting factors including accessibility, equipment and operator limitations, and inadequate geotechnical information. Additional drilling and updated survey may help further define the deposit so additional extraction can occur.

**Phase 3:** Mining in Phase 3 is expected to begin in 2018 after Phase 2 operations have been stabilized according to interim reclamation guidelines described in Section 4. Phase 3 is an area that has not yet been stripped of topsoil and will require a United States Army Corps of Engineers (USACOE) wetlands permit to disturb additional tundra. Topsoil and vegetation will be pushed by dozer and stockpiled separately from overburden at the south end of Phase 3 adjacent to the existing haul road. The topsoil will be protected and saved for use during reclamation. Phase 3 will result in approximately 1.2 (aerial) acres of disturbed ground and will be accessed by existing haul roads.

Limited geotechnical information is available for Phase 3, but past material investigations indicate that the area has approximately 5 feet of silt overburden (HDR, 1997) that will be removed prior to stockpiling usable gravels. This would produce approximately 10,000 cubic yards of overburden material. Overburden will be hauled to an area identified as RA-2 for interim reclamation (according to the approximate reclamation schedule in Section 4), resulting in average haul lengths of approximately 825 feet. Excess overburden will be placed in a designated overburden stockpile for future reclamation (See Section 4).

Usable material will be stockpiled in the existing gravel stockpile at the southwest end of the mine area, resulting in haul lengths less than 500 feet. Approximately 25,000 cubic yards of usable gravel material is estimated to be available in this phase.

<b>TABLE 4: PHASE 3 MINING ESTIMATE</b>			
Year	Est. Gravel Available	Est. Overburden Volumes	Total Material Est. to be Mined
<b>2018-2019</b>	<b>25,000 CY</b>	<b>10,000 CY</b>	<b>35,000 CY</b>

To generate additional revenue, the Manager is interested in continuing the use of mechanical screening to produce embankment material that meets ADOT&PF specifications for road construction projects in neighboring villages. This would only be completed on the portion of stockpiled material needed by Contractors or ADOT&PF projects. Assuming the silt content in Phase 3 ranges between 5 and 24 percent (HDR, 1997), a maximum of 1.18 cubic yards of stockpiled material will be required to produce 1 cubic yard of material meeting Borrow Type B requirements (10 percent maximum fines). The additional fines generated with this process (0.18 cubic yards of fines for every 1 cubic yard of graded material) will be added to the reclamation area and/or overburden stockpile.

**Phase 4:** Once Phase 3 has been stabilized as described in Section 4, Phase 4 mining will begin. Phase 4 is expected to be opened within the next three years and take several years to complete. This area will require topsoil stripping and salvage, similar to Phase 3, so will also require an USACOE wetlands permit prior to additional disturbance. Topsoil will likely be pushed west by a dozer and maintained in an elongated stockpile along the boundary of Phase 4 for use in final reclamation. Topsoil removal will result in approximately 4.5 (aerial) acres of additional disturbed ground.

According to limited geotechnical information, the silt overburden layer in Phase 4 is approximately 7 feet deep at the southern extents, but diminishes to only a few inches for the majority of the phase (HDR, 1997). Assuming a weighted average depth, approximately 13,000 cubic yards of overburden material is expected to be produced from Phase 4. Overburden material will be stockpiled in designated overburden stockpiles for future reclamation according to an approximate reclamation schedule in Section 4. Average haul lengths for overburden will likely be between 400 and 500 feet. If mechanical screening is utilized, a maximum of 1.18 cubic yards of material will produce 1 cubic yard of material meeting ADOT&PF standards for Borrow Type B (assuming a maximum silt content of 24 percent [HDR, 1997]). Removed silt will be included in overburden stockpiles for use in reclamation.

The eastern face of Phase 4 is currently exposed after mining was completed in Phase 1. The existing haul road through Phase 1 and Phase 2 will be maintained along the pit floor to access the face of Phase 4 for extraction. Usable material will be stockpiled at the existing gravel stockpile at the southwest corner of the mine. Haul lengths will be between approximately 150 and 850 feet. Past material investigations indicate that between 30 and 40 feet of gravelly sand is available in areas with little overburden (HDR, 1997), providing excellent access to high quality material. Because of the depth of available material, Phase 4 will likely be terraced in at least two lifts 10 to 15 feet high and 50 to 80 feet wide. Maximum slopes of terraces during mining will be no more

than 1.5 feet vertical to 1 foot horizontal (1.5V:1H). Approximately 75,000 cubic yards of usable material is expected from Phase 4.

<b>TABLE 5: PHASE 4 MINING ESTIMATE</b>			
<b>Year</b>	<b>Est. Gravel Available</b>	<b>Est. Overburden Volumes</b>	<b>Total Material Est. to be Mined</b>
<b>2019-2022</b>	<b>75,000 CY</b>	<b>13,000 CY</b>	<b>88,000 CY</b>

Refer to the Minnesota Department of Natural Resources (MDNR) *A Handbook for Reclaiming Sand and Gravel Pits in Minnesota* (MDNR, 1992) for a general discussion on basic operations at gravel quarries, such as initially clearing the work surface and stripping topsoil.

## SECTION 4: INTERIM/FINAL RECLAMATION AND POST-MINING LAND USE

### 4.1 Reclamation Equipment and Extent

**Total acreage that will be reclaimed during the year (or each year, for multi-year reclamation plan):**

Interim reclamation will be phase-dependent, and will likely be less than 5.0 acres per year. The western edges of Phase 1 and 2 and a haul road from the main gravel stockpile to the north end of Phase 4 will remain open through the end of mining. Total reclaimed area will be approximately 25 acres.

**Provide a list of equipment (type & quantity) to be used during the reclamation operation:**

Equipment Type	# of Units
Volvo L180G Wheel Loader, 5.5/6.8-CY	1
Volvo A30F Articulated Dump Truck, 22-CY	1
Komatsu D61PX-12 Crawler Tractor Dozer, 5-CY	1

The Volvo L180G Loader (or similar) is used to load both gravel and overburden material into haul trucks for transport. Two buckets are available, one with a 5.5 cubic yard capacity and the other a 6.8 cubic yard capacity.

The Volvo A30F Articulated Dump Truck (or similar) is used to transport gravel within the site and offsite to customers, when necessary. It will also be used for overburden hauls of more than 300 feet. The trucks have a 22 cubic yard carrying capacity.

The Komatsu D61PX-12 Crawler Tractor Dozer (or similar) is used to remove and stockpile topsoil, remove overburden, transport overburden for hauls less than 300 feet, and grade overburden stockpiles for interim and final reclamation.

**Type of material to be mined:** Sand and gravel, including gravelly sand (SP-SM), silty sand (SM), sandy gravel (GP-GM), and silty gravel (SM)

Each phase of the Plan will depend on the gravel needs of NNC and any non-local customer such as ADOT&PF. Mining and reclamation will be carried out based on the four-phase mining approach described in Section 3.6. Each phase will be considered complete once the estimated volume of material is reached for each respective location or if extenuating circumstances are encountered, such as poor material quality or access limitations.

An approximate reclamation plan for the Hotham Peak Quarry was developed based on the estimated acreage of disturbed land, the estimated volume of overburden expected to be produced during each phase of mining, and a sequence that promotes interim reclamation while also planning for final reclamation. The plan assumes that approximately 1.2 feet of overburden is spread as backfill over all

disturbed ground to provide a median for the final graded surface and for revegetation to begin. To accomplish this, it is suggested that two overburden stockpiles be temporarily maintained as mining progresses. Stockpiling material during years of excess overburden will allow operators to have enough material to maintain a consistent backfill depth during years when mining produces very little overburden. These stockpiles will not be seeded until final placement, unless excessive dust or erosion is observed.

Table 6 summarizes the area of disturbed ground of each mining phase and the estimated volume of overburden backfill expected to be produced. Backfill volumes were estimated from material investigations completed in 1997 (HDR, 1997).

<b>TABLE 6: ESTIMATED AVAILABLE OVERBURDEN VOLUMES</b>		
Phase	Disturbed Area	Overburden Volume
Phase 1	13.4 acres	12,000 CY*
Phase 2	5.0 acres	44,450 CY*
Phase 3	1.2 acres	10,000 CY
Phase 4	4.5 acres	13,000 CY
<b>TOTAL</b>	<b>24.1 acres</b>	<b>79,450 CY</b>

\*All overburden material from Phase 1 and approximately 20,000 cubic yards from Phase 2 was removed prior to 2016 and has already been spread, according to interviews with local operators. This material was not accounted for in the reclamation schedule.

The reclamation schedule for the Hotham Peak Quarry will be phased similarly to the mining phases. Figure 5 (located in Attachment A) identifies approximate sizes and locations of reclamation areas (RA) and overburden stockpiles (OS) that are expected over the life of the mine. Table 7 provides a summary of estimated reclamation phases developed to maximize interim reclamation without interfering with ongoing mining operations. The table specifies where overburden material is coming from, where and how much is expected to be placed, and approximately what year reclamation will occur.

