Constantine North, Inc.
Palmer Exploration Project
Porcupine Mining Area
Skagway (B4) NW Quadrangle, Alaska, USA

Exploration Plan of Operations

Proposed under the 43 CFR 3809.11 Regulations
(Disturbance greater than five acres)

Submitted by

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Submitted to

Bureau of Land Management
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And

State of Alaska, Department of Environmental Conservation
P.O. Box 111800, 410 Willoughby Ave., Suite 303
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And

State of Alaska, Department of Natural Resources
Office of Project Management and Permitting
400 W. Willoughby Ave., 4th Floor
Juneau, AK 99801-1728

On

May 22, 2015

Amended August 27, 2015

View from Palmer Project looking east down Glacier Creek towards the Klehini River

TABLE OF CONTENTS

LIST OF FIGURES vii

LIST OF PLATES viii

LIST OF TABLES ix

LIST OF APPENDICES x

ABBREVIATIONS xi

1 SUMMARY 1

1.1 Operator/Claimant Information 4
1.1.1 Operator Information 4
1.1.2 Claimant/Claim Information 4
1.1.3 Lessee Information 4
1.1.4 Primary Commodity 4
1.1.5 BLM Claim Names and Serial Numbers and Adjacent State Claims 4

2 DESCRIPTION OF OPERATIONS 5

2.1 Location, Access and Legal Description 5
2.1.1 Location and Access 5
2.1.2 Legal Description 6
2.1.3 Surface Ownership 10
2.1.4 Land Use Management Plans 10

2.2 Description of Operations 13
2.2.1 Equipment 14
2.2.2 Devices 14
2.2.3 Operating practices 15
2.2.4 Mining operations 15
2.2.5 Ancillary facilities 15
2.2.6 Water Uses and Sources 15
2.2.7 Existing Disturbance 18
2.2.8 Hazmat 21
2.2.9 Exploration Operations 24

2.3 Maps of the Project Area 49

2.4 Electronic Maps 49

2.5 Water Pollution Control Permit 49

2.6 Use and Occupancy 49

2.7 Environmental Protection Measure 49

2.7.1 Water Quality 50
2.7.2 Migratory Birds 50
2.7.3 Cultural Resources 51
2.7.4 Public Safety and Access 51
2.7.5 Air Quality 51
2.7.6 Noxious Weeds 52
2.7.7 Degradation Prevention Plan 54
2.7.8 Water Management Plans 55
2.7.9 Rock Characterization and Handling Plans 55
2.7.10 Quality Assurance Plans 56
2.7.11 Spill Prevention and Containment Plans 56

2.8 General Schedule of Operations from Start to Closure 56

2.9 Plans for All Access Roads, Water Supply Pipelines, and Power or Utility Services 57

3 RECLAMATION PLAN 58

3.1 Exploration Drill Site Reclamation 58

3.2 Exploration Drill hole Plugging 61

3.4 Mine Reclamation 63

3.5 Riparian Mitigation 64

3.6 Wildlife and fisheries habitat rehabilitation 64

3.7 Handling and Application of Topsoil 64

3.8 Re-vegetation 64

3.9 Isolation, removal, and/or control of acid-forming, toxic, or deleterious materials 66

3.10 Removal or stabilization of buildings, structures and support facilities 66

3.11 Post-closure management 66

3.12 Topographic map 66

3.12.1 The boundaries of the area of the operation 67
3.12.2 Surface ownership of the land within the area of operation 67
3.12.3 The areas to be affected in sufficient detail so that they can be located from the ground 67
3.12.4 Kinds of disturbance 67
3.12.5 And within the area of operation which was affected by: 67

3.13 Acreage disturbed 68

3.14 Drilling and Excavation techniques 68

3.15 Proposed productive post-mining use of the land 68

3.16 Proposed schedule of the time for initiation and completion of activities for reclamation 68

3.17 Proposed post-mining topography 69

3.18 Technical criteria used to determine the final gradient and stability of slopes created or affected by the mining operation. 69

3.19 Proposed methods for concurrent reclamation 69

3.12 Statement of reclamation constraints 69

3.13 Access roads 69

3.14 Measures to minimize loading of sediment to surface waters during the operation and reclamation 69

3.15 Proposed re-vegetation of the land for its post-mining land use 69

3.16 Proposed disposition of buildings, equipment, piping, scrap, chemicals and reagents, fuel tanks and petroleum products, and any other equipment and materials 70

3.17 Description of any surface facilities such as buildings or roads which will not be reclaimed. 70

3.18 Description of any necessary monitoring and maintenance of fences, signs and other structures which will be performed by the operator on the reclaimed land 70

3.19 Description of any reclamation which is necessary because of in-stream mining 70

3.20 Effect the proposed reclamation will have on future mining in the area 70

3.21 Effect the proposed reclamation will have on public safety 70

3.22 Proposed methods for reclaiming any waste rock, ore, and other stock piles 70

3.23 Proposed methods for reclaiming any tailings impoundments and dams 70

3.24 Proposed methods for reclaiming any heap-leach pads and ponds 70

3.25 Proposed methods for reclaiming any open pit mines 70

3.26 Proposed methods for reclaiming underground mines 70

3.27 Operator statement agreeing to assume responsibility for the reclamation of the project 70

4 MONITORING PLAN 73

4.1 Demonstrate compliance with the approved plan of operations and other Federal and State environmental laws and regulations 73

4.2 Provide early detection of potential problems 73

4.3 Supply information that will assist in directing corrective actions should they become necessary. 73

5 INTERIM MANAGEMENT PLAN 74

5.1 Measure to Stabilize Excavations and Workings 74

5.2 Measure to Isolate or Control Toxic or Deleterious Materials, including noxious weeds 74
5.3 Provisions for the Storage and Removal of Equipment, Supplies and Structures..... 75
5.4 Measures to maintain the project area in a safe and clean condition..... 75
5.5 Plans for monitoring site conditions during periods of non-operation..... 75
5.6 Schedule of Anticipated Periods of Temporary Closure..... 75

6 OPERATIONAL AND BASELINE INFORMATION..... 76

6.1 Geology..... 76
6.1.1 Regional Geology..... 76
6.1.2 South Wall Area Geology..... 79
6.2 Geotechnical..... 81
6.3 Paleontological Resources..... 81
6.4 Cave Resources..... 81
6.5 Water Quality..... 81
6.6 Soils..... 83
6.7 Wetland and Vegetation..... 83
6.8 Wildlife and Habitat..... 85
6.8.1 Aquatic Biology Studies..... 85
6.8.2 ADFG Trip Report..... 86
6.8.3 Hemmera Habitat Mapping Study..... 87
6.9 Air Quality..... 90
6.10 Meteorological Data..... 90
6.10.1 Regional Meteorological Data..... 90
6.10.2 Site Specific Meteorological Data..... 91
6.11 Cultural Resources..... 92
6.12 Socioeconomic Conditions..... 93
6.12.1 Employment..... 93
6.12.2 Goods and Services..... 94
6.13 Potential for Acid Drainage or Leachate..... 94
6.14 Visual Impacts..... 96

7 RECLAMATION COST ESTIMATE..... 97

7.1 Bonding and Reclamation Cost Estimate..... 97

List Of Figures

Figure 1-1: Location Map – Palmer Exploration Project 2
Figure 1-2: Current Authorized Disturbance (Notice) with Proposed Plan of Operations 3
Figure 2-1: Regional Location Map – Palmer Exploration Project 5
Figure 2-2: Claim Map – Palmer Exploration Project 6
Figure 2-3: Haines Borough – 2012 Land Use Plan 12
Figure 2-4: Typical Water System Setup with Gravity Feed to Drill Pad Sites 17
Figure 2-5: Current Authorized Disturbance (Notice) with Proposed Main Drilling Areas (Plan of Operations) 25
Figure 2-6: Current Authorized Disturbance (Notice) with Proposed SW Drilling Area (Plan of Operations) 26
Figure 2-7: Typical Timber-Frame Drill Pad Site 28
Figure 2-8: Typical Helicopter Access Routes – Palmer Exploration Project 31
Figure 2-9: Typical Truck-Supported Drill Pad Site 32
Figure 2-10: Location of Proposed Truck-Supported Drill Pad Sites (subject to modification and field fit) 33
Figure 2-11: Location of Proposed Exploration Access Road and Bridge Construction 35
Figure 2-12: Location of Proposed Linear Exploration Road (in pink) on NAD 27 20m contour intervals 36
Figure 2-13: Location of Proposed Switchback Exploration Road (in pink) on NAD 27 20m contour intervals 39
Figure 2-14: Typical Cross-section showing Full Fill Portion (Fill Slope 37°) 42
Figure 2-15: Typical Cross-section showing Full Bench Cut. Cut Slope 70° 42
Figure 2-16: Location of Proposed Glacier Creek Bridge (shown in brown) 44
Figure 2-17: Cross-section of prefabricated modular steel vehicle bridge (Courtesy of Big R Bridge) 46
Figure 2-18: Close-up of prefabricated modular steel vehicle bridge showing back wall support (Courtesy of Big R Bridge) 46
Figure 2-19: Equipment Laydown Area at the end of the proposed Switchback Exploration Road 47
Figure 2-20: Detailed Plan View of Equipment Laydown Area 48
Figure 2-21: The flow of water through the vehicle washer system. 54
Figure 6-1: Geological map of the Palmer Property 77
Figure 6-2: Geological map of the Glacier Creek Prospect Area with drill hole traces 78
Figure 6-3: Geological Cross-Section of the Glacier Creek Prospect Area (Looking West) 78
Figure 6-4: Detailed Geological Map of the Glacier Creek Prospect Area with proposed road (pink), old cat trail (yellow), and ABA sample sites. 80
Figure 6-5: Map of surface water monitoring stations. 82
Figure 6-6: Map of Expanded Wetland Mapping for the Palmer VMS Project 85
Figure 6-7: ADF&G map depicting correction to anadromous reach of Glacier Creek. Blue represents original catalogued extent; purple represents correction submitted by ADF&G. 87
Figure 6-8: Palmer Project Study Area Habitat mapping 90

List Of Plates

Plate 2.1: Typical Water System Setup showing collapsible bladders/platform/hose Line....17
Plate 2.2: Bulldozer trail in area of proposed new switchback road construction (photo ca. 1979)....18
Plate 2.3: Typical 5,000 gal fuel tank (Courtesy of Greer Tank & Welding)....23
Plate 2.4: Typical Containment Berm (Courtesy of Alaska Tent & Tarp)....23
Plate 2.5: Fuel tank and containment system for a 3,000 gallon diesel fuel storage tank with secondary containment capacity of 3,300 gallons at Big Nugget Camp; a similar design would be employed for storage tanks at the proposed equipment laydown site....23
Plate 2.6: Arrival of pad builders....29
Plate 2.7: Setting of support timbers....29
Plate 2.8: Slinging of decking material....30
Plate 2.9: Final framing of pad....30
Plate 2.10: Construction of 2014 Exploration Access Road....36
Plate 2.11: View looking East down Glacier Creek and proposed road alignment....40
Plate 2.12: View looking NW from bridge crossing towards switchback road area....40
Plate 2.13: View of Proposed Glacier Creek Bridge Location – Looking West towards Saksaia Glacier....44
Plate 2.14: Example of a prefabricated modular steel vehicle bridge (Courtesy of Big R Bridge)....45
Plate 2.15: The MDTC portable vehicle washer being used in the field....54
Plate 3.1: Removal of decking material Plate 3.2: Preparation for removal of timbers....60
Plate 3.3: Drill site with only casing remaining....60
Plate 3.4: 2014 Exploration Access Road with Concurrent Reclamation....62
Plate 6.1: Meteorological Station (facing east)....92

List Of Tables

Table 1-1: Current Authorized and Proposed Surface Disturbance 3
Table 2-1: List of 63 State Lode Mining Claims....7
Table 2-2: List of 340 Federal Unpatented Lode Mining Claims 8
Table 2-3: Designated Water Sources – Palmer Exploration Project 16
Table 2-4: BLM Claims with Current Authorized Surface Disturbance....20
Table 2-5: BLM Claims with Proposed Surface Disturbance for Drilling....27
Table 2-6: BLM Claims with Proposed Surface Disturbance for Road Work....34
Table 2-7: Drainage Structure Sizing (From Chapter 8, Culvert Use, Installation, and Sizing, BLM BMPs for Low-Volume Roads)....38
Table 2-8: General Schedule of Operations from Start to Closure 57
Table 6-1: An excerpt from the Surface Water Background Monitoring Results....83
Table 6-2: Terrestrial Species of Interest and Project Interaction Pathways....89
Table 6-3: Climate Normals 1981-2010 – Pleasant Camp Weather Station Data 91
Table 6-4: Surface ABA sample results 95
Table 6-5: Drill core ABA sample results....96
Table 7-1: Reclamation Cost Estimate - Financial Guarantee Total 97
Table 7-2: Reclamation Cost Estimate – Exploration Drilling....98
Table 7-3: Reclamation Cost Estimate – Exploration Access Road, Rock Stockpiles and Borrow Pits 99
Table 7-4: Reclamation Cost Estimate - Removal of Equipment....100

LIST OF APPENDICES

1. Constantine Best Management Practices ("BMPs")
2. Constantine Performance Standards ("PSs")
3. Palmer Project Maps
4. Engineered Drawings
    a. BLM Drawings
    b. Typical Bridge Drawings
    c. USCOE Drawings
5. Environmental Protection Measures
    a. Invasive Species Listing – State of Alaska – SE Region
    b. Storm Water Pollution Prevention Plan ("SWPPP")
    c. U.S. ENVIRONMENTAL PROTECTION AGENCY TIER I QUALIFIED FACILITY SPCC PLAN TEMPLATE
    d. U.S ENVIRONMENTAL PROTECTION AGENCY SPCC PLAN, CONSTRUCT NEW SECONDARY CONTAINMENT, WORKSHEET
    e. Fuel Response Plan ("FSRP")
    f. Material Safety Data Sheets ("MSDS")
6. Operational and Baseline Information
    a. Water Quality Results
    b. Wetland and Vegetation – HDR Alaska, Inc.
    c. Wildlife and Habitat
        i. Aquatic Biology – Tetra Tech
        ii. Aquatic Biology – State of Alaska, Department of Fish and Game
        iii. Habitat Mapping – Hemmera Envirochem Inc.
    d. Cultural Resources – Northern Land Use Research Associates
7. Reclamation Cost Estimate
8. Constantine temporary water use permits - TWUA F2014-101 and TWUA F2014-102

ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADOT	Alaska Department of Transportation
ADNR	Alaska Department of Natural Resources
AHEA	Alaska Hardrock Exploration Application
AKNHP	Alaska Natural Heritage Program
APMA	Application for Permits to Mine in Alaska
APE	Area of Potential Effect
ASBP	Alaska Statewide Bonding Pool
AWAP	Wildlife Action Plan
BLM	Bureau of Land Management
BMP	Best Management Practice (s)
BMRR	Bureau of Mining Regulation and Reclamation
CAN	Canada
CEM	Constantine North, Inc. or Constantine Metal Resources Ltd.
DMLW	Division of Mining, Land & Water
EPA	Environmental Protection Agency
ESA	Endangered Species Act
JDR	Jurisdictional Determination Report
KM	Kilometers
M	Meters
MSDS	Material Safety Data Sheet (s)
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association
NEPA	National Environmental Protection Act
NLURA	Northern Land Use Research Alaska, LLC.
NPDES	National Pollutant Discharge Elimination System
OHA	Office of History & Archaeology
Plan	Mining Plan
Project	Palmer Exploration Project
QAP	Quality Assurance Plan
ROW	Right-of-Way
SPCCP	Spill Prevention Control Countermeasure Plan
SOA	State of Alaska
SOI	Species of Interest
SSOC	State Species of Conservation Concern
SWPPP	Storm Water Pollution Prevention Plan
US	United States
UUD	Unnecessary and Undue Degradation

1 SUMMARY

This Exploration Plan of Operations ("Plan") is submitted to the Bureau of Land Management ("BLM"), Glennallen field office, and the Alaska Department of Environmental Conservation ("ADEC") by Constantine North, Inc. ("Constantine", the "Company" or "CNI") for the Palmer Exploration Project ("Project") located in the Porcupine Mining area in Southeast Alaska. The Project is shown on Figure 1-1.

Constantine is currently exploring the Project under a Notice-level AHEA (**APMA # J145690/Serial # AA-081333**). Constantine is proposing expanding mineral exploration operations to include greater than 5.0 acres of disturbance, which will require Plan of Operations level review. This Plan of Operations is submitted in accordance with BLM Surface Management Regulations at 43 CFR 3809.401, and also regulations designed to prevent unnecessary and undue degradation as defined in 43 CFR 3809.420 ("UUD"). The format for this Plan is consistent with the Plan of Operations application for a mineral exploration project.

The proposed mineral exploration operations covered in this Plan consist of helicopter-supported exploration drilling, truck-mounted large diameter water monitor well drilling, timber-frame drill pad construction, 1.35 km of linear exploration road construction with culvert and vehicular modular bridge installation over stream crossings, 2.65 km of switchback exploration road construction, rock fall mitigation berm construction, and ancillary facility construction such as an equipment laydown area. Road bed material, surfacing material, and rock fall mitigation berm material will be sourced from borrow pits along the length of the linear exploration road or from bench cuts along the length of the switchback exploration road. The proposed operations are shown on Figure 1-2.

The purpose and need of the proposed disturbance in this Plan is to provide Constantine with reasonable and safe access to state and federal mining claims within the Project. The proposed disturbance would include road access to new drill sites planned east of the South Wall mineral resource, as well as, areas of planned environmental and geotechnical work, such as the installation of groundwater wells for water quality baseline. It will also provide better access for exploration activities in the main South Wall mineral resource area by creating a nearby staging area for helicopter and ground-supported exploration activities, shorter helicopter flights for the transport of personnel, equipment, fuel and supplies, and increased safety for Company personnel and contractors.

Constantine has completed a variety of studies which include Acid Base Accounting, Aquatic Biology, Cultural Resources, Geology, Geotechnical, Water Quality, Wetlands, and Wildlife Habitats that were used to design a Plan that prevents unnecessary or undue degradation.

The proposed disturbance under this Plan will create up to **37.06 acres** of new surface disturbance in addition to the completed Notice-level disturbance of **4.05 acres** (to a maximum of 5.00 acres) to December 31st, 2014 for a total of **41.12 acres** of potential disturbance within the Project boundary. A large portion of this acreage is for areas of potential disturbance

downslope of the switchback portion of the road, where steep slopes may result in uncontrolled rock fall and downslope fill dispersion during construction. Actual disturbance is expected to be significantly less than the total estimated under this Plan. The total acreage of current authorized surface disturbance and proposed surface disturbance, by type of disturbance, for the Project can be found in Table 1-1.

Figure 1-1: Location Map – Palmer Exploration Project

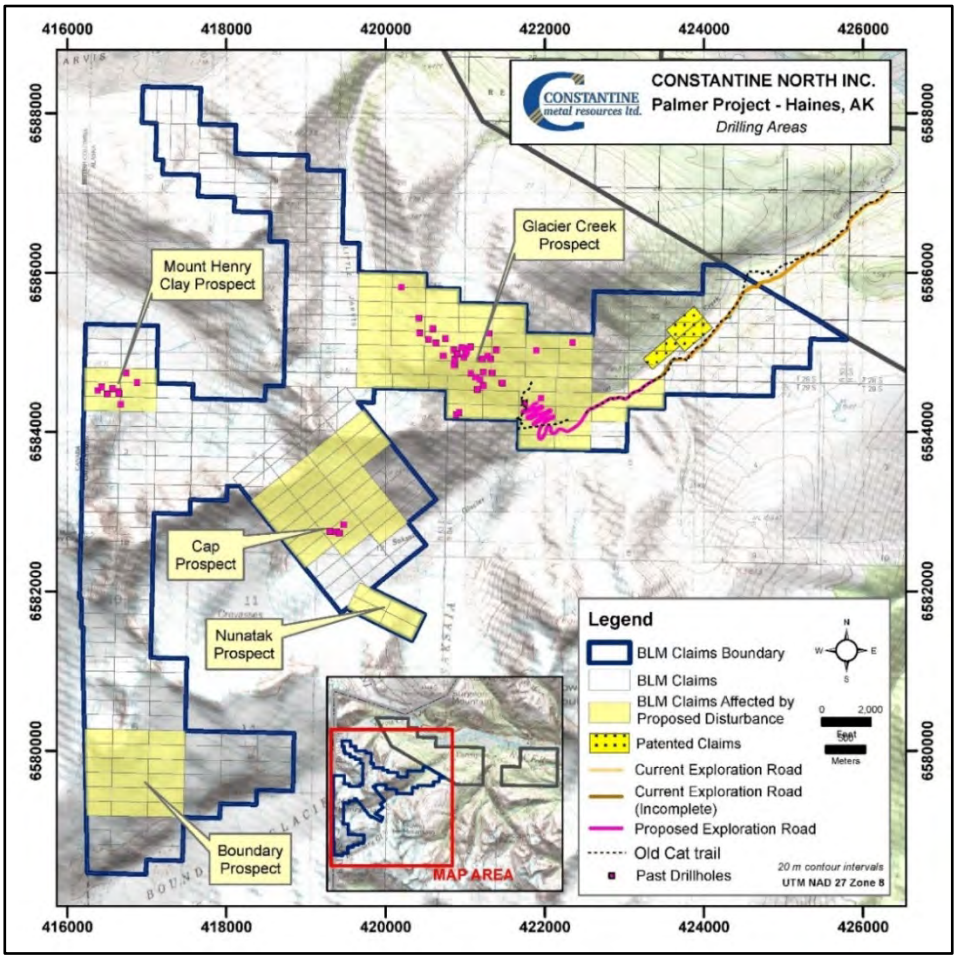


Figure 1-2: Current Authorized Disturbance (Notice) with Proposed Plan of Operations

Table 1-1: Current Authorized and Proposed Surface Disturbance

Disturbance Component	Current Authorized under Notice	Completed under Notice	Proposed under Plan of Operations	Total
	(Acres)	(Acres)	(Acres)	(Acres)
Helicopter-Supported Drilling with timber-frame drill pads	0.45	0.25	0.50	0.75
Linear Exploration Road	3.83	3.00	3.95	6.95
Equipment Laydown Area	0.11	0.60	1.47	2.07
Weather Station Area	-	0.10	-	0.10
Vehicular Modular Bridge	-	-	-	-
Switchback Exploration Road & Shoulders	-	-	26.33	26.34
Road Pullouts	0.19	0.10	1.94	2.04
Borrow Pits	0.07	-	0.20	0.20
Rock Stockpiles (East and West)	-	-	2.67	2.67
Total	**4.65**	**4.05**	**37.06**	**41.12**

1.1 Operator/Claimant Information

1.1.1 Operator Information

Operator Name Constantine North, Inc., a US company domiciled in Alaska, and a wholly owned subsidiary of Constantine Metal Resources Ltd. based in Vancouver, B.C., Canada

Mailing Address	800 West Pender St., Suite 320 Vancouver, B.C. Canada V6C 2V6
Phone Number	Office (604) 629-2348 Fax (604) 608-3878
Tax Payer ID of Operator	98-0213533
Point of Contact	Darwin Green, Vice-President, Exploration
E-mail:	darwin@constantinemetals.com

1.1.2 Claimant/Claim Information

Alyu Mining Inc. and Haines Mining & Exploration Inc.

PO Box 130, Haines, Alaska, 99827

1.1.3 Lessee Information

Constantine North, Inc., a wholly owned subsidiary of Constantine Metal Resources Ltd.

800 West Pender St., Suite 320, Vancouver, B.C., Canada, V6C 2V6

1.1.4 Primary Commodity

The primary commodities are zinc, copper, gold, silver, and barite.

1.1.5 BLM Claim Names and Serial Numbers and Adjacent State Claims

63 state mineral claims (9,200 acres) (Table 2-1)

340 federal unpatented lode mining claims (6,765 acres) (Table 2-2)

See Table 2-4 for BLM claim names and serial numbers with existing Authorized Disturbance

See Table 2-5 and Table 2-6 for BLM claim names and serial numbers with Proposed Surface Disturbance.

2 DESCRIPTION OF OPERATIONS

2.1 Location, Access and Legal Description

2.1.1 Location and Access

The Palmer Exploration Project is located adjacent to the paved all-weather Haines Highway, which leads to the town of Haines, Alaska, 55 km to the southeast (Figure 2-1). Haines (population of 2,400) is a year-round deep-sea port at the northern end of the Alaska Marine Highway, and the town contains infrastructure to support exploration and mining operations.

The nearest major economic centers are Juneau, Alaska, USA (4.5 hours by Ferry) and Whitehorse, Yukon, CAN (400 kilometers by paved road). Daily scheduled flights connect Haines with Juneau, which has daily connections with the continental US.

Logging roads cross the eastern part of the Project, from Haines Highway via a bridge across the Klehini River at 26 Mile Porcupine Crossing, allowing access to that part of the property by ground transportation; however, practical access to most of the property is by helicopter. Drill core storage and camp facilities are located on privately-owned land at the Big Nugget Camp located on Porcupine Creek, and are outside the Project Area described in this Plan.

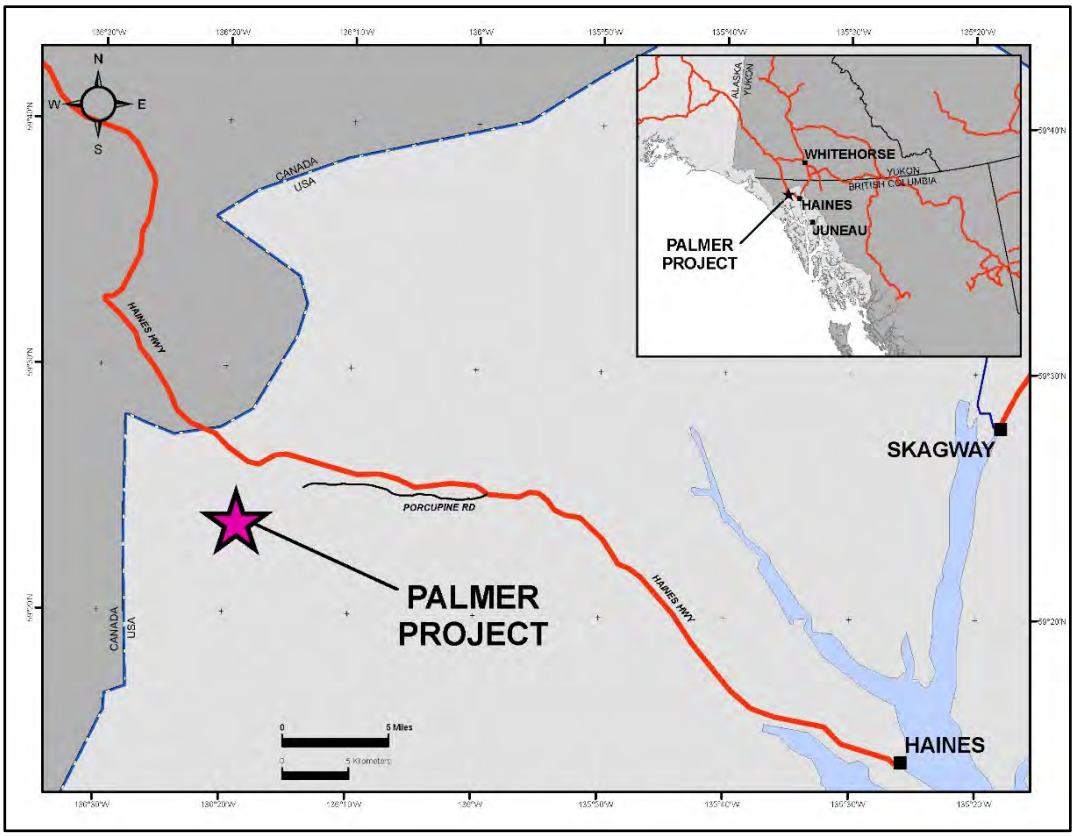


Figure 2-1: Regional Location Map – Palmer Exploration Project

2.1.2 Legal Description

2.1.2.1 Project Area

The Project is located in the Porcupine Mining Area, 55 km northwest of Haines, Alaska, on the eastern margin of the Saint Elias mountain range. The western boundary of the Project is coincident with the international border and the province of British Columbia, CAN (Figure 2-1)

The Project consists of a contiguous block of land consisting of 340 federal unpatented lode mining claims, which cover an area of approximately 6,765 acres (~2,738 hectares or 27 km^2) and 63 state mineral claims that cover an area of approximately 9,200 acres (~3,680 hectares or 37 km^2) (Figure 2-2; Table 2-1; Table 2-2).

The Project is located in the Alaska Panhandle and lies less than two kilometers from the Haines Highway, which links the deep-sea port of Haines, Alaska, a terminal of the Alaska Marine Highway system, with British Columbia, Yukon, and the Alaska Highway. Geographic co-ordinates of the center of the Project are approximately 136°25'N and 59°20'W.

