Pebble Project

NORTHERN DYNASTY MINES INC.

PEBBLE PROJECT

Response to July 26, 2006

ADNR Analysis of Application Completeness of

July 7, 2006 Application for Surface Water Right

Unnamed Tributary (NK1.190)

North Fork Koktuli River

SEPTEMBER 21, 2006

Pebble Project

NORTHERN DYNASTY MINES INC.

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September 21, 2006

Mr. Thomas Crafford
Large Mine Coordinator
Alaska Department of Natural Resources
Water Resources Section
550 West 7th Avenue, Suite 920
Anchorage, AK 99501-3562

Re: *Unnamed Tributary (NK1.190) North Fork Koktuli River* Surface Water Right Application Completeness Response Document

Dear Mr. Crafford:

On July 7, 2006, Northern Dynasty Mines Inc. (NDM) submitted an application for water right for the Unnamed Tributary (NK1.190) North Fork Koktuli to the Department of Natural Resources (DNR). On July 26, 2006, following an application completeness analysis, DNR requested additional information. DNR provided a list of provisions to be addressed by NDM in a supplemental submission, with explanatory information related to these provisions.

The purpose of this letter is to transmit NDM's item-by-item response to DNR's request for additional information regarding its July 7, 2006, Unnamed Tributary (NK1.190) North Fork Koktuli surface water right application.

This application response document is being submitted simultaneously with two other surface water right application response documents.

Please contact me in the Anchorage office of NDMI at 339-2606 if you have any questions with regard to this application.

Your continued efforts in adjudicating this application are very much appreciated.

Sincerely,

Northern Dynasty Mines Inc.

Michael C. T. Smith
NEPA and Permitting Manager

Northern Dynasty Holdings Inc.

Bruce W. Jenkins
Authorized Officer

NORTHERN DYNASTY MINES INC.
PEBBLE PROJECT

Response to July 26, 2006
ADNR Analysis of Application Completeness of
July 7, 2006 Application for *Surface* Water Right

Unnamed Tributary (NK1.190)
North Fork Koktuli River

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(c)(4)	Legal access for concentrate pipeline; water moving between hydrologic units
(c)(6)	Locate water take points by section, township, range and meridian
(c)(7)	Separate groundwater application needed
(c)(8)	Dam application needed
(c)(9)	Define nature of water use
(c)(13)	Quantify and justify calculations for beneficial water use
(c)(14)	Continuing groundwater monitoring plan
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NORTHERN DYNASTY MINES INC.
PEBBLE PROJECT

Response to July 26, 2006
ADNR Analysis of Application Completeness of
July 7, 2006 Application for *Surface* Water Right

Unnamed Tributary (NK1.190)
North Fork Koktuli River

INTRODUCTION

On July 7, 2006 Northern Dynasty Mines Inc. (NDM) filed an application for water rights in the South Fork Koktuli, North Fork Koktuli, and Upper Talarik Creek drainages. On July 26, 2006 the Department of Natural Resources (DNR) responded with an Analysis of Application Completeness against the criteria set out in 11 AAC 93.040 for each of the July 7, 2006 applications.

Among other comments, DNR stated that separate surface water and groundwater applications are required for water from the same geographical location. DNR stated it would consider the three July 7, 200 applications to be for surface water, and requested that NDM submit separate groundwater applications for these three drainages. NDM has developed these groundwater applications and they are being submitted to DNR separately.

With respect to DNR's other comments on the July 7, 2006 surface water applications, NDM is submitting this document (Completeness Response Document) with its comment-by-comment response to DNR for the *Unnamed Tributary (NK1.190) North Fork Koktuli* surface water right application.

The remainder of this document contains nine tabs, each labeled with the specific 11 AAC 93.040 subsection designation, e.g., (c)(3), cited by DNR's in its Analysis of Application Completeness for the Unnamed Tributary (NK1.190) North Fork Koktuli application.

Immediately following this page are copies of DNR's July 26, 2006 cover letter and Completeness Response Document.

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF PROJECT MANAGEMENT AND PERMITTING

FRANK H. MURKOWSKI, GOVERNOR

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PH: (907) 2857-1351 FAX: (907) 272-3829

July 26, 2006

Mr. Bruce W. Jenkins, Chief Operating Officer
Northern Dynasty Mines Inc.
3201 C Street, Suite 604
Anchorage, AK 99503

Certified Mail No. 70022410000620535955

RECEIVED
JUL 27 2006
ANCHORAGE

Re: Pebble Project North Fork Koktuli River Water Right Application

Dear Mr. Jenkins:

It is the determination of the Department of Natural Resources, Division of Mining, Land and Water, Water Resources Section after assessment of the above-referenced water right application that the application as submitted on July 7, 2006 does not substantially comply with the requirements of 11 AAC 93.040 and will not be accepted for filing (11 AAC 93.050 (a)). An Analysis of Application Completeness is attached for your review. This examination of the application lists those items that when included would provide an application acceptable to the Department. However, please be advised that pursuant to 11 AAC 93.070, the applicant may be required upon receipt of or while adjudicating an application for water use to provide any other information necessary to make a finding under AS 46.15.080.

Northern Dynasty Mines Inc. has forty-five days from receipt of this letter in which to submit supplemental information. Failure to submit the required additional information is grounds for rejecting the application without further notice, (11 AAC 93.050 (b)). Water Resources Section staff is available to meet with company representatives to discuss the analysis of application completeness and to aid in the application process.

If you have any questions concerning the matter, please do not hesitate to contact me at telephone number 269-8645.

Sincerely,

Tom Crafford
Acting Large Mine Project Manager, OPMP

Encl.: North Fork Koktuli River Analysis of Application Completeness
Example Water Use by Activity Chart
Sample of ACMP Consistency Evaluation Form

NORTH FORK KOKTULI RIVER

Analysis of Application Completeness

11 AAC 93.040 Application for a Water Right

(b) An application for a water right must be made on a form provided by the department. The form must be completed in accordance with the instructions furnished to the applicant.

North Fork Koktuli River water right application was submitted to the Department on July 7, 2006 on a form provided by the department. Application included organization's name, mailing address, and telephone number. It was signed by Bruce W. Jenkins, Chief Operating Officer Northern Dynasty Mines Inc.

The application for the North Fork Koktuli River does not show that any water is being diverted from the river. The water source appears to be a tributary to the river. The application should be amended to reflect this change, i.e., for an unnamed stream or unnamed tributary of North Fork Koktuli River.

(c) An application must include the following items:

(1) the applicable application fee prescribed in 11 AAC 05.010;

11 AAC 05.010(a)(8)(A)(iii), $50 per hour, for application for permit or other filing associated with the appropriation of water under AS 46.15.040 for support of exploration, construction, development, operation, production, transportation, or maintenance activities related to locatable minerals, unless the application is filed under (9)(E)(i).

A check in the amount of $900.00 was submitted by Northern Dynasty Mines Inc. and accepted by the Department of Natural Resources, Division of Mining, Land and Water as a deposit to be applied to the fee for regulatory service associated with this water right application.

(2) evidence that the applicant has a present possessory interest in the property where the water is to be beneficially used, as shown by a copy of the deed, patent, license, leasehold agreement, mining location certificate, or other instrument, or a copy of a completed application that has been filed with the appropriate agency to acquire permission for the use of federal, state, or municipal property;

Application packet included copies of quitclaim deeds that included legal descriptions for 1335 unpatented mining claims of which 918 are held of record by Northern Dynasty Holdings Inc. and 417 of the claims are held of record by Northern Dynasty Mines Inc. As holders of record of the mining claims, Northern Dynasty Mines Inc. and Northern Dynasty Holdings Inc, collectively referred to as Northern Dynasty Mines Inc., are authorized and responsible to carry out exploration, development and administrative work relating to the Pebble Project.

(3) a map identifying

(A) the section, township, range, and meridian, and showing the property boundary, for the point of water withdrawal, impoundment, or diversion;

Application included the following maps, all that identified the section, township, range and meridian:

1. Pebble Property (Schedule A),
2. Tailings Storage Facility-Site G North Fork Koktuli Watershed (Figure 1.3),
3. Proposed Water Extraction Limits North Fork Koktuli River (Figure NFK-1),
4. Tailings Storage Facility G North Fork Koktuli River (Figure NFK-2)

Additional information required:

1. **Map for Tailings Storage Facility –Site G Final General Arrangement (Figure 2.1) needs to show section, township, range and meridian; and**
2. **Project description indicates that there will be diversion of undisturbed surface runoff from areas upstream of the tailings storage facility. Diversion method is to be described and the diversion structures located on appropriate maps.**

Please note that on the introduction page of Chapter Five-Project Description, paragraph two, the first sentence incorrectly states that the "following is a report describing the impoundment facilities that would be constructed and operated within the *South* Fork Koktuli River Drainage".

(B) the route of water transmission;

Maps for Tailings Storage Facility-Site G Final General Arrangement (Figure 2.1) clearly indicates proposed route of water transmission from tailings storage facility to milling facility.

Additional information required:

As stated above, these map needs to show section, township, range and meridian.

(C) if water is to be returned to a stream or water body, the point of return flow;

Not applicable.

(4) evidence that the applicant has obtained or is in the process of obtaining a right of access to the property where water is to be withdrawn, impounded, or diverted, and over which water is to be transported both to the point of use and to the point of return flow;

Proposed water impoundment pits, withdrawal points, diversion ditches and transport routes associated with the Pebble Creek tailings storage facilities and milling facility will be located on unpatented mining claims held by Northern Dynasty Mines Inc.

Company has not provided copies of documentation showing that it has legal access document or made application for legal access for the slurry pipeline transport route from the Pebble Creek site to the proposed Cook Inlet marine terminal. Also, water associated with slurry transport to marine terminal will be water taken outside of the hydrologic unit. Therefore, the process and considerations set out under AS 46.15.035 for determining whether such an appropriation may be approved will apply.

(5) repealed 8/20/2004;

(6) a legal description of the point of withdrawal, diversion, or impoundment; the point of water use; and if water is to be returned to a stream or water body, the point of return flow; the legal description must include meridian, township, range, section, and aliquot parts, or the lot, block, and subdivision, or survey number, as appropriate;

Water take points and locations of water use must be clearly identified by location, (section, township, range and meridian), and specific to a source (Unnamed Tributary of North Fork Koktuli River).

(7) a description of the source as being either surface or ground water; the description must identify the name of the surface water source or the supply well log or well data for ground water, if available;

Application can not be made for all waters up gradient of proposed downstream limit of water extraction. Separate applications must be made for groundwater and for surface water, one source per application (11 AAC 93.040 (c)(7)). It is anticipated that an application for water rights will cover multiple take points from the same groundwater source.

(8) a description of any impoundment, diversion, or withdrawal structures, including dimensions, construction materials, plans and specifications, and operation plans, and an application to construct or modify a dam, as defined in AS 46.17.900, if 11 AAC 93.171 requires an application;

This regulation requires an application for construction or modification of a dam, see AS 46.17.900 and 11 AAC 93.171. Because the application proposes an impoundment that meets the definition of a dam, then an application for construction or modification of a dam should be submitted.

(9) a description of the nature of the water use and times of the year during which water is to be used;

Application clearly states that water would be used all year (365 days) or January 1st through December 31st.

Description of the nature of water use needs to be better defined and limited to one source, either groundwater or surface water.

(10) a statement of the dates water use is expected to begin and when the maximum amount will be beneficially used;

Start date of water use is listed within application as June 2010. Applicant anticpates that water source will be developed and that full beneficial use of water will be established by November 2012.

(11) a statement of beneficial use, signed before a notary or postmaster, if water is already in use at the time of application;

Not applicable at this time.

(12) an application for a right-of-way, filed in accordance with AS 38.05.850, if access to or across state land is needed;

Not applicable at this time.

(13) a statement of the quantity of water requested, with documentation and calculations justifying the request if either the use or quantity is different from those listed in (d) of this section;

Need to quantify and to justify with calculations the volume of water to be beneficially used by activity, including water use for slurry transport to marine terminal, see attached example. Water use for the management of the tailings facility is to be reported separately from the water storage capacity of Tailings Storage Facility-Site G. Per AS 46.15.100, a water right can not be granted for a larger volume of water than can be beneficially used. <u>Water right applications can not duplicate water quantities for the same beneficial uses. For example, NDM can not request 150,000 gallons of water per day for camp water supply from a surface water source, and then request another 150,000 gpd for camp water supply from a groundwater source, if the total need is 150,000 gpd.</u>

Pertaining to camp water supply, applicant shall provide estimate of the number of employees to be located at site; and regarding transport of slurry to marine terminal, applicant will provide approximate size and length of pipeline and quantity of water to be used.

(14) for a water use of more than 100,000 gpd (0.15 cfs) from a stream, a description of the mean annual flow, or mean monthly flow if available, using the best available data, or, if data are not available, an estimate of mean annual flow using hydrologic methods that the department determines to be reasonably accurate; and

Data has been collected by the applicant since the summer of 2004 on the South Fork Koktuli River, North Fork Koktuli River, and Upper Talarik Creek. From this data a reasonable estimate of mean monthly flow and mean annual flow has

been developed. More data collection and analysis will be necessary to further understand the flow regime. However, using continuous flow monitoring stations installed by the applicant in addition to stream gages operated by the US Geological Survey (USGS) as well as data sets from nearby installations, the discharge estimates seem valid based on the amount of data collected.

Groundwater data within the water extraction area is limited; a better understanding of the groundwater/surface water interrelationship will need to be more thoroughly understood so that any groundwater needed for the project can be quantified. A plan for continued monitoring should be developed.

(15) a completed coastal project questionnaire, (11 AAC 110).

Water right applications must include a completed coastal project questionnaire, per 11 AAC 110. Please be advised that per 11 AAC 110.215(a)(1)(C) Applicant Evaluation, the applicant's Alaska Coastal Management Program Coastal Project Questionnaire (CPQ) submission must include **an evaluation of how the proposed project is consistent with the state standards at 11 AAC 112.200 - 11 AAC 12.320 and with any applicable district enforceable policies.** Implementation of this requirement occurred when the new standards received federal approval. **The consistency review packet should be expanded to include the evaluation for the phased portion of the project. Also indicate on the CPQ which responses pertain to the phased portion of the project.** . A sample evaluation form is attached; however it is advisable to contact Randy Bates with the Office of Project Management and Permitting for explicit instructions.

(d) Standard water use quantities are:

Not applicable.

Pebble Project

Water Rights Application Completeness Response

Unnamed Tributary (NK1.190)
North Fork Koktuli River

11 AAC 93.040

(b) An application for a water right must be made on a form provided by the department. The form must be completed in accordance with the instructions furnished to the applicant.

DNR: North Fork Koktuli River water right application was submitted to the Department on July 7, 2006 on a form provided by the department. Application included organization's name, mailing address, and telephone number. It was signed by Bruce W. Jenkins, Chief Operating Officer Northern Dynasty Mines Inc.

The application for the North Fork Koktuli River does not show that any water is being diverted from the river. The water source appears to be a tributary to the river. The application should be amended to reflect this change, i.e., for an unnamed stream or unnamed tributary of North Fork Koktuli River.

***NDM*: The original application for the North Fork Koktuli has been amended to "Application for Water Right, Unnamed Tributary (NK1.190) North Fork Koktuli River."**

Pebble Project

Water Rights Application Completeness Response

Unnamed Tributary (NK1.190)
North Fork Koktuli River

11 AAC 93.040 (c)

(3) a map identifying

(A) the section, township, range, and meridian, and showing the property boundary, for the point of water withdrawal, impoundment, or diversion;

DNR: Application included the following maps, all that identified the section, township, range and meridian:

1. Pebble Property (Schedule A),
2. Tailings Storage Facility-Site G North Fork Koktuli Watershed (Figure 1.3),
3. Proposed Water Extraction Limits North Fork Koktuli River (Figure NFK-1),
4. Tailings Storage Facility G North Fork Koktuli River (Figure NFK-2)

Additional information required:

1. **Map for Tailings Storage Facility –Site G Final General Arrangement (Figure 2.1) needs to show section, township, range and meridian; and**

***NDM*: Figure 2.1 (attached) has been revised to provide the additional information requested. The following note has been added to indicate the meridian:**

The Pebble Project is located within Townships 3-5 South, Ranges 34-37 West, Seward Meridian.

2. **Project description indicates that there will be diversion of undisturbed surface runoff from areas upstream of the tailings storage facility. Diversion method is to be described and the diversion structures located on appropriate maps.**

***NDM*: A diversion ditch will be constructed upstream of the tailings storage facility, on the northeast side of Site G, to divert undisturbed surface runoff into a surface runoff collection point. The diversion ditch and the surface runoff collection point are now shown on Figure 2.1. Water collected at the point will be used by water haul trucks for dust suppression along mine haul roads within the North Fork Koktuli drainage.**

***DNR*: Please note that on the introduction page of Chapter Five-Project Description, paragraph two, the first sentence incorrectly states that the**

"following is a report describing the impoundment facilities that would be constructed and operated within the *South* Fork Koktuli River Drainage".

That was a typo. It has been corrected in this completeness response document.

(B) the route of water transmission;

DNR: Maps for Tailings Storage Facility-Site G Final General Arrangement (Figure 2.1) clearly indicates proposed route of water transmission from tailings storage facility to milling facility.

Additional information required:

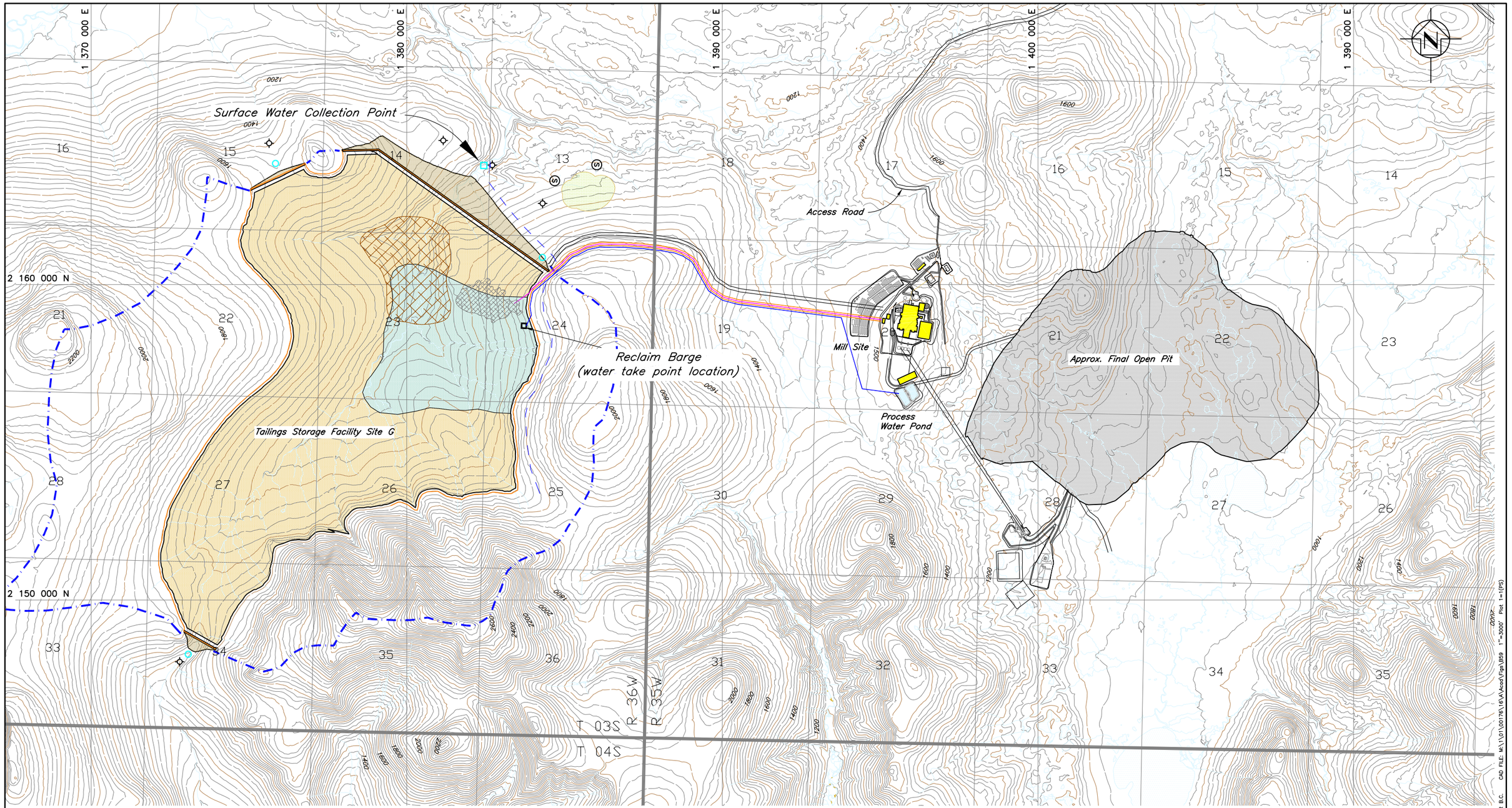
As stated above, these map needs to show section, township, range and meridian.

