**Mining Plan of Operations and Reclamation Template**

Introduction

This template is intended to guide local material site users, operators, and/or managers in developing a mining and reclamation plan as required for material sites larger than 1 acre by Alaska Statute A.S> 27.19.030 – 27.19.050. For more information, refer to the ADNR Letter of Intent/Reclamation Plan at <http://dnr.alaska.gov/mlw/forms/land/reclplan_merged.pdf> .

Tips for completing the Template:

* This Template is designed as a guide and is NOT tailored to your individual project or facility. You will need to provide site-specific information to complete an effective plan that complies with the requirements.
* Read through the entire template and complete as much as possible. **You are not expected to have all of the information in the template, but are expected to provide as much as possible**. If you do not have data but have traditional knowledge (TK), please include that information and cite it as “traditional knowledge,” with the name and contact information for the source of the TK information.
* Where applicable, sections include “instructions” and space for your specific information. You should read the instructions for each section before you complete that section.
* The template is in *Microsoft Word* so that you can easily add tables and additional text. Some sections may require only a brief description while others may require several pages of explanation.
* To make it easier to complete, the template uses blue text to prompt you to enter information.

NRC Resources Division has staff to assist you or direct you to the right agency contact for assistance with this plan. These resources may also be helpful:

* Alaska Department of Environmental Conservation, “Alaska Storm Water Guide,” (December 2011). Web < <http://dec.alaska.gov/water/wnpspc/stormwater/docs/AKSWGuide.pdf> >
* Alaska Statutes, A.S. 27.19.010 – 27.19.050, Applicability, Reclamation Standard, Reclamation Plan, Reclamation Assurance, and Exemption for Small Operations. Web < <http://www.touchngo.com/lglcntr/akstats/Statutes/Title27/Chapter19.htm> >
* Wisconsin Department of Natural Resources, “A Guide to Developing Reclamation Plans for Non-metallic Resources in Wisconsin,” No. PUBL-WA-834-2002, (2002). Web <<http://dnr.wi.gov/topic/Mines/documents/NonmetRecPlan.pdf> >

**Elia Gomez**, NRC Natural Resources Specialist, is the primary point of contact for all gravel/material site questions. **Contact NRC’s Natural Resources Specialist first** and she can assist you or put you in touch with the right person at NRC.

NRC Natural Resources Specialist Contact Information:

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NANA Regional Corporation

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Office 907-265-3758; Cell 907-538-2466; Fax 907-343-5905

Mining Plan of Operations and Reclamation

for:

Insert NRC Quarry Name

Insert Quarry Street Address

Insert City, State, Zip Code

Material Site Manager Contact(s):

Insert Name of Entity that Manages the Site

Insert Name of Entity's Primary Point of Contact for the Material Site

Insert Entity's Address

Insert Entity's City, State, Zip Code

Insert Telephone Number for the Point of Contact for the Material Site

Insert the email address for the Point of Contact for the Material Site

Plan Date:

**\_\_ \_\_/ \_\_ \_\_ /** **\_\_ \_\_ \_\_ \_\_**

Enter Revision #

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# SECTION 1: EXISTING CONDITIONS

## 1.1 Site Location Information

|  |  |  |
| --- | --- | --- |
|

|  |  |
| --- | --- |
| Legal Description T**\_\_ \_\_ \_\_ \_\_** R**\_\_ \_\_ \_\_ \_\_** Sec **\_\_ \_\_ \_\_ \_\_** 1/4**\_\_ \_\_ \_\_ \_\_** |  \_ \_ \_ \_ \_ \_\_ \_ \_ \_ \_ \_\_ \_ \_ \_ \_ \_ Meridian |

