



ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM
PROPOSED FINAL FACT SHEET

Permit Number: AK0062295

IPOP LLC

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Wastewater Discharge Authorization Program

555 Cordova Street

Anchorage, AK 99501

Public Comment Period Start Date: **June 28, 2024**

Public Comment Period Expiration Date: **August 5, 2024**

[Alaska Online Public Notice System](#)

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Issuance of an Alaska Pollutant Discharge Elimination System (APDES) permit to

IPOP LLC

For wastewater discharge from

IPOP LLC silt curtain containment system doorway into the Bonanza Channel located approximately ten miles southwest of the Village of Solomon and 28-miles east of Nome, Alaska

The permit authorizes and sets conditions on the discharge of pollutants from this facility to waters of the United States. To ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility and outlines best management practices to which the facility must adhere.

This fact sheet explains the nature of discharges and the development of the permit including

- information on appeal procedures,
- a listing of effluent limitations, monitoring requirements, and other conditions,
- technical material supporting the conditions in the permit, and
- monitoring requirements.

Appeals Process

A person authorized under a provision of 18 AAC 15 may request an informal review of a contested decision by the Division Director in accordance with 18 AAC 15.185 and/or an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340. See Alaska Department of Environmental Conservation (DEC or department) “Appeal a DEC Decision” web page <https://dec.alaska.gov/commish/review-guidance/> for access to the required forms and guidance on the appeal process. Please provide a courtesy copy of the adjudicatory hearing request in an electronic format to the parties required to be served under 18 AAC 15.200.

Documents are Available

The permit, fact sheet, application, and related documents can be obtained by visiting or contacting DEC between 8:00 a.m. and 4:30 p.m. Monday through Friday at the addresses below. The permit, fact sheet, and other information are located on the department’s Wastewater Discharge Authorization Program website: <http://dec.alaska.gov/water/wastewater/>.

Alaska Department of Environmental Conservation Division of Water Wastewater Discharge Authorization Program		
<i>Fairbanks Office</i> 610 University Ave. Fairbanks, AK 99709 (907) 451-2136	<i>Anchorage Office</i> 555 Cordova Street Anchorage, AK 99501 (907) 269-6285	<i>Juneau Office</i> 410 Willoughby Ave., Suite 303 Juneau, AK 99801 (907) 465-5180

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1.0 APPLICANT

This fact sheet provides information on the Alaska Pollutant Discharge Elimination System (APDES) permit for the following entity:

Name of Facility:	IPOP LLC
APDES Permit Number:	AK0062295
Facility Location:	28 miles east of Nome, Alaska
Mailing Address:	9811 Charleston Blvd., #2-444, Las Vegas, NV 89117
Facility Contact:	MacNamara Shoulders, Twister Creek Environmental, LLC

Figures at the end of this fact sheet show the location, project area and line drawing of operations of the IPOP LLC project.

2.0 FACILITY INFORMATION

2.1 Background

The Bonanza Channel Placer Project is located approximately 28 road miles east of Nome along the Nome-Council Highway in the Bonanza Channel (Figure 1). IPOP claims and operations are protected from the Bering Sea by an approximate ½ mile-wide southern boundary barrier island traversed by the Nome-Council Highway (Figure 2). On the north side of the Bonanza Channel are uplands of the coastal plain.

The area is devoid of trees. The mining areas are classified as estuarine and marine wetland tidal habitat dominated by perennial plants (primarily grasses) on the Bonanza Channel uplands and barrier islands. The area is surrounded by low hills of less than 200 feet (ft.) elevation, and ridges to the north that have been sculpted by periods of glaciation. These hills are drained by the Bonanza, Eldorado, and Solomon Rivers, and various creeks that have provided source material for the river deltas and beaches that now form the Bonanza Channel coastal plain. The Bonanza and Solomon Rivers currently feed directly into the Bonanza Channel, the tidal lagoon where IPOP has mining claims.

The geomorphology and hydrologic processes of Bonanza Channel are indicative of a lagoon environment, characterized by limited freshwater inputs, a shallow depositional environment, perpendicular orientation to the coast, low flow, and tide inundations of less than one ft. Flow in the project area appears to be additionally influenced by hydrostatic controls from Safety Sound and the Bonanza/Solomon Rivers complex. In context of the surrounding area, the Bonanza Channel can be characterized as a sedimentary subsystem to Safety Sound. Bonanza Channel exhibits characteristics of a lagoon system with uniformly shallow depths (which amplify winter and summer temperature extremes), minimal currents to facilitate nutrient subsidies and exchange, and salinities that are vary depending on weather conditions.

The Bonanza Channel is a shallow estuary fed by two rivers, the Bonanza River and the Solomon River. Though the Bonanza Channel deepens where the Bonanza River drains into the estuary the lowest elevation observed on the applicant's claims are about 7-ft. below mean high water.

Flow rates in the estuary vary with respect to location and proximity to the rivers that feed it. Flow measurements reported in June 2020 indicate an average flow of 0.2 ft. per second. The

majority of the Bonanza River drains to the northeast of where it enters the Bonanza Channel, while a small percentage of the Bonanza River volume drains slowly southwesterly towards Safety Sound. The Solomon River drains into Norton Sound close to where it enters the Bonanza Channel and has little effect on the flow within the estuary. Both the flow of the Solomon and the majority of the flow from the Bonanza River enter Norton Sound (off the claims) at 64°32'57.96" N, 164°25'00.34" W. The waters of Safety Sound enter Norton Sound off of the claims at 64°28'20.70" N, 164°44'44.98" W. The coastal region immediately north and bounding the proposed mining areas includes rolling tundra, grasses, shrubs, persistent emergent flora, mosses and other perennial plants consistent with large freshwater emergent wetlands.

In 2020, salinity measurements were consistently uniform, ranging from 13 to 16 practical salinity units. Water temperatures during June and July 2020 averaged approximately 15 degrees Celsius (°C) with maximum temperatures over 22°C. Water temperatures in August averaged 13°C to 15°C, declining to less than 10°C in September. Turbidity in the project area was variable, ranging from 0.7 to 25.7 nephelometric turbidity units (NTU) depending on local storms.

The project area is typically accessed by vehicle from the Nome-Council Highway at milepost 28 (usually open June through October), by snowmobile (during winter and spring), or by boat from Norton Sound. The surrounding area is very sparsely populated (10 people in 2010 census) consisting of the small, -seasonal community of Solomon which is 10 miles east at milepost 38 and Council which is 44 miles east at milepost 72. The depth of water on the mining claims is typically 2 to 4 ft. above mean high water. The deepest observed depth in the project area was 7.1 ft. Drill test results indicate the substrate as poorly sorted gravelly sand overlain by 7 to 12 inches of silt, clay, and organic "muck."

