US Army Corps of Engineers
Alaska District

Public Notice of Application for Permit

FAIRBANKS FIELD OFFICE
Regulatory Division (1145)
CEPOA-RD
2175 University Avenue, Suite 201E
Fairbanks, Alaska 99709-4927

PUBLIC NOTICE DATE: **April 16, 2021**

EXPIRATION DATE: **May 17, 2021**

REFERENCE NUMBER: **POA-2018-00123**

WATERWAY: **Bonanza Channel/ Safety Sound**

Interested parties are hereby notified that a Department of the Army permit application has been received for work in waters of the United States (U.S.) as described below and shown on the enclosed project drawings.

All comments regarding this Public Notice (PN) should be sent to the address noted above. If you desire to submit your comments by email, you should send it to the Project Manager's email as listed below or to regpagemaster@usace.army.mil. All comments should include the PN reference number listed above.

All comments should reach this office no later than the expiration date of this PN to become part of the record and be considered in the decision. Please contact Tiffany Kwakwa at (907) 474-2167, toll free from within Alaska at (800) 478-2712, or by email at: Tiffany.D.Kwakwa@usace.army.mil if further information is desired concerning this notice.

APPLICANT: IPOP, LLC., Attention: Beau Epstein, P.O. Box 2010, Nome, Alaska 99762; Email: beau@environmental-restoration.com

AGENT: Yukuskokon Professional Services, LLC., Attention: William Burnett, P.O. Box 870507, Wasilla, Alaska 99687; Email: billnurnett@yukuskokon.com

LOCATION: The project site is located approximately 25 miles east of Nome, Alaska, in Bonanza Channel and at approximately Mile Post 28.5 along the Nome-Council Road, between Latitude 64.5044° N., Longitude 164.6169° W., on the western limit and Latitude 64.52866° N, Longitude 164.5447° W. on the eastern limit; within the following sections, townships, and ranges:

Section 24, T. 11 S., R. 30 W., Kateel Meridian;
Section 25, T. 11 S., R. 30 W., Kateel Meridian;
Section 26, T. 11 S., R. 30 W., Kateel Meridian;
Section 18, T. 11 S., R. 29 W., Kateel Meridian;
Section 19, T. 11 S., R. 29 W., Kateel Meridian;

USGS Quad Map Solomon C-6.

BACKGROUND: This PN is related to the PN for a five-year suction dredge mining proposal in Bonanza Channel/Safety Sound, IPOP LLC, dated July 31, 2020, and posted at: https://www.poa.usace.army.mil/Missions/Regulatory/Public-Notices/Article/2296830/poa-2018-00123-bonanza-channel-safety-sound/. The Corps of Engineers (Corps) received a revised project plan from IPOP on February 1, 2021, increasing the project footprint and proposing additional work and impacts. Due to the changes proposed in this revised plan, a new PN is warranted.

SPECIAL AREA DESIGNATION: The project directly abuts land within the Alaska Maritime National Wildlife Refuge, is in proximity (approximately 2,000 feet) to Native Allotments, and is located within special aquatic site(s).

PURPOSE: The overall project involves two components: regulated activities associated with the proposed scientific information gathering plan (termed the “case study”) to provide supporting information for the previously proposed five-year mining plan and regulated activities of the five-year mining plan (previously described in PN POA-2018-00123, Safety Sound/Bonanza Channel; issued July 31, 2020).

Proposed new work (the ‘case study’): The applicant proposes to discharge 294,000 cubic yards (CY) of dredged material into 26.8 acres of waters of the U.S., including wetlands, for the applicant’s stated purpose of conducting a ‘case study’ to gather scientific information relating, but not limited to, turbidity, quantifying impacts of a full-scale operation to fish and wildlife, confirm dredge channel slope angle, refine reclamation methods, document sounds from equipment above and below water, and demonstrate that a project such as this can coexist with subsistence harvest and other activities (*Detailed Plan Of Operations For Summer 2021: A Proposal to Amend the 2020 Narrative and Plan of Operations to Provide a Bonanza Channel Case Study (BCCS)* page 1, attached).

Originally proposed work: The applicant proposed to discharge 4,533,000 CY of dredged material into 177 acres of waters of the U.S., including wetlands, over five years for their stated purpose “to economically produce gold from IPOP’s mining claims on the Bonanza Channel and Tidal Lagoon using proven technologies that are specifically designed for shallow water estuary dredging and ultra-fine gold recovery.”

PROPOSED WORK: Regulated activities include work in the Bonanza Channel of Safety Sound, a Section 10 waterbody, and the dredging and discharge of dredged material into waters of the U.S. (the Bonanza Channel of Safety Sound and adjacent wetlands).

Total impact acreage from the case study and the five-year mining plan would be approximately 195 acres of waters of the U.S., including wetlands, from the dredging and disposal of approximately 4,827,161 CYs of material (estimated to have a bulked volume of approximately 5,173,423 CYs). A man camp is proposed within uplands (approximately 1.2 acres). The man camp and launch point for the equipment would be along a State-owned parcel, down a 330-foot-long access road, north of the Nome-Council Highway at approximately Mile Post 28.5. The proposed two phases of the case study work consist of a full-scale mining and reclamation project resulting in the discharge of approximately 294,000 CYs (estimated to have a bulked dredged volume of approximately 316,000 CYs) of dredged material into five disposal areas (dredge disposal sites D, E, G, H and I) totaling 13.9 acres of wetland waters of the U.S. The dredged material would come from a separate dredging area totaling 10.5 acres (Phase I and II test areas) wetland waters of the U.S. There would also be a discharge back into 8.1 acres of 10.5-acre dredge area (dredge disposal site F). At the conclusion of the two phases of the case study, a seven-foot deep, approximately 1,200-foot long access channel would remain, approximately 2.4 acres in size. The total acreage of impact from the case study would be approximately 26.8 acres wetland waters, classified in the National Wetlands Inventory as E1UBL (estuarine subtidal unconsolidated bottom). The trapezoidal mining channel would be 28 feet deep, approximately 188.3 feet wide at the bottom and approximately 343.1 feet wide at the top (cross-section J-J'; Alaska State Mining Claim DKSN 35), narrowing to a 28-foot deep trapezoidal channel, approximately 106.5 feet wide at the bottom and 264.6 feet wide at the top in Alaska State Mining Claim DKSN 36 (cross-section I-I'). This work would be conducted in two phases prior to the five-year mining plan. The case study work is proposed for June 2021 through October 15, 2021. Additional details of the case study are located within Section 5.8.9.3 of the attachment, *Case Study Amendment to the Narrative and Plan of Operations for Bonanza Channel Placer Project, Alaska.*

Equipment proposed for the 'case study' would be the same as for the five-year mining plan and includes a single engine dredge vessel (dimensions: 50 feet long x 24 feet wide) with a 36-inch diameter Vosta cutterhead, a 10-inch diameter dredge nozzle, two small tender boats (dimensions: 25 feet long x 12 feet wide) and a processing barge (dimensions: 64 feet long x 40 feet wide). The dredge vessel would be connected to the processing platform by a 300 to 600-foot-long floating pipe. Additional details on the types of equipment can be found within the 2020 Narrative and Plan of Operations, Section 5.3 (described in Corps' PN POA-2018-00123, Safety Sound/Bonanza Channel, issued July 30, 2020; online at" https://www.poa.usace.army.mil/Missions/Regulatory/Public-Notices/Article/2296830/poa-2018-00123-bonanza-channel-safety-sound/). Additional equipment includes one to two gravel pump dredges (see attached Case Study Amendment description, section 5.8). The case study would also include one to two gravel pump dredges to allow more precise bottom sculpting for reclamation (*Case Study Amendment, page 2)*.

Reclamation would be concurrent with mining, with temporary dredge material disposal sites to be reclaimed by the end of the project. The Applicant's plan is to re-establish the estuary as close to the original pre-mining extent and depth as possible, except for the access channel for the duration of the project. The reclamation proposal includes the creation of pools for thermal refugia habitat for fish using the dredged material from the access channel to create point bars or mudflats. Impacts to submerged aquatic vegetation would be minimized through the mechanical removal of the organic muck layer on the surface, storage of that layer below mean lower low water (MLLW) within a silt curtain or boomed containment storage area, and then evenly dispersed along the side slopes of the access channel to a nominal average depth of 7 feet below mean high water (BMHW).

The methods for harvesting, storing, and installing the vegetation would be analogous to procedures outlined in the Alaska Department of Fish and Game's Stream Bank Revegetation and Protection: A Guide for Alaska (2005) and the Alaska Coastal Revegetation and Erosion Control Guide (2013). Proposed reclamation for birds includes the access channel as potential deep-water habitat for larger birds, such as swans and loons, and the creation of vegetated upland areas or dunes. Any fish captured within the mining areas would be inventoried and relocated outside of the silt curtains. The five-year mining plan (described in Corps' PN POA-2018-00123, Safety Sound/Bonanza Channel, issued July 30, 2020) involves suction dredging a total of 108.7 acres over a five-year period (approximately 21.7 acres per year) and disposal of that material into 57.8 acres of wetland waters of the U.S. for gold mining. Additionally, an access channel spanning 1.8 acres from the end of the access channel created in the case study would be created and maintained to access the mining channel. The total acreage of impact from the five-year mining plan would be approximately 168.1 acres of impact (the acreage differs from the prior description due to the inclusion of a portion of the access channel being accounted for within the footprint of the case study). The dredged volume is estimated to be approximately 4,500,000 CYs (4,822,020 CYs bulked volume) from a mining channel with a depth of 31 feet, top width of approximately 360-365 feet (approximately 200-ft wide at the bottom), and total length of approximately 13,000 feet. This work is proposed after the completion of the case study over a period of five years during the summer/fall season

The request for authorization does not include mining in all 32 IPOP mining claims.

The mining project would be a seasonal summer/fall mining operation within the waters of the Bonanza Channel/Safety Sound. During the winter, core drilling (exploration) would occur once the channel and lagoon have frozen solid. (The core drilling component of the project was authorized by POA-2018-00123, Nationwide Permit # 6, Survey Activities, verified May 4, 2020; a current request for additional coring is being processed at the time of issuance of this notice).

All work would be performed in accordance with the enclosed plan (sheets 1-29), dated April 2021.

ADDITIONAL INFORMATION: Additional information regarding the proposed mining activities can be found in the *2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska IPOP, LLC* or online at: https://www.poa.usace.army.mil/Missions/Regulatory/Public-Notices/Article/2296830/poa-2018-00123-bonanza-channel-safety-sound/. Please contact the agent at the aforementioned address or email for additional information or hard copies of their prepared materials.

The Corps: Nationwide Permit (NWP) 6 authorization for Survey Activities was verified April 5, 2019; reverified December 5, 2019; 2nd reverification May 4, 2020. NWPs 18/19 were verified on April 5, 2019, for Minor Dredging, and Discharge. There is a pending NWP 6 verification request for additional surveying activities.

Alaska Department of Natural Resources-Division of Mining (ADNR-Mining) Miscellaneous Land Use Permit for Exploration, Suction Dredging and Reclamation. Permit # 2875, and all other amendments.

Alaska Department of Fish and Game (ADFG), Fish Habitat Permit, FH20-III-0095

APPLICANT PROPOSED MITIGATION: The applicant proposes the following mitigation measures to avoid, minimize, and compensate for impacts to waters of the U.S. from activities involving discharges of dredged or fill material.

a. Avoidance and Minimization: The applicant has proposed the following avoidance and minimization measures regarding the case study. The text below in *italics* is directly from IPOP, organized for clarity.

This section provides the narrative from the [Clean Water Act 404 (b)(1)] *guidelines (in italics) followed by quoted information from the* [applicant submitted] *project plan that addresses the guideline, as it applies. Note: There are many actions which can be undertaken in response to Section 203.10(d) to minimize the adverse effects of discharges of dredged or fill material. Some of these, grouped by type of activity, are listed in this subpart.*

Code of Federal Regulations (CFR) 40 Part 230 Subpart H – Actions to Minimize Adverse Effects	***IPOP's Statement***
§230.70 – Actions Concerning the Location of the Discharge *The effects of the discharge can be minimized by the choice of the disposal site. Some of the ways to accomplish this are by:* *(a) Locating and confining the discharge to minimize smothering of organisms;*	*Project plan: Dredge material storage areas are designed to the minimum footprint necessary to develop access and will be reclaimed to original bathymetry concurrently with mining to minimize impacts to SAV and benthic organisms*
§230.70(b) Designing the discharge to avoid a disruption of periodic water inundation patterns;	*Project plan: Mud flat and inundated shallows will be restored to original bathymetry as practicable in conjunction with new habitat development (230.75 (d).*
§230.70(c) Selecting a disposal site that has been used previously for dredged material discharge;	*Project plan: Not applicable to the project.*
§230.70(d) Selecting a disposal site at which the substrate is composed of material similar to that being discharged, such as discharging sand on sand or mud on mud;	*Project plan: Core data indicate a predominantly sand substrate will be replaced in-situ to original bathymetry in conjunction with new habitat development (230.75 (d))*
§230.70(e) Selecting the disposal site, the discharge point, and the method of discharge to minimize the extent of any plume;	*Project plan: Plumes will be managed by deployment of a turbidity curtain.*
§230.70(f) Designing the discharge of dredged or fill material to minimize or prevent the creation of standing bodies of water in areas of normally fluctuating water levels and minimize or prevent the drainage of areas subject to such fluctuations.	*Project plan: Substrate will be replaced in situ to original bathymetry in conjunction with new habitat development (230.75 (d)) to mitigate standing water.*

§230.71 – Actions Concerning the Material to be Discharged *The effects of a discharge can be minimized by treatment of, or limitations on the material itself,* *such as:* *(a) Disposal of dredged material in such a manner that physiochemical conditions are maintained, and the potency and availability of pollutants are reduced.*	*Project plan: Substrate will be replaced in situ to original bathymetry in conjunction with new habitat development (230.75(d),*
§230.71(b) Limiting the solid, liquid, and gaseous components of material to be discharged at a particular site;	*Project plan: Not applicable to project.*
§230.71(c) Adding treatment substances to the discharge material;	*Project plan: No treatment substances will be added to the discharge material.*
§230.71(d) Utilizing chemical flocculants to enhance the deposition of suspended particulates in diked disposal areas.	*Project plan: Suspended sediment will be contained and managed by deployment of a turbidity curtain.*
§230.72 – Actions Controlling the Material After Discharge *(a) Selecting discharge methods and disposal sites where the potential for erosion, slumping or leaching of materials into the surrounding aquatic ecosystem will be reduced. These sites or methods include, but are not limited to:* *(1) Using containment levees, sediment basins, and cover crops to reduce erosion;*	*Project plan: Substrate will be replaced in-situ to original bathymetry in conjunction with new habitat development (230.75(d),*
§230.72(a)(2) Using lined containment areas to reduce leaching where leaching of chemical constituents from the discharged material is expected to be a problem;	*Project plan: Not applicable to project.*
§230.72(b) Capping in-place contaminated material with clean material or selectively discharging the most contaminated material first to be capped with the remaining material;	*Project plan: Not applicable to project.*
§230.72(c) Maintaining and containing discharged material properly to prevent point and nonpoint sources of pollution;	*Project plan: Substrate will be replaced in situ to original bathymetry in conjunction with new habitat development (230.75 (d)); and substrate will be replaced to original elevations and to maintain original hydrologic and tidal processes*

§230.72(d) Timing the discharge to minimize impact, for instance during periods of unusual high water flows, wind, wave, and tidal actions.	*Project plan: The operation will carry out continuous, real time monitoring of tidal influence, currents, pH, temperature, conductivity, weather patterns, and turbidity during the mining period to help refine future operations and provide useful data to the regulatory agencies regarding both background water conditions and water conditions during operation.*
§230.73 – Actions Affecting the Method of Dispersion *The effects of a discharge can be minimized by the manner in which it is dispersed, such as:* *(a) Where environmentally desirable, distributing the dredged material widely in a thin layer at the disposal site to maintain natural substrate contours and elevation;*	*Project plan: Substrate will be replaced in-situ to original bathymetry in conjunction with new habitat development (230.75 (d)), and substrate will be replaced to original elevations and to maintain original hydrologic and tidal processes*
§230.73(b) Orienting a dredged or fill material mound to minimize undesirable obstruction to the water current or circulation pattern, and utilizing natural bottom contours to minimize the size of the mound;	*Project plan: Substrate will be replaced in-situ to original bathymetry in conjunction with new habitat development (230.75(d), and substrate will be replaced to original elevations and to maintain original hydrologic and tidal processes*
§230.73(c) Using silt screens or other appropriate methods to confine suspended particulate/turbidity to a small area where settling or removal can occur;	*Project plan: All in water project activities will be within containment provided by a turbidity curtain to maintain water quality*
§230.73(d) Making use of currents and circulation patterns to mix, disperse and dilute the discharge;	*Project plan: All in water project activities will be within containment provided by a turbidity curtain to maintain water quality*
§230.73(e) Minimizing water column turbidity by using a submerged diffuser system. A similar effect can be accomplished by submerging pipeline discharges or otherwise releasing materials near the bottom;	*Project plan: All dredged material will be contained inside the turbidity curtain*
§230.73(f) Selecting sites or managing discharges to confine and minimize the release of suspended particulates to give decreased turbidity levels and to maintain light penetration for organisms;	*Project plan: All dredged material will be contained inside the turbidity curtain*
§230.73(g) Setting limitations on the amount of material to be discharged per unit of time or volume of receiving water.	*Project plan: Not applicable to project.*
§230.74 – Actions related to technology	*Project plan: Dredge and processing equipment project-specific designed to*

Discharge technology should be adapted to the needs of each site. In determining whether the discharge operation sufficiently minimizes adverse environmental impacts, the applicant should consider: *(a) Using appropriate equipment or machinery, including protective devices, and the use of such equipment or machinery in activities related to the discharge of dredged or fill material;*	*maximize efficiency and minimize environmental impacts compared to other mining methods.*
§230.74 (b) Employing appropriate maintenance and operation on equipment or machinery, including adequate training, staffing, and working procedures;	*Project plan: Dredge operators have decades of combined experience operating nearly identical machines throughout the U.S. and equipment will be maintained to manufacturers' specifications and inspected daily as per preventative maintenance protocols.*
§230.74 (c) Using machinery and techniques that are especially designed to reduce damage to wetlands. This may include machines equipped with devices that scatter rather than mound excavated materials, machines with specially designed wheels or tracks, and the use of mats under heavy machines to reduce wetland surface compaction and rutting;	*Project plan: Mining plan will avoid operations in unsubmerged wetlands to the extent practicable; any operations in wetlands will use purpose-built tracked low-ground-pressure equipment; and cranes and airbags will be used to deploy equipment into the channel to minimize or avoid impacts to wetlands in the near shore areas.*
§230.74 (d) Designing access roads and channel spanning structures using culverts, open channels, and diversions that will pass both low and high water flows, accommodate fluctuating water levels, and maintain circulation and faunal movement;	*Project plan: Substrate will be replaced in situ to original bathymetry in conjunction with new habitat development (230.75(d), such as fish rearing habitat and migration channels.*
§230.74 (e) Employing appropriate machinery and methods of transport of the material for discharge.	*Project plan: Dredge and processing equipment is project-specific design to maximize efficiency and minimize environmental impacts compared to other mining methods.*
§230.75 – Actions affecting plant and animal populations. *Minimization of adverse effects on populations of plants and animals can be achieved by:* *(a) Avoiding changes in water current and circulation patterns which would interfere with the movement of animals;*	*Project plan: The project will not alter current and circulation patterns which would interfere with the movement of animals*

§230.75 (b) Selecting sites or managing discharges to prevent or avoid creating habitat conducive to the development of undesirable predators or species which have a competitive edge ecologically over indigenous plants or animals;	*Project plan: Proposed habitat developments would provide predator refugia for nesting birds*
§230.75 (c) Avoiding sites having unique habitat or other value, including habitat of threatened or endangered species;	*Project plan: Operational plans will avoid impacts to unique habitats such as mudflats to the extent practicable and no threatened or endangered species habitat has been documented in the footprint of the project.*
§230.75 (d) Using planning and construction practices to institute habitat development and restoration to produce a new or modified environmental state of higher ecological value by displacement of some or all of the existing environmental characteristics. Habitat development and restoration techniques can be used to minimize adverse impacts and to compensate for destroyed habitat. Additional criteria for compensation measures are provided in subpart J of this part. Use techniques that have been demonstrated to be effective in circumstances similar to those under consideration wherever possible. Where proposed development and restoration techniques have not yet advanced to the pilot demonstration stage, initiate their use on a small scale to allow corrective action if unanticipated adverse impacts occur;	*Project plan: Higher ecological value habitat will be created by providing reliable anadromous fish passage through Bonanza channel through the design and construction of a migration channel; higher ecological value habitat will be created by providing new resident and anadromous fish rearing habitat through the design and construction of deep water habitat for temperature refugia and potentially overwintering; existing "dry land" dune habitat may be enhanced with the beneficial re-use of dredged material; beneficial re-use of dredged material may be for construction of nesting islands for migratory birds; and beneficial re-use of dredged material would be used for the construction of additional mudflat habitat incorporating existing island littoral morphologies and channel bathymetry*
§230.75 (e) Timing discharge to avoid spawning or migration seasons and other biologically critical time periods;	*Project plan: Operational plans will avoid swan foraging habitat (approximate 2 feet. nearshore bathymetric contour) to the extent practicable during spring and fall migration*
§230.75 (f) Avoiding the destruction of remnant natural sites within areas already affected by development.	*Project plan: Not applicable to project.*
§230.76 – Actions affecting human use *Minimization of adverse effects on human use potential may be achieved by:* *(a) Selecting discharge sites and following discharge procedures to prevent or minimize any potential damage to the aesthetically pleasing features of the aquatic site (e.g. viewscapes), particularly with respect to water quality;*	*Project plan: Overall impacts to viewscapes will be minimized to the extent practicable within* *the context of newly developed habitat features*

§230.76 (b) Selecting disposal sites which are not valuable as natural aquatic areas;	*Project plan: The project will maintain or enhance value of the ecosystem services provided in the existing natural aquatic area*
§230.76 (c) Timing the discharge to avoid the seasons or periods when human recreational activity associated with the aquatic site is most important;	*Project plan: Not applicable to project.*
§230.76 (d) Following discharge procedures which avoid or minimize the disturbance of aesthetic features of an aquatic site or ecosystem;	*Project plan: Overall impacts to viewscapes will be minimized to the extent practicable within the context of newly developed habitat features*
§230.76 (e) Selecting sites that will not be detrimental or increase incompatible human activity, or require the need for frequent dredge or fill maintenance activity in remote fish and wildlife areas;	*Project plan: Not applicable to project.*
§230.76 (f) Locating the disposal site outside of the vicinity of a public water supply intake.	*Project plan: Not applicable to project.*
§230.77 – Other actions. *(a) In the case of fills, controlling runoff and other discharges from activities to be conducted on the fill;*	*Project plan: Proposed disposal operations will be within mean higher high water (MHHW) and mean lower low water (MLLW) elevations and not create runoff.*
§230.77 (b) In the case of dams, designing water releases to accommodate the needs of fish and wildlife;	*Project plan: Not applicable to project.*
§230.77 (c) In dredging projects funded by Federal agencies other than the Corps of Engineers, maintain desired water quality of the return discharge through agreement with the Federal funding authority on scientifically defensible pollutant concentration levels in addition to any applicable water quality standards;	*Project plan: Not applicable to project.*
§230.77 (d) When a significant ecological change in the aquatic environment is proposed by the discharge of dredged or fill material, the permitting authority should consider the ecosystem that will be lost as well as the environmental benefits of the new system.	*Project plan: There will be temporary impacts to existing ecosystem services during annual project operations; there will be no permanent loss of existing ecosystem services because of the high biological likelihood of SAV recolonization; there will be no permanent loss of existing ecosystem services because of avoidance of mudflats during operations; there will be no permanent loss of existing ecosystem services because of seasonal timing windows (activity windows) to maintain swan foraging habitat; there will be no permanent loss of existing ecosystem services because*

	of the existing available habitat proximate to the project footprint that will not be impacted by project activities.

Avoidance and minimization measures for the five-year mining plan are as follows (from the 2020 Narrative and PN POA-2018-00123 issued July 31, 2020). The language below in *italics* is quoted directly from the applicant:

This Mitigation Statement is intended to address primarily the impacts of the first five years of operations, as described in IPOP's 2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska ("2020 IPOP Narrative "). Primary impacts come from development of the base camp, access channel, and proposed five-year mining channel as set forth in the plans and the 2020 IPOP Narrative. Given the innovative nature of the mining and reclamation operations, IPOP expects to develop further information as the project expands into the Central and Eastern Project Areas (Page 2 of 26 in the plans).

Avoidance:

1. *IPOP has committed to avoiding any chemical processing that would contribute pollutants to waters of the U.S.*
2. *IPOP will secure all gray water and sewage generated by project operations on land and remove it weekly*
3. *IPOP will avoid any actual eelgrass beds (none have been identified in repeated surveys). IPOP does not propose to avoid all vegetated areas, because most of the vegetation is sparse, and is nearly eradicated every winter by ice scour and other factors.*
4. *IPOP's camp will avoid any use of or impact on adjacent wetlands.*

Minimization:

1. *The project will operate primarily within a containment curtain, limiting water quality and other impacts within the curtained area,*
2. *IPOP will be mining to a depth of approximately thirty feet to reduce the overall footprint of the project as compared to mining to a shallower depth.*
3. *IPOP's mining with concurrent reclamation/improvements will decrease the amount of time WOTUS are disturbed before restoration and improvement.*
4. *IPOP has identified its base camp location and access channel to utilize the shortest available path to the initial mining area from State-owned land.*
5. *IPOP advised in the 2020 IPOP Narrative (at p. 58) that it proposed to vary the dimensions and depth of the access channel "shallower or narrower as experience dictates." To clarify, IPOP will actively seek to make the channel as narrow and shallow as it can be while allowing access, thereby minimizing impacts.*
6. *Most equipment will be removed from the water at the end of each summer mining season,*
7. *Real-time monitoring of water turbidity and fish and wildlife presence will assist in avoiding unplanned impacts.*
8. *Other best management practices will include safe fuel handling, strict speed limits for vessels, and advanced equipment that minimizes sound and other impacts. The project design includes numerous measures to minimize environmental and other impacts to the resources of the general project area through strict alternatives analysis (Chapter 4 and Exhibit 4 of the 2020 IPOP Narrative.).*

9. *Applicant will work with USACE throughout the permitting and public review process to identify any other potential measures or alternatives that meet the project need, that is both reasonable and practicable, that create a benefit to the environment.*

c. Compensatory Mitigation: The following text in *italics* comprises the applicant's conceptual compensatory mitigation plan. Maps showing the location of the proposed mitigation are included within the PN.

The conceptual mitigation site is on Red Fox Road, approximately 13 miles north of Nome on Alaska Department of Fish and Game (ADF&G)- designated anadromous fish stream number 333-10-11250-20859(ADF&G 2021a) (Figure 1). Significant numbers of juvenile coho salmon have been documented between Red Fox Road and the stream confluence with the Nome River (ADF&G 2021). Currently, four improperly sized round metal pipes block fish passage to available rearing habitat upstream. The pipes were presumably installed during original road construction. The upstream habitat consists of multiple low-gradient stream channels connected to a legacy material site. A review of publicly available imagery indicates that the material site is being filled and recharged by groundwater, creating pond feature rearing habitat and potential juvenile overwintering habitat. The existing culvert description and fish passage conditions are described in ADF&G Fish Passage Site 50101638 (ADF&G 20201b) and summarized below.

