

**RECORD OF DECISION
FOR APPLICATION SUBMITTED BY PEBBLE LIMITED PARTNERSHIP
TO:**

**THE UNITED STATES ARMY CORPS OF ENGINEERS
(DEPARTMENT OF THE ARMY PERMIT # POA-2017-00271)**

NOVEMBER 20, 2020

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LIST OF ATTACHMENTS

Attachment A	Pebble Project Department of the Army Application for Permit, POA-2017-00271, Dated June 8, 2020
Attachment B	USACE’s Supporting Analyses

LIST OF ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
ADF&G	Alaska Department of Fish and Game
ANILCA	Alaska National Interest Lands Conservation Act
AMNWR	Alaska Marine National Wildlife Refuge
ARNI	Aquatic resources of national importance
BBAP	Bristol Bay Area Plan
BMPs	Best Management Practices
BO	Biological Opinion
BIA	Bureau of Indian Affairs
BSEE	Bureau of Safety and Environmental Enforcement
CFR	Code of Federal Regulations
CWA	Clean Water Act
DA	Department of the Army
DEIS	Draft Environmental Impact Statement
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FMP	Fishery Management Plan
HTL	High Tide Line
LEDPA	least environmentally damaging practicable alternative
ML	metal leaching
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPS	National Park Service
NWUS	navigable waters of the U.S.
PA	Programmatic Agreement
PAG	potentially acid generating
PIR	public interest review
PLP	Pebble Limited Partnership
ROD	Record of Decision

SHPO	State Historic Preservation Officer
RHA	Rivers and Harbors Act
SOCs	Statements of Concern
TSF	tailings storage facility
TES	threatened and endangered species
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WMP	water management pond
WOUS	waters of the U.S.

1.0 INTRODUCTION

This document constitutes the Record of Decision (ROD) of the United States (U.S.) Department of the Army (DA) Corps of Engineers (USACE) for an application submitted by Pebble Limited Partnership (PLP, Applicant, or Permittee) for authorization of the proposed Pebble Project (project) under the agency's authority.

This ROD records USACE's decision under their authority, utilizing information and analysis contained in the July 2020 Final Environmental Impact Statement (FEIS), submissions from PLP, and input from the public and cooperating agencies.

1.1 BACKGROUND

In December 2017, the USACE – Alaska District, received a DA permit application from PLP requesting authorization to discharge fill material into waters of the U.S. (WOUS) and for work in and the placement of structures in navigable waters of the U.S. (NWUS) for the purpose of developing a copper-gold-molybdenum porphyry deposit (Pebble deposit). The proposed mine site and a majority of the supporting infrastructure would be located in the Lake and Peninsula Borough with the remainder of supporting infrastructure located in the Kenai Peninsula Borough.

USACE, as the lead federal agency under the National Environmental Policy Act (NEPA), determined that preparation of an Environmental Impact Statement (EIS) was necessary to inform the permit decisions on the project. A Notice of Intent to prepare an EIS and a Notice of Scoping for the Pebble Project was published in the Federal Register on March 29, 2018 (83 Federal Register 13483; pages 13,483-13,484). The United States Coast Guard (USCG), the Bureau of Safety and Environmental Enforcement (BSEE), the Advisory Council on Historic Preservation (ACHP), the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (EPA), the U.S. Department of Interior National Park Service (NPS), the Pipeline and Hazardous Materials Safety Administration, the State of Alaska, the Lake and Peninsula Borough, the Curyung Tribal Council, and the Nondalton Tribal Council served as cooperating agencies for the development of the EIS. This group will be referred to as the cooperating agency team.

USACE and the cooperating agency team developed a Draft Environmental Impact Statement (DEIS) which was released for public comment in March 2019. USACE also published a public notice soliciting comment on the DA permit application at that time. The public comment period for both the DEIS and USACE public notice was from March 1, 2019 to July 1, 2019. All comments received during the comment period were compiled into Statements of Concern (SOCs) and responded to in the FEIS (see FEIS Appendix D).

In December 2019 and again in June 2020, PLP prepared updated DA permit applications with revisions and refinements to the project design and footprint based on comments received during the DEIS review period and PLP's independent efforts to further minimize proposed impacts. No changes to the project were made that resulted in significant new circumstances or information related to environmental concerns, and after evaluation of the changes, the USACE determined a Supplemental DEIS was not warranted.

USACE and the cooperating agency team prepared a preliminary final EIS in February 2020 and worked with cooperating agencies to produce the FEIS. A Notice of Availability for the FEIS was published in the Federal Register on July 24, 2020.

1.2 AUTHORITIES

The USACE as the lead federal agency, in coordination with the cooperating agency team, prepared a single EIS that includes an adequate level of detail and a reasonable range of alternatives sufficient to inform decisions by the federal agencies with review or authorization authorities.

Additional supporting documents pertinent to this ROD are included as Attachments A and B.

1.2.1 USACE's Authority

The Applicant proposes to discharge fill material into WOUS, including wetlands, and to construct structures in and under NWUS, both activities that require authorization from the USACE. The Pebble Project Department of the Army Application for Permit POA-2017-00271 is included in Attachment A.

This permit action is being reviewed under the authority delegated to the District Engineer by 33 Code of Federal Regulations (CFR) 325.8, pursuant to Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 U.S. Code (USC) 403) to regulate all work or structures in or affecting the course, condition, location, or capacity of navigable waters, and Section 404 of the Clean Water Act (CWA) (33 USC 1344) to regulate the discharge of dredged or fill material into WOUS.

DA authorization is required for the proposed permanent and temporary discharges of dredged or fill material associated with the construction of the mine and associated roads, port, concentrate pipelines, and natural gas pipeline in wetlands and other WOUS under Section 404 of the CWA. DA authorization is also required for the work and structures associated with construction of the port facilities, lightering location and the natural gas pipeline in NWUS under Section 10 of the RHA of 1899. This includes: Direct and indirect impacts caused by discharges into aquatic resources at the mine site totaling 2,825 acres of wetlands, 132.5 acres of open waters, and 129.5 miles of streams. Direct and indirect impacts associated with the transportation corridor and port site total 460 acres of wetlands, 231.7 acres of open waters, and 55.5 miles of streams.

The USACE has reviewed and evaluated the information in the Pebble Project FEIS, including all supplemental data subsequently provided, and found it appropriate for the purposes of the USACE public interest review (PIR) (33 CFR 320.4(b)(4)) and CWA analysis required by 40 CFR 230.10.

2.0 SUMMARY OF DECISION

2.1 USACE'S DECISION SUMMARY

USACE evaluated the application as documented in this ROD and determined that the proposed discharge does not comply with the 404 (b)(1) Guidelines. In addition, the proposed project is contrary to the public interest.

3.0 PROPOSED PROJECT

3.1 PROJECT DESCRIPTION

PLP is proposing to develop the Pebble copper-gold-molybdenum porphyry deposit as a surface mine in southwest Alaska. The closest communities are the villages of Iliamna, Newhalen, and Nondalton, each approximately 17 miles from the deposit.