Storm events observed and documented during the study period show that the Bonanza Channel is subject to turbidity events (that last for weeks in some cases), including surges of both fresh- and saltwater influence, and tidal fluctuations which completely submerge low-level islands in the project area during flood tides. Field observations, along with water quality data and drone footage, indicate storms significantly increase background turbidity levels in the project area.

2.2 Facility Description

The IPOPOP LLC facility consists of floating placer mining operation that will dredge for placer gold within the sediments of the Bonanza Channel (Figure 3). The project consists of a four-trailer mobile camp (to house workers) that will be parked on lands owned by the State of Alaska adjacent to the Nome-Council Highway. Mining equipment includes two small tender boats 25 ft. or less, a cutterhead dredge (designed to operate in shallow waters), and a processing barge (designed to capture very fine gold particles). The project will operate seasonally during the summer and early fall within the waters of the Bonanza Channel.

Additional Project Summary Information:

- Annual mining activity window from June 1 to November 1
- Project operating life of approximately 5 years
- Greater than 4,500,000 cubic yards of material mined over the life of the project
- Mining and processing rate of up to 900,000 cubic yards of material per year
- Mining depth of up to 31 ft.
- Reclamation occurs concurrently with mining, and all temporary dredge material disposal sites will be reclaimed by the end of the project.
- Ore processing is by gravity separation only. There are no chemicals or metals used as a part of the ore processing.
- Site access to the dredge is by a 2,150 to 4,500 ft. long access channel that will be maintained and/or re-established annually.
- A one-acre camp site will be accessed from a 330 ft-long access road on the north of the Nome-Council Highway near the project area.
- Dredging schedule consists of two 12-hour shifts per day for an average of 20 weeks per year during a seasonal mining activity window from June 1 to November 1
- Occasional seasonal winter delineation drilling schedule for 30 continuous days annually between January 1 to May 31 for the purpose of directing annual mining with the aim of minimizing the environmental impact
- Employment of 20 to 40 personnel for operations and seasonal start up, respectively

2.3 Adopted References

The permittee shall adhere to department-approved plans authorized under the permit and listed below. When the terms of this permit differ from the terms of department-approved project documents adopted by reference in this section, the most recent term with written department approval is controlling. If there is doubt as to which conflicting term is newer, the permit shall control. Department-approved plans adopted by reference in this section may be revised provided that written department approval is received. Department-approved plans adopted by reference into this permit include the following documents and identified sections of the *2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska, IPOP, LLC* (Plan of Operations), *Bonanza Channel Placer Project Supplemental Information April 18, 2022* (Supplemental Information), and *Amendment to 2020 Narrative Operating Plan* (Amendment to the Plan of Operations).

- General operations are adopted in
 - Sections 5.1, 5.2, 5.3, 5.8 and 5.9 of the Plan of Operations,
 - The Supplemental Information, and
 - The Amendment to the Plan of Operations.
- Best management practices plan (BMP Plan) procedures are adopted in

- Section 5.10 of the Plan of Operations and
- The Supplemental Information.
- Silt curtain management plan (SCM Plan) procedures are adopted in
 - Sections 5.10.2, 5.10.3, and 5.12 of the Plan of Operations and
 - The Amendment to the Plan of Operations.
- Monitoring plan procedures are adopted in section 5.11 of the Plan of Operations.

2.4 Clean Water Act (CWA), Section 404, Individual Permit POA-2018-00123

The area of dredge operation and the silt curtain containment system are authorized under a U.S. Army Corps of Engineers (USACE) CWA, Section 404, Individual Permit (POA-2018-00123) and associated CWA, Section 401 Certification issued by the department. Permit coverage under POA-2018-00123 includes all discharges within the silt curtain containment system and discharges that are incidental to the movement of the silt curtain containment system.

The permit designates the water, as bound by the silt curtain containment system required under POA-2018-00123, is designated as a “treatment works”, as defined in Alaska Statutes (AS) 46.03.900(33) as “works installed for the purpose of treating, neutralizing, stabilizing, or disposing of sewage, industrial waste, or other wastes.” Under 18 AAC 70.010(c), Water Quality Standards (WQS) do not apply to a treatment works authorized by the department and applicable water quality criteria “must be met in adjacent surface water and groundwater at and beyond the boundary of the treatment works.” The permit also indicates that the permittee comply with all seasonal operating restrictions as stipulated within POA-2018-00123 and ensures that all wastewater and tailings are deposited in a manner that will not damage or otherwise jeopardize the integrity of silt curtain containment system.

2.5 Discharge and Wastewater Description

The permit authorizes the discharge of wastewater to the Bonanza Channel from Outfall 001 which is identified as the opening or double doorway portion of the silt curtain containment system surrounding the mining operation through which the dredge and other support craft may pass. The discharge from Outfall 001 consists of wastewater containing suspended particulates created during dredge operation and other activities disturbing the substrate within the silt curtain. The pollutants of concern identified in the permit consist of turbidity and suspended solids. The permit authorizes a 100-ft. radius mixing zone centered on Outfall 001.

Impacts to Receiving Waters

During the June and July 2020 background study, the average turbidity measured in the project area was 3.5 NTU, with a maximum of 25.3 NTU. Immediately prior to the no-curtain dredge test, the average turbidity of 1.63 NTU, with a maximum of 2.88 NTU (excluding higher readings in the 25 Formazin Nephelometric Units (FNU) range due to interpreted sea grass bias) (IPOP LLC, 2020).

During the no-curtain dredge test, two holes removed only the top 12” of “muck” and two holes were dredged to three ft. in depth to sample both the upper layer of “muck” and the underlying sediments. Turbidity data collected during the test ranged from 33.1 during dredging, to 1.12 NTU, approximately 2 hours after dredging was suspended (IPOP LLC, 2020).

Prior to the solid curtain dredge test the average turbidity outside the curtain averaged 2.32 FNU with a high of 4.6 FNU. Turbidity data was collected outside the curtain during the test had an average of 1.43 NTU with the highest measurement of 3.1 NTU was taken at a leak in the curtain. A subsequent measurement 45 minutes later in the same location was 1.51 NTU (IPOP LLC, 2020).

From baseline and test data, mining discharge impacts will be de minimis or minor, of short duration (less than 2 hours), and localized. All operational discharges will be within the range of natural variability of the receiving water. A factor further attenuating discharges of turbidity and settleable solids is that dredging will take place at a comfortable distance from the silt curtain providing additional settling time and lower turbidity at the silt curtain doorway where discharges occur.

Test studies indicate that the silt curtain containment system is capable of withstanding storms with sustained winds over 20 miles per hour (mph) with wind gusts up to 33 mph. Such conditions were experienced from August 30 to September 3, 2020 without any observed turbidity releases outside the curtain during this event.