***NDM*: Figure 2.1 (attached) has been revised to provide the additional information requested. The following note has been added to indicate the meridian:**

> **The Pebble Project is located within Townships 3-5 South, Ranges 34-37 West, Seward Meridian.**

(C) if water is to be returned to a stream or water body, the point of return flow;

DNR: Not applicable.



VANCOUVER B.C. CAD FILE: M:\1\01\00176\16\A\Acad\Figs\B59 1"=3000' Plot 1=1(PS)

XREF FILE : Topo_Sft, Hydro, Features

LEGEND

- Tailings Beach
- Supernatant Pond
- Non-reactive Mine Rock
- Potentially Reactive Waste Rock
- Pyritic Tailings
- TSF Catchment Boundary
- Pyritic Tailings Slurry Pipeline
- Bulk Tailings Slurry Pipeline
- Reclaim Pipeline
- Roads
- Diversion Ditch
- Monitoring Well
- Sediment Control
- Seepage Collection Sump
- Surface Runoff Collection Point
- Topsoil Stockpile
- Reclaim Barge

NOTE

1. Mine site topography information is in NAD83 Alaska State Plane Zone 5 Foot. Outer stream/lake features have been incorporated from NAD27 information. Contour interval shown is 25 ft. Information provided by Eagle Mapping, Nov. 2004.
2. The Pebble Project is located within Townships 3–5 South, Ranges 34–37 West, Seward Meridian.

DRAFT

FOR DISCUSSION ONLY

NORTHERN DYNASTY MINES INC.

PEBBLE PROJECT

TAILINGS STORAGE FACILITY – SITE G
GENERAL ARRANGEMENT
FINAL

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO.	REF. NO.
VA101-176/16	4

FIGURE 2.1

REV. C

REV.		
C	29AUG'06	ISSUED FOR INFORMATION

Pebble Project

Water Rights Application Completeness Response

Unnamed Tributary (NK1.190)
North Fork Koktuli River

11 AAC 93.040 (c)

(4) evidence that the applicant has obtained or is in the process of obtaining a right of access to the property where water is to be withdrawn, impounded, or diverted, and over which water is to be transported both to the point of use and to the point of return flow;

DNR: Proposed water impoundment pits, withdrawal points, diversion ditches and transport routes associated with the Pebble Creek tailings storage facilities and milling facility will be located on unpatented mining claims held by Northern Dynasty Mines Inc.

Company has not provided copies of documentation showing that it has legal access document or made application for legal access for the slurry pipeline transport route from the Pebble Creek site to the proposed Cook Inlet marine terminal. Also, water associated with slurry transport to marine terminal will be water taken outside of the hydrologic unit. Therefore, the process and considerations set out under AS 46.15.035 for determining whether such an appropriation may be approved will apply.

***NDM*: NDM's current Pebble Project base case includes a concentrate slurry pipeline from the mill to a port on Cook Inlet. Depending on ongoing technical and economic analyses, however, there is a distinct possibility that concentrate may be trucked to the port site, thereby obviating the need for a slurry pipeline. If NDM ultimately determines a pipeline is required, it will definitively identify the route at that time and begin the permitting process with the State and other landowners.**

With respect to slurry water being taken outside the hydrologic unit, because discharge of water from a concentrate slurry pipeline at the port site is not permittable, once the concentrates have been dried the slurry water will be recycled back to the mine site in a return pipeline. Because the concentrate slurry water will be returned to the hydrologic unit from which it originated, AS 46.15.035 would not apply.

Pebble Project

Water Rights Application Completeness Response

Unnamed Tributary (NK1.190)
North Fork Koktuli River

11 AAC 93.040 (c)

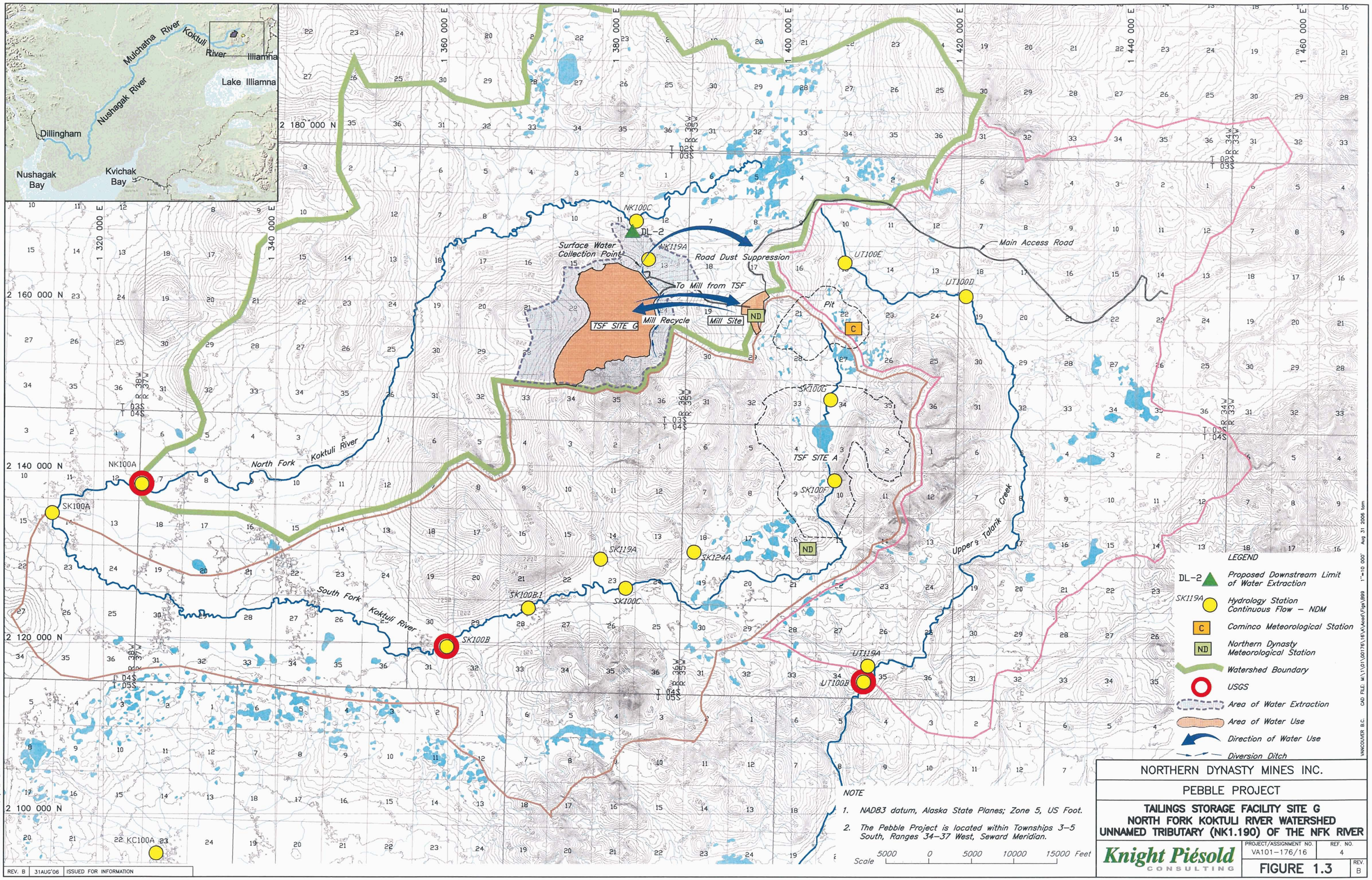
(6) a legal description of the point of withdrawal, diversion, or impoundment; the point of water use; and if water is to be returned to a stream or water body, the point of return flow; the legal description must include meridian, township, range, section, and aliquot parts, or the lot, block, and subdivision, or survey number, as appropriate;

***DNR*: Water take points and locations of water use must be clearly identified by location, (section, township, range and meridian), and specific to a source (Unnamed Tributary of North Fork Koktuli River).**

***NDM*: The surface water appropriated from upstream of the water extraction limit of the unnamed tributary (NK1.190) North Fork Koktuli will be extracted by natural runoff into the TSF impoundment, and by a diversion ditch as described earlier under 11 AAC 93.040 (c)(3). The water take point locations (i.e., points of withdrawal, diversion and/or impoundments) and water use locations are described in Table 1. Figure 1.3 provides clarification.**

Table 1 Unnamed Tributary (NK1.190) North Fork Koktuli Beneficial Water Uses and Water Take Point Locations

Surface Water Extraction Source	Beneficial Water Uses	Where (Figures. 2.1 through 2.4)	Location of Water Use				Description of Water Take Points (points of withdrawal, diversion, and/or impoundment)	Location of Water Take Points			
			Meridian	Township	Range	Section		Meridian	Township	Range	Section
South Fork Koktuli River Drainage	Mining Processes (equipment cooling, mill process, tailings slurry and reclaim pipelines)	Mill & tailings slurry and reclaim pipelines	Seward	3 South	35 West	19 & 20	**Point of Withdrawal in TSF Impoundment** The required mining process water will be withdrawn from the TSF supernatant pond. The water will be extracted using pumps located on the reclaim barges which will be moved around the pond. Mining process water discharged in the TSF through tailings slurry and concentrate slurry pipelines will be continuously recycled back to the mill from the reclaim barges.	Seward	3 South	36 West	23 & 24
					36 West	13-15, 22-27 & 34					
	Management of the TSF (submerge potentially reactive waste materials to prevent oxidation, saturate/ flood tailings to prevent dust generation, protect downstream aquatic resources, and ensure a live pond volume to offset dry years.	Supernatant pond TSF at Site A		3 South	36 West	13-15, 22-27 & 34	**Impounded Water in the TSF** Water in the tailings storage facility (TSF) supernatant pond will be impounded by the North Embankment and a saddle dam (South Embankment) at the south end along the ridge between the North and South Fork Koktuli watersheds. Water in the TSF impoundment will come from surface runoff from the upstream catchment area, direct precipitation, and the tailings slurry pipeline. Much of the water entering the TSF from the tailings slurry pipeline will be recycled to the mill as process water. The water in the TSF supernatant pond thus will consist of surface runoff, direct precipitation, and tailings slurry water, minus evaporation, sublimation, and water permanently retained in the tailings voids.				13-15, 22-27 and 34
	Submerge potentially reactive waste materials to prevent oxidation.	Permanently retained void water TSF at Site A					**Impounded Water in the TSF** Water permanently retained in the submerged tailings will be impounded by the North and South embankments. Water in the voids will come from surface runoff from the upstream catchment area and direct precipitation, as well as from water in the tailings slurry pipeline. The volume of water retained in the tailings voids and waste rock voids in the TSF will be dependent on the mass, dry density and the specific gravity of the tailings solids and waste rock.				
	Road dust suppression	Mine haul roads throughout the water extraction source area		3 South	35 West	8, 17, 19 & 20	**Water Diversion to a Surface Runoff Collection Point** Undisturbed surface water runoff on the northeast side of the TSF will be diverted to a surface runoff collection point within the surface water extraction area by a diversion ditch.				14
					36 West	13-15, 22-27 & 34	**Point of Withdrawal** Water will be withdrawn from the surface runoff collection point by pumping into water haul trucks.				


Mulchatna River
Koktuli River
Illiamna
Lake Illiamna
Nushagak River
Dillingham
Nushagak Bay
Kvichak Bay
NK100C
DL-2
NK119A
Surface Water Collection Point
Road Dust Suppression
To Mill from TSF
Mill Recycle
Mill Site
ND
TSF SITE G
UT100E
UT100D
Main Access Road
Pit
C
SK100G
TSF SITE A
SK100F
Upper Talarik Creek
NK100A
North Fork Koktuli River
SK100A
SK119A
SK124A
SK100B.1
SK100C
South Fork Koktuli River
SK100B
UT119A
UT100B
KC100A
2 180 000 N
2 160 000 N
2 140 000 N
2 120 000 N
2 100 000 N
1 320 000 E
1 340 000 E
1 360 000 E
1 380 000 E
1 400 000 E
1 420 000 E
1 440 000 E
1 460 000 E
LEGEND
DL-2 Proposed Downstream Limit of Water Extraction
SK119A Hydrology Station Continuous Flow – NDM
C Cominco Meteorological Station
ND Northern Dynasty Meteorological Station
Watershed Boundary
USGS
Area of Water Extraction
Area of Water Use
Direction of Water Use
Diversion Ditch
NOTE
1. NAD83 datum, Alaska State Planes; Zone 5, US Foot.
2. The Pebble Project is located within Townships 3–5 South, Ranges 34–37 West, Seward Meridian.
Scale 5000 0 5000 10000 15000 Feet
NORTHERN DYNASTY MINES INC.
PEBBLE PROJECT
TAILINGS STORAGE FACILITY SITE G
NORTH FORK KOKTULI RIVER WATERSHED
UNNAMED TRIBUTARY (NK1.190) OF THE NFK RIVER
Knight Piésold CONSULTING
PROJECT/ASSIGNMENT NO. VA101-176/16
REF. NO. 4
FIGURE 1.3
REV. B
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VANCOUVER B.C.

Pebble Project

Water Rights Application Completeness Response

Unnamed Tributary (NK1.190)
North Fork Koktuli River

11 AAC 93.040 (c)

(7) a description of the source as being either surface or ground water; the description must identify the name of the surface water source or the supply well log or well data for ground water, if available;

***DNR*: Application can not be made for all waters up gradient of proposed downstream limit of water extraction. Separate applications must be made for groundwater and for surface water, one source per application (11 AAC 93.040 (c)(7)). It is anticipated that an application for water rights will cover multiple take points from the same groundwater source.**

***NDM*: As requested, NDM is separating its application for water rights in the Unnamed Tributary (NK1.190) North Fork Koktuli River into separate surface water and groundwater applications. NDM considers its original July 7, 2006 North Fork Koktuli water rights application to be for surface water from the Unnamed Tributary (NK1.190) North Fork Koktuli River.**

Pebble Project

Water Rights Application Completeness Response

Unnamed Tributary (NK1.190)
North Fork Koktuli River

11 AAC 93.040 (c)

(8) a description of any impoundment, diversion, or withdrawal structures, including dimensions, construction materials, plans and specifications, and operation plans, and an application to construct or modify a dam, as defined in AS 46.17.900, if 11 AAC 93.171 requires an application;

***DNR*: This regulation requires an application for construction or modification of a dam, see AS 46.17.900 and 11 AAC 93.171. Because the application proposes an impoundment that meets the definition of a dam, then an application for construction or modification of a dam should be submitted.**

***NDM*: As requested, an initial application package for the TSF at Site G, as part of an Application for Certificate of Approval to Construct, Modify, Repair, Remove or Abandon a Dam, is being submitted with this Completeness Response Document.**

Pebble Project

Water Rights Application Completeness Response

Unnamed Tributary (NK1.190)
North Fork Koktuli River

11 AAC 93.040 (c)

(9) a description of the nature of the water use and times of the year during which water is to be used;

***DNR*: A**pplication clearly states that water would be used all year (365 days) or January 1st through December 31st.

Description of the nature **of water use needs to be better defined and limited to one source, either groundwater or surface water.**

***NDM*: This Application Completeness Response Document addresses only surface water.**

The surface water extracted from the Unnamed Tributary (NK1.190) North Fork Koktuli River will be distributed between the following beneficial uses:

Water in the TSF supernatant pond will be used for management of the TSF to:

- **Ensure there is sufficient water available to support the mine processes during operations, including during the winter months when ice development reduces the free water volume in the supernatant pond.**
- **Ensure annual and seasonal fluctuations in the supernatant pond do not impact the mining process.**
- **Ensure there is sufficient water available in the system to offset the water lost to evaporation and sublimation, and water permanently retained in the tailings and waste rock voids.**
- **Submerge the potentially reactive waste materials deposited in the TSF to prevent oxidation.**
- **Saturate and/or flood tailings solids to prevent dust generation from the beaches.**
- **Protect downstream aquatic resources.**

Water permanently retained in tailings and waste rock voids within the TSF.

- **To submerge potentially reactive waste materials deposited in the TSF to prevent oxidation.**

Undisturbed surface runoff, upstream of the TSF, diverted to a surface runoff collection point.

- **Used for mine haul road dust suppression.**

Table 1 found earlier under 11 AAC 93.040 (c)(6) of this document presents further specifics of the nature of surface water use.

Pebble Project

Water Rights Application Completeness Response

Unnamed Tributary (NK1.190)
North Fork Koktuli River

11 AAC 93.040 (c)

(13) a statement of the quantity of water requested, with documentation and calculations justifying the request if either the use or quantity is different from those listed in (d) of this section;

***DNR*: Need to quantify and to justify with calculations the volume of water to be beneficially used by activity, including water use for slurry transport to marine terminal, see attached example. Water use for the management of the tailings facility is to be reported separately from the water storage capacity of Tailings Storage Facility-Site A. Per AS 46.15.100, a water right can not be granted for a larger volume of water than can be beneficially used. Water right applications can not duplicate water quantities for the same beneficial uses. For example, NDM can not request 150,000 gallons of water per day for camp water supply from a surface water source, and then request another 150,000 gpd for camp water supply from a groundwater source, if the total need is 150,000 gpd.**

***NDM*: The following tables quantify and justify the volume of water to be beneficially used, by activity, for this unnamed Tributary (NK1.190) of the NFK River surface water application. Water use for the management of the TSF at Site G is reported separately from the water storage capacity.**

In reviewing this information it is important to understand that while the volumes requested in separate applications for TSFs A and G may appear to be duplicative, that is not the case. These TSFs will not be operating at the same time, but rather will be constructed and operated in sequence over the life of the project.