The project consists of four primary elements: the mine site, the Diamond Point port, the transportation corridor including concentrate and water return pipelines, and the natural gas pipeline and fiber optic cable. These project components are described in the Pebble Project Department of the Army Application for Permit POA-2017-00271 dated June 8, 2020 and are summarized below. The application form is included in Attachment A. The drawings and complete project description which accompanied the application are available in the administrative record.

3.1.1 Mine Site

The project is proposed to be a conventional drill, blast, truck, and shovel operation with a mining rate of up to 73 million tons per year. Approximately 1,300 million tons of mineralized rock and 150 million tons of waste rock and overburden would be mined over the life of the project. The mineralized material would be crushed and sent to a coarse ore stockpile to feed the process plant. The process plant would include grinding and flotation steps, with a processing rate of up to 66 million tons per year, to produce on average 613,000 tons of copper-gold concentrate and 15,000 tons of molybdenum concentrate annually.

The fully developed mine site would include an open pit, bulk tailings storage facility (TSF), pyritic TSF, a 270-megawatt power plant, water management ponds (WMPs), water treatment plants (WTPs), and milling/processing facilities as well as supporting infrastructure. Only non-potentially acid generating (non-PAG) and non-metal leaching (non-ML) waste rock would be used in the construction of infrastructure needed to support the mine. In addition to waste rock, a total of three quarries (material sites) would also be needed.

Bulk tailings would be placed in the bulk TSF, while pyritic tailings would be placed in the lined pyritic TSF. Potentially acid generating (PAG) and metal leaching (ML) waste rock would be stored in the lined pyritic TSF until closure, when it would be back-hauled into the open pit. The bulk TSF would have two embankments: the main embankment, constructed using the centerline construction method; and the south embankment, constructed using the downstream construction method to facilitate lining of the upstream face. The pyritic TSF would be fully lined and would have three embankments constructed using the downstream method of construction.

Soils and other overburden would be stored in stockpile areas located at various locations throughout the site. Stockpiled soils and other overburden would be used for reclamation during mine closure. The site of the proposed mine is currently undeveloped, and not served by any transportation or utility infrastructure.

Development of the proposed mine site would result in the permanent loss of 2,113 acres of wetlands and open waters and 99.7 miles of streams; temporary impacts to less than 1 acre of wetlands of open waters and less than 0.1 miles of streams; and indirect impacts from dewatering, fragmentation, and dust to 845 acres of wetlands and open water and 29.9 miles of streams.

PLP would manage water flows through the project area, while providing a water supply for operations. PLP would capture runoff water contacting the facilities at the mine site and water pumped from the open pit; and either reuse the water in the milling process or treat the water before releasing it.

The open pit area would be dewatered through groundwater withdrawal from approximately 30 groundwater wells installed around the open pit perimeter. As the pit is deepened, dewatering would continue in-pit ditches, in-pit wells, and/or perimeter wells. The water level in the open pit would continue to be managed via pumping of groundwater wells and transfer to the open pit WMP.

At the end of operations, mine facilities would be closed and reclaimed. Reclamation and closure of the project would fall under the jurisdiction of Alaska Department of Natural Resources, Division of Mining, Land, and Water; and the Alaska Department of Environmental Conservation. The Alaska Reclamation Act (Alaska Statute 27.19) is administered by the Alaska Department of Natural Resources; it applies to state, federal, municipal, and private land and water subject to mining operations. PLP has prepared a Reclamation and Closure Plan providing guidelines for implementing stabilization and reclamation procedures for the various facilities associated with the project (see FEIS Appendix M4.0). Revisions to the plan may be necessary to address changes during preliminary and detailed design work and state permitting.

3.1.2 Transportation Corridor

The transportation corridor would connect the mine site to a port site located north of Diamond Point in Iliamna Bay (Diamond Point Port), and would consist of an access road (referred to as the North Access Road in the FEIS) with associated drainage and water crossing structures and concentrate and return water pipelines.

Access Road

The access road would extend 82 miles from the causeway at the port site to the mine site and would have a 30-foot-wide top width to enable two-way traffic and support development and operational activities. The first portion of the road would parallel, or in places replace, the existing road from Williamsport to Pile Bay. From Pile Bay the road route would head north and then turn west along the north side of Iliamna Lake to the mine site. A short access road would connect to the existing Pedro Bay airstrip. Up to 35 truck trips per day would occur between the mine site and the port site and would operate year-round.

Clearing limits and construction workspace for the transportation corridor would be limited to no more than 30 feet on either side of the permanent impact footprint for areas above the High Tide Line (HTL). Construction workspace for the transportation corridor below the HTL would be limited to no more than 5 feet, excluding the use of barges or other marine equipment required during construction. However, a 30-foot buffer was applied in calculating impacts to account for temporary sedimentation effects associated with construction. Only clean select fill and armor rock would be used for construction below the HTL to minimize sedimentation. A minimum of five intertidal equalization culverts, with a minimum diameter of 6 feet, would be placed in the intertidal zone. Clearing limits and construction workspace for the temporary roads to water extraction and material sites would be limited to no more than 10 feet on either side of the fill.

Material sites and water extraction sites would be required to support construction and operation of the transportation corridor.

Stream crossings have been categorized based on stream width and fish presence to simplify stream crossing selection around a series of standardized conceptual culvert design categories. Culverts at streams with fish would be designed to meet USFWS's guidelines in *Culvert Design Guidelines for Ecological Function, U.S. Fish and Wildlife Service Alaska Fish Passage Program, Revision 5, February 5th, 2020*. Larger streams and rivers fall under a bridge category for which site-specific designs have been developed. The transportation corridor would cross two

waterbodies, the Newhalen River and Iliamna River, which are considered navigable by the USCG under 33 CFR Part 114-118.

Concentrate and Water Return Pipelines

A 6.25-inch concentrate pipeline and 8-inch water return pipeline would be buried in or adjacent to the road shoulder in a single trench along with a 12-inch natural gas pipeline and fiber optic cable (described below). Both pipelines would be steel with HDPE liners. Pump stations for the concentrate line would be located at the mine site and along the road near Knutson Bay. The return water pipeline would have a single pump station located at the port facility. At bridged crossings the pipelines would be attached to the bridges, otherwise trenching or horizontal directional drilling would be used to cross streams.

Construction of the transportation corridor would result in the permanent loss of 63 acres of wetlands and open waters and 5.7 miles of streams; temporary impacts to 36.1 acres of wetlands and open waters and 3.9 miles of streams; and indirect impacts from dewatering, fragmentation, and dust to 619.3 acres of wetlands and open water and 48.6 miles of streams. PLP has prepared a restoration plan outlining short-term and long-term restoration objectives for restoring temporarily impacted areas to a condition that resembles the pre-construction condition or that of adjacent lands undisturbed by the project (see FEIS Appendix M3.0).

The road system would be retained as long as required for the transport of bulk supplies needed for long-term post-closure water treatment and monitoring. Once no longer needed, the alignment would be recontoured if required, stabilized, and overburden would be placed as appropriate. The concentrate and return water pipelines would be pigged and cleaned before being abandoned in place. Surface facilities associated with the pipelines would be removed and reclaimed.