<b>TABLE 7: APPROXIMATE LIFE-OF-MINE RECLAMATION SCHEDULE</b>				
Material From	Volume	Material To	Area Reclaimed	Estimated Year(s) of Reclamation
Phase 2	7,500 CY	RA-1	4.0 acres	2017
Phase 3	7,500 CY	RA-2	4.0 acres	2018
OS-1	22,450 CY	RA-3	12.0 acres	2019-2021
OS-2	10,000 CY	RA-4	5.0 acres	2022
<b>TOTALS</b>	<b>47,450 CY</b>		<b>25 acres</b>	



Table 8 is a summary of the two proposed stockpiles to be maintained throughout mining. The table identifies the approximate volumes placed in the proposed overburden stockpiles, what phase the stockpiled material is coming from, where the material expected to be placed for reclamation, and the approximate year(s) that stockpiling and reclamation are expected to occur.

<b>TABLE 8: ESTIMATED OVERBURDEN STOCKPILE SUMMARY</b>					
Stockpile ID	To Stockpile			From Stockpile	
	Year(s)	Material From	Volume	Material To	Year(s) Placed for Reclamation
OS-1	2017	Phase 2	16,950 CY	RA-3	2019-2021
	2018	Phase 3	2,500 CY		
	2019	Phase 4	3,000 CY		
OS-2	2019-2021	Phase 4	10,000 CY	RA-4	2022

## 4.2 Interim Reclamation

As described in *A Handbook for Reclaiming Sand and Gravel Pits in Minnesota (MDNR, 1992)*, interim reclamation measures are implemented when mining will cease temporarily, such as at the end of each summer season, and/or when mining progresses to a subsequent phase. Implementing interim reclamation procedures helps reduce the amount of exposed land to water and wind erosion, helps reestablish natural surface water drainageways, and expedites the process of returning disturbed land back to its original or designated post-mining land use.

The Approximate Life-of-Mine Reclamation Schedule in Table 7 outlines the intended sequence of interim reclamation at the Hotham Peak Quarry. At the end of every summer season, three types of land area will be managed – graded backfill, stockpiles, and active mining areas.

**Graded Backfill.** Graded backfill is overburden that has been placed in its final location, according to the approximate reclamation schedule in Section 4.1. These areas will be graded to match existing terrain, particularly to match existing or pre-mining drainageways, and will not exceed slopes of 3H:1V. If topsoil is available in the vicinity, it will be spread evenly to utilize natural organics in the soil. Graded backfill areas will be tracked with equipment to provide surface roughening and seeded with a spring- or fall-appropriate seed mixture, depending on the time of year of seeding and observed success rates. The areas will be regularly observed for excessive erosion and repaired and reseeded as necessary. If excessive erosion persists, additional measures such as mulching will be implemented to help prevent washouts and assist in the establishment of vegetation.

Graded backfill areas that have been seeded will be closed to all vehicle traffic until vegetation is established. If seeded areas are damaged, they will either be repaired accordingly or they will be considered disturbed acreage and will be scheduled for reclamation at a later date when vehicle and/or equipment access is no longer required.

**Stockpiles.** Overburden and gravel stockpiles designated in the reclamation schedule will be graded to not exceed slopes of 1.5V:1H. Stockpiles will not require temporary seeding or covering unless excessive erosion is anticipated or observed. If washouts or excessive erosion occurs, the transported material will be replaced in the stockpile and measures will be taken to prevent future erosion. Best practices can include, but are not limited to, establishing earthen berms around the perimeter of the stockpiles, placing straw wattles along long slopes, and/or covering exposed soils with mulch or fiber matting.

**Active Mining Areas.** Active mining areas include haul roads and areas where gravel is currently being extracted. All highwalls or other steep slopes that remain at the end of the season will be graded to no more than 1.5V:1H to prevent sloughing. These areas will not require temporary seeding or covering unless excessive erosion is anticipated or observed.

### **4.3 Final Reclamation**

Final reclamation is intended to reintegrate disturbed sites to their designated post-mining land use and achieve long-term stabilization. The post-mining land use for the Hotham Peak Quarry includes community recreation, subsistence berry picking and hunting, and wildlife habitat. Final reclamation tasks for the site include the following:

- Reduce highwalls to stable slopes,
- Remove or reclaim temporary stormwater control structure(s),
- Reestablish natural drainageways to minimize erosion, and
- Reestablish natural vegetation to achieve long-term stability.

A phased mining plan that utilizes interim reclamation practices will increase the success of final reclamation. Final reclamation will occur at the completion of all mining operations, so all haul roads and man-made structures installed during mining will be removed. This excludes the earthen berms constructed to prevent stormwater discharges to the creek east of the pit. The berms are considered permanent structures and will remain after mining.

The final site terrain will be graded to ensure that all areas blend in with each other and the surrounding terrain, and that no slopes exceed 3H:1V. All of the available topsoil stockpiles from disturbed areas will be redistributed as evenly as possible to help promote successful revegetation.

Seeding mixtures will consist of native vegetation proven to establish quickly in tundra environments. Natural encroachment of vegetation onto reclaimed areas is expected and will be encouraged where possible. Vehicle and/or equipment use on newly graded slopes and reseeded areas will be discouraged using signage and flagging where practical.

When final reclamation is complete, the Manager or Manager's Designee will inspect the site to ensure the final reclamation is effective (see Section 5.3). NRC, and ADNR if necessary, will conduct a site visit to determine whether the reclamation efforts comply with the Plan. The site will not be officially "Closed" until NRC has issued a final Site Closure letter.

#### **4.4 Permanent Structures**

The stormwater control berms at the east side of the pit are the only permanent structures approved by the NRC at the Hotham Peak Quarry. Installation of additional permanent structures at the site is prohibited unless mutually agreed upon, in writing, by NRC and the Manager in an amended MMA. The Manager will be responsible for any revisions to the Plan to incorporate the addition of permanent structures. Installation cannot begin without NRC's written approval of the revised Plan.

#### **4.5 Revegetation Plan**

Plant species that will be used to stabilize and reclaim the Hotham Peak Quarry include 'Arctared' Red Fescue (*Festuca rubraand*), 'Norcoast' Bering Hairgrass (*Deschampsia beringensis*) and Annual Rye (*Lolium multiflorum*) in the following mixture:

- 50% Red Fescue
- 30% Bering Hairgrass; and
- 20% Annual Rye

Other species allowed in small portions include Kobuk Dwarf Fireweed (*Chamerion latifolium*) and 'Tundra' Glaucous Bluegrass (*Poa glauca*). A greater diversity of plant species in seed mixture will increase the success rate of revegetation. All seed will be bought from State of Alaska certified distributors (contact the Alaska Plant Materials Center 907-745-4469 for assistance). The Manager or Manager's designee will broadcast approved seed mixtures at a rate of 40 pounds per acre with a standard 20-20-20 Nitrogen-Phosphorous-Potassium (N:P:K) fertilizer (fertilizer rate of 450 pounds per acre). Seeding methods are defined in the *Alaska Coastal Revegetation and Erosion Control Guide* (Wright, 2013) for the Western Alaskan Coast.

#### **4.6 Revegetation Standards**

The Red Fescue, Bering Hairgrass and Annual Rye have good success rates in the Western Alaska Region and on the differing terrain profiles that occur in the vicinity. The species work well in moist, average, and dry soil profiles.

The Western Alaska Region Case Study at the Red Dog Mine Port (Wright, 2013) was referenced for this Plan. Using a similar seed type and ratio, the study at the Port of Red Dog showed 75 percent good to excellent vegetation cover after the first season, 90 percent after the second season, and 95 percent after the third. The area was observed annually until the pit blended in with the surrounding vegetation after ten years.

The Manager will conduct long-term monitoring and provide photo-documentation for three years after final revegetation to ensure that seeding is successful and the soil is stable. Additional or alternative approved seed may be applied in areas to attain sufficient cover and stabilization.

#### ***4.7 Annual Reclamation Statement***

The Manager shall provide to NRC an annual reclamation statement prior to December 31 that describes the reclamation activities implemented during the calendar year. A standard Annual Reclamation Statement form for the ADNR is included in Attachment B.

## **SECTION 5: INSPECTIONS AND SITE MAINTENANCE**

### ***5.1 Stormwater Inspections***

No stormwater permit or SWPPP is required for the Hotham Peak Quarry since all surface water is retained on site. However, the Manager shall ensure that an Alaska Certified Erosion and Sediment Control Lead (AK-CESCL) inspector conducts and documents routine inspections of the earthen and vegetated berms around the pit perimeter and any BMPs implemented to prevent erosion of stockpiles or reclaimed areas within the pit. Information regarding AK-CESCL training is available online at <http://ak-cescl.com/>. Inspection records must be maintained by the Manager and must be provided to NRC upon request, within 10 business days of the request.