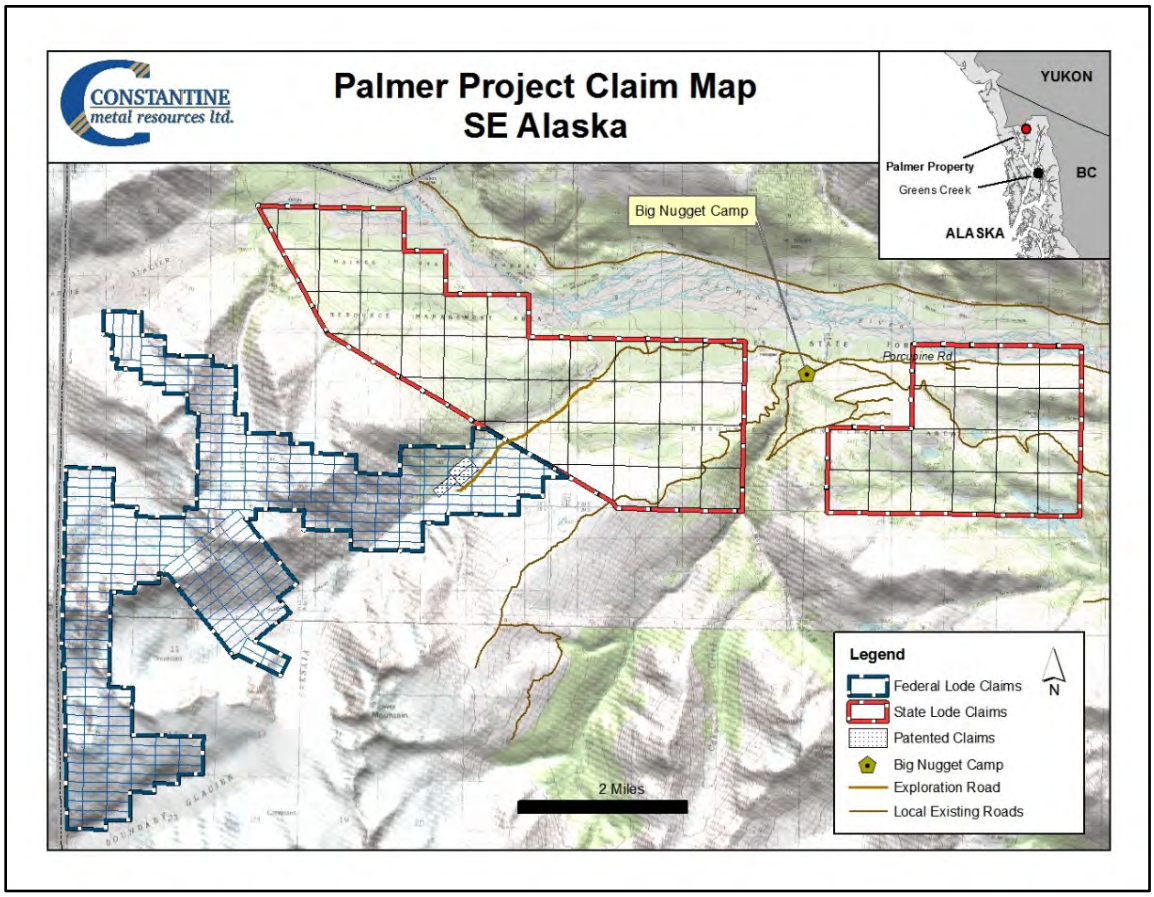


Figure 2-2: Claim Map – Palmer Exploration Project

Table 2-1: List of 63 State Lode Mining Claims

#	CLAIM #	SECTION	TOWNSHIP	RANGE	#	CLAIM #	SECTION	TOWNSHIP	RANGE
1	661267	16SW	T28S	53E	33	662069	26NE	T28S	54E
2	661268	16SE	T28S	53E	34	662070	25NW	T28S	54E
3	661269	15SW	T28S	53E	35	662071	25NE	T28S	54E
4	661270	15SE	T28S	53E	36	662072	25SE	T28S	54E
5	661271	21NE	T28S	53E	37	662073	25SW	T28S	54E
6	661272	22NW	T28S	53E	38	662074	26SE	T28S	54E
7	661273	22NE	T28S	53E	39	662075	26SW	T28S	54E
8	661274	23NW	T28S	53E	40	662078	29SE	T28S	54E
9	661275	21SE	T28S	53E	41	662079	29SW	T28S	54E
10	661276	22SW	T28S	53E	42	662080	30SE	T28S	54E
11	661277	22SE	T28S	53E	43	662081	30SW	T28S	54E
12	661278	23SW	T28S	53E	44	662082	31NW	T28S	54E
13	661279	23SE	T28S	53E	45	662083	31NE	T28S	54E
14	661280	24SW	T28S	53E	46	662084	32NW	T28S	54E
15	661281	27NW	T28S	53E	47	662085	32NE	T28S	54E
16	661282	27NE	T28S	53E	48	662088	34NW	T28S	54E
17	661283	26NW	T28S	53E	49	662089	34NE	T28S	54E
18	661284	26NE	T28S	53E	50	662090	35NW	T28S	54E
19	661285	25NW	T28S	53E	51	662091	35NE	T28S	54E
20	661286	25NE	T28S	53E	52	662092	36NW	T28S	54E
21	661287	26SW	T28S	53E	53	662093	36NE	T28S	54E
22	661288	26SE	T28S	53E	54	662094	36SE	T28S	54E
23	661289	25SW	T28S	53E	55	662095	36SW	T28S	54E
24	661290	25SE	T28S	53E	56	662096	35SE	T28S	54E
25	661291	35NE	T28S	53E	57	662097	35SW	T28S	54E
26	661292	36NW	T28S	53E	58	662098	34SE	T28S	54E
27	661293	36NE	T28S	53E	59	662099	34SW	T28S	54E
28	662062	30NW	T28S	54E	60	662102	32SE	T28S	54E
29	662063	30NE	T28S	54E	61	662103	32SW	T28S	54E
30	662064	29NW	T28S	54E	62	662104	31SE	T28S	54E
31	662065	29NE	T28S	54E	63	662105	31SW	T28S	54E
32	662068	26NW	T28S	54E					

Table 2-2: List of 340 Federal Unpatented Lode Mining Claims

#	Claim Name	BLM No.	#	Claim Name	BLM No.	#	Claim Name	BLM No.
1	#1 of Marmot Mine	AA 27186	115	Jarvis 3	AA 51513	229	Clay #53	AA 52687
2	#2 of Marmot Mine	AA 27187	116	Jarvis 4	AA 51514	230	Clay #54	AA 52688
3	#3 of Marmot Mine	AA 27188	117	Jarvis 5	AA 51515	231	Clay #55	AA 52689
4	#4 of Marmot Mine	AA 27189	118	Jarvis 6	AA 51516	232	Clay #56	AA 52690
5	M.V.P. Mining Claims #1	AA 27190	119	Jarvis 7	AA 51517	233	Clay #57	AA 52691
6	M.V.P. Mining Claims #2	AA 27191	120	Jarvis 8	AA 51518	234	Clay #58	AA 52692
7	Marmot #5	AA 27192	121	"Ice" #43	AA 51519	235	Clay #59	AA 52693
8	Marmot #6	AA 27193	122	"Ice" #44	AA 51520	236	Clay #60	AA 52694
9	Marmot #7	AA 27194	123	"Ice" #45	AA 51521	237	Marmot Hole #1	AA 52945
10	Marmot #8	AA 27195	124	"Ice" #46	AA 51522	238	Marmot Hole #2	AA 52946
11	Marmot #9	AA 27196	125	"Ice" #47	AA 51523	239	Marmot Hole #3	AA 52947
12	Marmot #10	AA 27197	126	"Ice" #48	AA 51524	240	Marmot Hole #4	AA 52948
13	Marmot Claim #20	AA 27198	127	"Ice" #49	AA 51525	241	Marmot Hole #5	AA 52949
14	Marmot Claim #21	AA 27199	128	"Ice" #50	AA 51526	242	Marmot Hole #6	AA 52950
15	Marmot Claim #22	AA 27200	129	"Ice" #51	AA 51527	243	Marmot Hole #7	AA 52951
16	Marmot Claim #23	AA 27201	130	"Ice" #54	AA 51528	244	Marmot Hole #8	AA 52952
17	Marmot Claim #24	AA 27202	131	"Ice" #55	AA 51529	245	Fey #1	AA 52953
18	Marmot Claim #25	AA 27203	132	"Ice" #56	AA 51530	246	Fey #2	AA 52954
19	Marmot Claim #26	AA 27204	133	"Ice" #57	AA 51531	247	Fey #3	AA 52955
20	Marmot Claim #27	AA 27205	134	"Ice" #60	AA 51532	248	Fey #4	AA 52956
21	Marmot Claim #28	AA 27206	135	"Ice" #61	AA 51533	249	Fey #5	AA 52957
22	Marmot Claim #29	AA 27207	136	"Ice" #62	AA 51534	250	Fey #6	AA 52958
23	Marmot Claim #30	AA 27208	137	"Ice" #63	AA 51535	251	Fey #7	AA 52959
24	Marmot Claim #31	AA 27209	138	"Ice" #64	AA 51536	252	Fey #8	AA 52960
25	Marmot #32	AA 27210	139	"Ice" #65	AA 51537	253	Fey #9	AA 52961
26	Marmot #33	AA 27211	140	"Ice" #66	AA 51538	254	Fey #10	AA 52962
27	Marmot #101	AA 27213	141	"Ice" #67	AA 51539	255	Fey #11	AA 52963
28	Marmot #102	AA 27214	142	"Ice" #68	AA 51540	256	Fey #12	AA 52964
29	Marmot #103	AA 27215	143	"Ice" #69	AA 51541	257	Fey #13	AA 52965
30	Marmot #104	AA 27216	144	"Ice" #70	AA 51542	258	Fey #14	AA 52966
31	Marmot #105	AA 27217	145	"Ice" #71	AA 51543	259	Fey #15	AA 52967
32	Marmot #106	AA 27218	146	"Ice" #72	AA 51544	260	Fey #16	AA 52968
33	Marmot #107	AA 27219	147	"Ice" #73	AA 51545	261	Fey #17	AA 52969
34	Marmot #108	AA 27220	148	"Ice" #74	AA 51546	262	Fey #18	AA 52970
35	Marmot #109	AA 27221	149	Kic #1	AA 51558	263	Fey #19	AA 52971
36	Marmot #110	AA 27222	150	Kic #2	AA 51559	264	Fey #20	AA 52972
37	Marmot 111	AA 27223	151	Kic #3	AA 51560	265	Boundless #1	AA 52973
38	Marmot #112	AA 27224	152	Kic #4	AA 51561	266	Boundless #2	AA 52974
39	Marmot 113	AA 27225	153	Kic #5	AA 51562	267	Boundless #3	AA 52975
40	Marmot #114	AA 27226	154	Kic #6	AA 51563	268	Boundless #4	AA 52976
41	Marmot #115	AA 27227	155	Kic #7	AA 51564	269	Boundless #5	AA 52977
42	Marmot #116	AA 27228	156	Kic #8	AA 51565	270	Boundless #6	AA 52978
43	Marmot #117	AA 27229	157	Kic #9	AA 51566	271	Boundless #7	AA 52979
44	Marmot 118	AA 27230	158	Kic #10	AA 51567	272	Boundless #8	AA 52980
45	Marmot 119	AA 27231	159	Kic #11	AA 51568	273	Boundless #9	AA 52981
46	Marmot #120	AA 27232	160	Kic #12	AA 51569	274	Boundless #10	AA 52982
47	Marmot #121	AA 27233	161	Kic #13	AA 51570	275	Boundless #11	AA 52983

Table 2-2: (*cont'd*) List of 340 Federal Unpatented Lode Mining Claims

#	Claim Name	BLM No.	#	Claim Name	BLM No.	#	Claim Name	BLM No.
48	Marmot 122	AA 27234	162	Kic #14	AA 51571	276	Boundless #12	AA 52984
49	Marmot #123	AA 27235	163	Kic #15	AA 51572	277	Boundless #13	AA 52985
50	Marmot 124	AA 27236	164	Kic #16	AA 51573	278	Boundless #14	AA 52986
51	Marmot #125	AA 27237	165	"Hot Dawg" #1	AA 51574	279	Boundless #15	AA 52987
52	Marmot #126	AA 27238	166	"Hot Dawg" #2	AA 51575	280	Boundless #16	AA 52988
53	Marmot #127	AA 27239	167	"Hot Dawg" #3	AA 51576	281	Boundless #17	AA 52989
54	Marmot #128	AA 27240	168	"Hot Dawg" #4	AA 51577	282	Boundless #18	AA 52990
55	Marmot #129	AA 27241	169	"Hot Dawg" #5	AA 51578	283	Boundless #19	AA 52991
56	Marmot #130	AA 27242	170	"Hot Dawg" #6	AA 51579	284	Boundless #20	AA 52992
57	Marmot #131	AA 27243	171	"Hot Dawg" #7	AA 51580	285	Boundless #21	AA 52993
58	Marmot #132	AA 27244	172	"Hot Dawg" #8	AA 51581	286	Boundless #22	AA 52994
59	Marmot #134	AA 27246	173	"Hot Dawg" #9	AA 51582	287	Boundless #23	AA 52995
60	Marmot #135	AA 27247	174	"Hot Dawg" #10	AA 51583	288	Boundless #24	AA 52996
61	Marmot #136	AA 27248	175	"Hot Dawg" #11	AA 51584	289	Boundless #25	AA 52997
62	Marmot #137	AA 27249	176	"Hot Dawg" #12	AA 51585	290	Boundless #26	AA 52998
63	Marmot #138	AA 27250	177	"Hot Dawg" #13	AA 51586	291	Boundless #27	AA 52999
64	Marmot #139	AA 27251	178	"Hot Dawg" #14	AA 51587	292	Boundless #28	AA 53000
65	Marmot #140	AA 27252	179	"Hot Dawg" #15	AA 51588	293	Boundless #29	AA 53001
66	Marmot #141	AA 27253	180	"Hot Dawg" #16	AA 51589	294	Boundless #30	AA 53002
67	Marmot #142	AA 27254	181	"Hot Dawg" #17	AA 51590	295	Boundless #31	AA 53003
68	Marmot #143	AA 27255	182	"Hot Dawg" #18	AA 51591	296	Boundless #32	AA 53004
69	Marmot #144	AA 27256	183	"Hot Dawg" #19	AA 51592	297	Boundless #33	AA 53005
70	Marmot #145	AA 27257	184	"Hot Dawg" #20	AA 51593	298	Boundless #34	AA 53006
71	Marmot #146	AA 27258	185	"Hot Dawg" #21	AA 51594	299	Boundless #35	AA 53007
72	Marmot #147	AA 27259	186	"Hot Dawg" #22	AA 51595	300	Boundless #36	AA 53008
73	Marmot #148	AA 27260	187	"Hot Dawg" #23	AA 51596	301	Boundless #37	AA 53009
74	Marmot #149	AA 27261	188	"Hot Dawg" #24	AA 51597	302	Boundless #38	AA 53010
75	Marmot #150	AA 27262	189	"Hot Dawg" #25	AA 51598	303	Boundless #39	AA 53011
76	Marmot #151	AA 27263	190	"Hot Dawg" #26	AA 51599	304	Boundless #40	AA 53012
77	Marmot #152	AA 27264	191	"Hot Dawg" #27	AA 51600	305	Boundless #41	AA 53013
78	Marmot #153	AA 27265	192	"Hot Dawg" #28	AA 51601	306	Boundless #42	AA 53014
79	Marmot #154	AA 27266	193	Clay #17	AA 52651	307	Boundless #43	AA 53015
80	Marmot #155	AA 27267	194	Clay #18	AA 52652	308	Boundless #44	AA 53016
81	Marmot #156	AA 27268	195	Clay #19	AA 52653	309	Boundless #45	AA 53017
82	Marmot #157	AA 27269	196	Clay #20	AA 52654	310	Connexion #1	AA 53018
83	Marmot #158	AA 27270	197	Clay #21	AA 52655	311	Connexion #2	AA 53019
84	Marmot #159	AA 27271	198	Clay #22	AA 52656	312	Connexion #3	AA 53020
85	Marmot #160	AA 27272	199	Clay #23	AA 52657	313	Connexion #4	AA 53021
86	Marmot #161	AA 27273	200	Clay #24	AA 52658	314	Connexion #5	AA 53022
87	Marmot #162	AA 27274	201	Clay #25	AA 52659	315	Connexion #6	AA 53023
88	Marmot #163	AA 27275	202	Clay #26	AA 52660	316	Connexion #7	AA 53024
89	Marmot #164	AA 27276	203	Clay #27	AA 52661	317	Connexion #8	AA 53025
90	Marmot #166	AA 27277	204	Clay #28	AA 52662	318	Connexion #9	AA 53026
91	Marmot #167	AA 27278	205	Clay #29	AA 52663	319	Connexion #10	AA 53027
92	Marmot #171	AA 27279	206	Clay #30	AA 52664	320	Connexion #11	AA 53028
93	Marmot #172	AA 27280	207	Clay #31	AA 52665	321	Connexion #12	AA 53029
94	Rat Dawg 43	AA 29575	208	Clay #32	AA 52666	322	Connexion #13	AA 53030

Table 2-2: (*cont'd*) List of 340 Federal Unpatented Lode Mining Claims

#	Claim Name	BLM No.	#	Claim Name	BLM No.	#	Claim Name	BLM No.
95	Rat Dawg 44	AA 29576	209	Clay #33	AA 52667	323	Connexion #14	AA 53031
96	Rat Dawg 53	AA 29577	210	Clay #34	AA 52668	324	Connexion #15	AA 53032
97	Rat Dawg 54	AA 29578	211	Clay #35	AA 52669	325	Connexion #16	AA 53033
98	Rat Dawg #55	AA 29579	212	Clay #36	AA 52670	326	Connexion #17	AA 53034
99	Rat Dawg 56	AA 29580	213	Clay #37	AA 52671	327	Connexion #18	AA 53035
100	Rat Dawg #57	AA 29581	214	Clay #38	AA 52672	328	Connexion #19	AA 53036
101	Rat Dawg 58	AA 29582	215	Clay #39	AA 52673	329	Connexion #20	AA 53037
102	Rat Dawg 64	AA 29583	216	Clay #40	AA 52674	330	Connexion #21	AA 53038
103	Rat Dawg #65	AA 29584	217	Clay #41	AA 52675	331	Connexion #22	AA 53039
104	Rat Dawg 66	AA 29585	218	Clay #42	AA 52676	332	Connexion #23	AA 53040
105	Rat Dawg #67	AA 29586	219	Clay #43	AA 52677	333	Connexion #24	AA 53041
106	Rat Dawg #68	AA 29587	220	Clay #44	AA 52678	334	Connexion #25	AA 53042
107	Rat Dawg #75	AA 29588	221	Clay #45	AA 52679	335	Connexion #26	AA 53043
108	Rat Dawg #76	AA 29589	222	Clay #46	AA 52680	336	Connexion #27	AA 53044
109	Rat Dawg #77	AA 29590	223	Clay #47	AA 52681	337	Connexion #28	AA 53045
110	Rat Dawg #85	AA 29591	224	Clay #48	AA 52682	338	Connexion #29	AA 53046
111	Rat Dawg #86	AA 29592	225	Clay #49	AA 52683	339	Connexion #30	AA 53047
112	Rat Dawg #87	AA 29593	226	Clay #50	AA 52684	340	Connexion #31	AA 53048
113	Jarvis 1	AA 51511	227	Clay #51	AA 52685			
114	Jarvis 2	AA 51512	228	Clay #52	AA 52686			

2.1.2.2 Public Roads

Logging roads cross the eastern part of the Project, from the Haines Highway via a bridge across the Klehini River at 26 Mile Porcupine Crossing, allowing access to that part of the property by ground transportation. Active logging is underway on various parcels on State Lode Mining Claims controlled by Constantine.

2.1.3 Surface Ownership

The surface rights within the Project Area are managed by the BLM and the State of Alaska.

Mental Health Trust are owners of surface rights on portions of neighboring ground that is under lease to Constantine North, Inc. These lands are outside of the Project Area and not subject to surface disturbance under this Plan of Operations. Three patented claims (Tax ID No: B-MCP-00-1200) within Glacier Creek valley, located internal to Constantine's property position, are owned by Earle and Rhea Foster and not subject to disturbance under this Plan of Operations.

2.1.4 Land Use Management Plans

There are several land and resource management plans considered relevant to the Project Area. These include the Haines Borough Comprehensive Plan, the Haines State Forest Management Plan, and the BLM Ring of Fire Resource Management Plan. The Plans recognize mineral exploration and mining activities as important uses of the land and resources within the Project Area. Adjacent lands include surface and mineral estate owned and managed by the Alaska

Mental Health Trust Authority. The Trust is mandated to generate revenue from their lands to support Mental Health Trust programs. Trust lands adjacent to the Project Area were selected specifically for their potential to generate revenue from minerals. Revenue generated from Trust lands support Mental Health Trust programs.

2.1.4.1 Haines Borough Comprehensive Plan

The Project Area is located within the administrative boundaries of the Haines Borough. The Borough has a Comprehensive Plan, updated in 2012, that is designed to act as a guide for citizens and civic decision makers concerning land use, growth and development, and the enhancement of the quality of life for residents and visitors to the community. The Haines Borough region has a rich history of mining, and mining is highlighted as an important sector to the local economy. Goal 10 of the Haines Comprehensive Plan is to "Support responsible development of renewable and nonrenewable resources within Haines Borough."

The Land Use Designation for the Project Area is Resource Development (Figure 2-3). The Resource Development designation is for land where "resource development, extraction or harvest activities occur or are reasonably expected, including uses such as timber harvest, mineral extraction and quarries. Electrical generation and transmission lines may be here. Resource development is a primary land use here. Depending upon the location, it may be important to pay attention to view shed protection or buffer nearby trails."

Economic Development Objective 10A of the Comprehensive Plan is to "Work with project developers and regulators to achieve responsible development, which is defined as complying with environmental regulations, ensuring fishery resource and riparian zone protection, providing protection of salmon habitat and Bald Eagle Preserve resources, maintaining scenic view sheds, and buffering operations when needed to protect adjacent users and activities."

The proposed work under Constantine's Plan of Operations is consistent with the Haines Borough Comprehensive Plan and associated land use designations.

2.1.4.2 Haines State Forest Management Plan

On July 1, 1982, Alaska took the first step in the development of a system of State-owned lands legislatively dedicated to the multiple use management of forest resources. Alaska Statutes (AS) 41.15.300—41.15.330 established the Haines State Forest Resource Management Area (State Forest). At the same time, AS 41.21.610—41.21.630, established the Alaska Chilkat Bald Eagle Preserve, which is surrounded by the Haines State Forest Resource Management Area. This legislation was the result of cooperation among a host of diverse interest groups.

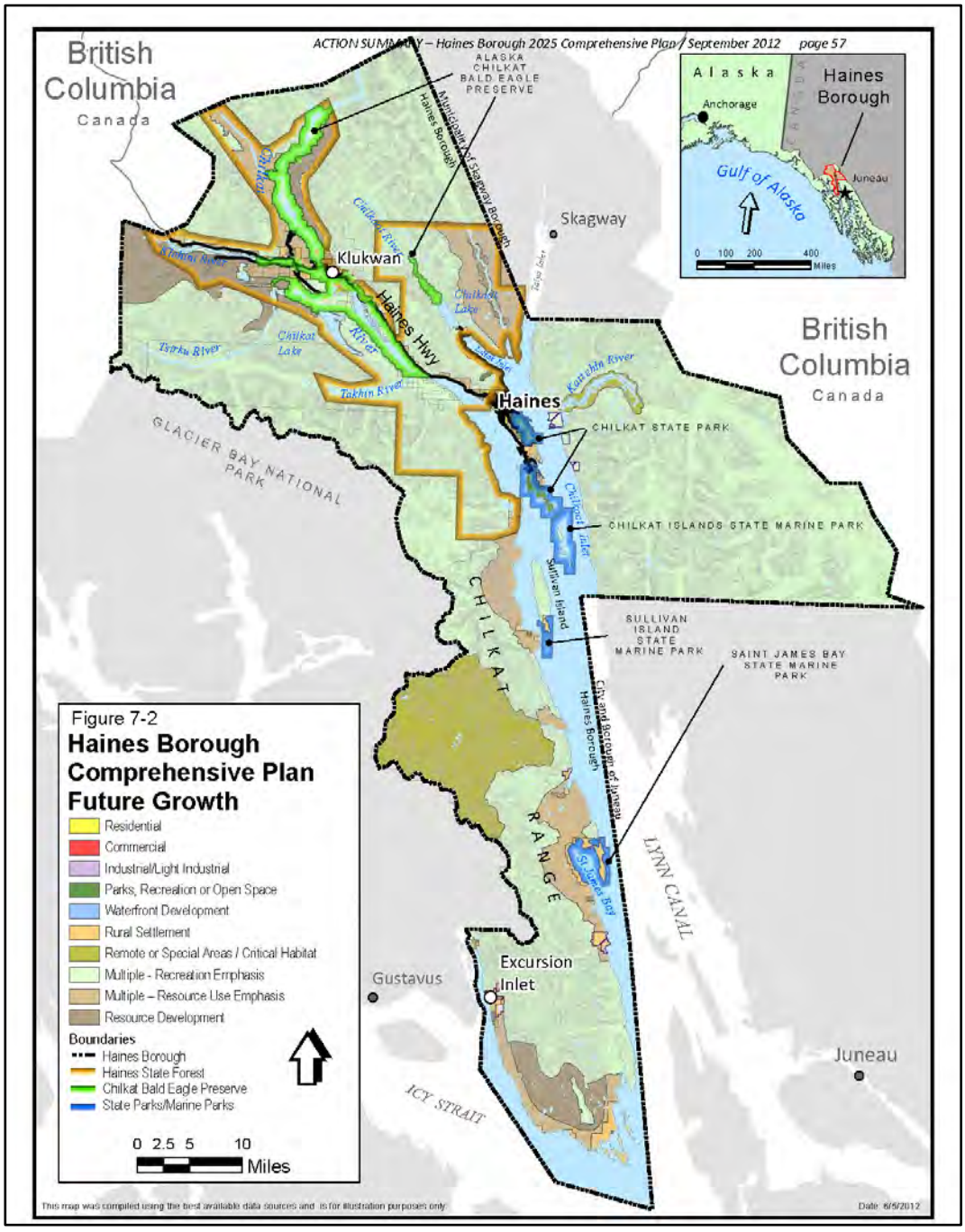


Figure 2-3: Haines Borough – 2012 Land Use Plan

The legislature intended the Haines State Forest to include timber harvest, recreation, mining, traditional uses, fish and wildlife habitat protection, tourism, and other uses. The type, intensity, and location of these uses was, under AS 38.04.005, to be derived from a planning process that would determine the best balance of these uses. Most importantly, the State Forest was to be *managed for multiple uses*. Multiple use management could include a mix of

those uses identified under AS 38.05.112(c) and varying levels of use, depending on the results of the planning analysis.

The Chilkat Bald Eagle Preserve in contrast has an 'exclusive use' management intent, rather than multiple use. Its management focuses on the protection of bald eagles and their associated habitat, as well as the spawning and rearing areas of the anadromous streams that provide food for the bald eagle population. The traditional lifestyle of the Haines community is recognized as an important value and its continuation is included in the management of the Preserve.

This distinction between multiple use and exclusive use was intended by the Legislature. According to AS 41.21.610(c): "Accordingly, the establishment of the Alaska Chilkat Bald Eagle Preserve and the Haines State Forest Resource Management Area under AS 41.15.305 is determined to *represent a proper balance between the preservation of state public domain land and water for bald eagle preserve purposes and state public domain land and water more appropriate for multiple use*." (Italics added for emphasis as taken from the Haines State Forest Land Management Plan).

2.1.4.3 Bureau of Land Management - Ring of Fire Management Plan

The major federal law governing locatable minerals is the Mining Law of 1872, which declared all valuable mineral deposits in lands belonging to the United States to be free and open to exploration and purchase. The Bureau of Land Management currently manages the Federal Lands located within the Project Area.

The mineral potential within the Project Area has been described in the Ring of Fire Management Plan (June 2006). The Project Area falls within the Haines Planning Block boundary included in the subsequent draft Resource Management Plan Amendment (December 2012), but is outside areas of proposed special land use designation.

The State of Alaska selected the townships in which the Project Area federal claims are situated, and that land was subsequently conveyed to the State of Alaska, subject to valid existing rights.

2.2 Description of Operations

Constantine is currently authorized to conduct up to **5.00 acres** of surface disturbance within the Project Area under a Notice-level AHEA (**APMA # J145690/Serial # AA-081333**). The authorized surface disturbance includes exploration drilling and road construction. Current authorized disturbance completed to December 31st, 2014 totaled **4.05 acres**.

Constantine proposes to expand exploration activities up to a total of **41.12** acres within the Project Area (Table 1-1).

Expanded exploration activities in 2015 will include:

- Helicopter-supported exploration drilling

- Truck-mounted large diameter water monitor well drilling
- Timber-frame drill pad construction
- 1.35 km of linear exploration road construction
- Culvert installation (two), log stringer bridge installation (one), vehicular modular bridge installation (two) over gulley's and streams
- 2.65 km of switchback exploration road construction
- Rock fall mitigation berm construction
- Ancillary facility construction such as an equipment laydown area

2.2.1 Equipment

Project personnel will access the Project Area via helicopter and 4WD support vehicles. Two or more helicopter-portable diamond core drill rigs will be used for drilling in the Project Area. Generally, a Cat D7E or D8H bulldozer or equivalent and/or Cat 325 L or Cat 350 front-end excavator or equivalent will be used to construct the exploration roads where needed. Volvo A30G rock trucks will be used to haul rock and roadbed material. If required, roads will be reclaimed using the aforementioned Cat D7E or D8H bulldozer or equivalent and/or Cat 325 L or Cat 350 front-end excavator or equivalent.

The following vehicles and equipment could be used in conjunction with Project activities:

- Two to six helicopter-portable diamond core drill rigs
- One truck-mounted large diameter RC drill rig
- One to two Cat D7E or D8H bulldozer or equivalent
- One to two Cat 325 L or Cat 350 front-end excavator or equivalent
- Two to four Volvo A30G rock trucks
- One to two AS350, AS350 B2, or 206LR helicopters or equivalent
- Two to eight 4WD pick-up trucks or SUVs as support vehicles
- Four to six portable light plant/generators.
- One to two portable rock drill
- Four to six portable chainsaws

Constantine will take steps to prevent fires by ensuring fire extinguishers and hand tools are readily available.

2.2.2 Devices

Not applicable as this is an Exploration Plan of Operations.

2.2.3 Operating practices

Not applicable as this is an Exploration Plan of Operations.

2.2.4 Mining operations

Not applicable as this is an Exploration Plan of Operations.

2.2.5 Ancillary facilities

Constantine will establish an equipment laydown area near the end of the proposed switchback exploration road. Equipment and facilities at this equipment laydown area could include temporary work trailers, storage containers, and a portable toilet facility. A portable gas or diesel generator would be used to supply electricity to this facility. Constantine would obtain all necessary permits for this facility including, however, not limited to, any air quality permits required by ADEC and any building permits required by Haines Borough, Alaska. A night watchman may be employed in the equipment laydown area. The location is shown on Figure 2-19 and Figure 2-20.

2.2.6 Water Uses and Sources

Water will be used during exploration core drilling to cool the drill bit and remove drill cuttings. Water will be sourced from sites approved under Alaska State Temporary Water Use Authorization. Constantine currently has authorization for 10 designated water sources under two temporary water use authorizations - **TWUA F2014-101 and TWUA F2014-102** to support potential drilling activities at various locations across the property (see Appendix 8 for copies). Both expire on October 31, 2018. The authorizations contain 27 conditions that must be complied with, including conditions designed to protect water quality and aquatic resources. For example, in fish-bearing waters, intake screens must be designed to avoid fish entrapment, entrainment or injury (note that none of the currently authorized sources are known to be fish-bearing) and pumping operations must be conducted in a way to prevent petroleum products or hazardous substances entering the surface or ground water. New authorizations or amendments to current authorizations will be obtained prior to use of any additional or alternate water sources, and the authorizing agencies will be informed of these changes.

Authorizations F2014-101 and TWUA2014-102 each allow for the combined withdraw of up 86,400 gallons of water per day from the designated water sources between May 1st and October 31st of each authorized year at an intake rate of up to 20 gallons per minute per pump, subject to a maximum of three pumps per source. Authorized sites include alpine creeks and rivulets sourced from snow and glacial melt, and pre-existing exploration drill holes with high standing water tables and pumped via submersible downhole pumps and flexible rubber hose line (Table 2-3).

A figure depicting the typical gravity-feed water system setup, including natural water source location, pumping station location, 8,000 gallon bladder location, and supply hose lines is also

provided for reference (Figure 2-4) (Plate 2.1). Constantine utilizes total system containment at surface water intake sites in which the entire pump station (pump, fuel, lubricants, etc.) are contained within a large catchment basin.

Water will be utilized with or without industry standard drill muds/additives. Drill muds are used to help remove drill cuttings and maintain fluid circulation, and are generally required to advance deep drill holes in fractured rock. NSF/ANSI 60 certified products, i.e. those approved for use in drilling human drinking water wells, are utilized on a preferred basis. Appendix 5f includes MSDS documents for typical drill muds used on the property. Note that MSDS information is for the concentrated product, which is then diluted with water during the mixing and drilling process.