3.1.3 Diamond Point Port

The project includes construction of Diamond Point port, a year-round port on the shore of Iliamna Bay north of Diamond Point. The port would include shore-based facilities to receive and store shipping containers and fuel, as well as concentrate dewatering facilities to dewater the concentrate pumped through the pipeline from the mine site, a bulk concentrate storage building, a pump station for the water return pipeline, a conveyor system for loading concentrate lightering barges, power generation equipment, maintenance facilities, employee accommodations, a wastewater treatment facility for the camp, and offices.

The shore-based facilities would be connected to the marine facilities by an approximately 1.5-mile road, conveyor system and 8-inch fuel pipeline. Marine facilities would include a causeway extending out to a marine jetty located in an 18-foot-deep dredge basin. A dredge access channel would lead to deep water. The jetty would be constructed along the northern and western limits and consist of 160-foot by 120-foot concrete caissons up to 58 feet high that would be separated by 60 feet to allow for the free flow of sediment and water, and free passage of fish. The causeway would also be constructed using concrete caissons (60 feet by 60 feet) to support a concrete deck. Fuel and freight barges would be moored to the jetty for loading and unloading. Fuel would be pumped to the storage tanks located at the shore-based facility through the 8-inch pipeline. A concentrate conveyor would be located on the causeway and jetty deck. In addition to the jetty, a series of three caissons (60-foot by 60-foot) would be placed within the dredged basin to provide mooring and loading for the concentrate lightering barges. A gantry would support an enclosed conveyor from the jetty to a barge loader mounted on the caissons. The causeway would also be constructed using concrete caissons (60-foot by 60-foot) to support a concrete deck.

The dredged channel and turning basin would be dredged to 18 feet below Mean Lower Low Water to provide access to the jetty under all tidal conditions and allow for sedimentation between

maintenance dredging intervals. The channel would be approximately 1.2 miles in length and 300 feet wide (3 times the maximum expected barge width). Sediments are expected to be composed of greater than 70 percent fines, with the remainder consisting of sand and gravel. Dredge slopes of 4H:1V are proposed to address sediment stability and the potential for seismic induced slumping.

The total volume of dredged material for the initial dredging is estimated at 1,100,000 cubic yards. Maintenance dredging (estimated at 20 inches every 5 years) is expected to total 700,000 cubic yards over twenty years (four times). Maintenance dredging would be completed during the early summer months. Dredging would be accomplished using a barge mounted cutterhead suction dredge. Dredged material would either be pumped directly to shore from the dredge barge or placed into a small barge (200 feet by 40 feet) and hauled to shore. The dredged material would be placed into two bermed stockpiles located in uplands adjacent to the port facility. Only clean dredged material would be placed into the stockpiles. Consolidation and runoff water would be channeled into a sediment pond and suspended sediments would be allowed to settle before discharge to Iliamna Bay.

To prepare for caisson placement, the basin footprint under the caissons would be excavated and leveled to a depth of approximately 5 feet below the dredged basin or seabed using a barge mounted excavator. Once the footprint is prepared, caissons would be floated into place with a tugboat at high tide and then seated on the prepared seabed on the falling tide or slowly lowered by pumping water into the caisson. Cranes may be used to place caissons in shallower water. Once set in place, the caissons would be filled with coarse material from the dredging and additional quarried material of a size that would achieve proper compaction when filled to avoid settlement over time. The additional fill material would be sourced from onshore material sites. Fill would be transported from shore to the caissons using a barge. Construction workspace for the port facility below the HTL would be limited to no more than 30 feet.

Barges would transport concentrate from Diamond Point out to Handysize bulk carriers at a lightering location in Iniskin Bay. Installation of the lightering station would require the placement of anchors for mooring bulk carriers. The spread anchor mooring system would be in approximately 50 feet to 70 feet of water, would be approximately 2,300 by 1,700 feet in size, and would consist of 10 anchors and 6 mooring buoys. Each leg of the anchor chain would be approximately 500 feet in length and consist of 2-inch chain. A positioning anchor would be set on the seafloor with only enough slack in the chain to allow the buoy to move closer to the main anchor and minimize sagging of the main anchor chain. The large mass anchors are rock and concrete filled 40 feet by 8 feet by 8 feet shipping containers that are lowered to the seabed. The work would be performed from a barge with support tugs and a supply vessel. Placement of the mass anchors onto the seafloor is not expected to require modification of the bottom surface.

Up to 27 Handysize ships (i.e., bulk cargo ships) would be required annually to transport concentrate. Up to 33 marine linehaul barge loads of supplies and consumables would be required annually. Two ice-breaking tugboats would be used to assist the Handysize ships and barges.

Construction of the Diamond Point port would result in the permanent loss of 4 acres of wetlands and marine waters and less than 0.1 miles of streams; temporary impacts to 88 acres of wetlands and marine waters and 0.1 miles of streams; and indirect impacts to less than 1 acre of wetlands and 0.4 miles of streams.

At the end of operations, the port facilities would be removed, except for those required to support shallow draft tug and barge access to the dock for the transfer of bulk supplies. The applicant proposes to remove and reclaim the port facilities after closure activities are completed.

3.1.4 Natural Gas Pipeline

Natural gas would be the primary energy source for the project. The steel natural gas pipeline would be 12 inches in diameter, with a maximum outer diameter of 12.75 inches for the sections constructed with heavy wall pipe and would be designed to provide a gross flow rate of 50 million standard cubic feet per day. A fiber optic cable would be ploughed in, or buried in a shallow trench, adjacent to the pipeline. The maximum diameter of the fiber optical cable will be 2 inches.

The pipeline would connect to the existing natural gas pipeline infrastructure near Anchor Point on the Kenai Peninsula. A metering station would be constructed at the offtake point that connects to a compressor station on the east side of the Sterling Highway. The pipeline and fiber-optic cable corridor from the Kenai Peninsula to the mine site would total 164 miles.

The compressor station would feed a subsea pipeline that would be constructed using heavy wall steel pipe designed to have negative buoyancy and provide erosion protection. Horizontal directional drilling would be used to install the pipeline from the compressor station out into waters that are deep enough to avoid navigation hazards. From this point, the heavy wall pipe would be trenched into the seafloor for the 78-mile crossing of Cook Inlet. To provide for on-bottom stability and pipe protection the entire alignment would be backfilled after pipe installation. Material not naturally backfilled by tidal processes would be replaced using an extended reach backhoe or clamshell dredge. The pipeline would come ashore in a trench at Ursus Cove, then cross the Ursus Peninsula to Cottonwood Bay. The pipeline would be buried in a trench across the tidal flats and shallow waters of Cottonwood Bay and then head north into Iliamna Bay around Diamond Point before joining the road corridor where the port causeway comes ashore.

The marine portion of the pipeline would cross two identified fiber optic telecommunications cables, both of which belong to General Communications Incorporated. A detailed survey of the crossing would be completed prior to construction and a crossing plan would be developed in agreement with the cable owners and the required minimum vertical separation of 12 inches between the pipeline and cable would be maintained.

At the port, natural gas would be fed to the port site power station and used for site heating. From there the gas pipeline would follow the transportation corridor to the mine site. At bridged crossings the pipeline would be attached to the bridges, otherwise the pipeline would utilize trenching or horizontal directional drilling to cross streams.