Existing Conditions

The culvert crossing on Red Fox Road consists of four two-foot diameter, round metal pipes (Figure 2 through Figure 4). The pipes likely were installed during the original construction of Red Fox Road and not intended or designed for fish passage. ADF&G has designated the crossing as not passing fish due to streambed material accumulating in the pipes and the resulting lack of hydraulic capacity. Also, the crossing is poorly aligned to the existing plan view morphology of the stream. Pipe slopes through the crossing range from 0.76% to 3.6%, likely causing velocity barriers to fish passage at higher flows. Scaling derived from publicly available imagery indicate relatively flat valley slopes of 1.2% to 1.5% upstream of the crossing and approximately 1.0% from the crossing to the confluence of the Nome River. Data collected in fish surveys conducted by ADF&G (ADF&G 2021b) indicate significant numbers of juvenile coho salmon between the Red Fox Road crossing and the confluence of the Nome River. Review of stream morphology from publicly available imagery indicates suitable, but currently unavailable, habitat exists upstream of the existing Red Fox Road crossing. This habitat is also unique in the surrounding area because the stream channels are hydraulically connected to a legacy material site, which has topographic features deep enough to be recharged by groundwater.

Proposed Action

The applicant initiated informal consultation with Jim Menard, ADF&G Nome, and Justin Burrows, ADF&G, Habitat Division in Fairbanks, and Bob Henszey, US Fish and Wildlife Service (USFWS) in Fairbanks to confirm the biological viability of restoring fish passage across Red Fox Road to exploit the existing stream and pond habitat provided by the material site which is currently unavailable to fish. Based on available data (ADF&G 2021a, b), the upstream habitat is characterized as rearing habitat for juvenile anadromous and resident fish, specifically coho salmon. The data and imagery review also indicate a gravel fraction substrate and presence of groundwater recharge that indicates potential for spawning habitat. Restoring fish passage through Red Fox Road would make available approximately 19.5 acres

of fish rearing habitat and approximately 3,200 feet of stream habitat to include potential spawning habitat. Existing data confirms the presence of coho salmon in the stream, but it would be expected that restoring passage would recruit other species, including arctic char, which are an important subsistence resource in the Nome area.

Interagency Coordination

The applicant initiated informal consultation regarding design of the stream crossing with USFWS, ADF&G, and the Alaska Department of Transportation (ADOT) during summer of 2021. The applicant will lead the data collection following protocols specified in USFWS Culvert Design Guidelines for Ecological Function in coordination with USFWS, ADF&G, and ADOT. Design, construction drawings, and material specifications will be coordinated with the ADOT Engineering and Design in Fairbanks, Alaska. Installation of the culvert is anticipated to be completed by July 15, 2022.

WATER QUALITY CERTIFICATION: A permit for the described work will not be issued until a certification or waiver of certification, as required under Section 401 of the Clean Water Act (Public Law 95-217), has been received from the Alaska Department of Environmental Conservation.

CULTURAL RESOURCES: The latest published version of the Alaska Heritage Resources Survey (AHRS) has been consulted for the presence or absence of historic properties, including those listed in or eligible for inclusion in the National Register of Historic Places. There are cultural resources in the permit area or within the vicinity of the permit area – the Unalakleet-Nome Trail, a segment of the historic Iditarod Trail. The permit area has been determined to be the entire project area, including areas within uplands directly associated with the project. Consultation of the AHRS constitutes the extent of cultural resource investigations by the Corps at this time, and we are otherwise unaware of the presence of such resources. The Corps has made a No Historic Properties Affected (No Effect) determination for the proposed project. This application is being coordinated with the State Historic Preservation Office (SHPO). Any comments SHPO may have concerning presently unknown archeological or historic data that may be lost or destroyed by work under the requested permit will be considered in our final assessment of the described work. The Corps is requesting the SHPO's concurrence with this determination.

ENDANGERED SPECIES: The project area is within the known or historic range of Steller's eider *(Polysticta stelleri)*, Spectacled eider *(Somateria fischeri),* Polar Bear *(Ursus Maritimus),* Polar Bear designated critical habitat, Beringia distinct population segment (DPS) bearded seals (*Erignathus barbatus*), Arctic ringed seals (*Phoca hispida*). Additionally, the project area is located within proposed designated critical habitat for Arctic ringed seals and Beringia DPS bearded seals.

We have determined the described activity may affect the threatened Steller's eider, threatened Spectacled eider, threatened Polar Bear, threatened Beringia DPS bearded seals, threatened Arctic ringed seals, and their designated critical habitat as described above. IPOP, as the designated non-federal representative, will be responsible for furnishing information – subject to Corps' review – to initiate the appropriate consultation procedures under section 7 of the Endangered Species Act with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (NMFS). Any comments they may have concerning endangered or

threatened wildlife or plants or their critical habitat will be considered in our final assessment of the described work.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH).

The project area is within the known range of the Chinook salmon (*Oncorhynchus tshawytshca*), Coho salmon (*Oncorhynchus kisutch*), Chum salmon (*Oncorhynchus keta*), Sockeye salmon (*Oncorhynchus nerka*), Pink salmon (*Oncorhynchus gorbuscha*), Dolly Varden (*Salvelinus malma*), and Humpback Whitefish (*Coregonus pidschian*).

The project also has the potential to impact red king crab and submerged aquatic vegetation (SAV).

We are currently gathering information regarding these species and have yet to make a determination of effect. Should we find that the described activity may affect the species listed above, we will follow the appropriate course of action under Section 305(b)(2) of the Magnuson-Stevens Act. Any comments the National Marine Fisheries Service may have concerning essential fish habitat will be considered in our final assessment of the described work.

TRIBAL CONSULTATION: The Alaska District fully supports tribal self-governance and government-to-government relations between Federally recognized Tribes and the Federal government. Tribes with protected rights or resources that could be significantly affected by a proposed Federal action (e.g., a permit decision) have the right to consult with the Alaska District on a government-to-government basis. Views of each Tribe regarding protected rights and resources will be accorded due consideration in this process. This PN serves as notification to the Tribes within the area potentially affected by the proposed work and invites their participation in the Federal decision-making process regarding the protected Tribal right or resource. Consultation may be initiated by the affected Tribe upon written request to the District Commander during the public comment period.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, reasons for holding a public hearing.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity and its intended use on the public interest. Evaluation of the probable impacts, which the proposed activity may have on the public interest, requires a careful weighing of all the factors that become relevant in each particular case. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. The outcome of the general balancing process would determine whether to authorize a proposal, and if so, the conditions under which it will be allowed to occur. The decision should reflect the national concern for both protection and utilization of important resources. All factors, which may be relevant to the proposal, must be considered including the cumulative effects thereof. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands,

cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.
For activities involving 404 discharges, a permit will be denied if the discharge that would be authorized by such permit would not comply with the Environmental Protection Agency's 404(b)(l) guidelines. Subject to the preceding sentence and any other applicable guidelines or criteria (see Sections 320.2 and 320.3), a permit will be granted unless the District Commander determines that it would be contrary to the public interest.

The Corps is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

AUTHORITY: This permit will be issued or denied under the following authorities:
(X) Perform work in or affecting navigable waters of the U.S. – Section 10 Rivers and Harbors Act 1899 (33 U.S.C. 403).

(X) Discharge dredged or fill material into waters of the U.S. – Section 404 Clean Water Act (33 U.S.C. 1344). Therefore, our public interest review will consider the guidelines set forth under Section 404(b) of the Clean Water Act (40 CFR 230).

Project drawings are enclosed with this Public Notice.

District Commander
U.S. Army, Corps of Engineers

Enclosures

DETAILED PLAN OF OPERATIONS FOR SUMMER 2021: A PROPOSAL TO AMEND THE 2020 NARRATIVE AND PLAN OF OPERATIONS TO PROVIDE A BONANZA CHANNEL CASE STUDY (BCCS)

Public comments received from the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), the Environmental Protection Agency (EPA) and the public about the Individual Permit Application highlighted the need for additional information for the services to authorize full scale mining in the project area. Agency reviews also highlighted deficiencies in scientific data and literature available for reference to support the IPOP's position that the proposed project will result in minimal impact to the resource values of the Bonanza Channel Lagoon; specifically, that there is little to no scientific data or literature to reference that directly addresses the ecosystem of a northern latitude estuary or lagoon, and that there has been no prior dredging operations like the proposed project in intertidal areas in Alaska that could be used as a case study.

To generate additional real case-study data (in the absence of available literature or comparable operations) IPOP is proposing this amendment to the existing Individual Application to modify access channel construction into a site specific, controlled, full-scale mining and reclamation study. This study is designed to provide necessary data and to address agency questions and/or concerns relating to several topics, including:

1) Turbidity developed by a full-scale mining operation of all substrates down to 28 ft. total dredging depth.
2) Quantify impacts of a full-scale mining operation to fish and wildlife.
3) Confirmation of the submarine slope angle of the typical dredge channel in this specific operational setting.
4) Confirmation of the bulking factor estimates in the plan of operations for the larger 5-year mining proposal.
5) Refinement and proof of concept of operational reclamation methods including restoring bathymetry profiles in shallow water.
6) Assessing the need, method, and effectiveness of harvesting organic-rich bottom soil for habitat restoration efforts.
7) Proof of concept data relating to the effectiveness of reclamation to successfully restore and improve estuarine functions once mining has ceased including a) submerged aquatic vegetation (SAV) re-growth and recovery time; b) recovery of benthic species/communities disturbed by the mining process and timeline; and c) improvement of fish and migratory bird habitat through the reclamation process.
8) Documentation of low equipment sounds using dosimeters above water and hydrophones below water (sound source verification study).
9) Demonstrate that a project such as this can coexist with subsistence harvest and other activities (such as commercial bird watching) in the Bonanza Channel.

The volume and utility of the additional scientific information to be gathered suggests that the proposed application amendment amounts to what one might call a Bonanza Channel Case Study (BCCS), of which the project purpose is gathering additional scientific information and can only occur in the special aquatic site represented by Bonanza Channel Proposed Project area. The scientific aspect is important because IPOP believes it can demonstrate that dredging of sediment (derived in-part from prior mining operations on the Solomon River) and reclamation in these intertidal waters can improve fish and migratory bird habitat and maintain existing estuarine ecosystem services in Bonanza Channel.

5.8 [Proposed] Dredge Area Access Channel and Bonanza Channel Case Study[1]

IPOP proposes to modify § 5.8 of the 2020 Narrative and Plan of Operations to include significant new study components identified as the Bonanza Channel Case Study (BCCS) phase of proposed five-year operations. As detailed below, IPOP proposes to a simple, low impact mining and habitat restoration operation that will dredge accumulated sediments from the Bonanza Channel, process the material for gold (the proceeds of which will be used to fund the operation), deepen areas within the Bonanza Channel making the habitat more suitable for fish, reclaim and re-establish the disrupted SAV and benthic colonies, and redistribute excess material near shore to create additional productive shore bird habitat. The proposed test phase of the Individual Application will: 1) demonstrate by proof of concept that successful habitat improvements can be made to the Bonanza Channel Lagoon while also providing a substantial multi-million-dollar economic benefit to the community of Nome and Alaska, 2) have no significant negative environmental impact, 3) pose no substantive risk to fish, marine mammals, or wildlife, 4) co-exist peacefully with subsistence activities in the area 5) and most importantly leave no persistent visible footprint.

The camp site and equipment will be the same as described in the 2020 Narrative and Plan of Operations, except that IPOP proposes to bring in one to two gravel pump dredges to allow more precise bottom sculpting for reclamation. These additional pumps will enable IPOP to test an alternative of harvesting upper-level sediments rich in organic material (Charged Organic Veneer) and distributing a layer on mined areas to see if the recovery of SAV can be appreciably enhanced.

The proposed changes may be summarized as follows:

- BCCS project operating life of one season.
- Phase 1 would dredge and backfill approximately 160,000 cubic yards of silt, sand and gravel from a 5.9-acre test area. If successful and time allows Phase 2 would expand the test area by dredging and backfilling up to 135,000 additional cubic yards of material from a 4.6-acre test area.

[1] Existing § 5.8.1 in the 2020 Narrative Statement would be replaced with this material; maintenance would continue as proposed in existing § 5.8.2.

- Dredging depth of 28 feet.
- Reclamation concurrent with dredging, with temporary dredge material disposal sites reclaimed by the end of the case study.
- Study area located close to shore, near the entry point for easy access and quick response time.
- Study area outside of fish migration corridors.
- Study area is planned in shallow water with SAV mapped in the area as sparse, patchy, and continuous offering a great opportunity to demonstrate the reclamation effectiveness.
- Study area uniquely positioned between two large islands offering isolation from the greater Bonanza Channel; especially when closed off with turbidity curtains.
- Case study designed to demonstrate the long-term effectiveness of the curtain containment over a wider range of weather conditions, while minimizing the consequence of any failures.

5.8.1 BCCS PLAN OF OPERATIONS

This Plan of Operations for the Bonanza Channel Case Study (BCCS) covers a period of one summer/fall season, starting June 2021 through October 15, 2021. The BCCS area is located entirely on State of Alaska mining claims in waters over which the U.S. Army Corps of Engineers asserts jurisdiction.

5.8.1 General Operational Plans

Figures 5-8-20, 5-8-21 and 5-8-22 show the overview stages of the BCCS. The case study operation will dredge/mine the sands located in Bonanza Channel using a high-capacity cutterhead dredge and recover gold with a self-contained gravity recovery processing platform that is connected to the dredge by a 300-600' long floating pipe. The project will incorporate adaptive management practices utilizing the additional smaller equipment to ensure more controlled soil/organic substrate harvesting and restoration, more controlled and precise placement of bulked materials in shallow water dredge material disposal sites (DMDS), more precise bottom sculpting during the reclamation phase, and for use in developing the initial start-up area to the appropriate depth to allow the launching of the cutterhead dredge and the processing barge.

5.8.2 Base Camp Operations, Waste Disposal, Fuel and Staging

See section 5.2 of the 2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska.

5.8.3 Details of Equipment

See section 5.3 of the 2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska.

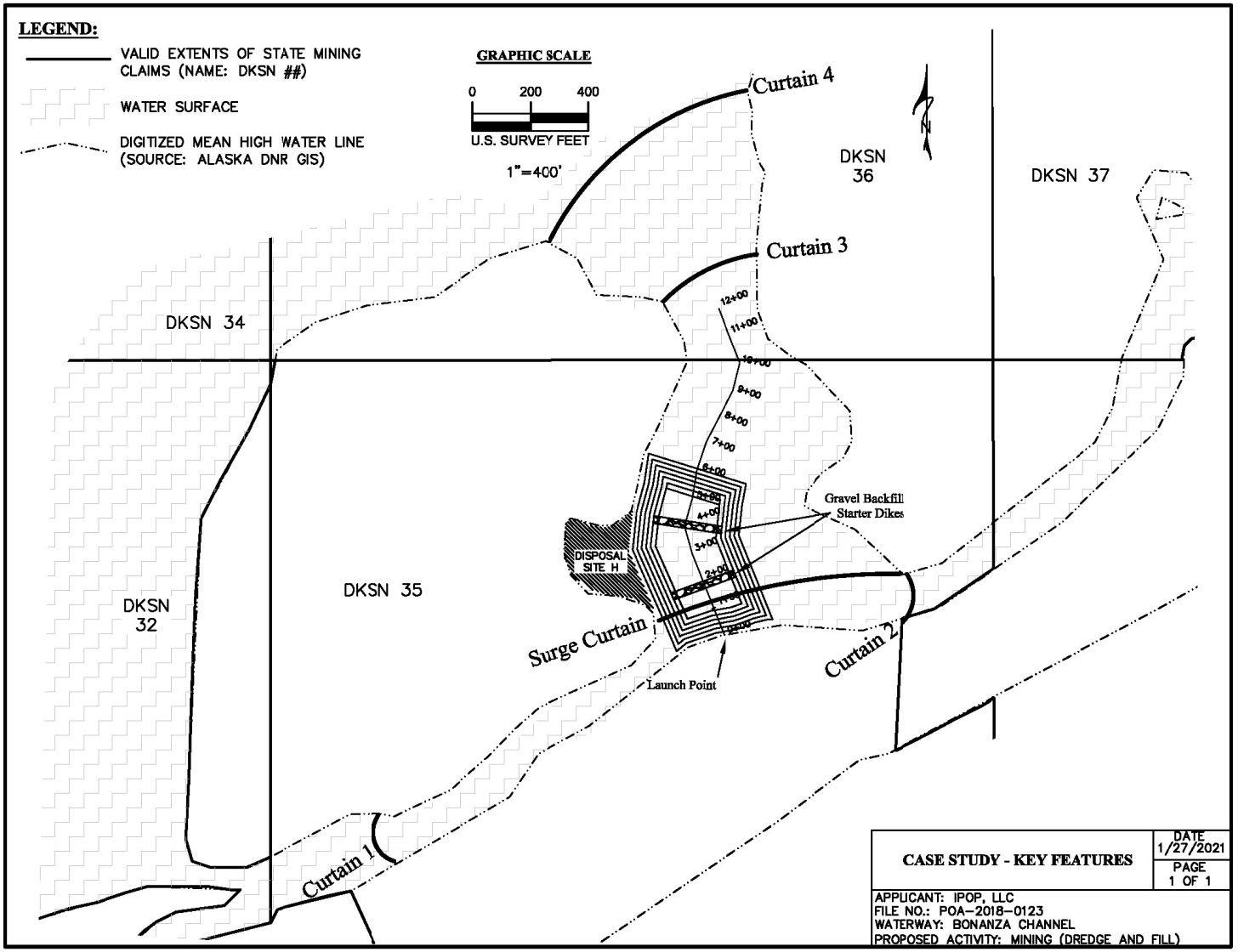


Figure 5-8-20. Overview map of the BCCS showing general centerline of dredging channel, turbidity curtain locations, launch point for dredge, and general contours of a dredged pit with conceptual gravel backfill control dikes.

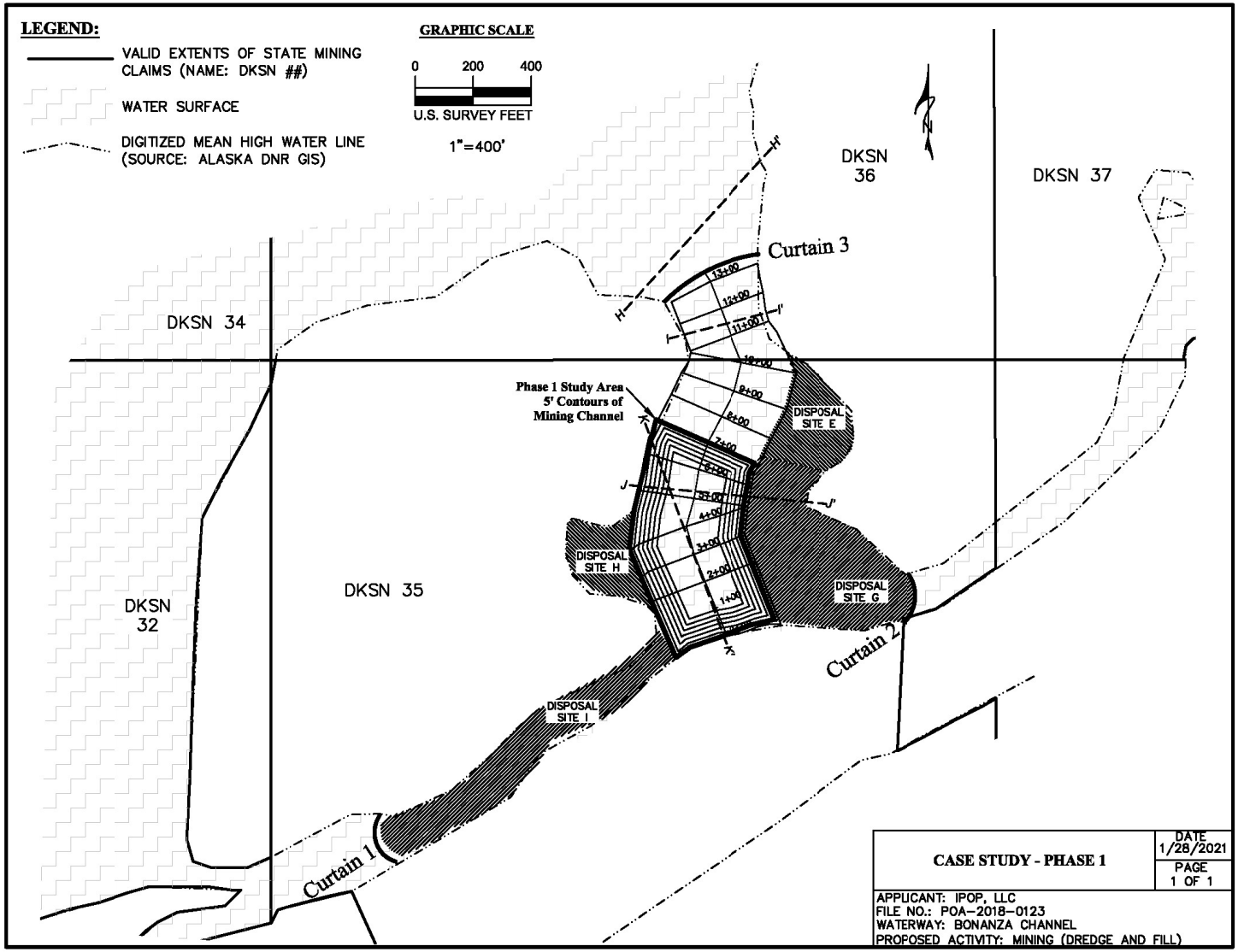


Figure 5-8-21. Map of the BCCS showing phase 1 general outline of dredging channel, turbidity curtain locations, cross section lines, dredge material disposal sites and general contours of the phase 1 dredged pit (illustrated as not backfilled).

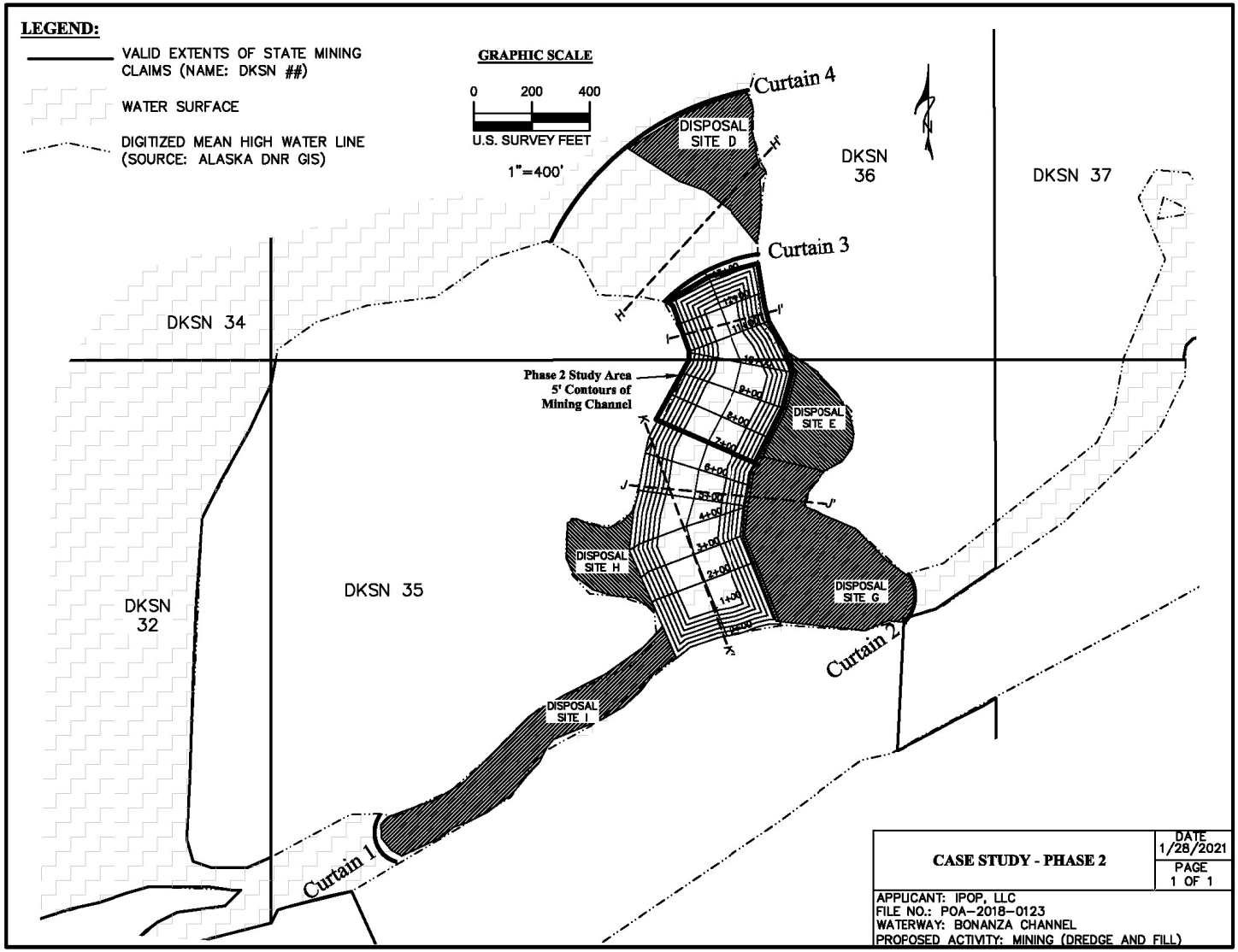


Figure 5-8-22. Map of the BCCS showing phase 2 general outline of dredging channel, turbidity curtain locations, cross section lines, dredge material disposal sites and general contours of phase 2 dredged pit (illustrated as not backfilled).

5.8.4 Gravel Pumping Dredge Details

Figure 5-8-23 is a schematic of the gravel suction dredge mounted on a shallow draft barge. The operation may utilize up to 2 gravel suction dredges into the equipment fleet if needed. The gravel suction dredge is moved by either barge tender/push boats or by winches. The dredge's gravel pump is an 8" pump designed for moving high concentrations of solids (<50% by weight) without grinding or physical impacts to soils or vegetation. The pump is powered by an onboard 75-80 hp Deutz engine that meets U.S. EPA Tier 4 emission standards (typical: 4-cylinder, 4-stroke prechamber diesel engine with a power rating at 2,300 rpm of 58 kW (77.8 hp). The engine/pump unit is the loudest part of this dredge (without sound dampening mufflers or engine enclosure 104 +/- 2 dB(A) re 20 uPa) and will be equipped with sound dampening exhaust and fully enclosed to attenuate normal running noise, resulting in maximum sound levels approximately 75 +/- 3 dB(A) [re 20uPa] equivalent to a human speaking in a normal volume. The underwater suction nozzle will make no noise.

The gravel suction dredge can excavate approximately 35-100 cubic yards of material per hour while moving unconsolidated soils, and larger capacities when conveying material dredged by the larger cutterhead dredge. This production estimate is based upon an engineering analysis provided by Keene Engineering but is highly dependent upon the type of material being dredged.

This dredge will be a multi-function piece of equipment used for soil harvesting, reclamation, bottom sculpting, entry site prep/deepening for the cutterhead dredge and the processing barge and conveying sand and gravel to dredge material disposal sites and shore-line habitat restoration areas. For soil harvesting, reclamation, and bottom sculpting operations the suction nozzle for this dredge will be fitted with a manually operated wide mouthed 6" or 8" suction nozzle with a safety suction break that will be suspended from floats that will be manually operated by a worker in the water.