 |
| Latitude/Longitude (Use **one** of three possible formats, and specify method) |
| Latitude: | Longitude: |
| 1. \_ \_ º \_ \_ ' \_ \_'' N (degrees, minutes, seconds) | 1. \_ \_ º \_ \_ ' \_ \_'' W (degrees, minutes, seconds) |
| 2. \_ \_ º \_ \_ . \_ \_' N (degrees, minutes, decimal) | 2. \_ \_ º \_ \_ . \_ \_' W (degrees, minutes, decimal) |
| 3. \_ \_ . \_ \_ \_ \_ º N (decimal) | 3. \_ \_ . \_ \_ \_ \_ º W (decimal) |
| Method for determining latitude/longitude (check one):  |
| [ ]  USGS topographic map (specify scale: ) | [ ]  GPS | [ ]  Google Earth |
| [ ]  Other (please specify):  |
| Mining period (number of years) covered under this Plan: Enter the range of years (e.g., 2015-2020) |
| Existing acreage of mined area (including disturbed area that has not yet been reclaimed, butcounting only acreage **disturbed after October 15, 1991**): Enter acres acres |
| Estimated area of mining activity/ ground to be disturbed in **a single year**: Enter total acres acres |
| Estimated total **volume** of material to be mined or disturbed in **a single year,** including overburden: Enter total cubic yards |
| Type of material to be mined: Sand, gravel, peat, etc. Use soil classification, if known. |

## 1.2 Site Ownership and Management

Instructions: NRC will complete the Facility Land Owner section, and the Facility Manager shall provide the information for who manages the site. Some NRC Material Sites are managed directly by NRC, while others may be managed by a local entity, such as the tribe of City, or a contractor. Managers must have a current Mineral Materials Management Agreement executed with NRC. If there is an operator other than NRC or the manager who will do the physical mining, include the operator information also.

Insert text description here and complete the table below

|  |  |
| --- | --- |
| **Facility Land Owner:** | **Facility Manager:** |
| Company/Entity: Insert Name | Company/Entity: Insert Name |
| Address: Insert Address | Address: Insert Address |
| City, State, Zip Code: Insert City, State, Zip Code | City, State, Zip Code: Insert City, State, Zip Code |
|  Primary Point of Contact: Insert Name |  Primary Point of Contact: Insert Name |
| Telephone Number: Insert Telephone Number | Telephone Number: Insert Telephone Number |
| Email address: Insert email address | Email address: Insert email address |
| Fax number: Insert fax number (optional) | Fax number: Insert fax number (optional) |

|  |
| --- |
| **Is there an Operator, other than NRC or the Manager, who will mine and/or move earth at the site?** |
| Insert Yes or No If yes, complete the sections below. If there are more than two operators, attach the additional info in an appendix or insert more table data. |
| **Operator 1 Information:** | **Operator 2 Information:** |
| Company/Entity: Insert Name | Company/Entity: Insert Name |
| Address: Insert Address | Address: Insert Address |
| City, State, Zip Code: Insert City, State, Zip Code | City, State, Zip Code: Insert City, State, Zip Code |
|  Primary Point of Contact for the Operator: Insert Name |  Primary Point of Contact for the Operator: Insert Name |
| Telephone Number: Insert Telephone Number | Telephone Number: Insert Telephone Number |
| Primary Point of Contact Email address: Insert email address | Primary Point of Contact Email address: Insert email address |
| Fax number: Insert fax number (optional) | Fax number: Insert fax number (optional) |

|  |
| --- |
| **Mineral Materials Management Agreement Information:** |
| Is an NRC Agreement in effect? Insert Yes or No If yes, complete the following: |
| Agreement Number: Insert Agreement Number Date Signed: Date Effective Through: Date |
| Maximum allowable volume of material to be mined (if applicable): Enter total CY or "N/A" |

## 1.3 Overview and General Summary of the Mining Operation

Instructions: This is an opening summary of **only** 1-2 paragraphs

* Provide a basic description of the site including the material classification (sand, gravel, rock, etc.), material geology/derivation information, if known (e.g., glacial outwash), and formation, if known (outcrop, bluff, etc.).
* Include a brief history of activity at the site (when material mining began, prior use, current site use other than material mining).
* Include the number of phases (phased mining will be discussed in depth in Section 2.1)
* Include the expected life of the mine (how many years material will be used from the site) and expected reclamation period.