The natural gas pipeline would cross three waterbodies considered navigable by USACE or USCG: Cook Inlet, Newhalen River, and Iliamna River. Cook Inlet is a NWOUS under Section 10 of the RHA which is administered by USACE. The USCG considers the Newhalen and Iliamna rivers navigable under 33 CFR Part 114-118. Construction of the natural gas pipeline and fiber optic cable would result in temporary impacts to 644 acres of wetlands and other waters and 2.2 miles of streams; and indirect impacts to 6 acres of wetlands and marine waters and 0.8 mile of streams. The portion of the pipeline ROW along the seabed of the outer continental shelf of Cook Inlet is approximately 200-foot-wide by 80-miles-long and requires BSEE authorization. Permanent impacts associated with construction of the natural gas pipeline in the shoulder of the access road are discussed above under the transportation corridor.

The natural gas pipeline would be maintained through operations to provide energy to the project site. If no longer required at closure, the pipeline would be pigged and cleaned; and either abandoned in place or removed, subject to state and federal regulatory review and approval at the decommissioning stage of the project. Surface utilities associated with the pipeline would be removed and reclaimed.

3.2 PROJECT DESIGN REVISIONS

Table 5-3 of the FEIS summarizes changes made by the Applicant to the proposed project after USACE's January 5, 2018, Public Notice was issued (DA Application for Permit POA-2017-00271). The Table summarizes enhancements PLP committed to during the FEIS development process. These changes were introduced as a result of agency and/or public comments received during the scoping and DEIS comment periods, as a result of the analyses presented in the DEIS, or as a result of ongoing optimizations of the project by the Applicant to further reduce environmental impacts and improve project safety. No changes to the project were made that resulted in significant new circumstances or information related to environmental concerns, and after evaluation of the changes, the USACE determined a Supplemental DEIS was not warranted. The Applicant's final DA Application, updated in June 2020, to incorporate additional measures to reflect USACE's LEDPA determination (see Section 4.3 below), is incorporated in Attachment A of this ROD.

3.3 PROJECT PURPOSE AND NEED

Applicant's Stated Purpose and Need—PLP's stated purpose is to produce commodities, including copper, gold, and molybdenum, from the Pebble deposit in a manner that is commercially viable, using proven technologies that are suitable for the project's remote location. This purpose addresses PLP's stated need "to meet the increasing global demand for commodities such as copper, gold, and molybdenum." According to the Applicant, because the area the Applicant has leased for mineral development is not served by existing infrastructure, achieving the project purpose requires the construction of facilities for the mining and processing of mineral-bearing rock, as well as construction of support and access infrastructure. The stated purpose of the natural gas pipeline from the Kenai Peninsula is to provide a long-term stable supply of natural gas to meet the energy needs of the project by connecting to the existing regional gas supply network.

USACE's Determination of Basic Project Purpose—The USACE has determined that the basic project purpose (40 CFR 230.10(a)(3)) is to mine mineral ore. The mining does not require access to or proximity to or siting within a special aquatic site to fulfill its basic project purpose, and therefore is not a water dependent activity. Consistent with the 404(b)(1) Guidelines at 40 CFR 230.10(a)(3) if the proposed activity is not water dependent, practicable alternatives not involving special aquatic sites are presumed to be available unless the applicant clearly demonstrates otherwise. Alternatives are discussed below in Section 4.0.

USACE's Determination of Overall Project Purpose—The USACE has determined that the overall project purpose is to develop and operate a copper, gold, and molybdenum mine in Alaska in order to meet current and future demand.

3.4 SCOPE OF ANALYSIS

Scope of Analysis for USACE's Jurisdiction—The USACE's scope of analysis involves determining the federal action area by evaluating those direct and indirect project impacts which are subject to control under the USACE's authorities. The extent of cumulative federal control and responsibility is sufficient to make this project a federal action for the purposes of analysis under NEPA, in accordance with USACE regulations. In that regard, the NEPA analysis included impacts caused by activities not resulting in the dredge or fill of WOUS (and thus not under the authority of USACE), such as those caused by operation and reclamation.

The USACE's scope of analysis begins with its jurisdiction under Section 404 of the CWA (33 USC 1344) and Section 10 of the RHA (33 USC 403). The substantive evaluation requirements

of the CWA are outlined in Guidelines developed by the Administrator of the EPA in conjunction with the Secretary of the Army and published in 40 CFR Part 230. The fundamental precept of the 404(b)(1) Guidelines, which are binding regulations, is that discharges of dredged or fill material into WOUS, including wetlands, should not occur unless it can be demonstrated that such discharges, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem. The 404(b)(1) Guidelines state that only the Least Environmentally Damaging Practicable Alternative (LEDPA) can be permitted. Additional evaluation requirements are contained in USACE's public interest review (33 CFR Part 320.4) and NEPA. Under USACE's public interest review, USACE will evaluate the probable impact of the proposed project may have on the public interest through a careful weighing and balance of all factors which become relevant in each particular project.

Section 10 of the RHA of 1899 applies to the construction of any structure in, under, or over any NWUS, the excavating from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters. The evaluation criteria for this authority is the USACE's PIR and NEPA.

Project activities subject to Section 404 and Section 10 jurisdictions are described above in Section 1.2.1. See Attachment B of this ROD for USACE's supporting analyses and documentation used to inform its permit decisions in this ROD.

Scope of Analysis for National Historic Preservation Act—Section 106 of the National Historic Preservation Act (NHPA) requires each federal agency, prior to any federal or federally assisted or funded undertaking, to take into account the effect of its proposed undertaking on any property included in or eligible for inclusion in the National Register of Historic Places (hereafter called historic properties). The USACE also applies regulations entitled "Procedures for the Protection of Historic Properties" found at 33 CFR 325, Appendix C that the USACE has developed for Section 106 compliance for the USACE regulatory program.

The Pebble Project's Area of Potential Effect (APE) has been established, per 36 CFR 800.4(a)(1), to encompass direct and indirect effects on historic properties for the project. The APE is defined in Attachment B of the Programmatic Agreement (Appendix L of the FEIS). The USACE has also defined the Permit Area for the Pebble Project as the project footprint which includes the WOUS and uplands areas directly affected as a result of authorizing the work or structures per 33 CFR Part 325, Appendix C(1)(g).

USACE initiated consultation under Section 106 of the NHPA and consulted with the ACHP, the State of Alaska State Historic Preservation Officer (SHPO) and other consulting parties however, due to the decision outlined in this ROD, consultation was not completed, as finishing consultation is not required for activities which are ultimately not permitted.

More information on the PA process can be found in the FEIS (Section 3.7 and Section 4.7, Cultural Resources, and Chapter 6, Consultation and Coordination). Section 106 consultation is further discussed in Attachment B4 of this ROD.

Scope of Analysis for Endangered Species Act of 1973—Section 7 of the Endangered Species Act (ESA) requires federal agencies to, in consultation with the USFWS and the National Marine Fisheries Service (NMFS) (collectively, the Services), ensure that actions funded, authorized, or carried out by federal agencies do not jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat.