3.0 COMPLIANCE HISTORY

This is the first issuance of this permit.

4.0 EFFLUENT LIMITS AND MONITORING REQUIREMENTS

4.1 Basis for Permit Effluent Limits

Under 18 AAC 83.015, it prohibits the discharge of pollutants to waters of the U.S. without first obtaining a permit authorized by the APDES Program meeting the purposes of AS 46.03 according to Section 402 of the CWA and requirements adopted by reference at 18 AAC 83.010.

The CWA requires that the limits for a particular pollutant be the more stringent of either technology-based effluent limits (TBELs) or water quality-based effluent limits (WQBELs). TBELs are established by EPA according to the level of treatment that is achievable using available technology. WQBELs are set as the permit limit if they are more stringent than TBELs to ensure that the receiving water quality is protected.

4.1.1 TBELs

EPA promulgated effluent limitation guidelines (ELGs) for the gold placer mining point source category in 1988 [40 CFR § 440.143 Subpart M, as adopted by reference at 18 AAC 83.010(g)(3)]. The ELGs specify the degree of effluent reduction attainable by the application of the best practicable control technology currently available, the best available technology economically achievable, and New Source Performance Standards. The ELGs also established BMPs.

The gold placer mining ELGs do not apply to the discharge authorized under this permit. Since the mining discharge subject to the ELG is authorized under CWA, Section 404, Individual Permit POA-2018-00123, as referenced in the permit. In Permit Part 1.3, the department designates the silt curtain containment system as a treatment works, as defined in AS 46.03.900(33). Under 18 AAC 70.010(c), WQS do not apply to a department-authorized treatment works and applicable water quality criteria “must be met in adjacent surface water and groundwater at and beyond the boundary of the treatment works.” Since the discharge during vessel entrance and exit from the silt curtain containment authorized under this permit is specific to access and does not cover mining, the permit does not contain TBELs.

4.2 Water Quality-Based Effluent Limits

The CWA required the establishment of limitations in permits necessary to meet WQS by July 1, 1977 [CWA § 301(b)(1)]. DEC regulations require that permits include water quality-based effluent limits that "achieve water quality standards established under CWA § 303, including State narrative criteria for water quality" [18 AAC 83.435(a)(1)]. All discharges to state waters must also comply with WQS, including the State's Antidegradation Policy.

Under 18 AAC 83.475(3), BMPs must be included in a permit “when numeric effluent limitations are infeasible.” Dredging’s unique method of intake and displacement presents unusual permitting issues. A dredge is a mechanical device that operates on the water surface and elevates bed material and in situ water into a wash plant from which gold or other minerals may be recovered. The discharge from dredges consists entirely of intake water and bed material immediately released back into the receiving water. Because dredges do not contain standard treatment systems, nor add chemicals other than those already present in the intake water or bed material, typical permit conditions are considered infeasible for most operations; therefore, BMPs have been established in the permit to control the discharges (Permit Part 3.1).

DEC determined that turbidity and settleable solids are the pollutants of concern that must be limited to meet WQS. The BMPs include requirements to minimize and manage turbidity from the discharge. Additionally, turbidity monitoring is required at the mixing zone boundary and ensuring that BMPs are implemented properly and effective (Permit Parts 1.5 and 1.6). The permit requires a daily visual inspection of the silt curtain containment system for turbidity, film and sheen detection. Monitoring for turbidity and settleable solids is required before and after wastewater discharge from opening and closing the silt curtain containment system’s double doorway. An increase greater than five NTU above background turbidity beyond the boundary of the 100-ft. radius mixing zone is a violation of the permit. If turbidity greater than five NTU above background conditions is observed, the permittee must sample for settleable solids . The limit of no greater than five NTU above background limit can be found at 18 AAC 70.020 (b)(12), as amended through April 26, 2024.

Because effluent limitations based on water quality criteria alone are considered infeasible when background turbidity is naturally elevated, the permit also implements BMPs, according to 18 AAC 83.475(3). Permit limits and monitoring, combined with the BMPs help ensure that the receiving water is adequately protected for all existing and designated uses.

4.3 Basis for Effluent and Receiving Water Monitoring

Under AS 46.03.110(d), the department may specify in a permit the terms and conditions under which waste material may be disposed. Monitoring is required to determine compliance with effluent limits. By gathering effluent and receiving water data, impacts on the receiving waterbody are determined and water quality protected.

4.4 Effluent Limits and Monitoring Requirements

Minimum monitoring frequencies are based on the nature and effect of a pollutant, as well as a determination of the minimum sampling necessary to adequately represent the facility’s performance. The permittee has the option of taking more frequent samples than are required under the permit; however, these samples must be included with reporting information per Permit Appendix A, Part 3.3. Table 1 summarizes the effluent limits and monitoring requirements for Outfall 001.

Table 1: Effluent Limits and Monitoring

Parameter	Limit	Units	Minimum Sample Frequency	Sample Type
Turbidity, background sample	The background sample must be taken from the Bonanza Channel at a point approximately 100 feet downstream of the silt curtain containment system doorway to measure water quality influenced by the release of wastewater from breaching the doorway. The sample must be taken just prior to the silt curtain containment system doorway breach.	NTU ^a	1/Opening	Grab
Turbidity, compliance sample (background sample, natural condition)	The turbidity must not be more than 5 NTUs above the background sample. The compliance sample must be taken at the same approximate location of the background sample and as soon as practicable after closing the silt curtain containment system doorway.	NTU	1/Opening	Grab
Settleable Solids, downstream sample	In the event that the compliance sample exceeds the turbidity limit a sample for settleable solids must be taken at the doorway breach as soon as practicable. The sample should be taken at the same approximate location as the turbidity samples. Settleable solids must not exceed 0.2 mg/L	ml/L ^b	As necessary	Grab
a. Nephelometric turbidity units b. Milliliters per liter				

5.0 RECEIVING WATERBODY

5.1 Water Quality Standards

Section 301(b)(1)(C) of the CWA requires the development of limits in permits necessary to meet water quality standards by July 1, 1977. Per 18 AAC 83.435, APDES permits must include conditions to ensure compliance with 18 AAC 70 – WQS. Regulations in 18 AAC 70 require that conditions in permits ensure compliance with the WQS. The WQS are composed of use classifications, numeric and/or narrative water quality criteria, and an antidegradation policy. The use classification system designates the beneficial uses that each waterbody is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary by the state to support the beneficial use classification of each waterbody. The antidegradation policy ensures that the beneficial uses and existing water quality are maintained.