Table 2-3: Designated Water Sources – Palmer Exploration Project

TWUA	Water Source Name	Source Type	Easting* (NAD27)	Northing* (NAD27)	Lat	Long
F2014-101	I	Glacial Melt/Creek	419618	6582754	59.3777	-136.4146
F2014-101	II	Glacial Melt/Creek	419503	6583464	59.3840	-136.4169
F2014-101	III	Glacial Melt/Creek	416886	6584473	59.3926	-136.4634
F2014-101	IV	Glacial Melt/Creek	417881	6579526	59.3484	-136.4440
F2014-101	V	Glacial Melt/Creek	418672	6582433	59.3746	-136.4312
F2014-102	A	Glacial Melt/Creek	420947	6586376	59.4104	-136.3926
F2014-102	B	Glacial Melt/Creek	422117	6584578	59.3945	-136.3713
F2014-102	C	Glacial Melt/Creek	420133	6585897	59.4060	-136.4067
F2014-102	D	Drill Hole	421795	6584476	59.3935	-136.3770
F2014-102	E	Drill Hole	421155	6584532	59.3939	-136.3883

***Creek coordinates represent the approximate center point along the approved stream reaches**

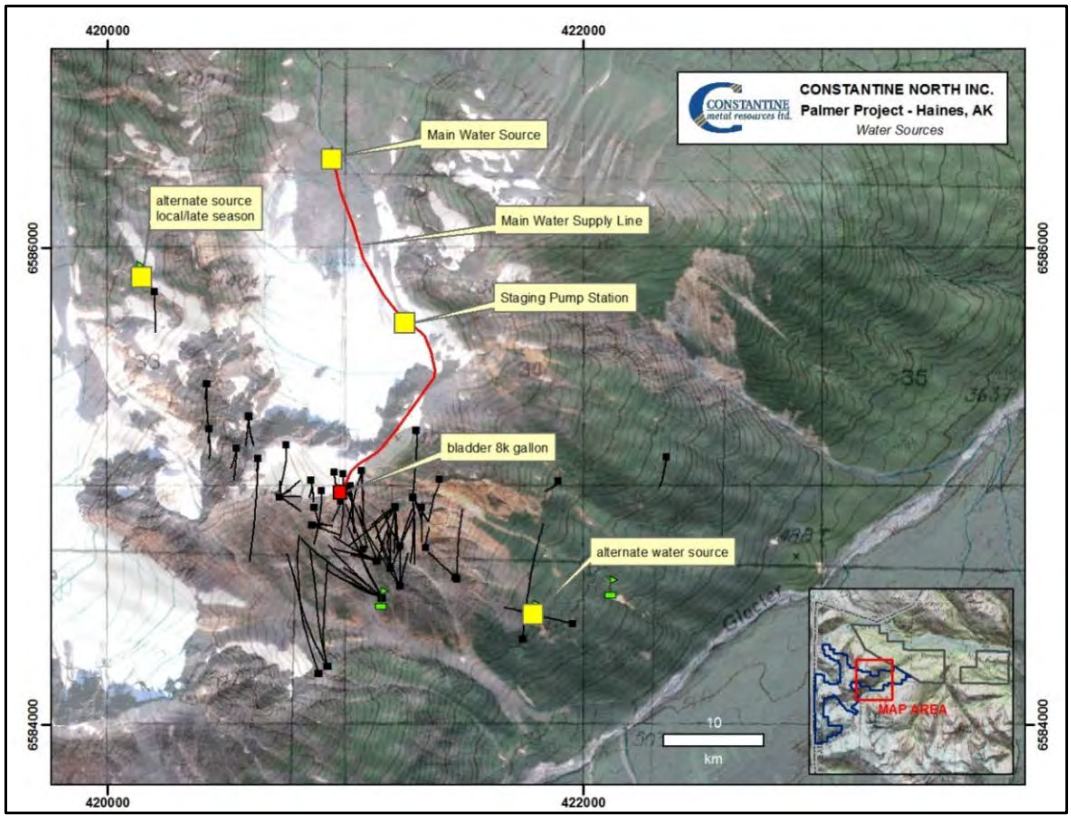


Figure 2-4: Typical Water System Setup with Gravity Feed to Drill Pad Sites

Plate 2.1: **Typical Water System Setup showing collapsible bladders/platform/hose Line**

2.2.7 Existing Disturbance

Glacier Creek and its tributaries were originally prospected and staked in 1899 and 1900 for placer gold but were undeveloped because of the great gravel depths and low ore grades. Mining operations began in 1916 and continued into 1918. Recovery was poor and the operation closed down after working a quarter mile of stream channel. A small eastern tributary to Glacier Creek, known locally as Christmas Creek, was worked by a small hydraulic plant in 1910. A small heavy equipment operation worked near the mouth of Christmas Creek during the late 1970's with meager results. A total production of 200 ounces of gold is estimated on the basis of tailings present and grades determined during 1985 Bureau field work (OFR_89-86). Some evidence of these past activities still remain. These existing disturbances are located in the lower reaches of Glacier Creek and outside areas of proposed work in this Plan of Operations.

Base-metal sulfides and barite were first discovered in the Glacier Creek prospect area in 1969 by local prospector Merrill Palmer. Palmer staked the original discoveries and continued to prospect the area in subsequent years. Mineral exploration has continued intermittently throughout the past 45 years with numerous geological, geochemical, geophysical and drilling campaigns by various operators, including road construction (Plate 2.2). Most existing disturbance within the Project Area is related to those activities with remnants of old roads, drill pads and heli-pads still visible. There are no historic portals, shafts, or underground workings within the area of proposed work in this Plan of Operations.

Plate 2.2: **Bulldozer trail in area of proposed new switchback road construction (photo ca. 1979)**

2.2.7.1 Pre-existing Drill Pads

The most recent activity on the Project was during 2014 when 18 drill holes, CMR14-53 to CMR14-68, and GT14-01, were completed for approximately 32,100 feet (the total includes two holes that were aborted and re-drilled). All drilling was completed within the Glacier Creek Prospect area, with the majority of holes drilled on the South Wall and RW Zones. A total of **20 un-reclaimed and partially reclaimed pre-2014 and 2014 drill pads** are present in the Project Area.

Constantine plans to utilize all un-reclaimed drill pads in future exploration programs, both for drilling additional holes and as a safety measure to provide secure, safe helicopter access to different areas of the property – which is otherwise extremely challenged do to the steep terrain. Some drill holes were also lined with PVC piping to allow downhole surveying with geophysical instrumentation and for future environmental and geotechnical monitoring purposes. Environmental work in these holes includes depth to ground water measurements for hydrologic modeling, and potential future ground water sampling. For these reasons, Constantine does not anticipate plugging drill holes until a later date when this environmental and geotechnical information is no longer required. Partial reclamation of some drill pads has occurred which included removal of all but the main support timbers and in some places complete removal of the associated heli-pad.

Only minor surface disturbance occurs from establishing drill pads since access to the Project is by helicopter, and all drill moves are made by helicopter. Drill pads are constructed of wood cribbing, with dimensions of 20 feet x 20 feet, generally resulting in minimal soil disturbance. To construct the drill pads, wood timbers are placed on the ground to support and level the diamond drill, or in steeper areas may be rock bolted to the ground.

All drill pads were constructed on rocky alpine outcrop and/or rubble and no re-seeding was required during reclamation. Refuse and scrap was removed at ALL sites (reclaimed or not) and all sites were left in a tidy state with only the secure timbered frame of the drill pads and associated heli-pads left in place. No fuel, drill additive or other material besides the wood timbers and steel casing of the hole were left on site. Decking and timbering prone to damage or weather/snow related dispersion was removed, and safely secured together at a sturdy pad site for future access and re-use.

Total acreage for all current authorized disturbance for drilling related activity on federal lands to December 31st, 2014 is estimated at 0.25 acres in 20 remaining un-reclaimed/partially reclaimed drill pads (pre-2014 and 2014), including other disturbances such as heli-pads, water support systems, etc. (Figure 1-2 and Figure 2-4).

Table 2-4: BLM Claims with Current Authorized Surface Disturbance

List of BLM Mining Claims with Unreclaimed Disturbance at the end of 2014			
#	Claim Name	BLM_Number	Disturbance Type
1	MARMOT #8	AA 27195	Drill Site
2	MARMOT #101	AA 27213	Drill Site
3	MARMOT #102	AA 27214	Drill Site
4	MARMOT #112	AA 27224	Drill Site
5	MARMOT #116	AA 27228	Drill Site
6	#2 OF MARMOT MINE	AA 27187	Drill Site
7	M.V.P. MINING CLAIMS #1	AA 27191	Drill Site
8	RAT DAWG #56	AA 29580	Drill Site
9	RAT DAWG #57	AA 29581	Drill Site
10	RAT DAWG #66	AA 29585	Drill Site
11	RAT DAWG #67	AA 29586	Drill Site
12	RAT DAWG #68	AA 29587	Drill Site
13	RAT DAWG #77	AA 29590	Drill Site
14	MARMOT #130	AA 27242	Road
15	MARMOT #131	AA 27243	Road
16	MARMOT #137	AA 27249	Road
17	MARMOT #144	AA 27256	Road
18	MARMOT #150	AA 27262	Road
19	MARMOT #151	AA 27263	Road
20	MARMOT #156	AA 27268	Road
21	MARMOT #167	AA 27278	Road

2.2.7.2 Pre-existing Roads

Pre-existing disturbance on the Project includes existing variably open to overgrown logging roads (State claims only) and overgrown cat trails/roads developed in the 1970s (State and Federal claims). The cat trails/roads located on BLM lands, which extend up to an elevation of 2,900 feet on the slope of the South Wall resource area (near the terminus of the road proposed for construction under this Plan) (Plate 2.2) have been partially to fully reclaimed by natural processes and are no longer usable for vehicle traffic.

A total of 4.0 km of linear exploration road was proposed for construction by Constantine in 2014 under the current Notice-level AHEA. The majority of the road route follows the original cat trail along the south side of Glacier Creek and extends across adjoining state and federal mining claims. Only 3.6 km of the planned 4.0 km road was completed in 2014, of which 1.5 km was built on BLM lands and 2.1 km was built on state lands. The road was constructed to meet State logging road standards and BLM guidelines. An attempt was made to keep the footprint of ground disturbance to a minimum and all stream crossings were constructed so as not to impede fish passage nor alter the stream bed design (note that none of the stream

reaches crossed are fish bearing). Felled timber not utilized in road construction was decked in an orderly, accessible manor along the road side.

Total acreage of all current authorized ground disturbance for the road and related constructions on federal and state lands to December 31st, 2014 is estimated at 3.8 acres (Table 1-1). This accounts for slope adjusted widths for cut and fill type construction, as well as includes acreage of pullouts, weather station clearing, and new laydown yard.

2.2.8 Hazmat

Hazardous materials utilized at the Project Area will include fuel, lubricating grease/oils, and cleaning solutions. Hazardous materials will be labelled, stored and handled properly, in a manner that meets or exceeds State and Federal regulations. Contractors must also meet or exceed Constantine's standards.

It is anticipated that cumulative fuel storage for the Project Area will exceed 1,320 gallons (but not exceed 10,000 gallons) and will require a site-specific EPA-compliant Tier 1 Spill Prevention Control and Countermeasure (SPCC) Plan to be developed and implemented (see Appendix 5c for template). The SPCC Plan will outline proper storage, transfer, maintenance procedures as well as employee training and documentation of regular visual inspections. The site-specific SPCC Plan will be provided to BLM for review and approval prior to construction of bulk fuel storage facilities. All fuel storage containers greater than 55 gallons will be double walled or stored within secondary containment capable of holding at least 110% of the largest container within the containment. Smaller containers (e.g. fuel drums and jerry cans) will be stored in containment where practicable. Fuel transfer will take place within containment or over drip pans where practicable. Absorbent pads and spill kits will be readily available at fuel storage sites. In the event that a reportable quantity of hazardous or regulated materials, such as diesel fuel, is spilled, measures will be taken to control the spill, and reporting requirements to DEC, DNR, and BLM will be fulfilled.

It is anticipated that a 5,000 gallon diesel fuel storage tank and a 3,000 aviation fuel storage tank will be utilized at the equipment laydown area to supply project site needs. All fuel tanks will meet the requirements of EPA and NFPA 30 codes (See Plate 2.3 & Appendix 5d). Fuel tanks will be regularly topped up by local fuel service providers. The entire fuel tank area will employ secondary spill containment measures that meet or exceed State and Federal regulations. The specifications of the secondary containment area will be determined using the EPA's Spill Prevention Control and Countermeasure (SPCC) Plan Construct New Secondary Containment WORKSHEET (See Appendix 5d) and will be designed to hold 110% of fuel volume (See Plates 2.4 & 2.5). Total combined fuel storage on the Project **will not exceed 10,000 gallons**.

Fuel at the drill sites and pump sites will be transported and stored in custom-designed fly tanks (approximately 70-130 gallon capacity each) designed for safer, more efficient transport of fuel; 55 gallon sling barrels are not typically utilized. Fuel storage containers will be double-walled or

stored within appropriate secondary containment. Pump stations are contained entirely within a synthetic impermeable containment structure so that pumps, fuel containers and re-fueling equipment are all entirely contained. Cumulative fuel storage capacity at any given exploration drill or pump site is not expected to exceed 260 gallons. The amount of fuel at each drill site and pump site allows for some extra storage in the event the weather is too bad to helicopter sling fuel on any particular day. In addition to fuel, approximately 100 pounds of lubricating grease will also be stored within secondary containment at the drill rigs.

Light-duty vehicles and heavy equipment will also be utilized on the project. Approximately 100 gallons of gasoline will be stored in fuel delivery systems for light vehicles, and approximately 200 gallons of diesel will be stored in fuel delivery systems of heavy equipment.

Constantine personnel are trained in spill prevention and spill response procedures, with spill kits located in key areas. Selected Constantine personnel complete documented task-training in fuel handling, fuel storage, and fuel transferring procedures at least once a year. This includes training in visual inspections of fuel containers. All new personnel to the Project must complete the same training before they are authorized to carry-out any fuel-related tasks.

Fuel storage containers are visually checked weekly (or more frequently, as required) by an assigned worker either with a dip-stick or by viewing the liquid level through the fill. Fuel levels (and volumes) are also checked in the same manner before storage tanks are re-filled. On a weekly basis, an assigned and qualified worker visually inspects all tanks, couplings, valves, fittings, filter housings, nozzles, and other fittings for signs of deterioration, damage, or leakage. On a weekly basis, or after heavy rainfalls, an assigned worker will also conduct inspections of containments checking for signs of damage, deterioration, discharge, or fuel accumulation.

An assigned worker inspects spill kits weekly to check equipment serviceability and ensure that kits are fully stocked.

All containers of hazardous substances will be labeled and handled in accordance with Alaska Department of Transportation ("ADOT") regulations. Copies of Material Safety Data Sheets (MSDS) used by Constantine and anticipated drilling, aviation, and road building contractors can be found in Appendix 5f.

In the event that a reportable quantity of hazardous or regulated materials, such as diesel fuel, is spilled, measures will be taken to control the spill and the ADEC Emergency Response Hotline will be notified, as required. If any oil, hazardous material, or chemicals are spilled during operations, they will be cleaned up in a timely manner. After clean up, the oil, toxic fluids, or chemicals and any contaminated material will be removed and disposed of at an approved disposal facility.

Plate 2.3: Typical 5,000 gal fuel tank (Courtesy of Greer Tank & Welding)

Plate 2.4: Typical Containment Berm (Courtesy of Alaska Tent & Tarp)

Plate 2.5: Fuel tank and containment system for a 3,000 gallon diesel fuel storage tank with secondary containment capacity of 3,300 gallons at Big Nugget Camp; a similar design would be employed for storage tanks at the proposed equipment laydown site.

No sanitary facilities are established at the work sites on the Project because crews are housed and supported at the various rental sites located off the property, and travel back and forth on a daily basis. All solid waste from the drill pads is contained in barrels or nets and flown on a regular schedule to the base of operations where it is transferred to trucks for disposal at the local municipal landfill. Recycling of materials is done when practical. A portable toilet may be located at the equipment laydown area.

2.2.9 Exploration Operations

The Property is host to a volcanogenic massive sulphide deposit discovery with an NI 43-101 compliant 8.1 million tonne inferred resource grading 1.41% copper, 5.25% zinc, 0.32 g/t gold and 31.7 g/t silver (using an NSR cut-off of US$75/t) that is open to expansion. Constantine is planning a **multi-year exploration campaign** focused on surface diamond core drilling in an effort to define a mineral deposit meeting a minimum economic threshold.

The mineral exploration operations proposed under this Plan consist of both helicopter- and road supported exploration drilling, timber-frame drill pad construction, 1.35 km of linear exploration road construction, culvert and vehicular modular bridge installations, 2.65 km of switchback exploration road construction, rock fall mitigation barrier construction, and ancillary facility construction such as an equipment laydown area. Road bed material, surfacing material, and rock fall mitigation berm material will be sourced from borrow pits along the length of the linear exploration road or from bench cuts along the length of the switchback exploration road.

2.2.9.1 Exploration Drill Program Details

The base of operations for the exploration program will continue to be at the Big Nugget Camp, located off the Project claim group on Porcupine Creek and accessed by 13 km (8 miles) of gravel road connecting to the Haines highway. A helicopter will be based at the Big Nugget Camp, and positioned at the equipment laydown area during daylight hours for the duration of the active exploration program to provide daily crew access and supplies to drill sites. Big Nugget Camp is a privately-owned facility rented by Constantine, which along with other houses in the region rented by Constantine, is used to house exploration crews and support operations.

The location of the **five proposed drilling areas (South Wall, Mount Henry Clay, Cap, Nunatak, and Boundary)**, existing drill sites, and designated water sources are shown in Figure 2-5 and Figure 2-6. BLM Claims with proposed surface disturbance for surface exploration drilling are listed in Table 2-5.

Individual drill sites are typically utilized for multiple drill holes. The total number of drill sites, holes drilled, and density of sites utilized within the proposed drilling areas will be dictated by results generated during the program, and budget considerations.

It is anticipated that up to **40 potential heli-supported drill sites** could be utilized, with dimensions 20 ft. x 20 ft. (0.37 acres; 0.50 acres including associated heli-pads). Up to 300 drill holes may be completed from these pads over the course of the multi-year program, ranging in length from 50 ft to 3000 ft. The location of drill sites are subject to modification and field fit due to topographic and safety considerations. Concurrent reclamation of drill pad and helipad sites, and re-use of timbers is expected to result in no more than 20 new un-reclaimed/partially reclaimed drill pads and associated helipads at any given time (0.25 acres).

It is also anticipated that up to seven potential truck-supported drill sites supporting 7,000 feet of drilling could be utilized, with dimensions 40 ft. x 40 ft. The location of these drill sites would be on existing road shoulders and pullouts on the switchback portion of the proposed exploration road, serviced and crewed **without** the use of helicopters. The disturbance for these sites would fall within the disturbance for the proposed road alignment, and drill sites would be immediately reclaimed upon completion. Therefore, these sites are not included in the financial assurance guarantee.

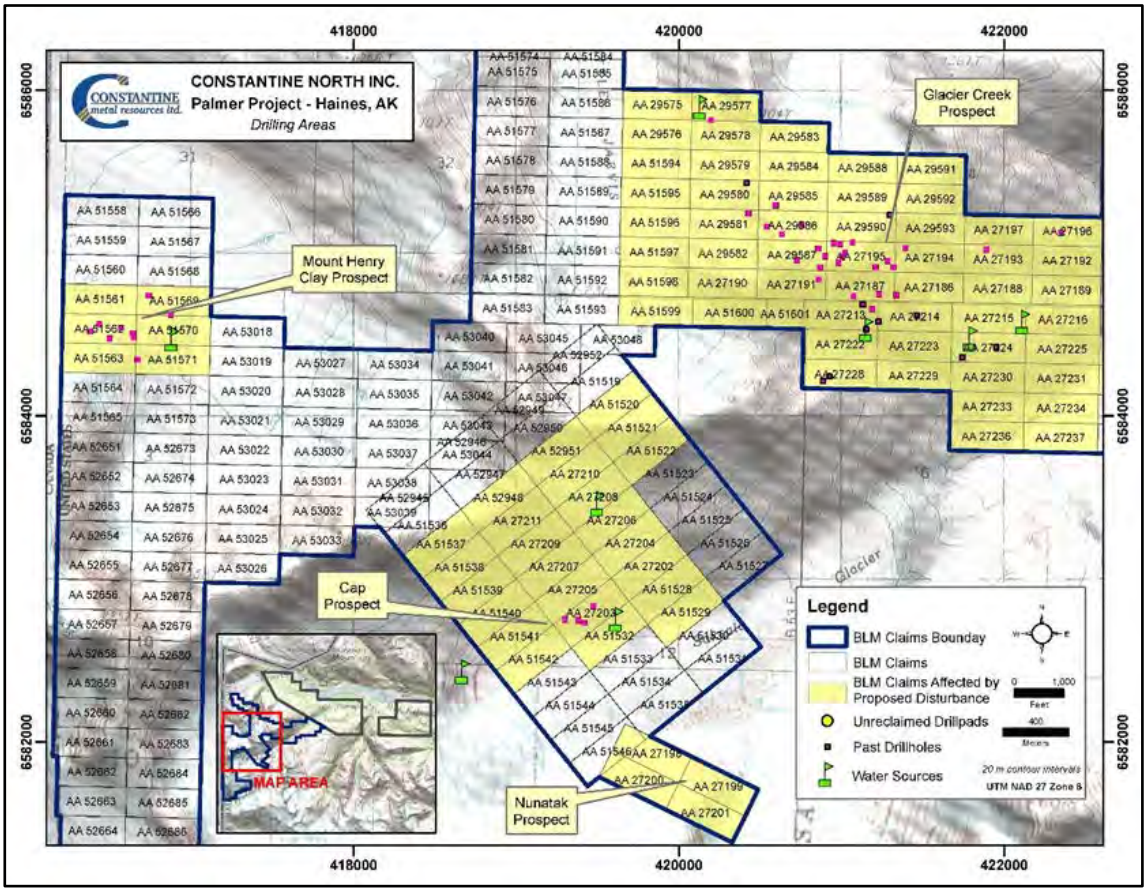


Figure 2-5: Current Authorized Disturbance (Notice) with Proposed Main Drilling Areas (Plan of Operations)

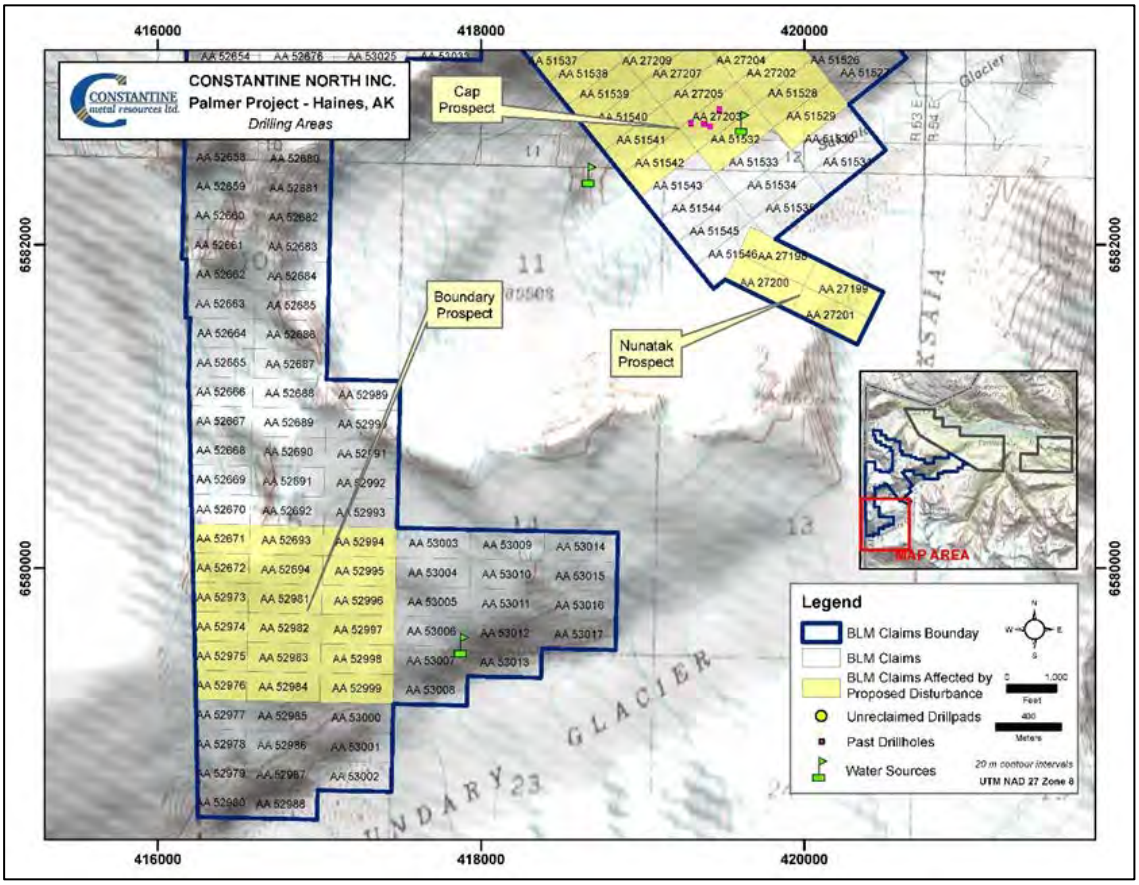


Figure 2-6: Current Authorized Disturbance (Notice) with Proposed SW Drilling Area (Plan of Operations)

Table 2-5: BLM Claims with Proposed Surface Disturbance for Drilling

BLM Mining Claims with Proposed Operational Disturbance

2) Proposed Exploration Drilling

	a) RW-SW Target Area			b) MHC Target Area			d) Boundary Target Area	
	Claim Name	BLM Number		Claim Name	BLM Number		Claim Name	.M Numbe
1	#1 OF MARMOT MINE	AA 27186	56	KIC #4	AA 51561	90	Clay #37	AA 52671
2	#2 OF MARMOT MINE	AA 27187	57	KIC #5	AA 51562	91	Clay #38	AA 52672
3	#3 OF MARMOT MINE	AA 27188	58	KIC #6	AA 51563	92	Boundless #1	AA 52973
4	#4 OF MARMOT MINE	AA 27189	59	KIC #12	AA 51569	93	Boundless #2	AA 52974
5	M.V.P. MINING CLAIMS #2	AA 27190	60	KIC #13	AA 51570	94	Boundless #3	AA 52975
6	M.V.P. MINING CLAIMS #1	AA 27191	61	KIC #14	AA 51571	95	Boundless #4	AA 52976
7	MARMOT #5	AA 27192				96	Clay #59	AA 52693
8	MARMOT #6	AA 27193		c) Cap-Nunatak Target Area		97	Clay #60	AA 52694
9	MARMOT #7	AA 27194		Claim Name	BLM Number	98	Boundless #9	AA 52981
10	MARMOT #8	AA 27195	62	MARMOT CLAIM #24	AA 27202	99	Boundless #10	AA 52982
11	MARMOT #9	AA 27196	63	MARMOT CLAIM #25	AA 27203	100	Boundless #11	AA 52983
12	MARMOT #10	AA 27197	64	MARMOT CLAIM #26	AA 27204	101	Boundless #12	AA 52984
13	MARMOT #101	AA 27213	65	MARMOT CLAIM #27	AA 27205	102	Boundless #22	AA 52994
14	MARMOT #102	AA 27214	66	MARMOT CLAIM #28	AA 27206	103	Boundless #23	AA 52995
15	MARMOT #103	AA 27215	67	MARMOT CLAIM #29	AA 27207	104	Boundless #24	AA 52996
16	MARMOT #104	AA 27216	68	MARMOT CLAIM #30	AA 27208	105	Boundless #25	AA 52997
17	MARMOT #110	AA 27222	69	MARMOT CLAIM #31	AA 27209	106	Boundless #26	AA 52998
18	MARMOT #111	AA 27223	70	MARMOT #32	AA 27210	107	Boundless #27	AA52999
19	**MARMOT #112**	**AA 27224**	71	MARMOT #33	AA 27211			
20	MARMOT #113	AA 27225	72	MARMOT CLAIM #20	AA 27198	**107**	**Total # of BLM Claims with Proposed Operational Disturbance for Drilling**	
21	MARMOT #116	AA 27228	73	MARMOT CLAIM #21	AA 27199			
22	MARMOT #117	AA 27229	74	MARMOT CLAIM #22	AA 27200			
23	**MARMOT #118**	**AA 27230**	75	MARMOT CLAIM #23	AA 27201			
24	**MARMOT #119**	**AA 27231**	76	"ICE" #44	AA 51520			
25	**MARMOT #121**	**AA 27233**	77	"ICE" #45	AA 51521			
26	**MARMOT #122**	**AA 27234**	78	"ICE" #46	AA 51522			
27	**MARMOT #124**	**AA 27236**	79	"ICE" #54	AA 51528			
28	MARMOT #125	AA 27237	80	"ICE" #55	AA 51529			
29	RAT DAWG #43	AA 29575	81	"ICE" #60	AA 51532			
30	RAT DAWG #44	AA 29576	82	"ICE" #65	AA 51537			
31	RAT DAWG #53	AA 29577	83	"ICE" #66	AA 51538			
32	RAT DAWG #54	AA 29578	84	"ICE" #67	AA 51539			
33	RAT DAWG #55	AA 29579	85	"ICE" #68	AA 51540			
34	RAT DAWG #56	AA 29580	86	"ICE" #69	AA 51541			
35	RAT DAWG #57	AA 29581	87	"ICE" #70	AA 51542			
36	RAT DAWG #58	AA 29582	88	MARMOT HOLE #4	AA 52948			
37	RAT DAWG #64	AA 29583	89	MARMOT HOLE #7	AA 52951			
38	RAT DAWG #65	AA 29584						
39	RAT DAWG #66	AA 29585						
40	RAT DAWG #67	AA 29586						
41	RAT DAWG #68	AA 29587						
42	RAT DAWG #75	AA 29588						
43	RAT DAWG #76	AA 29589						
44	RAT DAWG #77	AA 29590						
45	RAT DAWG #85	AA 29591						
46	RAT DAWG #86	AA 29592						
47	RAT DAWG #87	AA 29593						
48	"HOT DAWG" #21	AA 51594						
49	"HOT DAWG" #22	AA 51595						
50	"HOT DAWG" #23	AA 51596						
51	"HOT DAWG" #24	AA 51597						
52	"HOT DAWG" #25	AA 51598						
53	"HOT DAWG" #26	AA 51599						
54	"HOT DAWG" #27	AA 51600						
55	"HOT DAWG" #28	AA 51601						

Helicopter-Supported Exploration Drilling

Exploration core drilling will be performed by two to six heli-portable drill rigs throughout the five proposed drill areas. Drills, crew and all supplies will be transported to and from the drill site by helicopter. Drills will be in operation 24 hours a day 7 days a week during the course of the field program. Drill pads will be constructed by placing 8" x 8" wood timbers vertically and horizontally on the ground to support and level the diamond drill, or in steeper areas, these may be rock bolted to the ground. Once secure by 2" x 4" framing, 3" x 8" decking is set in place to form the 20 ft. x 20 ft. work area (Figure 2-7) (Plates 2.6-2.9).

Although never yet required, some future drill pad sites on the very steep South Wall area of the Glacier Creek prospect may require minor blasting for safety reasons. If blasting is required, all blasting will be performed by a licensed certified explosives contractor. Constantine has discussed this work with an appropriate local contractor that has safe explosive storage and experienced people nearby the project area to do this work . BLM will be notified a minimum of 24 hours in advance of any blasting on BLM administered lands. All new drill pad sites and existing drill pad sites that Constantine does not expect to re-use will be reclaimed concurrently as exploration proceeds. Plans to re-use a particular drill pad site will be dependent on drilling results. Any drill pads that are at risk to snow avalanches will be removed upon the completion of drilling.