Thus, the initial TSF at Site A will operate and use water from the SFK for some number of years, and then move into the reclamation stage. In the later operating years of the TSF at Site A, the TSF at Site G will be constructed and come on line and use water from the Unnamed Tributary (NK1.190) of the NFK for the same beneficial uses as were being met by SFK water in the TSF at Site A. Therefore, the volumes are not additive between drainages because they will not be used at the same time.

Water used for management of the TSF will be accumulated in the TSF supernatant pond at Site G. The capacity of the tailings storage facility will be designed to contain the supernatant pond as well as the water permanently retained in the voids. A summary of flow estimates for each beneficial surface water use described in Table 1 earlier under 11 AAC 90.040 (3)(6) above is shown in Table 2. Table 3 describes the surface water required for mine processes at Site G start-up.

TABLE 2

NORTHERN DYNASTY MINES INC.
PEBBLE PROJECT

SURFACE WATER TO BE USED BENEFICIALLY BY ACTIVITY
UNNAMED TRIBUTARY (NK1.190) NORTH FORK KOKTULI RIVER

Beneficial Use	Estimate Flow Rate[7]		
	cfs	gpd	AFY
Potable Water for Camp Supply[1]	N/A	N/A	N/A
Mill Processing[2]	N/A	N/A	N/A
Management of the TSF: Water Permanently Retained in the Voids (i.e., submerged tailings voids)[3]	28	18,100,000	20,300
Management of the TSF: Water in the TSF supernatant pond[4]	5.8	3,800,000	4,200
Dust Suppression on Haul Roads in the Water Extraction Area[5]	0.2	130,000	150
Concentrate Slurry Pipeline to Marine Terminal[6]	N/A	N/A	N/A
TOTAL ESTIMATED RATE OF SURFACE WATER TO BE BENEFICIALLY USED	**34**	**22,030,000**	**24,650**

Notes:

1. The source of water for the camp supply will be groundwater within the water extraction limits of the South Fork Koktuli River drainage. Refer to SFK groundwater application
2. Water used for mill processing will be withdrawn from the TSF at Site A only at mill start-up, which will occur prior to development of the TSF at Site G. Fresh make-up water for mill processing will be sourced from groundwater intercepted from dewatering of mine workings in the SFK drainage. Refer to SFK groundwater application.
3. Approximately 28 cfs will be retained in the tailings voids. This estimate was based on an average of 90 millions tons of tailings deposited per year with a dry density of 90 pcf and a specific gravity of 2.6. It was assumed that all waste rock will be deposited in the TSF at Site A.
4. Refer to Table 1, under 11 AAC 93.040 (c)(6) response earlier, for beneficial uses of surface water for TSF management. The surface water inflow into the water extraction limit of the Unnamed Tributary (NK1.190) drainage will be approximately 34 cfs. An estimated 0.2 cfs will be collected for dust suppression and the remaining 33.8 cfs will flow into the TSF. The surface water in the supernatant pond available for TSF management will be the total surface water inflow to the TSF (33.8 cfs) minus the water permanently retained in the voids (28 cfs), equaling approximately 5.8 cfs.
5. The Pebble project was estimated to require 1 cfs for dust suppression for all the mine haul roads. The Unnamed Tributary (NK1.190) of the NFK River drainage contains approximately 20% of the mine haul roads. Water for dust suppression will all come from surface water.
6. Water use for the concentrate slurry pipeline will be withdrawn from the TSF at Site A to prime the system only at start-up, which will occur prior to development of the TSF at Site G. Refer to Table 1 of the 11 AAC 93.040 application completeness response for the SFK. During operations, water for the concentrate slurry will be pumped from the TSF at Site G by the reclaim pipeline to the mill site and then to the port site in the concentrate slurry pipeline. At the port site, the concentrate will be dewatered and the recovered water will be recycled to the TSF at Site G.
7. The number of significant figures is not intended to imply a high level of accuracy but to show the relative proportions

TABLE 3

NORTHERN DYNASTY MINES INC.
PEBBLE PROJECT

SURFACE WATER REQUIRED FOR TSF SITE G AT START-UP
UNNAMED TRIBUTARY (NK1.190) NORTH FORK KOKTULI RIVER DRAINAGE

Beneficial Use	Estimated Volume[5]		
	(ft^3)	(gallons)	(acre-ft)
Mill Process and Equipment Cooling[1]	N/A	N/A	N/A
Tailings Slurry Pipelines from the Mill to the TSF[2]	1,000,000	7,488,000	23.0
Reclaim Pipelines from the TSF to the Mill[3]	203,575	1,528,000	4.7
Concentrate Slurry Pipeline to the Port Site[4]	N/A	N/A	N/A
Reclaim Pipelines from the Port Site to the Mill[4]	N/A	N/A	N/A
TOTAL ESTIMATED VOLUME OF SURFACE WATER TO BE BENEFICIALLY USED	**1,203,575**	**9,016,000**	**27.6**

Notes:

1. Fresh water used for mill processing will be withdrawn from the TSF at Site A only at mill start-up which will occur prior to development of TSF at Site G in NK1.190. During operations, water for mill processing will be recycled from the TSF at Site G to the mill by the reclaim pipeline and discharged into the TSF from the mill by the tailings slurry pipelines, in a continuous loop.
2. Total water needed at Site G start-up = 28.7 acre-ft (9,360,000 gallons). 80% attributed to surface water, 20% to groundwater. 9,360,000 gallons x 80% = 7,488,000 gallons. Assumed two bulk tailings and one pyritic tailings pipelines, flowing at full capacity with water to charge system. Pipe length = 78,000 ft, pipe diameter = 54 inches. During operations, the mill process water will circulate between the mill site, tailings slurry pipelines and reclaim pipelines.
3. Total water needed at Site G start-up = 5.8 acre-ft (1,910,000 gallons). 80% attributed to surface water, 20% to groundwater. 1,910,000 gallons x 80% = 1,528,000 gallons. Assumed one reclaim pipeline, flowing at full capacity with water to charge system. Pipe length = 16,000 ft, pipe diameter = 54 inches. During operations, water will be supplied from TSF supernatant pond.
4. Water use for the concentrate slurry pipeline will be withdrawn from the TSF at Site A to prime the system only at mill start-up. Refer to the surface water rights application for the South Fork Koktuli River. During operations, water for the concentrate slurry will pumped from the TSF at Site G by the reclaim pipeline to the mill site and then to the port site in the concentrate slurry pipeline. At the port site, the concentrate will be dewatered and the recovered water will be recycled to the TSF at Site G.
5. The number of significant figures is not intended to imply a high level of accuracy but to show the relative proportions

***DNR*: Pertaining to camp water supply, applicant shall provide estimate of the number of employees to be located at site; and regarding transport of slurry to marine terminal, applicant will provide approximate size and length of pipeline and quantity of water to be used.**

***NDM*: Camp water supply**

Please refer to the separate South Fork Koktuli groundwater rights application for quantities of groundwater for the camp and appropriate justification.

***NDM*: Concentrate slurry pipeline**

As responded to earlier under 11 AAC 93.040 (c)(4) above, water in the slurry concentrate pipeline from the mine to the port will be recycled back to the mine site by return pipeline. Thus, this circulation does not constitute a portion of the 34 cfs (estimated rate of water use) applied for in this application other than for its initial charging. As requested, however, a description of the approximate size and length of the pipeline, and approximate quantity of water needed to charge the line is described below for the concentrate slurry pipeline, and the reclaim pipeline, from the port site to the mill. Note that *each* pipeline will require approximately 3,808,000 gallons of surface water at mill start up.

Total water needed at mill start-up for *each* pipeline = 14.6 acre-ft (4,760,000 gallons). 80% attributed to surface water, 20% to groundwater. 4,760,000 gallons x 80% = 3,808,000 gallons. Assumed one concentrate slurry pipeline, flowing at full capacity with water to charge system. Pipe length = 517,440 ft, pipe diameter = 15 inches. During operations, the mill process water will circulate between the mill site, concentrate slurry pipeline and reclaim pipeline from the TSF Port site.

Pebble Project

Water Rights Application Completeness Response

Unnamed Tributary (NK1.190)
North Fork Koktuli River

11 AAC 93.040 (c)

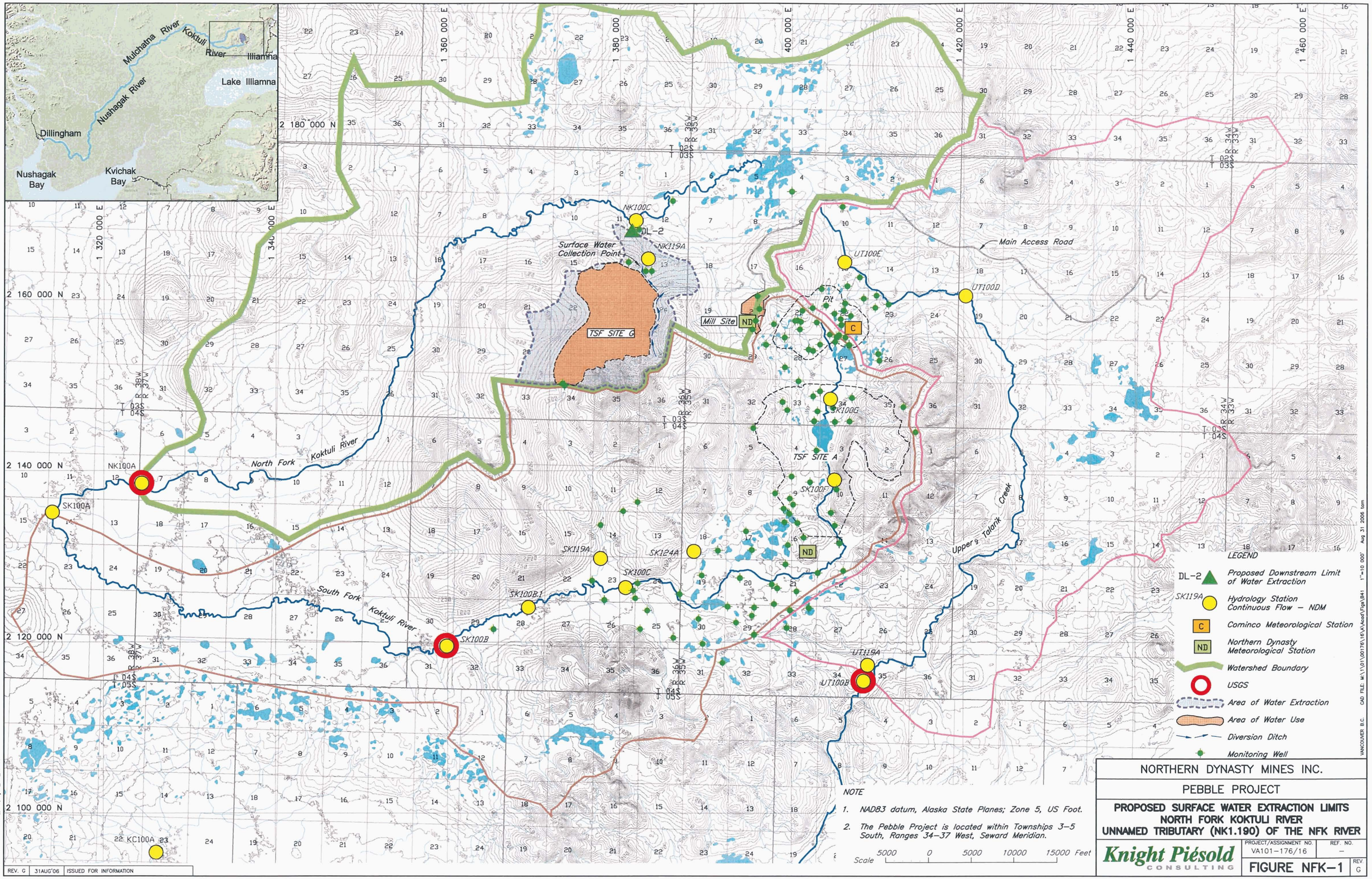
(14) for a water use of more than 100,000 gpd (0.15 cfs) from a stream, a description of the mean annual flow, or mean monthly flow if available, using the best available data, or, if data are not available, an estimate of mean annual flow using hydrologic methods that the department determines to be reasonably accurate; and

DNR: Data has been collected by the applicant since the summer of 2004 on the South Fork Koktuli River, North Fork Koktuli River, and Upper Talarik Creek. From this data a reasonable estimate of mean monthly flow and mean annual flow has been developed. More data collection and analysis will be necessary to further understand the flow regime. However, using continuous flow monitoring stations installed by the applicant in addition to stream gages operated by the US Geological Survey (USGS) as well as data sets from nearby installations, the discharge estimates seem valid based on the amount of data collected.

Groundwater data within the water extraction area is limited; a better understanding of the groundwater/surface water interrelationship will need to be more thoroughly understood so that any groundwater needed for the project can be quantified. A plan for continued monitoring should be developed.

***NDM*: Groundwater data within the general mine development area are quite extensive, with over 150 water level monitoring wells established since 2004, as described in the separate Unnamed Tributary (NK1.190) North Fork Koktuli River groundwater rights application. A number of these wells are within the NK1.190 water extraction area. Monitoring of these wells and the development of a conceptual groundwater model that considers groundwater/surface water interaction is ongoing.**

Figure NFK-1 shows the locations of all continuous surface water flow and groundwater level monitoring sites in the Pebble Project mine site area. Although the exact period of prospective data collection is undetermined at this time, to better understand the groundwater/surface water interrelationship and more thoroughly understand the quantity of groundwater needed for the project, NDM expects to continue monitoring these stations until a minimum of 5 years of data has been collected.


Mulchatna River
Koktuli River
Illiamna
Lake Illiamna
Nushagak River
Dillingham
Nushagak Bay
Kvichak Bay
2 180 000 N
2 160 000 N
2 140 000 N
2 120 000 N
2 100 000 N
1 320 000 E
1 340 000 E
1 360 000 E
1 380 000 E
1 400 000 E
1 420 000 E
1 440 000 E
1 460 000 E
NK100C
DL-2
NK119A
Surface Water Collection Point
TSF SITE G
Mill Site
ND
Pit
C
UT100E
UT100D
Main Access Road
SK100G
TSF SITE A
SK100F
NK100A
SK100A
North Fork Koktuli River
South Fork Koktuli River
SK119A
SK124A
SK100C
SK100B.1
SK100B
UT119A
UT100B
Upper Talarik Creek
KC100A
LEGEND
DL-2 Proposed Downstream Limit of Water Extraction
SK119A Hydrology Station Continuous Flow – NDM
C Cominco Meteorological Station
ND Northern Dynasty Meteorological Station
Watershed Boundary
USGS
Area of Water Extraction
Area of Water Use
Diversion Ditch
Monitoring Well
NOTE
1. NAD83 datum, Alaska State Planes; Zone 5, US Foot.
2. The Pebble Project is located within Townships 3–5 South, Ranges 34–37 West, Seward Meridian.
Scale 5000 0 5000 10000 15000 Feet
NORTHERN DYNASTY MINES INC.
PEBBLE PROJECT
PROPOSED SURFACE WATER EXTRACTION LIMITS
NORTH FORK KOKTULI RIVER
UNNAMED TRIBUTARY (NK1.190) OF THE NFK RIVER
Knight Piésold CONSULTING
PROJECT/ASSIGNMENT NO. VA101-176/16
REF. NO. –
FIGURE NFK-1
REV G
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Aug 31 2006 tom

Pebble Project

Water Rights Application Completeness Response

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North Fork Koktuli River

11 AAC 93.040 (c)

(15) a completed coastal project questionnaire, (11 AAC 110).

DNR: Water right applications must include a completed coastal project questionnaire, per 11 AAC 110. Please be advised that per 11 AAC 110.215(a)(1)(C) Applicant Evaluation, the applicant's Alaska Coastal Management Program Coastal Project Questionnaire (CPQ) submission must include **an evaluation of how the proposed project is consistent with the state standards at 11 AAC 112.200 - 11 AAC 12.320 and with any applicable district enforceable policies.** Implementation of this requirement occurred when the new standards received federal approval. **The consistency review packet should be expanded to include the evaluation for the phased portion of the project. Also indicate on the CPQ which responses pertain to the phased portion of the project.** . A sample evaluation form is attached; however it is advisable to contact Randy Bates with the Office of Project Management and Permitting for explicit instructions.

***NDM*: *CPQ* On July 7, 2006, NDM submitted an application for surface water right for the Unnamed Tributary (NK1.190) North Fork Koktuli River. With this application NDM submitted a coastal project questionnaire (CPQ) describing the activities to be conducted related to water rights (Phase I), as well as those future anticipated activities for the overall project as NDM understands them at this time.**

On July 26, 2006, DNR responded in its analyses of application completeness (see text above) that the consistency review packet should be expanded to include additional detail related to the evaluation of the phased portion of the project for which NDM was seeking action, i.e., just the Phase I water rights applications. Thus, immediately following is a new CPQ specific only to Phase I activities.

***NDM*: *CONSISTENCY EVALUATION* In it's July 26, 2006, application response DNR said NDM must include an evaluation of how the proposed project is consistent with the state Alaska Coastal Management Program standards at 11 AAC 112.200 – .320 and with the applicable district enforceable policies. Thus, following the Phase I activities CPQ, is a Phase I activities consistency evaluation.**

Coastal Project Questionnaire and Certification Statement

All questions must be answered. **<u>If you answer "Yes" to any of the questions, please call that specific department for further instructions to avoid delay in processing your application</u>**. Maps and plan drawings must be included with your packet.

An incomplete packet will be returned.

■ APPLICANT INFORMATION

1. Northern Dynasty Mines Inc.
   Name of Applicant
   3201 C Street
   Address
   Anchorage, AK 99503
   City/State/Zip
   (907) 339-2600
   Daytime Phone
   (907) 339-2601
   Fax Number E-mail Address

2.
   Agent (or responsible party if other than applicant)
   Address
   City/State/Zip State Zip Code
   Daytime Phone
   Fax Number E-mail Address

■ PROJECT INFORMATION

	Yes	No
1. This activity is a: ☐ new project ☒ modification or addition to an existing project If this is a modification, do you currently have any State, federal or local approvals for this activity?	☒	☐

Note: Approval means any form of authorization. If "yes," please list below:

Approval Type		Approval #		Issuance Date		Expiration Date
Multi-year Miscellaneous Land Use Permit		A026118		2002		2006

2. If this is a modification, was this project reviewed for consistency with Alaska Coastal Management? ☒ ☐

   Previous State I.D. Number: AK <u>A022118</u>

   Previous Project Name <u>Pebble Project</u>

■ PROJECT DESCRIPTION

1. Provide a brief description of your entire project and ALL associated facilities and land use conversions.

   <u>See Attached. NOTE: This CPQ addresses only Phase I (water right application) activities.</u>

   Proposed starting date for project: <u>The overall project has been underway since the 1980s. NDM has been actively drilling on the property since 2002, and will continue in 2006 and later. Actual start of development will depend on 2006 drill results and length of permitting process.</u>

Proposed ending date for project: Unknown

2. Attach the following: • a detailed project description, all associated facilities, and land use conversions, etc. (Be specific, including access roads, caretaker facilities, waste disposal sites, etc.); • a project timeline for completion of all major activities; • a site plan depicting project boundary with all proposed actions; • other supporting documentation to facilitate project review. Note: If the project is a modification, identify existing facilities and proposed changes on the site plan.