Waterbodies in Alaska are designated for all uses unless the water has been reclassified under 18 AAC 70.230 as listed under 18 AAC 70.230(e). Some waterbodies in Alaska may also have a site-specific water quality criterion per 18 AAC 70.235, such as those listed under 18 AAC 70.236(b). The receiving water for the discharge, the Bonanza Channel, has not been reclassified, and site-specific water quality criteria have not been established. Therefore, the Bonanza Channel must be protected for all designated freshwater use classes listed in 18 AAC 70.020(a)(2). To ensure protection of receiving water quality, Table 1 contains parameters that must be monitored in the area impacted, the Bonanza Channel, by the discharge. Required receiving water monitoring verifies compliance with permit limits and associated mixing zone authorization stipulations. Receiving water monitoring is required to verify that the designated uses of the Bonanza Channel have been protected from the pollutants of concern.

5.2 Water Quality Status of Receiving Water

Any part of a waterbody for which the water quality does not or is not expected to meet applicable WQS is defined as a “water quality limited segment” and is placed on the State’s impaired waterbody list. The Bonanza Channel is not listed as an impaired waterbody in *Alaska’s Final 2022 Integrated Water Quality Monitoring and Assessment Report*, nor is it listed as a CWA 303(d) waterbody requiring a total maximum daily load (TMDL). Accordingly, a TMDL has not been established for Bonanza Channel.

5.3 Mixing Zone Analysis

State regulations provide that the department may authorize a mixing zone in a permit (18 AAC 70.240, as amended through April 26, 2024). An authorized mixing zone must ensure that water quality criteria will be met at the boundary of the mixing zone and existing uses outside the mixing zone are maintained and fully protected. The department’s mixing zone analysis follows.

Dimensions and Permit Requirements

The permit authorizes a 100 ft. radius mixing zone centered at Outfall 001, wherein water quality criteria may be exceeded. The mixing zone size was determined following 18 AAC 70.240(k), which specifies the maximum size for authorizations in estuarine waters at approximately 10-percent of the average width of the Bonanza Channel. Based on best professional judgement and practical experience with other large dredge operations that are capable of meeting water quality

criteria at the boundary of the mixing zone, adherence to permit-required limits, BMPs, and monitoring will fully protect WQS.

Larger-sized mixing zones have been issued to offshore dredges including prior EPA-issued NPDES individual permits for large-scale suction and mechanical dredge operations in Norton Sound (AK-004319-2, AK-005331-7, AK-005347-3, and AK-005353-8). EPA-issued individual permits applied research results from the WestGold BIMA operation in Norton Sound and authorized a 500-meter (1,640 ft.) radius mixing zone, wherein discharges were allowed to exceed water quality criteria (ENSR, 1989).

Studies and model results from the WestGold BIMA operation indicate that the production rate of the dredge had only a minor effect on the size of the discharge plume when compared to the effects of the silt content of dredged material, current speed, and position in the ore reserve (Garvin, Sweeney, and Rusanowski, 1991). Prior studies (ENSR, 1989; MMS, 1990, Prussian et al. 1999 and USGS, 1997) conducted as part of the Ocean Discharge Criteria Evaluation for the 2013 BIMA permit and inspections of dredge operations confirm that suction or mechanical dredging conducted according to permit conditions has only short term, locally increased, turbidity during mining. Areas beyond the mixing zone remain unaffected.

Because operational practices affect discharge characteristics more than dredge size or production rate, the permit authorizes a mixing zone based on the mixing zone size restriction required under 18 AAC 70.240(k) and controls the discharge through the implementation of BMPs.

In authorizing this mixing zone, the department considered all aspects required in 18 AAC 70.015 (Antidegradation policy) and 18 AAC 70.240 (Mixing zones), as amended April 26, 2024, including, but not limited to, the predicted effluent quality from the discharge and the potential risk to human health and to aquatic resources.

The department finds that the mixing zone authorized for a discharge following the requirements in the permit is appropriate and provides reasonable assurance that beneficial, designated, and existing uses of the receiving waters at the boundary of the mixing zone will be maintained and fully protected.

6.0 ANTIBACKSLIDING

Per 18 AAC 83.480(a), “Except as provided in (b) of the section, when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit, unless the circumstances on which the previous permit was based have materially and substantially changed since the permit was issued, and the change in circumstances would constitute cause for permit modification or revocation and reissuance under 18 AAC 83.135.” Since this permit is neither a permit renewal nor reissuance, the antibacksliding provisions of 18 AAC 83.480(a) do not apply and further evaluation is unwarranted.

7.0 ANTIDEGRADATION

Section 303(d)(4)(B) of the CWA states that, for waterbodies where the water quality meets or exceeds the level necessary to support the waterbody's designated uses, WQBELs may be revised if the revision is consistent with the state's antidegradation policy. The state’s antidegradation policy and

implementation approach are found at 18 AAC 70.015 & 18 AAC 70.016. Both the antidegradation policy and the implementation methods are consistent with 40 CFR 131.12 and approved by EPA. This section analyzes and provides rationale for the department's decisions in the permit issuance with respect to the Antidegradation policy and implementation methods.

Using the policy and corresponding implementation methods, the department determines a tier protection level, whereby a higher numbered tier indicates a greater level of water quality protection. Tier 1 and Tier 2 classifications protect on a parameter-by-parameter basis. A Tier 3 protection level applies to a designated water. At this time, no Tier 3 waters have been designated in Alaska.

Under 18 AAC 70.015(a)(2), it states that if the quality of water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected, unless the department authorizes a reduction in water quality. If the Bonanza Channel were impaired it would be listed as impaired (Category 4 or 5) in *Alaska's 2022 Integrated Water Quality Monitoring and Assessment Report* and receive Tier 1 level of protection. It is not and the Tier 2 protection level applies to Bonanza Channel.

As a result, both Tier 1 and Tier 2 protection levels apply to Bonanza Channel. The department may allow a reduction of water quality only after the specific analysis and requirements under 18 AAC 70.016(b)(5)(A)–(C) and 18 AAC 70.016(c)(7)(A)–(F) are met. The department's findings under these provisions follow:

Tier 1 Analysis: 18 AAC 70.016(b)(5) the department will not authorize a discharge to a Tier 1 water unless the department finds

(A) existing uses and the water quality necessary for protection of existing uses have been identified based on available evidence, including water quality and use related data, information submitted by the applicant, and water quality and use related data and information received during public comment;

(B) existing uses will be maintained and protected; and

(C) the discharge will not cause water quality to be lowered further where the department finds that the parameter already exceeds applicable criteria in 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b).

The water quality criteria on which the permit effluent limits are based serve the specific purpose of protecting the existing and designated uses of the receiving water. Per 18 AAC 70.020 and 18 AAC 70.050, all waters are protected for all uses; therefore, the most stringent water quality criteria found in 18 AAC 70.020 and the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* apply and were evaluated here. Implementation of the most stringent water quality criteria ensures protection of water quality necessary to fully maintain designated and existing uses of the receiving waterbody. The permit protects Bonanza Channel for all uses by maintaining water quality necessary according to 18 AAC 70.016(b)(5)(A).