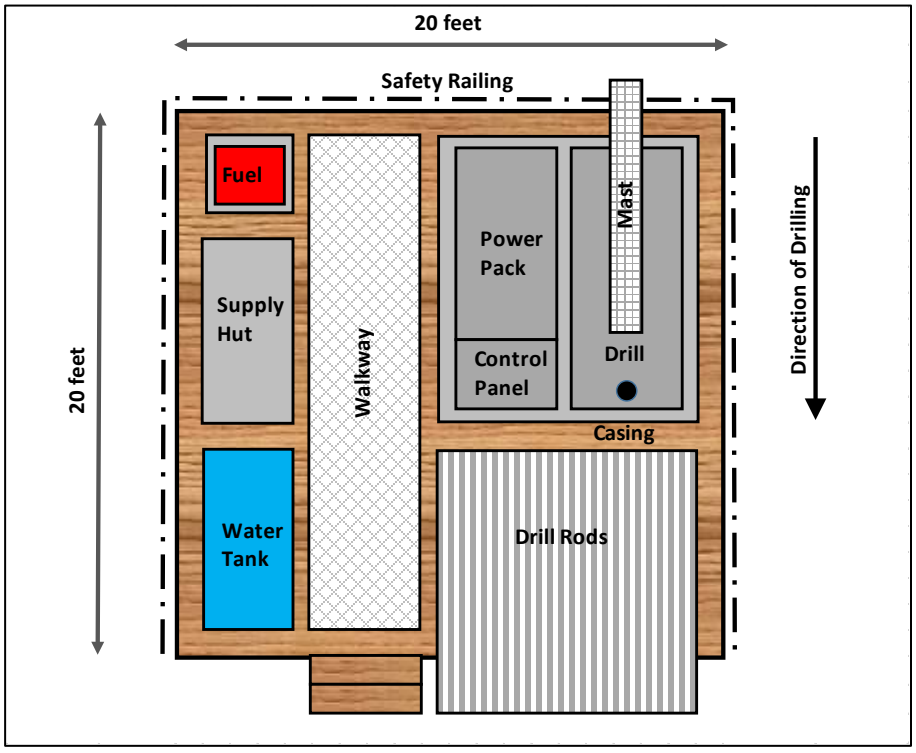


Figure 2-7: Typical Timber-Frame Drill Pad Site

Plate 2.6: Arrival of pad builders

Plate 2.7: Setting of support timbers

Plate 2.8: Slinging of decking material

Plate 2.9: Final framing of pad

The exploration drill program is seasonal with helicopter-supported drill activity typically extending from late May until early October in each calendar year.

A map shows the typical helicopter access routes (in pink) to the Project to Big Nugget Camp (Figure 2-8). These routes are the regular routes unless inclement weather redirects the helicopter to alternate routes. To minimize potential noise disturbance to residents located along the Haines Highway near the border station, helicopters will attempt to restrict use of the northerly route to the MHC prospect to only those times when required by weather or other factors. Helicopter pilots are advised to avoid flying over wildlife, with particular attention given to keeping their distance from sightings of large mammals such as bear, moose and goat (typically maintaining a distance of 1500 feet or more if safe to do so). Human safety is of paramount importance and extensive crew and pilot orientation is a routine part of operations. Sling loads of equipment and supplies are flown in a manner that avoids public use areas and being directly above people.

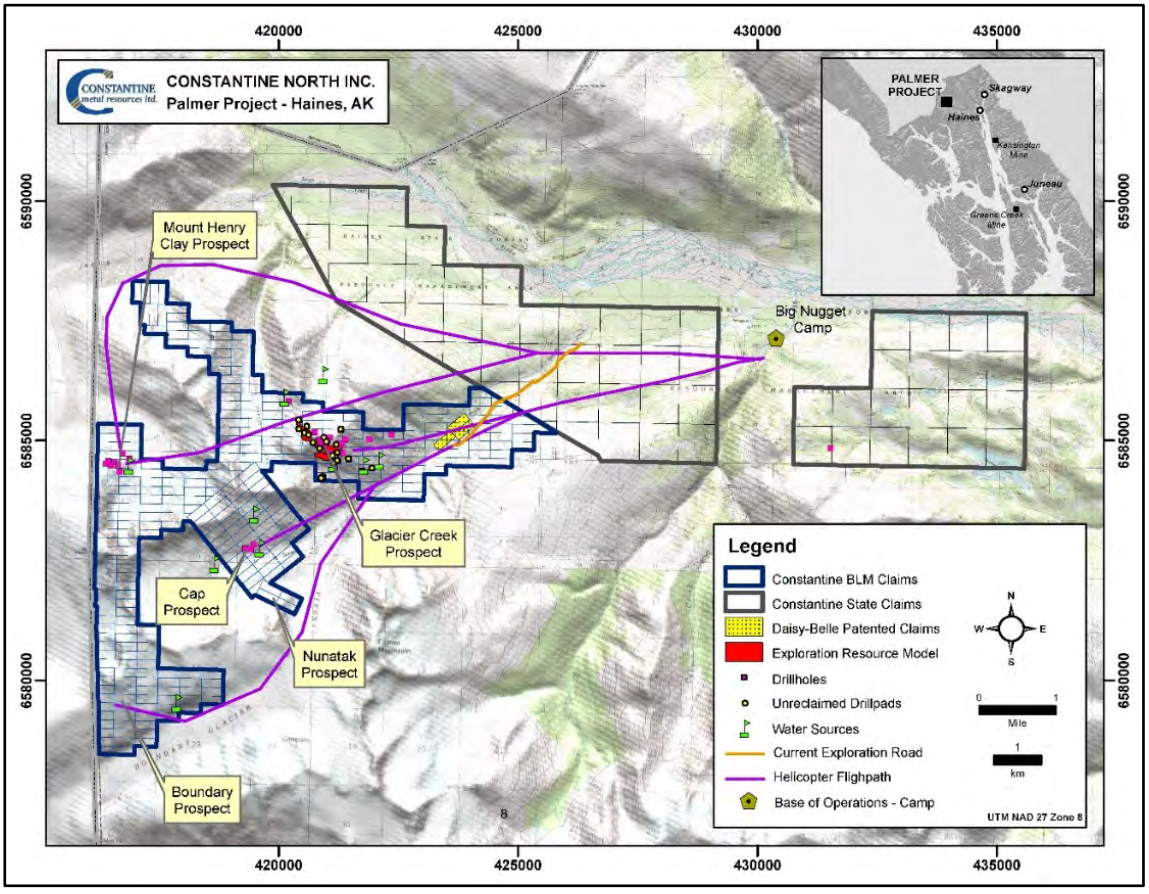


Figure 2-8: Typical Helicopter Access Routes – Palmer Exploration Project

Truck-Mounted Exploration, Geotechnical and Environmental Drilling

Exploration, Geotechnical, and Environmental drill holes are also planned from locations along the switchback portion of the proposed road which will provide access to test the eastern extensions of the currently defined South Wall mineral resource. Plans also include the installation of groundwater wells for establishing long term baseline water quality conditions. Groundwater data collection during early stages of site exploration provides information critical for establishing baseline conditions and for quantifying potential changes to groundwater conditions related to seasonal variations and anthropogenic activities. This information is necessary for potential future design planning by Constantine and evaluation by environmental regulators. Groundwater wells are most effectively developed utilizing dedicated water well drilling rigs, which are track or wheel-mounted and larger and heavier than helicopter portable rigs utilized for exploration drilling. Reliable and consistent road access is necessary to safely install, sample, maintain, and eventually decommission long-term groundwater monitoring wells.

Drilling will be performed by one track or wheel-mounted drill rig, serviced and crewed without the use of helicopters. Drills, crew and all supplies will be transported to and from the drill site by vehicles. Drills will be in operation 24 hours a day 7 days a week during the course of the field program. Drill sites will form a 20 ft. x 40 ft. work area (Figure 2-9) will be placed on road shoulders and pullouts (see Figure 2-10) with no new disturbance. The disturbance for these sites would fall within the disturbance for the proposed road alignment and drill sites would be immediately reclaimed upon completion.

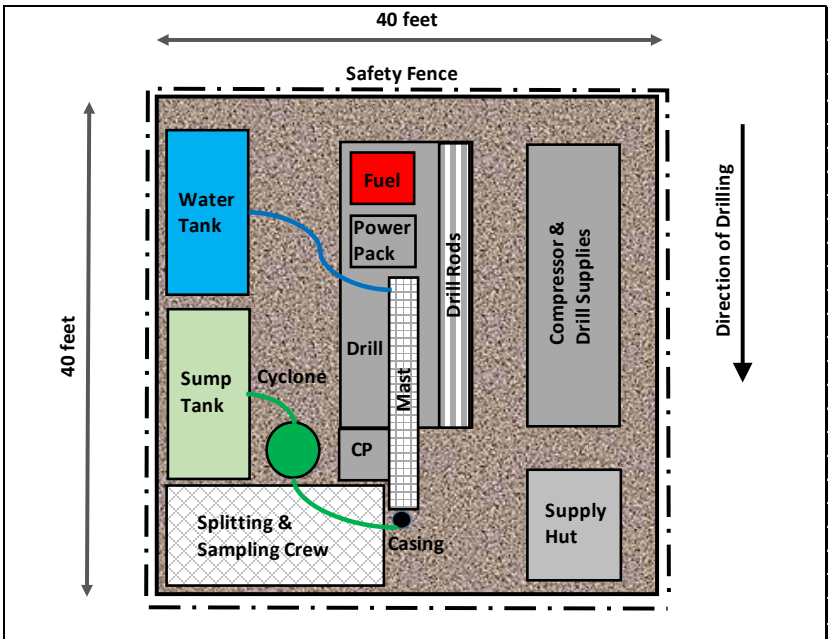


Figure 2-9: Typical Truck-Supported Drill Pad Site

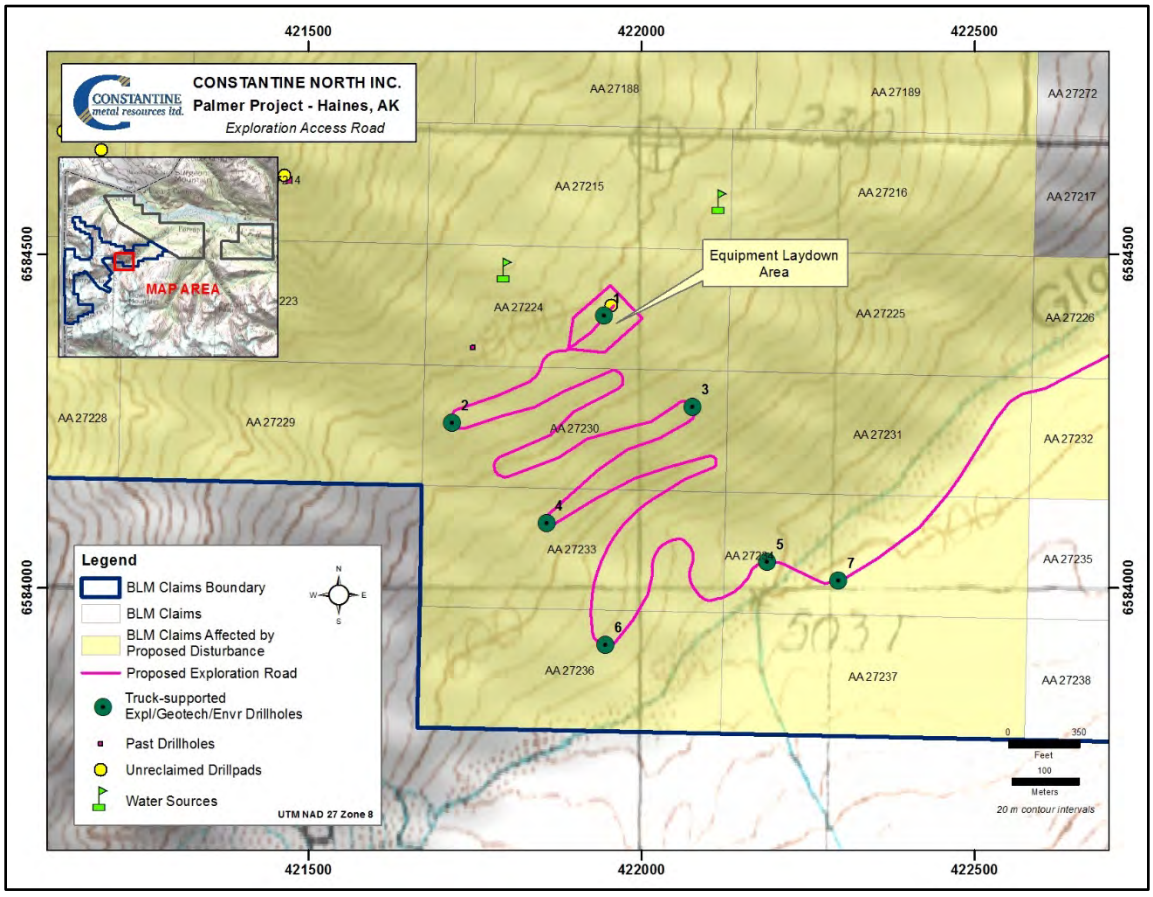


Figure 2-10: Location of Proposed Truck-Supported Drill Pad Sites (subject to modification and field fit)

Proposed Exploration Drilling Summary

This Plan contemplates **multi-year activity** and potential for exploration, geotechnical, and environmental drilling within the proposed drilling areas in subsequent years. Exact drilling locations with be contingent on future exploration results.

Concurrent reclamation of heli-supported drill pads, helipad sites, and truck-supported drill sites, and re-use of timbers is expected to result in no more than 20 new un-reclaimed/partially reclaimed drill pads and associated helipads at any given time (0.25 acres).

2.2.9.2 Exploration Access Road Details

Constantine is proposing to establish a **4.0 km (2.49 mile) single-lane exploration access road** from the western end of the exploration access road established in 2014 (Figure 2-11; Table 2-6; Appendix 4a). This will include:

- 1.35 km (0.84 miles) of linear exploration road work along the southern margin of Glacier Creek Valley (Km 4.0 to Km 5.35)

- 2.65 km (1.65 miles) of switchback exploration road work on the north side of Glacier ; Creek Valley up to the South Wall exploration area (Km 5.35 to Km 8.0)
- Installation of two 450 mm (18 inch) culverts at stream crossings at Km 4.52 and Km 4.86 on the linear exploration road
- Installation of a 6 meter (20 foot) log-stringer bridge over a gully at Km 4.29
- Installation of a 12.2 meter (40 foot) vehicular modular bridge over a creek at Km 4.41
- Installation of an 18.3 meter (60 foot) vehicular modular bridge over Glacier Creek at Km 5.35.

The new exploration road will provide cost-effective access to the Project in support of ongoing exploration work and other related environmental and geotechnical baseline surveys, and also significantly enhances worker safety by providing an alternate point of ingress/egress when weather prohibits helicopter flight. Once complete, the road will provide an important staging area for drill supplies (extra rods, muds, core boxes, fuel, etc.) close to the South Wall exploration area, which greatly reduces cost, helicopter fuel consumption, and travel time involved in supplying the drill program. A staging area immediately below the area of active drilling on the South Wall will allow the helicopter to better take advantage of weather windows during times of fog and cloud cover that commonly occur on the property. The exploration road will also provide a means for company employees and contractors to hike out of, or into, work sites, which in addition to enabling practical access by foot, is also considered very important for emergency response in times of heavy fog and cloud cover.

Table 2-6: BLM Claims with Proposed Surface Disturbance for Road Work

	BLM Mining Claims with Proposed Operational Disturbance							Only Road Disturbance	4
								Only Drilling Disturbance	101
	1) Proposed Exploration Road							Road and Drilling Disturbance	6
	a) Linear Road Location			c) Switchback Road Location				Total	111
#	Claim Name	BLM Number		Claim Name	BLM Number				
1	MARMOT #106	AA 27218	7	MARMOT #118	AA 27230				
2	MARMOT #114	AA 27226	8	MARMOT #121	AA 27233				
3	MARMOT #115	AA 27227	9	MARMOT #124	AA 27236				
4	MARMOT #119	AA 27231							
5	MARMOT #120	AA 27232							
	b) Glacier Ck Bridge & Rock Pile Location			d) Equipment Laydown Area Location					
#	Claim Name	BLM Number	#	Claim Name	BLM Number		10	Total # of BLM Claims with Proposed Operational Disturbance for Road Work	
6	MARMOT #122	AA 27234	10	MARMOT #112	AA 27224				

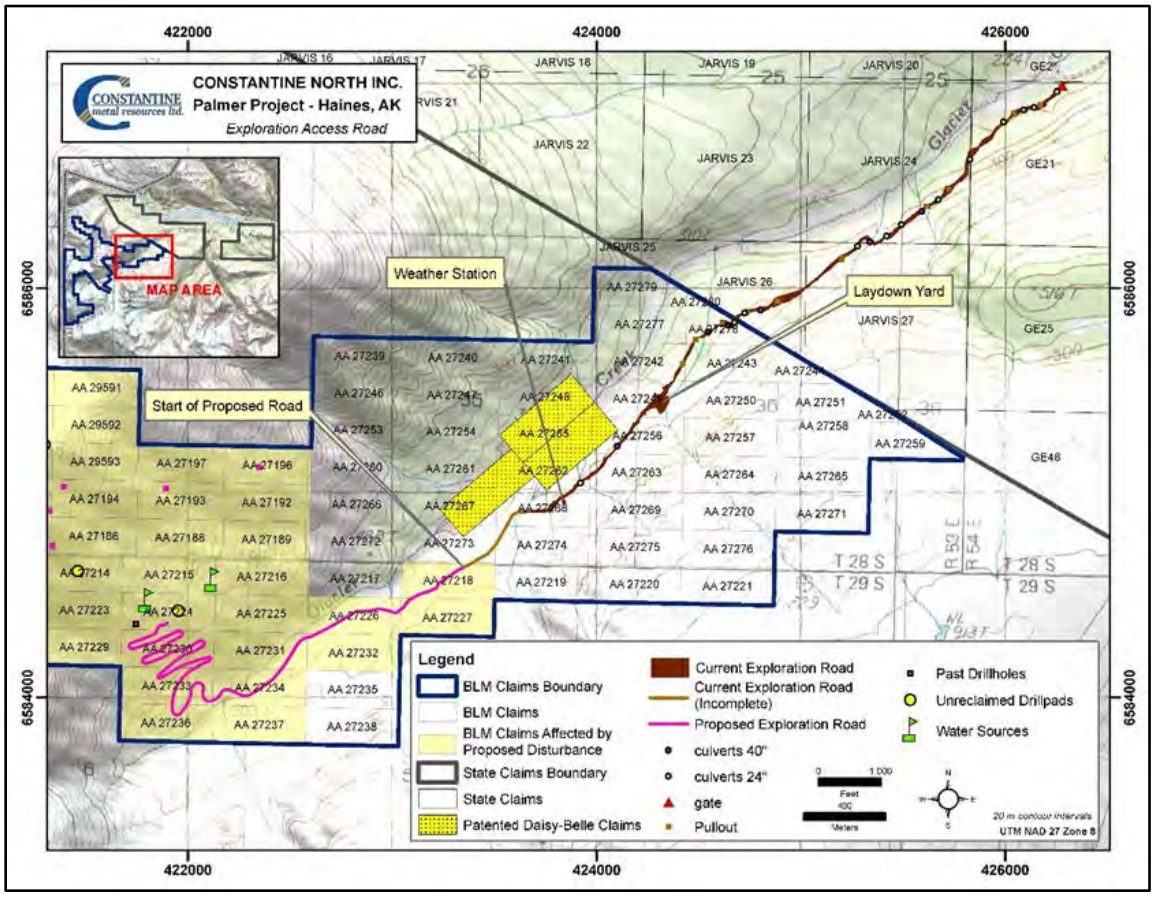


Figure 2-11: Location of Proposed Exploration Access Road and Bridge Construction

Linear Exploration Road Details

A total of 1.35 km (0.84 miles) of the new linear exploration road will be located on federal mining claims (Figure 2-12) (Appendix 4a/b).

This route has been designed utilizing detailed Lidar imagery and topography acquired in 2014, and will be constructed, to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable. Unnecessary or undue degradation has been avoided by having a portion of the road follow a pre-existing road bed that was permitted and built in 1977 along the south side of Glacier Creek Valley. The original road, which was constructed as a narrow Cat trail, has become overgrown with vegetation, and all stream crossings are washed out.

Total length of the proposed road from the terminus of the existing road to Glacier Creek is **1,350 meters** with four gully and stream crossings. The new linear exploration road is designed with a safer and more efficient road alignment in mind, and has been designed to avoid new impacts to wetland. Construction would be similar in nature to the 4 km exploration road constructed in 2014 (Plate 2.10).

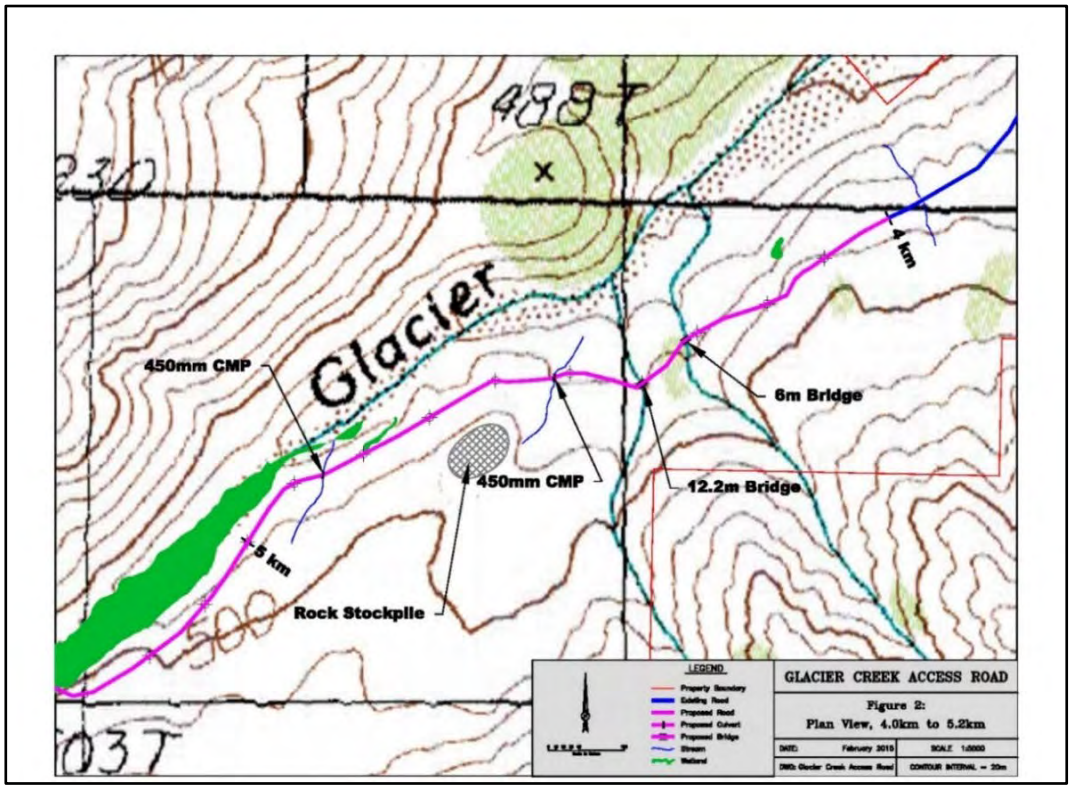


Figure 2-12: Location of Proposed Linear Exploration Road (in pink) on NAD 27 20m contour intervals

Plate 2.10: Construction of 2014 Exploration Access Road

A description of the linear exploration access road construction is provided below:

The 1,350m linear exploration road would be constructed by cuts and fills utilizing BMPs for the road type and local conditions present.

The road surface would be 4.3 m wide.

Additional fill material (if required) would be sourced from a permitted (but not constructed) equipment laydown area under the current Notice-level AHEA located at Km 4.0.

Slash would be windrowed at the toe of fill slopes.

Turnouts for passing approaching vehicles would be 30 m long by 4.3 m wide in addition to the road surface. Turnouts would be inter-visible, not to exceed 300m apart.

Ditches would be constructed along the uphill side of the road. Proper BMPs including energy dissipaters, relief culverts, and sediment basins would channel run-on water away from the road surface and reduce sedimentation.

Two 450 mm (18 inch) culverts will be placed at two stream crossings. The sizing of the culverts at the stream crossings Km 4.52 and Km 4.86 as based on BLM BMPs for Drainage Structure Sizing for Low-Volume Roads on Gentle Slopes in unlogged terrain (Table 2-7). Based on the drainage areas in question (<4 hectares), 18 inch culverts were selected.

Three bridges will span three gully's and stream crossings. Bridges would be 4.3 m wide and placed on abutments constructed from timber. Bridges less than 6.0 m in length would be constructed from locally sourced cut timbers. Bridges in excess of 6.0 m would be pre-fabricated vehicular modular steel designs.

Prior to beginning construction, proper storm water control BMPs will be installed. BMPs will be maintained throughout the construction period and until permanent soil stabilization measures are in place.

All excavations and fills, except the actual road surface, would be seeded upon completion of construction utilizing a BLM approved seed mix.

Construction will primarily be completed with excavators, supported by trucks and loaders for road fill and surfacing as required. Road surfacing material is anticipated to be sourced from cut banks and local borrow pits along the road route, and/or from established nearby sources. Construction is estimated to take one to two months to complete.

Table 2-7: Drainage Structure Sizing (From Chapter 8, Culvert Use, Installation, and Sizing, BLM BMPs for Low-Volume Roads)

Table 2.6							
DRAINAGE STRUCTURE SIZING							
Drainage Area			**Size of Drainage Structure**				
(Hectares)			Inches and Area (m2)				
	Steep Slopes				**Gentle Slopes**		
	Logged, Light Vegetation				**Unlogged, Heavy Vegetation**		
		C=0.7				C=0.2	
	Round Pipe (in)		Area (m2)		Round Pipe (in)		Area (m2)
0 to 4	30"		0.46		18"		0.17
4 to 8	42"		0.89		24"		0.29
8 to 15	48"		1.17		30"		0.46
15 to 30	72"		2.61		42"		0.89
30 to 50	84"		3.58		48"		1.17
50 to 80	96"		4.67		60"		1.82
80 to 120					72"		2.61
120 to 180					84"		3.58
Notes: If pipe size is not available, use the **next larger** pipe size for the given drainage area. For intermediate terrain, interpolate between pipe sizes							
Pipe size is based on the Rational Formula and Culvert Capacity curves. Assumes a rainfall intensity of 75 mm/hr. (3"/hr) to 100 mm/hr (4"/hr). Values of "C" are the Runoff Coefficients for the terrain.							
For tropical regions with frequent high intensity rainfall (over 2500 mm/hr or 10"/hr), these drainage areas for each pipe size should be reduced at least in half.							
					Low-Volume Roads BMPs 77		

Switchback Exploration Road Details

A total of 2.65 km (1.65 miles) of the new switchback exploration road will be located on federal mining claims (Figure 2-13) (Plates 2.11 & 2.12) (Appendix 4a).

The road has been designed utilizing detailed Lidar imagery and topography acquired in 2014, and will be constructed, to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable. Unnecessary or undue degradation has been avoided by having the majority of the road above tree line in largely blocky talus. Full bench cut type construction will minimize fill placement and the extent of surface disturbance (compared to cut and fill type construction).

Note that the disturbed area defined in Figure 2-13 downslope of the switchbacks, and calculated acreage, represents the total area of potential disturbance due to rock fall and fill generated during construction. The actual area of disturbance of the road is expected to be much less.

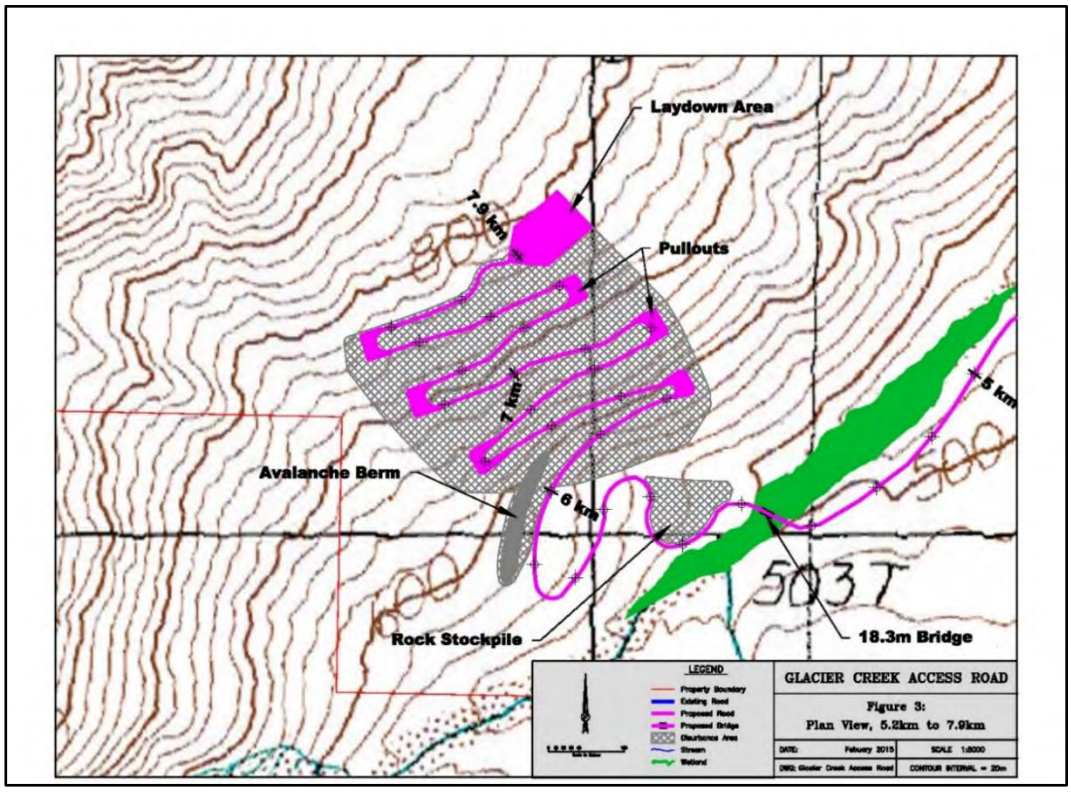


Figure 2-13: Location of Proposed Switchback Exploration Road (in pink) on NAD 27 20m contour intervals

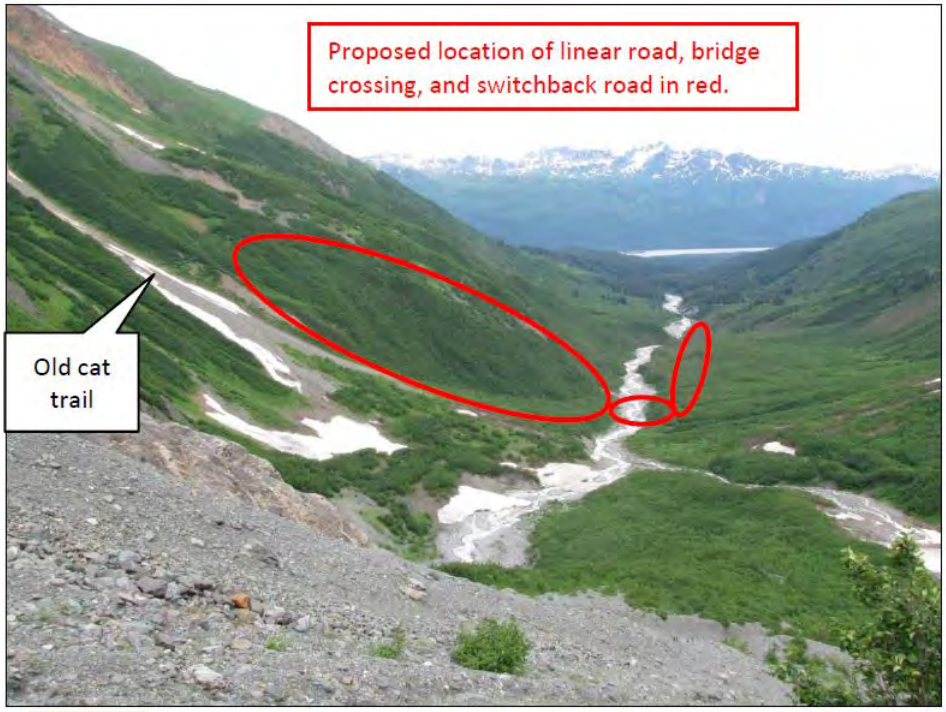


Plate 2.11: View looking East down Glacier Creek and proposed road alignment

Plate 2.12: View looking NW from bridge crossing towards switchback road area

Total length of the proposed road from Glacier Creek to its proposed terminus at the South Wall exploration area is **2,630 meters** with eight switch back turns and an elevation gain of approximately 300 meters.