The determined scope for ESA is the Action Area, which means all areas to be affected directly or indirectly by the federal action, and not merely the area that falls directly under the USACE's regulatory jurisdiction. The Action Area may be larger than the scope for NEPA. The project's

Action Area includes the proposed mine and transportation corridor, a portion of lower Cook Inlet waters, and marine areas crossed by marine transport vessels. The latter includes the concentrate bulk carriers, traveling from Cook Inlet through Shelikof Strait and the Aleutian Islands, and marine line haul barges traveling between Cook Inlet to West Coast ports following either an offshore route through the Gulf of Alaska or a coastal route along Southeast Alaska. The geographic extent of the Action Area includes those areas in which project activities would have the potential to affect threatened or endangered species and their critical habitats directly or indirectly. Some activities directly impact habitat (such as placement of fill and dredging) and others the acoustical environment (noise generated by operating vessels), or both. Project activities in the lower Cook Inlet and their proposed impacts zones used to determine the geographic extent of the Action Area in the lower Cook Inlet are summarized in the project Biological Assessments; one for species managed by USFWS (May 21, 2020) and the other for species managed by NMFS (September 3, 2020).

The USACE, as the lead federal agency, has determined that the Pebble Project may have the potential to impact threatened or endangered species protected under the ESA; therefore, the USACE engaged the Services in dialogue prior to initiating formal consultation, which began on May 21, 2020 with the USFWS and on September 3, 2020 with NMFS; however, due to the decision outlined in this ROD, formal consultation was not completed, as finishing formal consultation is not required for activities which are ultimately not permitted.

More information on the Section 7 consultation process can be found in the FEIS (Section 4.25, Threatened and Endangered Species, and Chapter 6, Consultation and Coordination). ESA Section 7 consultation is further discussed in Attachment B4 of this ROD.

Scope of Analysis for Magnuson-Stevens Fishery Conservation and Management Act— Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with the NMFS on any action authorized, funded, or undertaken by agencies that may adversely affect Essential Fish Habitat (EFH) for species regulated under a federal Fishery Management Plan (FMP). The project is within areas designated as EFH for three FMPs: Salmon Fisheries in the Economic Exclusion Zone off the Coast of Alaska (Salmon FMP), Fishery Management Plan for Groundfish off the Gulf of Alaska (Groundfish FMP), and the Fishery Management Plan for the Scallop Fishery off Alaska (Scallop FMP).

For any federal action that may adversely affect EFH, federal agencies must provide NMFS with a written assessment of the effects of that action on EFH (50 CFR 600.920 (e)(1)). An EFH Assessment was developed for the project and is included as Appendix I of the FEIS. PLP's proposed actions requiring consultation pursuant to section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act include those that would be authorized, or proposed to be authorized, by USACE, BSEE, and USCG that may adversely affect EFH. These are detailed in Section 3 of the EFH Assessment.

More information on the EFH consultation process can be found in the FEIS (Section 4.24, Fish Values, and Chapter 6, Consultation and Coordination). EFH consultation and NMFS's conservation recommendations are further discussed in Attachment B4 of this ROD.

4.0 ALTERNATIVES

4.1 ALTERNATIVES CONSIDERED AND CARRIED FORWARD FOR DETAILED ANALYSIS

As described in Chapter 2 of the FEIS, the USACE completed a rigorous and comprehensive process to identify and evaluate alternatives to the project as proposed by PLP. After careful study, the five alternatives summarized below were evaluated in the FEIS. Variations to components of the project that do not comprise a complete alternative are analyzed as variants under action alternatives. Table 2-2 in Chapter 2 of the FEIS summarizes the primary differences between the action alternatives and the variants evaluated under each alternative.

No Action Alternative—The No Action Alternative would result in federal agencies with decision-making authorities on the project not issuing permits under their respective authorities. The Applicant's Preferred Alternative would not be undertaken, and no construction, operations, or closure activities specific to the alternative would occur. Although no resource development would occur under the Applicant's Preferred Alternative, PLP would retain the ability to apply for continued mineral exploration activities under the State's authorization process, as well as any activity that would not require federal authorization. In addition, there are many valid mining claims in the area, and these lands would remain open to mineral entry and exploration by other individuals or companies.

Current State-authorized activities associated with mineral exploration and reclamation and scientific studies would be expected to continue at levels similar to recent post-exploration activity. The State requires reclaiming sites at the conclusion of their State-authorized exploration program. If reclamation approval is not granted immediately after the cessation of activities, the State may require continued authorization for ongoing monitoring and reclamation work as it deems necessary.

Alternative 1a—This alternative, identified based on comments on the DEIS and continued project optimizations, is composed of components from Alternative 1 and Alternative 2 analyzed in the DEIS. It consists of PLP's proposed mine site (center line construction for the bulk TSF main embankment); a transportation corridor with a mine access road to a ferry terminal at Eagle Bay, with a south crossing of Newhalen River; a ferry crossing of Iliamna Lake to a south ferry terminal west of Kokhanok; continuation of the transportation corridor with a port access road to the western side of Cook Inlet; a port at Amakdedori with a caisson dock design; and a natural gas pipeline from the Kenai Peninsula to the mine site with five main segments: 1) Cook Inlet crossing to the Amakdedori port; 2) along the port access road to Iliamna Lake; 3) across Iliamna Lake to Newhalen; 4) overland to connect with the mine access road east of the Newhalen River crossing; and 5) along the mine access road to the mine site. The Applicant's Preferred Alternative is described in more detail in Section 3.0 above. No variants are analyzed under Alternative 1a.

Alternative 1—The base case for Alternative 1 is PLP's original proposed Pebble Project, described in detail in the DEIS, with additional minor project optimizations to avoid and minimize environmental impacts. Alternative 1 includes the proposed mine site (center line construction for the bulk TSF main embankment); a transportation corridor with a mine access road in the Upper Talarik Creek watershed to a north ferry terminal; a ferry crossing of Iliamna Lake to a south ferry terminal west of Kokhanok; continuation of the transportation corridor with a port access road to the western side of Cook Inlet; a port at Amakdedori with an earthen fill causeway and sheet pile jetty design; and a natural gas pipeline from the Kenai Peninsula to the mine site with four main segments: 1) Cook Inlet crossing to the Amakdedori port; 2) along the port access road to Iliamna

Lake; 3) across Iliamna Lake to the north ferry terminal; and 4) along the mine access road to the mine site.

Three variants are analyzed under Alternative 1 that would modify minor project features:

- **Summer-Only Ferry Operations Variant**—The Alternative 1 base case includes use an ice-breaking ferry on Iliamna Lake to allow year-round transportation of concentrate, freight, and diesel fuel. This variant considers restricting ferry operations to the open water season due to concerns expressed during scoping regarding the use of an ice-breaking ferry.
- **Kokhanok East Ferry Terminal Variant**—The Alternative 1 base case includes construction of the south ferry terminal on Iliamna Lake about 5 miles west of Kokhanok. Evaluation of alternative ferry terminal locations was suggested during scoping. This variant evaluated an alternate south shore ferry terminal location east of Kokhanok (Kokhanok east ferry terminal site).
- **Pile-Supported Dock Variant**—The Alternative 1 base case is to construct a sheet pile dock structure filled with granular (gravel) material. This variant considers a pile-supported dock design at the port site to minimize in-water impacts.