The permit places limits and conditions on the discharge of pollutants discharged from the silt curtain containment system. According to 18 AAC 70.016(b)(5)(B), the permit ensures that designated and existing uses (i.e., all uses) outside the mixing zone for Bonanza Channel will be maintained and protected through numeric effluent limits, monitoring, and BMPs for pollutants of concern.

No parameter for a contaminant of concern in Bonanza Channel exceeds applicable criteria in 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b). As such, 18 AAC 70.016(b)(5)(C) does not apply here.

The department concludes the terms and conditions of the permit will fully protect and maintain the designated and existing uses of the water and that the permitted discharge meets Tier 2 analysis conditions under 18 AAC 70.016(b)(5).

As explained above, the department will continue to a Tier 2 analysis because under 18 AAC 70.016(c)(1), Tier 2 is presumed for all water as the default protection level for all parameters unless an exception applies, and here no exception applies.

Tier 2 Analysis: 18 AAC 70.016(c)(7) [I]f, after review of available evidence, the department finds that the proposed discharge will lower water quality in the receiving water, the department will not authorize a discharge unless the department finds that [the conditions of 18 AAC 70.016(c)(7)(A)–(F) are met].

Here, the proposed discharge may lower water quality in Bonanza Channel. Therefore, the department cannot authorize a discharge unless it makes the following findings. Analysis of 18 AAC 70.016(c)(7)(A)–(F) follows.

18 AAC 70.016(c)(7)(A) [The department will not authorize a discharge unless it finds that] the reduction of water quality meets the applicable criteria of 18 AAC 70.020(b), 18 AAC 70.030, or 18 AAC 70.236(b), unless allowed under 18 AAC 70.200, 18 AAC 70.210, or 18 AAC 70.240[.]

Section 1.4.1 of the permit requires that the discharge shall not cause or contribute to a violation of WQS unless an exception is authorized by the permit under 18 AAC 70.200 – 70.240 (i.e., mixing zone, variance, etc.). Based on the reasonable potential for turbidity and settleable solids to exceed water quality criteria at Outfall 001, and available assimilative capacity in the receiving water, the permit authorizes a mixing zone under 18 AAC 70.240 (See Fact Sheet Section 5.3). The resulting effluent limits and monitoring requirements in the permit protect water quality criteria and will not violate water quality criteria found at 18 AAC 70.020.

WQS protect the existing uses of the receiving waterbody. The Bonanza Channel is protected for all designated uses (see Fact Sheet Section 4.0); therefore, the most stringent water quality criteria found in 18 AAC 70.020 and in the *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances* (DEC 2022) were used to determine the permit effluent limits. BMP requirements in the permit further ensure that the mixing zone size will be constrained to the authorized dimension and that discharge will be minimized to short duration, localized events closely managed under an approved Plan of Operations and Monitoring Plan. As such, receiving water quality at and beyond the authorized mixing zone boundary is fully protected for all designated uses. The permit effluent limits fully protect all designated uses. The mixing zone, appropriately sized to fully protect the existing uses of the Bonanza Channel, is authorized under 18 AAC 70.240.

WQBELs for pollutants of concern are based on the most stringent water quality criteria of all protected use classes under 18 AAC 70.020(b). Because of the nature of the permitted discharges, pollutants, which are not present or without a reasonable potential to be present at harmful levels exceeding WQS have been carefully identified and removed from concern. Basing the permit effluent limits on WQS serves to protect existing and designated uses.

The mixing zone authorized in the wastewater discharge permit, under 18 AAC 70.240, uses the assimilative capacity in the receiving water. Reduction of water quality within the mixing zones is specifically authorized according to 18 AAC 70.240 and as allowed in 18 AAC 70.015(a)(2).

More information about the authorized mixing zone can be found in Section 5.3 of the Fact Sheet. The resulting effluent limits and monitoring requirements in Permit Part 1.5 result from applying water quality criteria and assumptions ensuring that water quality criteria found at 18 AAC 70.020 will not be exceeded beyond the boundary of the authorized mixing zone.

Site-specific criteria as allowed by 18 AAC 70.235 have not been established for the Bonanza Channel and are not applicable. The permit does not authorize short term variances or zones of deposit under 18 AAC 70.200 or 18 AAC 70.210; therefore, these provisions do not apply.

The department concludes that the reduction of water quality meets applicable criteria of both 18 AAC 70.020(b) and 18 AAC 70.030 and is allowable under 18 AAC 70.240. Thus, the finding required under 18 AAC 70.016(c)(7)(A) is met.

18 AAC 70.016(c)(7)(B) *[The department will not authorize a discharge unless it finds that] each requirement under (b)(5) of this section for a discharge to a Tier 1 water is met[.]*

This only applies to Tier 1 waters, and the Bonanza Channel is a Tier 2 waterbody.

18 AAC 70.016(c)(7)(C) *[The department will not authorize a discharge unless it finds that] point source and state-regulated nonpoint source discharges to the receiving water will meet requirements under 18 AAC 70.015(a)(2)(D); to make this finding the department will*

(i) identify point sources and state-regulated nonpoint sources that discharge to, or otherwise impact, the receiving water;

(ii) consider whether there are outstanding noncompliance issues with point source permits or required state-regulated nonpoint source best management practices, consider whether receiving water quality has improved or degraded over time, and, if necessary and appropriate, take actions that will achieve the requirements of 18 AAC 70.015(a)(2)(D); and

(iii) coordinate with other state or federal agencies as necessary to comply with (i) and (ii) of this subparagraph[.]

The requirements under 18 AAC 70.015(a)(2)(D) state:

(D) all wastes and other substances discharged will be treated and controlled to achieve

(i) for new and existing point sources, the highest statutory and regulatory requirements; and

(ii) for nonpoint sources, all cost-effective and reasonable best management practices[.]

Here, 18 AAC 70.015(a)(2)(D)(i) applies because the discharges are point sources. As such, the highest statutory and regulatory requirements for this point source are defined at 18 AAC 70.015(d):

(d) For purposes of (a) of this section, the highest statutory and regulatory requirements are

(1) any federal technology-based effluent limitation identified in 40 C.F.R. 122.29 and 125.3, revised as of July 1, 2017 and adopted by reference;

(2) any minimum treatment standards identified in 18 AAC 72.050;

(3) any treatment requirements imposed under another state law that is more stringent than a requirement of this chapter; and

(4) any water quality-based effluent limitations established in accordance with 33 U.S.C. 1311(b)(1)(C) (Clean Water Act, sec. 301(b)(1)(C)).

The first part of the definition includes all applicable TBELs. TBELs are unwarranted for the discharge and have not been established in the permit as outlined in Fact Sheet Section 4.1.1.