A description of the switchback exploration access road construction is provided below:

The 2630 m switchback exploration access road would be constructed by cuts and fills utilizing BMPs for the road type and local conditions present. A large portion of the road built on steep side slope angles is expected to be constructed using full bench cuts.

Road design parameters are targeted to be 10 to 15 % grade with an average of 12% and only to exceed 15% over very limited distances.

Road dimensions are 5.3m of useable road bed with a 0.6m deep x 0.8m wide ditch on the inside and a mid-wheel (largest equipment) height berm on the outside (nominally 1.6 m wide by 0.7 m high).

The 5.3m width vs. the 4.3m width for the linear portion of the road will accommodate the berm on the outside (or downhill side) of the road.

Slope angle on fill portions would be 37° (Figure 2-14).

Upper bank angle is shown to be 70° (Figure 2-15) but will likely be steeper in areas where the bedrock must be blasted.

Distance across each switchback will be approximately 30m.

Grade on switchbacks ranges from 2 to 4% with relatively flat run-outs on each end.

Ends of switchbacks will be used as passing lanes.

Excess rock from cut portions would be utilized in fill portions or in the construction of rock fall mitigations berms. Excess excavated rock and fill not utilized in road and berm construction will be hauled to a stockpile area where it will be stored for future use during reclamation.

Slash would be windrowed at the toe of fill slopes.

Ditches would be constructed along the uphill side of the road. Proper BMPs including energy dissipaters, relief culverts, and sediment basins would channel run-on water away from the road surface and reduce sedimentation.

Prior to beginning construction, proper storm water control BMPs will be installed. BMPs will be maintained throughout the construction period and until permanent soil stabilization measures are in place.

All excavations and fills, except the actual road surface, would be seeded upon completion of construction utilizing a seed mix approved by the authorized officer with the project area.

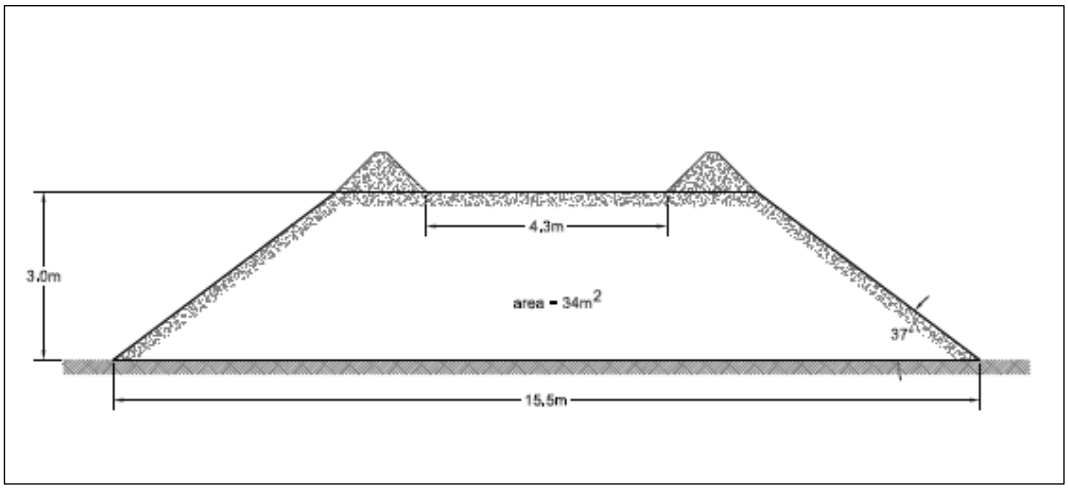


Figure 2-14: Typical Cross-section showing Full Fill Portion (Fill Slope 37°)

Construction will primarily be completed with excavators, supported by trucks and loaders for road fill and surfacing as required. Road surfacing material is anticipated to be sourced from cut banks along the road route. Construction is estimated to take two to three months to complete.

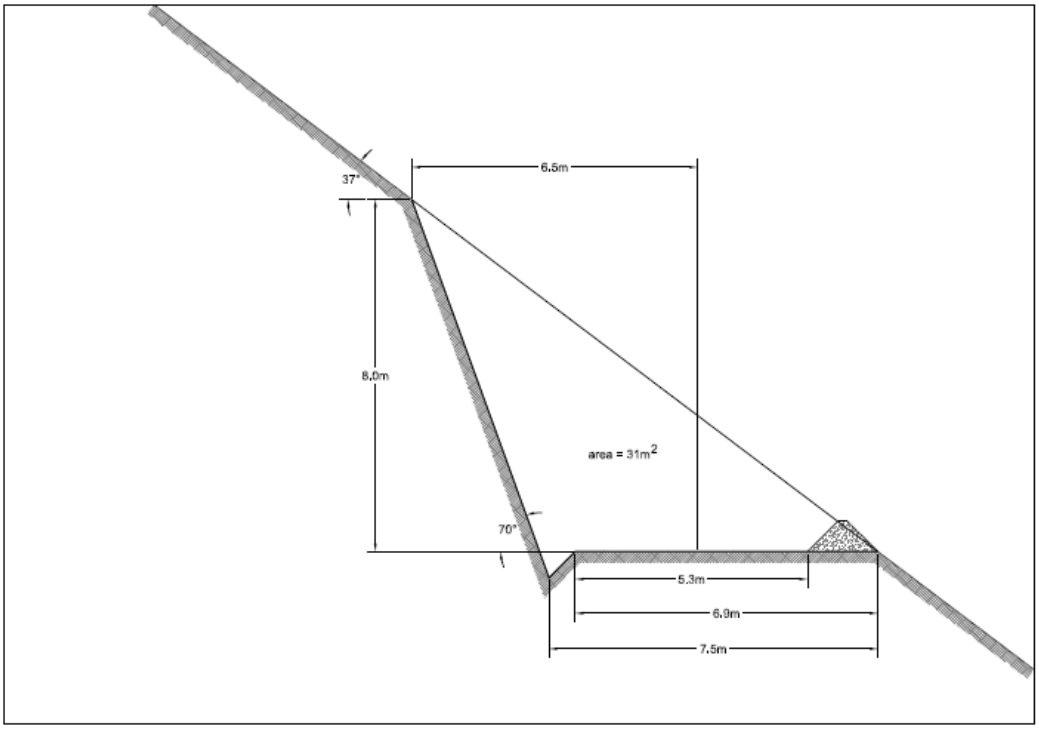


Figure 2-15: Typical Cross-section showing Full Bench Cut. Cut Slope 70°

2.2.9.2 *Culverts and Bridges*

a) Steel Culvert Installation

Two 450mm (18 inch) culverts are recommended for the crossing of rivulets at Km 4.53 and Km 4.86. A drawing of a typical culvert installation can be found in Appendix 4b.

b) Timber Frame Bridge Construction

One timber frame bridge (6.0 m) is recommended for stream crossing at Km 4.29. The timbers would be locally sourced and cut and would form the bridge and foundations.

c) Vehicular Modular Steel Bridge Construction with length 6.0 m to 12.2 m

One pre-fabricated steel vehicular modular bridge (12.2 m/40 feet) is recommended for a gully crossing at Km 4.41. The bridge would be sourced and shipped from the Continental USA and set on a natural timber foundation. A drawing of a typical 6.0 m to 12.2 m bridge installation can be found in Appendix 4b.

d) Vehicular Modular Steel Bridge Construction over Glacier Creek with length 18.3 m

One pre-fabricated steel vehicular modular bridge (18.3 m/60 feet) is proposed to span Glacier Creek between the linear and switchback portions of the planned exploration access road. The bridge would be sourced and shipped from the Continental USA and set on a natural timber or galvanized steel foundation. A drawing of a typical 18.3 m bridge installation can be found in Appendix 4b.

Glacier Creek is a glacial run-off stream outflowing from Saksaia Glacier (Figure 2-16)(Plate 2.13). The width of the creek is variable depending on the season but averages 3-10 m (10-30 feet) within a greater outwash plain of 25-30 m (80-100 feet). Surface material is glacial outwash consisting of boulders, cobbles, gravel, and silt.

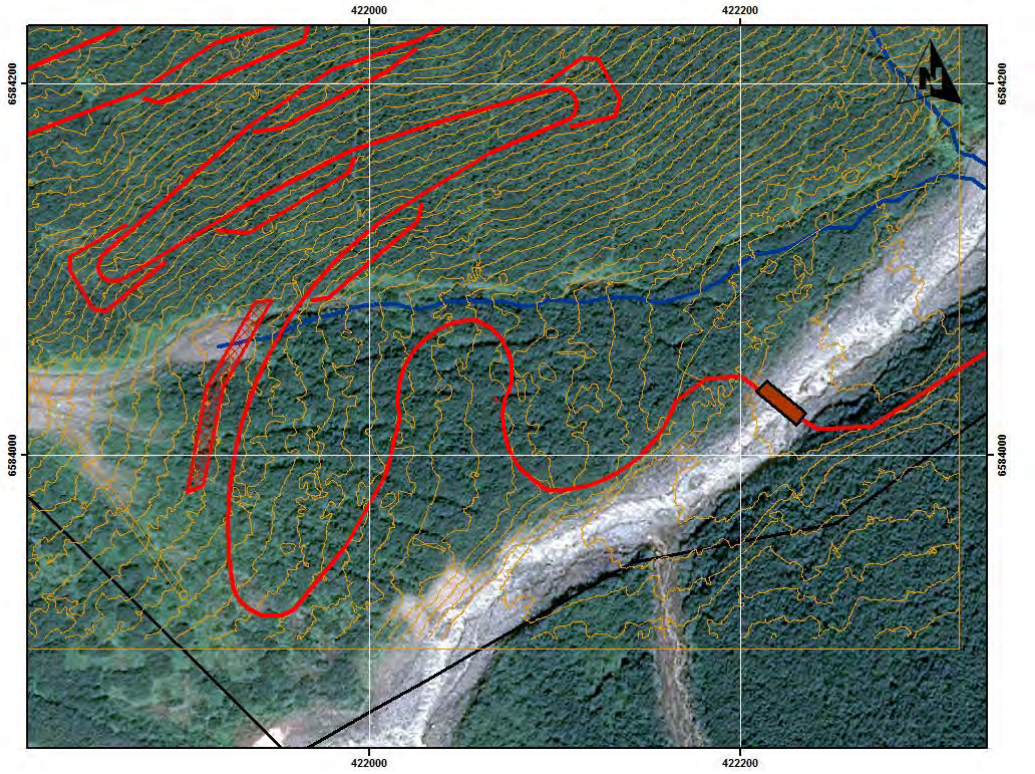


Figure 2-16: Location of Proposed Glacier Creek Bridge (shown in brown)

Plate 2.13: View of Proposed Glacier Creek Bridge Location – Looking West towards Saksaia Glacier

The proposed Glacier Creek Bridge design would be a prefabricated modular steel vehicle bridge superstructure (Plate 2.14) (Figure 2-17 & Figure 2-18) (Courtesy of Big R Bridge) with features as described below:

Bridge Model:	Modular - Single Lane
Length:	60 ft. (out to out dimension)
Width:	16 ft. (clear between rails)
Design Code:	AASHTO LRFD
Design Vehicle:	Volvo A 30G Deflection: L/360
Number of Sections:	2 (field bolting by others)
Finish:	Weathering - SP7 Clean
Bridge Decking:	4 1/4" x 7 Gage (shop-installed) steel structural decking
Wearing Surface:	Gravel – by others
Railing Type:	TL3 (Flange) - Thrie Beam galvanized
Railing Height:	27 inches
Foundation System:	18” x 30” x 16’ Pre-cast sills; galvanized sheet pile back wall
Bearings:	Bearing plates and elastomeric leveling pads
Preliminary Superstructure Weight:	61,500 lbs.
Shipping weight:	~18,000 lbs.

Plate 2.14: Example of a prefabricated modular steel vehicle bridge (Courtesy of Big R Bridge)

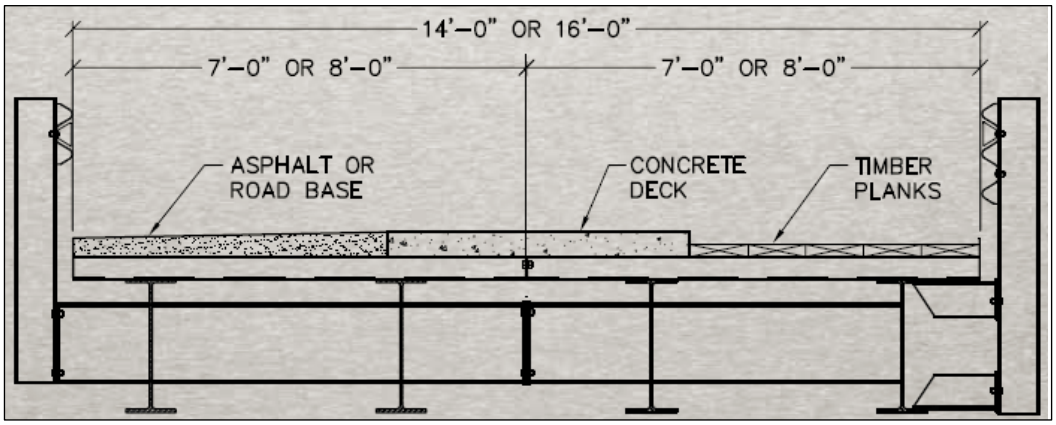


Figure 2-17: Cross-section of prefabricated modular steel vehicle bridge (Courtesy of Big R Bridge)

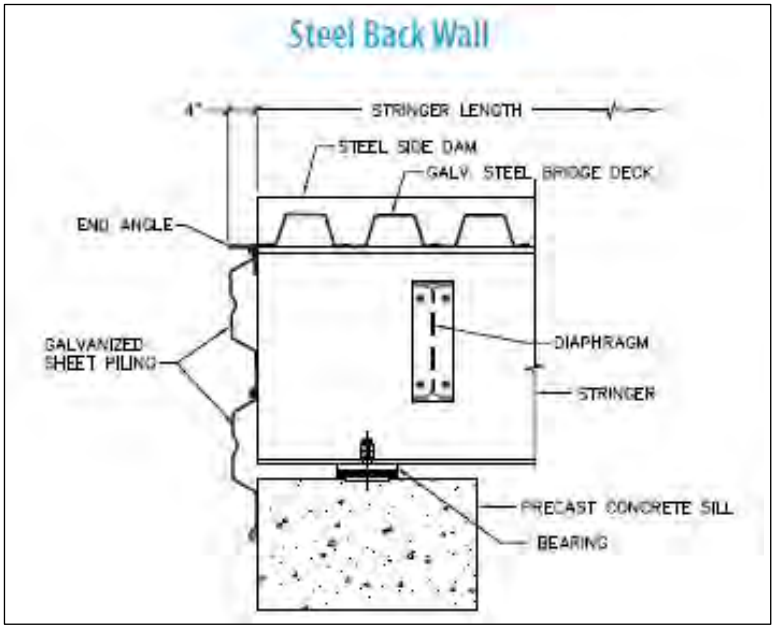


Figure 2-18: Close-up of prefabricated modular steel vehicle bridge showing back wall support (Courtesy of Big R Bridge)

Bridge compoments would be engineered and produced within the Continental USA, shipped to the port of Seattle for transportion via ferry to Haines, Alaska. From Haines, components would be shipped via flat-bed truck to the Project and assembled in 1-3 days on pre-constructed back walls.

Lifespan of the Glacier Creek Bridge would be +20 years but could be easily disassembled if required.

2.2.9.3 *Equipment Laydown Area Details*

An equipment laydown area is proposed at the end of the switchback exploration road with approximate dimensions 100 meters x 40 meters (1.47 acres) (Figure 2-19). This area will be used for staging personnel, drill equipment and supplies, and fuel to support exploration activities in the South Wall target area (Figure 2-20).

A helicopter will based at the laydown area during daylight hours and return to Big Nugget Camp in the evenings.

Up to two temporary trailers for an office and storage of equipment and a portable toilet may be used at the equipment laydown area. The trailers will not be occupied as a camp. Constantine will apply for a License of Occupation for said trailers if required.

Communications would be present at the laydown in terms of a two-way radio to provide a link to the main base at Big Nugget Camp.

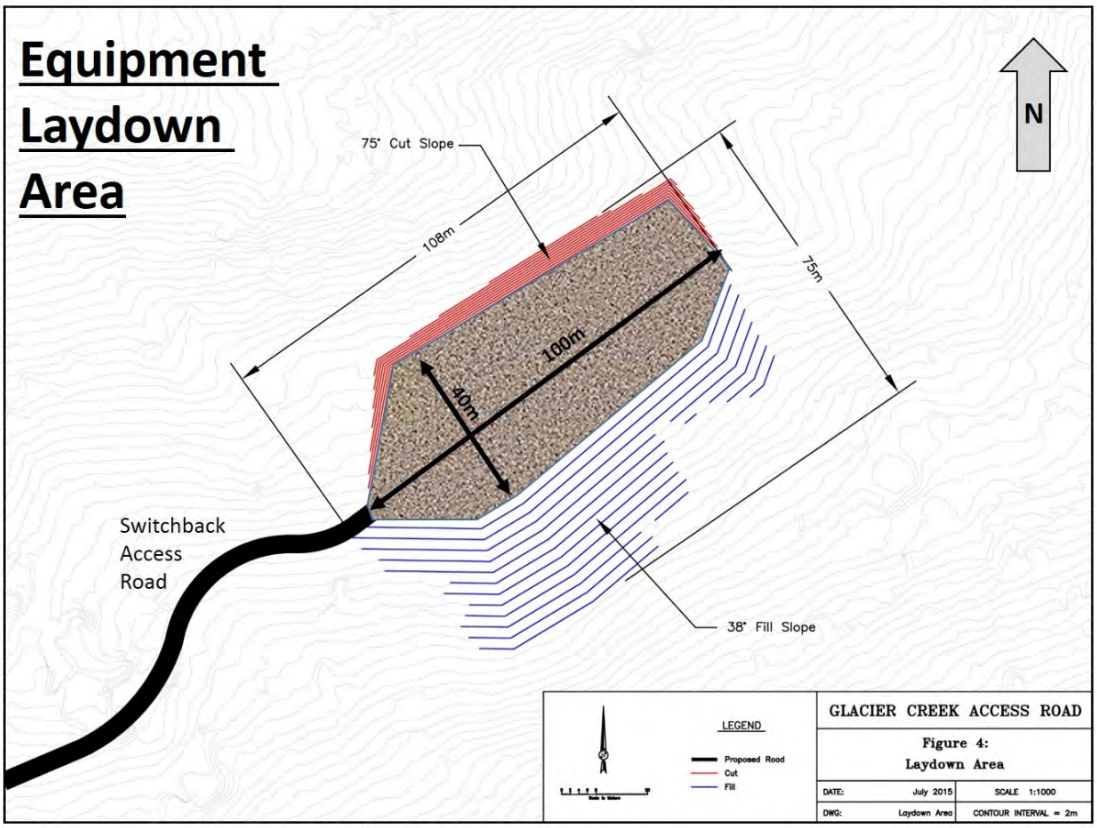


Figure 2-19: Equipment Laydown Area at the end of the proposed Switchback Exploration Road

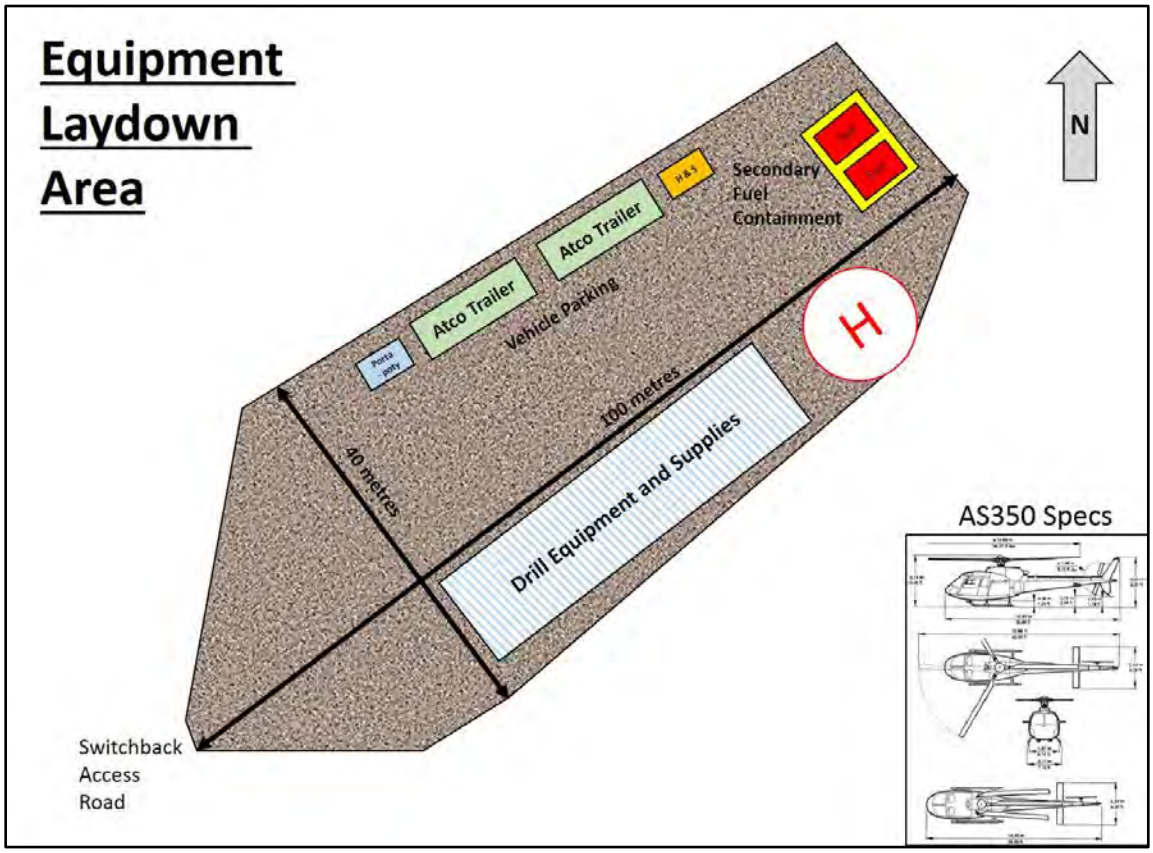


Figure 2-20: Detailed Plan View of Equipment Laydown Area

2.2.9.4 *Rock Stockpile and Rock Fall Berm*

Two rock stockpile areas are proposed between Km 4.6 and 4.7 on Figure 2-12 (East Rock Stockpile) and between Km 5.6 and 5.7 on Figure 2-13 (West Rock Stockpile). This will accommodate the estimated 38,000 cubic meters of talus or shot rock material removed during the full bench cuts on the switchback portion of the proposed road. These rock stockpiles will be used for the future reclamation of the road and may be levelled and used as temporary staging areas.

Rock excavated during road construction may also be placed in 3.0 to 10.0 meter berms on the upslope side of the road where rock fall hazard is high (Km 5.9 to 6.0) on Figure 2-13.

Results from 17 surface rock samples and 15 drill core samples collected as part of the 2014 environmental-geochemistry program (Section 6.13) indicate acid rock drainage and metals leaching is not a concern for excavated talus and shot rock from the proposed road construction between Glacier Creek and the South Wall exploration area. It is therefore expected that the rock stored within the aforementioned stockpile areas will be benign.

Total disturbance is 1.67 acres for the East Rock Stockpile (4,068 m2 or 1.01 acres) and the West Rock Stockpile (6,699 m2 or 1.66 acres).

2.2.9.5 Total New Exploration Disturbance (BLM lands)

Approximately 40 new helicopter-supported timber-frame drill pad sites are proposed for a **total estimated disturbance of 0.50 acres**. Heli-supported drill pad disturbance calculations are based on 20 ft. x 20 ft. pads totaling 400 sq. ft. Forty pads total 16,000 sq. ft. or 0.36 acres. Total maximum disturbance estimate of 0.50 acres is inclusive of helipads. Concurrent reclamation of drill pad and helipad sites, and re-use of timbers is expected to result in no more than 20 new un-reclaimed/partially reclaimed drill pads and associated helipads at any given time (0.25 acres).

A total of 4,000 meters of new road are proposed along with pullouts, two rock piles, rock fall berm, possible borrow pits, and an ancillary equipment laydown area for a **total estimated disturbance of 36.56 acres**. Note that a large portion of this acreage is for potential disturbance downslope of the switchback portion of the road, where steep slopes may result in uncontrolled rock fall and downslope fill dispersion during construction. Actual disturbance is expected to be significantly less than the total acreage of 36.56 acres.

Road disturbance calculations are based on a 4.3m and/or 5.3m road surface with ditching, and slope angle adjusted cut & fill (See Appendix 4a). The access route has been planned with the minimum width required to support operations and has, to the extent possible, followed natural contours to minimize cut and fill.

Total potential new disturbance on BLM lands is estimated to be 37.06 acres.

2.3 Maps of the Project Area

See Appendix 3.

2.4 Electronic Maps

A data disk containing pertinent digital information is included with this Plan.

2.5 Water Pollution Control Permit

A Water Pollution Control Permit is not required as this is an exploration project

2.6 Use and Occupancy

Up to two temporary trailers for an office and storage of equipment and a portable toilet will be used at the equipment laydown area. The trailers will not be occupied as a camp. Constantine will apply for a License of Occupation for said trailers if required.

2.7 Environmental Protection Measure

Constantine commits to the environmental protection measures below to prevent unnecessary or undue degradation during construction, operation, and reclamation of the Project. The measures are derived from the general requirements established in the BLM's Surface

Management Regulations at 43 CFR 3809 and BMRR mining reclamation regulations, as well as water, air quality, and other environmental protection regulations.

Constantine has implemented environmental baseline surveys prior to submittal of this Plan.

2.7.1 Water Quality

In order to prevent unnecessary or undue degradation to the environment BMPs (Appendix 1) will be used at construction sites to minimize erosion and sedimentation from storm water. Best Management Practices (BMPs) for sediment control will be utilized during construction, operation, and reclamation to minimize sedimentation from disturbed areas. Sediment control structures may include; however, are not limited to, fabric or certified weed-free straw bale filter fences, siltation or filter berms, sumps, and down-gradient drainage channels.

Constantine will develop, and follow, a project-specific Storm Water Pollution Prevention Plan ("SWPPP") in conjunction with the road building contractor that is selected. An example of the SWPPP developed by the road contractor for the 2014 access road construction is included in Appendix 5b.

Constantine will follow the Spill Prevention Control Countermeasure Plans ("SPCCP") included in Appendix 5c.

Drill cuttings (if present) will be contained and the drill fluids managed utilizing appropriate control measures. Due to the fractured nature of the near-surface bedrock and low groundwater table in the areas to be drilled, there is typically no surface return of drill water and cuttings.

If drill cuttings and drill fluids are returned to surface, they will be managed with the use of sediment traps (sumps) at each drill site, and/or closed-loop centrifuges. Any cuttings collected via centrifuge will be disposed of in pits and buried, or disposed of at an appropriate disposal facility off-site.

2.7.2 Migratory Birds

Preliminary desktop studies have shown the following migratory birds MAY be present in the low forested areas within the Project area; olive-sided flycatcher, gray-cheeked thrush, and Townsend's warbler (See Section 6.8.3). Habitat mapping indicates that the ground disturbing work proposed under the Plan of Operations is all located above tree-line and within areas of low-suitability habitat for migratory birds.

If such species are identified through field-based surveys, Constantine will conduct any land clearing or other surface disturbance associated with Project-related activities outside of the avian breeding season, whenever feasible, to avoid potential destruction of active bird nests or young birds in the area. Areas to be surveyed will be limited to vegetated zones where proposed surface disturbance will be located.

2.7.3 Cultural Resources

Macroscopic fossils have not been identified by geological mapping in areas of proposed disturbance, and the potential for discovery of paleontological resources is considered low to nil based on rocktypes present. In the event that previously undiscovered paleontological resources are discovered in the performance of any surface disturbing activities, the item(s) or condition(s) will be left intact and immediately brought to the attention of the authorized officer of the BLM. If significant paleontological resources are found, avoidance, recordation, and data recovery will be required.

Any cultural resource discovered by the Constantine personnel, or any person working on their behalf, during the course of activities on federal land will be immediately reported to the authorized officer by telephone, with written confirmation. The permit holder will suspend all operations in the immediate area of such discovery and protect it until an evaluation of the discovery can be made by the authorized officer. This evaluation will determine the significance of the discovery and what mitigation measures are necessary to allow activities to proceed. The holder is responsible for the cost of evaluation and mitigation. Operations may resume only upon written approval to proceed from the authorized officer.

2.7.4 Public Safety and Access

Public safety will be maintained throughout the duration of the Project. All equipment and other facilities will be maintained in a safe and orderly manner.

Signage will be placed warning the public that the area is an active exploration site and heavy equipment traffic may be present.

Any survey monuments, witness corners, or reference monuments will be protected to the extent economically and technically feasible.

All solid wastes will be disposed of in a state, federal, or local designated site.

Pursuant to 43 CFR 8365.1-1(b) (3), no sewage, petroleum products, or refuse will be dumped from any trailer or vehicle.

Constantine will comply with all applicable state and federal fire laws and regulations and all reasonable measures will be taken to prevent and suppress fires in the Project Area.

Any identified public hazards such as open historic mine workings will be secured as per State and Federal regulations.

2.7.5 Air Quality

If required, emissions of fugitive dust from disturbed road surface will be minimized by the application of water from a water truck as a method of dust control. In addition, Constantine may need to armor some existing roads with gravel to minimize excess disturbance and control dust. The operation would not likely have measureable impacts on air quality.