### ***5.2 Routine Inspections***

The Manager or Manager's designee will perform an initial site inspection prior to the beginning of mining each year. The initial inspection will document site stability, erosion, sloughing, highwalls, standing water, and any other environmental or safety issue. Inspections will be recorded on the Initial/Start of Season Inspection Form located in Attachment B.

The Manager will ensure that personnel who use the site regularly (i.e. local equipment operators and/or Contractors) perform and record daily site assessments. The assessments will be recorded on the Site Inspection Log located in Attachment B.

All inspection forms will be maintained on-site in the Manager's office for a minimum of two years after final site closure. All records must be presented to NRC upon request, within 10 business days of the request.

### ***5.3 Follow-up Inspections***

Once final reclamation is complete, the Manager will conduct follow-up inspections at least monthly during the first season the project is completed to observe and document the following:

- Success of revegetation;
- Signs of erosion (both wind and water);
- Sediment control devices; and
- Surface water discharge.

These inspections will continue until fall freeze-up. Other inspections will be scheduled during the following spring thaw, mid-summer, and fall freeze-up for a minimum of five years after final reclamation to verify site stability. Additional inspections may be needed and will depend on the success of reclamation.

All inspections will be recorded on the Periodic Site Inspection form, located in Attachment B, and maintained by the Manager for a minimum of two years after final site closure. All records must be presented to NRC upon request, within 10 business days of the request.

### **5.4 Site Maintenance**

If signs of erosion occur during any phase of mining prior to final site closure, the Manager is responsible for implementing appropriate repairs as quickly as possible after the failures are documented. Repairs may include adding material to fill in rills or gullies, regrading and vehicle-tracking areas to better handle surface water, reseeding areas where prior efforts failed, or other measures as required.

## **SECTION 6: SITE CLOSURE**

### ***6.1 Final Site Actions***

At project completion, the Manager is responsible for removing any mining- and erosion control-related structures, including vehicles, garbage, etc. The stormwater control berms on the east side of the pit will remain as permanent structures. If the operator(s) leave any additional items behind, the Manager will be responsible for ensuring that all items are removed from the site. Failure to complete final site actions may result in financial penalties to the Manager. Site closure may require ADNR inspection. Any findings from ADNR inspections shall be resolved by the Manager.

### ***6.2 Criteria for Successful Reclamation***

Successful reclamation shall be determined when all the objectives stated above are complete. Criteria of successful reclamation include:

- Minimal signs of erosion and improper water discharge;
- Successful revegetation sufficient to stabilize the site;
- Records of site inspections conducted at least five full years from the date of the site closure supporting successful site closure;
- Written approval of site closure from NRC based on an NRC site inspection; and
- Authorization of final site closure from ADNR after an ADNR site inspection, if required.

### ***6.3 Financial Assurance***

Payment to the ADNR Statewide Bonding Pool provides financial assurance that funds will be available to reclaim the Hotham Peak Quarry according to this Plan if, for any reason, the Manager is unable to assume the reclamation obligations. The payment amount is based on acreage of disturbed land. The Manager paid \$2,400 to the bond pool on 8/17/2015 and will pay an additional \$1,350 in 2017 in response to Revision 2 of this Plan. The bond amount is valid through the life of the gravel mine, unless:

- The Manager ends its Material Management Agreement with NRC; or
- Significant changes occur to the mining plan that ADNR and/or NRC determine require additional financial assurance.

## **SECTION 7: TRAINING**

The Manager is responsible for ensuring that all operators at the site are trained to implement and comply with the Plan and any additional permits required to operate the site in accordance with local, state, and federal laws and regulations. All training will be documented (see example “Material Site Mining & Reclamation Plan Training Log” located in Attachment B). The Manager will maintain the training logs on-site and will be presented to NRC upon request, within 10 business days of the request.

The Manager will ensure that at least one employee of NNC possesses an AK-CESCL certificate, and that anyone working in the pit possesses current Mining Safety Health Act (MSHA) Part 46 Sand and Gravel certificates.



## SECTION 8: CERTIFICATION OF THE RECLAMATION PLAN

I hereby certify, as an authorized representative of the Material Site Manager, that the Noorvik Native Community will comply with the provisions of this Plan as well as the reclamation requirements established in Alaska Statute A.S. 27.19.

Signature of Authorized Operator/Manager Representative

Name: Berenda Newlin Title: Transportation Planner

Signature: Berenda Newlin Date: 10-3-17

**This section is required if the landowner or lessee of the property is different from the operator indicated above.**

I/we, as the landowner(s) or lessee(s) of the property described herein, do hereby certify that I/we have reviewed the Plan submitted by the Noorvik Native Community, concur with its provisions, and agree to permit its implementation.

Signature of Authorized NRC Representative

Name: Elia M. Nay Title: Gravel Manager

Signature: Elia M. Nay Date: 10/03/2017

## SECTION 9: PLAN MODIFICATIONS

Plan Revision Log			
Revision No.	Description of Revision	Revision Date	Amended By
1	Approval to operate without an APDES MSGP and SWPPP.	September 2013	NRC
2	Updated based on renewed MMA.	August 2017	NNC

## SECTION 10: REFERENCES

- Alaska Department of Environmental Conservation (ADEC), Division of Water. *Alaska Storm Water Guide*. Anchorage, Alaska, December 2011.
- Alaska Department of Natural Resources (ADNR), Division of Agriculture. n.d. *Alaska Plant Materials Center*. 1 August 2017. <<http://plants.alaska.gov/>>.
- Alaska Department of Transportation & Public Facilities (ADOT&PF), Division of Aviation, Design Services. *Noorvik Materials Investigation - Existing Alignment, Proposed Alignment, and Material Sites*. Anchorage, Alaska, July 1973.
- HDR Engineering for Alaska Department of Transportation & Public Facilities (ADOT&PF). *Geotechnical Investigation - Airport Material Sites, Noorvik, Alaska*. Anchorage, Alaska, July 14, 1997.
- Minnesota Department of Natural Resources (MDNR), Division of Lands and Minerals. July 1992. *A Handbook for Reclaiming Sand and Gravel Pits in Minnesota*. 1 August 2017. <[http://files.dnr.state.mn.us/lands\\_minerals/handbook\\_reclaimingsandgravelpits.pdf](http://files.dnr.state.mn.us/lands_minerals/handbook_reclaimingsandgravelpits.pdf)>.
- Wright, Stoney J. and Philip K. Czaplá. May 2013. *Alaska Coastal Revegetation & Erosion Control Guide*. 1 August 2017. <[http://plants.alaska.gov/pdf/Coastal-Reveg\\_web\\_2013\\_v2.pdf](http://plants.alaska.gov/pdf/Coastal-Reveg_web_2013_v2.pdf)>.
- . "Alaska Coastal Revegetation & Erosion Control Guide." May 2013. *Section 4.2: Red Dog Mine Site, NW Alaska (pages 115-116)*. 1 August 2017. <[http://plants.alaska.gov/pdf/ACRECG\\_2011\\_sec04-case-studies.pdf](http://plants.alaska.gov/pdf/ACRECG_2011_sec04-case-studies.pdf)>.

## SECTION 11: ATTACHMENTS

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## ***Attachment A: Figures***

### List of Figures:

Figure 1: Hotham Peak Quarry Vicinity Map

Figure 2: Aerial Extent of Mine with Delineation of Mining Phases


Figure 3: Mine Operations Setup

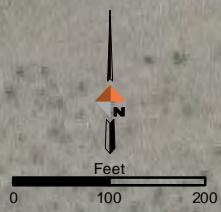
Figure 4a: Boring Locations at Hotham Peak Material Site (HDR, 1997)

Figure 4b: Cross Section of Hotham Peak Investigation (HDR, 1997)

Figure 5: Approximate Life-of-Mine Reclamation Schedule



<b>Hotham Peak Quarry Location Map</b>	
Mining Plan of Operations and Reclamation Hotham Peak Material Site A, Noorvik	
	Date: August 03, 2017
	Figure 1