The second part of the definition references the minimum treatment standards for domestic wastewater discharges found at 18 AAC 72.050. The federal technology based ELGs for secondary treatment of domestic wastewater are found in 40 CFR Part 133. These ELGs apply to publicly owned treatment works (POTWs) and are not applicable to the authorized discharge. For the discharge, all applicable federal and state technology based ELGs have been considered for incorporation into the permit.

The third part of the definition refers to treatment requirements imposed under another state law that are more stringent than 18 AAC 70. Other applicable regulations, beyond 18 AAC 70, include 18 AAC 15 and 18 AAC 72. Neither 18 AAC 15 nor 18 AAC 72, nor any other state law that the department is aware of, imposes more stringent requirements than those found in 18 AAC 70.

The fourth part of the definition refers to WQBELs, which are designed to ensure that the WQS of a waterbody are protected and may be more stringent than TBELs. Section 301(b)(1)(C) of the CWA requires the development of limits in permits necessary to meet WQS by July 1, 1977. WQBELs included in APDES permits are derived from EPA-approved WQS. Under 18 AAC 83.435(a)(1), it requires that permits include WQBELs that can achieve water quality standards established under CWA § 303, including state narrative criteria for water quality.

In summary, the highest statutory and regulatory requirements applicable to this point source are WQBELs, which are incorporated in the permit. After review of the methods of treatment and control and the applicable statutory and regulatory requirements, including 18 AAC 70, 18 AAC 72, and 18 AAC 83, the department finds that the discharge authorized under this permit meets the highest applicable statutory and regulatory requirements in applicable WQBELs. Therefore, the 18 AAC 70.016(c)(7)(C) finding is met.

18 AAC 70.016(c)(7)(D) *[The department will not authorize a discharge unless it finds that] the alternatives analysis provided under (4)(C)–(F) of this subsection demonstrates that*

- (i) a lowering of water quality under 18 AAC 70.015(a)(2)(A) is necessary; when one or more practicable alternatives that would prevent or lessen the degradation associated with the proposed discharge are identified, the department will select one of the alternatives for implementation; and*
- (ii) the methods of pollution prevention, control, and treatment applied to all waste and other substances to be discharged are found by the department to be the most effective and practicable[.]*

The department finds that a lowering of water quality under 18 AAC 70.015(a)(2)(A) is necessary because the current permitted method of treating discharge is the only practical method in for the proposed project, per the analysis under 18 AAC 70.016(c)(7)(E). The department considered the most effective and practicable methods of prevention, control, and treatment, which in this case are the practices and requirements set out in the permit that will be applied to all wastes and other substances to be discharged. These findings, discussed further here, satisfy 18 AAC 70.016(c)(7)(D)(i) and (ii).

The department finds the most effective methods of prevention, control, and treatment are the practices and requirements set forth in this permit and adopted BMP plan. The BMP plan includes pollution prevention measures and controls appropriate for the facility and discharge. The design, construction,

and performance of the dredge plan of operation authorized under CWA Section 404 Permit POA-2018-00123 has been reviewed by the department in determining the discharge authorization, consistent with 18 AAC 72 and 18 AAC 83.

The department concludes that the lowering of water quality is necessary under 18 AAC 70.015(a)(2)(A) and determines that the methods of pollution prevention, control, and treatment applied to all waste and other substances to be discharged are the most effective and practicable methods. Therefore, the 18 AAC 70.016(c)(7)(D) finding is met.

18 AAC 70.016(c)(7)(E) *[The department will not authorize a discharge unless it finds that] except if not required under (4)(F) of this subsection, the social or economic importance analysis provided under (4)(G) and (5) of this subsection demonstrates that a lowering of water quality accommodates important social or economic development under 18 AAC 70.015(a)(2)(A).*

The permit applicant provided the department with economic information demonstrating that a lowering of water quality accommodates important economic development where the receiving water is located, per 18 AAC 70.016(c)(4)(G) and (5)(B).

IPOP LLC anticipates the contribution of substantial economic benefit to local and state economies by providing employment opportunities, annual payments to the state, and business to supporting industries. The project will provide benefits to the local and state economies through employment opportunities, annual lease fees and taxes to the state, and spending at local businesses supporting operations. IPOP LLC's annual payroll and services during operations are projected to be in excess of \$3,000,000 per year and the project is expected to provide at minimum 5 years of positive socio-economic benefits to the city of Nome and the surrounding communities through the employment of local residents and commercial transactions with local businesses in the region. In 2018, applicant spent \$2.87 million in Alaska in support of this project. IPOP LLC estimates that the project will contribute up to \$2.25 million in local taxes and \$260 million in payroll and other goods and services over a 5-year period. Additionally, additional local revenue is projected to bring an additional \$1,000,000 to Nome local businesses from increased tourism by IPOP LLC shareholders as a result of this project. IPOP LLC anticipates that a fully staffed operation will have up to 40 employees with an average wage substantially greater than the Alaskan average.

The effluent limits in the permit will meet WQS, provide for water quality adequate to protect designated and existing uses, and treat and control discharges by the most effective and reasonable means and to the highest statutory and regulatory requirements. Allowing the discharge is economically important for the Nome area and the State of Alaska.

The department concludes that the operation of IPOP LLC and the operation of the wastewater treatment system and the discharges authorized by the permit demonstrate that a lowering of water quality, specified by the permit, accommodates important economic development; therefore, the 18 AAC 70.016(c)(7)(E) finding is met.

18 AAC 70.016(c)(7)(F) *[The department will not authorize a discharge unless it finds that] 18 AAC 70.015 and this section have been applied consistent with 33 U.S.C. 1326 (Clean Water Act, sec. 316) regarding potential thermal discharge impairments.*

Discharges authorized under the permit are not associated with a potential thermal discharge impairment. Therefore, further analysis here is not applicable.

8.0 OTHER PERMIT CONDITIONS

8.1 Electronic Reporting (E-Reporting) Rule

The permittee is responsible for electronically submitting DMRs and other reports according to 40 CFR §127.

8.2 Quality Assurance Project Plan (QAPP)

The permittee is required to develop procedures ensuring that monitoring data are accurate and explaining data anomalies if they occur. The permittee is required to develop and implement procedures in a QAPP documenting standard operating procedures for collecting (e.g., sample collection or measurements), handling, storing, and shipping samples; laboratory analysis (e.g., most sensitive methods); and data reporting.

The QAPP must follow EPA's Quality Assurance Project Plan Standard and must be approved in accordance with this standard. The QAPP shall be reviewed at least annually to confirm its suitability and evaluate its effectiveness for the project. If a QAPP has already been developed and implemented, the permittee must review and revise the existing QAPP to ensure it includes the necessary content. The permittee must submit a letter to the department prior to discharging or within 60 days of the effective date of the permit certifying that the QAPP has been revised and implemented. The QAPP shall be retained onsite and made available to the department upon request.