Alternative 2—This alternative, termed the North Road and Ferry Alternative with Downstream Dams, is an alternative that would reduce the overall length of access roads and use alternate methods for construction of the bulk TSF. It consists of the same mining methods and facilities as the Alternative 1a, but uses downstream construction methods for the bulk TSF; a transportation corridor with a mine access road to a ferry terminal at Eagle Bay, with a southern crossing of Newhalen River; a ferry crossing of Iliamna Lake to a south ferry terminal near Pile Bay; continuation of the transportation corridor with a port access road to the western side of Cook Inlet; a port at Diamond Point with an earthen fill causeway and sheet pile jetty design; and a natural gas pipeline from the Kenai Peninsula to the mine site with three main segments: 1) Cook Inlet crossing coming ashore at Ursus Cove; 2) northward to Diamond Point port; and 3) overland to the mine site, following along the port and mine access roads with a stand-alone segment between.

Two of the same variants identified for Alternative 1 are analyzed under Alternative 2 (Summer-Only Ferry Operations Variant and Pile-Supported Dock Variant), as well as a variant for a north crossing of the Newhalen River.

- **Newhalen River North Crossing Variant**—This variant considers a north crossing location of the Newhalen River as an alternative to the south crossing location that is evaluated as the base case in the action alternatives.

Alternative 3—This alternative, termed the North Road Only Alternative, provides an alternative transportation corridor and natural gas pipeline route and eliminates the need for ferry transportation across Iliamna Lake. Alternative 3 includes the proposed mine site at Pebble; a transportation corridor with a north access road from the mine site to the western side of Cook Inlet, with a southern crossing of the Newhalen River and utilization of an existing crossing of the Iliamna River; a port north of Diamond Point with caisson-supported dock design; and a natural gas pipeline that follows the same general route from the Kenai Peninsula to the mine site as Alternative 2.

One variant is analyzed under Alternative 3:

- **Concentrate Pipeline Variant**—The base case for Alternative 3 includes transporting all concentrate produced at the mine in containers using trucks. Evaluation of an option for an ore concentrate pipeline was suggested during scoping due to concerns with

ferrying ore concentrate across Iliamna Lake. This variant considers the concept of delivering copper and gold concentrate from mine site to port using a single approximately 6.25-inch-diameter steel pipeline. Under this variant, molybdenum concentrate (approximately 2.5 percent of the concentrate) would continue to be separated at the mine site and trucked to the port. This variant also includes an option to construct an additional 8-inch return water pipeline to pump the concentrate filtrate back to the mine site for reuse.

Alternative 3 with the concentrate and return water pipelines has been identified by PLP as their preferred alternative (referred to herein as the Applicant's Preferred Alternative).

4.2 ALTERNATIVES ELIMINATED DURING THE EIS PROCESS

Over 100 project options were evaluated during the alternatives development process, including alternatives for mine location and layout, mining methods, processing, throughput, gold recovery methods, power, access, concentrate transport, reclamation and closure access, tailings management, PAG waste rock storage, main WMP locations, water treatment, and air emissions. Of these, many options were eliminated from further consideration in the EIS because they did not meet the overall project purpose, were assessed as not reasonable, not practicable, or would not have less environmental damage than the relevant component(s) of the Applicant's proposal. See FEIS Appendix B for a detailed discussion of the alternatives development process, including a detailed explanation of the screening criteria applied, and an explanation for why each of the many project options that were evaluated were either included as a component of one of the action alternatives or eliminated from detailed analysis in the EIS.

4.3 USACE'S DETERMINATION OF THE LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE

The DA permit application evaluation requires compliance with the 404(b)(1) Guidelines. Under Subpart B of the 404(b)(1) Guidelines, the USACE's evaluation of the proposed project is required to address four tests that the project must meet to receive a Section 404 permit. One of these tests results is the identification of the LEDPA. See Attachment B2 of this ROD – Evaluation of The Discharge of Dredge and Fill Material in Accordance with 404(b)(1) Guidelines.

While making a compliance determination, the USACE may gather information sufficient to support and make its decisions by soliciting comments from other federal, tribal, state, and local resource agencies and the public. The USACE, however, is solely responsible for reaching a decision on the merits of the permit application, including determination of the project purpose, the extent of the alternatives analysis, which alternatives are practicable, the LEDPA, the amount and type of CWA compensatory mitigation that is to be required, if any, and all other aspects of the decision making process.

With inclusion of the measures discussed in Section 6.0 below, and based on the evaluation of the environmental impacts of alternatives within the FEIS, the USACE concludes that Alternative 3 North Road Only with concentrate and return water pipelines, and caisson-supported dock north of Diamond Point is the LEDPA. This alternative meets the overall project purpose; is practicable in consideration of costs, logistics, and existing technology; avoids all direct impacts to Iliamna Lake and reduces potential secondary impacts to special aquatic sites. See Attachment B2 of this ROD for further discussion. The applicant has chosen to modify their proposed project application to reflect all aspects of the LEDPA as the Applicant's Preferred Alternative.

5.0 PUBLIC INVOLVEMENT

Chapter 6 of the FEIS describes consultation and coordination with agencies and public involvement opportunities for the EIS and includes detailed information on public outreach activities, tribal coordination, and government-to-government consultation, including summary tables for meetings. A timeline and summary of milestones for the project are included in the Section 1.1 (Background) of this document.

Scoping was the first opportunity for public participation. The scoping process provides an opportunity for the public to express their views and concerns and to contribute to the completeness of the scope of analysis of the EIS. The scoping period for the Pebble Project EIS began on April 1, 2018 and continued through June 29, 2018. Participation in the scoping process was widespread, with many hours of questions and testimony recorded in transcripts, along with comments submitted via the project website, email, and mail to the USACE. The complete scoping effort and summary of issues raised during scoping are described in the Appendix A of the FEIS.

The next key opportunity for public comment was during the public comment period for the DEIS. The public was encouraged to review and submit comments on the DEIS during the public comment period, March 1, 2019 through July 1, 2019. The public could submit comments through the public website, mail, email, fax, and at public hearings. There was a total of 311,885 submissions received by USACE during the DEIS comment period. Of these, 8,427 were “unique” submissions, which were submitted only one time, and the remaining were form letters. The EIS team read and analyzed all submissions for substantive comments, which were assigned to SOCs, and a response to each SOC was developed. A summary of the comment analysis process and a table with SOCs and responses is included in the Comment Analysis Report, Appendix D of the FEIS.

Coordination with the cooperating agency team occurred early on in the EIS process for input on certain sections of the EIS based on specific areas of jurisdiction by law and/or special expertise. The cooperating agency team also informed the alternatives selection process to determine which alternatives would be carried through for analysis. This coordination effort continued following the release of the DEIS and through the preparation of the FEIS. Agency expertise was important for informing the analysis and addressing critical comments from the public to develop the FEIS. Consultation with the USFWS and NMFS continued for the ESA and EFH assessments.