■ PROJECT LOCATION

1. Attach a copy of the topographical and vicinity map clearly indicating the location of the project. Please include a map title and scale.

2. The project is located in which region (see attached map): ☐ Northern ☐ Southcentral ☐ Southeast ☒ Southwest ☐ within or associated with the Trans-Alaska Pipeline corridor

3. Location of project (Include the name of the nearest land feature or body of water.) See attached list of townships.

   Township _____ Range _____ Section _____ Meridian _____ Latitude/Longitude _____ / _____

   USGS Quad Map Iliamna 1:250,000

4. Is the project located in a coastal district? Yes ☒ No ☐ If yes, identify: Lake and Peninsula Borough,

   (Coastal districts are a municipality or borough, home rule or first class city, second class with planning, or coastal resource service area.) Note: A coastal district is a participant in the State's consistency review process. It is possible for the State review to be adjusted to accommodate a local permitting public hearing. Early interaction with the district is important; ***please contact the district representative listed on the attached contact list.***

5. Identify the communities closest to your project location: Iliamna, Newhalen, Nondalton

6. The project is on: ☒ State land or water* ☐ Federal land ☐ Private land ☐ Municipal land ☐ Mental Health Trust land

   **State land can be uplands, tidelands, or submerged lands to 3 miles offshore. See Question #1 in DNR section.*
   Contact the applicable landowner(s) to obtain necessary authorizations.

■ DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC) APPROVALS

	Yes	No
1. Will a discharge of wastewater from industrial or commercial operations occur?	☐	☒
Will the discharge be connected to an approved sewer system?	☐	☒
Will the project include a stormwater collection/discharge system?	☒	☐
2. Do you intend to construct, install, modify, or use any part of a wastewater (sewage or greywater) disposal system?	☐	☒
a) If the answer is yes, will the discharge be 500 gallons per day or greater?	☐	☐
b) If constructing a domestic wastewater treatment or disposal system, will the system be located within fill material requiring a COE permit?	☐	☐

If you answered yes to a) or b), answer the following:

1) What is the distance from the bottom of the system to the top of the subsurface water table? _____

2) How far is any part of the wastewater disposal system from the nearest surface water? _____
3) Is the surrounding area inundated with water at any time of the year? ..... ☐ ☐
4) How big is the fill area to be used for the absorption system?_____
(Questions 1 & 2 will be used by DEC to determine whether separation distances are being met; Questions 3 & 4 relate to the required size of the fill if wetlands are involved.)

	Yes	No
3. Will your project require a mixing zone?	☐	☒
(If your wastewater discharge will exceed Alaska water quality standards, you may apply for a mixing zone. If so, please contact DEC to discuss information required under 18 AAC 70.032.)		
4. a) Will your project result in construction, operation, or closure of a facility for solid waste disposal?.....	☐	☒
(Note: Solid waste means drilling wastes, household garbage, refuse, sludge, construction or demolition wastes, industrial solid waste, asbestos, and other discarded, abandoned, or unwanted solid or semi-solid material, whether or not subject to decomposition, originating from any source. Disposal means placement of solid waste on land.)		
b) Will your project result in treatment of solid waste at the site?.....	☐	☒
(Examples of treatment methods include, but are not limited to: incineration, open burning, baling, and composting.)		
c) Will your project result in storage or transfer of solid waste at the site?.....	☐	☒
d) Will the project result in storage of more than 50 tons of materials for reuse, recycling, or resource recovery?.....	☐	☒
e) Will any sewage solids or biosolids be disposed of or land-applied to the site?	☐	☒
(Sewage solids include wastes that have been removed from a wastewater treatment plant system, such as a septic tank, lagoon dredge, or wastewater treatment sludge that contain no free liquids. Biosolids are the solid, semi-solid, or liquid residues produced during the treatment of domestic septage in a treatment works which are land applied for beneficial use.)		
5. Will your project require application of oil, pesticides, and/or any other broadcast chemicals?	☐	☒
6. a) Will you have a facility with industrial processes that are designed to process no less than *five tons per hour* and needs air pollution controls to comply with State emission standards?	☐	☒
b) Will you have stationary or transportable fuel burning equipment, including flares, with a total fuel consumption capacity no less than 50 million Btu/hour?	☐	☒
c) Will you have a facility with incinerators having a total charging capacity of no less than 1,000 pounds per hour?.....	☐	☒
d) Will you have a facility with equipment or processes that are subject to Federal New Source Performance Standards or National Emission Standards for hazardous air pollutants?	☐	☒
i) Will you propose exhaust stack injection?.....	☐	☒
e) Will you have a facility with the potential to emit no less than 100 tons per year of any regulated air contaminant?.....	☐	☒
f) Will you have a facility with the potential to emit no less than 10 tons per year of any hazardous air contaminant or 25 tons per year of all hazardous air contaminants?.....	☐	☒
g) Will you construct or add stationary or transportable fuel burning equipment of no less than 10 million Btu/hour in the City of Unalaska or the City of St. Paul?	☐	☒
h) Will you construct or modify in the Port of Anchorage a volatile liquid storage tank with a volume no less than 9,000 barrels, or a volatile liquid loading rack with a design throughput no less than 15 million gallons?	☐	☒
i) Will you be requesting operational or physical limits designed to reduce emissions from an existing facility in an air quality nonattainment area to offset an emission increase from another new of modified facility?	☐	☒
7. Do you plan to develop, construct, install, or alter a public water system?.....	☐	☒
8. a) Will your project involve the operation of waterborne tank vessels or oil barges		

that carry crude or non-crude oil as bulk cargo, or the transfer of oil or other petroleum products to or from such a vessel or a pipeline system?..... ☐ ☒

b) Will your project require or include onshore or offshore oil facilities with an effective aggregate storage capacity of greater than 5,000 barrels of crude oil or greater than 10,000 barrels of non-crude oil?..... ☐ ☒

	Yes	No
c) Will you operate facilities on land or water for exploration or production of hydrocarbons?	☐	☒

If you answered "No" to ALL questions in this section, continue to next section.
If you answered "Yes" to ANY of these questions, contact the DEC office nearest you for information and application forms. Please be advised that all new DEC permits and approvals require a 30-day public notice period. DEC Pesticide permits take effect no sooner than 40 days after the permit is issued.

Based on your discussion with DEC, please complete the following:

Types of project approvals or permits needed and name of individual you contacted.	Date application submitted
Only preliminary discussions to date.	

9. Does your project qualify for a general permit for wastewater or solid waste?..... ☐ ☒
Note: A general permit is an approval issued by DEC for certain types of routine activities.

If you answered "Yes" to any questions in this section and are not applying for DEC permits, indicate reason:

☐ **_____ (DEC contact) told me on _____ that no DEC approvals are required on this project because _____**

☒ **Other:** This CPQ addresses only Phase I (water right application) activities.

■ DEPARTMENT OF FISH AND GAME (DFG) APPROVALS

	Yes	No
1. Is your project located in a designated State Game Refuge, Critical Habitat Area or State Game Sanctuary?	☐	☒
2. Does your project include construction/operation of a salmon hatchery?	☐	☒
3. Does your project affect, or is it related to, a previously permitted salmon hatchery?.....	☐	☒
4. Does your project include construction of an aquatic farm?.....	☐	☒

If you answered "No" to ALL questions in this section, continue to next section.
If you answered "Yes" to ANY questions under 1-4, contact the ADF&G Commercial Fisheries Division headquarters for information and application forms

Based on your discussion with ADF&G, please complete the following:

Types of project approvals or permits needed.	Date application submitted

If you answered "YES" to any questions in this section and are not applying for ADF&G permits, indicate reason:

☐ _____ **(ADF&G contact) told me on _____ that no ADF&G approvals are required on this project because _____**

☐ **Other: _____**

■ **DEPARTMENT OF NATURAL RESOURCES (DNR) APPROVALS** **Yes** **No**

1. Is the proposed project on State-owned land or water or will you need to cross State-owned land for access? ("Access" includes temporary access for construction purposes. *Note: In addition to State-owned uplands, the State owns almost all land below the ordinary high water line of navigable streams, rivers and lakes, and below the mean high tide line seaward for three miles.)* ..... ☒ ☐
   a) Is this project for a commercial activity? ..... ☒ ☐

2. Is the project on Alaska Mental Health Trust land (AMHT) or will you need to cross AMHT land? *Note: Alaska Mental Health Trust land is not considered State land for the purpose of ACMP reviews.* ..... ☐ ☒

3. Do you plan to dredge or otherwise excavate/remove materials on State-owned land? ..... ☒ ☐

   Location of dredging site if different than the project site: _____

   Township 3 S Range 36 W Section 13, 14, 24, 25 Meridian Seward USGS Quad Map Iliamna D-7

4. Do you plan to place fill or dredged material on State-owned land? ☒ ☐

   Location of fill disposal site if other than the project site: _____

   Township 3 S Range 36 W Section 13, 14, 24, 25 Meridian Seward USGS Quad Map Iliamna D-7

   Source is on: ☒ State Land ☐ Federal Land ☐ Private Land ☐ Municipal Land

5. Do you plan to use any of the following State-owned resources: ..... ☒ ☐

   ☐ ***Timber***: Will you harvest timber? Amount: _____

   ☒ ***Materials such as rock, sand or gravel, peat, soil, overburden, etc.:***

   Which material? All of above. Amount: Undetermined.

   Location of source: ☒ Project site ☐ Other, describe: _____

   Township _____ Range _____ Section _____ Meridian _____ USGS Quad Map _____

6. Do you plan to divert, impound, withdraw, or use any fresh water, except from an existing public water system or roof rain catchment system (regardless of land ownership)? ..... ☒ ☐

   Amount (maximum daily, not average, in gallons per day): 34 cfs

   Source: See Page 2 of Unnamed Tributary (NK1.190) of North Fork Koktuli River Application for Surface Water Right. Intended Use: See Page 3 of Unnamed Tributary (NK1.190) of North Fork Koktuli River Application for Surface Water Right.

   If yes, will your project affect the availability of water to anyone holding water rights to that water? ..... ☐ ☒

7. Do you plan to build or alter a dam (regardless of land ownership)? ..... ☒ ☐

8. Do you plan to drill a geothermal well (regardless of land ownership)? ..... ☐ ☒

9. At any one site (regardless of land ownership), do you plan any of the following? ..... ☒ ☐

☒ Mine five or more acres over a year's time
☒ Mine 50,000 cubic yards or more of materials (rock, sand or gravel, soil, peat, overburden, etc.) over a year's time
☒ Have a cumulative unreclaimed mined area of five or more acres

If yes to any of the above, contact DNR about a reclamation plan.

	Yes	No
If you plan to mine less than the acreage/amount stated above and have a cumulative unreclaimed mined area of less than five acres, do you intend to file a voluntary reclamation plan for approval?	☐	☐
10. Do you plan to explore for or extract coal?	☐	☒
11. a) Will you explore for or produce oil and/or gas?	☐	☒
b) Will you conduct surface use activities on an oil and/or gas lease or within an oil and/or gas unit?	☐	☒
12. Will you investigate, remove, or impact historical or archaeological or paleontological resources (anything over 50 years old) on State-owned land?	☒	☐
13. Is the proposed project located within a known geophysical hazard area? *Note: 6 AAC 80.900(9) defines geophysical hazard areas as "those areas which present a threat to life or property from geophysical or geological hazards, including flooding, tsunami run-up, storm surge run-up, landslides, snowslides, faults, ice hazards, erosion, and littoral beach process." "known geophysical hazard area" means any area identified in a report or map published by a federal, state, or local agency, or by a geological or engineering consulting firm, or generally known by local knowledge, as having known or potential hazards from geologic, seismic, or hydrologic processes.*	☐	☒
14. Is the proposed project located in a unit of the Alaska State Park System?	☐	☒
15. Will you work in, remove water or material from, or place anything in, a stream, river or lake? (This includes work or activities below the ordinary high water mark or on ice, in the active flood plain, on islands, in or on the face of the banks, or, for streams entering or flowing through tidelands, above the level of mean lower low tide.) *Note: If the proposed project is located within a special flood hazard area, a floodplain development permit may be required. Contact the affected city or borough planning department for additional information and a floodplain determination.)*	☒	☐

Name of waterbody: Small, unamed streams and ponds (see attached topo map under "Project Location.")

16. Will you do any of the following:	☒	☐

Please indicate below:

☒ Build a dam, river training structure, other instream impoundment, or weir
☒ Use water
☒ Pump water into or out of stream or lake (including dry channels)
☒ Divert or alter a natural stream channel
☒ Change water flow or the stream channel
☒ Introduce silt, gravel, rock, petroleum products, debris, brush, trees, chemicals, or other organic/inorganic material, including waste of any type, into water
☒ Alter, stabilize or restore banks of a river, stream or lake (provide number of linear feet affected along the bank(s)
☒ Mine, dig in, or remove material, including woody debris, from beds or banks of a waterbody
☒ Use explosives in or near a waterbody
☐ Build a bridge (including an ice bridge)
☒ Use a stream, lake or waterbody as a road (even when frozen), or cross a stream with tracked or wheeled vehicles, log-dragging or excavation equipment (backhoes, bulldozers, etc.)
☒ Install a culvert or other drainage structure
☒ Construct, place, excavate, dispose or remove any material below the ordinary high water of a waterbody
☒ Construct a storm water discharge or drain into a waterbody

☐ Place pilings or anchors
☐ Construct a dock
☐ Construct a utility line crossing
☐ Maintain or repair an existing structure
☐ Use an instream in-water structure not mentioned here

If you answered "No" to ALL questions in this section, continue to next section.
If you answered "Yes" to ANY questions under 1-16, contact the Area DNR, office for information and application forms.

Based on your discussion with DNR, please complete the following:

Types of project approvals or permits needed.	Date application submitted
Preliminary discussions have been initiated.	

If you answered "Yes" to any questions in this section and are not applying for DNR permits, indicate reason:

☐ **_____ (DNR contact) told me on _____ that no DNR approvals are required on this project because _____**

■ FEDERAL APPROVALS

	Yes	No
U.S. Army Corps of Engineers (COE)		
1. Will you dredge or place structures or fills in any of the following: tidal (ocean) waters? streams? lakes? wetlands*?	☒	☐
If yes, have you applied for a COE permit?	☐	☒
Date of submittal: _____		
Name of COE contact: _____		
(Note: Your application for this activity to the COE also serves as application for DEC Water Quality Certification.)		
***If you are not certain whether your proposed project is in a wetlands (wetlands include muskegs), contact the COE, Regulatory Branch at 907-753-2712 for a wetlands determination (outside the Anchorage area call toll free 1-800-478-2712)*		
Bureau of Land Management (BLM)		
2. Is the proposed project located on BLM land, or will you need to cross BLM land for access?	☐	☒
If yes, have you applied for a BLM permit or approval?	☐	☐
Date of submittal: _____		
Name of BLM contact: _____		
U.S. Coast Guard (USCG)		
3. a) Do you plan to construct a bridge or causeway over tidal (ocean) waters, or navigable rivers, streams or lakes?	☐	☒
b) Does your project involve building an access to an island?	☐	☒
c) Do you plan to site, construct, or operate a deepwater port?	☐	☒
If yes, have you applied for a USCG permit?	☐	☒
Date of submittal: _____		
Name of USCG contact: _____		
U.S. Environmental Protection Agency (EPA)		

4. a) Will the proposed project have a discharge to any waters? ☐ ☒
   b) Will you dispose of sewage sludge (contact EPA at 206-553-1941)? ☐ ☒
      If you answered yes to a) or b), have you applied for an EPA National Pollution Discharge Elimination System (NPDES) permit? ☐ ☐

      Date of submittal: _____

      Name of EPA contact: _____
      (Note: For information regarding the need for an NPDES permit, contact EPA at 1-800-424-4372)
   c) Will construction of your project expose 1 or more acres of soil? *(This applies to the total amount of land disturbed, even if disturbance is distributed over more than one season, and also applies to areas that are part of a larger common plan of development or sale.)* **Yes** ☒ **No** ☐
   d) Is your project an industrial facility that will have stormwater discharge directly related to manufacturing, processing, or raw materials storage areas at an industrial plant? ☐ ☒
      If you answered yes to c) or d), your project may require an NPDES Stormwater permit. Contact EPA at 206-553-8399.

Federal Aviation Administration (FAA)

5. a) Is your project located within five miles of any public airport? ☐ ☒
   b) Will you have a waste discharge that is likely to decay within 5,000 feet of any public airport? ☐ ☒
      If yes, please contact the Airports Division of the FAA at 907-271-5438.

Federal Energy Regulatory Commission (FERC)

6. a) Does the project include any of the following:
      1) a non-federal hydroelectric project on any navigable body of water ☐ ☒
      2) a location on federal land (including transmission lines) ☐ ☒
      3) utilization of surplus water from any federal government dam ☐ ☒
   b) Does the project include construction and operation, or abandonment of natural gas pipeline facilities under sections (b) and (c) of the Federal Power Act (FPA)? ☐ ☒

   c) Does the project include construction for physical interconnection of electric transmission facilities under section 202 (b) of the FPA? ☐ ☒
      If you answered yes to any questions under number 6, did you apply for a permit from FERC? ☐ ☒

      Date of submittal: _____

      Name of FERC contact: _____
      (*Note: For information, Div. Hydropower-Environment and Engineering contact: Vince Yearek 202-502-6174 or Mike Henry 503-944-6762, 202-502 8700; (for Natural Gas Projects) Division of Pipeline Certificate 202-502-8625; for Alaska projects contact Richard Foley – 202-502-8955)*

U.S. Forest Service (USFS)

7. a) Does the proposed project involve construction on USFS land? ☐ ☒
   b) Does the proposed project involve the crossing of USFS land with a water line? ☐ ☒
      If the answer to either question is yes, did you apply for a USFS permit or approval? ☐ ☐

      Date of submittal: _____

      Name of USFS contact: _____

8. Have you applied for any other federal permits or authorizations? ☐ ☐

AGENCY	APPROVAL TYPE	DATE SUBMITTED

Name of USFS contact: _____

8. Have you applied for any other federal permits or authorizations? ..... ☐ ☐

AGENCY	APPROVAL TYPE	DATE SUBMITTED

Please be advised that the CPQ identifies permits subject to a consistency review. You may need additional permits from other agencies or the affected city and/or borough government to proceed with your activity.

Certification Statement

The information contained herein is true and complete to the best of my knowledge. I certify that the proposed activity complies with, and will be conducted in a manner consistent with, the Alaska Coastal Management Program.

Signature of Applicant or Agent _____ Date 8 Sept. '06

Note: Federal agencies conducting an activity that will affect the coastal zone are required to submit a federal consistency determination, per 15 CFR 930, Subpart C, rather than this certification statement. ACMP has developed a guide to assist federal agencies with this requirement. Contact ACMP to obtain a copy.

This certification statement will not be complete until all required State and federal authorization requests have been submitted to the appropriate agencies.