**PHASE 4**  
*(Planned 2019-2021)*

**PHASE 1**  
*(Mined 2011-2015)*

**PHASE 2**  
*(Mined 2016-2017)*

**PHASE 3**  
*(Planned 2018)*

*Main Entrance*

*Unnamed Creek*

**Aerial Extent of Mine with Delineation of Mining Phases**

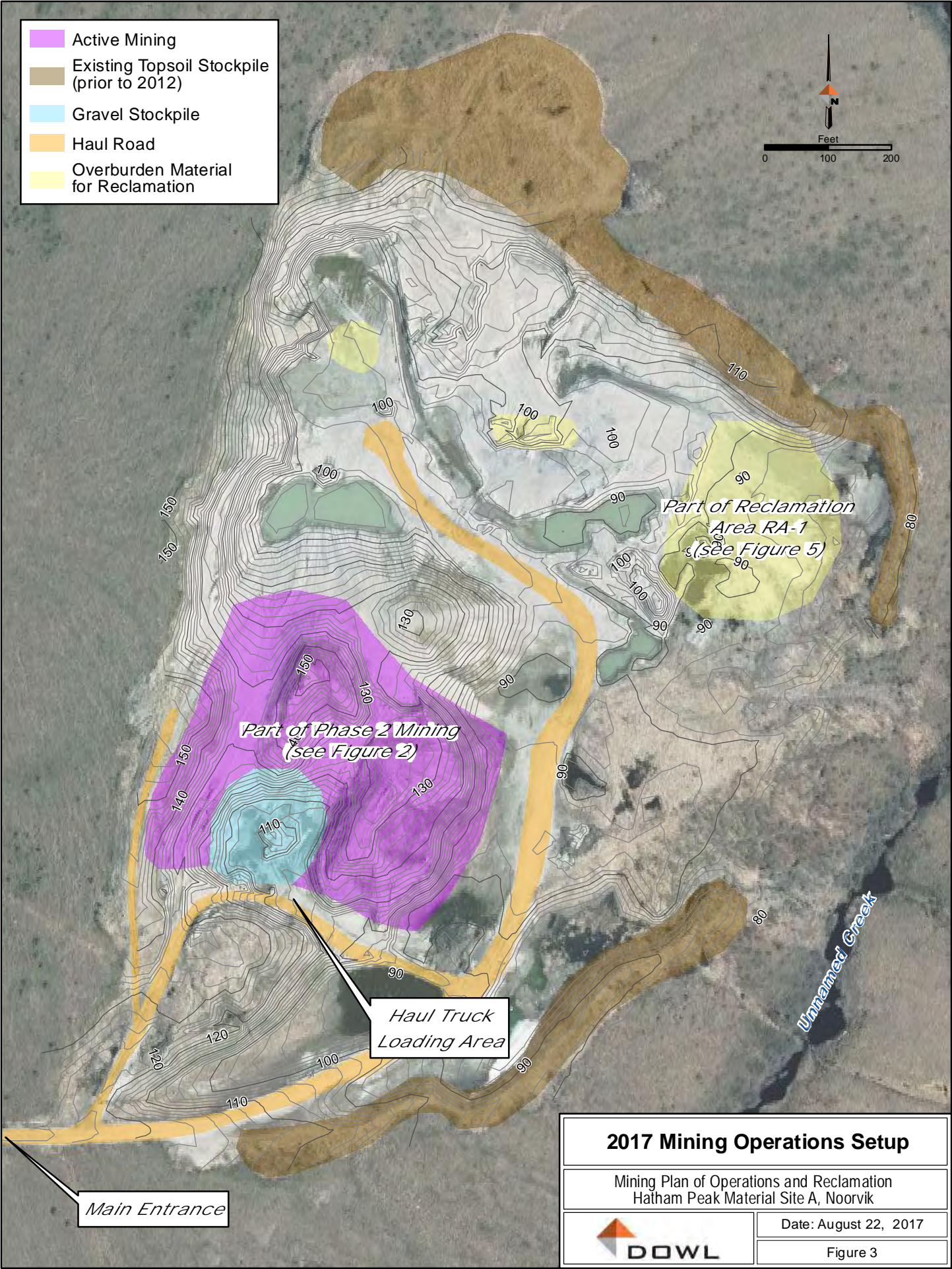
Mining Plan of Operations and Reclamation  
Hatham Peak Material Site A, Noorvik



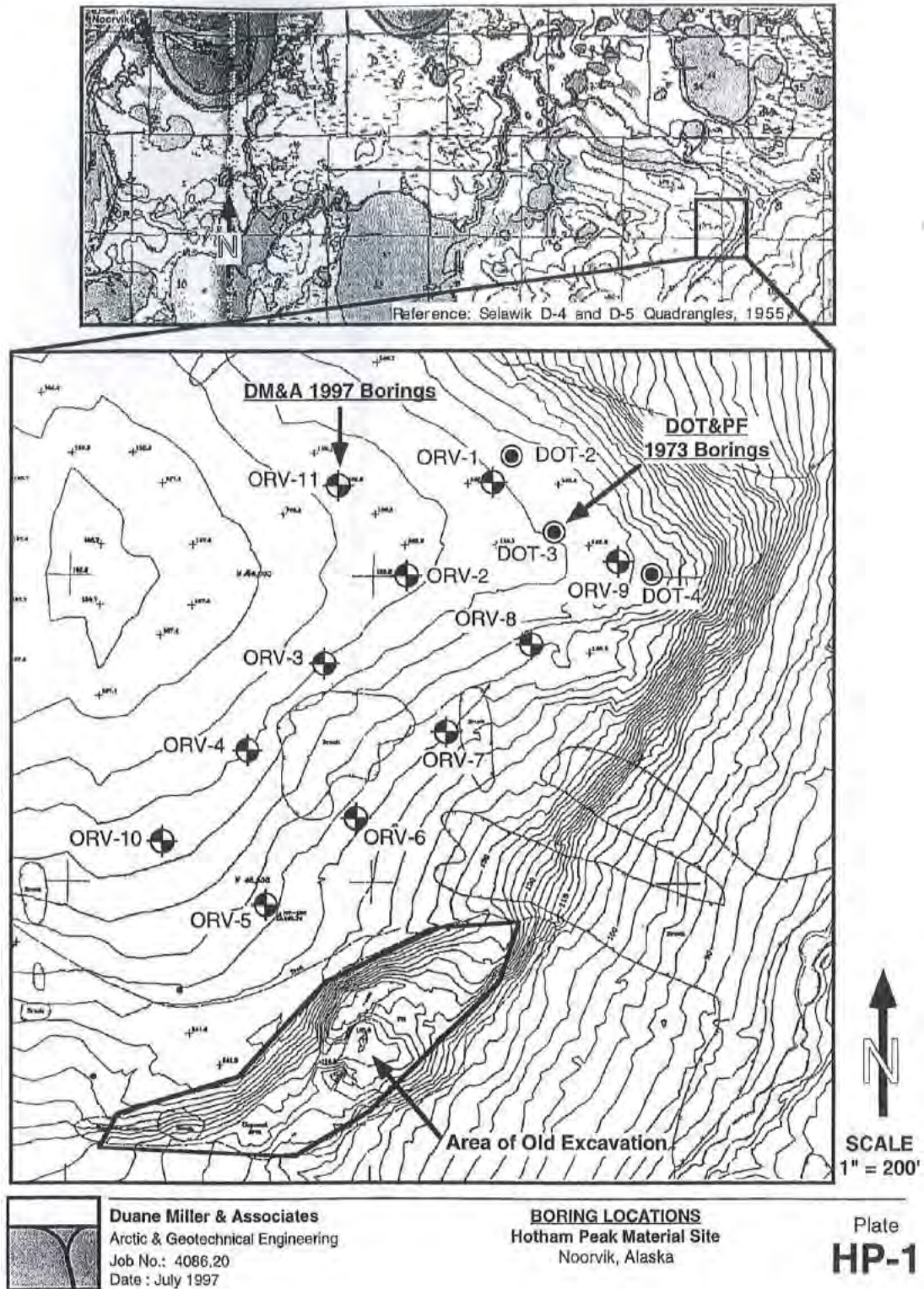
Date: August 22, 2017

Figure 2

- Active Mining
- Existing Topsoil Stockpile (prior to 2012)
- Gravel Stockpile
- Haul Road
- Overburden Material for Reclamation