Over the course of the NEPA process, the USACE notified 38 federally recognized tribes of the opportunity to invite USACE to government to government consultation. Twenty-four federally recognized tribes in Alaska engaged and consulted with USACE, providing tribes with opportunities for meaningful participation in the federal permitting process. As part of consultation under Section 106 of the NHPA, 38 federally recognized tribes and 34 Alaska Native Claims Settlement Act Regional and Village Corporations (Indian Tribes for the purposes of Section 106) were notified of the opportunity to participate in Section 106 consultation. Twenty-two federally recognized tribes and nine Alaska Native Claims Settlement Act corporations (31 Indian Tribes), as well as two organizations representing federally recognized tribes, participated in Section 106 consultation. The list of entities who were invited to participate in Section 106 consultation are listed in Table 2 of Attachment D of the Programmatic Agreement (Appendix L of the FEIS). Table 1 of Attachment D of the Programmatic Agreement contains the list of Indian Tribes and other entities who did participate in Section 106 consultation (Appendix L of the FEIS). In addition, USACE held regular teleconferences with federally recognized tribes, for the purpose of providing updates on the status of the federal permitting process, updates on the Section 106 consultation, and to answer questions. Tribes and other Alaska Native stakeholders also had multiple

opportunities throughout the environmental review process to participate and provide input. Information learned through tribal consultation helped to inform the EIS, including traditional ecological knowledge, information on subsistence, archaeological sites, and traditional cultural properties.

USACE sent a newsletter announcing the release of the FEIS starting on July 22, 2020. The project website has been updated throughout the EIS process.

6.0 MEANS TO MINIMIZE, AVOID, AND MITIGATE ADVERSE ENVIRONMENTAL IMPACT

6.1 APPLICANT'S PROPOSED AVOIDANCE AND MINIMIZATION

The Applicant provided a statement of avoidance and minimization in Tab 23 of the Pebble Project Department of the Army Application for Permit POA-2017-00271 (see Attachment A of this ROD) describing project design features, restoration of temporary impacts, restoration of permanent impacts, spill prevention and response, and implementation of environmental plans and controls and adaptive management to avoid and minimize project impacts, as well as specific measures for protection of wetlands and waters, groundwater, cultural resources, social impacts, wildlife, and aquatic resources. Due to the abundance of wetlands in the project area, fully avoiding discharges into WOUS is not practicable. Notable measures associated with the protection of wetlands/waters and aquatic resources are listed below. Project optimizations that have further reduced environmental impacts and improved project safety are described Table 5-3 of the FEIS. Further avoidance and minimization measures which were included in the project and considered in the analysis of the impacts of the project are listed in Table 5-2 of the FEIS (and Attachment B10 of this ROD). The Applicant's proposed compensatory mitigation is discussed in Section 6.2.5, below.

Protection of Wetland and Waters – Proposed Avoidance and Minimization

- PLP has designed the project to minimize impacts to wetlands and with reclamation in mind. At closure wetlands will be restored where practicable.
- PLP and all contractors will develop and implement Stormwater Pollution Prevention Plans in accordance with State guidelines and follow Best Management Practices (BMPs) for stormwater management to minimize the transfer of sediment and other pollutants in stormwater associated with project activities. The Stormwater Pollution Prevention Plan will be in place prior to construction commencement.
- PLP will develop and implement an Erosion and Sediment Control Plan for the project and follow BMPs for erosion and sediment control. The Erosion and Sediment Control Plan will be in place prior to construction commencement.
- The construction area (temporary disturbance footprint) associated with the project will be marked, using silt fencing (as appropriate), flagging or other methods, prior to brush clearing and construction activities.
- Only clean non-pit quarried rock, or non-acid-generating pit waste rock that is confirmed not to be neutral metal leaching will be used for project site construction.
- The bulk tailings will only be stored in uplands and wetlands behind the bulk TSF embankments and seepage water will be collected and reused or treated prior to discharge.
- Detailed characterization of all quarry bedrock and material sites (mine site and transportation corridor) and open pit overburden materials will be completed prior to construction.
- All PAG and/or metal leaching waste rock will be stored in the pyritic TSF and placed back into the open pit at closure.
- The pyritic TSF will be a fully lined facility to minimize water quality impacts during operations and facilitate closure by allowing the complete recovery of pyritic tailings for placement back into the open pit.

- Construction laydown areas will be reused as material stockpiles or other storage facilities to minimize project footprint.
- Construction of roads at wetlands/stream crossings will be kept to the narrowest possible footprint.
- The road will use crossing rivers at a right angle where feasible to minimize impacts in the riparian areas.
- There will be no relocation of active stream channels in the transportation corridor.
- The material sites were located to avoid wetlands to the maximum extent feasible.
- The natural gas pipeline will use horizontal directional drilling to access deep water from the compressor station area to avoid shoreline impacts from trenching on the Kenai Peninsula.
- Materials sidecast from trenches above HTL and outside the transportation corridor will be segregated by top organics and subsurface layers and will be replaced back in the trench in order which they were removed.
- Material sidecast from trenching of the pipelines above HTL will be placed within the footprint of the permanent fill or in uplands.
- Trench plugs will be used where required for pipeline installation to minimize the flow of water through the trench and the associated impacts to wetlands.
- Fill placed below the HTL will consist of select rock fill and armor rock protection. Select rock fill will consist of durable, coarse free-draining material with minimal fines to minimize sedimentation.
- No dredged material from the Diamond Point port will be stored below the HTL or discharged to other WOUS.
- Road designs, including culvert placement and design will be completed and construction will be monitored by professional engineers with appropriate experience. Culverts will be monitored over the project life to identify any problems, and any identified will be addressed promptly.
- Road designs, including bridges will be completed and construction will be monitored by professional engineers with appropriate experience. Bridge designs will minimize the footprint below the ordinary high water mark to the extent practicable given the load design criteria. Hydrologic surveys will be completed prior to final design to confirm they accommodate for flow under normal and flood conditions.
- PLP will implement measures in the design and construction of the access road in jurisdictional wetlands or open waters to attenuate flood flows, prevent extreme ponding or drying, maintain floodplain functions, maintain aquatic life movement, maintain sediment transport, and other functions provided by wetlands and open waters. Measures will include installing floodplain culverts, the use of permeable roadbeds for road construction in wetlands, and the use of oversized culverts where appropriate.
- Equalization culverts will be installed and strategically located to facilitate surface water movement within wetland areas.
- A typical specification for shot rock that would be used for the permeable roadbeds in wetlands is: Maximum stone size to be 30 inch and not more than 20 percent shall be smaller than 6 inch. Material passing the No. 200 sieve shall not exceed 2 percent by weight. Rock must be competent and resistant to degradation during placement and compaction.

- Water used for hydrostatic testing of pipelines will be obtained from and discharged back to sources local to the section of pipeline being tested, thereby minimizing the potential for the mobilization of invasive species.
- Two separate operations WTPs will be constructed to avoid co-mingling mine water and contact water and optimize treated water quality.
- PLP will use non-toxic dust palliatives (i.e., substances applied to a road surface) to reduce airborne dust impacts to wetlands and waters.
- PLP will implement measures, that may include the use of dust suppressants, to reduce dust from the bulk TSF during and after closure until the tailings can be permanently capped.
- PLP will wash heavy equipment to reduce dust that collects on the wheels, body, and undercarriage of heavy equipment.
- The concentrate conveyor will be fully enclosed to contain dust and shed snow.
- The barge loader will be fitted with a mechanical dust collection system and each barge will have a cover system to minimize fugitive dust and protect the concentrate from precipitation. During lightering operations, the barge's internal system will retrieve and convey concentrate to the bulk carrier via a self-discharging boom conveyor. The boom will be fully enclosed and equipped with a telescoping spout and will have mechanical dust collection to prevent spillage of fugitive dust.
- PLP will measure hydrocarbon concentrations and related compounds in surface and groundwater during the periodic water quality monitoring events where appropriate as identified in the project monitoring plans.