2.7.6 Noxious Weeds

Noxious weed surveys will be conducted prior to any construction activities. If invasive, non-native plant species deemed detrimental by the BLM are found, a BLM weed specialist would be consulted and an appropriate treatment plan developed and implemented. Control standards and measures would comply with applicable State and federal regulations. Weed treatments may include the use of herbicides, and only those herbicides approved for use on public lands by the BLM would be evaluated for use. A listing of the six possible invasive species common to SE Alaska that may occur within the Project Area are found in Appendix 5a.

Vehicles, transport equipment used in access, construction, maintenance and operations of the project will be thoroughly cleaned prior to moving equipment onto BLM lands. High pressure washing is recommended to treat the inside of bumpers, wheel wells, undercarriages, inside belly plates, excavating blades, buckets, tracks, rollers, drills, buckets, shovels, etc. to remove potential weeds, seeds, and soil carrying weed propagules, and vegetative material.

One measure that could help prevent the spread of noxious weeds would be the washing of project vehicles before they enter a weed-free area or when they leave an infested area. The use of a portable vehicle washing station is therefore recommended to reduce of the spread of invasive species. Constantine will consult with BLM prior to establishing an appropriate location for a vehicle washing station.

A portable vehicle-washing system would:

- Wash a vehicle to remove dirt and mud deposits on the exterior of the vehicle in 5 minutes. The emphasis of the cleaning should be in the wheels, wheel wells, bumpers, and underbody of the vehicle where most mud and dirt collects. The washing needs to be done quickly so it does not slow down operations.
- Fit on a single trailer that can be towed by a 3⁄4-ton pickup truck. The system should be small enough to be transported easily and should not take up a lot of space when it is deployed.
- Reuse wash water. This requirement should eliminate the need to constantly fill holding tanks or have a water supply at the washing site. Also, spores and seeds can be filtered from the wash water for disposal.
- Be operated easily by no more than two persons with minimal training.
- Be inexpensive to produce. Low production costs will allow forests, districts, and private contractors to purchase them.
- Wash vehicles ranging from trucks to heavy equipment.

A system similar to that designed by the Missoula Development and Technology Centre (“MDTC”) or equivalent is recommended (Plate 2.15). Operators use two high-pressure wands

to wash the vehicle's sides, wheels, and wheel wells. A high-pressure, high-volume nozzle system washes the vehicle's underbody. An industrial containment rubber mat with foam-filled barriers on all sides confines the wash water. The used wash water is pumped from the mat to two 175-gallon settling tanks. Large particulate matter sinks to the bottom of the tanks. The effluent from the settling tanks is pumped through two filters. The filters have felt bags that can remove particulate as small as 3 microns. After the water has passed through the filters, it is dumped into a 550-gallon holding tank where a pump with high pressure (about 800 pounds per square inch) and high volume (about 20 gallons per minute) pushes the water through the wands and under- body washers. Figure 2-21 shows the flow of water. The washer does not use hot water nor does it use any soaps, chemicals, or detergents. The components are mounted on a twin-axle, 8- by 18-foot trailer that can be towed by a 3⁄4-ton pickup truck (when the water tanks are empty). The pumps, generator, tanks, and filter housings are permanently mounted on the trailer. The trailer also carries the mat, hoses, and miscellaneous equipment.

Site reclamation will be implemented as soon as possible after construction using the original duff layer where feasible and seeding with approved native seed mix.

Further details on prevalent invasive species in SE Alaska can be found in Appendix 5a.

Plate 2.15: The MDTC portable vehicle washer being used in the field.

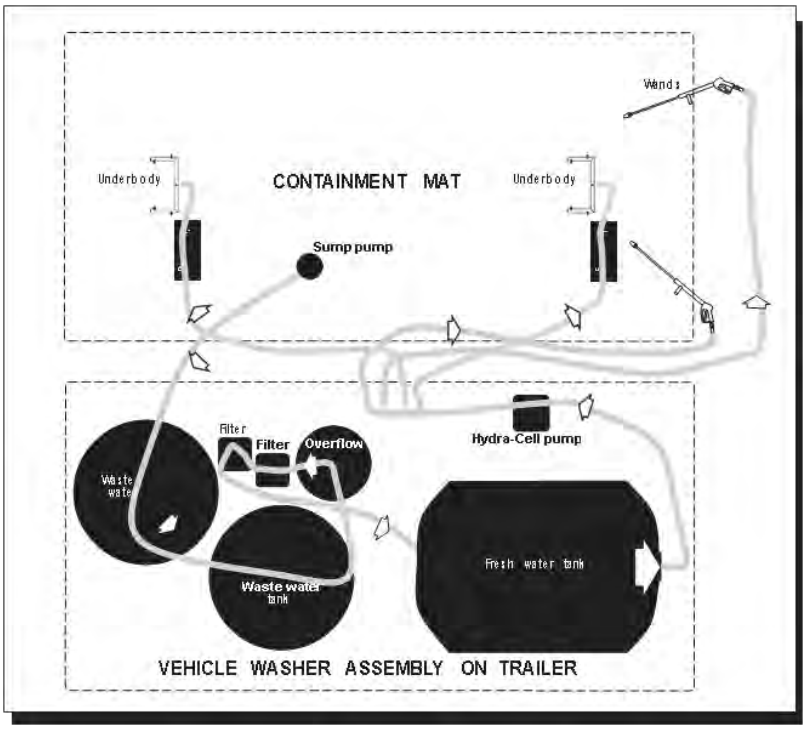


Figure 2-21: The flow of water through the vehicle washer system

2.7.7 Degradation Prevention Plan

Several measures have been taken to prevent unnecessary and undue degradation ("UUD") to the natural and human environment.

1) The single largest means of preventing UUD is designing a large portion of the exploration access road to follow a pre-existing road bed that was permitted and built in 1977.

2) The identification and avoidance of Wetlands and Water Bodies within the Project is also of primary concern and a number of studies have been carried out to map their extents and minimize surface disturbance within them (See Section 6 for baseline details).

3) New sections of proposed exploration access road in this Plan are designed to minimize disturbance to any wetland with the majority of road and drill pad related disturbance located outside habitat associated with high diversity and ecological richness.

4) Road width has been kept to the minimum necessary for safe and efficient use. Full bench-cut type construction for the steeper switchback portion of the road will result in significantly lower disturbance than cut and fill type construction, which would result in large volumes of fill and a larger area of disturbance.

5) Any stream crossings will be afforded by the installation of appropriately-sized culverts and stream spanning bridges.

6) The culverts and the first two bridges avoid mapped wetlands areas

7) The Glacier Creek Bridge and the approaches to it are in mapped wetlands areas. The bridge crossing is about 46m long and is expected to average 11m wide, which is about 0.125 acres. However, only the approaches to the bridge disturb wetlands; the bridge itself passes over wetlands, but does not touch them. The distance between the two bridge abutments is likely to be about 17m, so the actual disturbance would be 29m (46m - 17m = 29m) long by about 11m wide, which is about 0.08 acres.

2.7.8 Water Management Plans

Constantine will develop a project-specific Storm Water Pollution Prevention Plan ("SWPPP") in conjunction with the road building contractor that is selected. An example of the SWPPP developed the road contractor for the 2014 access road construction is included in Appendix 5b.

2.7.9 Rock Characterization and Handling Plans

Two rock stockpile areas are proposed to accommodate the estimated 38,000 cubic meters of talus and potential shot rock material removed during the full bench cuts during the switchback portion of the proposed road (Section 2.2.9.4). These rock stockpiles will be used for the temporary storage of this talus rock material, and then repatriated for the future reclamation of

the switchback road. The talus and shot rock material may be levelled and used as temporary staging areas during active work programs.

Talus and shot rock material excavated during road construction may also be placed in 3.0 to 10.0 meter rock fall berms on the upslope side of the switchback road where rock fall hazard is high.

Results from 17 surface rock samples and 15 drill core samples collected as part of the 2014 environmental-geochemistry program (Section 6.13) indicate **acid rock drainage and metals leaching is not a concern** for excavated basaltic talus and shot rock material from the proposed road construction between Glacier Creek and the South Wall exploration area. It is therefore expected that the rock stored within the stockpiles and berms will be benign.

If blasting is required for road construction, shot rock will be visually inspected by appropriately trained personnel prior to placement on the rock stockpiles. In the unlikely event blasting encounters rock containing a high content of sulphide minerals suspected to have potential for acid rock drainage and metals leaching, Constantine will contact and consult with state and federal government agencies to develop an appropriate characterization, handling and storage plan. If any such material is encountered it will be segregated and stored separately in a temporary stockpile until such time that an appropriate characterization, handling and storage plan is developed.

2.7.10 Quality Assurance Plans

Not applicable as this is an Exploration Plan of Operations

2.7.11 Spill Prevention and Containment Plans

Constantine will develop a site-specific U.S. ENVIRONMENTAL PROTECTION AGENCY TIER I QUALIFIED FACILITY SPCC PLAN TEMPLATE following the approval of the Plan of Operations and prior to commence of any work authorized under that Plan. An example of this template can be found in Appendix 5c.

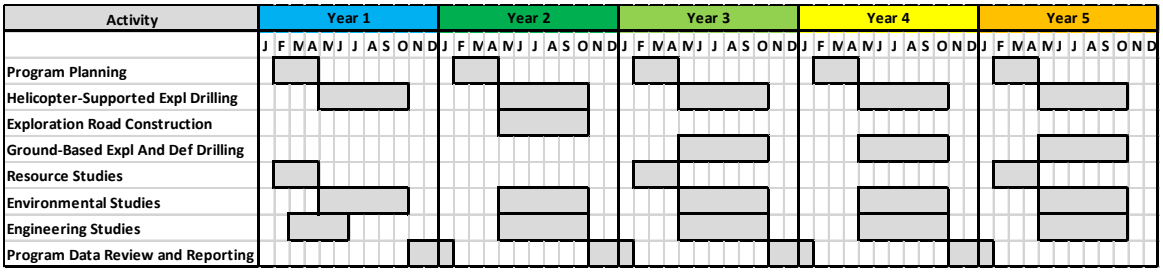
Constantine's Fuel Spill Response Procedures ("FSRP") is included in Appendix 5e.

Material Safety Data Sheets ("MSDS") for anticipated products utilized by exploration, aviation, drilling, and road building contractors are included in Appendix 5f.

2.8 General Schedule of Operations from Start to Closure

The planned activities on the Palmer Exploration Project are centered on the delineation, definition, and economic assessment of the known mineral resources. As this is an ongoing process with the constant collection and analysis of data, and a series of decision points based on the viability of results and available funding, the planned schedule of operations for the duration of use of the proposed drill sites and exploration access road under this Plan is viewed over a short term basis as shown below in Table 2-8.

Table 2-8: General Schedule of Operations from Start to Closure



After Year 5, assuming continued positive results, it is anticipated that emphasis will shift from exploration to engineering & development and the ongoing use of the exploration access road will be driven by the results of those studies.

2.9 Plans for All Access Roads, Water Supply Pipelines, and Power or Utility Services

All exploration access roads will be maintained until such time as they are no longer required by the Company or required for commercial or public access as deemed by the BLM or the SOA.

3 RECLAMATION PLAN

A list of all claims with proposed disturbance under this Plan are shown in Table 2-5 and Table 2-6.

Reclamation will be completed to the standards described in 43 CFR 3809.420 and State and Federal regulations. Reclamation will meet the reclamation objectives as outlined in the Department of Interior Solid Minerals Reclamation Handbook #H-3042-1 (BLM 1992), and Surface Management of Mining Operations (NSO) Handbook H-3809-1 (BLM 2012). All Constantine drill sites, helipads, exploration roads, and equipment laydown areas will be re-contoured and re-seeded when they are no longer in use for ongoing exploration.

Reclamation will be designed to achieve post-exploration land uses consistent with the BLM's land use management plans for the area. Reclamation is intended to return disturbed land to a level of productivity comparable to pre-exploration levels. Post-exploration land use includes wildlife habitat, hunting, and dispersed recreational activities. The post-exploration land use is not expected to differ from pre-exploration land use.

During exploration activities, Constantine will: manage drilling to contain cuttings and manage drilling fluids; monitor exploration road conditions; and keep work sites clean and safe. During seasonal closure of the Project and periods of inactivity between drilling and construction phases, Constantine will clean and monitor sites. The BLM, ADNR, and ADEC will be notified prior to any periods of inactivity greater than 120 days.

After exploration activities are ultimately terminated, reclamation will involve re-contouring disturbed areas related to this Project to their approximate original contour. In the case of the steeper talus-covered upper portions of the proposed switchback exploration road, mechanical and natural gravity-assisted re-contouring will be utilized. The Project will then be seeded using the approved reclamation seed mixture and application rates furnished by the BLM. Yearly visits to the site will be conducted to monitor the success of the re-vegetation for a period of at least three years or until re-vegetation success has been achieved as per State and Federal regulations.

3.1 Exploration Drill Site Reclamation

Only minor surface disturbance occurs from establishing drill pads since access to the drill sites is by helicopter, and all drill moves will be made by helicopter. Drill pads are constructed of wood cribbing, generally resulting in minimal soil disturbance. To construct the drill pads, wood supports are placed on the ground or ice, to support and level the diamond drill, or in steeper areas may be rock bolted to the ground. A layer of sawdust is laid down to provide insulation for pads built on snow and ice. The footprint for a typical drill pad is 20 feet x 20 feet (400 sq. ft.). The **total of all drilling-related disturbance under this Plan is estimated to be 0.50 acres.** This Plan contemplates a **multi-year program**. Ongoing reclamation and re-use of drill timbers will ensure drill site related disturbance will remain at 0.50 acres or less from year-to-year (unless otherwise approved).

Reclamation of discontinued drill sites will include salvaging all timber, and removal of all associated materials (scrap, etc.), including associated helipads (Plates 3.1-3.3). Partially reclaimed drill pads included removal of all but the main support timbers, and in some places complete removal of the associated heli-pad. All drill pads will be constructed either on rocky alpine outcrop, talus, or snow/ice, and no re-seeding is expected to be required. **Constantine plans to utilize all un-reclaimed sites in future exploration programs, both for drilling additional holes and as a safety measure to provide secure, safe helicopter access to different areas of the property – which is otherwise extremely challenged due to the steep terrain**. Human safety is of paramount importance and is an important consideration in establishing several semi-permanent landing pads. For drill pads not reclaimed, all refuse and scrap will be removed and sites will be left in a tidy state with only the secure timbered frame of the drill pads and associated helipads left in place. No fuel, drill additive or other material besides the wood timbers and steel casing of the hole will be left on site.

Drill pad reclamation and financial assurance are addressed in the bond estimate (Section 7). Concurrent reclamation of drill pad and helipad sites, and re-use of timbers will occur and **no more than 20 new un-reclaimed/partially reclaimed drill pads and associated helipads will be present at any given time**. Labor, equipment and helicopter rates, and total number of hours to complete the reclamation work is based on Constantine's past experience conducting reclamation on the project. Local area consultants and contractors have the capacity to perform the work.

Plate 3.1: Removal of decking material

Plate 3.2: Preparation for removal of timbers

Plate 3.3: Drill site with only casing remaining

3.2 Exploration Drill hole Plugging

All drill holes will be reclaimed to state standards found in APMA Section 30 (revised 2015), unless alternative methods are otherwise specifically approved by the Alaska Department of Natural Resources, Division of Mining, Land, and Water ("DMLW').

Drill hole casings will be removed or cut off at, or below, ground elevation upon final reclamation. At the end of each exploration season drill holes will be plugged with bentonite holeplug or equivalent slurry, for a minimum of 10 feet within the top 20 feet of the drill hole. Alternatively, some drill holes may be plugged by completely filling, from bottom to top, with cement, bentonite holeplug or equivalent slurry. If artesian conditions are encountered, Constantine shall contact and consult with the appropriate state and or federal agencies prior to plugging.

Drilling to date has encountered highly fractured rock formations in which the walls of drill holes collapse in on themselves. Unless otherwise lined or cased all holes are expected to self-plug, isolating ground water from surface waters. Some exploration drill holes may be lined with PVC piping or steel casing to keep open for surveying with geophysical instrumentation and for future environmental and geotechnical monitoring purposes. Once all required data is collected, drill holes will be surveyed and plugged as an operational procedure in accordance with state and federal regulations in the manner described above.

Environmental and geotechnical planned for some open exploration drill holes includes depth to ground water measurements for hydrologic modeling, and potential future ground water sampling. For these reasons, Constantine does not anticipate plugging these drill holes until a later date when this environmental and geotechnical information is no longer required. As an interim measure, removable caps will be placed on these drill hole casings.

It is estimated that a maximum of 40 holes may remain open at any given time. Drill hole plugging costs and financial assurance are addressed in the bond estimate (Section 7). Labor, equipment and helicopter rates, and total number of hours to complete the reclamation work is based on Constantine's past experience conducting reclamation on the project. Local area consultants and contractors have the capacity to perform the work.

3.3 Exploration Access Road Reclamation

Exploration access road reclamation will include both 'concurrent reclamation' focused on immediate stabilization measures during and immediately following construction, and 'final reclamation' to be performed at such time that the exploration road is no longer needed for exploration access.

Concurrent Reclamation:

Top soil in new excavations is expected to be 0.3m to 0.5m deep along the route between the 4.0km mark and the 5.5km mark. Topsoil recovered in these areas will be placed on the surface of completed cut slopes and fill slopes to facilitate rapid re-vegetation. Soil will be seeded upon completion of construction work.

Beyond the 5.5km mark, topsoil will be thin and difficult to recover on the steep talus-covered slopes. Where possible, topsoil and growth media will be segregated and used for concurrent reclamation or stored for future reclamation work.

The seed mix is planned to include:

30% Boreal red fescue (Festuca rubra)

60% Nortan tufted hair grass (Deschampsia caespitosa)

10% Blue joint (Calamogrostis Canadensis)

Or such other seed mix as befits the local ecosystem and approved by regulatory agencies. Plate 3.4 shows newly seed banks along the section of exploration access road completed in 2014 under the current Notice-level AHEA.

Plate 3.4: 2014 Exploration Access Road with Concurrent Reclamation

Final Reclamation:

The road is anticipated to provide long term access in support of continued exploration and other related environmental and geotechnical baseline surveys in the advancement of the property. Final reclamation will occur on closure of all exploration activities or such other time as deemed appropriate.

Between the 4.0km mark and the 6.0km mark, reclamation will include re-contouring, ripping and re-vegetating the road and associated non-road disturbance, as well as removing bridges and culverts. Culverts will be removed and disposed of off-site. Timber from bridge abutments will be removed, crushed, and scattered in a manner to help reduce soil erosion. Prefabricated bridges will be hauled off-site. Re-contouring will be completed by heavy equipment, including excavator, front-end loader or bulldozer. The reclamation cost estimate includes equipment and operator time for re-contouring on a day rate basis, and re-vegetation on a cost per acre basis.

Beyond the 6.0km mark, the road will be built using a bench cut. Final reclamation of the road cut will include backfill with rock stored on the project site and subsequent re-contouring to blend with the existing talus slopes. Smaller sized material will be place on top of the backfill to provide a potential source of growth media. The reclamation cost estimate in the switchback area beyond the 6.0km mark is based on equipment and operator time for hauling and placement of backfill and subsequent re-contouring and re-vegetating. Downslope areas between switchbacks beyond reach of an excavator are too steep to safely operate equipment to re-contour. These areas are expected to be at, or near, natural contour and the reclamation estimate includes only the cost of re-vegetation. Despite the high probability that only a portion of this area will be disturbed during construction, the total acreage of potential disturbance downslope of switchbacks has been included in the cost estimate for re-vegetation,

Re-contouring of all constructed drill sites, helipads, exploration roads, and equipment laydown areas will be completed to approximate the original topography. Fill material, enhanced with growth media, will be pulled onto the road beds to fill the road cuts and restore the slope to natural contours. Drill sites and helipads will be re-contoured with the use of hand tools. Exploration roads and equipment laydown areas will be re-graded and re-shaped with a front-end loader, excavator or bulldozer. Excavators will be used on slopes greater than 30%.

Should any drainage be disturbed, they will be re-shaped to approach the pre-construction contours. The resulting channels will be of the same capacity as up and downstream reaches and will be made non-erosive by use of surface stabilization techniques (rip-rap) where necessary, and ultimately re-vegetated. Following completion of earthwork, all disturbed areas will be broadcast seeded with the aforementioned approved seed mixture.

3.4 Mine Reclamation

Not applicable as this is an exploration project.

3.5 Riparian Mitigation

Disturbance to riparian areas along Glacier Creek are estimated to be 0.08 acres. Abutments for vehicular modular bridge crossing at Glacier Creek will be kept to the minimum size necessary and will be constructed of naturally sourced cut timbers and stone where possible. All bridge abutments will be removed when no longer needed, and the Glacier Creek drainage will be re-shaped to pre-construction contours as per Section 3.3.

3.6 Wildlife and fisheries habitat rehabilitation

No fish presence was noted along the extent of the Glacier Creek road alignment due to the high gradient bench along this portion of Glacier Creek based on the aquatic biology study carried out by Tetra Tech in 2014 and the follow-up aquatic biology study performed by ADF&G biologists in 2014. If fish presence is detected in future studies, then an appropriate fisheries rehabilitation plan with be developed in conjunction with state and federal officials.

Impacts to wildlife will consist of temporary habitat loss, displacement, and disturbance from human activity and noise. Wildlife could tend to avoid active drilling and construction sites and move temporarily into adjacent habitat, which could increase populations in those areas. Impacts to animals will be lessened by carrying out road construction activities in a timely manner; therefore, impacts will be temporary and will not eliminate individual territories or populations.

3.7 Handling and Application of Topsoil

Whenever possible, and primarily on reasonably level terrain, topsoil will be graded and stockpiled to the uphill margin of the road cut. On steeper slopes, topsoil will be stored as side-cast along the periphery of the road. Although this will mix the limited quantities of topsoil with the sub-soils, experience has shown that the resulting surface soils can support vegetation. The alternative option of pushing topsoil uphill prior to cutting roads on steep slopes would result in an increase in surface disturbance due to bulldozers working above the proposed disturbance.

3.8 Re-vegetation

Re-contouring of exploration access roads and equipment laydown areas will be the primary means by which seedbeds will be prepared. During seed placement, the ground surface will be roughened by dragging a chain harrow or other suitable implement. Leaving a roughened surface will provide greater opportunities for seed and moisture to be trapped and held. Additional benefits include slower runoff, increased infiltration, and in general, more favorable microclimates conducive to seed germination.

Seeding procedures will be dependent upon site characteristics. Re-contoured access roads with severe slopes will be seeded with hand-held broadcast seeders. An electric broadcast

seeder mounted on an all-terrain vehicle (ATV) may be used on roads with gentle slopes. A chain drag mounted behind the ATV may be used to cover the seed.

The BLM-recommended seed mix includes:

- 30% Boreal red fescue (Festuca rubra)
- 60% Nortan tufted hairgrass (Deschampsia caespitosa)
- 10% Blue joint (Calamogrostis Canadensis)

Re-contouring and re-vegetation of drill pads is not anticipated due to their locations in predominantly alpine, rocky, or talus-covered areas.

Weed Control

To prevent and control the introduction and spread of noxious weeds within the Project Area during reclamation activities, Constantine will implement the following prevention and control practices:

1) Growth media (soil and alluvium) disturbance will be minimized to the extent practicable, consistent with Project objectives. Growth media will be stockpiled and used in reclamation.
2) Disturbed sites will be re-vegetated as soon as practicable when exploration work is completed. Activities may include topsoil replacement, planting, and seeding.
3) The seed mixture will be certified pure live seed and weed free. Straw bales used for erosion control will also be certified as weed free.

Noxious weeds can readily invade disturbed areas associated with exploration projects. Constantine will be responsible for the following:

1) Identifying noxious weeds in the Project Area (booklets and pamphlets will be provided by the BLM);
2) Excluding noxious weeds from disturbed areas until reclamation has been accepted and released;
3) Ensuring that all equipment is “weed free” before traveling to and from the Project Area so that noxious weeds are not spread to new locations; and
4) Creating a noxious weed inventory.

If noxious weeds or other invasive species deemed detrimental by the BLM are found, a BLM weed specialist would be consulted and an appropriate treatment plan developed and implemented. Control standards and measures would comply with applicable State and federal regulations. Weed treatments may include the use of herbicides, and only those herbicides approved for use on public lands by the BLM would be evaluated for use.

Exploration activities will occur over approximately five years. All reclamation work, with the exception of re-vegetation monitoring, will be completed no later than two years after the completion of activities under this Project. Constantine will conduct concurrent reclamation of disturbed areas once it is determined that the disturbance is no longer required for Project activities.

3.9 Isolation, removal, and/or control of acid-forming, toxic, or deleterious materials

All refuse generated by the Project will be disposed of at an authorized landfill facility off site, consistent with applicable regulations. No refuse will be disposed of on site.

Hazardous materials utilized at the Project Area will primary include fuel (gas, diesel, and aviation), and lubricating grease. All containers of hazardous substances will be labeled, handled, and stored in accordance with NDOT and MSHA regulations. In the event that a reportable quantity of hazardous or regulated materials, such as diesel fuel, is spilled, measures will be taken to control the spill, and BLM, ADEC, and the Emergency Response Hotline will be notified as required. If any oil, hazardous material, or chemicals are spilled during operations, they will be cleaned up in a timely manner. After clean up, the oil, toxic fluids, or chemicals and any contaminated material will be removed from the site and disposed of at an approved disposal facility.

3.10 Removal or stabilization of buildings, structures and support facilities

All temporary trailers, portable toilets, generators, equipment, and supplies will be removed following completion of the Project. These facilities will be removed by being transported off site with trucks and/or trailers. Materials, including scrap, trash, and unusable equipment, will be removed on a daily or weekly basis and disposed of in accordance with federal and state regulations and laws.

3.11 Post-closure management

Post-closure management will commence on any reclaimed area following completion of the reclamation work for the area. Post-closure management will extend until the reclamation of the site or component has been accepted by both the BLM and DNR. For bonding purposes, a three-year post-closure management period is assumed following completion of reclamation construction on any site. For sites reclaimed early in the operations, management of the reclaimed sites will occur concurrently with operational site management. Annual reports showing reclamation progress will be submitted to the BLM and other appropriate agencies.

3.12 Topographic map

The Project is located in the Porcupine Mining Area, Haines Borough, 55 km northwest of Haines, Alaska, on the eastern margin of the Saint Elias mountain range. The western boundary of the Project is coincident with the international border and the province of British Columbia, CAN (Figure 2-1).

The Project is located in the Alaska Panhandle and lies less than two kilometers from the Haines Highway, which links the deep-sea port of Haines, Alaska, a terminal of the Alaska Marine Highway system, with British Columbia, Yukon, and the Alaska Highway. Geographic co-ordinates of the center of the Project are approximately 136°25'N and 59°20'W.

3.12.1 The boundaries of the area of the operation

The Project Area encompasses 15,965 acres.

The Project consists of a contiguous block of land consisting of 340 federal unpatented lode mining claims, which cover an area of approximately 6,765 acres (~2,738 hectares or 27 km^2) and 63 state mineral claims that cover an area of approximately 9,200 acres (~3,680 hectares or 37 km^2) (Figure 2-2; Table 2-1; Table 2-2).

3.12.2 Surface ownership of the land within the area of operation

The surface area within the project boundary is owned by the United States of America and administered by the Bureau of Land Management.

3.12.3 The areas to be affected in sufficient detail so that they can be located from the ground

See Figure 2-5, Figure 2-6, Figure 2-9, Figure 2-10, and Figure 2-11

3.12.4 Kinds of disturbance

See Table 1-1.

3.12.5 And within the area of operation which was affected by:

3.12.5.1 *An operation conducted by a previous operator and which is inactive on the date on the application for a permit for an operation is filed*

None.

3.12.5.2 *The current operator before January 1, 1981, and which is inactive on the date on which the application for a permit for an operation is filed*

None.

3.12.5.3 *The current operator before January 1, 1981, and which is active on the date on which the application for a permit for an operation is filed*

None.

3.12.5.4 *The current operator on or after January 1, 1981, but before October 1, 1990, and which is inactive on the date on which the application for a permit for an operation is filed.*

None.

3.12.5.5 *The current operator on or after January 1, 1981, but before October 1, 1990, and which is active on the date on which the application for a permit for an operation is filed.*

None.

3.12.5.6 *The location of any surface water body within 0.5 mile down gradient of the operation which may be impacted by excess sedimentation resulting from the mining operations.*

Glacier Creek as shown on See Figure 2-5, Figure 2-6, Figure 2-9, Figure 2-10, and Figure 2-11

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3.12.5.7 *And within the operation is active on or after October 1, 1990*

None

3.12.5.8 *Access roads which were created before January 1, 1981.*

Remnants of an old cat trail, permitted and built in 1977, a present along the south side of Glacier Creek valley along the proposed linear road, and also high on the north side of Glacier Creek valley near the upper reaches of the proposed switchback road. The original road has become overgrown with vegetation, and all stream crossings are washed out.

3.13 Acreage disturbed

The total potential proposed disturbance totals **37.06 acres** (See Table 1-1).

3.14 Drilling and Excavation techniques

See Section 2.2.

3.15 Proposed productive post-mining use of the land

Not applicable as this is an exploration project.

3.16 Proposed schedule of the time for initiation and completion of activities for reclamation

Reclamation activities will be conducted concurrently with exploration activities when the disturbance is no longer needed. Reclamation will begin within exploration areas considered inactive, without exploration potential, or completed, at the earliest practicable time. Earthwork and re-vegetation activities are limited by the time of year during which they can be effectively implemented. At sites considered inactive or completed, re-grading will take place between June and October within one year. Seeding will take place between September and October within one year. Site conditions and/or yearly climatic variations may require that this schedule be modified to achieve re-vegetation success. Reclamation activities will be coordinated with the BLM and other associated agencies whenever necessary. The proposed

reclamation is expected to have duration of up to four years from the time of commencement of final reclamation and will be initiated within two years after the completion of exploration activities. Re-vegetation is anticipated to take three years after the time of seeding to achieve success. Monitoring will take place between June and October for 3 years beyond re-grading and seeding. The BLM will use vegetation transects to determine when the reclamation has met the SOA guidelines.

3.17 Proposed post-mining topography

Not applicable as this is an exploration project.

3.18 Technical criteria used to determine the final gradient and stability of slopes created or affected by the mining operation.

Not applicable as this is an exploration project.

3.19 Proposed methods for concurrent reclamation

Exploration access road reclamation will include both 'concurrent reclamation' focused on immediate stabilization measures during and immediately following construction, and 'final reclamation' to be performed at such time that the exploration road is no longer needed for exploration access. Details on concurrent reclamation are addressed earlier in Section 0.

3.12 Statement of reclamation constraints

Not applicable as this is an exploration project.

3.13 Access roads

The proposed exploration road along Glacier Creek will be used for all reclamation activities and will then be reclaimed itself once it is no longer of use to the Company or other interested parties. Constantine will consult with federal and state agencies prior to commencing any reclamation of any road to determine if it should remain open post-closure for recreational or industrial use.

3.14 Measures to minimize loading of sediment to surface waters during the operation and reclamation

Sediment-control structures may include, but are not limited to, fabric or certified weed-free straw bale filter fences, energy dispersion structures, siltation or filter berms, sumps, and down-gradient drainage channels in order to prevent unnecessary or undue degradation to the environment. A more detailed listing of BMP measures to minimize sediment loading is presented in Appendix 5b ("SWPPP").