- **To complete your packet, please attach your State permit applications and copies of your federal permit applications to this questionnaire.**

Northern Dynasty Mines Inc.
Pebble Project Phase I

Alaska Coastal Management Program
Revised *Surface Water* Rights Consistency Evaluation

Unnamed Tributary (SK1.240)
North Fork Koktuli River

October 12, 2006

Introduction

The scope of this Alaska Coastal Management Program (ACMP) consistency evaluation is the application submitted on July 7, 2006 by Northern Dynasty Mines Inc. (NDM) for surface water rights in the Unnamed Tributary (NK1.190) North Fork Koktuli River drainage. This evaluation addresses the following Phase I activities:

1. Water Take - How and where surface water will be taken
2. Water Volume - How much water will be taken and used
3. Water use – How the water will be used

This valuation does not include activities not directly related to water extraction, volume, or use. Dam construction applications do not require individual consistency review under the Alaska Coastal Zone Management Program; however, construction of the TSF dams, operation of the TSFs, and construction and operation of the mill, camp and other project infrastructure will be described in future permit applications. Any activities for which NDM seeks authorization under those future permit applications will be reviewed under the ACMP program as part of the review process for those applications.

Description of Activities

The Phase I activities are described in detail in the July 7 , 2006, Unnamed Tributary (NK1.190) North Fork Koktuli River application for surface water right, and the September 21, 2006, Unnamed Tributary (NK1.190) North Fork Koktuli River comment response document. Following is a summary of those activities with approximate volumes of water:

Activity	Description	Volume (cfs)
Water Take		
Diversion ditch	Intercept natural runoff around edge of open pit	0.2
Surface runoff collection point	Collection point for diversion ditch natural runoff	
Surface runoff directly into TSF	Natural surface runoff flowing directly into the TSF	33.8

Water Use		
Water retained in tailings voids	Water trapped in settled tailings in the TSF	28.0
Water in supernatant pond	Water in pond on surface of TSF	5.8
Road dust suppression	Water from collection point sprayed on roads by trucks	0.2
Total Volume		34.0

Consistency Evaluation

The Department of Natural Resources (DNR) has asked NDM to supplement its initial response to certain state and district policies, and those responses are set forth below. NDM questions the geographic and/or legal application of these policies and reserves the right to further define scope of the review during DNR's review of the coastal project questionnaire and consistency evaluation.

This evaluation below is comprised of two parts: the Statewide Enforceable Policies at 11 AAC 112.200 – .320, and the District Enforceable Policies (not Administrative Policies) of the Coastal Management Plan for the Lake and Peninsula Borough (L&PB).

The language of each standard or enforceable policy is shown below in italics, followed by a box containing NDM's evaluation.

Alaska Statewide Enforceable Policies

11 AAC 112.200. Coastal development

(a) In planning for and approving development in or adjacent to coastal waters, districts and state agencies shall manage coastal land and water uses in such a manner that those uses that are economically or physically dependent on a coastal location are given higher priority when compared to uses that do not economically or physically require a coastal location.

(b) Districts and state agencies shall give, in the following order, priority to

(1) water-dependent uses and activities;

(2) water-related uses and activities; and

(3) uses and activities that are neither water-dependent nor water-related for which there is no practicable inland alternative to meet the public need for the use or activity.

(c) The placement of structures and the discharge of dredged or fill material into coastal water must, at a minimum, comply with the standards contained in 33 C.F.R. Parts 320 - 323, revised as of July 1, 2003.

NDM Evaluation: **This coastal development policy addresses development in or adjacent to coastal waters. "Coastal water," defined at 11 AAC 112.990, means those waters, adjacent to the shoreline, that contain a measurable quantity or percentage of sea water, including sounds, bays, lagoons, ponds, estuaries, and tidally influenced waters. Phase 1 activities**

will be located approximately 58 miles from the nearest coastal water and therefore will not constitute development in or adjacent to coastal waters.

11 AAC 112.210. Natural hazard areas

(a) In addition to those identified in 11 AAC 112.990, the department, or a district in a district plan, may designate other natural processes or adverse conditions that present a threat to life or property in the coastal area as natural hazards. Such designations must provide the scientific basis for designating the natural process or adverse condition as a natural hazard in the coastal area, along with supporting scientific evidence for the designation.

(b) Areas likely to be affected by the occurrence of a natural hazard may be designated as natural hazard areas by a state agency or, under 11 AAC 114.250(b), by a district.

(c) Development in a natural hazard area may not be found consistent unless the applicant has taken appropriate measures in the siting, design, construction, and operation of the proposed activity to protect public safety, services, and the environment from potential damage caused by known natural hazards.

(d) For purposes of (c) of this section, "appropriate measures in the siting, design, construction, and operation of the proposed activity" means those measures that, in the judgment of the coordinating agency, in consultation with the department's division of geological and geophysical surveys, the Department of Community and Economic Development as state coordinating agency for the National Flood Insurance Program under 44 C.F.R. 60.25, and other local and state agencies with expertise,

(1) satisfy relevant codes and safety standards; or

(2) in the absence of such codes and standards;

(A) the project plans are approved by an engineer who is registered in the state and has engineering experience concerning the specific natural hazard; or

(B) the level of risk presented by the design of the project is low and appropriately addressed by the project plans.

NDM Evaluation: In 11 AAC 112.990(15) natural hazards

(A) means the following natural processes or adverse conditions that present a threat to life or property in the coastal area: flooding, earthquakes, active faults, tsunamis, landslides, volcanoes, storm surges, ice formations, snow avalanches, erosion, and beach processes;

(B) Includes other natural processes or adverse conditions designated by the department or by a district in a district plan;

Phase I activities will not occur in an area subject to the natural hazards listed in 11 AAC 112.990 except flooding and earthquakes. No other natural processes or adverse conditions have been designated by the department or by a district plan in the vicinity of the Pebble Project.

Because Phase I activities are located in the extreme upper reaches of their watersheds, the water courses subject to flooding are very small. Proper siting, design, construction

and operation of the Phase I surface water appropriation structures (diversion ditch, surface runoff collection point) will be easily effected with standard engineering practices to withstand flooding.

Like most of Alaska, the site of the Phase I activities will be subject to earthquakes. The Phase I surface water appropriation structure, however, will be small and, with standard engineering practices, will be unlikely to be affected by earthquakes.

Procedures for siting, design, construction and operation of the Phase I water appropriation structures to withstand flooding and earthquakes, as ultimately proposed by NDM, will be reviewed and approved by DNR under its authorities governing the disturbance and reclamation of surface land in mining operations under 11 AAC 97.100 through 11 AAC 97.990. Thus, Phase I activities will be sited, designed, constructed and operated under the requirements of the above authorities such that these two natural processes will not present a threat to life or property.

11 AAC 112.220. Coastal access

Districts and state agencies shall ensure that projects maintain and, where appropriate, increase public access to, from, and along coastal water.

NDM Evaluation: **This coastal access policy addresses public access to, from, and along coastal water. "Coastal water," defined at 11 AAC 112.990, means those waters, adjacent to the shoreline, that contain a measurable quantity or percentage of sea water, including sounds, bays, lagoons, ponds, estuaries, and tidally influenced waters. Phase 1 activities will be located approximately 58 miles from the nearest coastal water and therefore will not affect coastal access.**

11 AAC 112.230. Energy facilities

(a) The siting and approval of major energy facilities by districts and state agencies must be based, to the extent practicable, on the following standards:

(1) site facilities so as to minimize adverse environmental and social effects while satisfying industrial requirements;

(2) site facilities so as to be compatible with existing and subsequent adjacent uses and projected community needs;

(3) consolidate facilities;

(4) consider the concurrent use of facilities for public or economic reasons;

(5) cooperate with landowners, developers, and federal agencies in the development of facilities;

(6) select sites with sufficient acreage to allow for reasonable expansion of facilities;

(7) site facilities where existing infrastructure, including roads, docks, and airstrips, is capable of satisfying industrial requirements;

(8) select harbors and shipping routes with least exposure to reefs, shoals, drift ice, and other obstructions;

(9) encourage the use of vessel traffic control and collision avoidance systems;

(10) select sites where development will require minimal site clearing, dredging, and construction;

(11) site facilities so as to minimize the probability, along shipping routes, of spills or other forms of contamination that would affect fishing grounds, spawning grounds, and other biologically productive or vulnerable habitats, including marine mammal rookeries and hauling out grounds and waterfowl nesting areas;

(12) site facilities so that design and construction of those facilities and support infrastructures in coastal areas will allow for the free passage and movement of fish and wildlife with due consideration for historic migratory patterns;

(13) site facilities so that areas of particular scenic, recreational, environmental, or cultural value, identified in district plans, will be protected;

(14) site facilities in areas of least biological productivity, diversity, and vulnerability and where effluents and spills can be controlled or contained;

(15) site facilities where winds and air currents disperse airborne emissions that cannot be captured before escape into the atmosphere;

(16) site facilities so that associated vessel operations or activities will not result in overcrowded harbors or interfere with fishing operations and equipment.

(b) The uses authorized by the issuance of state and federal leases, easements, contracts, rights-of-way, or permits for mineral and petroleum resource extraction are uses of state concern.

NDM Evaluation: **Phase 1 activities will not involve siting a major energy facility.**

11 AAC 112.240. Utility routes and facilities

(a) Utility routes and facilities must be sited inland from beaches and shorelines unless

(1) the route or facility is water-dependent or water related; or

(2) no practicable inland alternative exists to meet the public need for the route or facility.

(b) Utility routes and facilities along the coast must avoid, minimize, or mitigate

(1) alterations in surface and ground water drainage patterns;

(2) disruption in known or reasonably foreseeable wildlife transit;

(3) blockage of existing or traditional access.

NDM Evaluation: **Phase 1 activities will not involve any utility routes or facilities.**

11 AAC 112.250. Timber harvest and processing

AS 41.17 (Forest Resources and Practices Act) and the regulations adopted under that chapter with respect to the harvest and processing of timber are incorporated into the program and constitute the components of the program with respect to those purposes.

NDM Evaluation: **Phase 1 activities will not involve any timber harvesting or processing.**

11 AAC 112.260. Sand and gravel extraction

Sand and gravel may be extracted from coastal waters, intertidal areas, barrier islands, and spits if there is no practicable alternative to coastal extraction that will meet the public need for the sand or gravel

NDM Evaluation: **This sand and gravel extraction policy addresses extraction from coastal waters, barrier islands and spits.**

- **Coastal water, defined at 11 AAC 112.990(6), means those waters, adjacent to the shoreline, that contain a measurable quantity or percentage of sea water, including sounds, bays, lagoons, ponds, estuaries, and tidally influenced waters.**
- **Intertidal areas are those subject to tidal ebb and flow.**
- **Barrier Islands (and lagoons), defined at 11 AAC 112.990(3), means**
  - **depositional coastal environments formed by deposits of sediment offshore; or;**
  - **coastal remnants that form a barrier of low-lying islands and bars protecting a salt-water lagoon with free exchange of water to the sea**
- **A spit is a deposition landform found off coasts. It is a type of bar or beach that develops where a re-entrant occurs, such as at a cove, bay, ria, or river mouth.**

Phase 1 activities will be located approximately 58 miles from the nearest coast and therefore will not affect coastal waters, intertidal areas, barrier islands or spits.

11 AAC 112.270. Subsistence

(a) A project within a subsistence use area designated by the department or under 11 AAC 114.250(g) must avoid or minimize impacts to subsistence uses of coastal resources.

(b) For a project within a subsistence use area designated under 11 AAC 114.250(g), the applicant shall submit an analysis or evaluation of reasonably foreseeable adverse impacts of the project on subsistence use as part of

(1) a consistency review packet submitted under 11 AAC 110.215; and

(2) a consistency evaluation under 15 C.F.R. 930.39, 15 C.F.R. 930.58, or 15 C.F.R. 930.76.

(c) Repealed 10/29//2004, Register 172.

(d) Except in nonsubsistence areas identified under AS 16.05.258, the department may, after consultation with the appropriate district, federally recognized Indian tribes, Native corporations, and other appropriate persons or groups, designate areas in which a subsistence use is an important use of coastal resources as demonstrated by local usage.

(e) For purposes of this section, "federally recognized Indian tribe," "local usage", and "Native corporation" have the meanings given in 11 AAC 114.990.

NDM Evaluation: **Phase I activities will not occur within a subsistence use area designated by the department or under 11 AAC 114.250(g).**

NDM recognizes the extreme importance of traditional subsistence use areas and activities in the Pebble Project area. To document current subsistence uses before project development, it has commissioned a several-year, detailed subsistence baseline study over a geographically large region surrounding the Pebble Project area in consultation with the Alaska Department of Fish and Game (ADFG) and other entities, including village tribal councils. Some or all of this analysis will become part of the project review under the National Environmental Policy Act (NEPA). This information has been, and will continue to be, incorporated into project design and operating plans.

Phase 1 activities will be conducted in compliance with all applicable requirements to prevent conflict with traditional subsistence use areas and activities and to protect access to them.

11 AAC 112.280. Transportation routes and facilities

Transportation routes and facilities must avoid, minimize, or mitigate

(1) alterations in surface and ground water drainage patterns;

(2) disruption in known or reasonably foreseeable wildlife transit; and

(3) blockage of existing or traditional access.

NDM Evaluation: **Phase 1 activities will not involve any transportation routes or facilities.**

11 AAC 112.300. Habitats

(a) Habitats in the coastal area that are subject to the program are

(1) offshore areas;

(2) estuaries;

(3) wetlands;

(4) tideflats;

(5) rocky islands and sea cliffs;

(6) barrier islands and lagoons;

(7) exposed high-energy coasts;

(8) rivers, streams, and lakes and the active floodplains and riparian management areas of

those rivers, streams, and lakes; and

(9) important habitat.

(b) The following standards apply to the management of the habitats identified in (a) of this section:

(1) offshore areas must be managed to avoid, minimize, or mitigate significant adverse impacts to competing uses such as commercial, recreational, or subsistence fishing, to the extent that those uses are determined to be in competition with the proposed use;

(2) estuaries must be managed to avoid, minimize, or mitigate significant adverse impacts to

(A) adequate water flow and natural water circulation patterns; and

(B) competing uses such as commercial, recreational, or subsistence fishing, to the extent that those uses are determined to be in competition with the proposed use;

(3) wetlands must be managed to avoid, minimize, or mitigate significant adverse impacts to water flow and natural drainage patterns;

(4) tideflats must be managed to avoid, minimize, or mitigate significant adverse impacts to

(A) water flow and natural drainage patterns; and

(B) competing uses such as commercial, recreational, or subsistence uses, to the extent that those uses are determined to be in competition with the proposed use;

(5) rocky islands and sea cliffs must be managed to

(A) avoid, minimize, or mitigate significant adverse impacts to habitat used by coastal species; and

(B) avoid the introduction of competing or destructive species and predators;

(6) barrier islands and lagoons must be managed to avoid, minimize, or mitigate significant adverse impacts (A) to flows of sediments and water;

(B) from the alteration or redirection of wave energy or marine currents that would lead to the filling in of lagoons or the erosion of barrier islands; and

(C) from activities that would decrease the use of barrier islands by coastal species, including polar bears and nesting birds;

(7) exposed high-energy coasts must be managed to avoid, minimize, or mitigate significant adverse impacts

(A) to the mix and transport of sediments; and

(B) from redirection of transport processes and wave energy;

(8) rivers, streams, and lakes must be managed to avoid, minimize, or mitigate significant adverse impacts to

(A) natural water flow;

(B) active floodplains; and

(C) natural vegetation within riparian management areas; and

(9) important habitat

(A) designated under 11 AAC 114.250(h) must be managed for the special productivity of the habitat in accordance with district enforceable policies adopted under 11 AAC 114.270(g); or

(B) identified under (c)(1)(B) or

(C) of this section must be managed to avoid, minimize, or mitigate significant adverse impacts to the special productivity of the habitat.

(c) For purposes of this section,

(1) "important habitat" means habitats listed in (a)(1) – (8) of this section and other habitats in the coastal area that are

(A) designated under 11 AAC 114.250(h);

(B) identified by the department as a habitat

(i) the use of which has a direct and significant impact on coastal water; and

(ii) that is shown by written scientific evidence to be biologically and significantly productive; or

(C) identified as state game refuges, state game sanctuaries, state range areas, or fish and game critical habitat areas under AS 16.20;

(2) "riparian management area" means the area along or around a waterbody within the following distances, measured from the outermost extent of the ordinary high water mark of the waterbody:

(A) for the braided portions of a river or stream, 500 feet on either side of the waterbody;

(B) for split channel portions of a river or stream, 200 feet on either side of the waterbody;

(C) for single channel portions of a river or stream, 100 feet on either side of the waterbody;

(D) for a lake, 100 feet of the waterbody.

NDM Evaluation: **Of the nine habitats listed at 11 AAC 112.300(a), the following six are associated only with coastal water:**

(1) offshore areas

(2) estuaries

(4) tideflats

(5) rocky islands and sea cliffs

(6) barrier islands and lagoons

(7) exposed high-energy coasts

Coastal water, defined at 11 AAC 112.990, means those waters, adjacent to the shoreline, that contain a measurable quantity or percentage of sea water, including sounds, bays, lagoons, ponds, estuaries, and tidally influenced waters. Phase 1 activities will be located approximately 58 miles from the nearest coastal water and therefore will not occur in any of those seven habitats.

A consistency evaluation for each of the remaining three habitats follow.

(3) wetlands

(8) rivers, streams, and lakes and the active floodplains and riparian management areas of those rivers, streams and lakes

(9) important habitat

(3) Wetlands

For the past three years NDM has undertaken an extensive, GIS-based wetlands identification program covering approximately 104,000 acres in the vicinity of the mine site. It is expected this program will continue for an additional two years. This area encompasses all of the Phase I activities. Thus, NDM will have a complete wetlands data base for siting, design, construction and operation of the water appropriation structures. This will allow NDM to avoid and minimize significant adverse impacts on water flow and natural drainage patterns. Because some impacts will occur, NDM is drafting a detailed wetlands plan for mitigation which will be coordinated with state and federal agencies.

Before NDM can proceed to appropriate water, DNR must approve its water appropriation application. This process requires an analysis of the effects of such an appropriation on other resources dependent on water. Also, NDM's siting, design, construction and operation criteria and plans will have to be approved by DNR under its authorities governing the disturbance and reclamation of surface land in mining operations under 11 AAC 97.100 through 11 AAC 97.990, and by the U.S. Army Corps of Engineers (COE) and Environmental Protection Agency (EPA) under their 404(b)(1) guidelines which require avoiding, minimizing and mitigating significant adverse impacts on waters of the U.S., including wetlands.

(8) Rivers, streams, and lakes

For several years NDM has undertaken an extensive surface water and groundwater hydrology baseline program involving data from approximately 200 stations throughout the mine site area. This program will continue into the future. This data is providing the basis for an understanding of relationships between surface water and groundwater and their effects on rivers, stream, and lakes. Among other attributes, these studies have identified active floodplains. Other baseline studies, wetlands and vegetation, have identified vegetation types (including riparian) throughout the mine site area. Thus, NDM's baseline studies will have developed the necessary data for siting, design, construction and operation of the water appropriation structures to avoid, minimize and mitigate significant adverse impacts on rivers, streams, and lakes.

The Phase I surface water activities in the Unnamed Tributary (NK1.190) North Fork Koktuli River will consist of an approximately 2.5-mile diversion ditch and a surface runoff collection point. The purpose of the diversion ditch is specifically to affect natural water flow by intercepting surface runoff and routing it around the tailings storage facility to a surface water collection point. It will cross several very small upper headwater streams and their narrow floodplains. Because of the small nature of these streams and the narrow width of the diversion ditch, there will be little impact on riparian vegetation.

Down gradient from the diversion ditch there will be an alteration of natural surface water flow in the Unnamed Tributary (NK1.190) presently estimated to be approximately 34 cfs on an annual basis. This is estimated to result in a reduction in surface water flow at the downstream U.S. Geological Service (USGS) station (NK100A) on the North Fork Koktuli of approximately 8 percent on an annual basis.