Insert text

## 1.4 Site Data

Instructions: Provide as much of the following data as possible. It can be presented in text, map or tabular format. Reference the applicable appendix for any attachments

* Location Map (Include a Google Earth image
* Arial Extent of Mine and Delineation of Mining Phases
* Geologic Map
* Geologic Cross-section
* Soils Map
* Depth of Groundwater and Hydrology with Pre-mining Topography
* Mine Operations Setup and Erosion Control Measures
* Final Topography and Post-mining Land Use Classified
* Soil Descriptions and Borings Data (if available)
* Soil Drilling Log Data (if available)

## 1.4 Activities at the Facility

Instructions: Describe briefly the typical daily activities, including activities other than mining the material. Examples include:

* Will there be blasting, crushing, or other mechanical operations at the site to prepare the material?
* Will there be equipment fueling at the site? Will fuel be stored on site?
* Do any other entities use the site for non-material mining purposes? If so, what are their activities?
* Will surface or groundwater be dewatered from the site to access material or operate the site?

Insert text

# SECTION 2: DETAILED MINING OPERATIONS

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

**Instructions:** Describethe geologic composition and depth of mineral deposit*.* Include a cross-section of the mining deposit and reference its location in the Appendix.

Include basic information about the site topography, surficial geology, and thickness of mineable materials and extent across and/or within the site. If available, summarize soil boring data and site-specific information derived from drilling logs and test pits. Include data in tabular and/or map form, and reference the table/map location in the Appendix. **If you have no information, leave this section blank.**

Insert text

## Existing Topography

**Instructions:** Describethe existing topography and mining limits. Include a USGS topographic map of the site at a scale no smaller than 1:63,360 (inch to the mile) showing the general vicinity of the mining operation and the specific property to be mined. If the mining site is adjacent to an airport or public highway, indicate the name of the airport or the name and milepost of the public highway.

Insert text

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

**Instructions:** Describethe type and extent of vegetation across the site (tundra, shrub/brush, woody vegetation, etc.

Insert text

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

**Instructions:** Describethe site groundwater regime, including the estimated depth to groundwater and variations in the depth to groundwater across the mining area. If available, include the inferred site groundwater gradient and estimated recharge rate. Cite references for the groundwater data. If site dewatering will be required, include information on the dewatering process, including pump use, discharge areas, and methods to control erosion at the dewatering discharge point(s). **If you have no data, please provide Traditional Knowledge; otherwise, leave this section blank.**

Insert text

## Surface Waters & Site Drainage

**Instructions:** Describethe location of any surface waters on or adjacent to the site, including seasonal/ephemeral water bodies, and the existing site drainage patterns. Discuss any water impoundments, such as settling ponds, on the site or to be developed for the mining operation. Indicate the water bodies and/or impoundments on a map. **If you have no data, please provide Traditional Knowledge.**

Insert text

## Arial Extent and Phasing of Operations

Instructions:

* Describe the number, duration, and activity in the mining phases (e.g., how mining will be phased to develop one area of the pit until all material is exhausted, maintain safe slopes, terrace the pit, maintain the pit floor, etc.), including the reclamation phase.
* Describe how overburden, waste rock, etc. will be stockpiled and or used
* Include a map in the Appendix that illustrates how phasing will occur in the sand and gravel portion of the mining operation. Mining occurs in phases to minimize disturbance and erosion on the mining site. Each phase corresponds to a specific excavation period where topsoil is removed and the pit is expanded
	+ **Phase 1**: Describe the first mining phase (typically, this involves removing organic material, sand/gravel, etc. to expose/access the material.). Include any applicable drilling and/or blasting activities. Describe which materials will be removed (e.g., brush, topsoil, etc.), where the material will be relocated, and how materials (topsoil, vegetation, over-burden, etc.) will be preserved for use in reclamation. Show stockpiles on the map. Describe how the stockpiles will ultimately be used (e.g., “stockpiled topsoil will be re-vegetated immediately to minimize erosion, etc.).
	+ **Phase 2:** Describe the second mining phase. This typically includes the activities to develop a specific area of the mine to maximize material harvest before moving to another section of the mine, developing and/or maintain safe slopes and access to working faces, etc. It may also include reclaiming areas excavated during Phase 1 activities.
	+ **Phase 3, 4, 5, etc.:** Include additional phases needed, including the final reclamation phase, to maintain safe, erosion-controlled slopes and access at the site, maximize material recovery, reclaim the site, etc. Include how/if topsoil will be used, use of waste rock, grubbed trees and stockpiled mulch, or other applicable activities to stabilize and/or reclaim the site.

**Phase 1**: Insert text

**Phase 2:** Insert text

**Phase 3:** Insert text and any additional phases, if applicable,

**Phase 4:** Insert text and any additional phases, if applicable,

**Phase 5:** Insert text and any additional phases, if applicable,

# SECTION 3: POST-MINING LAND USE AND RECLAMATION

**Instructions:** Describethe methods to be implemented to return the site to the post-mining land use(s). Provide details on the location and final land uses for the entire mining site.

|  |
| --- |
| Total acreage that will be reclaimed during the year (or each year, for multi-year reclamation plan): Enter # of acres acres |
| Provide a list of equipment (type & quantity) to be used during the reclamation operation:  |
| Equipment Type | # of Units |
| Enter equipment make/model | Enter # of unitsl |
| Enter equipment make/model | Enter # of unitsl |
|

|  |
| --- |
| Enter equipment make/model |

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|  |
| --- |
| Enter # of unitsl |

 |
|

|  |
| --- |
| Enter equipment make/model |

 |

|  |
| --- |
| Enter # of unitsl |

 |
| Type of material to be mined: Sand, gravel, peat, etc. Use soil classification, if known. |

**Instructions:** Provide a time schedule of reclamation measures, including the type of measures to be implemented during that year. Indicate multiple years, if applicable.

Insert text

## Interim Reclamation

**Instructions:**

Describe how mine operations will be conducted to minimize the acreage being mined at any one time, and to minimize the total area exposed to erosion and/or storm water discharge.

Insert text

## Earthwork: Final Grading and Slopes

**Instructions:**

* Describe measures to minimize high walls, implement terracing, and otherwise grade and slope measures to stabilize and control erosion across the site.
* Describe how the terrain will blend in with the surrounding landscape to achieve a natural appearance that integrates with the surrounding landscape.
* Describe measures to reduce potential safety risk (e.g., warning signs, safety berms, fencing, using clean materials as backfill against vertical slopes to minimize the drop, etc.).
* Describe how excess materials will be used in the reclamation to avoid environmental impacts, including site preparation and re-distribution of topsoil, vegetation, and other materials.

Insert text

## Permanent Structures

**Instructions:** Describe any structures that will remain on the site after mining is complete, including drainage and sediment control structures. **If you have no information, leave this section blank.**

Insert text

## Revegetation Plan

**Instructions:**

* Describe plant materials to be used to stabilize/reclaim the site, including the type of seed, application methods, installation of other plant materials, timing of the seed application/and or other plantings, etc. Revegetation materials may include other organic materials, such as mulch.
* Contact the Alaska Plant Materials Society (<http://plants.alaska.gov/> ) for guidance on native seed/plant mixes suitable to the local terrain. Seed and plant materials must be obtained from a licensed nursery that normally works with native prairie and/or wetland plant materials. Seed shall be free of contamination by weedy species.
* If applicable, include information on soil amendments, fertilizers, etc. to be applied to prepare the seedbed. Include fertilizer ratios (e.g., NPK 20:10:10, etc.) and application rates (pounds per acre).