For conveying gravel and sand away (from bulking or deepening of the channel) the dredge will be fitted with a standard suction hose fixed to the base of a cone-shaped chute mounted on a stationary float (Figure 5-8-24) berthed to the processing barge beneath one of the three outfalls depending upon size fractions and volumes of material to convey. For this purpose, the unit will essentially be used as a pumping system for excess material and will require no diver for the operation.

The discharge end of the pump will be attached to a 300-800 ft floating discharge line with a discharge end mounted to floats designed to decrease velocity and evenly distribute the material in a controlled fashion.

During the BCCS, IPOP will improve existing and develop new BMPs for full-scale operations in the main mining channel.

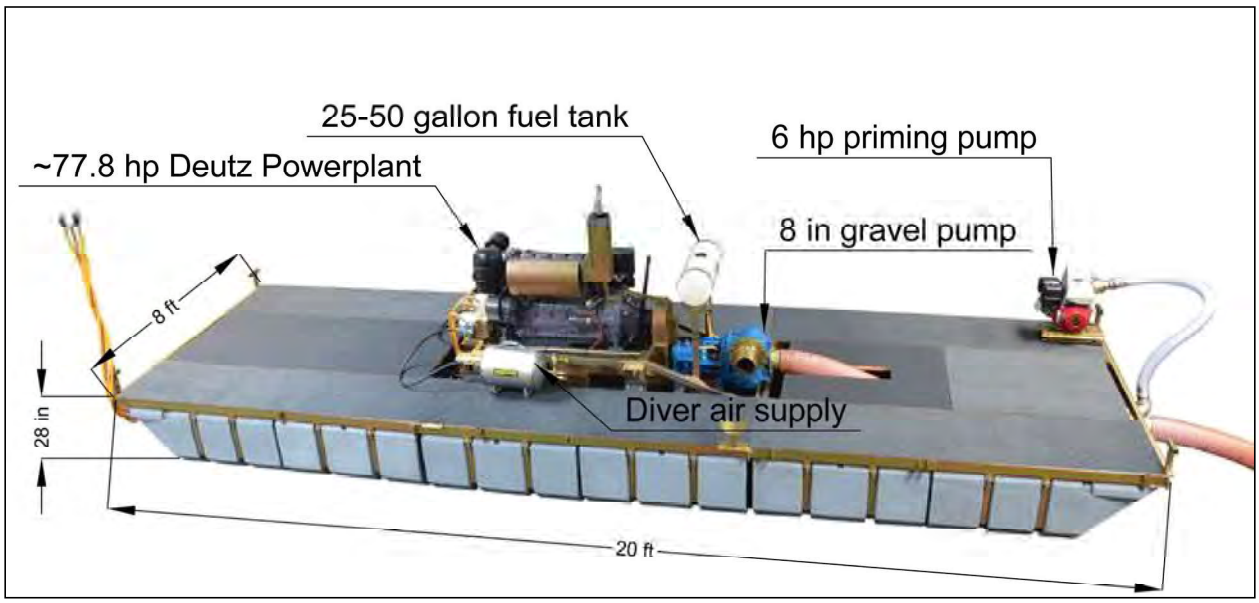


Figure 5-8-23. Gravel suction dredge (noise suppression engine cowling not shown).

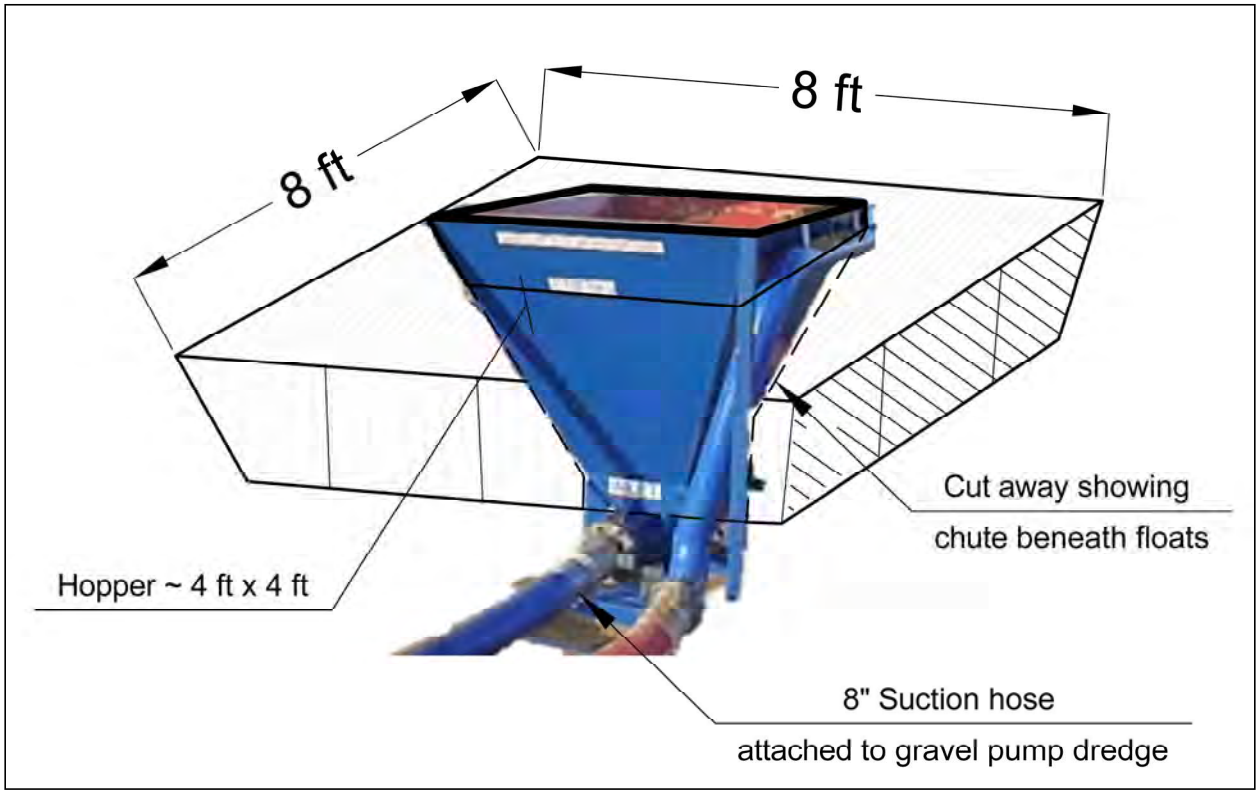


Figure 5-8-24. Generalized conceptual drawing of outfall chute/hopper that would be used to convey material away from the processing barge to DMDS.

5.8.5 Amphibious Excavator Details

As an additional contingency an amphibious excavator may also be incorporated into the equipment fleet if required for the operation. Figure 5-8-25 is a photo showing this piece of equipment. They are used on many U.S. Corps of Engineers dredging projects as support equipment. There are many manufactures of these types of modifications, however IPOP has been working with FROGCO Amphibious Equipment, Inc. who has provide machinery for the U.S. Army Corps of Engineers projects operated by Mason Dredging/Construction, Coastal Dredging, Weeks Marine, and Magnolia Dredging (to name a few).

The excavator will be a 312D class Cat or equivalent excavator with a gross vehicle weight of 65,000 lbs. (fueled with 150-gallon on-board standard fuel tank). As with the cutterhead dredge, the excavator will use vegetable based, environmentally friendly hydraulic oil (10W Rotella or Chevron Clarity) to mitigate any harm to the waterway caused by leaks. It will be equipped with a pontoon undercarriage (4 ft high x 4 ft wide x 27 ft long) for operations in water allowing the excavator to float in water approximately 3 ft deep. The excavator track is wider than a stock track reducing the overall ground pressure 2 psi on solid ground, reducing in water as the pontoons allow floatation (decreasing psi with increasing water depth). Dimensions of the machine with the floating undercarriage are 14 ft – 7 in-wide x 27 ft-long.

This piece of machinery will include a standard boom with a reach of approximately 30 ft., equipped with a 1 or 1.8 yd^3 bucket capable of moving 200 yd^3 per hour with an experienced operator. If incorporated into the fleet, the excavator will be a multi-function piece of equipment used for setting dredge anchors, moving dredge pipe, management of dredge spoil piles, dike construction, reclamation, bottom sculpting, entry site prep/deepening for the cutterhead dredge and the processing barge and conveying sand and gravel to dredge material disposal sites and shore-line habitat restoration areas if equipped with a submersible pump attachment on the boom in subsequent years (a 6” submersible Dragflow hydraulic slurry HY35B pump [or equivalent] powered by the excavator).

The proposed BCCS is designed to offer more detail on the description of dredged or filled solids by monitoring, evaluating, and documenting of geochemistry, soil size fractions, slope stability and the bulking factor for the material that will be dredged in further phases of operations.

5.8.5 Description of Water

See section 5.5 of the 2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska.

The proposed BCPP Case Study is designed to conduct ongoing environmental data collection to include details in support of the BCPP 5-year plan of operations conclusions and descriptions of the water. This includes monitoring, evaluation, and documentation of turbidity from the

Figure 5-8-25. FROGCO amphibious excavator.

5.8.5 Description of Dredged or Filled Solids

See section 5.4 of the 2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska.

operation as well as water chemistry, dissolved oxygen, conductivity, water current and tidal dynamics.

5.8.6 Bathymetric Profile

IPOP engaged an independent consulting biologist, David Eilers, to map the bathymetry and seagrass in the study area during the summer of 2020. Detailed mapping of the BCCS area is shown in Figure 5-8-26 and shows that the proposed case study area is nominally 2 ft deep, with local areas between 2 and 3ft deep. The case study is expected to change the bottom profile by establishing an access channel of less than 1200' length with a nominal depth of 7 ft BMHW. Additionally, the case study would create 10-14 acres of mudflats.

5.8.7 Gold Resource

Additional information concerning gold availability in the BCCS area should be available from winter 2021 coring, but the purpose of the BCCS of gathering data to refine and develop best management practices for full scale operations and reclamation will be vindicated irrespective of the amounts of gold.

5.8.8 Delineation Drilling Plan

Figure 5-8-27 shows the delineation drill plan for the area of the BCCS. Applicant designed this drill plan to define the gold distribution across the test area both laterally and vertically. The drill results will be reconciled to the actual gold recovered from the case study to evaluate the effectiveness of the drill sampling for this and the larger proposed 5-year BCPP.

See also section 5.7.3 and 5.7.4 of the 2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska.

5.8.9 BCCS Details

Figure 5-8-20, 5-8-21 and 5-8-22 are overviews of the BCCS showing the dredging location, dredge material disposal sites, and the access channel inside the general project area. The access channel (or trench) for the operation is also depicted in Figure 5-8-28 with corresponding cross sections shown in Figure 5-8-29 and Figure 5-8-30.

The access channel is designed to be 50’ wide at the bottom with a maximum water depth of 7 ft. BMHW. The dimensions and depth of the access channel may be adjusted shallower or narrower as operational experience and limitations dictate. The access channel slopes are expected to be an overall slope of 3:1 or steeper; therefore, the channel will average 80 ft. wide over most of its length.

5.8.9.1 BCCS Dredging Operations

The nominal activity window is expected to be between June 1 and October 15 in one summer. Dredging is expected to occur 24 hours per day with a maximum production rate of 267 yd^3/hr for the work window of 140 days. The project is divided into two phases. Phase 1 will excavate and place 158,319 yd^3 from a 5.9-acre area. Assuming Phase 1 is a success, Applicant will proceed with Phase 2 that is planned to excavate an additional 135,642 yd^3 from a 4.6-acre area.

The mining channel is designed around the capabilities of the dredge but for the purpose of the case study the dredging will only be 28 ft. deep from the surface of the water, stopping above a thick clay layer identified in previous drilling that is believed to be continuous throughout the project area, and the bottom width will be between 190 and 200 ft. By stopping at the clay, the project will reduce the impacts of turbidity and material bulking and instability from the clay. Dredged trench slope angles are dependent upon the types of material being dredged and the depth of the trench and consideration of the most common instability mechanism for slopes, shear failure (Raaijmakers, 2005). Wave load was not considered in the design of the slope angles because of the shallowness of the estuary and the fact that wave effect rapidly peters out with depth. The trench slope is assumed to be an overall listric shape, standing at 2.7:1 (H:V) or 20 degrees near the top, and 3.7:1 at the bottom of the trench, for an overall average design slope average of 3:1 similar to breaching test results during suction dredging (Maertens, Van Alboom, Haelterman, & Couck, 2014). Consideration of the 3:1 (H:V) trench slope makes the overall mining trench width at the top 350’ wide at its maximum (see Figures 5-8-29 and 5-8-30).

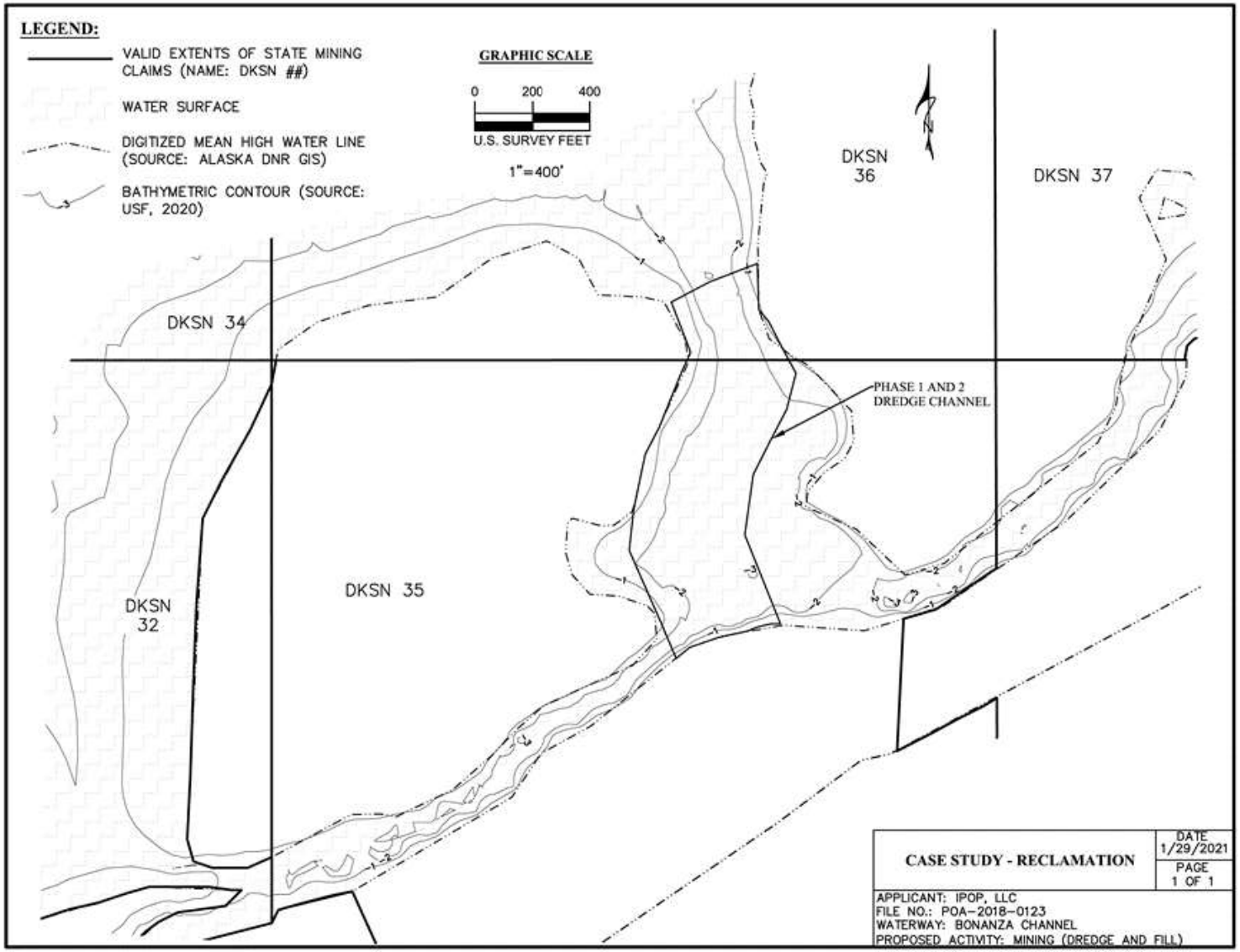


Figure 5-8-26. Bathymetric map after Eilers, 2020. Phases 1 and 2 of the BCCS outlined.

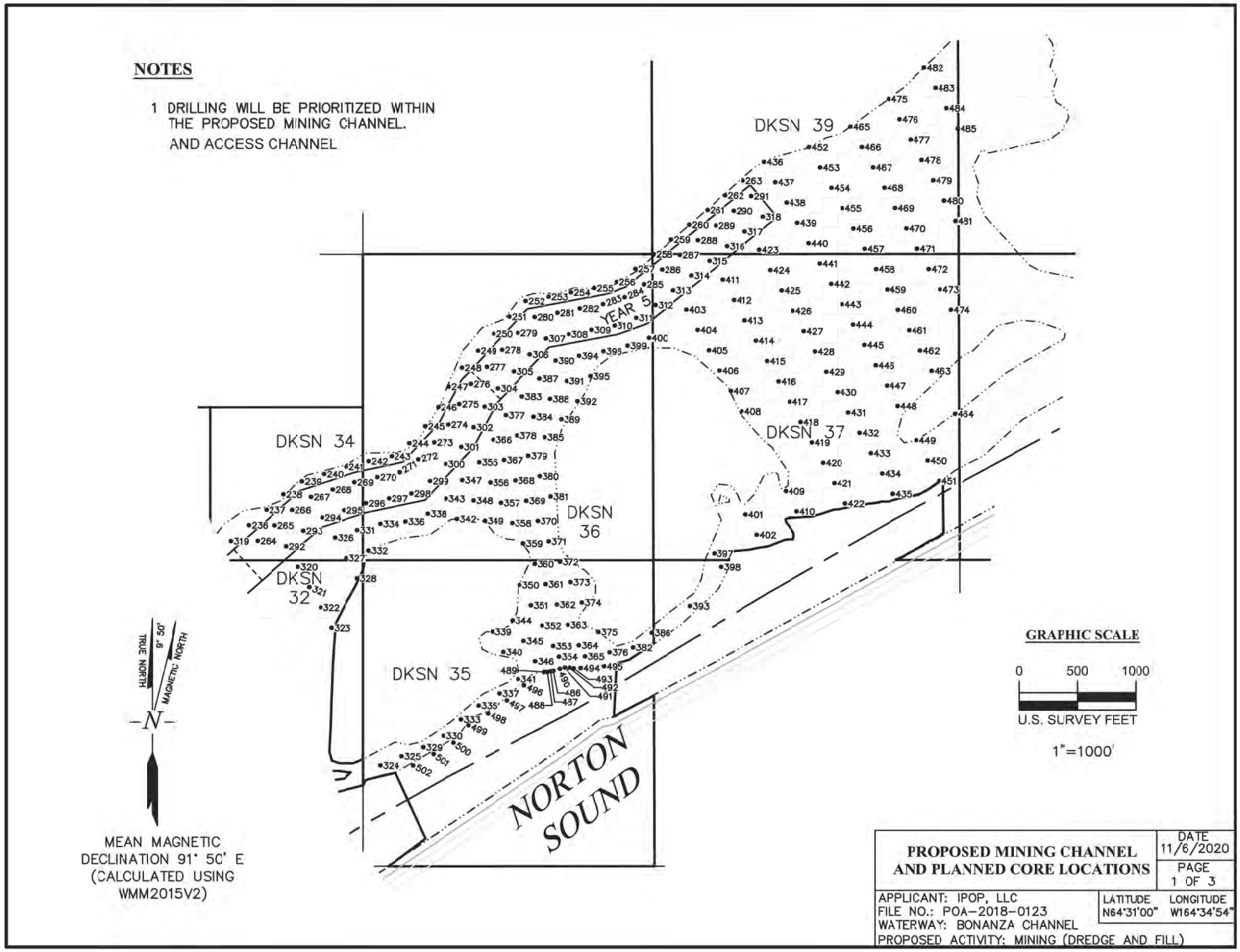


Figure 5-8-27. Map of the BCCS showing planned exploration drilling.

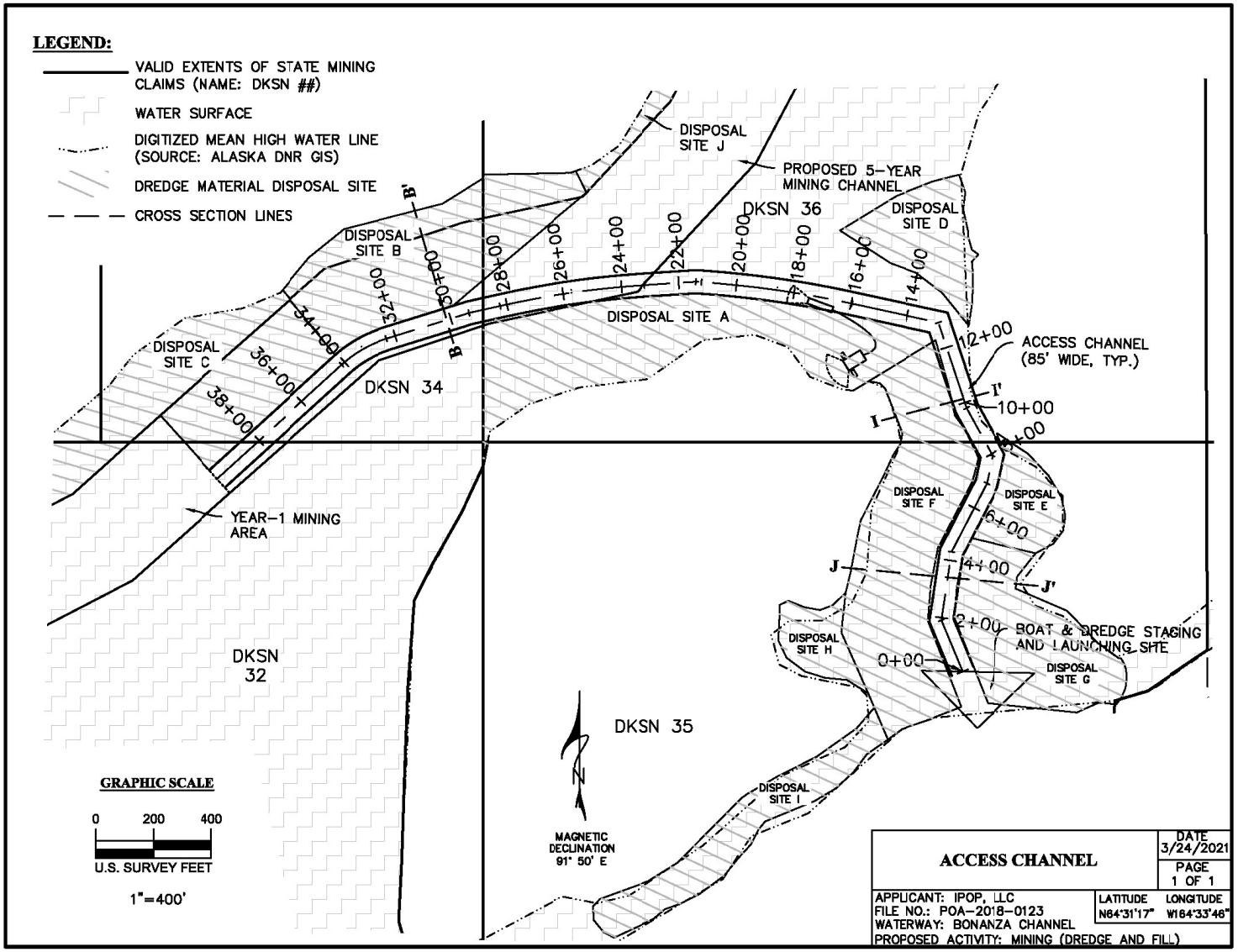


Figure 5-8-28. Map of the BCCS showing dredge material disposal sites and access channel. Storage Area G represents the backfilled dredge channel.

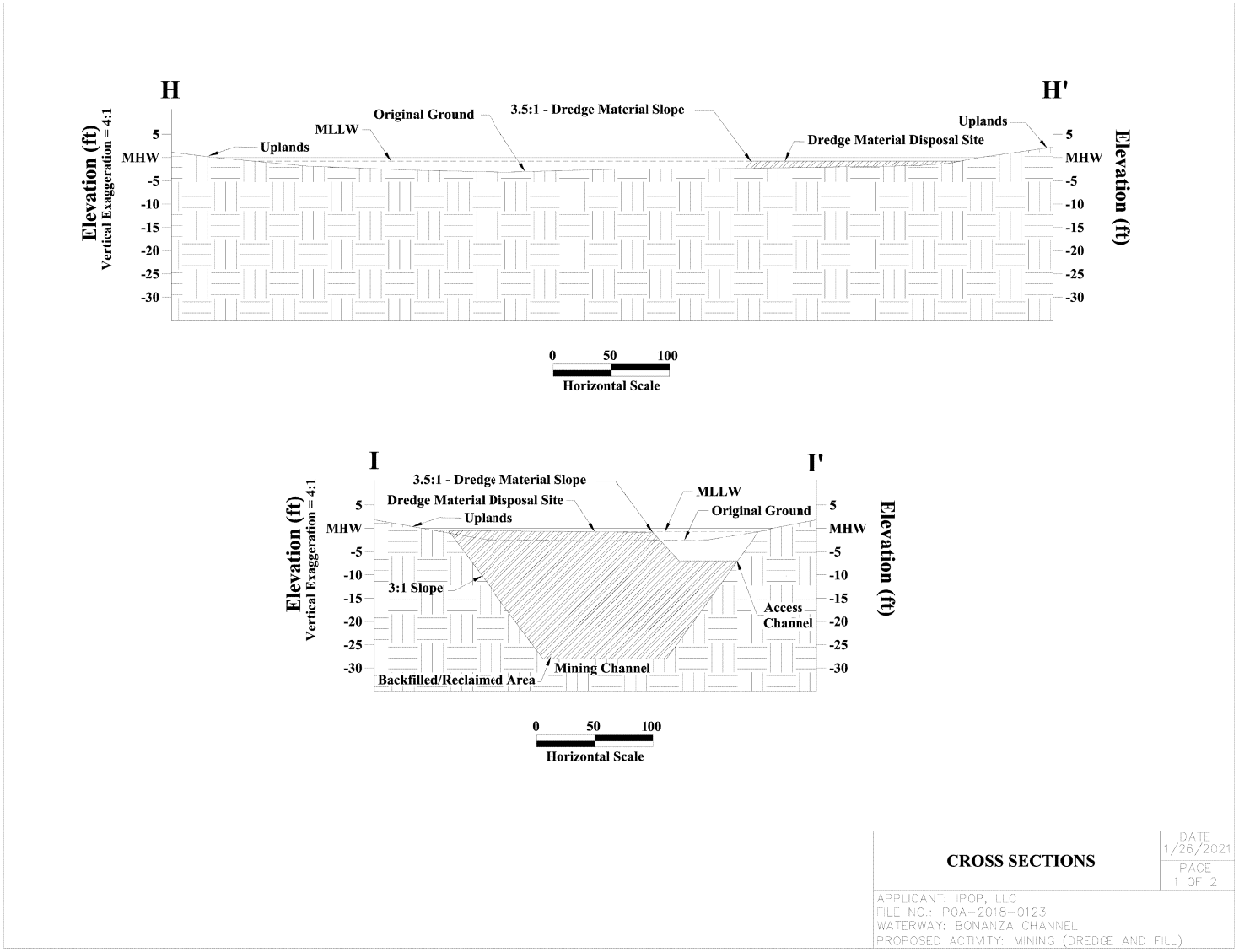


Figure 5-8-29. Typical cross sections of BCCS dredge and fill: H-H' and I-I'.