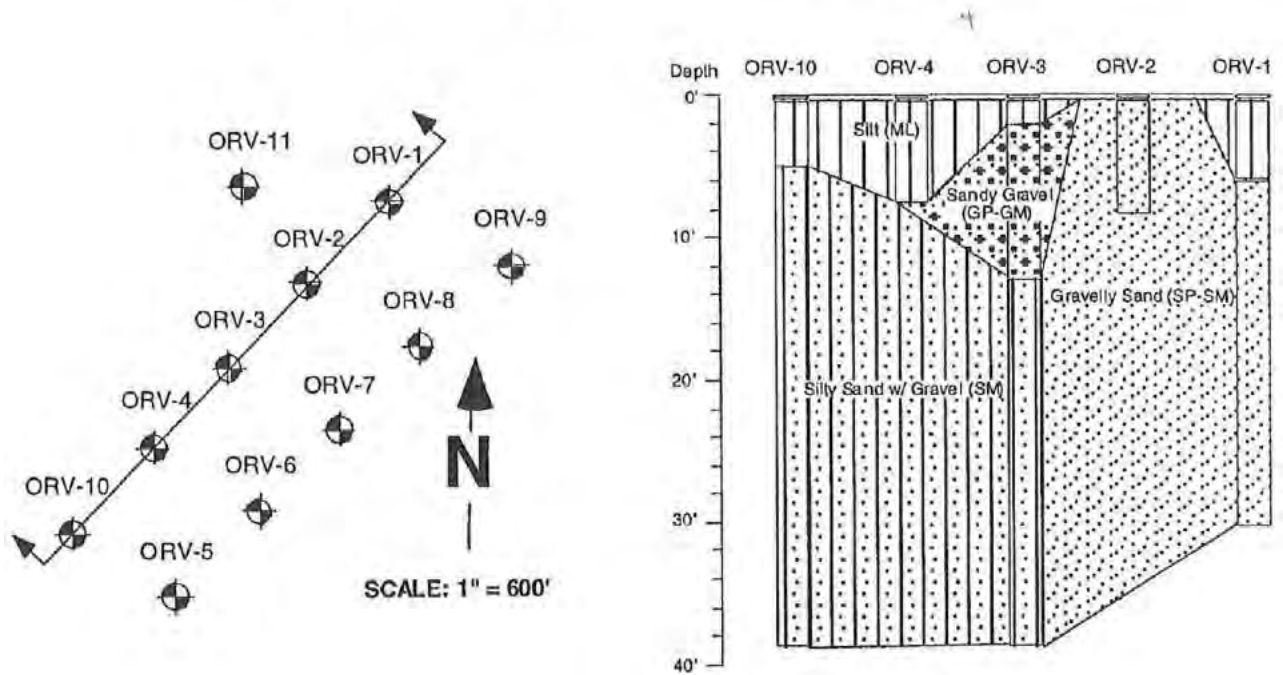




**FIGURE 4a: BORING LOCATIONS AT THE HOTHAM PEAK MATERIAL SITE (HDR, 1997)**

\*Source: "Geotechnical Investigation – Airport Material Sites, Noorvik, Alaska" published by HDR Engineering for ADOT&PF in July of 1997

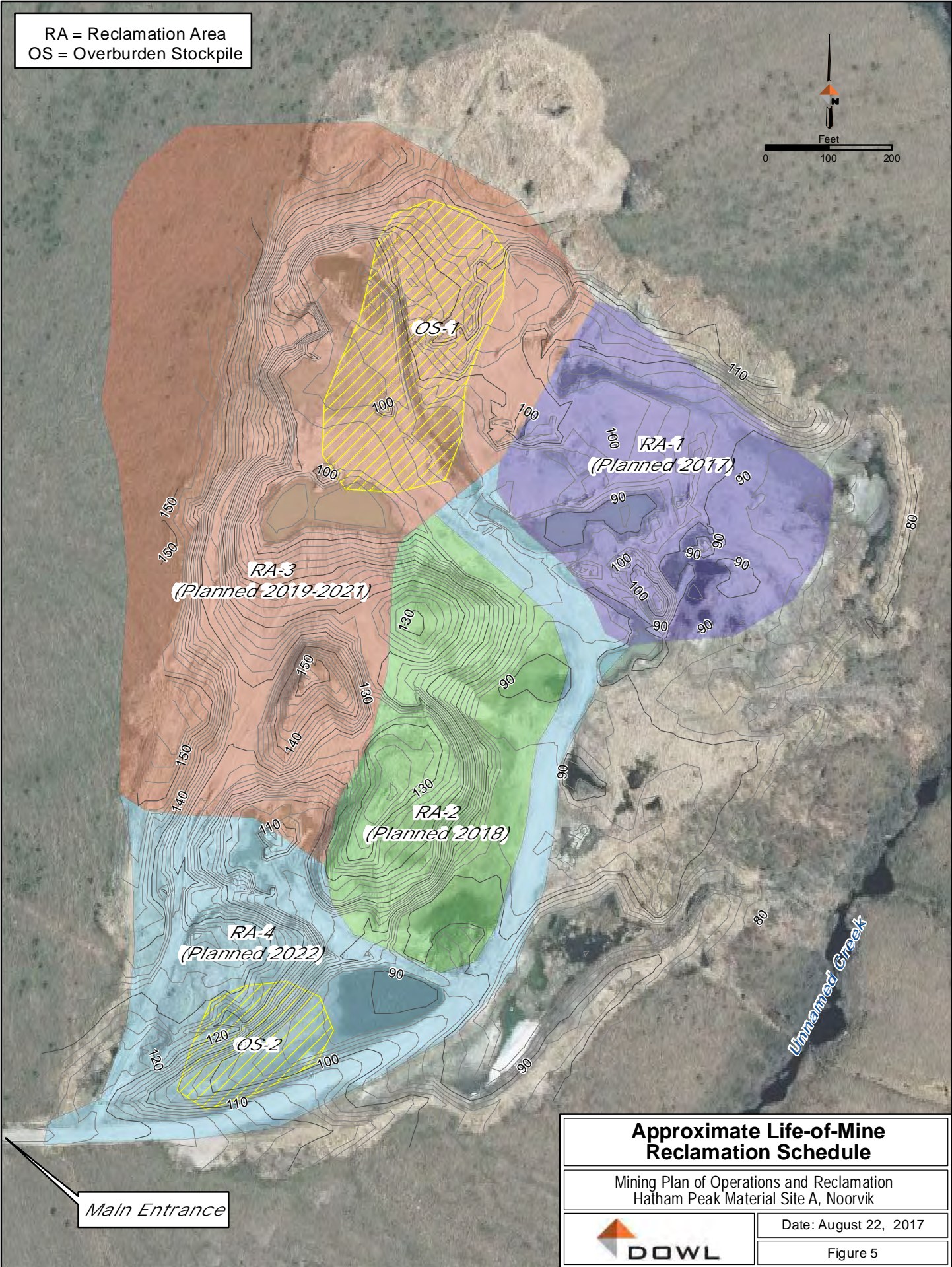
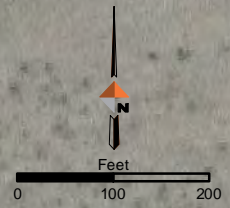
## Cross-Section of Hotham Peak Investigation



**FIGURE 4b:** CROSS SECTION OF HOTHAM PEAK MATERIAL SITE (HDR, 1997)\*

\*Source: "Geotechnical Investigation – Airport Material Sites, Noorvik, Alaska" published by HDR Engineering for ADOT&PF in July of 1997

RA = Reclamation Area  
OS = Overburden Stockpile



### Approximate Life-of-Mine Reclamation Schedule

Mining Plan of Operations and Reclamation  
Hatham Peak Material Site A, Noorvik

Date: August 22, 2017



Figure 5

## ***Attachment B: Forms***

### List of Forms:

- Truck Load Measurements
- Truck Load Tally
- Basic Site Inspection Log
- Initial/Start of Season Inspection Form
- Periodic Inspection Form
- Material Site Mining & Reclamation Plan Training Log
- Annual Reclamation Statement

## Truck Load Measurements

Use equipment the manufacturer's specifications to determine the truck bed's haul volume; be sure to modify if sideboards are used to increase the payload. If there is no capacity information available (e.g., personal pick-up trucks, 4-wheeler trailers for personal use material), then the equation below provides the *struck volume* - not the total capacity of the truck, and only *approximates* the loose volume of the material. This is sufficient for load tally purposes for personal use gravel, but is not acceptable for community, infrastructure, or other large projects. For those projects, use the manufacturer's volume specifications.

To *estimate* the volume of material, in cubic yards (CY), taken in personal vehicles, calculate based on the length, width and height of the truck's bed.

Example: L = \_\_\_\_\_ ft. W = \_\_\_\_\_ ft. H = \_\_\_\_\_ ft.