Protection of Aquatic Resources – Proposed Avoidance and Minimization

- Culverts and bridges will be designed to optimize fish passage, and BMPs will be used for design, construction, and maintenance.
- To avoid constricting the natural channel and to allow connectivity of the floodplain transportation corridor stream crossings will meet the USFWS guidelines: *Culvert Design Guidelines for Ecological Function, U.S. Fish and Wildlife Service Alaska Fish Passage Program, Revision 5, February 5, 2020*
- Culverts along project roads will be monitored for fish passage and any problems identified will be corrected promptly.
- Blasting during construction will be done following the guidelines established in the 2013 Alaska Department of Fish and Game (ADF&G) Technical Report (No. 13-03) Alaska Blasting Standard for the Proper Protection of Fish.
- Blasting adjacent to tidal waters will be timed to coincide when tides are at or near minimum elevation.
- Excess site water will be treated and released into the Upper Talarik, North Fork Koktuli, and South Fork Koktuli watersheds. Discharge water will be distributed between the three watersheds in a way that optimizes water levels and available downstream fish habitat based on PHABSIM modeling of the three watersheds in consultation with ADF&G.
- Treated water will be discharged through buried chambers designed to provide energy dissipation, erosion control, and freeze protection.
- PLP will consult with ADF&G during permitting to evaluate the potential for further optimizing discharge locations.

- PLP will use pit blasting techniques that minimize the amount of explosives per delay, thereby reducing the overall vibration associated with the blast.
- To detect changes to water quality and its effects to aquatic life, water quality will continue to be monitored on a regular basis until the mine reclamation is complete. Results will be reported to the State of Alaska in compliance with permit requirements and management plans.

6.2 USACE'S COMPENSATORY MITIGATION DETERMINATION

6.2.1 Compensatory Mitigation Required

Is compensatory mitigation required? yes no

6.2.2 Mitigation Bank

Is the impact in the service area of an approved mitigation bank? yes no

Does the mitigation bank have the appropriate number and resource type of credits available?

yes no n/a

6.2.3 In-Lieu Fee Program

Is the impact in the service area of an approved in-lieu fee program? yes no

Does the in-lieu fee program have the appropriate number and resource type of credits available?

yes no n/a

6.2.4 Compensatory Mitigation Options

Check the selected compensatory mitigation option(s):

mitigation bank credits

in-lieu fee program credits

permittee-responsible mitigation under a watershed approach

permittee-responsible mitigation, on-site and in-kind

permittee-responsible mitigation, off-site and out-of-kind

6.2.5 Proposed Compensatory Mitigation

The applicant was informed, in a letter dated August 20, 2020 that compensatory mitigation is required to offset the direct and indirect impacts caused by discharges into aquatic resources at the mine site totaling 2,825 acres of wetlands, 132.5 acres of open waters, and 129.5 miles of streams. In addition, compensatory mitigation is required to offset the direct and indirect impacts associated with the transportation corridor and port site totalling 460 acres of wetlands, 231.7 acres of open waters, and 55.5 miles of streams.

The applicant submitted a final compensatory mitigation plan entitled *Pebble Project, Compensatory Mitigation Plan, Final Report*, and dated November 2020 (Final Report, Attachment B5 of this ROD). In order to offset the direct and indirect impacts caused by discharges into aquatic resources at the mine site and the transportation corridor, the applicant proposed permittee responsible compensatory mitigation, in the form of on-site and in-kind preservation. Specifically, the applicant proposed to preserve a 112,445-acre area in the Koktuli

River watershed, including 31,026 acres of aquatic resources. No compensatory mitigation was proposed by the applicant to offset impacts from the port site.

6.2.6 Mitigation Summary

As documented in Attachment B of this ROD, the applicant's proposed compensatory mitigation plan, as documented in their Final Report, dated November 2020, is not compliant with USACE regulations, including 33 CFR 332 and 40 CFR 230. As identified in Attachment B6 to this ROD, Memorandum for the Record dated November 9, 2020, Compliance Review of Final Report, Pebble Project Compensatory Mitigation Plan in accordance with 33 CFR 332, POA-2017-271, the plan has been found noncompliant with nine specific requirements of rule to include lack of detail to determine compensatory mitigation sufficiency, lack of information for preservation waiver, insufficient amount of compensatory mitigation, inadequate site protection, omission of a maintenance plan, omission of performance standards, omission of long term management plan, inadequate monitoring and omission of financial assurances. Therefore, the compensatory mitigation offered is inadequate to overcome the significant degradation identified in the 404(b)(1) analysis rendering the permit application noncompliant with the 404(b)(1) Guidelines.

6.2.7 Other Mitigative Actions

6.2.7.1 USACE's Determination on Other Mitigative Actions

The Applicant-proposed measures to avoid and minimize impacts outlined in FEIS Table 5-2 (see Attachment B10 of this ROD) and in Tab 23 of the Pebble Project Department of the Army Application for Permit POA-2017-00271 (see Attachment A of this ROD) are measures incorporated into the design of the project by PLP to reduce potential impacts on resources. These measures would be non-discretionary because they are included in the project. USACE views these elements as part of the project and considers PLP's proposed mitigation measures as inherent to the proposed project. These measures were considered to be part of the project and were considered as part of the decision documented in this ROD.

Avoidance and minimization measures identified or recommended during the NEPA process were compiled (see FEIS Appendix M1.0) for consideration by the USACE, USCG, and other agencies as part of their permit decisions to further minimize project impacts. USACE reviewed the measures in Appendix M1.0, and effective and reasonable measures that are within the USACE's authority to require were considered in the evaluation of the decision that is documented in this ROD. USACE determined that modification of the project through the inclusion of special conditions would not be sufficient to achieve compliance with the 404(b)(1) Guidelines.

7.0 USACE FINAL AGENCY DECISION

7.1 USACE'S DECISION

As documented in Attachment B of this ROD, I have determined that the proposed discharge does not comply with the 404 (b)(1) Guidelines because the proposed project will result in significant degradation of the aquatic ecosystem.

I have concluded that the benefits of the proposed elimination and alteration of wetlands, streams and other waters within the USACE jurisdiction do not outweigh the detriments that would be caused by such eliminations and alterations, based upon the information contained with the FEIS, the extensive public comments received, and the analysis of the public interest review factors. As those eliminations and alterations would be necessary to realize any benefits from the proposed project, I have found that the proposed project is contrary to the public interest.

Approving Official:



Colonel Damon A. Delarosa
District Engineer

20 November 2020

Date

ATTACHMENTS

**ATTACHMENT A PEBBLE PROJECT DEPARTMENT OF THE ARMY APPLICATION
FOR PERMIT, POA-2017-00271, DATED JUNE 8, 2020**

ATTACHMENT B USACE'S SUPPORTING ANALYSES