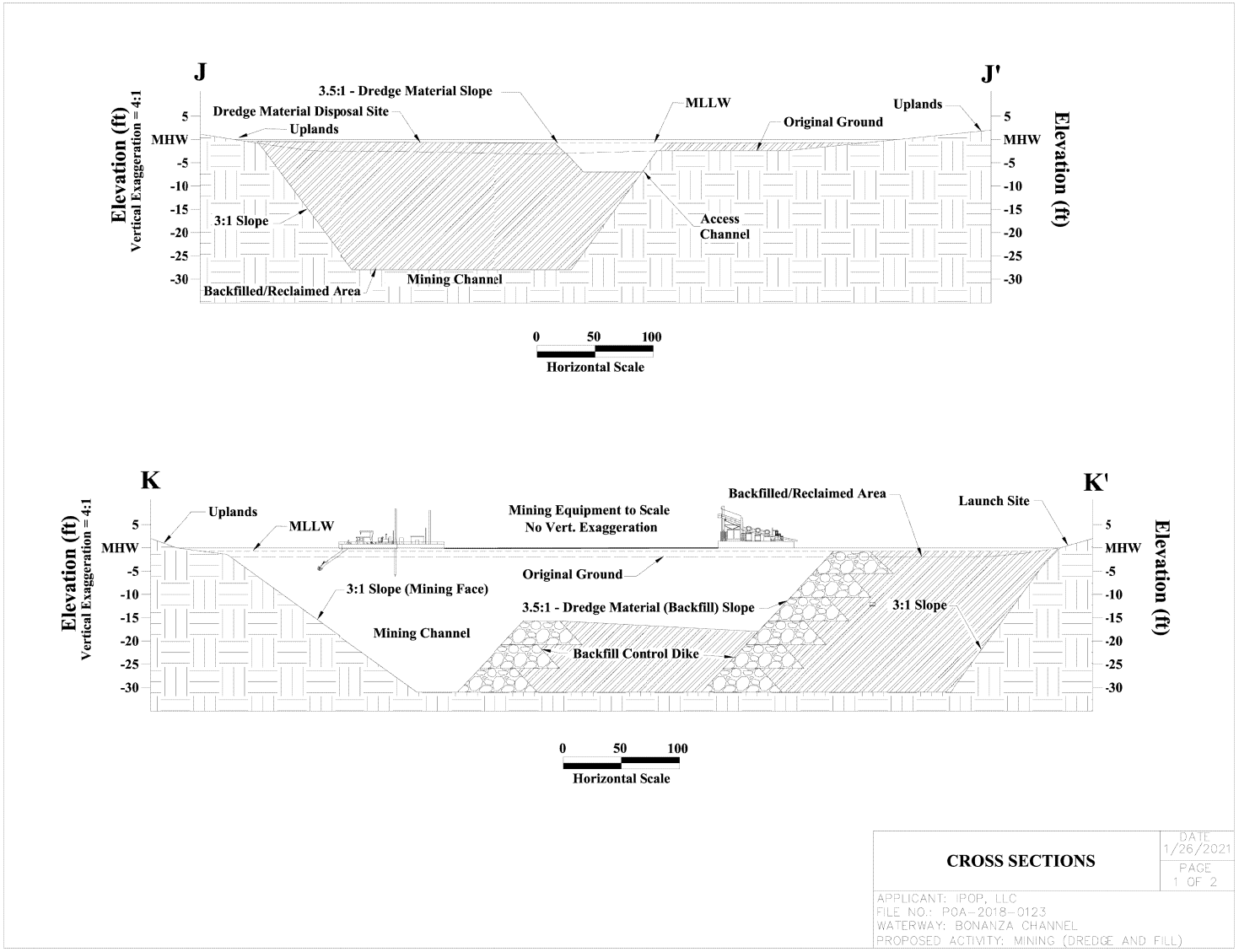


Figure 5-8-30. Typical cross sections of BCCS dredge and fill: J-J' and K-K'.

5.8.9.2 BCCS Dredged Material Disposal Sites

Dredge Material Disposal Sites (DMDS, or Disposal Site) for the case study are all located on both sides of the dredge and access channels, between the channels and the islands. These DMDS for the case study are planned as areas for initial deposition of dredged material from the dredge starting hole (described in Section 5.9.2, *Stage 1,* and illustrated in Figures 5-8-20, 5-8-21, and 5-8-27), for storage of harvested organic rich substrate (within a storage area diked by either a silt curtain or geotextile tubes filled with sand) and for storage of excess (or bulked) dredged soils from the dredge channel.

The operation expects there to be enough storage capacity for these purposes at or below MLLW. However, Applicant will also temporarily deposit a portion of the material AMHW if material bulking exceeds expectations in *special circumstances* (see section 5.8.9.4). Any such material will be reclaimed to BMHW at the end of the summer.

Considering an estimated overall bulking factor of 1.16, and a consolidation of 7.5% of the bulked material with time and self-weight consolidation (reducing the average bulking factor to 1.075), the DMDS are expected to have enough volume to accommodate all bulking expected from this operation. Table 5-8-7 details the disposal areas, calculated storage capacities, and estimated dredge and fill volumes within special aquatic sites for the purpose of the case study. Adaptive management plans include provisions for utilizing sections of turbidity curtains, or segregated coarser material constructed berms for stabilization of spoils to keep them from spilling into the dredge channel during operations.

5.8.9.3 BCCS Stages of Dredging Operations

The typical stages of the dredging operation are shown in Figure 5-8-20 and Figure 5-8-21. Corresponding cross sections are shown in Figures 5-8-29 and 5-8-30. The stages, phases and figures are described in detail below. When necessary, dredging will temporarily shut down to allow for reclamation activities, monitoring, and surveying. Regular surveying will be required to: 1) Measure the slope profile of the dredging trench, 2) Maintain accurate volume measurements of both original dredged volumes, and 3) Measure placed material for bulking factor measurements.

Stage 1, Phase 1. As with all the dredge stages, the silt curtain is installed before any dredging takes place (see Section 5.10.1). Once the silt curtains are established 2000-3500 yards of organic rich soil (Charged Organic Veneer) will be harvested with the smaller specialized gravel pump dredge and stored in Disposal Site H. Additionally, the launch area will be deepened by 1-2 feet prior to launching the dredge using the smaller gravel pump dredge. As the larger cutterhead dredge is preparing to mine, its computer system is mapping the bottom of the channel, creating a 3D point cloud from sonar and on-board differential GPS. Tall survey lath will be placed in the water approximately 10 feet from the adjacent island as markers to indicate any sloughing off the dredge channel at a flatter angle than expected during dredging. If this

occurs, the dredge channel centerline will be adjusted away from the island to avoid further sloughing of the island buffer zone.

Table 5-8-7. Estimated dredge and fill volumes and area acreage for case study and 5 YR mining project.

ESTIMATED DREDGE AND FILL VOLUMES

Item Description	Acres	Reclaimed		Storage Capacity (CY)	Dredged Volume (CY)	Bulked Dredged Volume* (CY)	Fill Type and Volume		Fill Volume Summary		
							Soils				
		Yes	No				Wetlands (CY)	Uplands (CY)	Wetlands (CY)	Uplands (CY)	Total (CY)
Access Trench Case Study	2.4	2.4		0	15,504	16,589	*Restored to 7' BMHW*				
Access Trench 5yr	1.8	1.8		0	17,696	19,100	*Restored to 7' BMHW*				
Case Study Dredge/Fill											
Phase 1 Test Area	5.9	5.9		151,204	158,319	170,034	151,204	0	151,204	-	151,204
Phase 2 Test Area	4.6	4.6		127,253	135,642	145,680	127,253	0	127,253	-	127,253
5 YR Dredge/Fill											
Year 1	21.7	21.7		957,346	900,000	964,404	957,346	0	957,346	-	957,346
Year 2	21.7	21.7		957,346	900,000	964,404	941,427	0	941,427	-	941,427
Year 3	21.7	21.7		957,346	900,000	964,404	941,427	0	941,427	-	941,427
Year 4	21.7	21.7		957,346	900,000	964,404	941,427	0	941,427	-	941,427
Year 5	21.7	21.7		957,346	900,000	964,404	941,427	0	941,427	-	941,427
Case Study DMDS											
Dredge Disposal Site D	2.6	2.6		8,512			8,512	0	8,512	-	8,512
Dredge Disposal Site E	1.7	1.7		5,568			5,568	0	5,568	-	5,568
Dredge Disposal Site F	Temporary DMDS to be restored to original bathymetry (except for access channel)										
Dredge Disposal Site G	4.9	4.9		15,801			15,801	0	15,801	-	15,801
Dredge Disposal Site H	1.3	1.3		3,099			3,099	0	3,099	-	3,099
Dredge Disposal Site I	3.4	3.4		11,120			4,277	0	4,277	-	4,277
5 YR Plan DMDS											
Dredge Disposal Site A	8.1	8.1		10,567			13,666	0	13,666	-	13,666
Dredge Disposal Site B	7.1	7.1		7,019			7,019	0	7,019	-	7,019
Dredge Disposal Site C	19.7	19.7		22,977			22,977	0	22,977	-	22,977
Dredge Disposal Site J	22.9	22.9		143,600			369,451	0	369,451	-	369,451
Totals	195.0	195.0		5,293,450	4,827,161	5,173,423	5,173,423	-	5,173,423	-	5,173,423

*Assuming 1.075 bulking factor

Stage 2, Phase 1. The dredge will begin to excavate its initial hole at the start of the dredge trench. During this process, the side slopes on the island side of the dredging trench will be continuously monitored. All slopes of the dredge trench are assumed to be approximately 3:1 as described above. The dredged material is processed for gold recovery and deposited within the DMDS location adjacent to the dredging area.

Due to the shallow nature of the lagoon at the test location, the processing barge will be positioned on a timber platform just off the shore in Disposal Site G or I, connected to the barge by a 10" floating pipeline. The dredge tailings will be deposited from the processing barge outfalls. Gravel and rock (1" minus) from Outfall 1 will be segregated and stored in a stockpile for backfill control dikes. The sands and silts from Outfalls 2 and 3 will be re-distributed away from the processing barge by periodically knocking down piles or capturing the material in floating chutes or hoppers for removal with the gravel pump dredge or excavator to convey the material at 40-50% solids up to 1,000 ft away in the DMDS as space is needed.

Dredging of the initial hole will continue to station 2+00 and the dredging will temporarily shut down to allow for monitoring and surveying of the slope profiles of the dredged trench and

examination of the slopes of the discharged sand and gravel to determine how large the dredge hole needs to be prior to backfilling. This process will continue every 200 ft. down the mining channel until the initial hole is large enough for the backfilling operation.

Stage 3, Phase 1. Once the initial dredge hole is established for backfill the processing barge will be relocated to the dredge hole to backfill the mined-out trench with processed tailings, filling the trench to restore bottom to approximate pre-dredging bathymetry in accordance with how much bulking the operation is experiencing. If material bulking is substantially higher than expected, backfilling will continue up to MLLW. If necessary, the stockpiled gravel will be used to create a series of 5' tall backfill dikes to steepen up the slope of the backfilled tailings as to not interfere with the forward dredging activity (see Figure 5-8-20 and cross section K-K', Figure 5-8-30). The dikes will be spaced as along the mining channel as experience dictates (Figure 5-8-20). The access channel will be left unfilled from 7 ft depth BMHW (Figure 5-8-30, section J-J').

Dredging and backfilling will continue down the mining channel until the crest reaches station 7+00 completing the dredging of Phase 1 of the Case Study. Additionally, as much backfilled material as possible will be removed from DMDS-I and backfilled in the dredge trench.

Phase 2. Once Phase 1 is complete a decision will be made to either stop the test or continue with Phase 2. The determining factor will be the project's success at: 1) Effectively maintaining the turbidity curtains, 2) Effectively managing its spoil piles and backfilling operations and 3) Confirming stability and dredging behavior of the walls of the dredge trench.

If the project decides to continue with Phase 2, a fourth curtain (Curtain 4) will be located as shown in Figure 5-8-20 and 5-8-22, and temporary dredge spoil disposal of excess bulked sediments will occur in DMDS D between curtains 3 and 4 (Figures 5-8-22 and 5-8-29, cross section H-H').

Dredging will then advance (stopping for surveys and monitoring every 200 ft.) until the crest of the dredge channel reaches the approximate station of 13+00, all the while backfilling the trench behind the dredge (Figure 5-8-29, cross section I-I'). Once the dredge has reached the end of the mining channel, it will turn around in the access channel and remove material from the dredge material disposal sites to backfill any remaining hole.

Final material re-distribution and sculpting of the DMDS will be done with the smaller gravel pump suction dredges and/or the excavator mounted gravel pump. And the dredge and processing barge will be removed from the water as reclamation wraps up.

5.8.9.4 Description of Discharge and Reclamation

As described, no chemicals will be used in the processing of the ore. All the discharge will be clean tailings from the dredging operation only, re-deposited into the bottom of the estuary to

distribute material evenly at or below MLLW. *Special circumstances* where this may not occur include cases where the operation does not have enough adjacent DMDS to accommodate excess material from bulking or from establishing an initial dredge hole (*Stage 1*, Section 5.9.2).

Reclamation will be concurrent with mining. If no bulking occurs, the operation will redeposit the material to establish the bottom to its pre-mining elevations as the processing barge passes over the excavated mining channel with the exception of the access channel which will be left at its designed depth 7' BMHW (Figure 5-8-28, 5-8-29 and 5-8-30). Precision placement of material is possible by convective descent of the material in the water column at a rate of 3.3 ft/s. The processing barge is moved and positioned by four on-board electric winches w/anchors, located at each corner of the barge. As the processing barge follows the path of the dredge, the push boats will use depth sonar and GPS location mapping, to move it over the excavated site. The excavated area will then be filled in, leaving the bottom as close to where it was originally if there is no significant material bulking.

Because of the draft of the processing barge, discharge directly from the processing platform will only be possible in waters deeper than 2' 9". In all shallower areas the discharge will be from a single pipe up to 1,000' long (transporting a pumped tailings slurry to the shallow areas of the DMDS), or from a combination of processing platform outfalls in deeper waters (*Outfall 1*) and a pumped slurry that concurrently moves sand to the shallow areas of the DMDS.

IPOP expects that the filled material will compact back down to its pre-mining state within 2-3 years; the detailed surveys maintained by IPOP will permit assessment of progress.

5.8.10 Best Management Practices

In addition to those specified in the 2020 Narrative and Plan of Operations (e.g., three mph speed limit), best management practices will be applied where applicable to this operation as follows:

1) All surface water in the Bonanza Channel will essentially be allowed to flow around the operation area unimpeded.
2) Geotextile sand filled tubes or turbidity curtains may be used as berms or dikes for this operation as a temporary stabilization measure and if used will be removed at the end of the study.
3) No pollutant materials will be added to the process water and no statutory pollutants will be discharged from the operation.
4) The operation will be within a secondary containment, described in the following sections. The process water used for the operation will be from its secondary containment only; no new water will be needed as make-up water.
5) The secondary containment will act as a turbidity/suspended solids retention structure. This feature will be maintained to continue its effectiveness as described in section

5.10.3. Additionally, the secondary containment will be monitored and maintained to protect it from unexpected or catastrophic failure.

6) All operations will cease during storm events that threaten to raise the water levels in the mining area or to destabilize the silt curtain.
7) A contingent plan for a storm surge curtain (shown in Figure 5-8-20) is in place if project conditions deem it necessary.

5.8.11 Turbidity Control

The BCCS site involves generally shallower depths and lower currents than the main Bonanza Channel, and the layout of the islands permits turbidity to be contained with shorter curtain lengths subject to less environmental stresses. This should substantially lower the risk of any turbidity releases from the BCCS.

As the operation moves north along the proposed access channel length, the silt curtain will become longer, and IPOP will have more experience in anchoring it. Based on the prior test dredging, improved "corkscrew" anchors will be used and additional techniques for managing the curtains may be devised. Details of the curtains remain as stated in the 2020 Narrative Statement.

5.8.12 BCCS Monitoring Plan

The BCCS will conduct more detailed monitoring towards the overall objective of this scientific study in addition to those monitoring plan items described for the BCPP 5-year operation (Section 5.11 of the "2020 Narrative and Plan of Operations for the Bonanza Channel Placer Project, Nome, Alaska". This additional monitoring includes:

1) Periodic surveying and monitoring of the submarine slope angle of the typical dredge channel in this specific operational setting.
2) Monitoring of material bulking and settling rates.
3) Monitoring of material deposition, and slopes of submarine spoils/tailings deposition.
4) Long-term, post-test monitoring of reclamation and habitat restoration successes to include: a) submerged aquatic vegetation (SAV) re-growth and recovery time; b) recovery of benthic species/communities disturbed by the mining process and timeline; and c) improvement of fish and migratory bird habitat through the reclamation process.
5) And monitoring of equipment sounds using dosimeters above water and hydrophones below water.

5.8.13 BCCS Seasonal Start-up and Shut-down Procedures

The BCCS is a single season operation, operating within the activity window June 1 through October 15. Dredging operations will commence as soon as winter ice is gone and any time after June 1, or once the test program is permitted. IPOP will transport the camp, containers, barges, and other equipment to the access parcel (staging location) and assemble and stage the system in the water as described in section 5.2. Once the dredge barge and processing barge are floating in

the access channel, the flexible hose will connect them, and the units will proceed northward between the two islands on a path for the Initial Operational Area.

At the end of the operation activity window (October 15) or when ice begins to form (whichever comes first) the dredge and processing barge will be shut down and de-mobilization activities will commence. Before the dredge and processing barges are moved, the turbidity and suspended solids will be allowed settle out and the turbidity curtain and monitoring devices will be pulled from the water. The equipment will return to the staging area in Nome. During the winter, the dredges will be removed from the water, and all fuel will be removed from the equipment. Some equipment will be stored in the staging area/base camp on land for the winter, and the rest will be transported for dry storage in Nome.

5.8.14 BCCS Reclamation

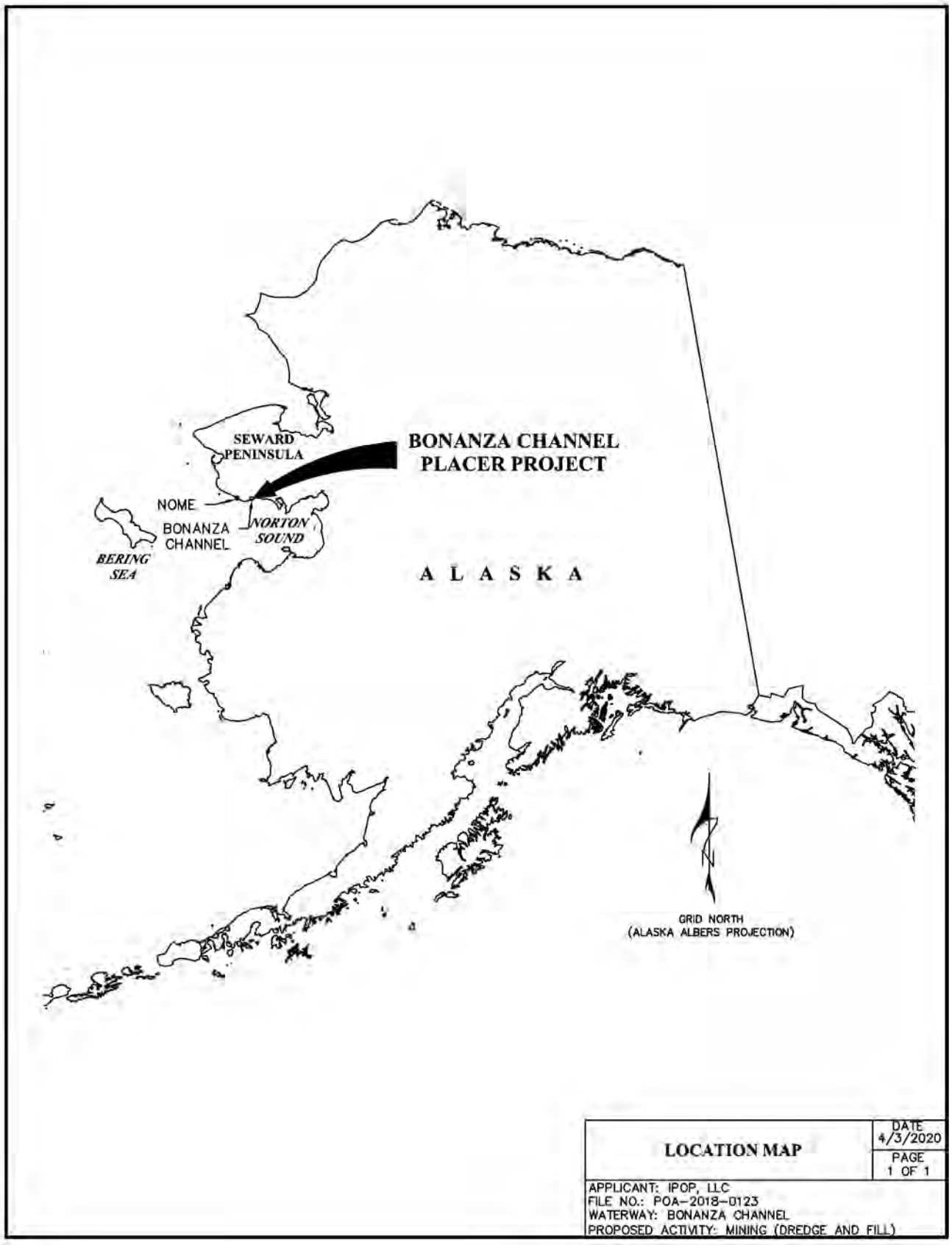
A conceptual Reclamation Plan describing the geomorphic and biological principles to be applied during all stages of the project will be ready soon. The Reclamation Plan identifies the intrinsic habitat potential of the claim area to include significant opportunities for improving connectivity between Safety Sound and the Bonanza/Solomon River complex to provide reliable fish passage, thermal refugia and rearing habitat for anadromous and resident fishes. The plan also discusses the biological principles and reclamation potential for salvage and application of SAV donor material, nesting and mudflat bird habitat and the possible beneficial use of dredged material for creating sand dune habitat.

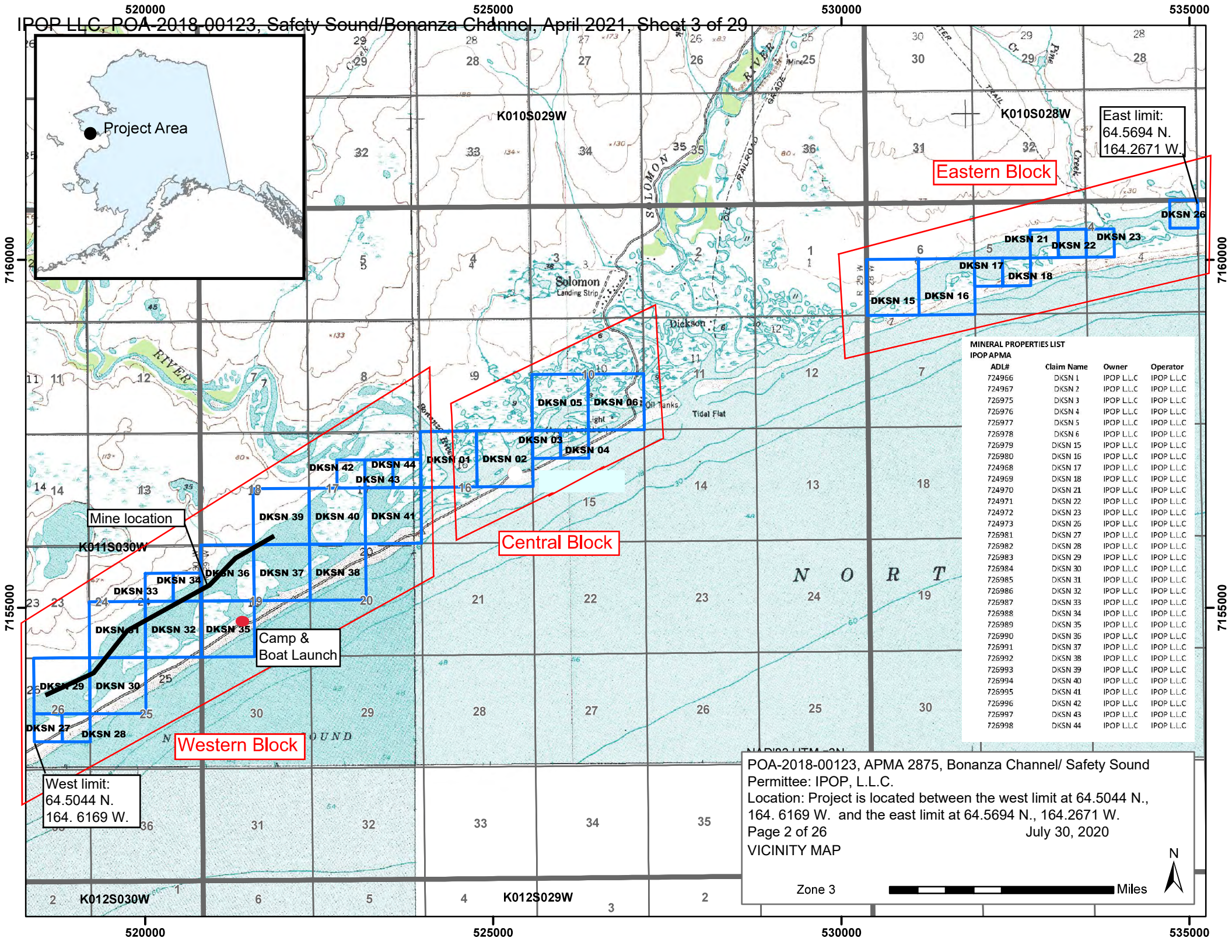
ESTIMATED DREDGE AND FILL VOLUMES

Item Description	Acres	Reclaimed		Storage Capacity (CY)	Dredged Volume (CY)	Bulked Dredged Volume* (CY)	Fill Type and Volume		Fill Volume Summary		
							Soils				
		Yes	No				Wetlands (CY)	Uplands (CY)	Wetlands (CY)	Uplands (CY)	Total (CY)
Access Trench Case Study	2.4	2.4		0	15,504	16,589	*Restored to 7' BMHW*				
Access Trench 5yr	1.8	1.8		0	17,696	19,100	*Restored to 7' BMHW*				
Case Study Dredge/Fill											
Phase 1 Test Area	5.9	5.9		151,204	158,319	170,034	151,204	0	151,204	-	151,204
Phase 2 Test Area	4.6	4.6		127,253	135,642	145,680	127,253	0	127,253	-	127,253
5 YR Dredge/Fill											
Year 1	21.7	21.7		957,346	900,000	964,404	957,346	0	957,346	-	957,346
Year 2	21.7	21.7		957,346	900,000	964,404	941,427	0	941,427	-	941,427
Year 3	21.7	21.7		957,346	900,000	964,404	941,427	0	941,427	-	941,427
Year 4	21.7	21.7		957,346	900,000	964,404	941,427	0	941,427	-	941,427
Year 5	21.7	21.7		957,346	900,000	964,404	941,427	0	941,427	-	941,427
Case Study DMDS											
Dredge Disposal Site D	2.6	2.6		8,512			8,512	0	8,512	-	8,512
Dredge Disposal Site E	1.7	1.7		5,568			5,568	0	5,568	-	5,568
Dredge Disposal Site F	Temporary DMDS to be restored to original bathymetry (except for access channel)										
Dredge Disposal Site G	4.9	4.9		15,801			15,801	0	15,801	-	15,801
Dredge Disposal Site H	1.3	1.3		3,099			3,099	0	3,099	-	3,099
Dredge Disposal Site I	3.4	3.4		11,120			4,277	0	4,277	-	4,277
5 YR Plan DMDS											
Dredge Disposal Site A	8.1	8.1		10,567			13,666	0	13,666	-	13,666
Dredge Disposal Site B	7.1	7.1		7,019			7,019	0	7,019	-	7,019
Dredge Disposal Site C	19.7	19.7		22,977			22,977	0	22,977	-	22,977
Dredge Disposal Site J	22.9	22.9		143,600			369,451	0	369,451	-	369,451
Totals	195.0	195.0		5,293,450	4,827,161	5,173,423	5,173,423	-	5,173,423	-	5,173,423