L x W x H = \_\_\_\_\_ Cubic Feet (CF)

\_\_\_\_\_ CF ÷ 27 (CY/CF) = \_\_\_\_\_ CY *Estimated*

**HOTHAM PEAK MATERIAL SITE  
TRUCK LOAD TALLY RECORD**

<b>PROJECT</b>	<i>Submit to Tribal Council Office at the end of the Week</i>
<b>COMPANY</b>	
<b>OPERATOR NAME</b>	

<b>Truck or Loader # or Make/Model</b>	<b>Date</b>	<b>Capacity (Cubic Yards)</b>	<b># of Loads</b>	<b>Total Volume (Cubic Yards)</b>	<b>Operator Initials</b>

SUBMIT THIS COMPLETED FORM TO THE TRIBAL OFFICE IN NOORVIK AT THE END OF EACH WEEK. FAX NO. 907-636-2284 OR EMAIL TO [tribemanager@nuurvik.org](mailto:tribemanager@nuurvik.org)

Site Inspection Logs

Date: \_\_\_\_\_

Please List any signs of water discharge, erosion and what conditions the BMP's are in:

BMP's in Working Order?	Yes	No
Any Erosion*?	Yes	No
Any Water Discharge?	Yes	No

If "Yes" was answered in any question, please describe the situation and be as specific as possible:

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Inspector: X \_\_\_\_\_

\* Wind and water driven erosion

## INITIAL/START OF SEASON SITE INSPECTION

*COMPLETE AFTER SPRING THAW, PRIOR TO BEGINNING MINING OPERATIONS FOR THE SEASON*

<b>NAME OF MATERIAL SITE</b>			
<b>Observation</b>	<b>Description</b>	<b>Comment / Source of Contamination</b>	
ARE THERE LARGE AMOUNTS OF WATER PONDING ON THE SURFACE?	<input type="checkbox"/> YES (explain in comments) <input type="checkbox"/> NO		
ARE THERE LARGE AMOUNTS OF WATER MOVING ACROSS THE SITE, (SMALL CREEKS/DRAINAGES)?	<input type="checkbox"/> YES (explain in comments) <input type="checkbox"/> NO		
WERE THE SITE ACCESS CONTROLS EFFECTIVE? ARE THEY STILL IN PLACE?	<input type="checkbox"/> YES (explain in comments) <input type="checkbox"/> NO		
ARE THERE EROSION CHANNELS, SLUMPING WALLS, OR OTHER EROSION PROBLEMS AT THE SITE?	<input type="checkbox"/> YES (explain in comments) <input type="checkbox"/> NO		
IS THE ACCESS ROAD IN GOOD CONDITION AND FREE OF EROSION/FLOODING?	<input type="checkbox"/> YES (explain in comments) <input type="checkbox"/> NO		
IS SEDIMENT ACCUMULATING OFF-THE SITE (IN SHRUBS, ON ROADS, ETC.)	<input type="checkbox"/> YES (explain in comments) <input type="checkbox"/> NO		
DO ANY OF THE BMPs NEED OT BE REPAIRED R REPLACED?	<input type="checkbox"/> YES (explain in comments) <input type="checkbox"/> NO		
ARE THERE ANY OTHER CORRECTIVE ACTIONS NECESSARY TO COMPLY WITH THE MINING PLAN?	<input type="checkbox"/> YES (explain in comments) <input type="checkbox"/> NO		
<b>INSPECTOR NAME (PRINT)</b>		<b>COMPANY</b>	
<b>INSPECTOR'S SIGNATURE</b>		<b>INSPECTION DATE</b>	



**PERIODIC SITE INSPECTION**

*COMPLETE AFTER SPRING THAW, PRIOR TO BEGINNING MINING OPERATIONS FOR THE SEASON*

<b>NAME OF MATERIAL SITE</b>			
<b>Name of Inspector(s)</b>			
<b>Weather Conditions</b>			
<b>Observation</b>	<b>Description</b>	<b>Comment / Source of Contamination</b>	
IS THERE MINING ACTIVITY AT THE SITE? IF SO, BY WHOM (TRIBE, CITY, ANTHC, ETC.)			
IS THERE STOCKPILED MATERIAL ON SITE? IF SO WHAT KIND (SAND/SILT, VEGETATION, TOPSOIL)			
ARE THERE BMPS IN PLACE TO CONTROL DRAINAGE ON TO THE SITE	<input type="checkbox"/> YES (describe in comments) <input type="checkbox"/> NO		
ARE THERE BMPS IN PLACE TO CONTROL DRAINAGE ON TO THE SITE	<input type="checkbox"/> YES (describe in comments) <input type="checkbox"/> NO		
IS THERE ANY DRAINAGE FROM THE SITE VIA BMPS (SETTLING POND, SILT FENCE DRAINS, ETC.)	<input type="checkbox"/> YES (describe in comments) <input type="checkbox"/> NO		
IF YES, ARE THEY EFFECTIVE?	<input type="checkbox"/> YES <input type="checkbox"/> NO (explain in comments)		
DESCRIBE THE DISCHARGE	<input type="checkbox"/> CLEAR <input type="checkbox"/> CLOUDY <input type="checkbox"/> DARK		
	<input type="checkbox"/> SEDIMENT PRESENT <input type="checkbox"/> FLOATING SOLIDS PRESENT <input type="checkbox"/> STRONG ODOR		
ARE SIGNS IN PLACE TO KEEP THE PUBLIC OUT OF THE WORKING AREA?	<input type="checkbox"/> YES <input type="checkbox"/> NO (explain in comments)		
DOES ANYTHING NEED OT BE FIXED OR REPAIRED TO COMPLY WITH THE MINING PLAN?	<input type="checkbox"/> YES (explain in comments) <input type="checkbox"/> NO		
<b>INSPECTOR NAME (PRINT)</b>		<b>COMPANY</b>	
<b>INSPECTOR'S SIGNATURE</b>		<b>INSPECTION DATE</b>	

**Material Site Mining and Reclamation Plan  
Training Log**

<b>Material Site Name</b>	
<b>Community</b>	

<b>Instructor's Name(s) - if no instructor, enter "Self-directed"</b>	
<b>Instructor's Company:</b>	
<b>Date completed:</b>	

**Attendee Roster: (attach additional pages as necessary)**

<b>No.</b>	<b>Printed Name</b>	<b>Company</b>	<b>Signature</b>
1			
2			
3			
4			
5			
6			
7			
8			

**Give completed training log to the Tribal Administrator**

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8. **ANNUAL RECLAMATION STATEMENT—REQUIRED IF YOU FILED A LETTER OF INTENT (CHECKED BOX C ON THE FIRST PAGE) FOR THIS OPERATION. DUE DATE: DECEMBER 31, \_\_\_\_\_. YOU MUST FILE EVEN IF THE MINING DESCRIBED IN YOUR LETTER OF INTENT DID NOT TAKE PLACE.**

This \_\_\_\_\_ annual reclamation statement is for:  
(year)

- a. \_\_\_\_\_ acres Total acreage mined.
  - b. \_\_\_\_\_ cu. yds. Total volume mined or disturbed, including overburden.
  - c. \_\_\_\_\_ acres Total acreage reclaimed.
  - d. \_\_\_\_\_ acres Cumulative total of unreclaimed acreage.
  - e. Reclamation measures that were used (check appropriate measures from Section 4, DESCRIPTION OF THE RECLAMATION OPERATION, and attach list of additional or stricter measures if applicable).
- 

The above annual reclamation statement and all attachments are correct and complete to the best of my knowledge.

\_\_\_\_\_  
Signature of Miner

\_\_\_\_\_  
Date

AS 27.19.030 and AS 27.19.050 require a miner either to file a reclamation plan for approval or to file a letter of intent followed by an annual reclamation statement. This information is made a part of the state public land records and becomes public information under AS 40.25.110 and 40.25.120 (unless the information qualifies for confidentiality under AS 38.05.035(a)(9) and confidentiality is requested). Public information is open to inspection by you or any member of the public. A person who is the subject of the information may challenge its accuracy or completeness under AS 44.99.310, by giving a written description of the challenged information, the changes needed to correct it, and a name and address where the person can be reached. False statements made in an application for a benefit are punishable under AS 11.56.210.

***Attachment C: Addendum 1***

*"Noorvik Hotham Peak Mining & Reclamation Plan Addendum", Approved 9/10/2013*



# Noorvik Hotham Peak Mining & Reclamation Plan Addendum

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This is an addendum to the **MINING PLAN OF OPERATIONS AND RECLAMATION FOR HOTHAM PEAK QUARRY<sup>1</sup>** (7/18/2013, Rev. 0, executed 8/6/2013).

## BACKGROUND

On October 30, 2009, NRC executed a Mineral Materials Management Agreement<sup>2</sup> (“Agreement”) with the Native Village of Noorvik (“Tribe”) to manage and operate the Noorvik Hotham Peak Material Site (“Quarry”). The Tribe mined material from the quarry but had not implemented a Mining and Reclamation Plan (M&R Plan), and had not obtained all of the required permits for the quarry, as required in the Agreement. The mining activity resulted in steep walls, difficult access, and inefficient recovery of material at the site, as well as the potential to discharge storm water to the adjacent Unnamed Creek, located east of the quarry.

The Agreement requires the manager to prepare the mining plan. However, in recognition of the immediate site hazards and the potential for compliance violations, NRC agreed to assist the Tribe and developed a site-specific M&R Plan to address the immediate needs at the quarry. Although NRC developed the M&R Plan, the Tribe is required to submit the M&R Plan to the Alaska Department of Natural Resources (ADNR) for approval. NRC delivered the M&R Plan to the Tribe on 7/25/2013, and provided training on the plan to tribal council members and the step-up Tribal Administrator/Transportation Clerk. To continue managing and operating the quarry, the tribe is required to implement the M&R Plan. NRC assumes no responsibility for agency approval, implementation, amendments, changes, or updates to the M&R Plans.