3.15 Proposed re-vegetation of the land for its post-mining land use

The reclaimed areas will be reseeded using the BLM-recommended seed mix for Constantine's Notice of Intent (**No. AA-081333**) and described in **Section 3.8)**

3.16 Proposed disposition of buildings, equipment, piping, scrap, chemicals and reagents, fuel tanks and petroleum products, and any other equipment and materials

After clean up, the oil, toxic fluids, or chemicals and any contaminated material will be removed from the site and disposed of at an approved disposal facility (see Appendix 5c for the Spill Contingency Plan). No hazardous materials will be left on site.

3.17 Description of any surface facilities such as buildings or roads which will not be reclaimed

No permanent facilities will be built.

3.18 Description of any necessary monitoring and maintenance of fences, signs and other structures which will be performed by the operator on the reclaimed land

No permanent facilities will be built.

3.19 Description of any reclamation which is necessary because of in-stream mining

Not applicable as this is an exploration project.

3.20 Effect the proposed reclamation will have on future mining in the area

Future mining activities will not be affected by this reclamation plan.

3.21 Effect the proposed reclamation will have on public safety

No unnatural safety hazards will exist during or after reclamation in the disturbed/reclaimed areas.

3.22 Proposed methods for reclaiming any waste rock, ore, and other stock piles

Not applicable as this is an exploration project.

3.23 Proposed methods for reclaiming any tailings impoundments and dams

Not applicable as this is an exploration project.

3.24 Proposed methods for reclaiming any heap-leach pads and ponds

Not applicable as this is an exploration project.

3.25 Proposed methods for reclaiming any open pit mines

Not applicable as this is an exploration project.

3.26 Proposed methods for reclaiming underground mines

Not applicable as this is an exploration project.

3.27 Operator statement agreeing to assume responsibility for the reclamation of the project

Constantine agrees to accept the responsibility for reclamation of all surface disturbances associated with the Project detailed under this Plan. Constantine is currently approved for **4.70**

acres of disturbance under the existing Notice-level AHEA (APMA # J145690/Serial # AA-081333).

Constantine will increase the existing statewide bond by the appropriate amount upon receiving notification from the BLM and other involved agencies that the RCE is sufficient to conform with the completion of reclamation activities outlined in this Plan, as per 43 CFR 3809.400, to cover a total of **41.12 acres** of authorized and proposed surface disturbance.

Acknowledgements

This reclamation plan is consistent with the plan of operations.

It is Understood that should the Nature of the Operation Change a Modified or Supplemental Plan of Operations and Reclamation may be Required.

It is Understood that Approval of this Plan of Operations and Reclamation does not Constitute: (1) Certification or Ownership to Any Person Named Herein; and (2) Recognition of the Validity of any Mining Claim Herein.

It is Understood that a Bond Equivalent to the Actual Cost of Performing the Agreed upon Reclamation Measures will be Required before this Plan can be Approved. Bonding and Any Bond Reclamation Amounts will be Set on a Site-Specific Basis by the Lead Agency in Coordination with the Cooperating Agencies.

It is Understood that Approval of this Plan does not Relieve me of my Responsibility to comply with any other Applicable State or Federal Laws, Rules or Regulations.

It is Understood that any Information Provided with this Plan that is Marked Confidential will be Treated by the Agency in Accordance with that Agency's Laws, Rules, and Regulations.

I/We have Reviewed and Agree to Comply with all Conditions in the Plan of Reclamation and Operations, including the Recommended Changes and Reclamation Requirements. I/We Understand that the Bond will not be Released until the BLM or the State Agency in Charge gives written Approval of the Reclamation Work. I/We Further understand that all Fees Required to be Paid Annually to the State of Alaska are to be Paid until such Time as Written Approval of the Reclamation Work has either been Provided to the State or the State has Given its own Approval.

Operator

Darwin Green
VP-Exploration
Constantine North, Inc.

Date

May 22, 2015

4 MONITORING PLAN

4.1 Demonstrate compliance with the approved plan of operations and other Federal and State environmental laws and regulations

The current operations at the Project are authorized under the current Notice-level AHEA. The proposed activities outlined in this Plan will be conducted under the BLM and ADEC approvals for this Plan.

4.2 Provide early detection of potential problems

Monitoring will include periodic visual inspections of all work sites during exploration drill road construction, drill pad construction, drill operations, and reclamation. In order to facilitate drainage and prevent erosion, all roads will be properly ditched with culverts and bridges placed at any drainage channel locations as specified in the BLM roads manual. BMPs for sediment control will be utilized to minimize sedimentation from disturbed areas. Sediment control structures will include, but not be limited to, fabric and/or weed-free straw bale filter fences, siltation or filter berms, mud sumps, and down-gradient drainage channels in order to prevent unnecessary or undue degradation to the environment.

Monitoring associated with reclamation activities is addressed in the Reclamation Plan (**Section 3).**

Monitoring associated with storm water disturbance is addressed in the SWPPP (Appendix 5b)

Constantine has been proactive and implemented visual inspection/monitoring of all the aforementioned items in 2014.

4.3 Supply information that will assist in directing corrective actions should they become necessary.

The activities outlined in the Reclamation Plan (**Section 3**) provide the necessary direction for corrective actions associated with the reclamation.

5 INTERIM MANAGEMENT PLAN

5.1 Measure to Stabilize Excavations and Workings

The planned exploration activities do not include mine excavations or workings. The constructed exploration drill roads, and drill pads will be maintained in operating condition until reclamation to prevent wash outs and containment breaches.

5.2 Measure to Isolate or Control Toxic or Deleterious Materials, including noxious weeds

(See also the requirements in §3809.420(c) (12) (vii) of the 43 CFR 3809 Regulations)

All refuse generated by the Project will be disposed of at an authorized landfill facility off site, consistent with applicable regulations. No refuse will be disposed of on site.

Hazardous and regulated materials utilized at the Project Area will include diesel fuel, gasoline, and lubricating grease, along with drilling-related additives (**Section 2.2.8**).

Approximately 200 gallons of diesel will be stored at any exploration drill site

Approximately 100 pounds of lubricating grease will be stored at any exploration drill site.

Approximately 100 gallons of gasoline will be stored in fuel delivery systems for light vehicles.

Approximately 200 gallons of diesel will be stored in fuel delivery systems of heavy equipment.

It is anticipated that a 5,000 gallon diesel fuel storage tank and a 3,000 aviation gas fuel storage tank will be utilized at the equipment laydown area to supply project site needs. The entire fuel tank area will employ spill containment measures that meet or exceed State and Federal regulations, and will be regularly topped up by local fuel service providers.

Total combined fuel storage with the Project Area **will not exceed 10,000 gallons**.

All containers of hazardous substances will be labeled and handled in accordance with NDOT and MSHA (see Appendix 5f for the Material Safety Data Sheets). In the event hazardous or regulated materials, such as diesel fuel, are spilled, measures will be taken to fully contain and control the spill, and the BLM, ADEC, and the Emergency Response Hotline will be notified, as required. If any oil, hazardous material, or chemicals are spilled during operations, they will be cleaned up in a timely manner. After clean up, the oil, toxic fluids, or chemicals and any contaminated material will be removed from the site and disposed of at an approved disposal facility (see Appendix 5c for the Spill Contingency Plan). No hazardous materials will be left on site.

Self-contained, portable, chemical toilets may be used for human waste. The human waste and toilet chemicals will not be buried on site. Toilets will be serviced by contractor and sludge transported to an approved disposal facility.

5.3 Provisions for the Storage and Removal of Equipment, Supplies and Structures

During extended periods of non-operation or seasonal closure of the exploration activities, all motorized exploration equipment including drill rigs, helicopters, and vehicles will be removed from the Project Area. All trailers and fuel will also be removed from Project Area.

Constantine will maintain the equipment laydown area described in Section 2.2.9.2 for storing drill supplies, drill rods, and waterlines during periods of inactivity.

5.4 Measures to maintain the project area in a safe and clean condition

The Project Area will remain trash free and left in a safe condition.

Routine road maintenance may be required and will consist of smoothing ruts, filling holes with fill material, grading, and clearing detritus from drainage channels.

Periods of non-operation are not anticipated; however, if temporary closures are required, the drill rigs will vacate the Project Area and any un-reclaimed timber-frame drill pads will be secured.

5.5 Plans for monitoring site conditions during periods of non-operation

Should periods of temporary closure or non-operation occur, Constantine will notify the BLM and ADEC verbally and in writing.

5.6 Schedule of Anticipated Periods of Temporary Closure

The Project is anticipated to be relatively inactive during winter months.

6 OPERATIONAL AND BASELINE INFORMATION

6.1 Geology

6.1.1 Regional Geology

The Palmer Property is underlain by a mafic-dominated, bimodal sequence of submarine volcanic rocks that host volcanogenic massive sulphide ("VMS") mineralization. These rocks are part of a ~600 kilometer long, discontinuously exposed belt of Late Triassic, rift related volcanic and sedimentary rocks belonging to the Alexander Terrane. Throughout southeast Alaska and northwest British Columbia, the Alexander Terrane hosts numerous VMS occurrences, prospects and deposits, including the giant Windy Craggy deposit in British Columbia, and the precious metals-rich Greens Creek deposit in southeast Alaska.

Regional mapping suggests that the region surrounding the Palmer Property is underlain by Paleozoic and lower Mesozoic metasedimentary and metavolcanic rocks that have been intruded locally by Cretaceous and Tertiary granitic plutons. Paleontological data in the region is sparse, and, because of structural complexity and extensive glacial cover, stratigraphic relationships are not fully understood. Thin-bedded limestone and massive marble that contain fossils of Devonian to Carboniferous age appear to be the oldest rocks in the area, and they are apparently conformably overlain by pelitic rocks of the Porcupine Slate, which are of probable Late Triassic age.

Late Triassic rocks predominate on the Palmer Property and consist of massive to pillowed basalt, fragmental basalt, and possible andesite, with intercalations of calcareous siltstone and tuff, and rare rhyolite flows and dykes (Figure 6-1). Folding and faulting likely repeats stratigraphy, and may in part be responsible for the broad distribution of exhalative mineralization and associated quartz-sericite-pyrite alteration across the property. Alteration is commonly several hundred meters in extent, and is of such strong intensity that discrimination of the protolith is difficult without the use of immobile element geochemistry.

The Late Triassic hosts to VMS mineralization at the Palmer property, a dominantly mafic volcanic package, are the youngest stratified rocks in the area, and they are locally interbedded with rocks of the Porcupine Slate.

Quaternary alluvium and glacial drift deposits cover bedrock at lower elevations and valley floors.

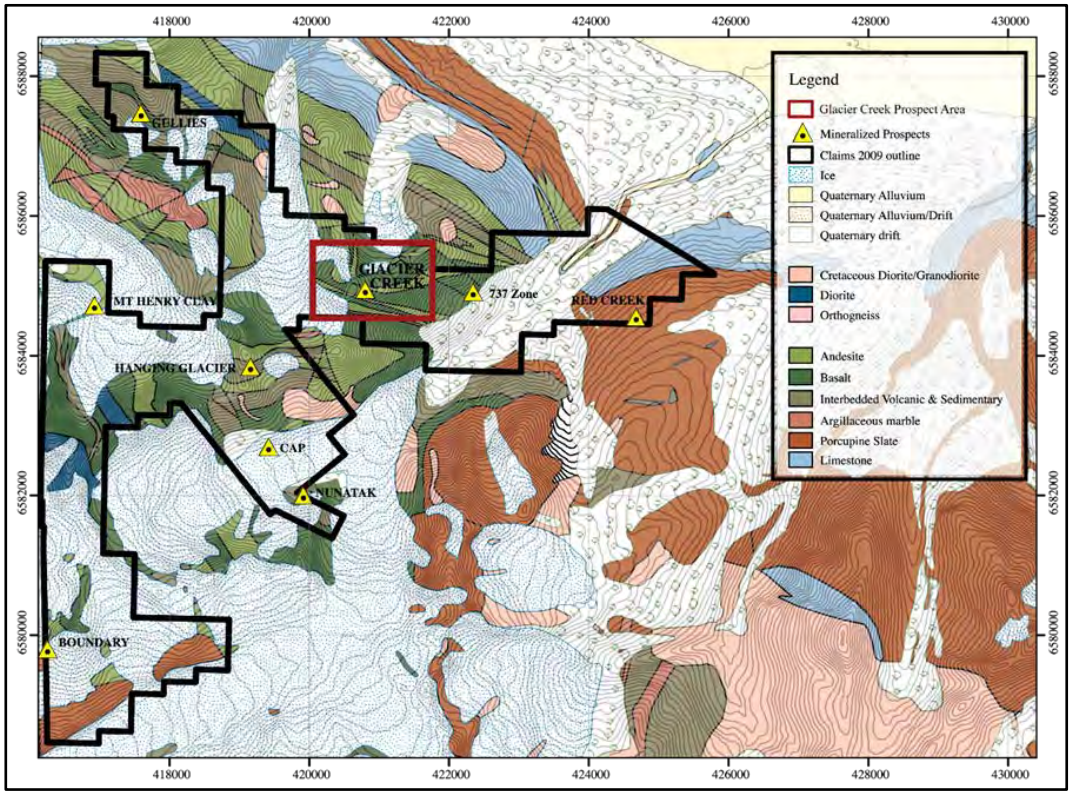

Figure 6-1: Geological map of the Palmer Property.

The Glacier Creek prospect, host to the South Wall and RW Zone mineral resources, is exposed on the informally named Mount Morlan (Figure 6-2). The general structure of Mount Morlan is that of a large, overturned, south verging anticline with an axial plane that dips moderately to the northeast (Figure 6-3). VMS mineralization outcrops in several places on the southern and western flanks of the mountain. The stratigraphy of the upright limb around the RW Zone is generally intact and has been relatively undisturbed by folding or faulting. Feldspar-phyric basalt underlies the horizon that hosts rhyolite and the RW Zone massive sulphide. Younger, amygdaloidal, massive to pillowed and locally spherulitic basalts overlie the RW Zone and are considered the unaltered hanging wall sequence. These basalts can be differentiated chemically. These same, chemically distinct, units are mapped on the steep South Wall limb, whereas rhyolite has yet to be identified there. Intense alteration footwall to mineralization obscures primary protolith stratigraphically below the South Wall Zones, although appears to be similar to the footwall rocks to the RW Zone.

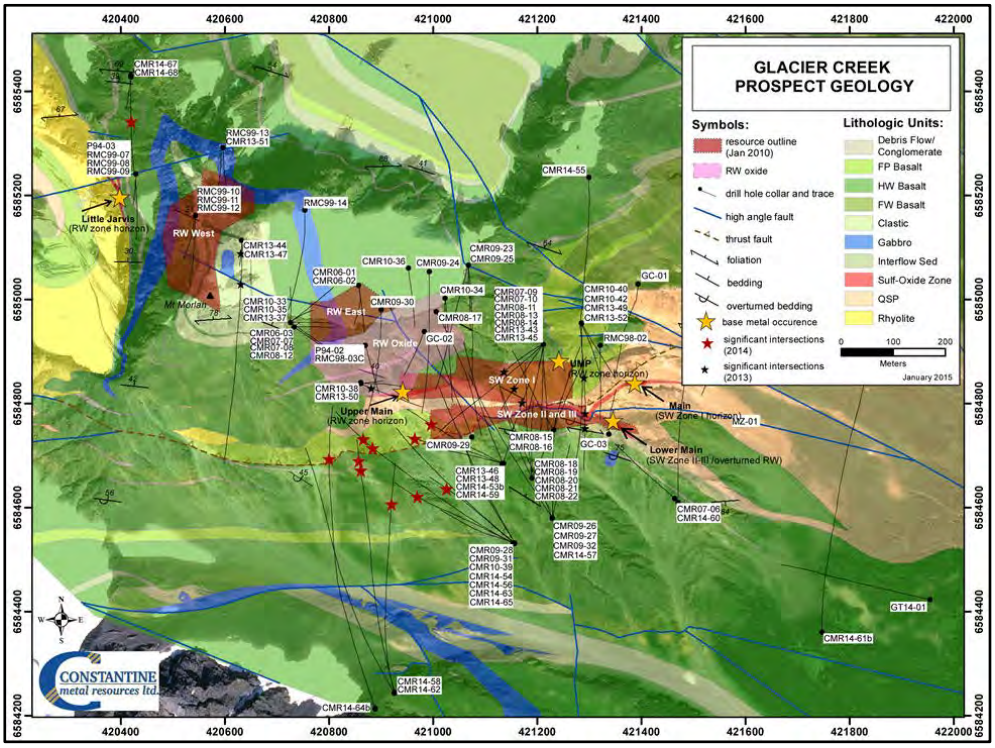

Figure 6-2: Geological map of the Glacier Creek Prospect Area with drill hole traces

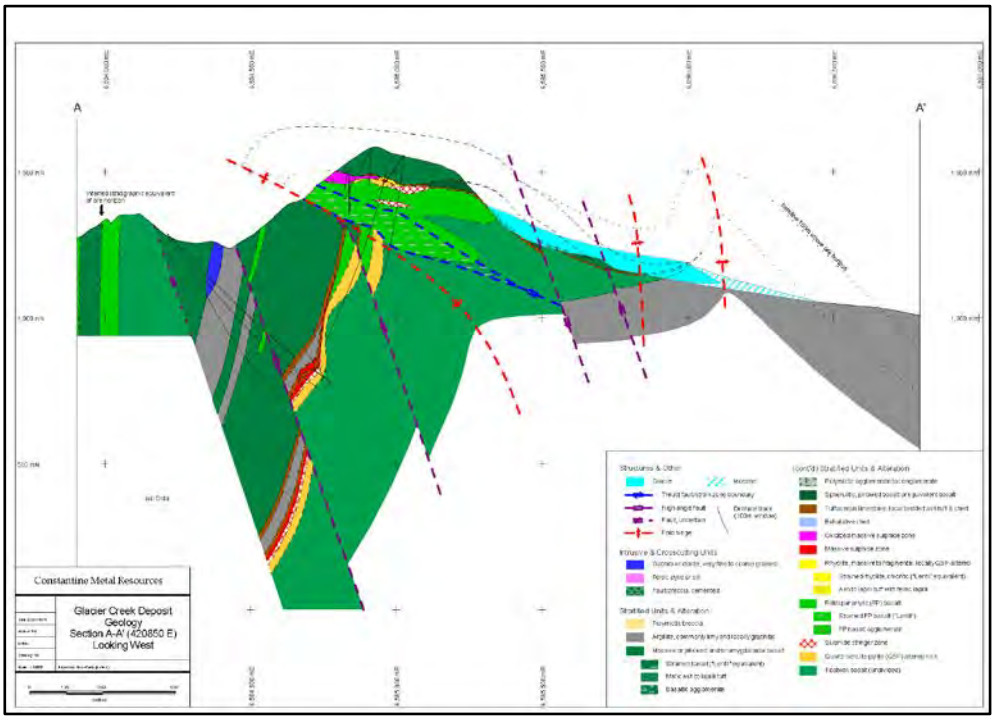

Figure 6-3: Geological Cross-Section of the Glacier Creek Prospect Area (Looking West)

6.1.2 South Wall Area Geology

Geological mapping and rock samples collection was conducted on the South Wall Lower Slope Area in order to better constrain outcrop distribution, geology, and nature of the overburden. The mapping was focused on areas of potential road construction disturbance that would take place above valley floor alluvium and glacial drift. A summary of the findings are presented in a geology and overburden map (Figure 6-4). A total of 17 surface rock samples and 15 drill core samples were collected for whole rock ICP and acid-base accounting analysis (Section 6.13).

The South Wall Lower Slope Area is bounded to the northwest by the steep and bluffy South Wall resource area and extends southeast and downhill to Glacier Creek. Its upper extent consists predominantly of fresh, un-vegetated talus derived from the bluffs above, with subordinate outcrop in spines and bluffs extending downhill into the middle slopes. The middle and lower slopes are predominantly covered by a jungle of slide alder, devil's club, and false hellebore, with very local outcrop exposures in bluffs and gullies and common exposures and sub-cropping's of talus blocks, which presumably make up the bulk of the hillside. The slope is steepest immediately above Glacier Creek, approaching 40 degrees inclination; a series of bluffs marks the break in slope.

The geology of the South Wall Lower Slope Area is relatively simple, being dominated by pillowed, amygdaloidal basalts which form the hanging wall to the South Wall mineral resource. These basalts are weakly metamorphosed, forming chlorite, and moderately foliated as the result of tectonic deformation, and are generally, except where altered to quartz-sericite-pyrite, weakly to moderately magnetic. The basalts are also moderately to strongly calcareous, with calcite occurring in the groundmass, veinlets and amygdule fillings. Basalts locally contain trace disseminated pyrite, with total pyrite content never exceeding 1% by volume. Calcareous sedimentary horizons have been recognized in previous mapping up slope and along strike to the west, and it is likely they project through the South Wall Lower slope map are, but no outcrops of these units were located. Other mapable units recognized during the current mapping program include two distinct alteration assemblages, iron carbonate and quartz-sericite-pyrite, both of which appear to be altering basaltic protoliths.

In the central and southwestern parts of the map area, weak to moderate iron carbonate alteration of the basalts lends a rusty color to some outcrops and talus. This alteration is characterized by coatings of siderite on fractures, and, in the southwestern part of the area, where the intensity of alteration is significantly greater, by veining of same. In the southwestern area, the alteration is clearly bounded on the north and east by more recent faulting, which truncates it at a sharply defined contact with almost unaltered basalt. There is no obvious constraint, structural or otherwise, on the area predominantly fracture-bound iron carbonate alteration in the center of the map area.

The northeastern boundary of the map area is roughly defined by an east-southeast trending drainage in which variably quartz-sericite-pyrite (QSP) altered rocks (at least locally basalts)

outcrop. The boundary between unaltered basalt to the south and QSP altered rocks to the north seems to lie approximately parallel to this drainage. The QSP altered rocks contain variable abundances of pyrite, from ~1% to 10%, occurring disseminated or in stringers with quartz in well-foliated sericitic rock. These rocks are typically not calcareous.

A relatively thick layer of unaltered coarse blocky basaltic talus appears to overly nearly all areas that are not outcrop exposures. The talus cover is derived from both local outcrops and the steep slopes above, and as such reflects the lithologies outcropping both in the area itself and on the slopes of the South Wall above. The area of proposed switchback road construction consists of coarse unaltered basaltic talus, with potential to locally encounter basalt bedrock at shallow depths.

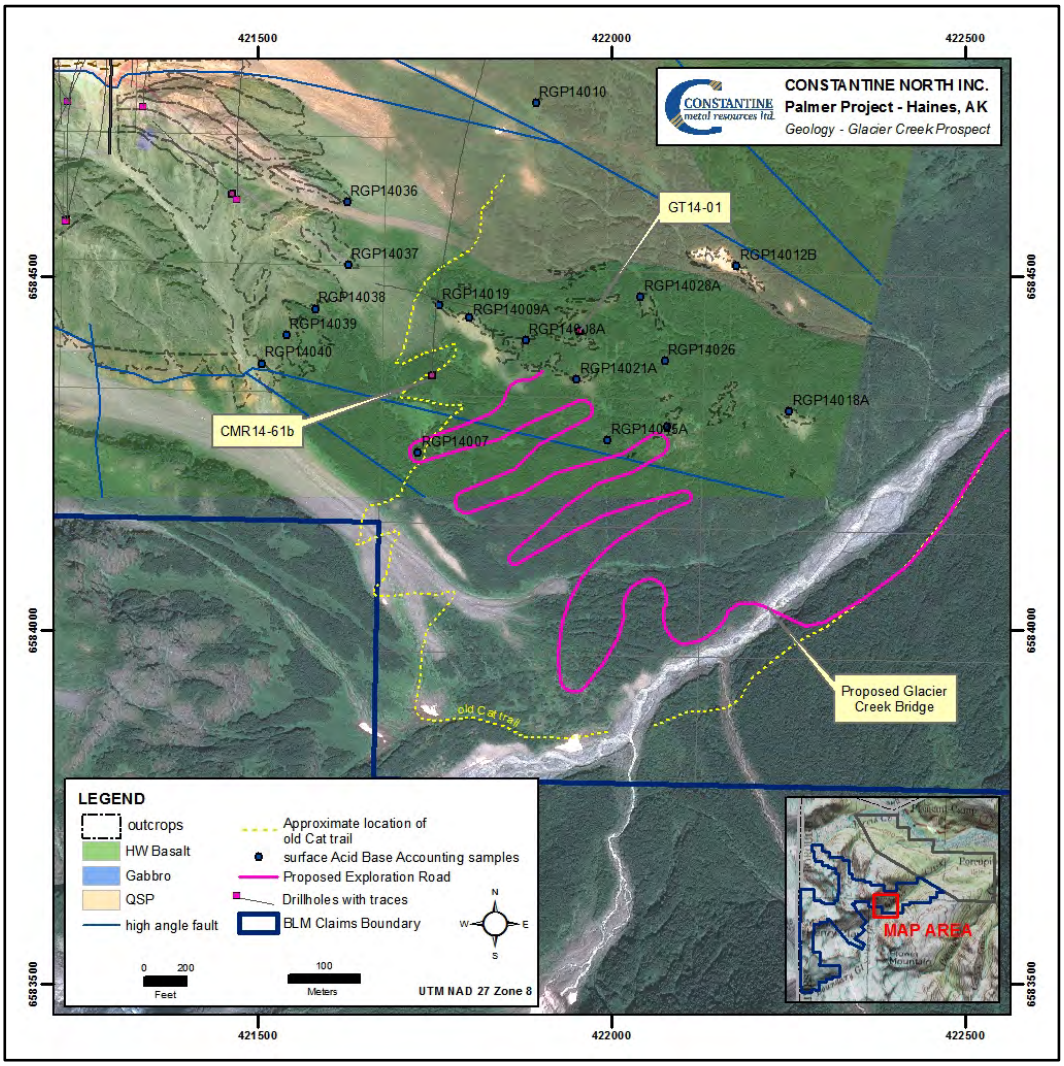

Figure 6-4: Detailed Geological Map of the Glacier Creek Prospect Area with proposed road (pink), old cat trail (yellow), and ABA sample sites.

6.2 Geotechnical

A site visit by Radford Langston of Langston & Associates on July 28th-31st, 2014 was conducted to observe conditions to provide background for slope stability analysis. Observation of surface conditions took place while on site and geotechnical diamond drill core data was acquired as well as visualization of characteristic diamond drill core.

No stability issues are expected due to construction of the road in either the basaltic bedrock or in the colluvium/till mantle on the slope. Some slough from the road cut loose fill is to be expected but can be controlled by wire gabions or mechanically stabilized earth walls.

An additional reason to place the alignment in the proposed location and limit the grade to 15% is due to the fact that the road will be covered with snow or snow pack for about 4 to 6 months of the year. In order to reduce hazard from slick driving conditions, the grade is proposed to be as low as practical to efficiently achieve the required elevation of the proposed exploration area.

The safety factor obtained with finite element numerical modeling for the road cuts and slope was 2.98. At this point, maximum displacement in the slope of 0.084 m. occurred at the toe of the slope below the filled section. Modeled displacements adjacent to the road cuts are on the order of 0.052 m is model output with no reduction of strength properties which results in total modeled displacements of zero.

This analysis indicates:

1) There is nearly three times the required capacity against a potential sliding failure in rock even with a vertical/horizontal seismic acceleration of 0.2g.
2) No failure of the slope is expected as a result of excavating the exploration access road or a laydown area.
3) Failure of the overall slope is also not expected as a result of slope geometry, material properties, or seismic loading.
4) It is possible that localized failures of loose fill could occur if not contained if saturated and/or subjected to significant seismic shaking.

6.3 Paleontological Resources

None are known to exist on the Palmer Project.

6.4 Cave Resources

None are known to exist on the Palmer Project.

6.5 Water Quality

Annual water quality sampling has been carried out throughout the Project Area since 2008 by a third party environmental consulting firm, Integral Consulting. Sampling events were timed to

capture initial snow melt, mid-summer, and late season prior to onset of snowfall. Integral Consulting performed data validation work, database management, and screening against water quality standards. Water sampling stations P01 and P06 (Figure 6-5) are situated up-gradient and down-gradient of the proposed linear road alignment along Glacier Creek (Figure 6-4). Water quality data collected for these sample sites is considered representative of natural baseline conditions.

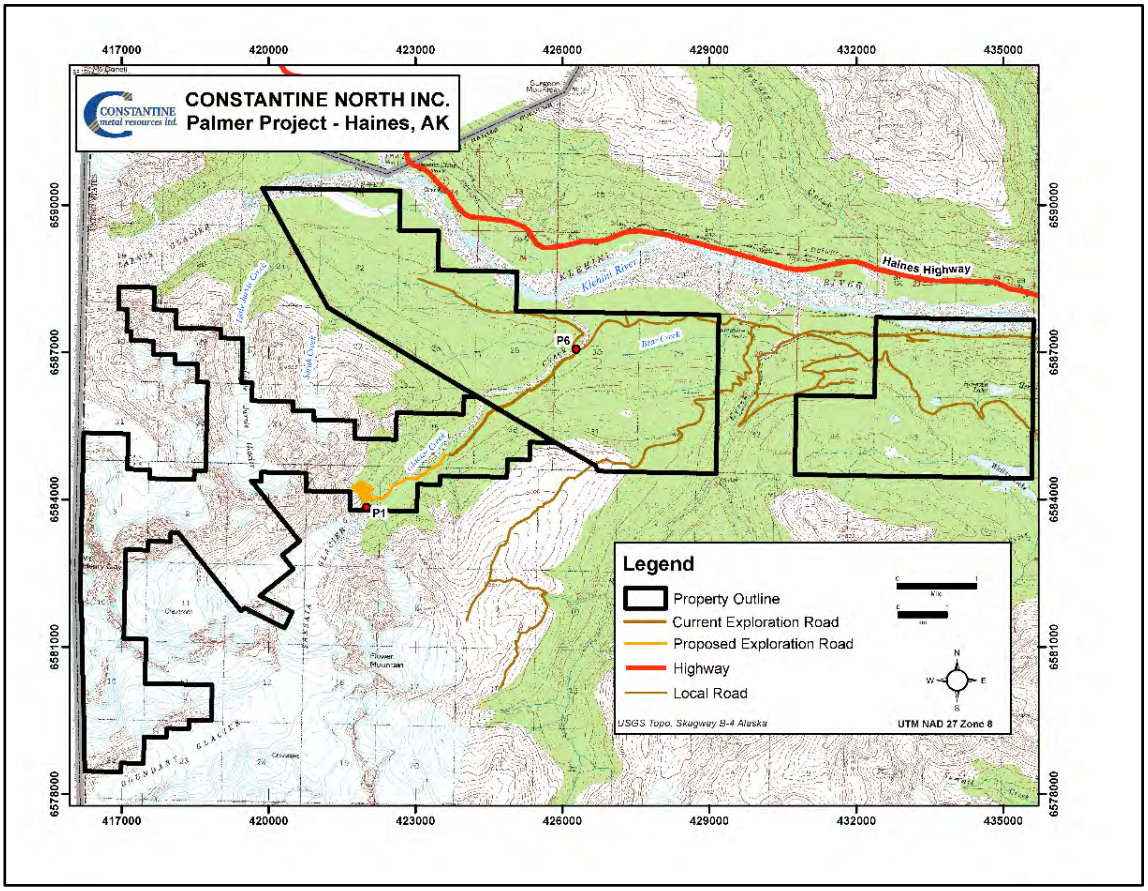

Figure 6-5: Map of surface water monitoring stations.