*Assuming 1.075 bulking factor

Figure 1-1. Bonanza Channel Placer Project location

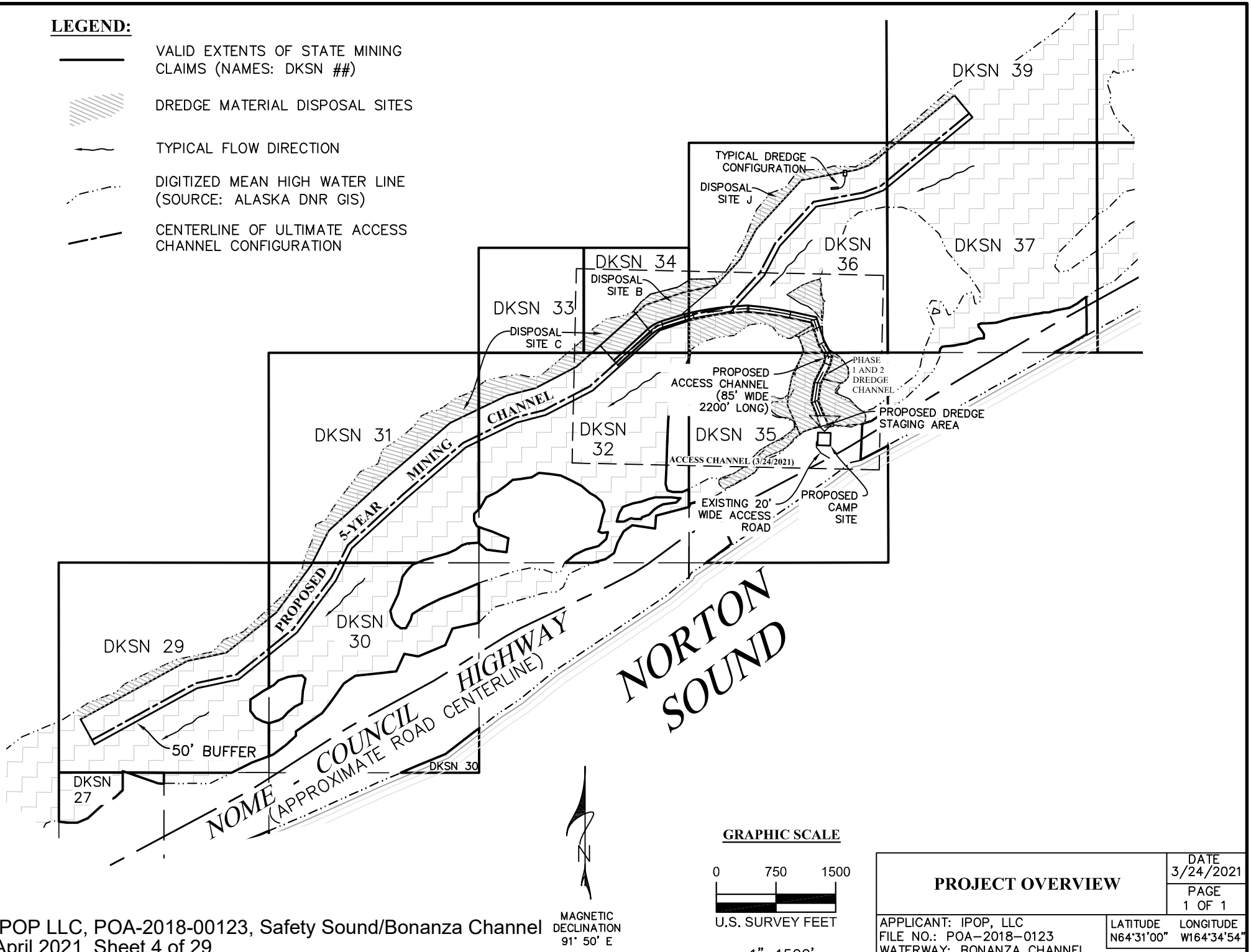




MINERAL PROPERTIES LIST
IPOP APMA

ADL#	Claim Name	Owner	Operator
724966	DKSN 1	IPOP L.L.C	IPOP L.L.C
724967	DKSN 2	IPOP L.L.C	IPOP L.L.C
726975	DKSN 3	IPOP L.L.C	IPOP L.L.C
726976	DKSN 4	IPOP L.L.C	IPOP L.L.C
726977	DKSN 5	IPOP L.L.C	IPOP L.L.C
726978	DKSN 6	IPOP L.L.C	IPOP L.L.C
726979	DKSN 15	IPOP L.L.C	IPOP L.L.C
726980	DKSN 16	IPOP L.L.C	IPOP L.L.C
724968	DKSN 17	IPOP L.L.C	IPOP L.L.C
724969	DKSN 18	IPOP L.L.C	IPOP L.L.C
724970	DKSN 21	IPOP L.L.C	IPOP L.L.C
724971	DKSN 22	IPOP L.L.C	IPOP L.L.C
724972	DKSN 23	IPOP L.L.C	IPOP L.L.C
724973	DKSN 26	IPOP L.L.C	IPOP L.L.C
726981	DKSN 27	IPOP L.L.C	IPOP L.L.C
726982	DKSN 28	IPOP L.L.C	IPOP L.L.C
726983	DKSN 29	IPOP L.L.C	IPOP L.L.C
726984	DKSN 30	IPOP L.L.C	IPOP L.L.C
726985	DKSN 31	IPOP L.L.C	IPOP L.L.C
726986	DKSN 32	IPOP L.L.C	IPOP L.L.C
726987	DKSN 33	IPOP L.L.C	IPOP L.L.C
726988	DKSN 34	IPOP L.L.C	IPOP L.L.C
726989	DKSN 35	IPOP L.L.C	IPOP L.L.C
726990	DKSN 36	IPOP L.L.C	IPOP L.L.C
726991	DKSN 37	IPOP L.L.C	IPOP L.L.C
726992	DKSN 38	IPOP L.L.C	IPOP L.L.C
726993	DKSN 39	IPOP L.L.C	IPOP L.L.C
726994	DKSN 40	IPOP L.L.C	IPOP L.L.C
726995	DKSN 41	IPOP L.L.C	IPOP L.L.C
726996	DKSN 42	IPOP L.L.C	IPOP L.L.C
726997	DKSN 43	IPOP L.L.C	IPOP L.L.C
726998	DKSN 44	IPOP L.L.C	IPOP L.L.C

POA-2018-00123, APMA 2875, Bonanza Channel/ Safety Sound
Permittee: IPOP, L.L.C.
Location: Project is located between the west limit at 64.5044 N., 164. 6169 W. and the east limit at 64.5694 N., 164.2671 W.
Page 2 of 26 July 30, 2020
VICINITY MAP



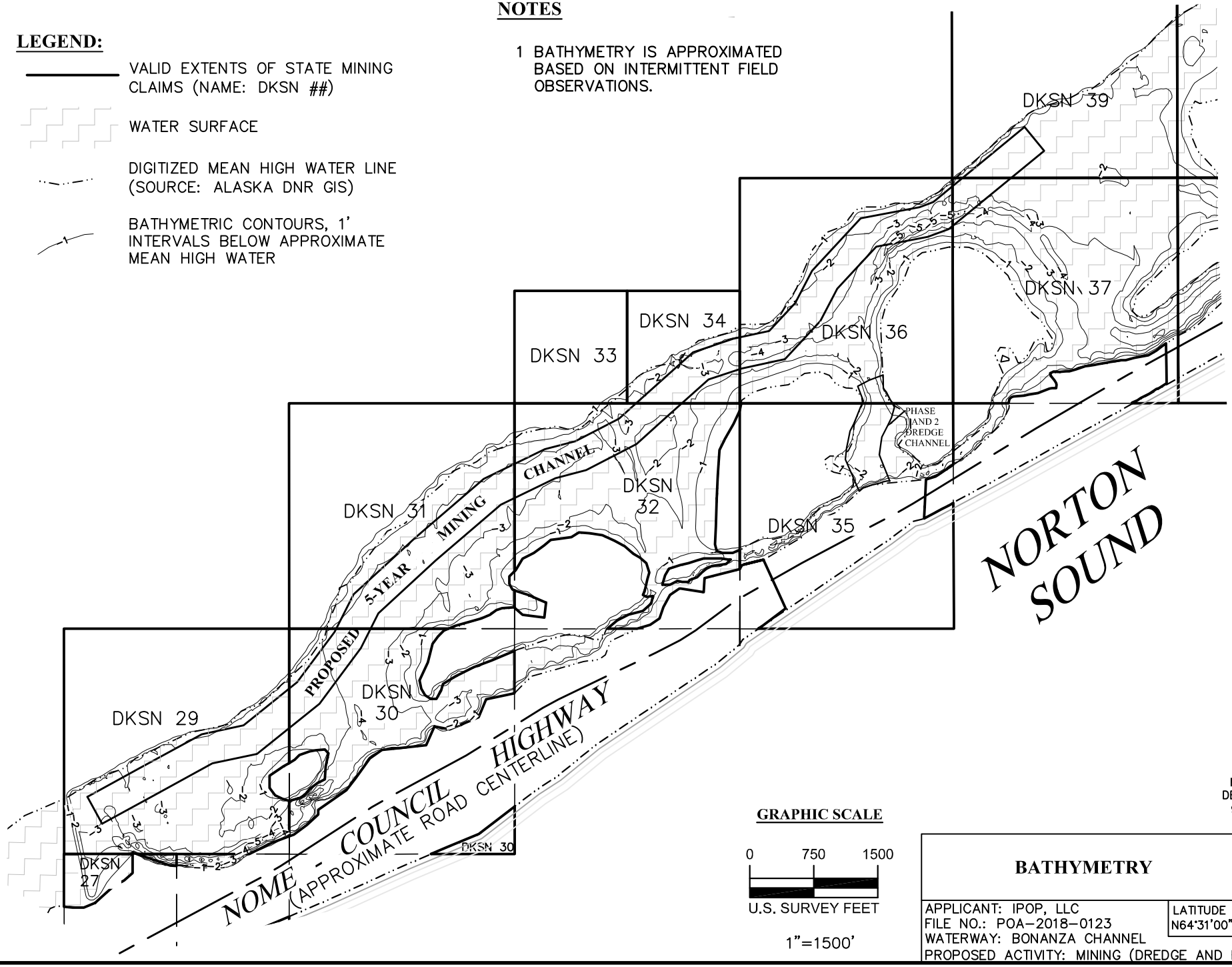
IPOP LLC, POA-2018-00123, Safety Sound/Bonanza Channel
April 2021, Sheet 4 of 29

LEGEND:

- VALID EXTENTS OF STATE MINING CLAIMS (NAME: DKSN ##)
- WATER SURFACE
- DIGITIZED MEAN HIGH WATER LINE (SOURCE: ALASKA DNR GIS)
- BATHYMETRIC CONTOURS, 1' INTERVALS BELOW APPROXIMATE MEAN HIGH WATER

NOTES

1 BATHYMETRY IS APPROXIMATED BASED ON INTERMITTENT FIELD OBSERVATIONS.



MAGNETIC DECLINATION 91° 50' E

GRAPHIC SCALE

0 750 1500

U.S. SURVEY FEET

1"=1500'

BATHYMETRY

DATE 1/24/2021

PAGE 1 OF 1

APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

LATITUDE	LONGITUDE
N64°31'00"	W164°34'54"

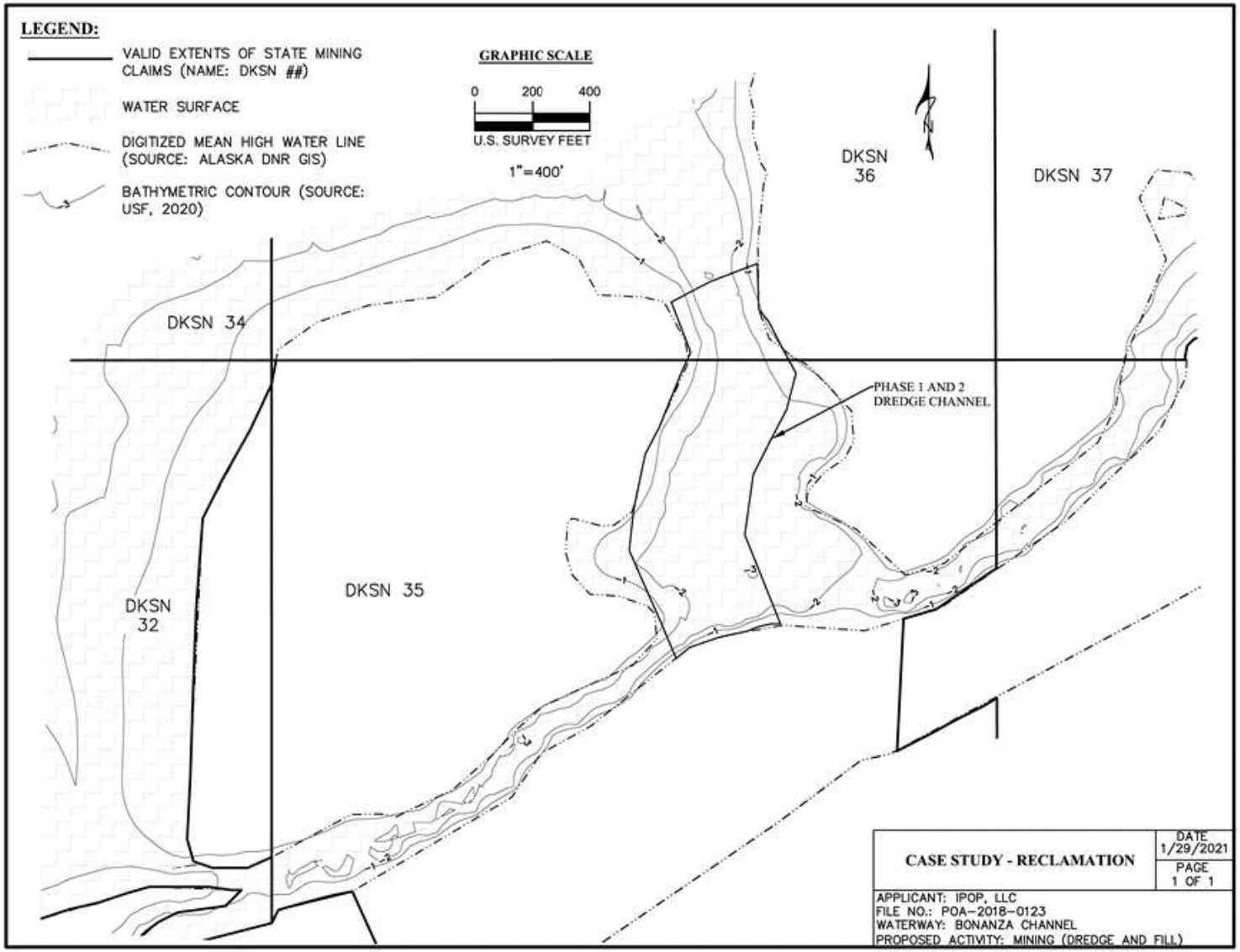
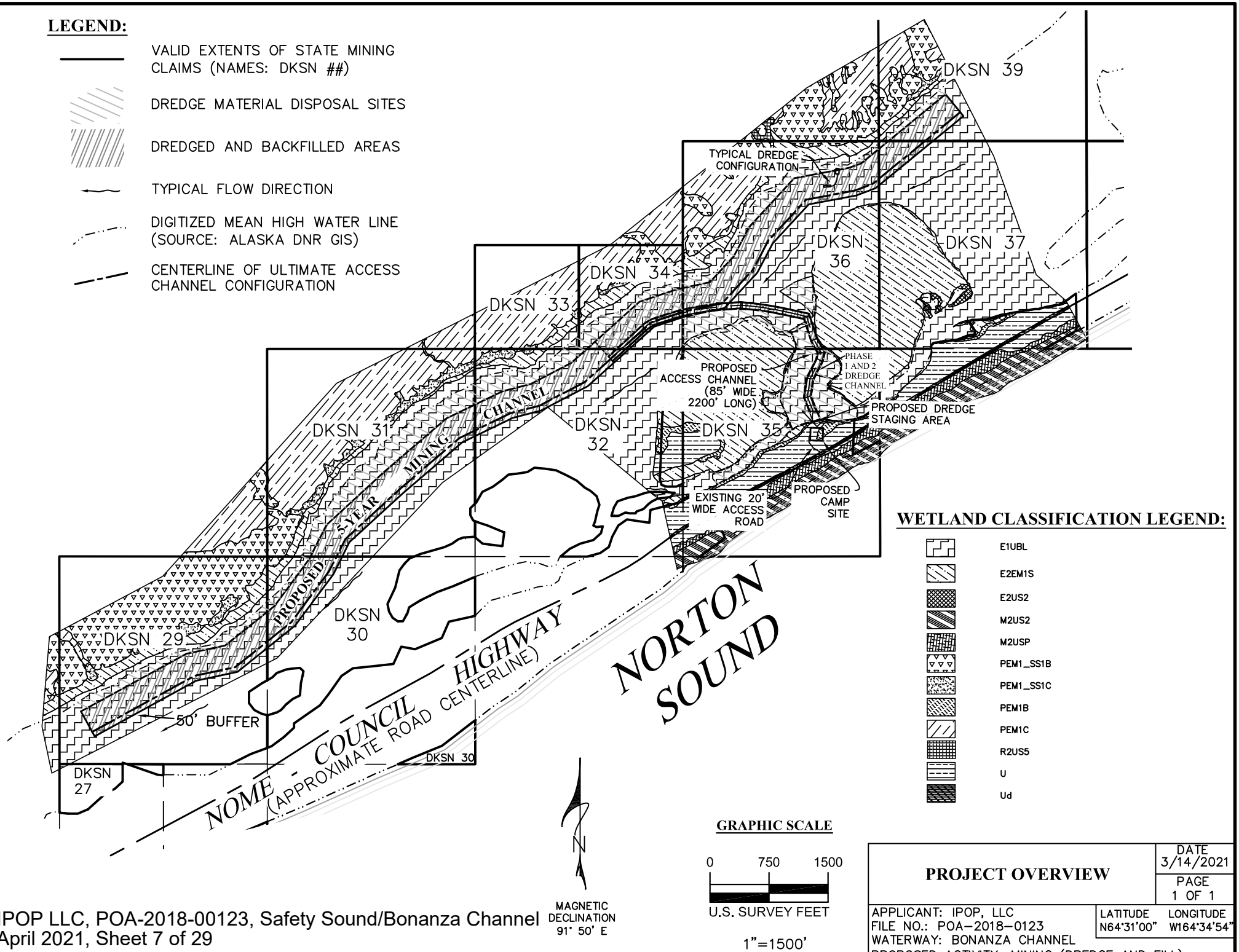


Figure 5-8-26. Bathymetric map after Eilers, 2020. Phases 1 and 2 of the BCCS outlined.



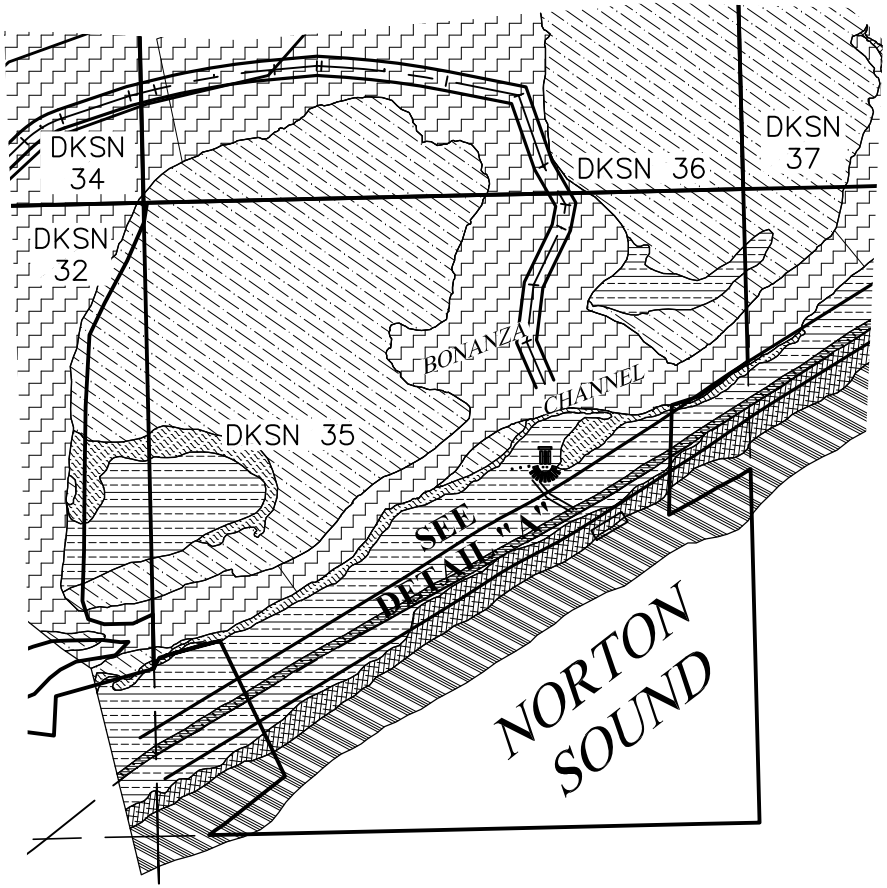
PROJECT OVERVIEW

DATE 3/14/2021

PAGE 1 OF 1

APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

LATITUDE	LONGITUDE
N64°31'00"	W164°34'54"



GRAPHIC SCALE

0 400 800

U.S. SURVEY FEET

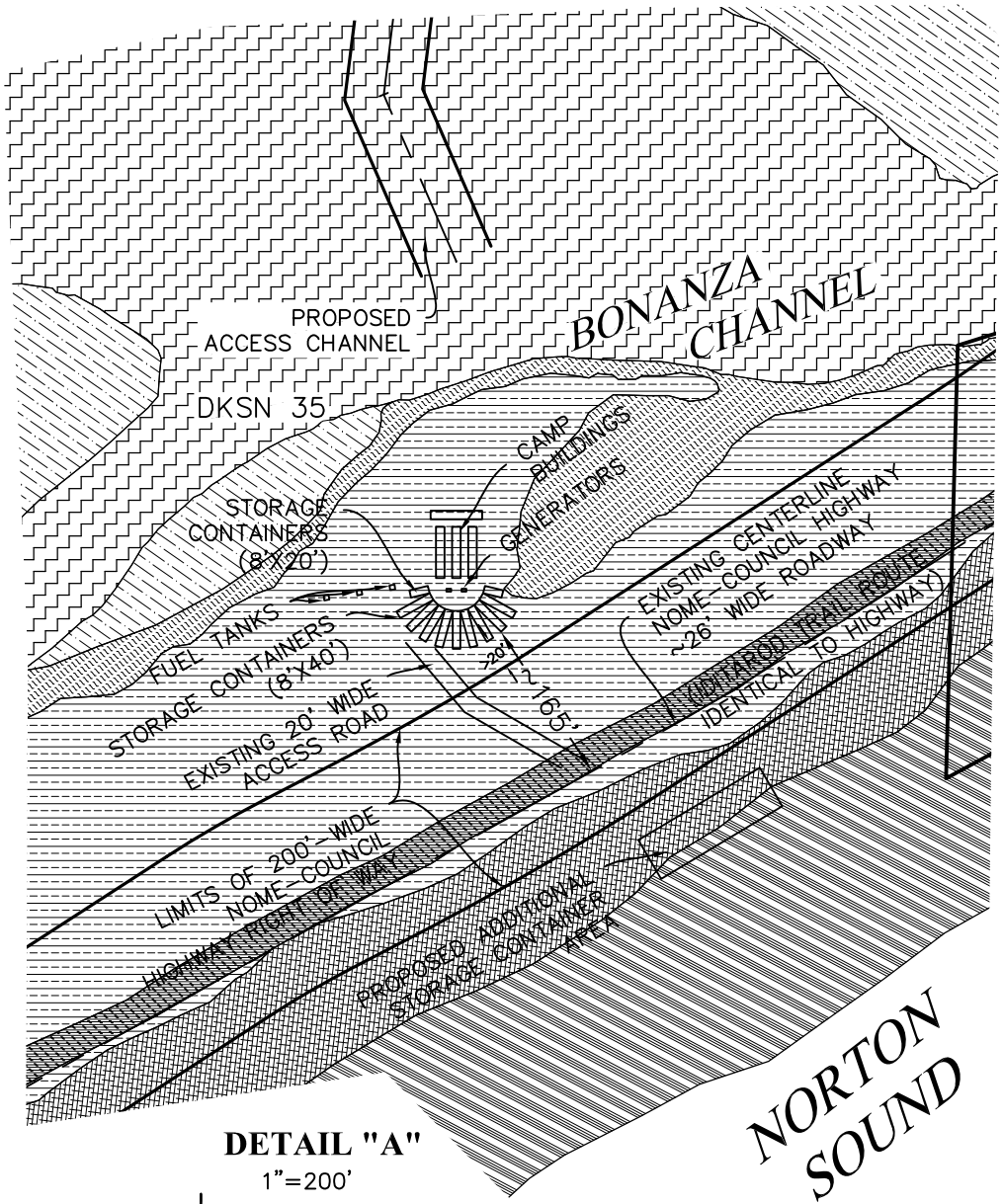
1"=800'

LEGEND:

VALID EXTENTS OF STATE MINING CLAIMS (NAME: DKSN ##)

WETLAND CLASSIFICATION LEGEND:

	E1UBL
	E2EM1S
	E2US2
	M2US2
	M2USP
	PEM1_SS1B
	PEM1_SS1C
	PEM1B
	PEM1C
	R2US5
	U
	Ud



DETAIL "A"

1"=200'