Based on the past operations of the quarry, and the potential to discharge storm water to waters of the U.S. or the state, the M&R Plan requires the Tribe to obtain an Alaska Pollutant Discharge Elimination System (APDES) Multi-Sector General Permit (MSGP) for storm water discharges. The Tribe initiated the permitting process, and NRC met with the Alaska Department of Environmental Conservation (ADEC) to

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<sup>1</sup> NANA Regional Corporation. *Mining Plan of Operations and Reclamation for Hotham Peak Quarry*, 18 Jul 2013. In M-files: [M:\NRC Resources\ID2\4E6F7A01-2D1E-4AAC-B21B-EB66BFOFAB09\0\4000-4999\4535\LL\130806 Noorvik Hotham Peak Mining Rec Plan Fully-Executed \(ID 4535\).pdf](M:\NRC Resources\ID2\4E6F7A01-2D1E-4AAC-B21B-EB66BFOFAB09\0\4000-4999\4535\LL\130806 Noorvik Hotham Peak Mining Rec Plan Fully-Executed (ID 4535).pdf)

<sup>2</sup> NANA Regional Corporation. *Mineral Material Sales Agreement: Native Village of Noorvik, Noorvik Traditional Council*, 30 Oct 2009. In M-files: [M:\NRC Resources\ID2\4E6F7A01-2D1E-4AAC-B21B-EB66BFOFAB09\0\3000-3999\3012\LL\Noorvik Tribal Council Material\MGMTAgreement 2009 \(ID 3012\).pdf](M:\NRC Resources\ID2\4E6F7A01-2D1E-4AAC-B21B-EB66BFOFAB09\0\3000-3999\3012\LL\Noorvik Tribal Council Material\MGMTAgreement 2009 (ID 3012).pdf)



discuss the permitting needs for the site. Based on discussions<sup>3,4</sup> with ADEC and a review of site photography, ADEC agreed that the Tribe could reclaim the portions of the site that potentially discharge storm water in lieu of obtaining the MSGP permit; if the Tribe adequately reclaimed the site then no MSGP permit would be required. ADEC also agreed that the Tribe could mine material in **Phase 1** of the quarry, as described in the M&R Plan, as long as:

- No mining or equipment activity takes place in the disturbed areas that potentially discharge storm water, and,
- The Tribe begins reclamation activity immediately to eliminate the potential to discharge storm water. "Immediately" means in Summer/Fall of 2013 *unless no material will be mined in 2013*. Reclamation must begin concurrently with any mining activity.

Once reclamation is complete *and approved by NRC and/or ADEC*, the Tribe may begin mining in Phases 2-4.

## RECLAMATION OF POTENTIAL STORM WATER DISCHARGE AREAS

This addendum only addresses permanent reclamation of the approximately east and northeastern portions of the site, which have the potential to discharge storm water to waters of the U.S. or the state.

### EXISTING SITE CONDITIONS

Google Earth® Imagery is provided to show the site conditions on May 30, 2012. However, mining occurred after that time so the imagery is not current; Google Earth® imagery is used for reference only.

Prior mining activity disturbed the northeastern and eastern portions of the quarry, and these areas were not properly reclaimed. The disturbed surface created the potential to discharge storm water to the adjacent Unnamed Creek; aerial imagery indicates that discharges may have occurred in the past. Portions of these disturbed areas have naturally re-vegetated, reducing the current risk for discharges, but additional BMPs are necessary. In addition, the site must be managed to assure that no mining activity takes place in these areas.

### REQUIRED RECLAMATION

The areas described in this addendum must be reclaimed, permanently, to ensure that all storm water is captured in the pit and that none is discharged offsite or to the Unnamed Creek. An APDES MSGP permit is required for *any* storm water discharges that may enter waters of the U.S. or State. This addendum requires permanent reclamation of the indicated portions of the site to preclude the need for an APDES MSGP permit. All reclamation activity is the sole responsibility of the Tribe. The Tribe should contact the

<sup>3</sup> Greuey, John (ADEC), Environmental Program Specialist. Personal interview, 19 August 2013.

<sup>4</sup> Buck, Teri(ADEC), Environmental Program Specialist. Personal interview, 26 August 2013.



ADEC with any questions about the required reclamation activities. If the Tribe does not reclaim the site as needed, then the Tribe must obtain an APDES MSGP permit prior to any mining activity at the site.



Photo 1: Google Earth<sup>®</sup> Aerial View of Hotham Peak Quarry (5/30/2012). Proposed reclamation areas (shaded purple) approximate, since the imagery is not current.

The Tribe needs to install storm water Best Management Practices<sup>5</sup> (BMPs) to:

- Permanently prevent offsite discharge of storm water toward Unnamed Creek,
- direct all storm water and/or surface drainage back into the pit.

Suggested BMPs include:

- Installing berms to redirect flow back toward the pit,
- Installing berms and/or trenches at the limits of the disturbed areas, to prevent offsite runoff,

<sup>5</sup> Collins, James, et. al. (Tetra Tech). *Alaska Storm Water Guide*, December 2011. State of Alaska, Department of Environmental Conservation, Division of Water Quality. Web 05 Sep 2013. <<http://www.dec.state.ak.us/water/wnpssc/stormwater/Guidance.html>>



- Tracking the ground surface to slow and diffuse runoff,
- Re-vegetating the disturbed ground to minimize erosion,
- Posting signs to prohibit mining and vehicle and equipment traffic in the reclaimed areas, and,
- Other BMPs based on site-specific needs.

Refer to the *Alaska Storm Water Guide* for guidance on selecting and installing BMPs. Refer to the M&R Plan and the *Alaska Coastal Revegetation and Erosion Control Guide*<sup>6</sup> for guidance on re-vegetating the reclaimed area.

Photo 2 through Photo 6 were taken on 8/29/2013.

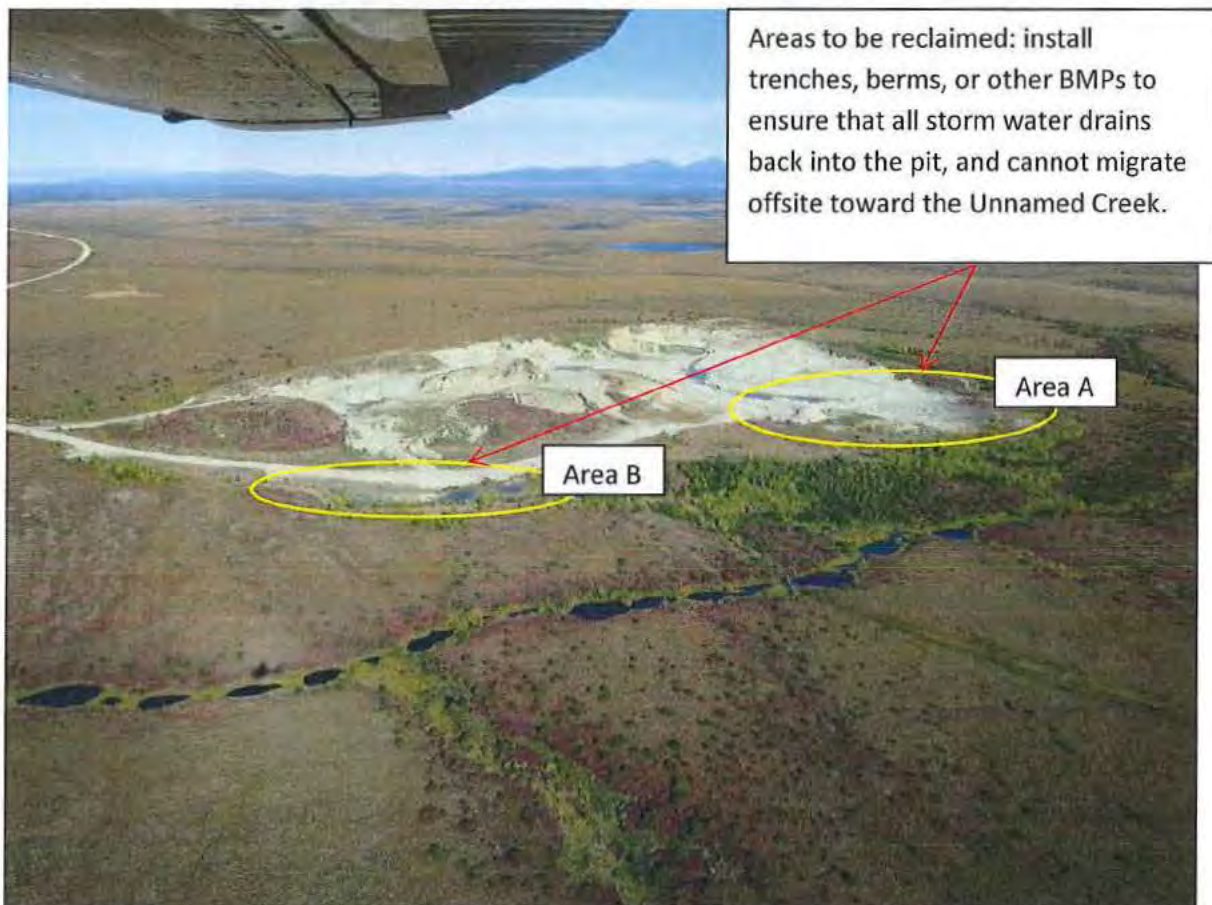


Photo 2: View looking approximately northwest across Hotham Peak Quarry.