As surface water and groundwater baseline studies proceed, as well as the extensive fish, fish habit, and other aquatic habitat studies, information will be available to predict the effects of such a flow reduction on other resources. As necessary to meet state and other regulatory requirements to protect these other resources, this flow reduction will be mitigated. A mitigation example would be supplying water to the North Fork Koktuli from other sources (wells, pipeline, treated discharge from the tailings storage facility at Site G).

As note above, before NDM can proceed to appropriate water, DNR must approve its water appropriation application. This process requires an analysis of the effects of such an appropriation on other resources dependent on water. Also, NDM's siting, design, construction and operation criteria and plans will have to be approved by DNR under its authorities governing the disturbance and reclamation of surface land in mining operations under 11 AAC 97.100 through 11 AAC 97.990, and by the COE and EPA under their 404(b)(1) guidelines which require avoiding, minimizing and mitigating significant adverse impacts on waters of the U.S., including wetlands.

(9) Important habitat

Phase I activities will not occur in, nor have an effect on, an important habitat

- **designated under 11 AAC 114.250(h)**
- **identified by the department as a habitat the use of which has a direct and significant impact on coastal water**
- **identified as state game refuges, state game sanctuaries, state range areas, or fish and game critical habitat areas under AS 16.20**

11 AAC 112.310. Air, land, and water quality.

Notwithstanding any other provision of this chapter, the statutes and regulations of the Department of Environmental Conservation with respect to the protection of air, land, and water quality identified in AS 46.40.040(b) are incorporated into the program and, as administered by that department, constitute the exclusive components of the program with respect to those purposes. (Eff. 7/1/2004, Register 170)

NDM Evaluation: Phase 1 activities will not require any air, land or water quality permit issued by DEC.

11 AAC 112.320. Historic, prehistoric, and archeological resources.

(a) The department will designate areas of the coastal zone that are important to the study, understanding, or illustration of national, state, or local history or prehistory, including natural processes.

(b) A project within an area designated under (a) of this section shall comply with the applicable requirements of AS 41.35.010 – 41.35.240 and 11 AAC 16.010 – 11 AAC 16.900. (Eff. 7/1/2004, Register 170)

NDM Evaluation: **Phase 1 activities will not occur in an historical, prehistorical, or archaeological area designated by the department under 11 AAC 112.320(a).**

NDM has initiated a detailed archeological and cultural resources baseline study throughout the project area, including searches of state and federal historic registers. Substantial portions of the mine site area have been investigated to date, including those where exploration activities have been conducted. The State Historic Preservation Office (SHPO) has been involved throughout this study, and on an annual basis these investigations have been thoroughly documented in reports to the SHPO. Phase I activities will only occur in areas that have been previously investigated pursuant to the SHPO standards. Procedures approved by the SHPO will be in place to immediately stop activities and provide for investigation and mitigation of unexpected discoveries.

Lake and Peninsula Borough Enforceable Policies

In 2004 and 2005, the Legislature made significant revisions to the ACMP. The amendments had the effect of reforming and streamlining the ACMP. The Legislature made it clear than, except in specific circumstances unique to the district, district enforceable policies could not merely duplicate, restate or incorporate state or federal law. House Bill 191, CSHB 191(FIN)am ("HB 191"). Thus, the ACMP was not a permitting program under which local coastal districts could attempt simply to re-interpret and administer state or federal law.

The Legislature expressly provided that local enforceable policies in district plans should be "clear and concise, provide greater uniformity in coastal management throughout the state, relate to matters of local concern, and do not duplicate state and federal regulations." HB 191, § 1. To this end, the Legislature amended AS 46.40.070, which sets forth these restrictions and requirements. Under AS 46.40.070, the enforceable policies of a district coastal management plan must:

> (A) [be] clear and concise as to the activities and persons affected by the policies, and the requirements of the policies;
>
> (B) use precise, descriptive, and enforceable language; and
>
> (C) …not address a matter regulated or authorized by state or federal law unless the enforceable policies relate specifically to a matter of local concern; for purposes of this subparagraph, "matter of local concern" means a specific coastal use or resource within a defined portion of the district's coastal zone that is
>
> > (i) demonstrated as sensitive to development;
> >
> > (ii) not adequately addressed by state or federal law; and
> >
> > (iii) of unique concern to the coastal resource district as demonstrated by local usage or scientific evidence.

AS 46.40.070(a). The statutory language setting forth the requirements that must be met is clear and unambiguous. Furthermore, the burden is on the coastal district to show that a proposed policy meets these requirements.

Clearly, these statutory amendments are based on the premise that the state and federal laws and regulations in this area are comprehensive and inclusive, and that, therefore, the focus of district enforceable policies should be on circumstances unique to the area and not adequately protected by state and federal laws. In the process of enacting these amendments, the Legislature intended the new ACMP to "function with a minimum of delay and avoid regulatory confusion, costly litigation, and uncertainty regarding the feasibility of new investment." HB 191 § 1.

The Legislature decided that district policies could not "duplicate, restate or incorporate by reference statues and administrative regulations adopted by state and federal agencies." AS 46.40.040(b). In addition the Legislature declared any existing policies that duplicate, restate or incorporate by reference statues and administrative regulations adopted by state and federal agencies "null and void." SB 102, Sec. 19 (May, 2005).

A. Coastal Development

A-1 Water-Dependent and Water-Related Activities

In planning for and approving development in shoreline and waterfront areas, the Lake and Peninsula Borough coastal management program and state agencies shall give priority, in the following sequence, to:

a) water-dependent uses and activities;

b) water-related uses and activities; and

c) uses and activities which are neither water-dependent nor water-related, for which there is no feasible and prudent inland alternative to meet the public need for the use or activity.

NDM Evaluation: By definition, Phase I activities for water appropriation constitute a water-dependent use and therefore must, in some cases, be sited adjacent to shoreline or waterfront areas.

A-2 Mitigation

All land and water use activities shall be conducted with a level of planning, implementation, and monitoring/enforcement which is appropriate to mitigate potentially adverse effects and/or cumulative impacts on the following resources of local, state, or national importance:

a) fish and wildlife populations and their habitats;

b) commercial fishing uses and activities;

c) subsistence and personal use resources and activities;

d) air and water quality;

e) cultural resources; and

f) recreational resources.

The cost of mitigation relative to the benefit to the coastal resource shall be considered in the implementation of this policy. Mitigation is the responsibility of the project or activity permit applicant. Mitigation shall include and be considered in the following order of preference:

a) avoid the loss altogether by not taking a certain action or parts of an action;

b) when the loss cannot be avoided, minimize the loss by limiting the degree or magnitude of the action and its implementation;

c) when the loss of resources and/or associated activities of local, state, or national concern cannot be minimized, restore or rehabilitate the resource to its pre-disturbance condition, to the extent feasible and prudent; and

d) where the loss of important habitat or activities of local, state, or national concern is substantial and irreversible and cannot be avoided, minimized or rectified, compensate for the loss by replacing, enhancing, or providing substitute resources or environments. Compensation may be in-kind or out-of-kind, and off-site or on-site. The preferred option is in-kind and on-site, to the extent feasible and prudent.

NDM Evaluation: **This policy does not designate who will determine compliance with its terms. It addresses identification of potential impacts and avoidance, minimization and mitigation of those impacts. These concerns are addressed in other regulatory programs, and NDM will comply with those regulatory programs to address the issues described in the policy.**

This policy duplicates, restates or incorporates by reference state or federal law. For example, this policy duplicates the analysis to be undertaken by DNR under AS 46.15.080 Appropriation of Water), and, therefore, it duplicates state law. Potential affects on water volume, water quality and habitat are part of the adjudication to be undertaken by DNR under its water use regulations. Furthermore, DNR will evaluate Phase I activities under state habitat standards developed under AS 46.40.

Before construction of any impoundment structures, in a later phase of the review of the Pebble Project, NDM will submit permit applications to the US Army Corps of Engineers, seeking authorization under the CWA 404 program. That regulatory program requires an analysis of avoidance, minimization, mitigation and compensation of potential impacts. In addition, that and other applications will initiate a review under the National Environmental Policy Act, that will consider the potential adverse effects and/or cumulative impacts of the ultimate project.

A-3 Multiple Use

To the extent feasible and prudent, ports, piers, docks, terminals, cargo handling, storage, parking, and other coastal facilities shall be designed and utilized to minimize the need for duplicate facilities. Subsequent use of facilities for other than their original intent shall also be a consideration in the siting and design of such facilities.

NDM Evaluation: **Phase I activities will not involve ports, piers, docks, terminals, cargo handling, storage, or parking. The structures will be designed to extract water to accommodate the needs of the Pebble project and minimize the need for duplicate facilities.**

A-4 Compatibility

To the extent feasible and prudent, activities on and uses of coastal lands and waters shall be compatible with adjacent land and water uses.

NDM Evaluation: **This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies. For example, compatible land uses identified for specific areas found in DNR's Bristol Bay Area Plan for state lands (2005).**

The Phase I activities will occur on state lands classified for mineral development by the 2005 Bristol Bay Area Plan. DNR's management intent is to accommodate mineral exploration and development. Thus, prospective Pebble Project development has been determined compatible with surrounding state lands, subject to DNR's specific decisions as to how development may occur through the authorization process. The Phase I activities are limited to withdrawal and use of water. DNR's adjudication of the water right

application will evaluate the compatibility of the proposed water right with adjacent land and water uses.

A-5 Dredge and Fill Requirements

Projects that involve dredging or filling in streams, rivers, wetlands, lakes, or marine areas including estuaries and tidelands, shall be located, designed, constructed, operated, and maintained to:

a) avoid significant adverse impacts to important fish and wildlife habitats;

b) avoid significant interference with fish migration, spawning, and rearing as well as critical life history stages of wildlife;

c) limit the extent of direct disturbance to the minimum area necessary to accommodate the proposed purpose or use;

d) minimize erosion and the potential for turbid waters and waterborne sediment to be transported away from the dredge or fill site; and

e) provide for circulation and drainage patterns adequate to maintain habitat productivity and water quality.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies. For example, the placement of dredged or fill material in important habitats is regulated by the COE, EPA and Department of Environmental Conservation (DEC) (30 CFR 325, CWA § 404, EPA § 404(b)(1) guidelines to 40 CFR 250 and AS 41). DNR's Office of Habitat Management & Permitting (OHMP) has responsibility for protecting fish migration, spawning, and rearing under AS 41, and for the habitat standards addressed under 11 AAC 112.300 and important habitat designations addressed under 11 AAC 114.250(h).

DNR's Water Section adjudication of this application for a water right must include an analysis of potential impacts on habitats, fish, and wildlife, of any potential direct disturbance, erosion, and waterborne sediments, and any potential impacts on habitat productivity and water quality.

A-6 Disposal of Dredge Spoil

Dredged materials disposed of in shoreline landfills shall not cause significant alteration of important habitats or significant adverse impacts to coastal processes such as circulation, sediment transport, and coastal erosion and deposition patterns. On-shore disposal sites for dredged material shall be contained and stabilized to prevent erosion and leaching into adjacent waters. Offshore disposal of dredge spoil shall avoid important marine habitats and be conducted in compliance with state and federal water quality regulations.

NDM Evaluation: Phase I activities will not involve shoreline landfills or offshore disposal.

With respect to on-shore disposal sites, the placement of dredged or fill material in important habitats is regulated by the COE, EPA and DEC (30 CFR 325, CWA § 404, EPA § 404(b)(1) guidelines to 40 CFR 250 and CWA 401). The OHMP has responsibility for the habitat standards addressed under 11 AAC 112.300 and important habitat designations

addressed under 11 AAC 114.250(h). This policy therefore duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

Phase I activities will consist of construction of an approximately 2.5-mile diversion ditch and a surface runoff collection point. Thus, onshore disposal of dredged material will be minimal, and will be contained and stabilized to prevent leaching into adjacent waters using standard best management practices as stipulated by EPA's stormwater and DNR's surface disturbance regulations under 11 AAC 97.100 through 11 AAC 97.990 that govern disturbance and reclamation of surface land in mining operations.

A-7 Navigation Obstructions

Uses and activities in coastal waters shall meet the following requirements:

a) Structures and buoys placed in navigable waters shall be visibly marked and placed in a manner to minimize navigation hazards or obstructions to other uses of coastal habitats; and

b) To the extent feasible and prudent, all developments, structures, and facilities in marine and estuarine waters of the Borough shall be sited, constructed, operated, and maintained in a manner that does not create a hazard or obstruction to marine transportation or commercial fishing operations.

NDM Evaluation: Phase 1 activities will be located approximately 58 miles from the nearest coast, and thus will not occur in coastal waters, navigable waters, or in marine or estuarine waters.

B. Coastal Habitats and Resources

B-1 State Habitat Standards

The Lake and Peninsula Borough Coastal Management Program adopts the ACMP Standards for coastal habitats contained in 6 AAC 80.130. Development activities and facility sites shall meet, at a minimum, the criteria established under the referenced standards and State regulations unless a greater performance standard is applicable under specific policies of the Lake and Peninsula Borough coastal program.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies. The state standards codified at 11 AAC 112.300 address coastal habitat standards.

B-2 Upland Habitats

To the extent feasible and prudent, projects in upland habitats shall be designed, constructed, and maintained to assure that runoff volume, velocity, and sediment loads do not cause accelerated erosion, and to retain natural drainage patterns, surface water quality, and natural groundwater recharge areas. Disturbance of existing vegetation in a manner which may adversely affect slope stability or productivity of important upland habitats shall be minimized.

NDM Evaluation: **This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.**

For example, AS 41.14.870 and 11 AAC 112.300 provide for standards habitat protection in, among other places, wetlands, rivers, streams, and lakes, and other important habitats. Habitat protection is also governed by regulations of DNR's Office of Project Management and Permitting (OPMP), OHMP and Division of Oil & Gas. DEC regulates water quality and discharge of water under AS 46.30.010 through 46.30.130 and 18 AAC 70.

Phase 1 activities will be designed, constructed and maintained in compliance with applicable requirements under the above authorities to prevent accelerated erosion and assure surface water quality and natural groundwater recharge areas.

B-3 Maintenance of Fish Habitat

Maintenance and enhancement of fish habitat will be given the highest priority when evaluating projects which may impact fish spawning, migration, rearing, and overwintering areas. Shorelines that have banks, beaches, and streambeds critical to fish populations will be maintained in a productive condition comparable to the natural or pre-disturbance state.

NDM Evaluation: **This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.**

For example, AS 41.14.870 and 11 AAC 112.300 provide for standards habitat protection in, among other places, wetlands, rivers, streams, and lakes, and other important habitats. Habitat protection is also governed by regulations of DNR's OPMP, OHMP and Division of Oil & Gas.

Phase 1 activities will be reviewed and permitted under the above authorities to maintain shoreline banks, beaches, and streambeds critical to fish populations in a productive condition.

B-4 Anadromous Fish Waters

With the exception of approved transportation and utility crossings, water dependent structures, and uses involving the research, protection, or enhancement of anadromous fish or their habitats, no development activities, alteration of vegetation, excavation, placement of fill, or land clearing shall take place within a minimum distance of 100 feet from the ordinary high water mark of anadromous fish waters unless feasible and prudent alternatives are not available, and the protection of water quality and stream habitat can be assured. Exceptions or variances of either more than or less than 100 feet from the ordinary high water mark of anadromous fish streams shall minimize adverse impacts to water quality and fish and wildlife habitat. Where feasible and prudent, additional setback distances may be required by permitting entities on a site-specific basis, in consultation with the DF&G, to protect riparian and stream habitats. The following criteria will be considered in evaluating setback variations:

a) the presence and sensitivity of anadromous fish using the site;

b) the nature and timing of the proposed activity or anticipated disturbance, including construction and operation, and the size and configuration of the development with respect to the anadromous fish waters;

c) the characteristics and function of existing riparian vegetation; and

d) the slope, soil type, and soil stability at the proposed activity site as it affects the potential for erosion problems.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, AS 41.14.870, AS 41.14.840, and 11 AAC 112.300 provide for habitat protection in, among other places, wetlands, rivers, streams, and lakes, and other important habitats. Habitat protection is also governed by regulations of DNR's OPMP, OHMP and Division of Oil & Gas. The placement of dredged or fill material in important habitats is regulated by the COE, EPA and the DEC (30 CFR 325, § 404, EPA § 404(b)(1) guidelines to 40 CFR 250 and AS 41). 11 AAC 95.010 provides for the protection of anadromous fish habitat. The Bristol Bay Area Plan includes certain set-back requirements.

Phase 1 activities will be conducted in compliance with all applicable requirements under the above authorities to minimize adverse impacts to water quality and fish and wildlife habitat.

B-5 Drainage Structures and Maintenance of Fish Passage

Development activities, facilities, and structures shall be designed, sited, constructed, operated, and maintained in a manner which does not impede or interfere with timely access to spawning streams by adult fish or in-stream movements of juvenile fish. All cross drainage structures on fish streams, including bridges and culverts, shall:

a) be sited, constructed, and maintained to avoid changes to the direction or velocity of the stream flow;

b) be adequately sized to accommodate the best available estimate of the 25-year peak discharge without significantly interfering with the volume, velocity, sediment transport, or substrate characteristics of the stream;

c) provide for efficient passage or movements of fish upstream, downstream and in associated aquatic habitats, including wetlands; and

d) avoid disturbance of fish spawning habitat.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, AS 41.14.840 through 41.14.900 and 11 AAC 112.300 provide for habitat protection for wetlands, rivers, streams, and lakes, and regulate fishways and any development in these habitats. 11 AAC 95.010 provides for the protection of anadromous fish habitat.

Phase 1 activities will be conducted in compliance with all applicable requirements under the above authorities in a manner that does not impede or interfere with timely access to spawning streams by adult fish or in-stream movements of juvenile fish.

B-6 Instream Flow

Appropriation of water from rivers, streams, lakes, or wetlands shall not decrease instream flow below the amount determined necessary by the DF&G and/or the U.S. Fish and Wildlife Service to protect fish and wildlife habitat and productivity, unless in accordance with AS 46.15, the Commissioner of DNR makes a finding based on public review that

1) the competing use of water is in the best public interest, and

2) no feasible and prudent alternative exists for the proposed water appropriation.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DNR's Water Section regulates the appropriation, distribution and use of water in the state under AS 46.15.010 through 46.15.270.

This Phase I application for a water right will be adjudicated by DNR according to its regulations that require protection of fish and wildlife habitat values in assessing the merits of an application.

B-7 Water Removal from Fish Streams

Approvals for water removal from fish-bearing waters shall require that intake structures be designed, constructed, and operated using appropriate technology to prevent fish entrainment or impingement, as approved by DF&G.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DNR's Water Section regulates the appropriation, distribution and use of water in the state under AS 46.15.010 through 46.15.270. OHMP regulates protection of anadromous streams under AS 41. 11 AAC 95.010 provides for the protection of anadromous fish habitat.

This Phase I application for water right will be adjudicated by DNR pursuant to its regulations that require protection of fish from water intake structures. Phase 1 activities will not involve intake structures in waters containing fish, and therefore no fish entrapment or impingement will occur.