N

MAGNETIC DECLINATION 91° 50' E

CAMP & HIGHWAY RIGHT-OF-WAY

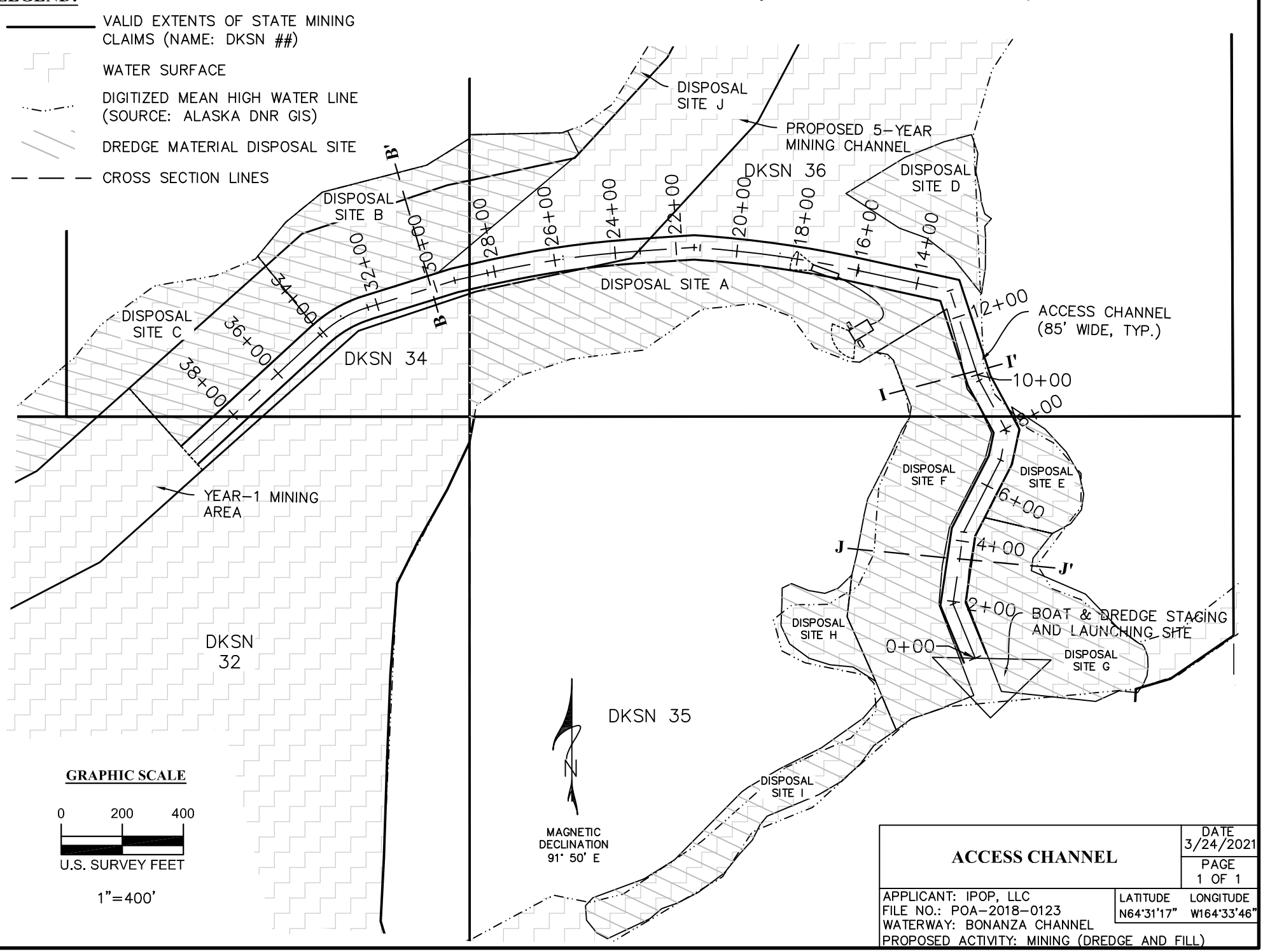
DATE 3/18/2021

PAGE 1 OF 1

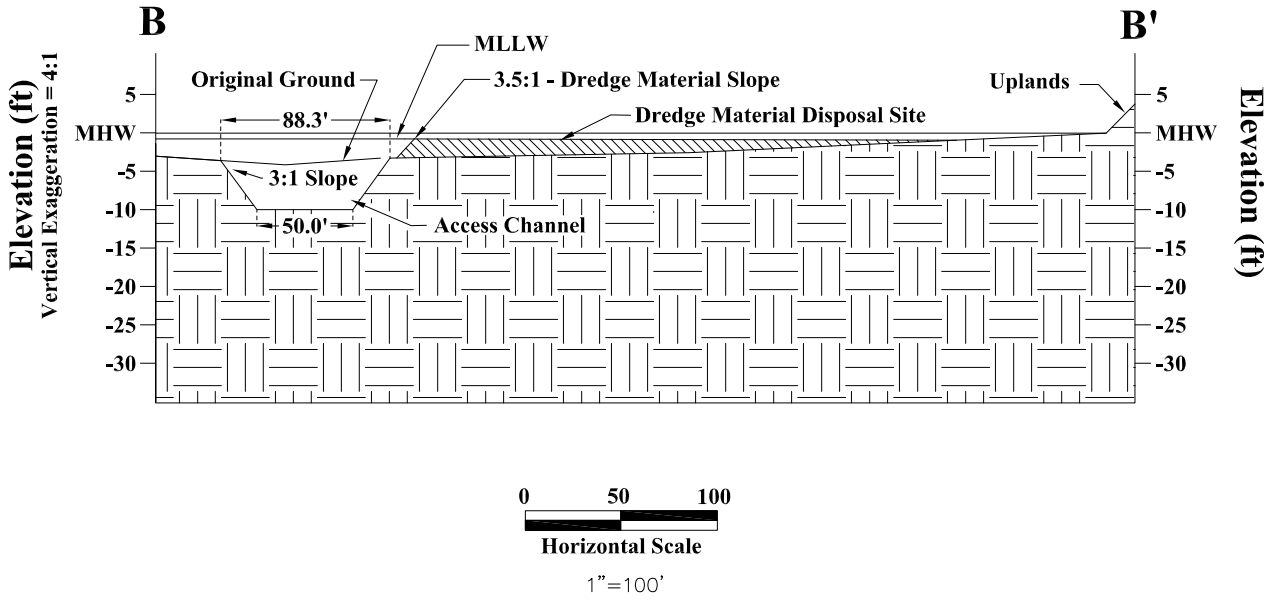
APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

LATITUDE	LONGITUDE
N64°31'04"	W164°33'22"

IPOP LLC
POA-2018-00123, Safety Sound/Bonanza Channel
April 2021, Sheet 8 of 29



ACCESS CHANNEL	DATE 3/24/2021
	PAGE 1 OF 1
APPLICANT: IPOP, LLC	LATITUDE N64°31'17"
FILE NO.: POA-2018-0123	LONGITUDE W164°33'46"
WATERWAY: BONANZA CHANNEL	
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)	



CROSS SECTIONS	DATE 4/14/2020
	PAGE 1 OF 4

APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

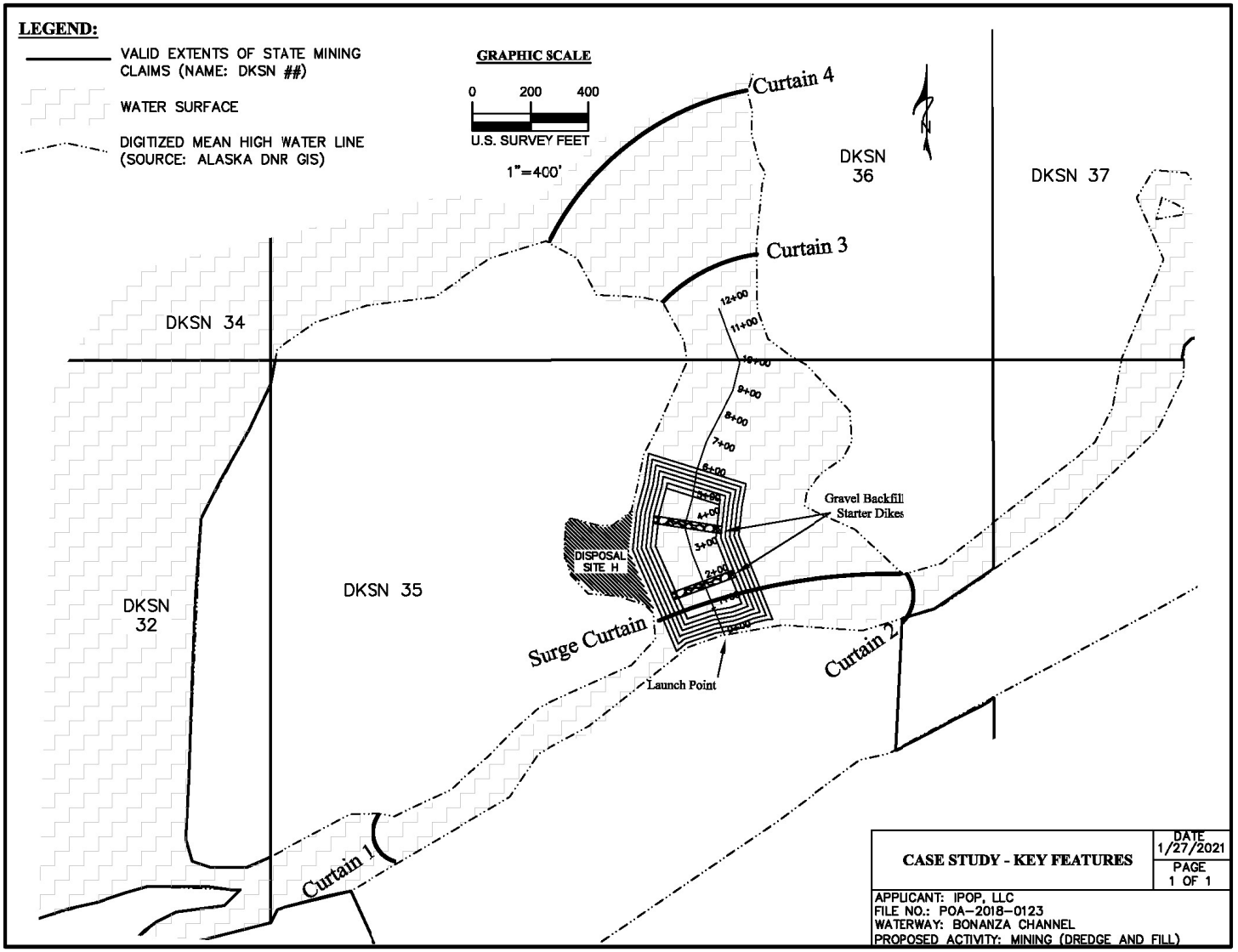


Figure 5-8-20. Overview map of the BCCS showing general centerline of dredging channel, turbidity curtain locations, launch point for dredge, and general contours of a dredged pit with conceptual gravel backfill control dikes.

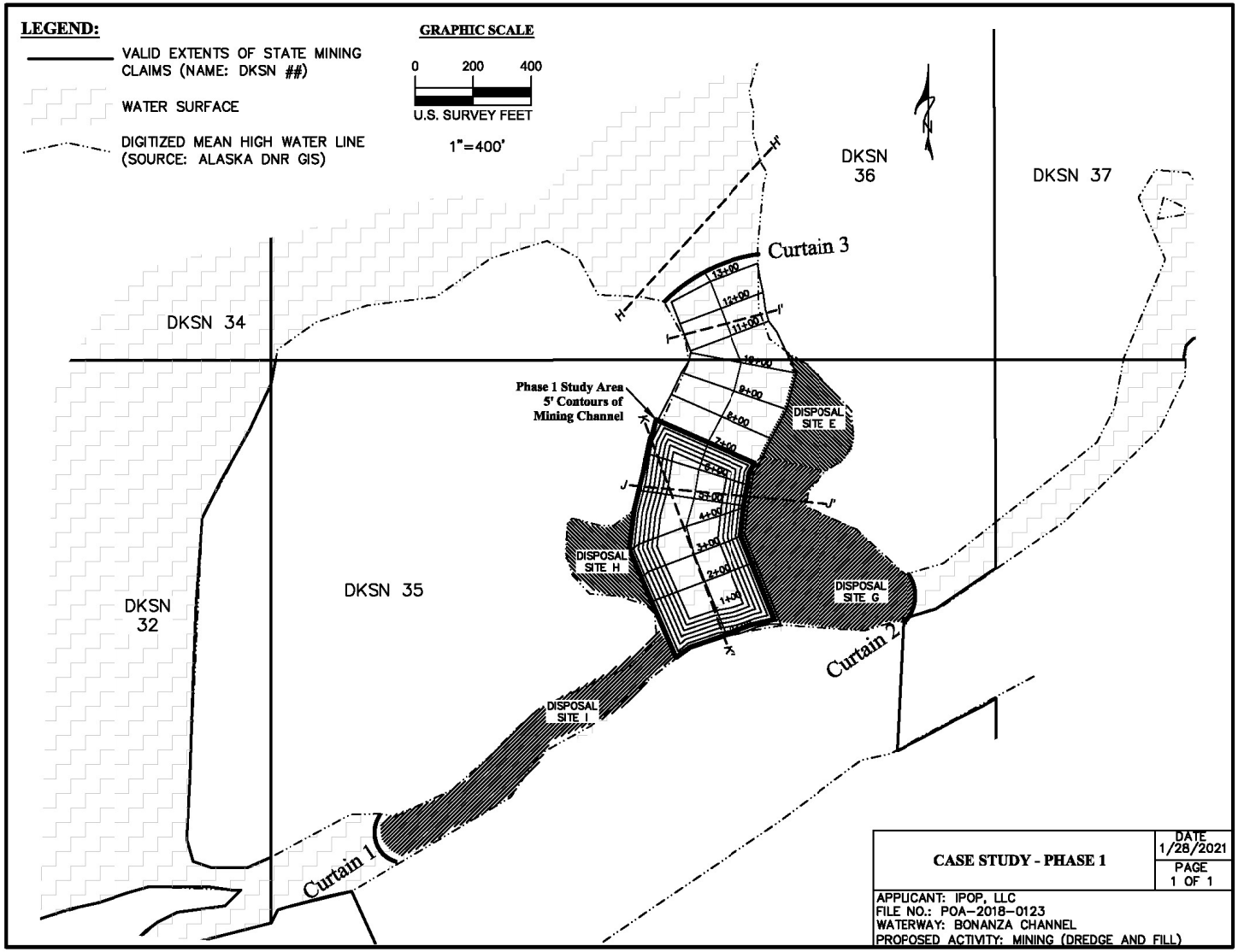


Figure 5-8-21. Map of the BCCS showing phase 1 general outline of dredging channel, turbidity curtain locations, cross section lines, dredge material disposal sites and general contours of the phase 1 dredged pit (illustrated as not backfilled).

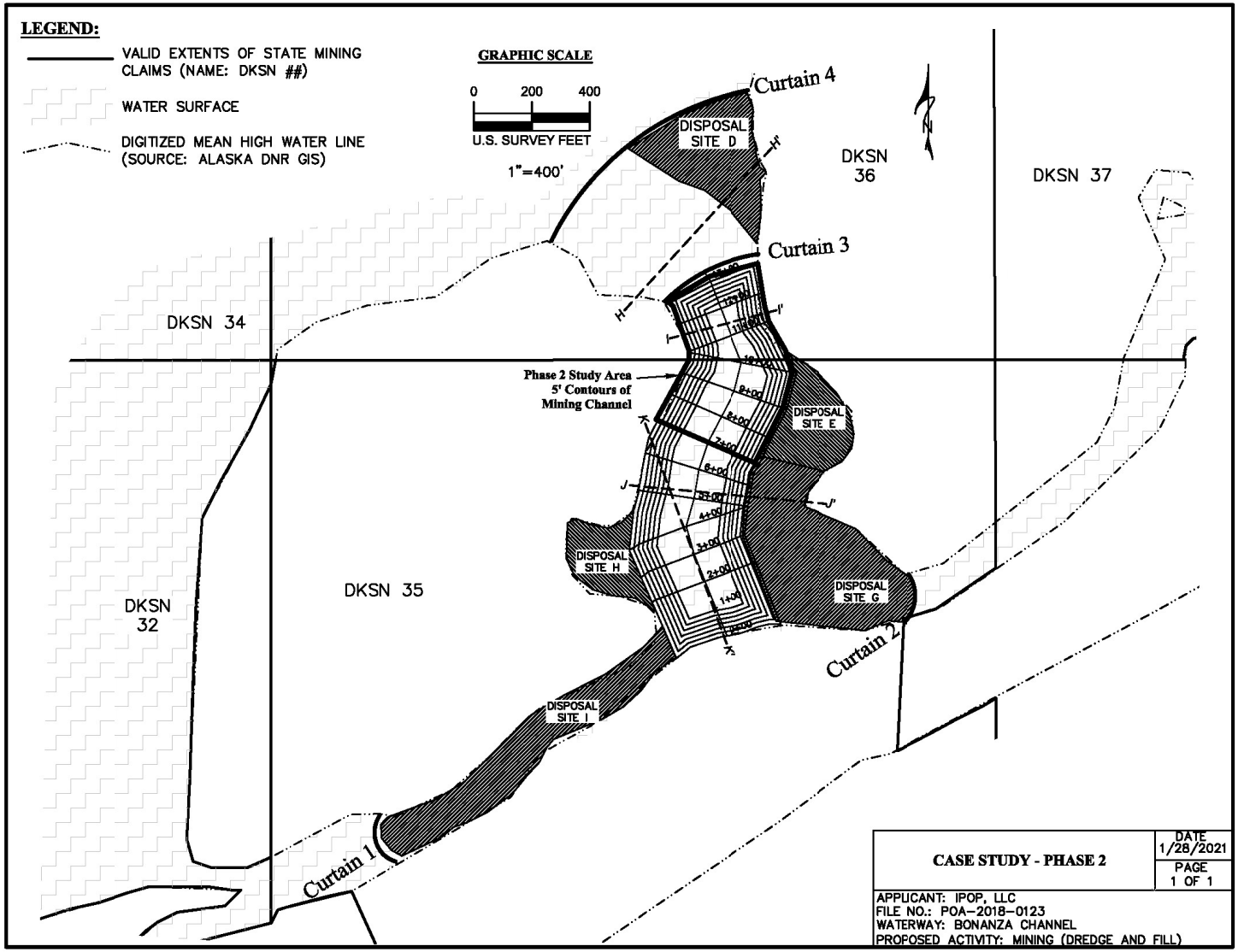
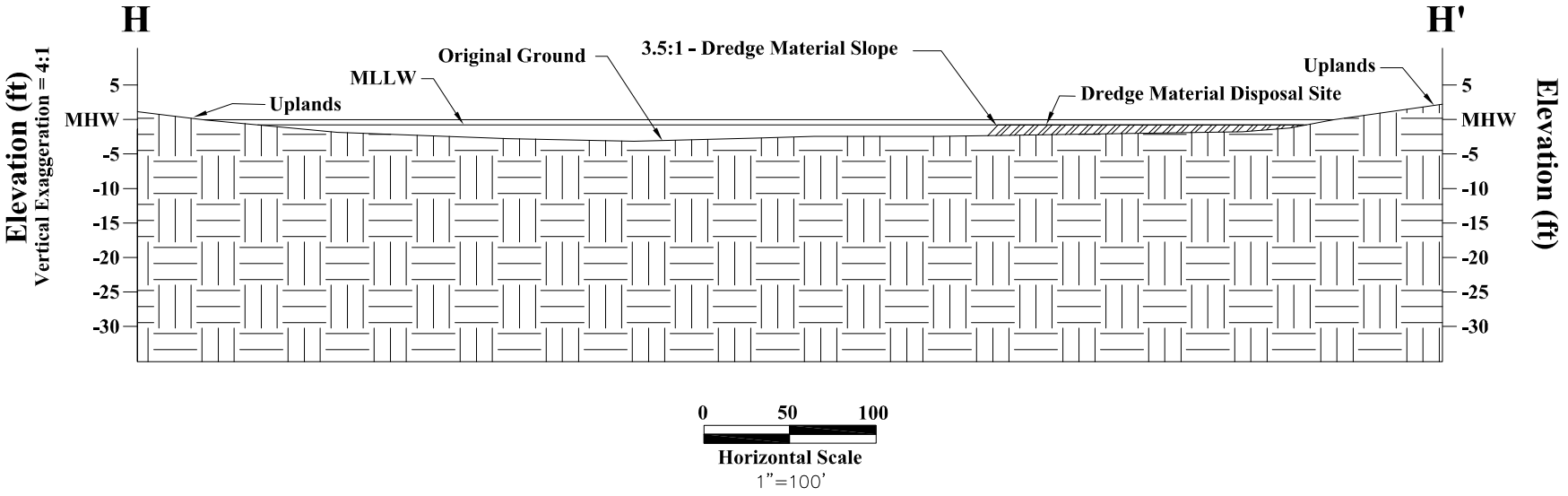
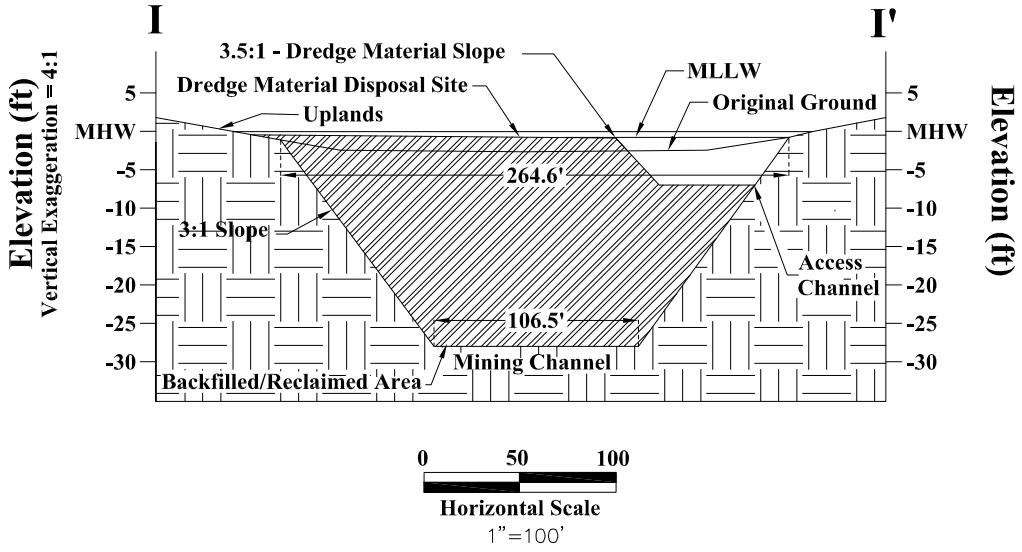


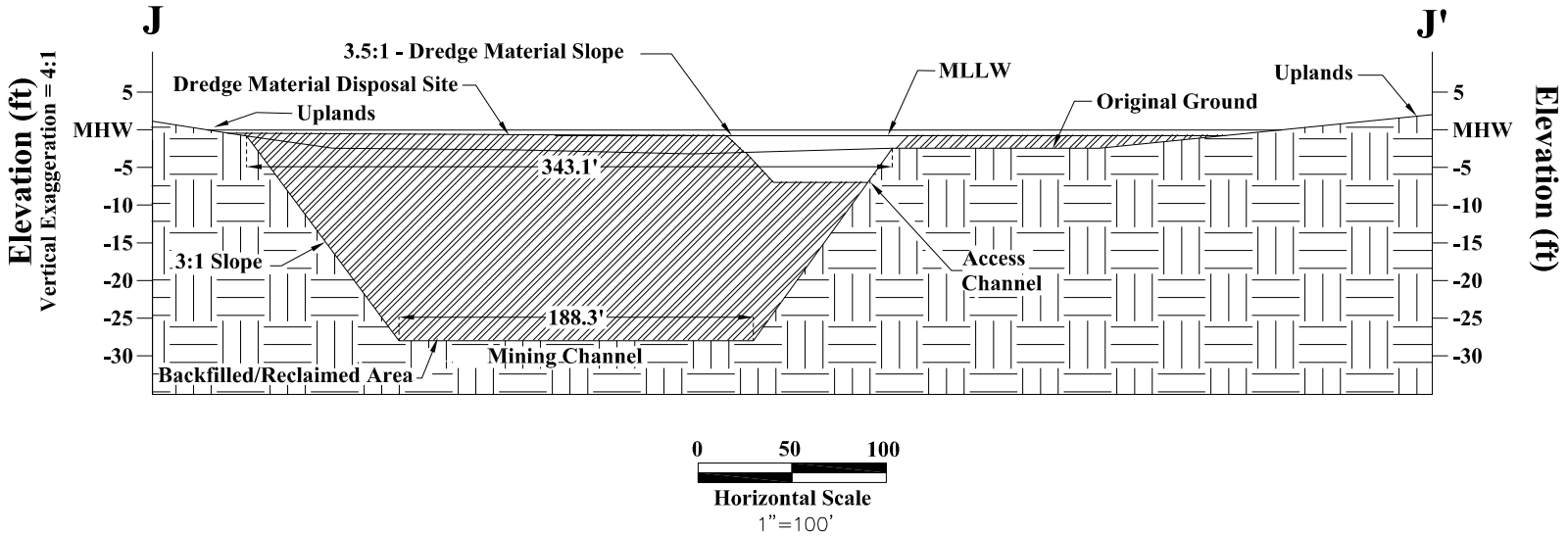
Figure 5-8-22. Map of the BCCS showing phase 2 general outline of dredging channel, turbidity curtain locations, cross section lines, dredge material disposal sites and general contours of phase 2 dredged pit (illustrated as not backfilled).

