



## FISH HABITAT PERMIT

**FH18-III-0190**

ISSUED: August 30, 2018  
EXPIRES: Upon Mine Closure and  
Rehabilitation of the Site

Daniel Graham  
Donlin Gold  
4720 Business Park Blvd.  
Suite G-25  
Anchorage, AK 99503

Dear Mr. Graham:

RE: Anaconda Creek Tailing Storage Facility  
Anaconda Creek (Stream No. 335-20-16600-2671-3032)  
Sections 7, 8, 17, 18, and 29 T22N, R48W, and Sections 11, 12, 13, 14, and 24 T22N, R49W,  
Seward Meridian, Sleetmute D-6  
Location coordinates (WGS84): 62.0019 N 158.1670 W

Pursuant to AS 16.05.841 (Fishway Act) and AS 16.05.871(b), the Alaska Department of Fish and Game (ADF&G), Division of Habitat, has reviewed your proposal to construct a tailings storage facility in the Anaconda Creek Drainage. We received your application on December 29, 2017.

### **Project Description**

Donlin Gold is proposing the development of an open pit, hardrock gold mine (Donlin Gold project). The proposed Donlin Gold project would require three to four years to construct, and have an active mine life of approximately 27 years. A tailings storage facility (TSF) would be on the proposed mine property and encompass an area of 2,351 acres, with a total capacity of approximately 335,000 acre-ft. (540.5 billion cubic yards) of process plant tailings, decant water, and stormwater. The TSF would be within the Anaconda Creek drainage and would fill the majority of the drainage from approximately 1.7 straight line miles upstream from the mouth to its headwaters. Tailings storage within the Anaconda

Creek valley will require construction of a tailings dam, fully lined impoundment, and underdrain system. Surface water upgradient of the TSF would be diverted by two temporary freshwater diversion dams (FWDDs), at the east end of the valley in the north and south forks of the drainage, with water pumped to north and south diversion ditches that would discharge to Anaconda Creek below the TSF dam. The FWDDs are well above the documented upstream extent of fish use.

A rock fill underdrain capable of handling the base flow through the Anaconda Creek valley would be constructed below the footprint of the TSF facility prior to installing the impoundment liner. The underdrain would be placed in the main drainage paths of significant tributaries and connect to a main underdrain trunk along the base of Anaconda Creek. Base flows from outside the liner footprint would pass through the rock underdrain and report to the seepage recovery system (SRS) pond located at the toe of the TSF dam. During construction, discharge from the SRS may require treatment prior to discharge and, if needed, would be treated in the water treatment plant (WTP) and discharged to Crooked Creek near the confluence of Omega Gulch under an APDES permit. During operations, water from the SRS would be used for process makeup supply or treated in the WTP and discharged to Crooked Creek. The TSF starter dam would comprise construction of a 198-ft.-high dam that would block water flow in Anaconda Creek. The proposed TSF dam cross-section would comprise a downstream-constructed, compacted rockfill dam, lined on the upstream face by the 60 mil, single-sided textured (down) LLDPE geomembrane liner below the TSF impoundment. Three feet of bedding material (terrace gravels) would underlie the LLDPE. The liner bedding would be separated from the compacted rockfill by two, 10-ft. thick filter zones and a 20-ft. thick transition rockfill zone. The filters would be sized to prevent migration of tailings into the rockfill should the liner be punctured. The filter thickness has been chosen to accommodate the deformation anticipated for the dam under seismic loading. Rockfill would comprise no-acid generating (NAG) rock. Once construction of the SRS and TSF starter dam commence, fish passage above the site will be eliminated. During construction and operations, lower Anaconda Creek would be crossed by an access road to overburden stockpiles located on the south side of the creek.

Water flows in the lower 1.7 straight line miles of Anaconda Creek would be reduced to water available from the lower drainage and water diverted from upper Anaconda Creek above the TSF, and by life of mine year 17, flow would be reduced to only those waters available from the drainage below the TSF. The very lower reaches of the creek, used by resident fish species and juvenile coho salmon for rearing, would possibly retain some flow and should function as backwater habitat to Crooked Creek throughout the open-water season. Preliminary plans were included in the December 29, 2017 application.

### **Anadromous Fish Act**

Anaconda Creek has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The creek in the area of your activity provides rearing

habitat for coho salmon. Resident fish species captured in the vicinity of your project include Dolly Varden, slimy sculpin, burbot, and Arctic grayling. Your project as proposed may have adverse effects on anadromous fish or their habitat and would obstruct the free passage of fish. Anadromous fish rearing habitat downstream of the TSF could be altered or eliminated and fish passage to habitats upstream from the TSF would be eliminated once construction of the TSF begins. Your proposed plans include provisions for restoration of habitats in Ruby and Queen Gulches which have been disturbed by historic placer mining. Fish Habitat Permit FH18-III-0192 has been issued for this restoration. This mitigation is intended to offset the functional habitat losses in Anaconda Creek.

In accordance with AS 16.05.871(d), project approval is hereby given subject to the project description above with the following stipulations:

1. Donlin Gold shall submit final plans and specifications to the Division of Habitat for review and approval, noting any deviations from the preliminary plan set submitted for this permit.
2. Biomonitoring to document fish use and invertebrate populations at a site in lower Anaconda Creek within the anadromous fish reach will occur as long as fish habitat is present at the site.
3. Donlin Gold shall submit plans and specifications to the Division of Habitat for review and approval prior to the installation, maintenance and removal of any temporary bridge, crossing, or culvert across Anaconda Creek during construction and operations.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Division of Habitat and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Division of Habitat. Therefore, it is recommended you consult the Division of Habitat immediately when a deviation from the approved plan is being considered.

For the purpose of inspecting or monitoring compliance with any condition of this permit, you shall give an authorized representative of the state free and unobstructed access, at safe and reasonable times, to the permit site. You shall furnish whatever assistance and information as the authorized representative reasonably requires for monitoring and inspection purposes.

This letter constitutes a permit issued under the authority of AS 16.05.841 and AS 16.05.871 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Division of Habitat; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which was a direct result of the failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

Portions of this permit decision may be appealed in accordance with the provisions of AS 44.62.330-630.

Any questions or concerns about this permit may be directed to Habitat Biologist Maria Wessel at (907) 459-7281 or emailed to maria.wessel@alaska.gov.

Sincerely,

Sam Cotten, Commissioner



BY: Audra L. J. Brase, Regional Supervisor  
Division of Habitat  
Alaska Department of Fish and Game

ecc: John Chythlook, ADF&G SF, Fairbanks  
Douglass Cooper, USFWS, Fairbanks  
Ben Soiseth, USACE, Fairbanks  
AWT Northern Detachment, Fairbanks  
Lee McKinley, ADF&G-JPO, Anchorage  
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Michael Walton, ADNR Fairbanks  
Charlie Cobb, ADNR, Anchorage

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Issued: August 30, 2018  
Expires: Closure and Rehabilitation

Josh Peirce, ADF&G WC, McGrath

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