8.3 Best Management Practices Plan

BMPs are measures designed to prevent or minimize the generation and the potential for the release of pollutants from industrial facilities to the waters of the U.S. through normal operations and ancillary activities. APDES permits must include BMPs to control or abate the discharge of pollutants when 1) numeric effluent limitations are infeasible or 2) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA [18 AAC 83.475(3) – (4)]. The required BMPs and rationale are as follows:

- 8.3.1 Operational controls to reduce turbidity generated during excavation must be implemented as required in the department approved BMP Plan.
- 8.3.2 Site conditions, such as tides, waves, currents, wind, and substrate type, must be considered and operational methods must be adjusted, as necessary, to ensure discharges comply with permit limits and separation distance requirements.
- 8.3.3 Operational controls to reduce turbidity generated during dredging operation including, but not limited to, equipment movement, dredging, processing, and discharge must be performed in accordance with CWA Section 404 Permit POA-2018-00123.

9.0 OTHER CONSIDERATIONS

9.1 Endangered Species Act

The Endangered Species Act of 1973 (ESA), first enacted in 1973 provides for the conservation of species that are listed as endangered or threatened throughout all or a significant portion of

their range, and the conservation of the ecosystems on which they depend. NMFS is responsible for administration of the Endangered Species Act (ESA) for listed cetaceans, seals, sea lions, sea turtles, anadromous fish, marine fish, marine plants, and corals. All other species (including polar bears, walrus, and sea otters) are administered by the U.S. Fish and Wildlife Service (USFWS). The ESA requires federal agencies to consult with NMFS and USFWS (collectively referred to as the Services) if their actions could beneficially or adversely affect any threatened or endangered species. As a state agency, DEC is not required to consult with the Services regarding permitting actions. However, the department values input from the Services and interacts voluntarily with these federal agencies to obtain listings of threatened and endangered species and critical habitat.

Based on communications with NMFS during prior permit issues and review of the NMFS protected species directory (<https://www.fisheries.noaa.gov/species-directory>) and ESA Critical Habitat Mapper (<https://www.fisheries.noaa.gov/resource/map/national-esa-critical-habitat-mapper>), the department determined that two threatened and four endangered species under NMFS jurisdiction may occur in or near the coverage area. Threatened species include the bearded seal [Beringia distinct population segment (DPS)] and ringed seal (Arctic subspecies). Endangered species include the fin whale, humpback whale (western North Pacific DPS), Northern Pacific right whale, and Steller sea lion (western DPS). Critical Habitat for the bearded seal (Beringia DPS) and ringed seal (Arctic subspecies) also falls near the permit coverage area. By letter of October 21, 2021, NMFS determined that the project was not likely to adversely affect listed species.

Based on communications with USFWS during prior permit issues and review of the USFWS *Information for Planning and Consultation* website (<http://ecos.fws.gov/ipac/>), the department determined that three threatened and one endangered species under USFWS jurisdiction may occur in or near the coverage area. Threatened species include polar bear, spectacled eider, and Steller's eider. Endangered species include the short-tailed albatross. Critical habitat for polar bear also falls within the permit coverage area. By letter of July 14, 2021 to USACE, the USFWS concluded that the project was not likely to adversely affect the listed eiders or polar bears.

Permit Part 1.3.1 indicates that all discharges within the silt curtain containment system and substrate disturbance incidental to the movement or repair of the silt curtain containment system is covered under the jurisdiction of POA-2018-00123. Permit Part 1.3.2 indicates that the permittee must comply with all seasonal operating restrictions stipulated in POA-2018-00123.

Therefore, the department does not anticipate adverse effects on threatened and endangered species due to the discharge authorized under this permit.

9.2 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) designates Essential Fish Habitat (EFH) in waters used by anadromous salmon and various life stages of marine fish under NMFS jurisdiction. EFH refers to those waters and substrates (sediments, etc.) necessary to fish from commercially-fished species to spawn, breed, feed, or grow to maturity. NMFS describes freshwater EFH for Alaskan stocks of Pacific Salmon as “those waters identified in ADF&G’s Catalog of Waters Important for the Spawning, Rearing, or Migration of Anadromous Fish Species ... and wherever there are spawning substrates”

(ADF&G 1998, NMFS 2005). Freshwater EFH applies to eggs, larval and juvenile stages, and adult salmon. The Anadromous Waters Catalog may be viewed on the ADF&G website at <https://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=main.home>. EFH for marine waters is further identified, based on species and region, within Fishery Management Plans developed by the North Pacific Fishery Management Council. The Magnuson-Stevens Act requires federal agencies to consult with NMFS when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. As a state agency, DEC is not required to consult with NMFS regarding permitting actions. However, the department values NMFS input and interacts voluntarily with NMFS to identify EFH.

Based on review of the Alaska EFH Mapper (<https://www.fisheries.noaa.gov/resource/map/alaska-essential-fish-habitat-efh-mapper>), EFH for chum, pink, and coho salmon species is in the vicinity of the project area (Norton Sound).

USACE as the issuing agency of POA-2018-00123 has completed all required agency consultation requirements and has considered and implemented NMFS recommendations prior to permit issuance.

Permit Part 1.3.1 indicates that all discharges within the silt curtain containment system and substrate disturbance incidental to the movement or repair of the silt curtain containment system is covered under the jurisdiction of POA-2018-00123. Permit Part 1.3.2 stipulates that the permittee must comply with all seasonal operating restrictions as approved by the department and stipulated within POA-2018-00123. Therefore, authorized discharge in accordance with the permit requirements will not adversely affect EFH or the receiving waters.

9.3 Permit Expiration

The permit will expire five years from the effective date of the permit.