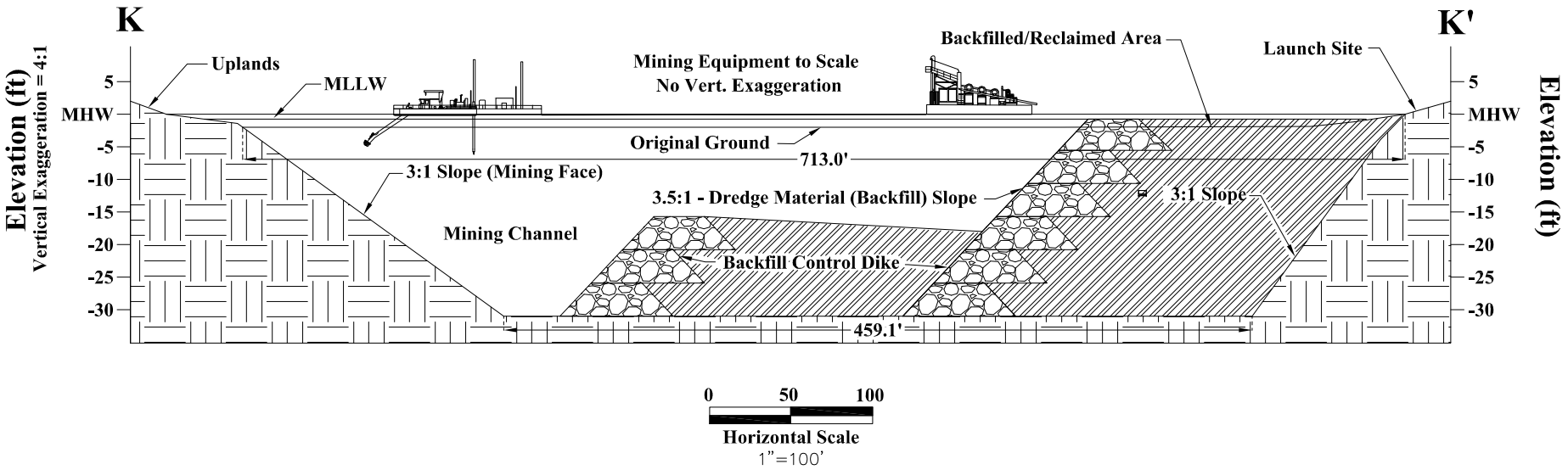




CROSS SECTIONS	DATE 1/26/2021
	PAGE 1 OF 2

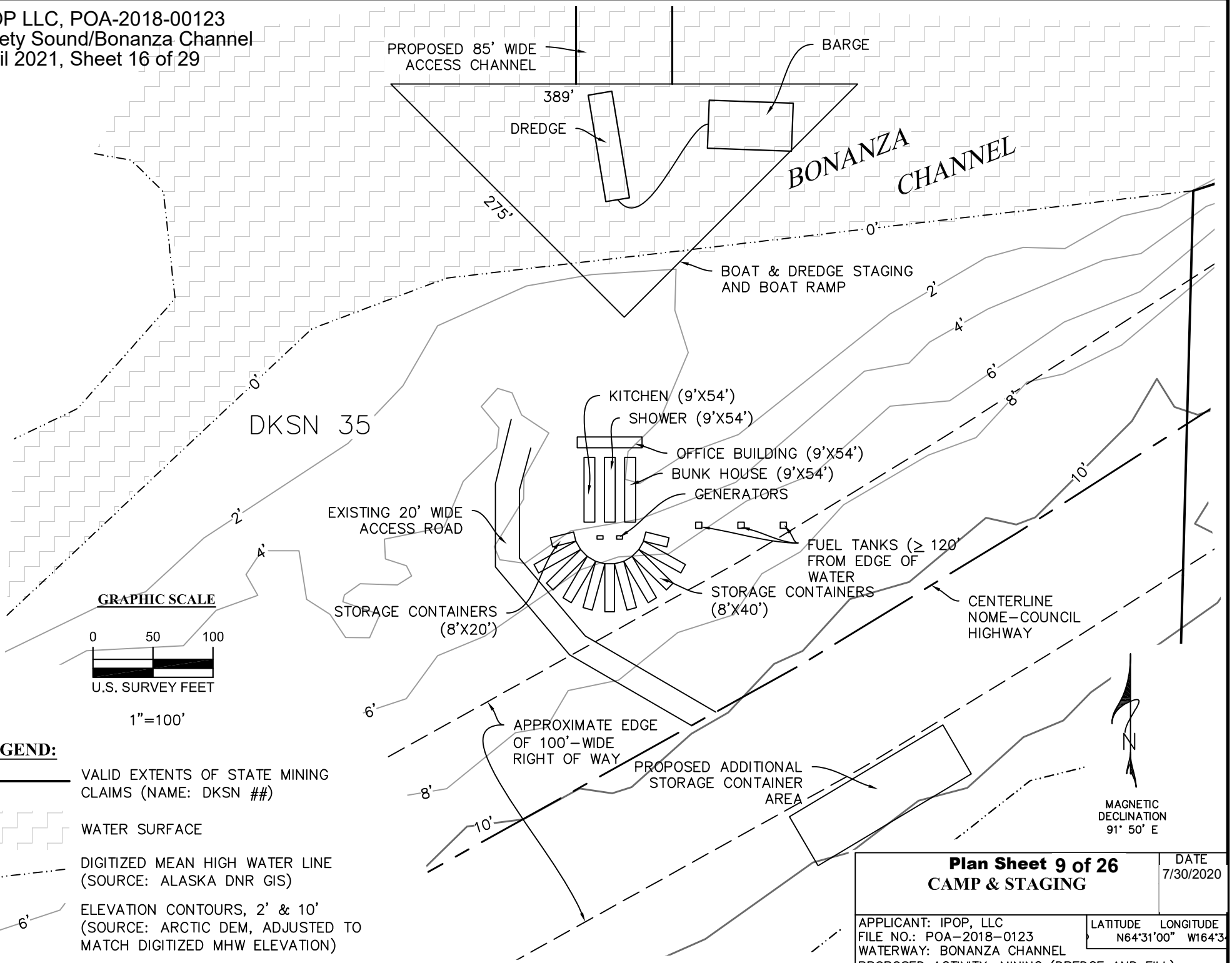
APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)





CROSS SECTIONS	DATE 1/26/2021
	PAGE 1 OF 2

APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)



LEGEND:

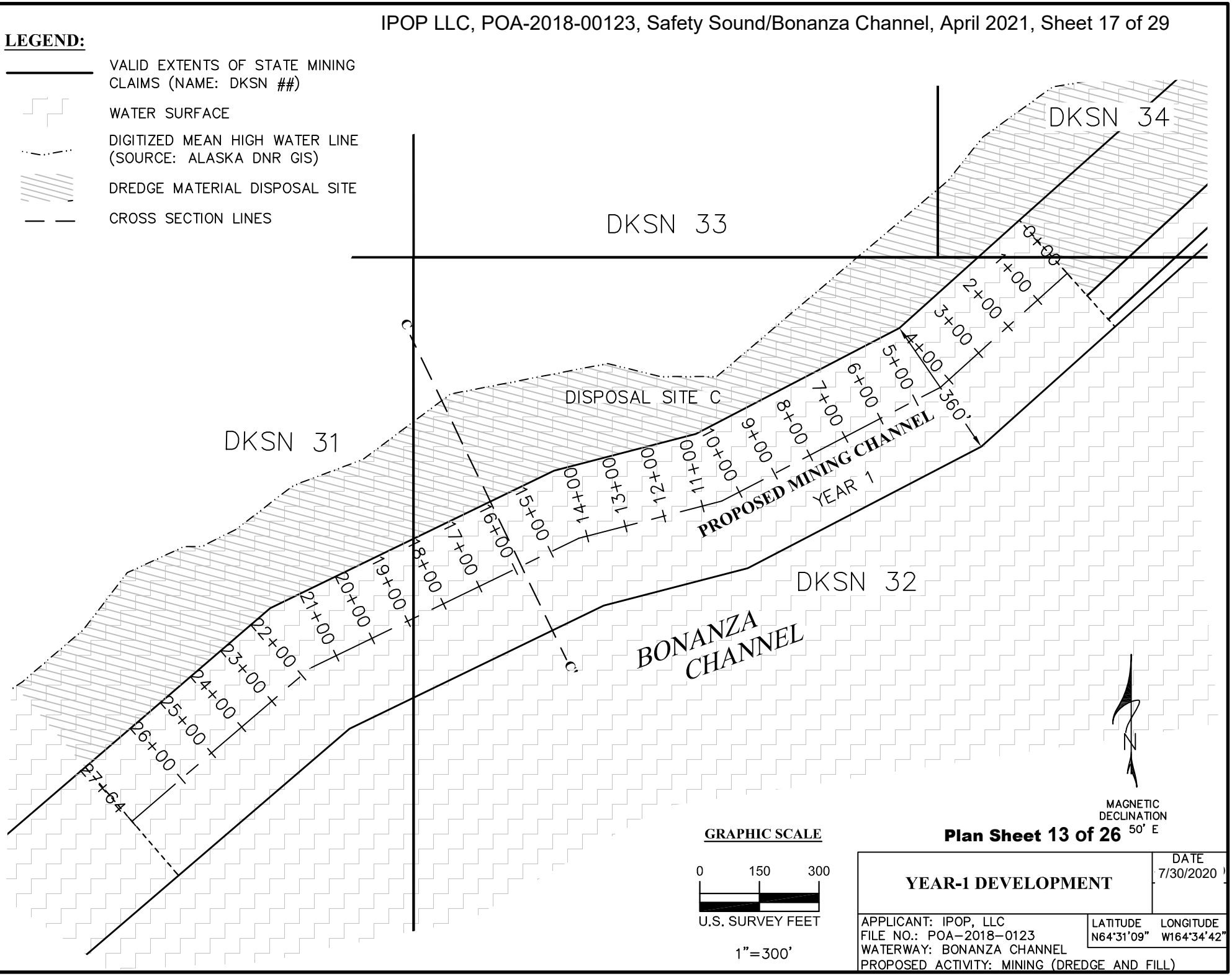
- VALID EXTENTS OF STATE MINING CLAIMS (NAME: DKSN ##)
- WATER SURFACE
- DIGITIZED MEAN HIGH WATER LINE (SOURCE: ALASKA DNR GIS)
- 6' ELEVATION CONTOURS, 2' & 10' (SOURCE: ARCTIC DEM, ADJUSTED TO MATCH DIGITIZED MHW ELEVATION)

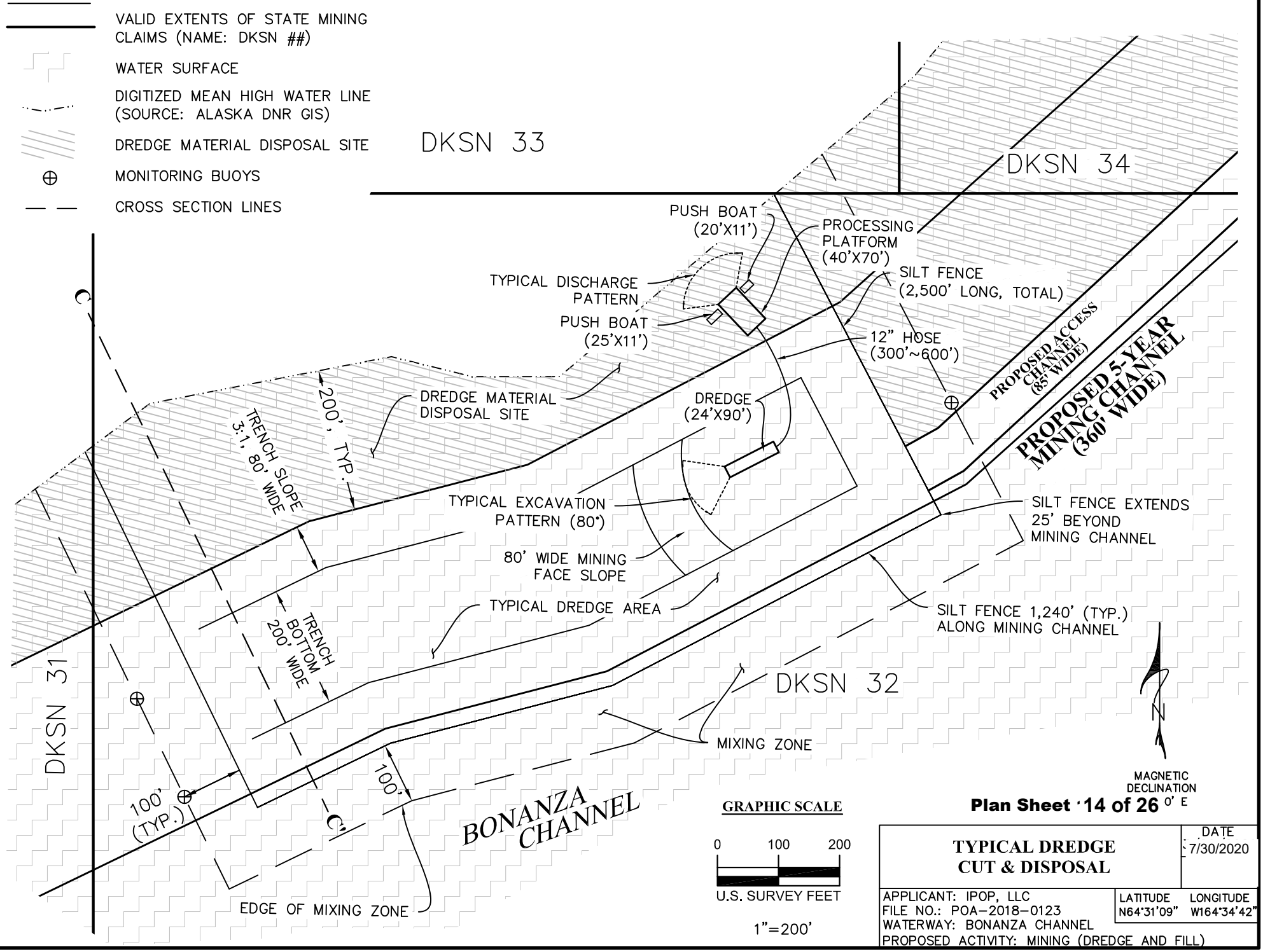
Plan Sheet 9 of 26
CAMP & STAGING

DATE 7/30/2020

APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

LATITUDE	LONGITUDE
N64°31'00"	W164°3


LEGEND:
VALID EXTENTS OF STATE MINING CLAIMS (NAME: DKSN ##)
WATER SURFACE
DIGITIZED MEAN HIGH WATER LINE (SOURCE: ALASKA DNR GIS)
DREDGE MATERIAL DISPOSAL SITE
CROSS SECTION LINES
DKSN 34
DKSN 33
DKSN 31
DKSN 32
DISPOSAL SITE C
PROPOSED MINING CHANNEL
YEAR 1
BONANZA CHANNEL
C
C'
0+00
1+00
2+00
3+00
4+00
360'
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+64
N
MAGNETIC DECLINATION 15° E
GRAPHIC SCALE
0
150
300
U.S. SURVEY FEET
1"=300'
Plan Sheet 13 of 26
YEAR-1 DEVELOPMENT
DATE 7/30/2020
APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)
LATITUDE N64°31'09"
LONGITUDE W164°34'42"



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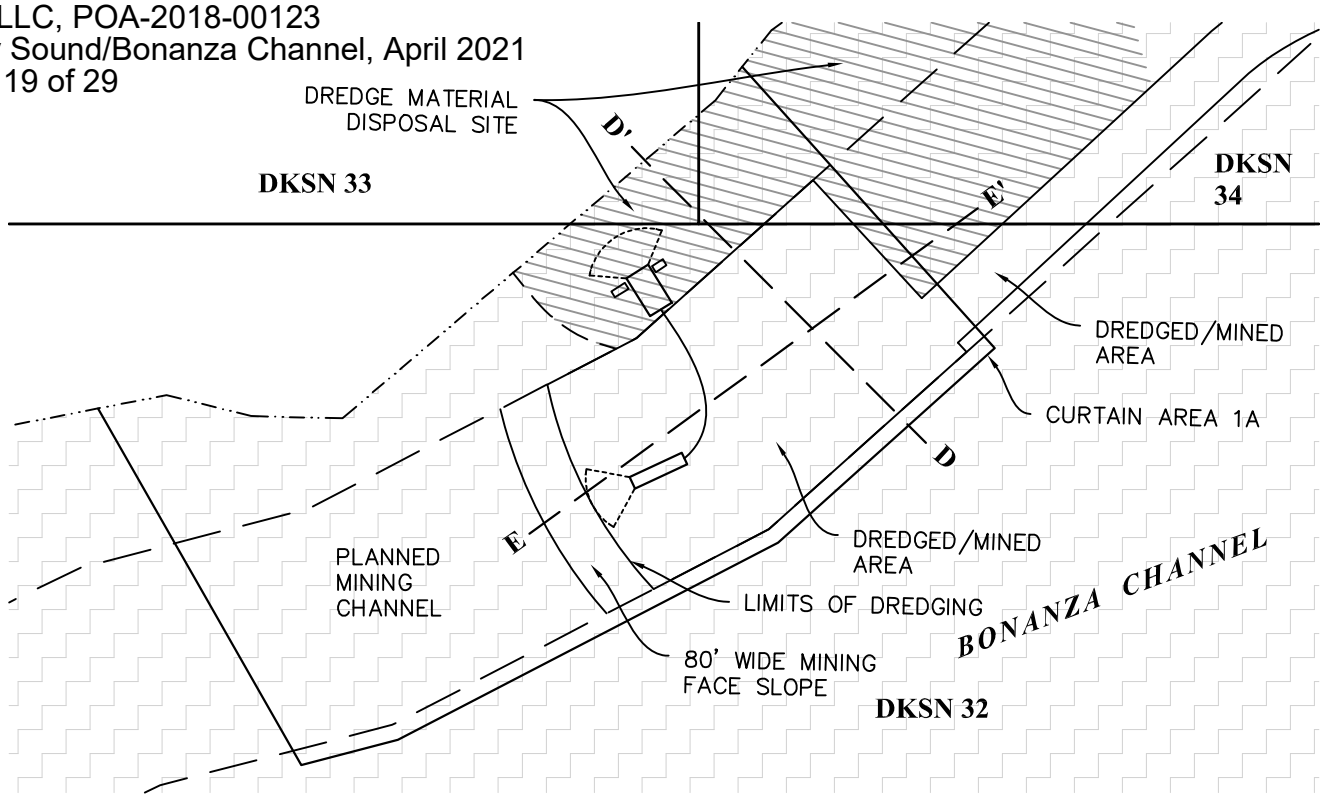
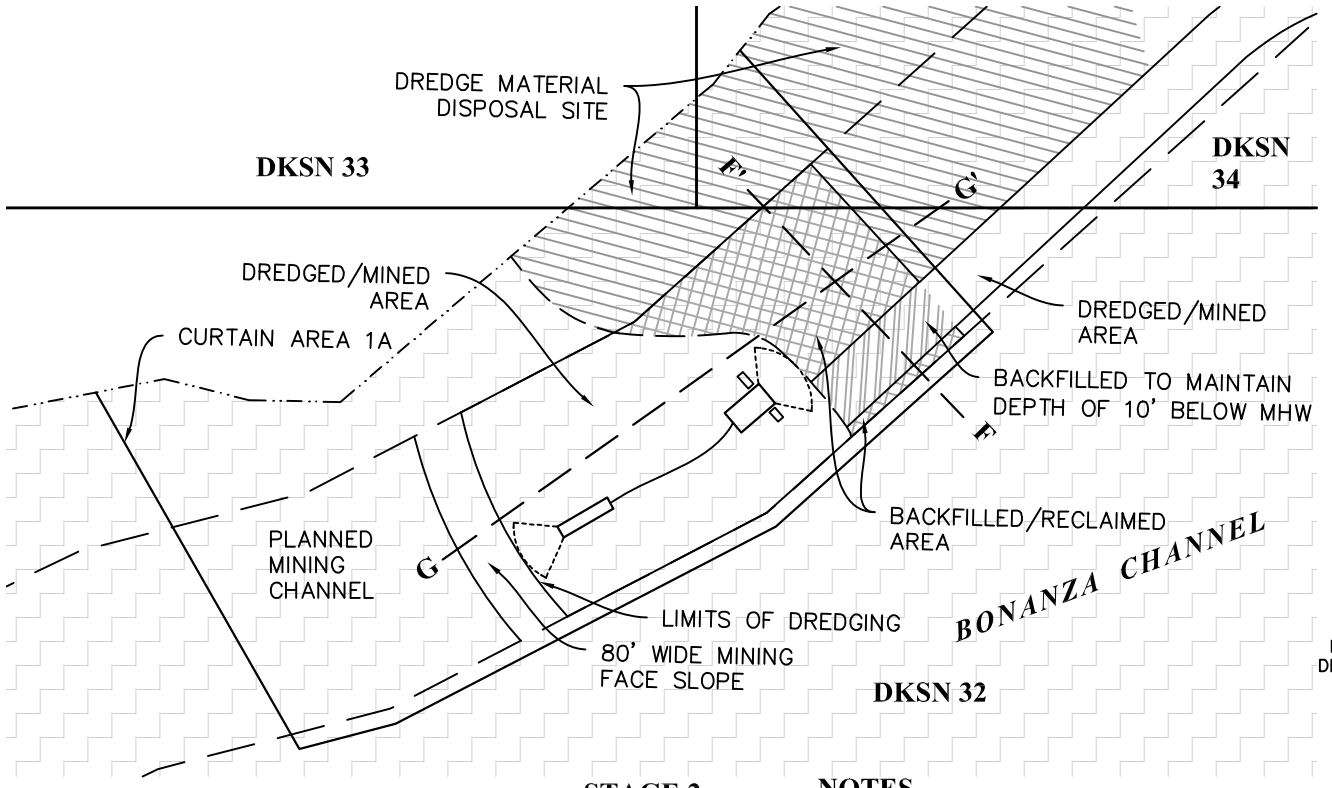
TYPICAL DREDGE CUT & DISPOSAL	DATE 7/30/2020
APPLICANT: IPOP, LLC FILE NO.: POA-2018-0123 WATERWAY: BONANZA CHANNEL PROPOSED ACTIVITY: MINING (DREDGE AND FILL)	LATITUDE N64°31'09" LONGITUDE W164°34'42"



STAGE 1



STAGE 2

NOTES

1 EXCAVATION SIDE SLOPES IN DREDGED/MINED AREAS ARE 80' WIDE AT 3:1, TYP. (SEE TYPICAL DREDGE CUT & FILL MAP FOR DETAILS)

LEGEND:

- VALID EXTENTS OF STATE MINING CLAIMS (NAME: DKSN ##)
- WATER SURFACE
- DIGITIZED MEAN HIGH WATER LINE (SOURCE: ALASKA DNR GIS)
- CROSS SECTION LINES

GRAPHIC SCALE

0 150 300

U.S. SURVEY FEET

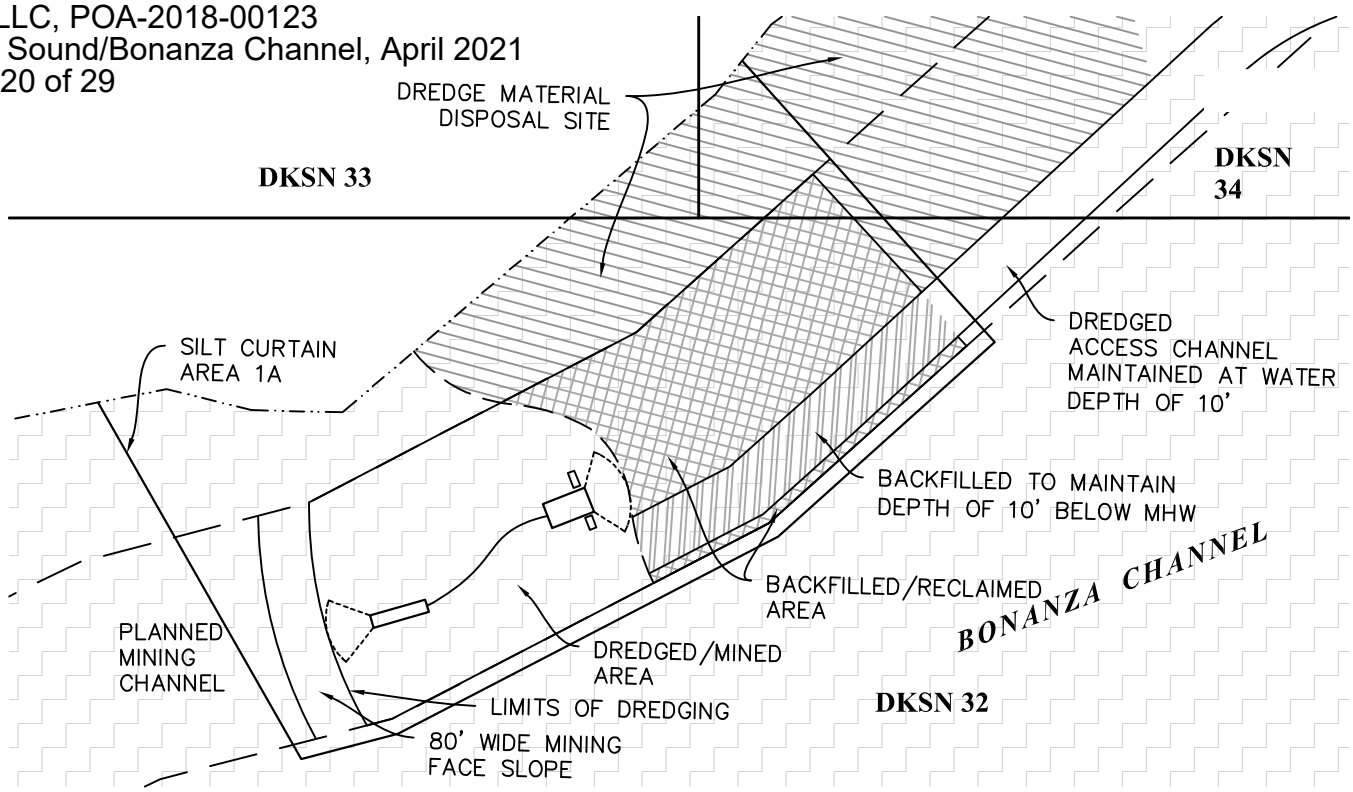
1"=300'

Plan Sheet 15 of 26
TYPICAL DREDGE STAGES

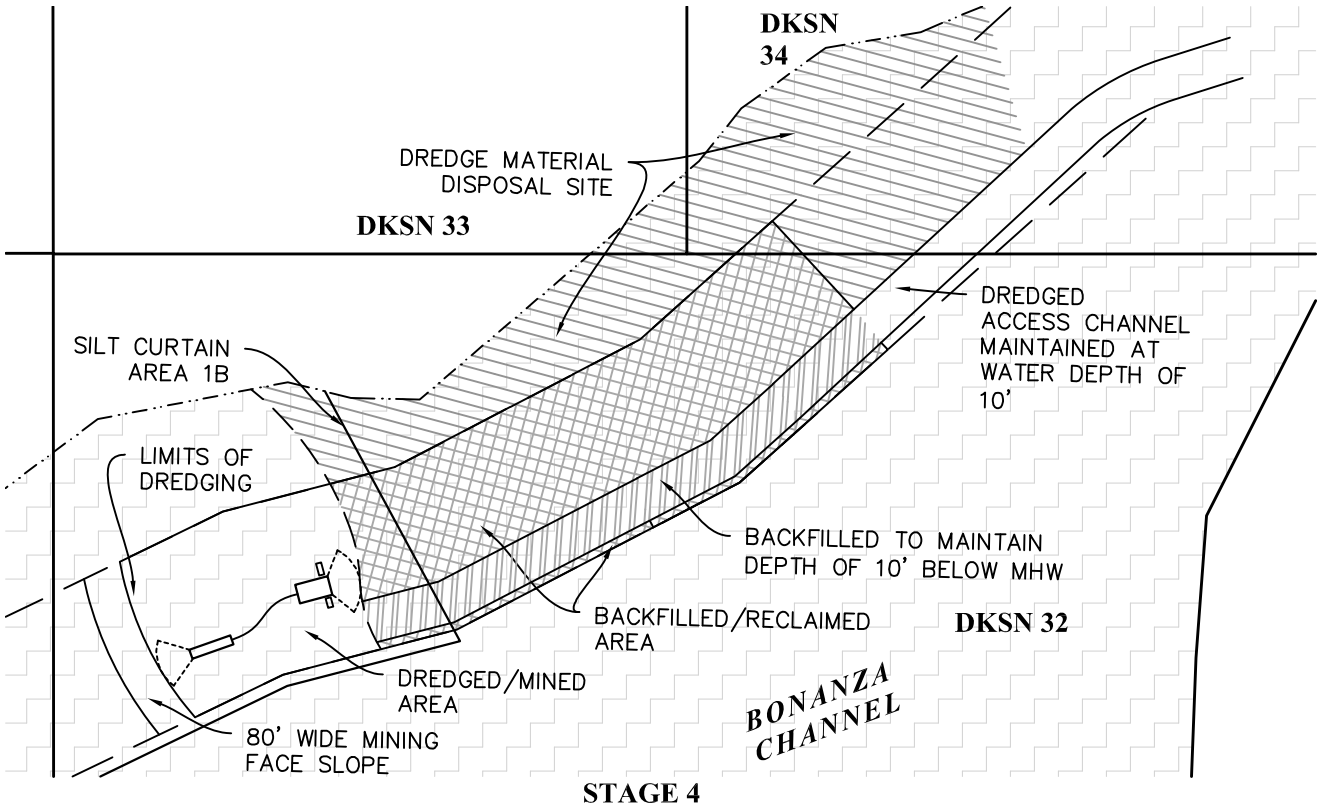
DATE 7/30/2020

APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

LATITUDE	LONGITUDE
N64°31'09"	W164°34'42"



STAGE 3



STAGE 4
1"=400'