B-8 Geophysical Surveys and In-Water Use of Explosives

Geophysical surveys shall, to the extent feasible and prudent, be located, designed, and conducted to avoid disturbances to fish and wildlife populations, habitats, and harvests. Seasonal restrictions, restrictions on the use of explosives, or restrictions relating to the type of transportation utilized in such operations may be required as necessary to mitigate potential adverse impacts to aquatic and marine resources. Geophysical surveys in fresh and marine waters supporting fish or wildlife shall use energy sources such as air-guns, gas exploders, or other sources that have been demonstrated to be harmless to fish and wildlife. The in-water use of explosives for purposes other than geophysical surveys shall be considered on a case by case basis after all steps have been taken to minimize impacts and when no feasible or prudent alternatives exist to meet the public need.

NDM Evaluation: **This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.**

For example, OHMP regulates the use of explosives under AS 41.14.840 and 41.14.870. 11 AAC 112.270 and 11 AAC 112.300 also govern this standard. DNR's regulations at Title 11 AAC 97.100 through 11 AAC 97.990 under Alaska's Administrative Code govern the disturbance and reclamation of surface land in mining operations.

Phase 1 activities will not involve any geophysical surveys.

B-9 Raptor Nest Sites

Development activities shall avoid harming or disturbing identified nest sites for raptors, or nest sites identified during project planning or review, by timing potentially disturbing operations when raptors are not breeding or nesting, or by retaining a buffer around occupied nest sites. The U.S. Fish and Wildlife Service and the Alaska Department of Fish and Game should be contacted for information concerning the known locations of raptor nest sites and appropriate criteria to minimize significant adverse impacts to nest sites and nesting activity. Bald eagle nest sites shall be protected in conformity with the Bald Eagle Protection Act (16 USC 668) and the use, size and management of bald eagle nest site buffers shall be determined on a case by case basis by the U.S. Fish and Wildlife Service.

NDM Evaluation: **This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.**

For example, the Migratory Bird Treaty Act, 16 USC 703 through 16 USC 712 (MBTA), and the Bald Eagle Protection Act, 16 USC 668 *et seq.* regulate issues relating to raptors and raptor nest sites. These laws are administered by the US Fish & Wildlife Service (USFWS).

NDM has conducted extensive raptor nesting baseline studies in the mine site area, and has made this information available to the USFWS and ADFG, as well as the public. Phase 1 activities, based on this data base, will not affect any documented raptor nest.

B-10 Marine Mammal Haul-Outs and Seabird Colonies

Seabird colonies and haul-outs and rookeries used by marine mammals shall not be physically altered or disturbed by structures or activities in a manner that would preclude or significantly interfere with continued use of these sites by wildlife for the habitat functions which they provide. Development structures and facilities shall be sited at least one-half mile from identified seabird rookeries and marine mammal haulouts unless feasible and prudent alternative sites are not available. Development activities with high levels of acoustical or visual disturbance shall be designed and operated to minimize impacts on seabird colonies and sea lion, fur seal, and harbor seal haul-outs or rookeries.

NDM Evaluation: **This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.**

For example, the National Marine Fisheries Services (NMFS) and USFWS have authority over issues relating to marine mammals under the Marine Mammal Protection Act, 16 USC 1361 et seq. (MMPA), and its implementing regulations, and related laws. Protection of seabird colonies is covered by the MBTA, 16 USC 703-712.

Phase 1 activities will be located approximately 58 miles from the nearest coast and thus will not physically alter or disturb seabird colonies or haul-outs and rookeries used by marine mammals, or be sited within one-half mile of such locations.

B-11 Disturbance by Aircraft

To minimize adverse disturbances to seabird colonies, fixed-wing and helicopter aircraft shall maintain a minimum altitude of 2,000 feet or a one-half mile horizontal distance from identified seabird colonies between April 15 and September 30. To minimize adverse disturbances to sea lion and harbor seal haul-out sites, fixed-wing and helicopter aircraft shall maintain a minimum altitude of 2,000 feet or a one-half mile horizontal distance from identified haul-out sites between May 1 and December 31 for sea lions, and between March 1 and September 30 for harbor seals. Additional activity and disturbance buffers may be applicable under the Recovery Plan for the threatened Steller sea lion. These conditions shall not apply where safety, weather conditions, or authorized destination within the area of concern dictate otherwise. Flight operations shall not violate Federal Aviation Administration regulations.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, management of airspace and air traffic is regulated by the Federal Aviation Administration (FAA). Further, marine mammals and seabird colonies are protected under the MMPA, 16 USC 1361 et seq. and its implementing regulations. Protection of seabird colonies is covered by the MBTA, 16 USC 703-712.

Phase 1 activities will be located 58 miles from the nearest coast and therefore will not affect seabird colonies, sea lion and harbor seal haul-out sites, or the threatened Steller sea lion.

B-12 Bank Stabilization

All stream or lake bank cuts, fills, or exposed earthwork adjacent to streams, wetlands, or marine waters shall be stabilized to prevent erosion or sedimentation into adjoining waters during construction, operation, and following abandonment of development activities.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations. DEC regulates water quality and the discharge of water under AS 46.30.010 through 46.30.130, AS 46.03.050 through 46.03.080, and 18 AAC 70. The COE regulates placement of materials into waters.

All Phase I activities involving stream or lake bank cuts, fills, or exposed earthwork adjacent to streams, wetlands, will be conducted in compliance with all applicable requirements under the above authorities to stabilize and prevent erosion or sedimentation.

C. Air, Land, and Water Quality

C-1 State Standards

The Lake and Peninsula Borough Coastal Management Program adopts the ACMP air, land, and water quality standards in 6 AAC 80.140. The following policies supplement these standards. Where state standards and the policies of this section present differing requirements, the stricter standard shall be applied.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

Specifically, the issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

C-2 Wastewater Discharge

To the extent feasible and prudent, the discharge of wastewater (other than stormwater) or other effluent into fresh or marine waters of the Borough shall be located in areas of least biological productivity, diversity, and sensitivity and where effluents can be controlled, contained, or effectively dispersed by currents, as appropriate for the wastewater components and discharge location. All permits, leases, or plans of operation for land and water quality shall require that these activities be sited, designed, constructed and operated to provide reasonable assurance that discharges will meet state and federal water quality criteria for the receiving water uses protected by the water quality standards.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates discharge of water and wastewater in the state under AS 46.30.010 through 46.30.130 and 17 AAC 70. AS 46.03.050 through 46.03.080 prohibits polluting the waters of the state. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will not involve a discharge of wastewater.

C-3 Waste Handling and Spill Contingency Planning

Harbor, port, marina, seafood processors, and other commercial and industrial facilities shall develop and incorporate provisions for the proper transfer, storage, disposal, and handling of petroleum products and fuel, solid waste, waste oil, and sewage in accordance with local, state and federal regulations. Facilities and vessels required by state or federal regulations to prepare contingency response plans to address discharges of oil, petroleum products, or hazardous substances shall insure that these plans:

1) *focus initial response and cleanup activities to protect environmentally sensitive areas (18 AAC 75.425) and commercial fishing areas;*
2) *recognize seasonal variability in the occurrence and sensitivity of resource use areas and habitats; and*

3) provide for timely and functional response to spill incidents, including inregion availability of containment and cleanup equipment and training for local response and maintenance personnel.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates discharge and disposal of solid waste and sewage in the state under AS 46.03.100 through 46.03.120 and 18 AAC 60, and the discharge of wastewater in the State under AS 46.30.010 through 46.30.130 and 18 AAC 70. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will not involve transfer, storage, disposal, or handling of petroleum products and fuel, solid waste, waste oil or sewage.

C-4 Environmental Protection Technology

To the extent feasible and prudent, equipment and procedures utilizing the most effective technology shall be required for limiting emissions and the discharge of effluent, and for the storage, handling, cleanup, and disposal of oil and hazardous materials for municipal, industrial, military, energy, and transportation facilities.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates discharge and disposal of solid waste and sewage in the state under AS 46.03.100 through 46.03.120 and 18 AAC 60, and the discharge of wastewater in the state under AS 46.30.010 through 46.30.130 and 18 AAC 70. DEC regulates the use and handling of oil and hazardous materials in the state under AS 46.040.010 through 46.040.900 and 18 AAC 75. Air emissions are regulated by DEC under AS 46.14.120 through 46.14.290 and 18 AAC 50. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will not involve emissions and discharge of effluent from storage, handling, cleanup and disposal of oil and hazardous materials.

C-5 Discharge of Suspended and Settleable Solids

Development facilities, uses, and activities shall not allow suspended materials or settleable solids to be introduced into waters of the Borough in a manner, timing, or quantity which could have a significant adverse impact on marine or freshwater productivity or habitats, marine fish, shellfish, or resident or anadromous fish populations. Upon application and in its discretion, the DEC may grant short-term variances as appropriate, in accordance with the regulations stated in the Alaska Water Quality Standards.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates discharge and disposal of solid waste and sewage in the state under AS 46.03.100 through 46.03.120 and 18 AAC 60, and the discharge of wastewater in the state under AS 46.30.010 through 46.30.130 and 18 AAC 70. The issuance of any air, land or

water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will be conducted in compliance with all applicable requirements under the above authorities to prevent settleable solids from causing a significant adverse impact on freshwater productivity or habitats.

C-6 Refuse Disposal

Within the Lake and Peninsula Borough, applicants for new or re-authorized solid waste disposal and sanitary landfill sites and operations shall comply with the requirements of local, state, and federal regulations. Approved sites for solid waste disposal shall be:

a) located to avoid destruction of important coastal habitats and resources;

b) sited, designed and operated to minimize drainage of leachate and runoff to surface and subsurface waters, and to avoid creation of an attractive nuisance for wildlife (i.e. prevent garbage foraging by wildlife), and;

c) to the extent feasible and prudent, located in upland sites a minimum of 1,500 feet from public and private water sources and a minimum of 200 feet from any surface waters. DEC may require a site -specific surface and subsurface hydrological investigation or evaluation of proximity to surface waters, conducted by the applicant, to determine the appropriate setback.

Incineration operations for disposal of refuse are encouraged to minimize wind-blown dispersal of trash, to reduce the volume of landfill materials, and to minimize attraction of birds and wildlife to putrescible wastes. All incineration operations, including the disposal of incinerator residue, shall be designed, constructed, and operated to comply with applicable state and federal air quality standards and to avoid the generation of toxic or carcinogenic compounds as a result of the incineration process.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates discharge and disposal of solid waste and sewage in the state under AS 46.03.100 through 46.03.120 and 18 AAC 60, and the discharge of wastewater in the state under AS 46.30.010 through 46.30.130 and 18 AAC 70. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will not involve refuse disposal or sanitary landfill sites.

C-7 Sewage Disposal

Where feasible and prudent, sewage treatment ponds and discharge locations shall be setback a minimum of 1,500 feet from public and private water systems and a minimum of 200 feet from any surface waters. Setback requirements do not apply to authorized marine outfalls for treated sewage which must meet Federal water quality regulations.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates discharge and disposal of solid waste and sewage in the state under AS 46.03.100 through 46.03.120 and 18 AAC 60, and the discharge of wastewater in the

state under AS 46.30.010 through 46.30.130 and 18 AAC 70. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will not involve sewage disposal.

C-8 Siting of Petroleum Product Facilities

To the extent feasible and prudent, new facilities, or re-permitting of existing facilities that include the storage, processing, or treatment of 5,000 gallons or more of petroleum or petroleum products shall be sited a minimum of 1,500 feet from domestic water supplies and a minimum of 200 feet from ordinary high water or MHHW of any surface waters. Impermeable berms and basins capable of retaining 115 percent of the tank capacity (or capacity of the largest tank where multiple tanks are separately valved) plus 12 inches of freeboard shall be required to minimize the potential for inadvertent pollution. Other technological approaches which achieve the same protection objective may be approved by the Borough, with input from DEC and/or EPA.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates the siting, design and operation of large petroleum facilities under 18 AAC 75.004 to .990. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will not involve siting of petroleum product facilities.

C-9 Cumulative Impacts on Air Quality

The Alaska Department of Environmental Conservation shall ensure that permits and renewals do not authorize or permit emissions from a project which, when added to ambient air quality conditions, would cumulatively cause air quality standards to be exceeded. To evaluate and consider the cumulative impacts on air quality, DEC, in consultation with the Lake and Peninsula Borough, may require the applicant to provide specific emissions data or modeling to evaluate the effect of their emissions on ambient air quality conditions.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates air quality and emissions in the state under AS 46.14.120 through 46.14.290 and 18 AAC 50. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will not involve any activity requiring an air emissions permit.

C-10 Cumulative Impacts on Water Quality

Authorizing agencies shall not authorize or permit discharges from a project which, when added to ambient water quality conditions, would cause water quality standards to be exceeded in the receiving waters. To evaluate and consider the cumulative impacts on water quality, authorizing agencies, in consultation with the Lake and Peninsula Borough, may require the applicant to provide

1) appropriate data or modeling to evaluate the effects of their discharge on the receiving waters, or

2) specific discharge data to be used by the authorizing agencies in their assessment of discharges by multiple users.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates the discharge of wastewater in the state under AS 46.30.010 through 46.30.130 and 18 AAC 70. AS 46.03.050 through 46.03.080 prohibits polluting the waters of the state. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will not involve any discharge of water into receiving waters.

C-11 Maintain Water Quality Criteria

The Borough and appropriate state agencies shall not consider any reduction in water quality standards for industrial use in locations where coastal habitats, fish and wildlife resources, or public uses and activities are dependent on the maintenance of higher water quality standards, unless the provisions of 18 AAC 70.010(a)(1, 2, & 3) are met.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates the discharge of wastewater in the state under AS 46.30.010 through 46.30.130 and 18 AAC 70. AS 46.03.050 through 46.03.080 prohibits polluting the waters of the state. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will be conducted in compliance with all applicable requirements under the above authorities to maintain water quality standards.

C-12 Mining and Mineral Processing Waste Disposal

Mining and mineral processing activities which dispose of potentially toxic tailings or discharge processing effluents which may contain toxic materials shall ensure that:

1) effluents are treated to remove materials toxic to human health, fish, or wildlife prior to discharge;

2) tailings are treated, stored, and disposed in a manner which avoids any possibility of toxic runoff to surface waters or infiltration of toxic waters into the groundwater aquifer; and

3) if conditions 1) and 2) cannot be achieved and satisfactorily demonstrated, all potentially toxic tailings and process waters shall be contained in a zero discharge disposal facility or impoundment.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates discharge and disposal of solid waste and sewage in the state under AS 46.03.100 through 46.03.120 and 18 AAC 60, and the discharge of wastewater in the state under AS 46.30.010 through 46.30.130 and 18 AAC 70. These matters are also regulated

by CWA 402 and RCRA, the Resource Conservation and Recovery Act, 42 USC 6901 et seq. The issuance of any air, land or water quality permit by the DEC constitutes adherence to 11 AAC 112.310.

Phase 1 activities will not involve mining or the disposal of mineral processing wastes.

D. Subsistence Use/Personal Use

D-1 State Standards

The Lake and Peninsula Borough adopts the subsistence standards presented in ACMP regulation 6 AAC 80.120(a).

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, the state standards under 11 AAC 112.270 address subsistence.

D-2 Development Impacts

Traditional subsistence activities are recognized as an extremely important use of the coastal resources in the Borough. Maintenance of subsistence use areas and activities shall be given high priority in areas of traditional use. Prior to authorization of a potentially conflicting development activity, the project applicant shall conduct an analysis of the possible adverse impacts upon subsistence use and shall identify, in consultation with the Borough and fish and wildlife resource agencies, appropriate safeguards to assure continued access and use of subsistence resources.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, the state standards under 11 AAC 112.270 address subsistence.

NDM recognizes the extreme importance of traditional subsistence use areas and activities in the Pebble Project area. To document current subsistence uses before project development, it has commissioned a several-year, detailed subsistence baseline study over a geographically large region surrounding the Pebble Project area in consultation with the Alaska Department of Fish and Game and other entities, including village tribal councils. Some or all of this analysis will become part of the project review under the National Environmental Policy Act (NEPA). This information has been, and will continue to be, incorporated into project design and operating plans.

Phase 1 activities will be conducted in compliance with all applicable requirements to prevent conflict with traditional subsistence use areas and activities and to protect access to them.

D-3 Access

Traditional and customary access to subsistence or personal use areas, as identified in Policy D-2, shall be accommodated unless reasonable alternative access is provided.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, the state standards under 11 AAC 112.270 address subsistence.

NDM recognizes the extreme importance of traditional subsistence use areas and activities in the Pebble Project area. To document current subsistence uses before project development, it has commissioned a several-year, detailed subsistence baseline study over a geographically large region surrounding the Pebble Project area in consultation with the Alaska Department of Fish and Game and other entities, including village tribal councils. Some or all of this analysis will become part of the project review under the National Environmental Policy Act (NEPA). This information has been, and will continue to be, incorporated into project design and operating plans.

Phase 1 activities will be conducted in compliance with all applicable requirements to prevent conflict with traditional subsistence use areas and activities and to protect access to them.

E. Transportation and Utilities

E-1 Stream Crossings

Bridges and culverts shall be designed, constructed, and maintained in accordance with Policy B-6 and fisheries conservation practices which minimize habitat disturbance and allow efficient fish passage up- and downstream.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DNR regulates stream crossings and related matters under AS 41.14.150 through 41.14.990. ADF&G also has authority over streams containing or used by salmon under AS 16.10.010 through 16.10.050. DNR regulates the appropriation, distribution and use of water in the state under AS 46.15.010 through 46.15.270 (Policy B-6).

Phase 1 activities will not involve bridges or installation of culverts.

E-2 Maintaining Traditional Public Access

Restrictions on traditional methods and means of public access through municipal, state, and federal land shall be minimized. Elements of public access include roads, waterways, trails, campsites, picnic sites, and marine anchorages. Prior to disposal of municipal, state, or federal lands, public access routes shall be identified and dedicated.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or

administrative regulations adopted by state or federal agencies.

For example, DNR protects public access on state lands pursuant to the Bristol Bay Area Plan (2005) and other requirements of state law. For example, development of the Pebble deposit will occur on leased state land. In leasing state land, DNR "expressly reserves the right to grant easements or rights-of-way across leased land if it is determined in the best interest of Alaska to do so."

Phase 1 activities will be localized, and will be conducted in compliance with applicable requirements under the above authorities to ensure no significant effect on traditional methods and means of public access to and through the area. These activities will not include the disposal of municipal, state or federal lands.

E-3 Off-Road Access

Off-road access shall minimize surface disturbance and impacts to fragile soils and wetlands.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations.

Phase 1 activities will be on state lands and localized, and will be conducted in compliance with applicable requirements of the above authorities to minimize impacts to fragile soils and wetlands.

E-4 Siting, Construction, and Operation

Transportation, pipeline, and utility facilities and corridors shall be sited, designed, constructed, and operated, using the following standards:

a) adverse impacts to habitats, biological resources, coastal resource uses, recreation, socio-economic characteristics, and traditional subsistence and personal use activities shall be minimized;

b) to the extent feasible and prudent, transportation corridors and facilities shall be consolidated; and,

c) to the extent feasible and prudent, road, utility, and pipeline crossings of resident and anadromous fish streams shall be minimized and consolidated at a single location to reduce multiple impacts to an individual drainage.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, this policy duplicates, restates or incorporates by reference requirements set forth in 11 AAC 112.280.

Phase 1 activities will not involve transportation, pipeline or utility facilities or corridors.