10.0 REFERENCES

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FIGURES

Figure 1: Project Location

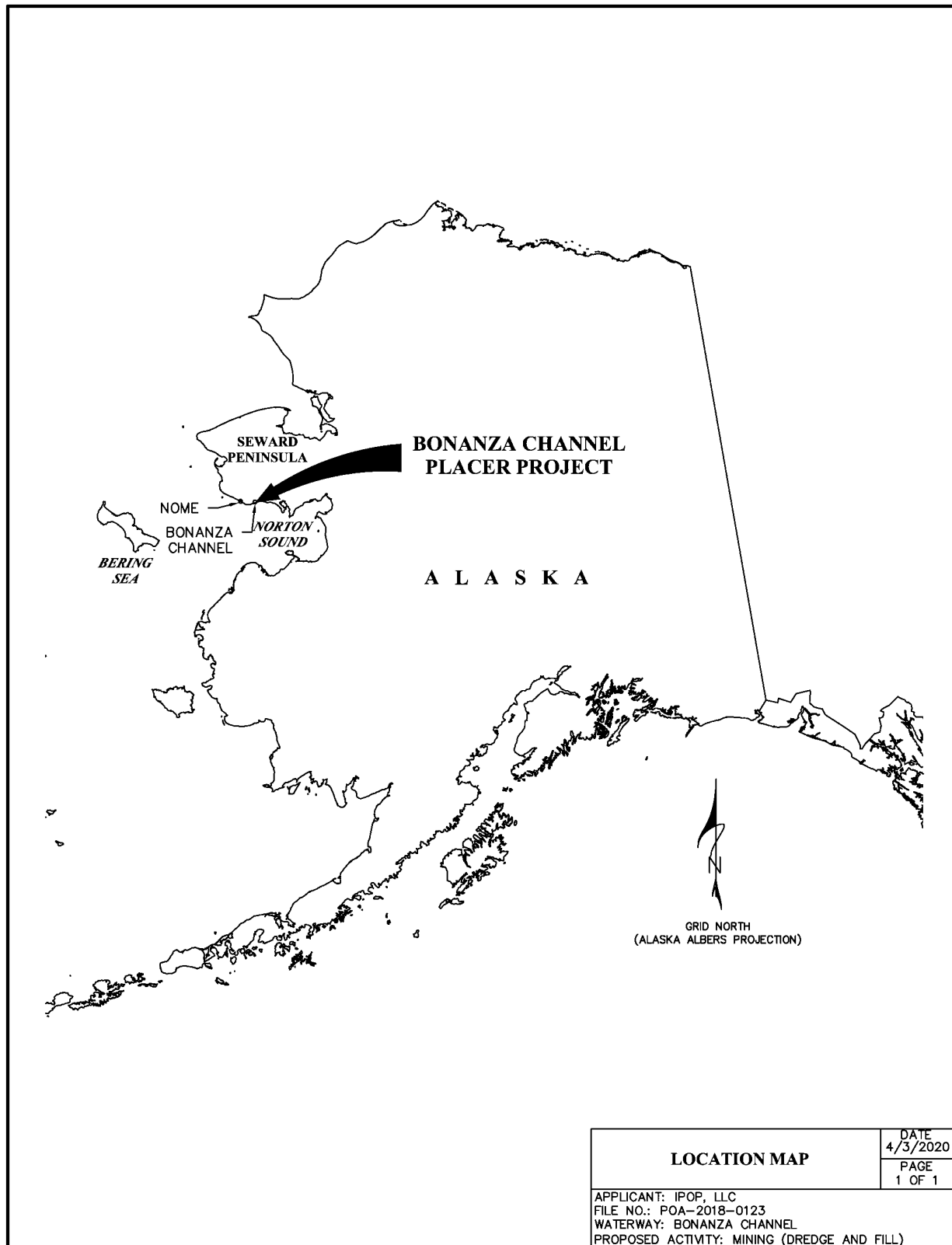


Figure 2: Project Area

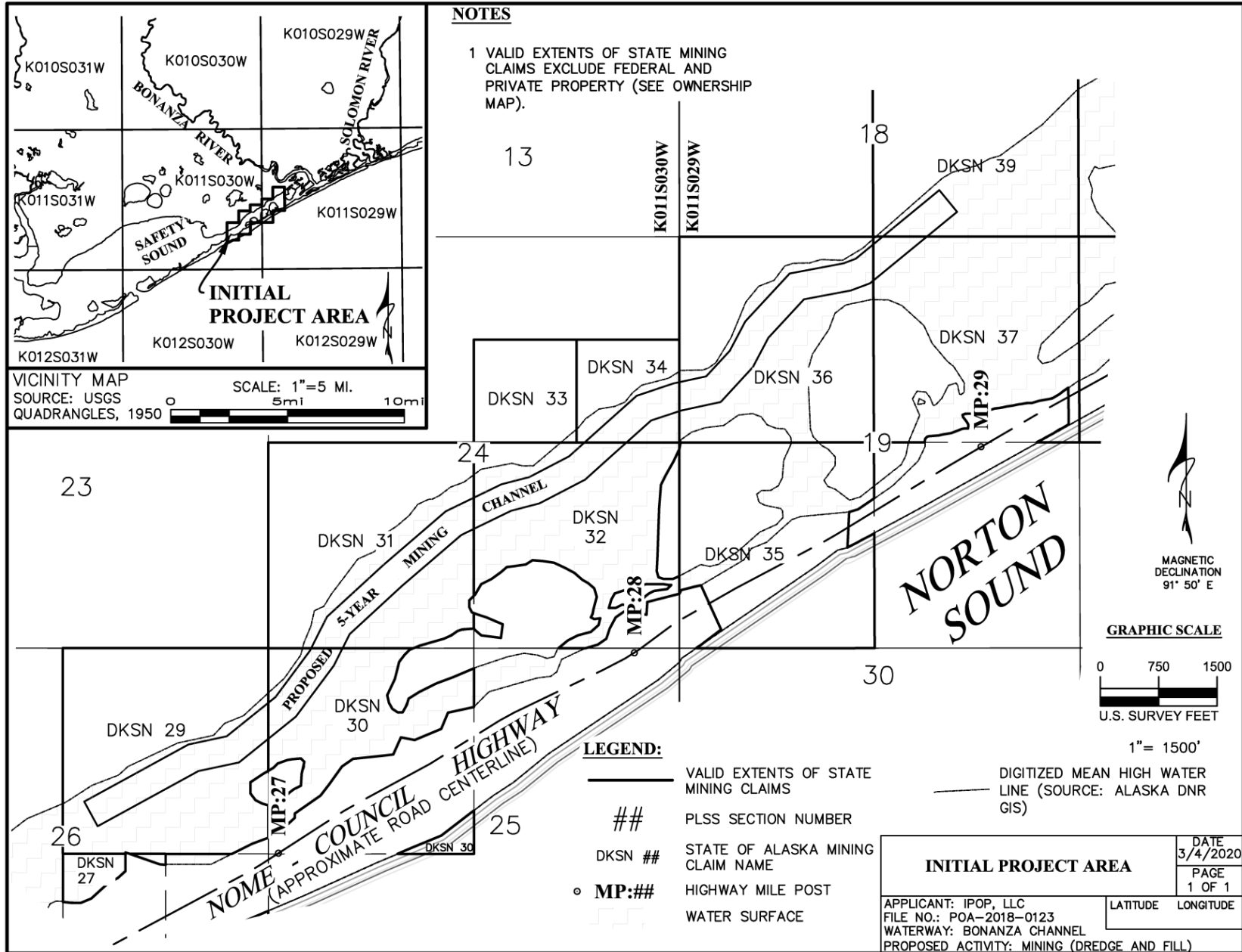


Figure 3: Line Drawing