MAGNETIC DECLINATION 91° 50' E

GRAPHIC SCALE

U.S. SURVEY FEET

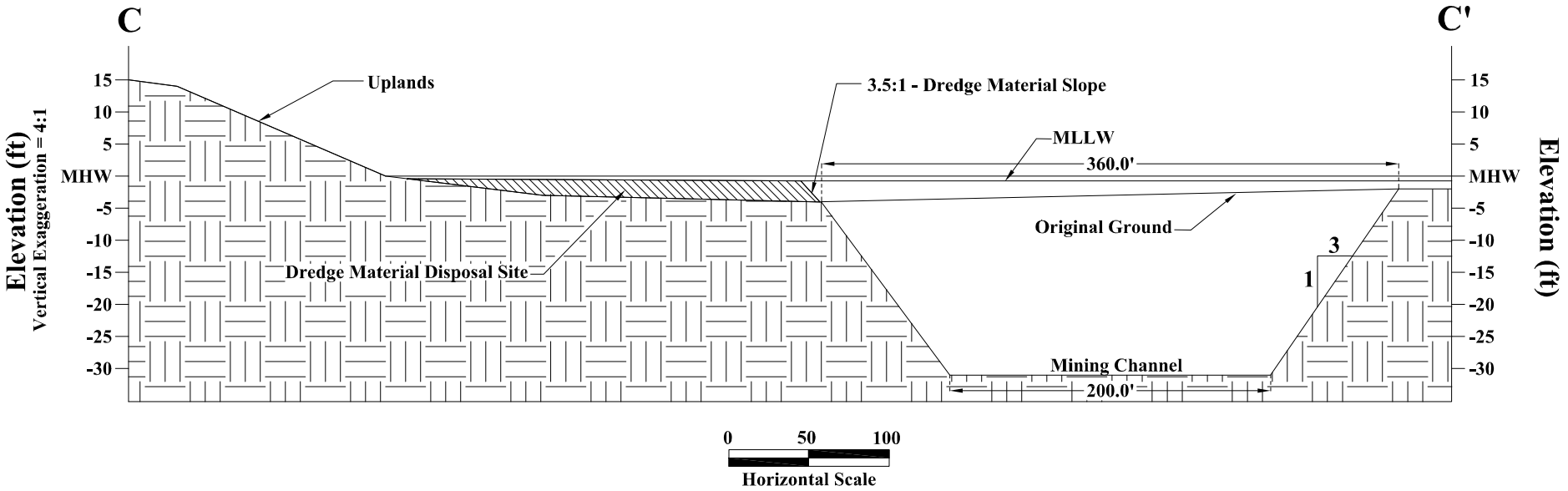
1"=300'

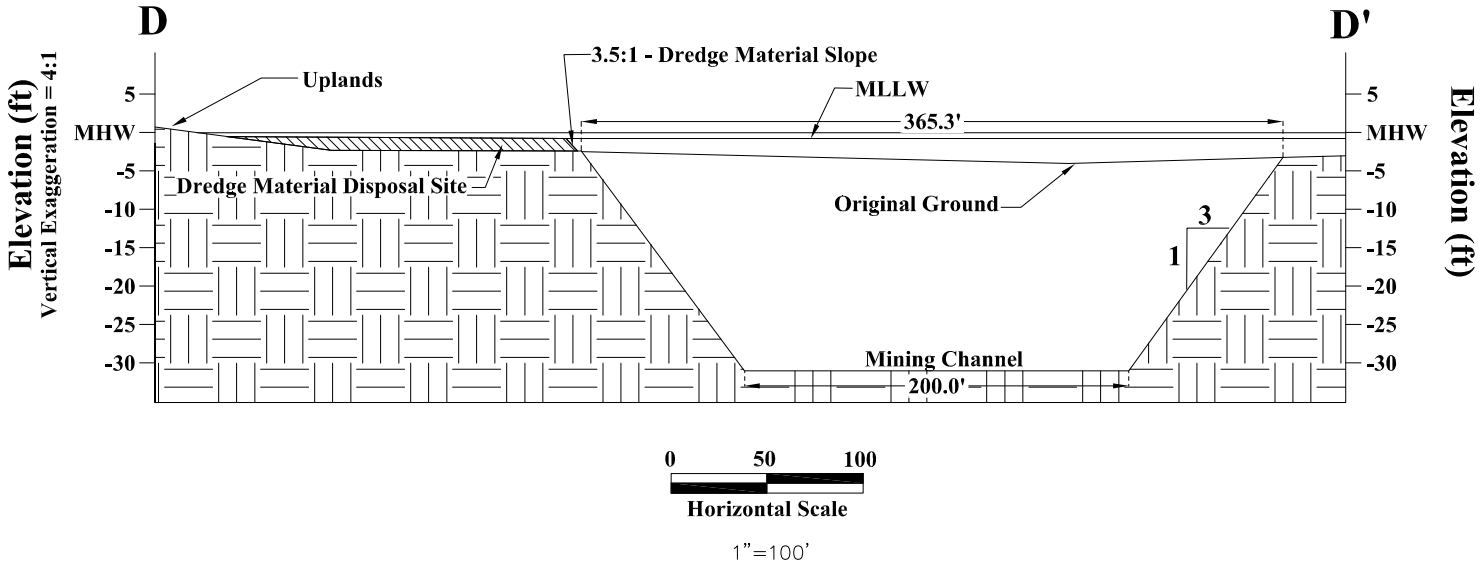
Plan Sheet 16 of 26
TYPICAL DREDGE STAGES

DATE 7/30/2020

APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

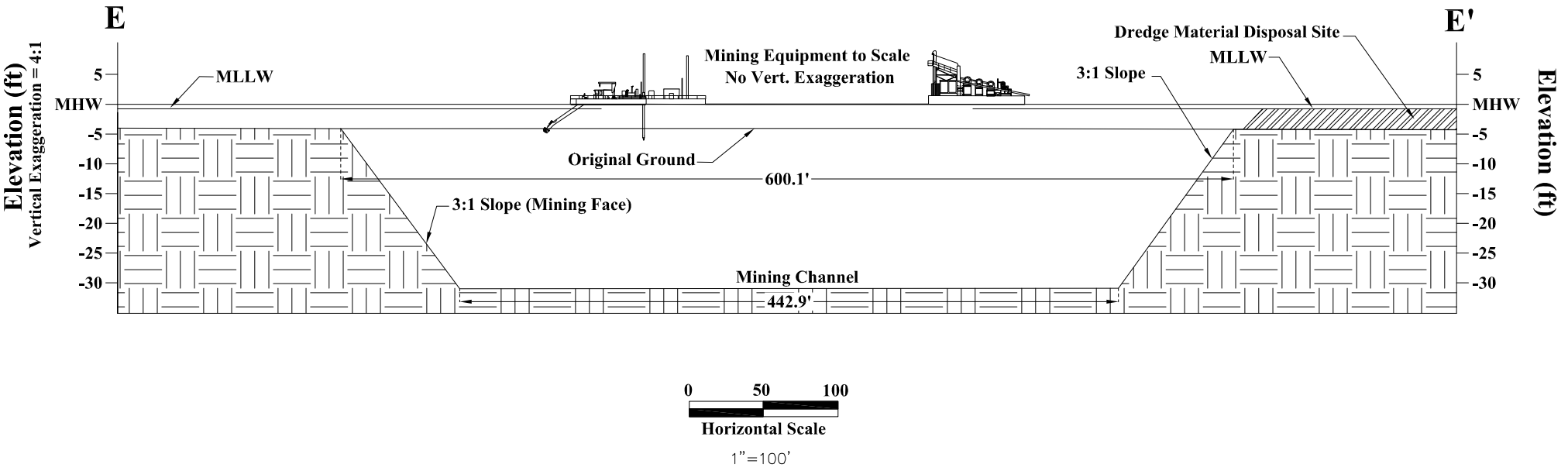
LATITUDE	LONGITUDE
N64°31'09"	W164°34'42"

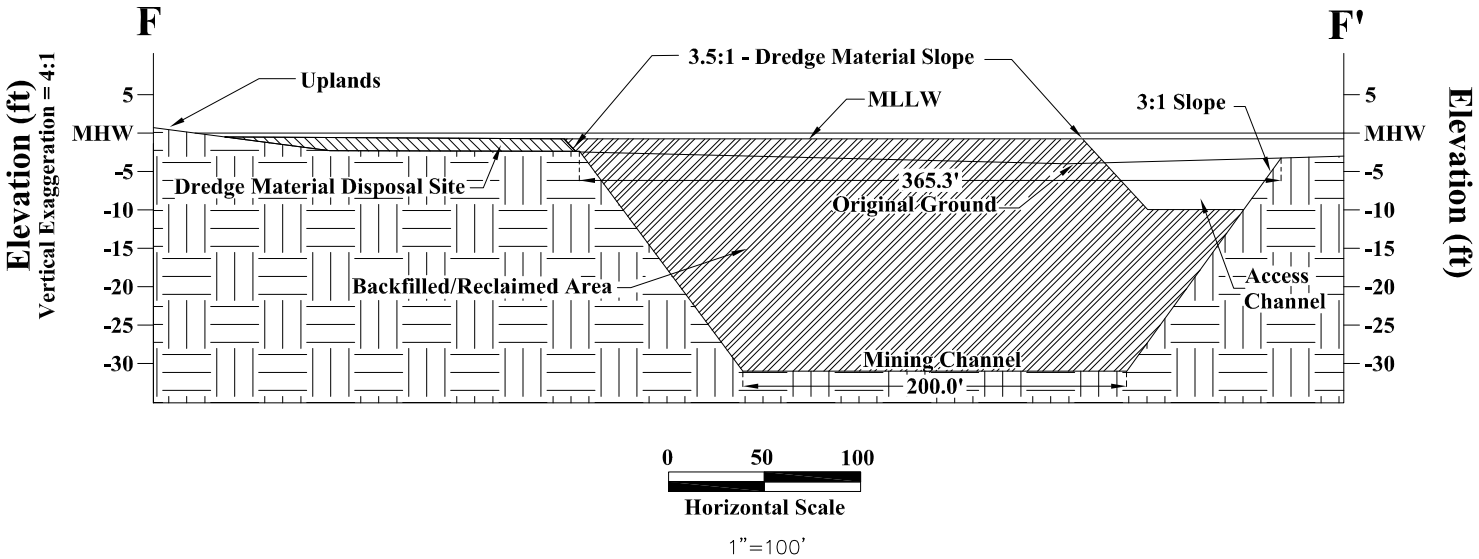




CROSS SECTIONS	DATE 4/14/2020
	PAGE 2 OF 4

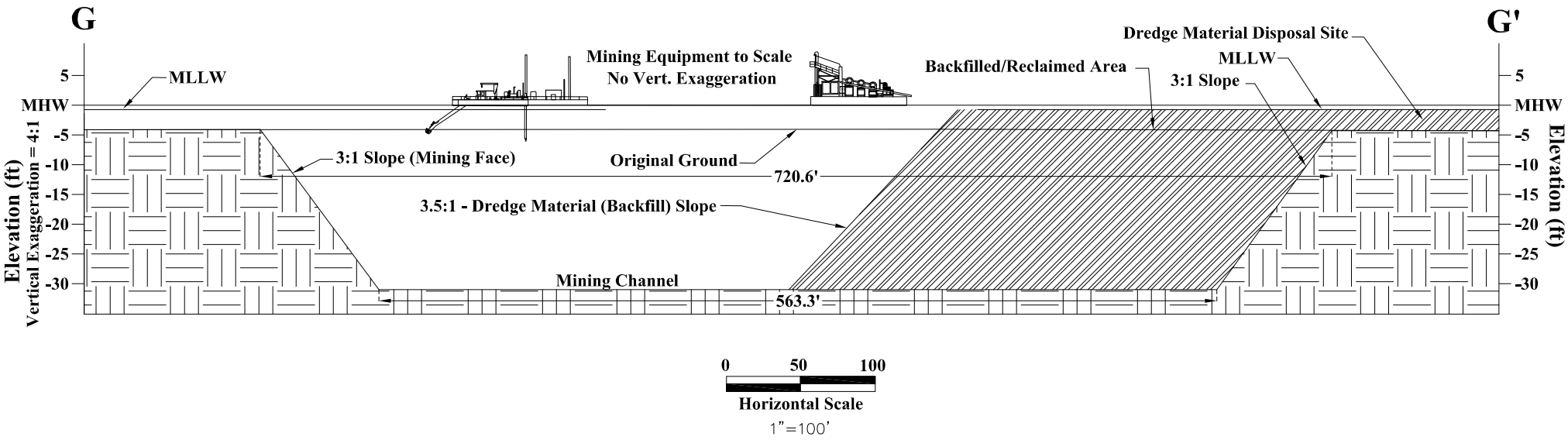
APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)





CROSS SECTIONS	DATE 4/14/2020
	PAGE 3 OF 4

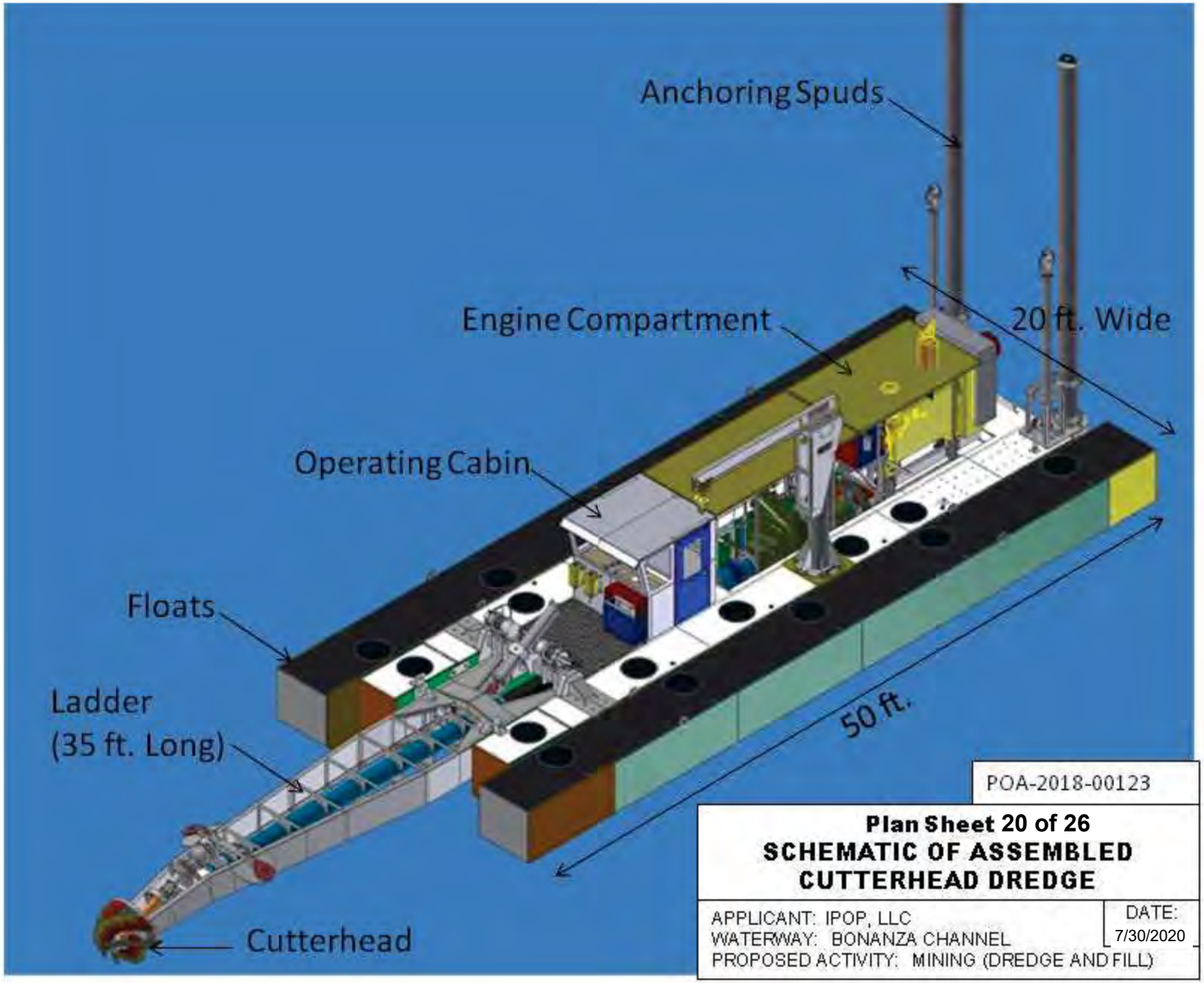
APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

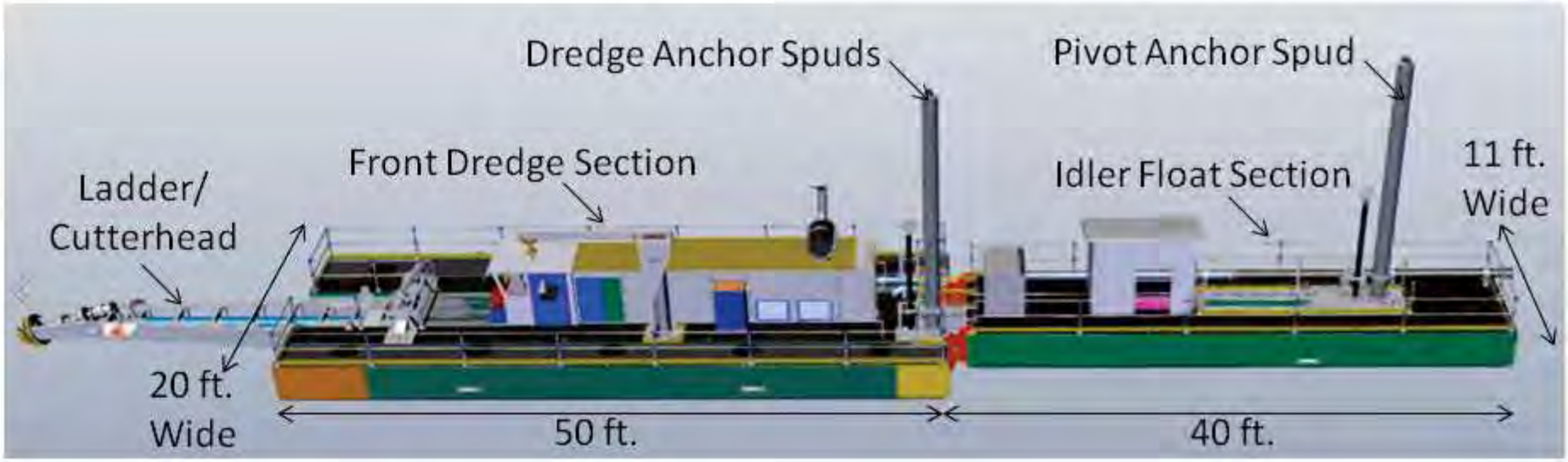


CROSS SECTIONS	DATE 4/14/2020
	PAGE 4 OF 4

APPLICANT: IPOP, LLC
FILE NO.: POA-2018-0123
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)


B & R
POA-2018-00123
Plan Sheet 19 of 26
SECTIONAL BARGE PLATFORM
GENERAL LAYOUT
APPLICANT: IPOP, LLC
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)
DATE:
7/30/2020


Anchoring Spuds
Engine Compartment
20 ft. Wide
Operating Cabin
Floats
Ladder
(35 ft. Long)
50 ft.
Cutterhead
POA-2018-00123
Plan Sheet 20 of 26
SCHEMATIC OF ASSEMBLED
CUTTERHEAD DREDGE
APPLICANT: IPOP, LLC
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)
DATE:
7/30/2020



POA-2018-00123

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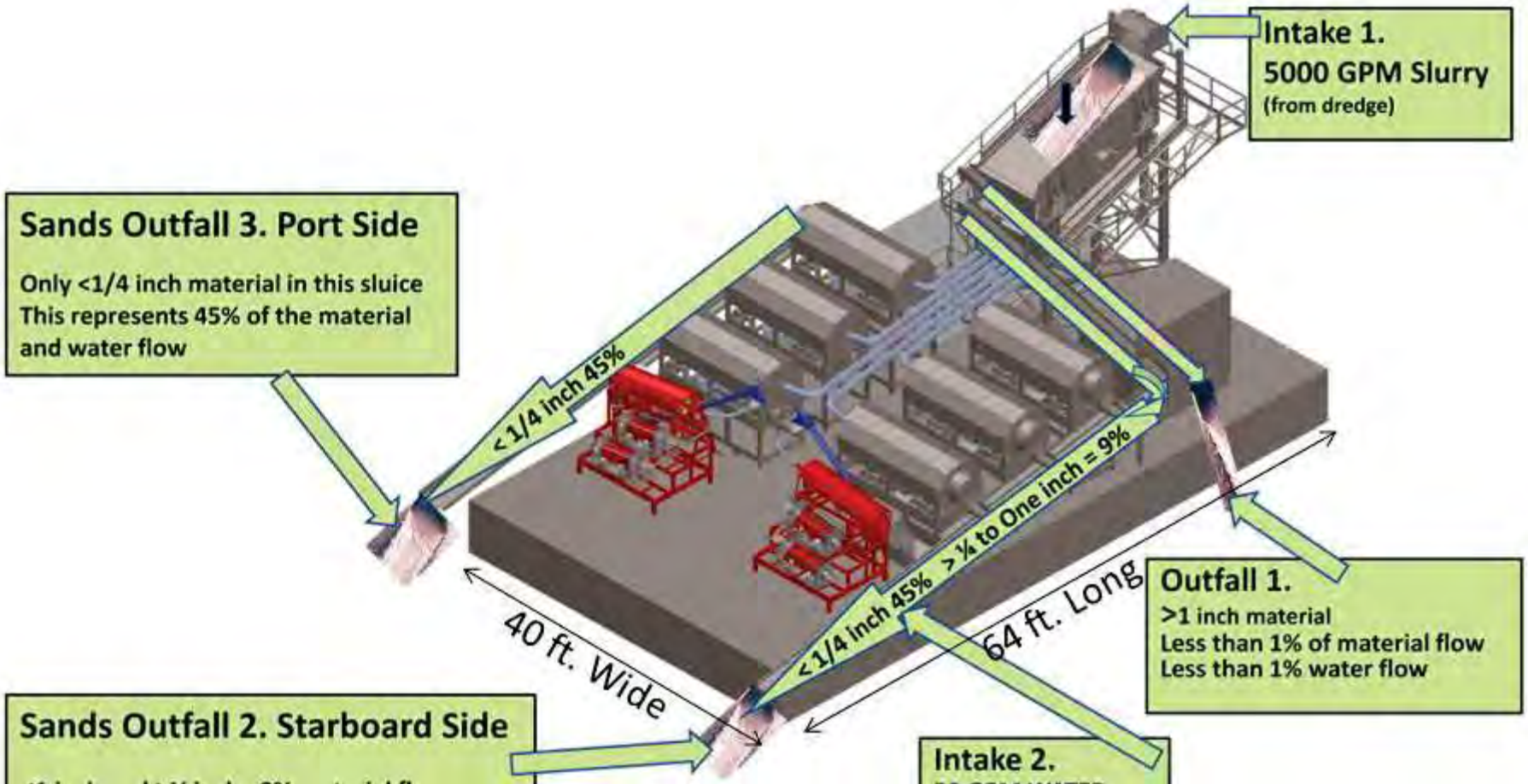
ASSEMBLED DREDGE AND IDLER FLOAT

APPLICANT: IPOP, LLC
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

DATE: 7/30/2020



POA-2018-00123

Plan Sheet 22 of 26

PROCESSING BARGE INTAKES AND OUTFALLS

APPLICANT: IPOP, LLC
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

DATE: 7/30/2020

POA-2018-00123

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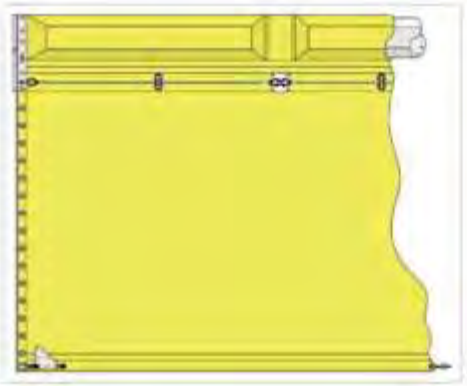
BARGE TENDERS/PUSH BOATS FOR THE OPERATION

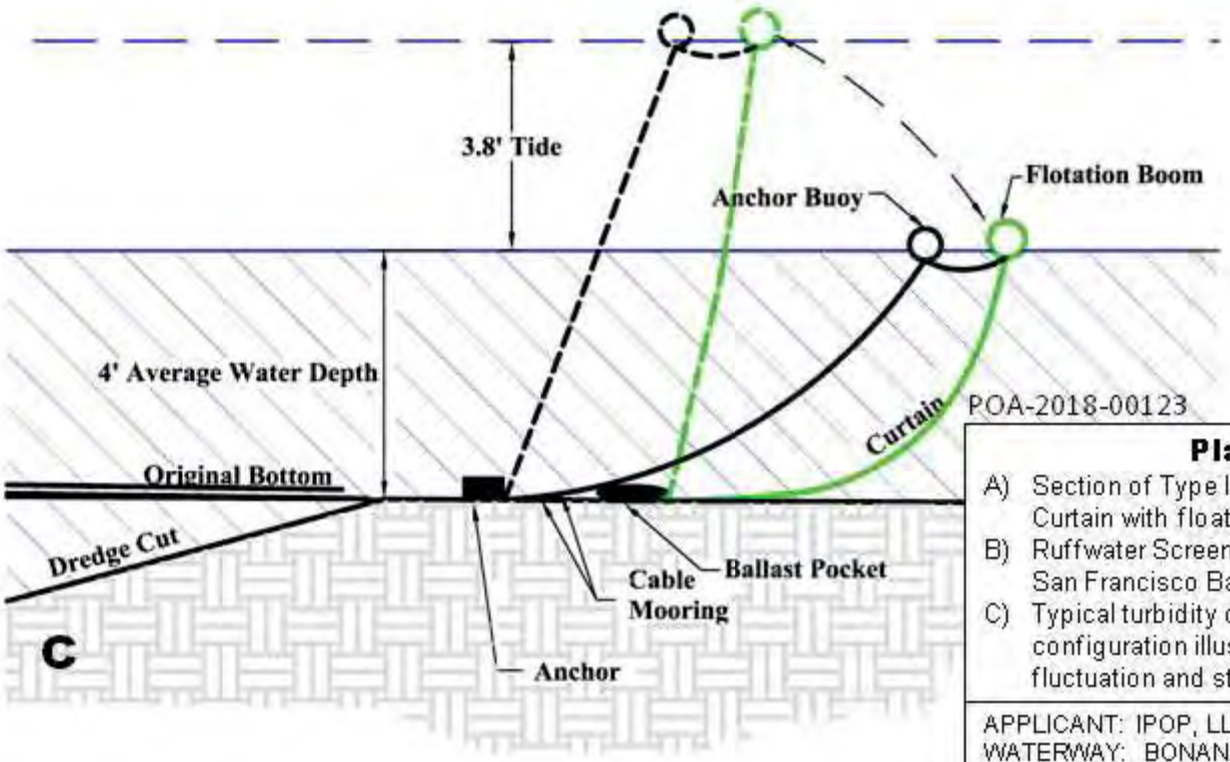
APPLICANT: IPOP, LLC
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

DATE: 7/30/2020



A

B



C

POA-2018-00123

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A) Section of Type III Ruffwater Screen Turbidity Curtain with floatation
B) Ruffwater Screen Turbidity Curtain deployed in San Francisco Bay, CA.
C) Typical turbidity curtain bottom mounting configuration illustrating safeguards for tidal fluctuation and storm surges.

APPLICANT: IPOP, LLC
WATERWAY: BONANZA CHANNEL
PROPOSED ACTIVITY: MINING (DREDGE AND FILL)

DATE: 7/30/2020