<sup>6</sup> Wright, Stoney, J., and Philip K. Czaplak. August 2011. *Alaska Coastal Revegetation and Erosion Control Guide*. State of Alaska, Division of Agriculture, Plant Materials Center. Web 05 Sep 2013. < <http://plants.alaska.gov/reveg/coastal.htm> >





Photo 3: View looking North-northwest across material site. Area A in right background; Area B in right foreground.

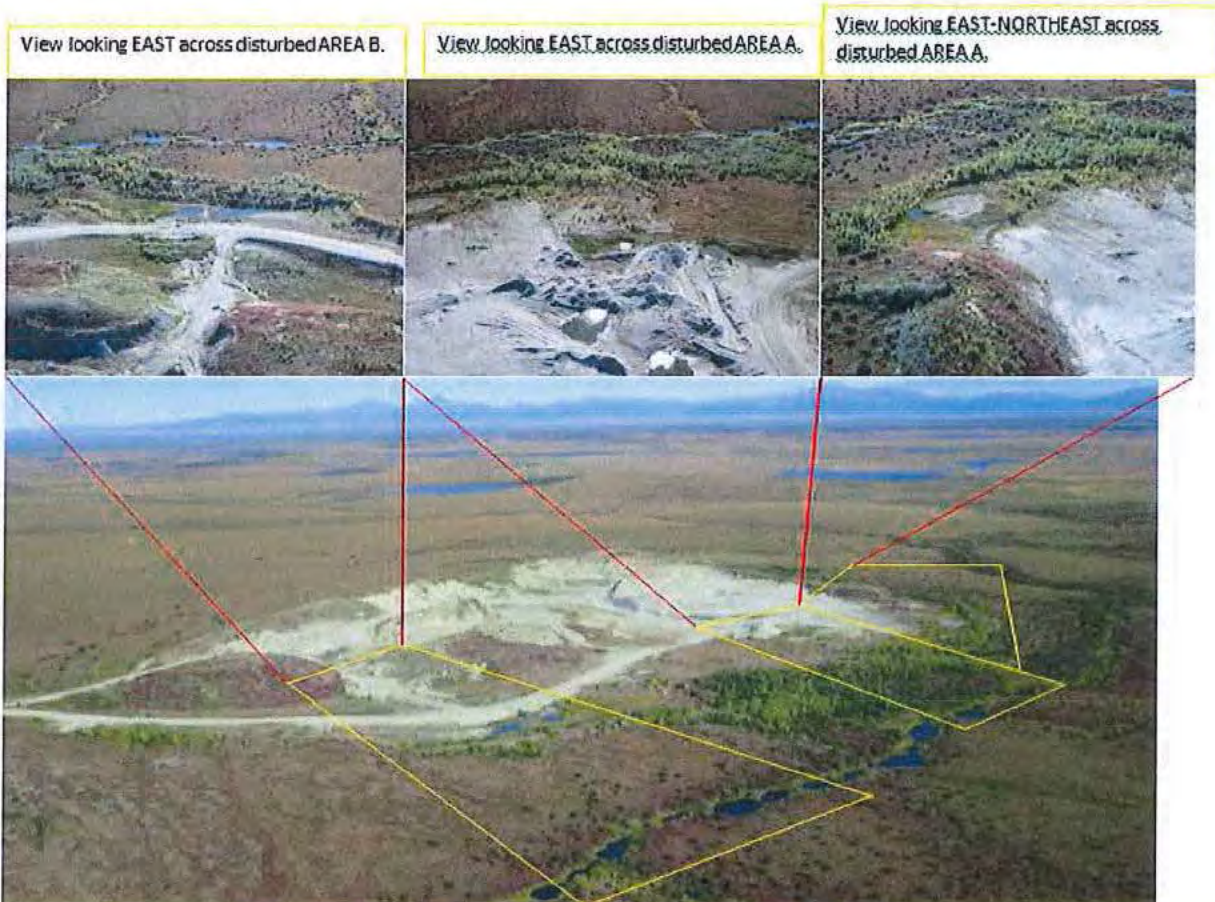


Photo 4: Aerial depiction of the disturbed areas to be reclaimed. Upper left: Area B needs minimal BMPs. Center and upper right: Area A needs more extensive reclamation.



Area A is near the northeastern limit of the previously disturbed material site. The area has been graded towards the Unnamed Creek, which directs stormwater offsite. This area exposes a large disturbed surface to runoff, erosion, and sediment transport. This area may require multiple and/or staged BMPs to effectively prohibit offsite runoff.

Area B is on the eastern portion of the material site, and has largely been naturally re-vegetated. There are two man-made ponds, assumed to be legacy settling ponds. Since they are man-made, they are not considered waters of the U.S. or State. The ponds do not need to be reclaimed but the Tribe must install BMPs to ensure that:

- no water is discharged offsite from the pond(s), and,
- no water is discharged from the surrounding disturbed surface area.

Photo 5 and Photo 6 illustrate examples of BMPs that may effectively reclaim the portions of the quarry that potentially discharge storm water. However, the actual installed BMPs will be determined by site conditions.

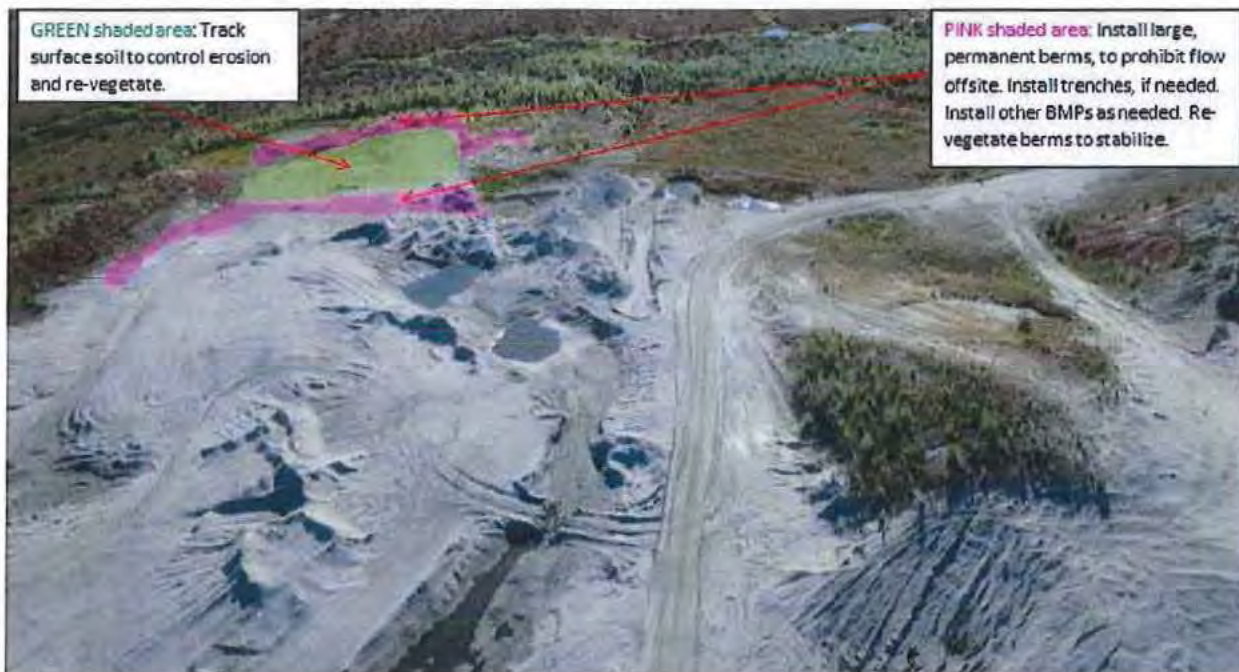


Photo 5: Examples of BMPs to reclaim Areas A & B. Actual BMPs will depend on a site-specific assessment



Photo 6: Example BMPs for Area B

**CERTIFICATION OF ADDENDUM**

I hereby certify, as an authorized representative of the Material Site Manager, that the Noorvik Native Community will comply with the provisions of this addendum to the Plan, as well as the reclamation requirements established in Alaska Statute A.S. 27.19.

Signature of Authorized Material Site Manager Representative:

NAME

TITLE

SIGNATURE

DATE

I/we, as the landowner(s) of the property described herein, do hereby certify that I/we have reviewed the addendum to the Plan submitted by the Noorvik Native Community, concur with its provisions, and agree to permit its implementation.

Jason W. Rutman  
NAME

Director of Natural Resources  
TITLE

[Signature]  
SIGNATURE

9/10/2013  
DATE