F. Fisheries and Seafood Processing

F-1 Protection of Fisheries

Maintenance and enhancement of fisheries shall be given high priority in land use management plans and in reviewing or permitting any activities which may adversely impact important fisheries habitat, fish migration routes, or the recreational or commercial harvest of fish.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 95.010 provides for the protection of anadromous fish habitat. In addition, this policy duplicates, restates or incorporates by reference requirements set forth in 11 AAC 112.300, DNR's Bristol Bay Area Plan (2005), and AS 41.

For the past three years NDM has undertaken extensive, GIS-based studies of fish, fish habitat, and other aquatic resources on streams and lakes throughout the mine site area. It is expected these programs will continue for some period into the future. This area encompasses all of the Phase I activities. Thus, NDM will have a substantial data base for siting, design, construction and operation of the water appropriation structures. This will allow NDM to avoid and minimize adverse impacts on important fisheries habitat, fish migration routes, and recreational and commercial harvest of fish.

The Phase I surface water activities in the Unnamed Tributary (SK1.240) North Fork Koktuli River will consist of an approximately 2.5-mile diversion ditch and a surface runoff collection point. Neither of these structures will directly affect fish, or fish and other aquatic habitat.

Down gradient from the diversion ditch there will be an alteration of natural surface water flow in the Unnamed Tributary (NK1.190) presently estimated to be approximately 34 cfs on an annual basis. This is estimated to result in a reduction in surface water flow at the downstream U.S. Geological Service (USGS) station (NK100A) on the North Fork Koktuli of approximately 8 percent on an annual basis.

As surface water and groundwater baseline studies proceed, as well as the extensive fish, fish habit, and other aquatic habitat studies, information will be available to predict the effects of such a flow reduction on other resources. As necessary to meet state and other regulatory requirements to protect these other resources, this flow reduction will be mitigated. A mitigation example would be supplying water to the North Fork Koktuli from other sources (wells, pipeline, treated discharge from the tailings storage facility at Site G).

Before NDM can proceed to appropriate water, DNR must approve its water appropriation application. This process requires an analysis of the effects of such an appropriation on other resources dependent on water, particularly fish and fish habitat. Also, NDM's siting, design, construction and operation criteria and plans will have to be approved by DNR under its authorities governing the disturbance and reclamation of surface land in mining operations under 11 AAC 97.100 through 11 AAC 97.990, and by the COE and EPA under their 404(b)(1) guidelines which require avoiding, minimizing and mitigating significant adverse impacts on waters of the U.S., and the resources such as fish that are dependent on

them

Phase 1 activities will be conducted in compliance with applicable requirements under the above authorities to ensure no significant effects on important fisheries habitat, fish migration routes, or the recreational or commercial harvest of fish.

F-2 Development

Development shall incorporate appropriate designs and measures to mitigate significant adverse impacts to fisheries resources, recreational fishing, enhancement projects, subsistence or personal use fishing, or commercial fishing, in accordance with Policy A-2.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, this policy duplicates, restates or incorporates by reference requirements set forth in AS 46.15.080, and DNR authorities under AS 41.

Phase 1 activities will be conducted in compliance with applicable requirements under the above authorities to ensure appropriate incorporation of designs and measures to mitigate significant impacts on the cited resources. Policy A-2 above, incorporated by reference, also relates to mitigation of any loss of a coastal resource.

F-3 Disposal of Seafood Processing Wastes

Land-based and floating fish processors shall conduct their operations in compliance with all state and federal water quality regulations pertaining to discharge of effluent and disposal of seafood processing wastes. Processing effluent from new facilities or the modification of existing seafood processing facilities shall avoid the discharge of wastes into waters in areas:

a) which do not have circulation characteristics or biological assimilation capacity to accept these discharges without causing significant adverse impact on water quality or habitat productivity; and

b) which create an "attractive" nuisance situation (attract wildlife to waste disposal areas in a manner that creates a threat to fish and wildlife or human health and safety).

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, DEC regulates water quality and the discharge of water and wastewater under AS 46.30.010 through 46.30.130, AS 46.03.050 through 46.03.080, and 18 AAC 70.

Phase 1 activities will not involve any processing or disposal of seafood processing wastes.

G. Geophysical Hazard Areas

G-1 Design and Siting Criteria

Major projects (see Section 7.7) in known or suspected geophysical hazard areas (Map 1) shall incorporate appropriate geotechnical investigations and siting, design, construction, and operation measures to minimize property damage and impacts to the environment, and to protect against injury or loss of life. At a minimum, the geotechnical investigation shall evaluate pertinent geophysical hazards such as soils, erosion rates, vegetation and clearing options, setbacks from active erosion, and bluff stability.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies. For example, this policy duplicates, restates or incorporates by reference requirements set forth in 11 AAC 112.210.

In 11 AAC 112.990(15) natural hazards

(A) means the following natural processes or adverse conditions that present a threat to life or property in the coastal area: flooding, earthquakes, active faults, tsunamis, landslides, volcanoes, storm surges, ice formations, snow avalanches, erosion, and beach processes;

(B) Includes other natural processes or adverse conditions designated by the department or by a district in a district plan;

Phase I activities will not occur in an area subject to the natural hazards listed in 11 AAC 112.990, except flooding and earthquakes. No other natural processes or adverse conditions have been designated by the department or by a district plan in the vicinity of the Pebble Project.

Because Phase I activities are located in the extreme upper reaches of their watersheds, the water courses subject to flooding are very small. Proper siting, design, construction and operation of the Phase I surface water appropriation structures (diversion ditch, surface runoff collection point) will be easily effected with standard engineering practices to withstand flooding.

Like most of Alaska, the site of the Phase I activities will be subject to earthquakes. The Phase I surface water appropriation structure, however, will be small and, with standard engineering practices, will be unlikely to be affected by earthquakes.

Procedures for siting, design, construction and operation of the Phase I water appropriation structures to withstand flooding and earthquakes, as ultimately proposed by NDM, will be reviewed and approved by DNR under its authorities governing the disturbance and reclamation of surface land in mining operations under 11 AAC 97.100 through 11 AAC 97.990. Thus, Phase I activities will be sited, designed, constructed and operated under the requirements of the above authorities such that these two natural processes will not present a threat to life or property.

G-2 Coastal Processes

Development and resource extraction activities shall be sited and conducted to minimize accelerated coastal erosion or adverse impacts to coastal processes which could contribute to increased geophysical hazards.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, this policy duplicates, restates or incorporates by reference requirements set forth in 11 AAC 112.210.

Phase 1 activities will not involve resource extraction activities that would cause coastal erosion or adverse impacts to coastal processes which could contribute to increased geophysical hazards.

G-3 Stream Flooding

To the extent feasible and prudent, industrial and commercial developments shall not be sited within the annual floodplain or high water channels of streams. Where siting of development within this area is unavoidable, structures must be designed and constructed to meet minimum federal floodplain standards, to minimize property damage and impacts to the stream environment, and to protect against injury or loss of life.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, this policy duplicates, restates or incorporates by reference requirements set forth in 11 AAC 112.210.

The Phase I surface water activities in the Unnamed Tributary (NK1.190) North Fork Koktuli River will consist of an approximately 2.5-mile diversion ditch and a surface runoff collection point. The purpose of the diversion ditch is specifically to affect natural water flow by intercepting surface runoff and routing it around the open pit and other facilities to a surface water collection point. Thus, it will cross several very small upper headwater streams and their narrow floodplains. Because their purpose is specifically to divert and contain water, they will be designed and constructed to withstand floods and will therefore minimize risk of property damage, impacts to the stream environments, and will protect against injury and loss of life.

Also, procedures for siting, design, construction and operation of the Phase I water appropriation structures to withstand flooding, as ultimately proposed by NDM, will be reviewed and approved by DNR under its authorities governing the disturbance and reclamation of surface land in mining operations under 11 AAC 97.100 through 11 AAC 97.990.

G-4 Erosion

To the extent feasible and prudent, development activities shall retain existing vegetative cover in erosion-prone areas. In cases where development necessitates removal of vegetation, erosion shall be minimized through revegetation or by other appropriate erosion control measures.

NDM Evaluation: **This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.**

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations.

Phase 1 activities will be conducted in compliance with all applicable requirements under the above authorities to minimize surface disturbance and require revegetation and other appropriate erosion control measures.

G-5 Structural Erosion Control Measures

Structures and facilities adjacent to the shorelines of rivers, streams, lakes, or marine waters shall be sited, designed, and constructed to minimize the need for erosion control or stabilization measures and to minimize interference with natural shoreline processes. Borough subdivisions and State land disposals shall be designed to provide sufficient lot depth to minimize the need for shoreline stabilization measures to protect facilities or improvements.

NDM Evaluation: **This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.**

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations.

Phase 1 activities will not locate structures or facilities adjacent to the shorelines of rivers, streams, or lakes, nor involve any borough subdivisions or state land disposals.

H. Recreation

H-1 Protection of Recreation Values

Projects and activities on public lands and waters used for recreational activities, or on private lands and waters where the landowner has granted formal permission for recreational activities, shall be located, designed, constructed, and operated to minimize adverse impacts to recreation resources and activities, including access. To the extent feasible and prudent, activities which conflict with recreational uses shall be conducted in a manner which minimizes conflicts or provides alternative recreation opportunities or access.

NDM Evaluation: **This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.**

For example, this policy duplicates, restates or incorporates by reference requirements adopted within the DNR's Bristol Bay Area Plan (2005) and under various DNR land use regulations. For example, DNR is required by Alaska law to take protect recreational values when adjudicating an application for a water right and for determining whether the public interest will be adversely affected or impaired. 11 AAC 93.070. As part of that analysis, DNR must consider any effect "on public recreational opportunities" and "access to navigable or public water." AS 46.15.080.

Phase 1 activities will be conducted in compliance with all applicable requirements under the above authority that will minimize adverse impacts to recreation resources and activities, including measures to minimize impacts on access.

I. Archaeological and Historic Resources

I-1 Cultural and Historic Resource Areas

In consultation with the State Historic Preservation Office, assessment of potential impacts to cultural and historic resources, and the identification of appropriate mitigation, shall be the responsibility of the developer. The potential adverse impacts of development on known historic and archaeological values (state and federal historic resource registers) shall be evaluated early in project planning.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, AS 41.35.010 through 41.35.240 regulate development, excavation and other activities in areas of known historic and archaeological values, and historic, prehistoric and archaeological resources are addressed by 11 AAC 112.320. Section 106 of the National Historic Preservation Act, 16 USC 470 et seq. also regulate activities in these areas.

NDM has initiated a detailed archeological and cultural resources baseline study throughout the project area, including searches of state and federal historic registers. Substantial portions of the mine site area have been investigated to date, including those where exploration activities have been conducted. The State Historic Preservation Office (SHPO) has been involved throughout this study, and on an annual basis these investigations have been thoroughly documented in reports to the SHPO. Phase I activities will only occur in areas that have been previously investigated pursuant to the SHPO standards. Procedures approved by the SHPO will be in place to immediately stop activities and provide for investigation and mitigation of unexpected discoveries.

Based on archaeological studies conducted to date, there are no known historic or archaeological values that will be affected by Phase I activities.

I-2 Resource Protection

Uses and activities which may adversely affect cultural resource areas shall comply with the following standards:

a) where there is potential for undiscovered cultural or historic sites in a project area, a resource survey may be required by the State Historic Preservation Office prior to surface disturbance;

b) to the extent feasible and prudent, archaeological, prehistoric, and historic resources shall be protected from significant adverse impacts caused by surrounding uses and activities;

c) artifacts of significant historic, prehistoric, or archaeological importance shall not be disturbed during project development unless the State Historic Preservation Office and the surface and subsurface landowners, in consultation with the Lake and Peninsula Borough, approves the action; and,

d) if previously undiscovered artifacts or areas of historic, prehistoric, or archaeological importance are encountered during development, the State Historic Preservation Office, the surface and subsurface landowners, and the Lake and Peninsula Borough shall be notified and the site shall be protected from further disturbance pending evaluation by the State Historic Preservation Office.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, AS 41.35.010 through 41.35.240 regulate development, excavation and other activities in areas of known historic and archaeological values, and historic, prehistoric and archaeological resources are addressed by 11 AAC 112.320. Section 106 of the National Historic Preservation Act, 16 USC 470 et seq. also regulate activities in these areas. Phase I activities will only occur in areas that have been previously investigated pursuant to the SHPO standards. Procedures approved by the SHPO will be in place to immediately stop activities and provide for investigation and mitigation of unexpected discoveries.

Based on archaeological studies conducted to date, there are no known historic or archaeological values that will be affected by Phase I activities.

J. Energy Facilities

J-1 State Standards

The Lake and Peninsula Borough adopts the energy facility standards presented in ACMP regulation 6 AAC 80.070(b).

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, the state standards under 11 AAC 112.230 address energy facilities.

Phase 1 activities will not involve any energy facilities.

J-2 Oil and Gas Development

Prior to conducting activities associated with seismic surveys, exploration, or development of oil and gas resources, developers proposing activities (including support activities) that will be based within the Borough shall work with the Borough and representatives of affected communities to:

a) minimize adverse offshore and onshore impacts to coastal resources and uses; and

b) minimize interference with commercial fishing and subsistence activities

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance, including seismic surveys, and reclamation of surface land in mining operations.

Phase 1 activities will not include activities associated with seismic surveys, exploration, or development of oil and gas resources.

K. Material Extraction and Processing

K-1 Siting of Material Sources

To the extent feasible and prudent and environmentally responsible, sources of sand, gravel, rock and other construction materials shall be authorized in the following sequence:

a) existing approved gravel pits or quarries operated in compliance with state and federal authorizations;

b) reuse of material from abandoned development areas, unless reuse could cause more environmental damage than non-use;

c) new upland sites;

d) beaches of low habitat values

e) streams which do not provide fish habitat

f) portions of fish streams which do not provide spawning or overwintering habitat.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations, 11 AAC 112.260 addresses state standards for sand and gravel extraction and AS 41.14.840 through 41.14.900 and 11 AAC 112.300 provide for habitat protection in rivers, streams, and lakes, and regulate fishways and any development in these habitats.

Phase 1 activities will occur on state lands, and require minimal materials extraction for constructing a water diversion ditch and surface runoff collection point. These activities will be conducted in compliance with all applicable requirements under the above authorities that will minimize impacts from material extractions.

K-2 In-Stream Material Extraction

Extraction of sand and gravel from stream floodplains shall be located and conducted to avoid changes to channel hydraulics and the potential for channel diversion through the mining site.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations, and 11 AAC 112.260 addresses state standards for sand and gravel extraction.

Phase 1 activities will not specifically involve extraction of sand or gravel from stream floodplains. They will include, however, a diversion ditch and a surface runoff collection point. The purpose of the diversion ditch is specifically to intercept surface runoff and route it around the open pit and other facilities to a surface water collection point. Thus, the ditch will cross several very small upper headwater streams and their narrow floodplains. Construction of these structures will require removal of small quantities of material from these narrow floodplains.

Procedures for siting, design, construction and operation of the Phase I water appropriation structures will be reviewed and approved by DNR under its authorities governing the disturbance and reclamation of surface land in mining operations under 11 AAC 97.100 through 11 AAC 97.990.

K-3 Best Management Practices

In streams and their floodplains which provide habitat for anadromous fish, the following practices shall be incorporated into the siting, design, and operation of mining activities:

a) clearing of riparian vegetation and disturbance of natural banks shall be minimized;

b) to the extent feasible and prudent, mining site configurations shall be shaped to blend with physical features and surroundings to provide for diverse riparian and aquatic habitats;

c) gravel washing operations which discharge effluent to streams shall use settling ponds and recycle treatment waters, as necessary, to comply with state and federal water quality regulations. Settling ponds shall be adequately diked or set-back from active channels to avoid breaching by a 25-year frequency flood. Wash water shall be recycled and the effluent discharge shall comply with state and federal water quality regulations. Effective use of recycled water shall minimize water withdrawal and subsequent discharge of effluent to adjacent lands or waters; and

d) equipment storage and operation shall be conducted in a manner that does not release fuel and lubricants into the environment.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations, and 11 AAC 95.010 provides for the protection of anadromous fish habitat. AS 41.14.870, AS 41.14.840, and 11 AAC 112.300 provide for habitat protection in, among other places, wetlands, rivers, streams, and lakes, and other important habitats. Habitat protection is also governed by regulations of DNR's OPMP, OHMP and Oil & Gas. The placement of dredged or fill material in important habitats is regulated by the COE, EPA and the DEC (30 CFR 325, § 404, EPA § 404(b)(1) guidelines to 40 CFR 250 and AS 41).

Phase 1 activities will be conducted in compliance with all applicable requirements under the above authorities to ensure siting, design, and operation of mining activities employ best management practices.

K-4 Mining In Fish Habitat

Sand and gravel shall not be removed from locations which have been documented to provide spawning or over-wintering habitat for fish.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations; 11 AAC 112.260 addresses state standards for sand and gravel extraction; AS 41.14.840 through 41.14.900 and 11 AAC 112.300 provide for habitat protection in rivers, streams, and lakes, and regulate fishways and any development in these habitats; and 11 AAC 95.010 provides for the protection of anadromous fish habitat. It also duplicates authorities in AAC 112.300 and AS 41.

Phase 1 activities will not remove sand and gravel from locations which have been documented to provide spawning or over-wintering habitat for fish.

K-5 Overburden Disposal

Whenever feasible and prudent, overburden in upland areas shall be saved and replaced on the disturbed area to conform to the natural topography as part of the reclamation process. Overburden shall not be disposed of in lakes, within the mean annual floodplain of streams, in wetlands, or below the limit of mean high water in intertidal areas and estuaries.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations.

Phase 1 activities will not generate overburden.

K-6 Reclamation and Restoration

Reclamation of all upland and floodplain mined sites shall be required unless such reclamation would cause greater adverse impact to the environment than leaving the area unreclaimed. At a minimum, reclamation shall include the following elements, as applicable:

a) Topsoil and overburden shall be segregated and stored separately above the 25-year floodplain of watercourses.

b) At the end of each mining season, all disturbed areas shall be regraded to stable slopes. Within mean annual floodplains, regrading to ground contours which will not entrap fish nor significantly alter stream hydraulics shall occur at the end of each operating season. Tailings used in the construction of settling ponds and other essential facilities may be retained in place until completion of their use.

c) At the completion of mining activities or gravel extraction, all disturbed areas shall be stabilized and re-vegetated, as appropriate. Restoration shall include the following:

(1) all disturbed areas shall be graded to stable slopes that blend with the natural topography;

(2) erosion control measures shall be implemented as appropriate to stabilize the site;

(3) areas designated for re-vegetation shall be covered with topsoil to encourage establishment of native plant species; and

(4) where material sites which are excavated below groundwater may have value as habitat for waterfowl or fish, DF&G shall be consulted prior to final design of the excavation area.

Excluded from these requirements is the portion of a gravel extraction site required to provide materials for continuing maintenance and operation. Maintenance sand and gravel sites shall comply with the requirements of part b) of this policy.

NDM Evaluation: This policy duplicates, restates or incorporates by reference statutes or administrative regulations adopted by state or federal agencies.

For example, 11 AAC 97.100 through 11 AAC 97.990 govern the disturbance and reclamation of surface land in mining operations.

Phase 1 activities will not involve mining in uplands or floodplains.