Insert text

## Revegetation Standards

**Instructions:**

Describe methods to determine the success of the revegetation (e.g., measures of % cover, productivity, plant density, diversity or other applicable measures). **If you have no information, leave this section blank.**

Insert text

# SECTION 4: Inspections AND SITE MAINTENANCE

## 4.1 Follow-up Inspections

**Instructions** Describe inspection schedules and activities, including:

* Routine inspections to ensure that sediment and erosion control systems are effective, especially immediately after severe storms, and, to assess potential damage caused by traffic, wind, water or other cause
* Periodic follow-up inspections of all reclaimed or otherwise stabilized surfaces to ensure erosion and sedimentation are controlled.

Insert text

## 4.2 Site Maintenance

**Instructions** Describe routine maintenance practices to ensure:

* all necessary maintenance and repair work to the erosion control system, and,
* long-term success of reclamation and re-vegetation methods.

Insert text

# SECTION 5: SITE CLOSURE

## 5.1 Final Site Actions

Instructions Describe final actions at the site, such as the final removal of mining-related structures, drainage structures, sediment control structures, etc. and the timeframe (e.g., once vegetative cover is sufficiently established to stabilize the site). Include language stating the operator/manager commitment to reclaim the site (e.g., At such time and in accordance with the approved reclamation plan those structures will be removed and the soils in such areas will be reclaimed as described in the reclamation plan (AS 27.19). At this time NRC will request the ADNR to perform any necessary inspection and evaluation work to certify the reclamation as complete and to release the financial assurance.

Insert Text

## 5.2 Criteria for Successful Reclamation

Instructions Describe the methods the operator/manager will use to demonstrate compliance with the reclamation success for each post-mining land use contained in the approved reclamation plan and the success criteria to be applied (e.g., percent cover of re-vegetated areas, etc.). **If you have no information, leave this section blank.**

Insert Text

## 5.3 Financial Assurance

##

**Instructions**: NRC may require the operator/manager to provide financial assurance to recover any reclamation costs if the operator/manager fails to reclaim the site in accordance with this Plan.

Insert financial assurance text or requirements.

# SECTION 6: CERTIFICATION OF THE RECLAMATION PLAN

I hereby certify, as an authorized representative of the material site Enter applicable term: Material Site Manager OR Material Site Operator, that Company/Entity name will comply with the provisions of this reclamation plan as well as the reclamation requirements established in Alaska Statute A.S. 27.19.

Signature of Authorized Operator/Manager Representative

|  |  |  |  |
| --- | --- | --- | --- |
| Name: |  |  Title: |  |
| Signature: |  |  Date: |  |

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

I/we,as thelandowner(s) or lessee(s) of the property described herein, do hereby certify that I/we have reviewed thereclamation plan submitted byName of Operating OR Managing Company/Entity, concur withits provisions, and agree to permit its implementation.

Signature of Authorized NRC Representative

|  |  |  |  |
| --- | --- | --- | --- |
| Name: |  |  Title: |  |
| Signature: |  |  Date: |  |

# SECTION 7: PLAN MODIFICATIONS

|  |
| --- |
| **Plan Amendment Log** |
| Amendment No. | Description of Amendment | Amendment Date | Amended By |
| Insert Number | Insert text | Insert Date | Insert Name of Author who amended text |
| Insert Number | Insert text | Insert Date | Insert Name of Author who amended text |
| Insert Number | Insert text | Insert Date | Insert Name of Author who amended text |
| Insert Number | Insert text | Insert Date | Insert Name of Author who amended text |
| Insert Number | Insert text | Insert Date | Insert Name of Author who amended text |

# SECTION 8: ATTACHMENTS

## Attachment A: Maps

## Attachment B: Tables

## Attachment C: Data – Lab Data, Boring Logs, etc.