When surface water data from all sampling events (2008 – 2014) is compared to chronic aquatic life standards, exceedances for aluminum were measured at both stations P01 and P06. Aluminum also routinely exceeds the acute aquatic life criteria at station P01 and P06.

A review of the conventional results also shows high Total Suspended Solids (TSS) and turbidity for stations P01 and P06. This reflects the glacial nature of the Glacier Creek drainage and the high degree of suspended solids (Table 6-1).

A complete listing of all analytical results can be found in Appendix 6a.

Table 6-1: An excerpt from the Surface Water Background Monitoring Results

					Conventionals															
					Acidity as CaCO3		Settleable Solids, 1 hr		Settleable Solids, 24 hr	Settleable Solids, 48 hr		Turbidity		pH		TDS		Hardness as CaCO3		TSS	
					N		N		N	N		N		N		N		N		N	
					mg/L		ml/L		ml/L	ml/L		NTU		SU		mg/L		mg/L		mg/L	
P01	Saksai/Upper Glacier Creek	9/13/2008	September 2008	FR	--		--		--	--		--		--		98		73.8		9.2	
P01	Saksai/Upper Glacier Creek	9/13/2008	September 2008	N	--		--		--	--		69.8		6.67		105		74.4		39.7	
P01	Saksai/Upper Glacier Creek	8/3/2009	August 2009	N	--		--		--	--		225		6.59		63		39.2		306	
P01	Saksai/Upper Glacier Creek	8/22/2010	August 2010	N	2.1		--		0.5	--		193		8.04		84		59.2		287	
P01	Saksai/Upper Glacier Creek	6/1/2011	June 2011	N	2	U	1.8		3.25	3.4		2760		8		97		66.4		2470	
P01	Saksai/Upper Glacier Creek	7/9/2013	July 2013	N	1	UJ	0		0	0.2		800		7.75		74	J	49.2		616	J
P01	Saksai/Upper Glacier Creek	5/12/2014	May 2014	N	1.3	U	0		0	0		34.2		7.98		139		82.2		56.3	
P01	Saksai/Upper Glacier Creek	9/17/2014	September 2014	N	1.9	U	0.05		0.05	0.09		111		8.15		121		76.9		99.3	
P06	Bridge/Low er Glacier Creek	9/14/2008	September 2008	N	--		--		--	--		54.1		8.33		123		99.4		28.7	
P06	Bridge/Low er Glacier Creek	8/3/2009	August 2009	N	--		--		--	--		346		8.08		75		58.3		359	
P06	Bridge/Low er Glacier Creek	8/21/2010	August 2010	N	2.4		--		0.25	--		114		7.93		116		98.8		276	
P06	Bridge/Low er Glacier Creek	6/1/2011	June 2011	N	1.9	U	0.2		0.6	0.65		665		7.3		118		92.9		708	
P06	Bridge/Low er Glacier Creek	7/9/2013	July 2013	FR	1	UJ	0.1		0.25	0.45		--		--		99	J	69.4		454	J
P06	Bridge/Low er Glacier Creek	7/9/2013	July 2013	N	1	UJ	0.1		0.15	0.25		534		7.55		96	J	65.2		458	J
P06	Bridge/Low er Glacier Creek	5/12/2014	May 2014	N	1.1	U	0.15		0.2	0.2		18.2		7.96		157		123		58.3	
P06	Bridge/Low er Glacier Creek	9/17/2014	September 2014	N	1.9	U	0.1		0.1	0.1		--		--		163		111		98.1	

Within the area of proposed disturbance and drilling there are no ground water aquifers established as a source for drinking water or irrigation. No drinking water wells or water reservoirs are present within the project boundary.

6.6 Soils

Soil investigations were completed as part of wetland and waterbody work described below under Section 6.7 – Wetland and Vegetation.

6.7 Wetland and Vegetation

(From **"Wetland and Waterbody Jurisdictional Determination Report, Palmer VMS Project Haines, Alaska"**, HDR Alaska, Inc., August 2013) (See Appendix 6b).

AND

(From ***"Expanded Wetland Mapping for the Palmer VMS Project"***, HDR Alaska, Inc., January 22, 2015)(See Appendix 6b).

A **Wetland Delineation Survey** was performed by HDR Alaska Inc. (Anchorage) along the proposed access road corridor adjacent to Glacier Creek. The purpose of this Jurisdictional Determination Report (JDR) was to identify locations within the project area that are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under authority of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Prior to fieldwork, scientists reviewed publically available data, including topography, wetland mapping, soil surveys, and aerial imagery, to help in determining the presence of wetlands in the study area. Initial delineation of wetland and waterbody boundaries in the vicinity of the project area was conducted by interpreting aerial imagery and GIS data. **The National Wetland Inventory wetland mapping did not identify wetlands or waters of the U.S. within the project area except for Glacier Creek.**

A field survey was subsequently conducted between July 1 and 3, 2013 to verify preliminary desktop mapping. Characteristic wetland and upland areas were studied using the three-parameter method of determining an area's wetland status outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Alaska Region (USACE 2007). Standard USACE data forms were completed at sampling points and photographs were taken to document the vegetation, soil profile, and hydrology.

The 2013 work indicates that of the total 233.01 acres in the project survey area, there are approximately 7.69 acres (or ~3.3%) of wetlands or water bodies (including Glacier Creek), with an additional 17,940 linear feet of small streams - the remainder of the area is categorized as upland.

In 2014, the survey area was expanded and a desktop study was carried out on an additional 55.14 acres in the project survey area, with approximately 5.35 acres (or ~9.70%) of wetlands or water bodies (including Glacier Creek and associated gravel bars), with an additional 1,760 linear feet of small streams. The majority of the new mapping area is comprised of uplands on a steep, southeast-facing slope above Glacier Creek in the area of the proposed switchback exploration road. The vegetation on this steep slope consists of dense alder (*Alnus sinuata*) thickets, mesic herb communities, (dominated by fireweed [*Chamerion angustifolium*] and cow-parsnip [*Heracleum lanatum*]), and bare, rocky ground.

Based on a 2013 helicopter flyover of the lower South Wall area, lack of any visible indicators of saturation or surface water, and the steep topography, HDR wetland scientists **determined there are no wetlands present on this slope within the study area**.

The 2015 mapping area contains approximately 1.37 acres of Glacier Creek (R3UBH), as well as approximately 3.98 acres of associated gravel bars (R3USA)(Figure 6-6).

As described in the 2013 JDR, Glacier Creek is a tributary to the Klehini River, which flows into the Chilkat River/Chilkat Inlet. The 5.35 acres of waters of the U.S. (Glacier Creek and associated gravel bars), as well as the 1,760 linear feet of intermittent streams within the 2015 mapping area are considered relatively permanent waters with a direct surface water connection to Chilkat Inlet, a Section 10 waterbody. All waters of the U.S. mapped within the additional area would be considered subject to USACE jurisdiction under Section 404 of the Clean Water Act.

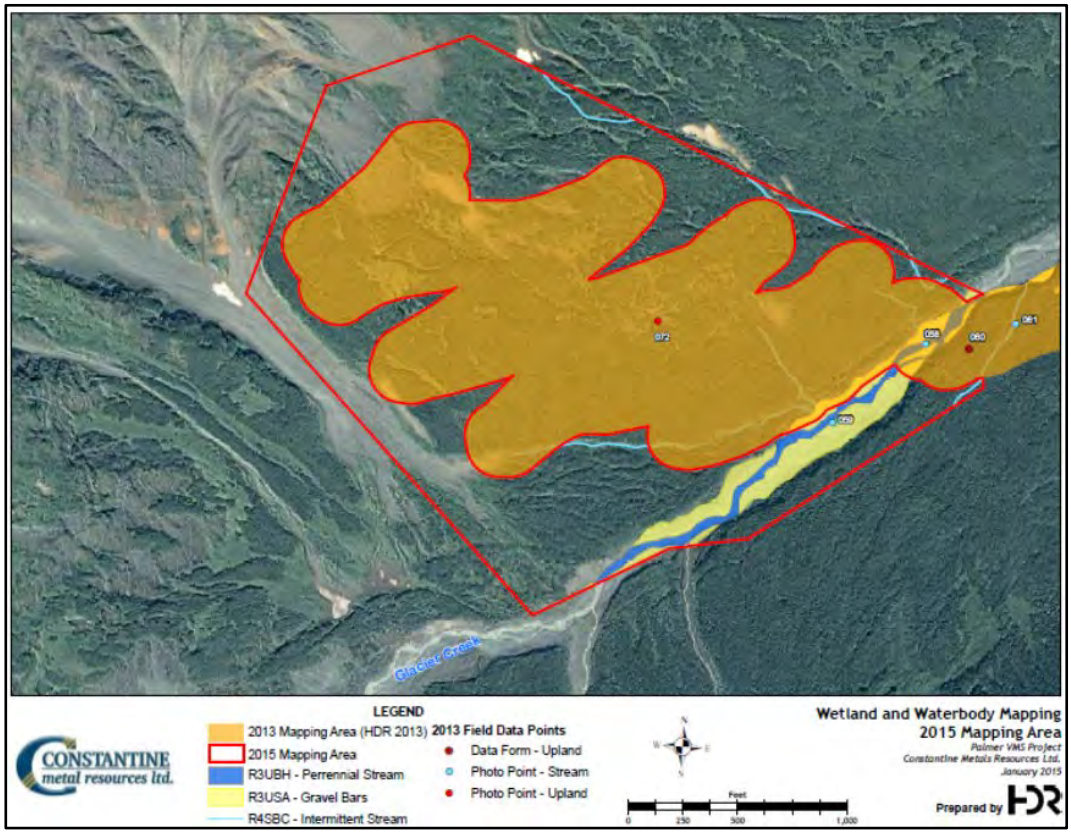

Figure 6-6: Map of Expanded Wetland Mapping for the Palmer VMS Project

6.8 Wildlife and Habitat

6.8.1 Aquatic Biology Studies

(From "Palmer VMS Project, Preliminary Aquatic Investigations", Tetra Tech, October, 2013) (See Appendix 6ci).

An Aquatic Biology Study was conducted on July 7-10, 2013 by Tetra Tech scientists along Glacier Creek and its tributaries. Field surveys were conducted by traversing the 2014Glacier Creek road corridor to identify and characterize unmapped streams. Fish species and the fork length of each fish captured were recorded before returning the fish to the stream. Fifteen eastern tributaries to Glacier Creek were mapped from the proposed Glacier Creek road alignment. Six of the Glacier Creek tributaries were sampled for fish. Minnow traps were set in multiple locations along these six tributaries. No fish were recovered from five of these tributaries. Ten Dolly Varden were captured 50 feet above the confluence of Glacier Creek Glacier Creek Tributary 3; however, fish passage barriers were noted farther upstream. No fish presence was noted along the extent of the Glacier Creek road alignment. A high gradient bench exists for most of the road alignment that likely precludes fish presence. No species of

salmon were recorded during sampling efforts on Glacier Creek or any of the 15 Glacier Creek tributaries mapped.

6.8.2 ADFG Trip Report

(From ***"Glacier Creek Investigation Trip Report"***, State of Alaska, Department of Fish and Game, Division of Habitat, June 26, 2014)(See Appendix 6cii).

On May 27th-30th, 2014, Habitat Biologists Nicole Legere, Gordon Willson-Naranjo, and Matthew Kern from the Department of Fish and Game, State of Alaska, surveyed Glacier Creek and tributaries to determine fish presence along the proposed Glacier Creek road alignment. They identified 23 drainages that crossed the road alignment, including ephemeral and perennial streams, **none of which were documented to contain anadromous fish** (Figure 6-7). They found Dolly Varden char in three streams on the east side of Glacier Creek but did not find fish at or upstream of the proposed road alignment. Therefore, it was determined Fish Habitat Permits are not required for any of the stream crossings.

Extent of the anadromous reach of Glacier Creek was reviewed by ADF&G following their field survey, with a formal submission made to update the anadromous water catalogue. After a review of all existing nomination documents for Glacier Creek**, there is no documentation of anadromous fish**, therefore ADF&G recommend moving the upstream extent of coho presence downstream to the confluence with Stream No 115-32-10250-2077-3151-4010 (located below the washed out bridge at the end of the Porcupine Road).

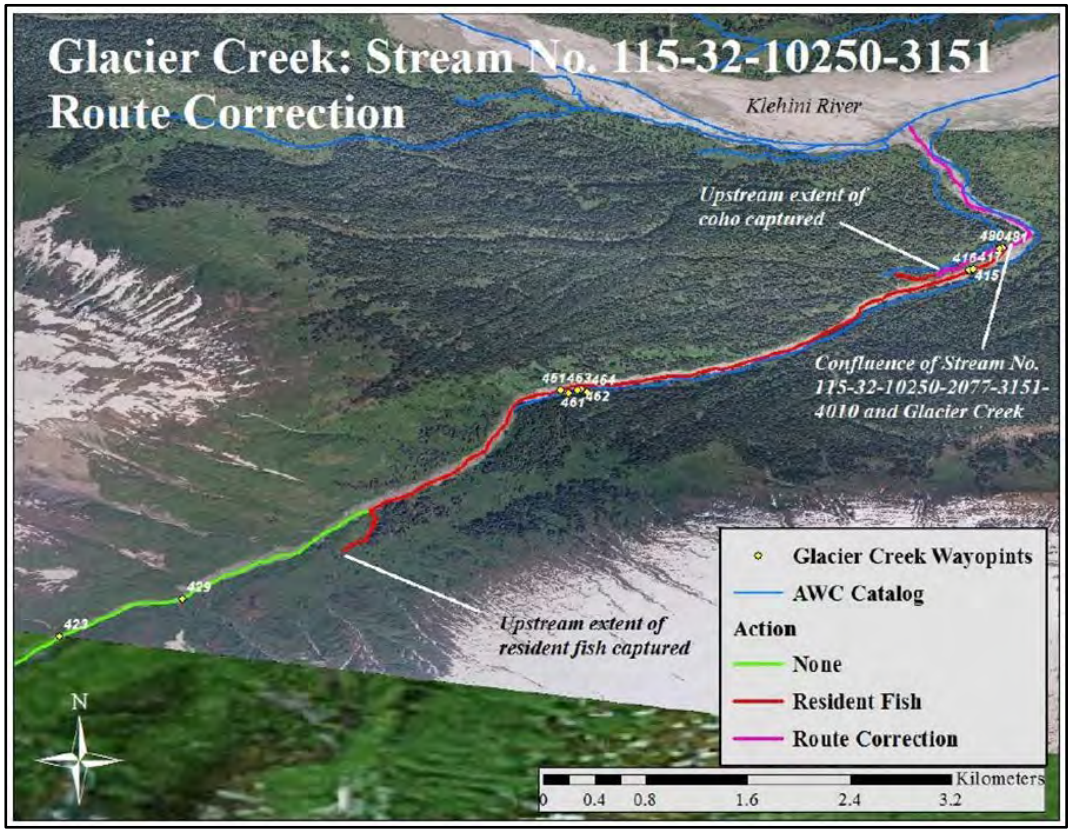

Figure 6-7: ADF&G map depicting correction to anadromous reach of Glacier Creek. Blue represents original catalogued extent; purple represents correction submitted by ADF&G.

6.8.3 Hemmera Habitat Mapping Study

(From **"Terrestrial Wildlife and Habitat Assessment, Constantine Metal Resources – Palmer Project Site"**, Hemmera Envirochem Inc., January 13, 2015)(See Appendix 6ciii)

Hemmera Environchem Inc. were contracted to carry out an evaluation of wildlife habitat, including an assessment of suitability for selected Species of Interest ("SOI"), within the Palmer Project study area.

The State of Alaska recognizes 648 species of terrestrial vertebrates as occurring within state boundaries within its Wildlife Action Plan ("AWAP"). There are six species of amphibian, 39 species of marine mammal, 526 species of avifauna and 77 species of mammal. A total of 35 species are listed, in the AWAP, as "sensitive" by the BLM and/or as endangered or as a "State Species of Conservation Concern" ("SSOC").

The Endangered Species Act ("ESA") also recognizes only 13 species of vertebrate (one plant, two birds, one reptile, and nine marine mammals) as endangered in Alaska. Nine threatened species are also recognized in the ESA.

The potential for any of the aforementioned AWAP-listed species, or ESA-endangered or threatened species to occur with the Project Area was assessed using information from the Alaska Natural Heritage Program. **Based on this assessment, no endangered or threatened species are known, or likely to occur with the Project area**. Six SOI listed as sensitive are known, or likely to occur in the Project study area.

Next, vertebrates with potential to occur in the study area that have a high cultural significance (i.e., local concern and / or cultural or sustenance value) and vertebrates with localized or restricted distributions within the state of Alaska were also identified and included as SOI. Existing anecdotal observations collected by Project field staff during the 2014 field season were also considered. Consideration of these criteria recognized an additional 13 SOI for the Palmer Project.

Consideration of all criteria resulted in recognition of a total of 19 SOI that have potential to occur within the study area (Table 6-2). The ecology of each identified SOI informed determination regarding anticipated potential to interact with Project related activities. SOI include six species of amphibian, nine species of bird and four species of mammal. Each of these species was assessed; ecology (including foraging behavior and habitat) were considered. Anticipated potential mechanisms to interact with Project-related activities were also considered for each listed SOI. The study area for assessing potential interactions includes the total Project Area and is not specifically focused on areas of proposed work under this Plan of Operations, which is located largely above treeline.

Wildlife habitats within the Project area include: 1) forested and 2) non-forested habitats, 3) riparian habitat, and both 4) lotic and 5) lentic aquatic systems (e.g., creeks and wetlands and open water). Upper elevations in the study area include portions of the Saksaia, Jarvis, and Boundary Glacier at the summit of Mount Henry Clay. Portions of the forested areas within the study area are in various stages of succession as they have been influenced by previous and ongoing forest harvest and land use. The study area for mapping and assessment included 11,729 ha of habitat mapped within the five habitat Biogeoclimatic zones described above. Fifteen habitat types (including seven non-vegetated types) were identified and are shown in Figure 6-8.

The final component of the Terrestrial Wildlife and Habitat Assessment was the development of predictive habitat suitability models for each SOI. These models were developed to geo-spatially depict and quantify habitat availability and distribution with the study area. A review of these models, and consideration of the habitat mapping product, illustrates that areas with high associated biodiversity and ecological richness occur in areas with the lowest levels of anticipated Project-related disturbance. By contrast however, in these harsh alpine environments reclamation, by native ecosystems, will be slow. Information collected from anticipated future baseline studies will be important for future anticipated considerations regarding Project related effects on local wildlife and wildlife habitat at the Palmer Project site.

Table 6-2: Terrestrial Species of Interest and Project Interaction Pathways

#	Species of Interest	Clade	State of Alaska status	BLM status	Potential to Occur	Potential to Interact	Interaction Comment
1	Red-legged frog	Amphibians	Not listed	Not listed	Low	High	Habitat loss, water contamination and road mortality
2	Long-toed salamander	Amphibians	Not listed	Not listed	High	High	Habitat loss, water contamination and road mortality
3	Northwestern salamander	Amphibians	Not listed	Not listed	Moderate	High	Habitat loss, water contamination and road mortality
4	Rough-skinned newt	Amphibians	Not listed	Not listed	High	High	Habitat loss, water contamination and road mortality
5	Western toad	Amphibians	Not listed	Not listed	High	High	Habitat loss, water contamination and road mortality
6	Wood frog	Amphibians	Not listed	Not listed	High	High	Habitat loss, water contamination and road mortality
7	Northern goshawk	Birds	SSOC	Sensitive	High	Moderate	Habitat loss, disturbance
8	Peale's peregrine falcon	Birds	Not listed	Sensitive	Moderate	Moderate	Disturbance
9	Marbled murrelet	Birds	Not listed	Sensitive	Moderate	High	Habitat loss, disturbance
10	Olive-sided flycatcher	Birds	SSOC	Sensitive	High	Moderate	Habitat loss, disturbance
11	Gray-cheeked thrush	Birds	SSOC	Sensitive	High	High	Habitat loss, disturbance
12	Townsend's warbler	Birds	SSOC	Sensitive	High	Low	Habitat loss, disturbance
13	Rock ptarmigan	Birds	Not listed	Not listed	High	High	Habitat loss, disturbance
14	Golden eagle	Birds	Not listed	Not listed	High	High	Habitat loss, disturbance
15	Western screech-owl	Birds	Not listed	Not listed	High	High	Habitat loss, disturbance
16	Brown bear	Mammals	Not listed	Not listed	High	High	Habitat loss, disturbance
17	Mountain goat	Mammals	Not listed	Not listed	High	High	Habitat loss, disturbance
18	Moose	Mammals	Not listed	Not listed	High	High	Habitat loss, disturbance
19	Wolverine	Mammals	Not listed	Not listed	High	High	Habitat loss, disturbance

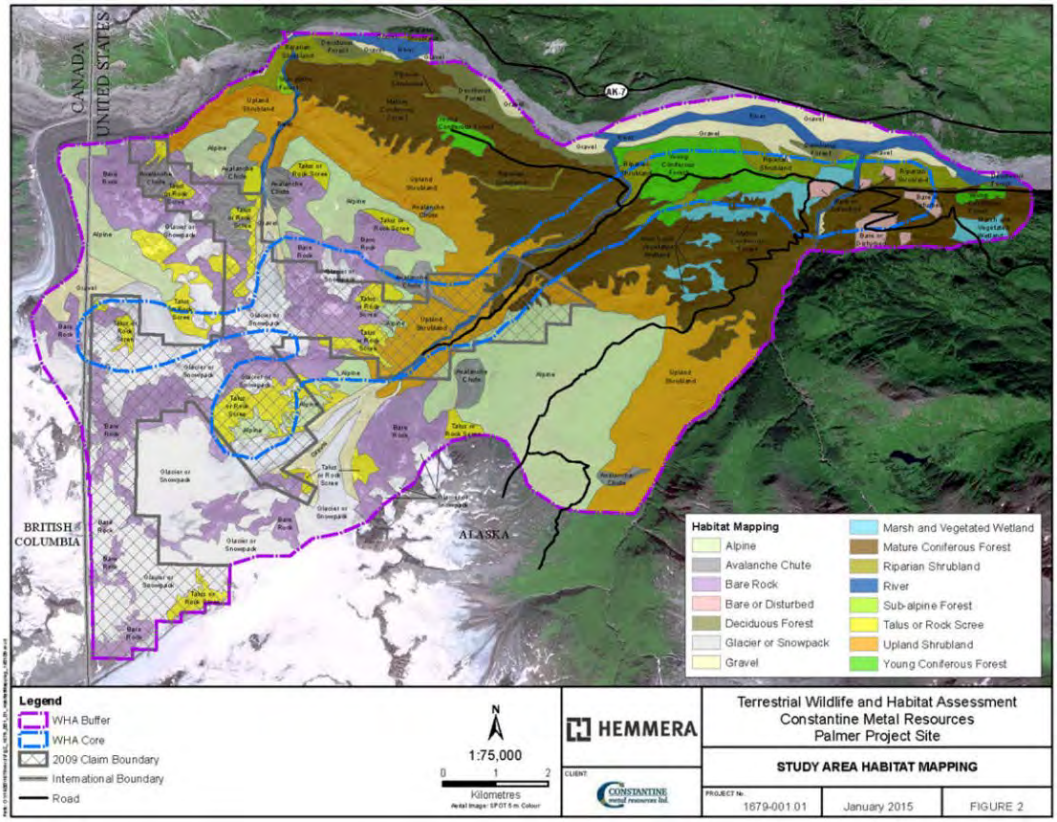

Figure 6-8: Palmer Project Study Area Habitat mapping

6.9 Air Quality

Not applicable as this is an Exploration Plan of Operations. An air quality monitoring station could be added to the meteorological monitoring station described in Section 6.11 as the project advances.

6.10 Meteorological Data

6.10.1 Regional Meteorological Data

The year-round deep sea port of Haines is located 60 kilometers south of the Project area. Average annual weather patterns are described for Haines as follows: average temperature varies between -7 deg C to 18 deg C and rarely below -15 deg C. The warm season extends from May 18 through to September 8 with average daily temperatures above 14 deg C. The cold season extends from November 14 through to March 14 with average daily temperatures below 2 deg C. Daylight hours at summer solstice (June 21) are 18:34 hours; by winter solstice there are only 6:06 hours of daylight. Median cloud cover ranges from 69% (partly cloudy) to 99% (overcast). The climate is temperate rain forest average precipitation of 47 inches (119 cm), approximately two-thirds of which occurs as snow.

Long term meteorological data is available for Pleasant Camp, located at the USA-Canada border crossing 6 km due north of the Project Area. A plot of average monthly temperature and precipitation data for Pleasant Camp is provided in below in Table 6-3.

Table 6-3: Climate Normals 1981-2010 – Pleasant Camp Weather Station Data

STATION_NAME	PROVINCE	LATITUDE	LONGITUDI	ELEVATION	CLIMATE_I	WMO_ID	TC_ID						
PLEASANT CAMP	BC	59°27'00.(	136°22'00.	274.3 m	1206197								
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temperature													
Daily Average (°C)	-7.9	-5.4	-2.3	2.7	7.8	12.3	14.5	13.3	8.7	2.8	-4.6	-6.4	3
Standard Deviation	3.9	2.7	2	1.5	1.3	1.2	1	1.2	1.2	1.3	3.1	2.7	2.2
Daily Maximum (°C)	-5	-1.9	1.8	7.4	13.6	18.3	19.9	18.3	12.6	5.6	-1.9	-3.7	7.1
Daily Minimum (°C)	-10.8	-8.9	-6.3	-2	2	6.2	9.1	8.3	4.7	0.1	-7.3	-9	-1.2
Extreme Maximum (°C)	7.5	11.5	13.5	20	25	30.5	32.8	34	24.5	18	10	6.5	
Date (yyyy/dd)	1981/18	1991/27	1994/29	1989/30	1983/30	2004/18	1976/31	2005/11	1989/08	2003/01	1983/22	1999/23	
Extreme Minimum (°C)	-32	-31.1	-27	-17.5	-5	-2.2	0.5	0.5	-8.5	-19	-31	-32.2	
Date (yyyy/dd)	1980/13	1975/12	2006/12	1986/10	1978/01	1976/19	1986/02	1983/31	1983/27	1982/28	1985/26	1975/06	
Precipitation													
Rainfall (mm)	35	27.8	23.6	48.9	49.4	37.4	35.8	72.4	148	153	32	39.8	703.1
Snowfall (cm)	165.4	111.4	82.6	20.8	2.6	0	0	0	0.8	35	128	177.4	723.8
Precipitation (mm)	200.4	139.1	106.2	69.7	51.9	37.4	35.8	72.4	148.8	188.1	160	217.3	1426.9
Average Snow Depth (cm)			109	33	0	0	0	0	0	0	0		
Median Snow Depth (cm)			111	29	0	0	0	0	0	0	0		
Extreme Daily Rainfall (mm	45.8	51	28	55	77.5	23	22.4	52.2	57	82.6	137.7	56	
Date (yyyy/dd)	2003/04	1997/23	1992/10	1980/11	1976/09	2001/01	1980/22	1981/20	2001/12	1998/19	1974/02	1997/01	
Extreme Daily Snowfall (cm	68	56.1	58.4	46	25	0	0	0	14.7	61.2	84	127	
Date (yyyy/dd)	1983/14	2002/09	1977/10	1978/09	1985/14	1974/01	1974/01	1974/01	1974/30	2001/28	1980/26	1985/04	
Extreme Daily Precipitatio	68	56.1	58.4	55	85.1	23	22.4	52.2	57	82.6	158.5	127	
Date (yyyy/dd)	1983/14	2002/09	1977/10	1980/11	1976/09	2001/01	1980/22	1981/20	2001/12	1998/19	1974/02	1985/04	
Extreme Snow Depth (cm)	198	245	260	210	177	0	0	0	0	15	213	273	
Date (yyyy/dd)	1988/21	1983/20	1983/01	1986/13	1986/01	1981/01	1981/01	1980/01	1981/01	1991/01	1991/30	1999/01	

6.10.2 Site Specific Meteorological Data

Constantine contracted Tetra Tech from Boulder, Colorado to install and operate a 10-meter meteorological monitoring station at the Palmer Project with a scope of work to include the installation, operational oversight, and maintenance of the meteorological station for one year to collect data that will be used for to assess and record meteorological conditions near the project site. The installation, calibration, and operation of the meteorological tower followed the regulatory guidance documents referenced below:

- U.S. Environmental Protection Agency's (EPA) Meteorological Monitoring Guidance for Regulatory Modeling Applications
- Alaska Department of Environmental Conservation (DEC) *Standard Operating Procedures for Meteorological Monitoring* (Alaska DEC 2009)

The meteorological station was commissioned October 9th, 2014. A Meteorological Monitoring Quality Assurance Plan was developed that includes regular site visits, maintenance, and calibration to ensure data satisfies baseline meteorological needs.

Plate 6.1: Meteorological Station (facing east)

6.11 Cultural Resources

(From **"(Interim) Report for Cultural Resource Survey of the Palmer Prospect, Constantine North, Inc. in the Vicinity of Haines, Alaska"**, Northern Land Use Research, LLC, November 14, 2014) (See Appendix 6d).

Northern Land Use Research Alaska ("NLURA") conducted a cultural resource survey on Department of the Interior; Bureau of Land Management (BLM) managed mining claims associated with the Palmer Prospect, located outside of Haines, Alaska.

NLURA employed a standard phased approach in completing the cultural resource investigations associated with the Palmer Prospect. A literature review and background research was conducted prior to fieldwork. Field investigations were conducted as an OHA Level II identification, and evaluation type pedestrian survey of all cultural resources located within the area of potential effect ("APE"), discretionary subsurface testing, oral interviews, and documentation (notes, maps, drawings, photographs) as appropriate followed by data analysis and report preparation; and the application of National Register criteria to make eligibility recommendations and assessment of effects on cultural resources identified in the study area.

The field survey was conducted on October 1st, and October 2nd, 2014 by NLURA archaeologists Justin Hays and Patrick Hall.

The total area the APE is approximately 8.5 acres. Of this, approximately 2.1 acres of BLM lands were pedestrian surveyed at the Class III and II levels. A survey of the entire APE was not possible due to the steepness of the terrain on the north side of Glacier Creek. All of the lands surveyed are managed by BLM, accordingly there were no additional state or private lands surveyed. The total number of new cultural properties identified during the survey is 0.

The 2014 cultural resources field investigations were designed to identify and gather data to evaluate cultural resources in the Palmer Prospect project area. The data gathered and reported for the 2014 field session meets the standards of Alaska SHPO Phase I and II survey efforts (Identification and Evaluation Phase; OHA 2003a, b). These guidelines are equivalent to BLM Phase II and Phase III guidelines that are defined according to the glossary of terms in the BLM Interim Guidance on Cultural Resources Management (Section 8100.21.).

No new cultural resources were identified during this study. Because archaeological materials, features, and other potentially significant cultural remains are commonly buried, they may not be identifiable from the surface or revealed in limited subsurface sampling. Should indications of additional potentially significant cultural resources be encountered during ground-disturbing activities, NLURA recommends that all work in that area should cease until the discovery can be fully evaluated by a qualified archaeologist, and the SHPO notified, in accordance with applicable state and federal law. In the event that human remains or other indications of burials are found on federal or tribal lands during ground-disturbing activities, the protocol established under the Native American Graves Protection and Repatriation Act must be followed. Immediate steps should be taken to secure and protect the human remains and cultural items, including stabilization or covering, as appropriate. The Project Manager/Superintendent should immediately notify both the SHPO and the local Alaskan Native American organizations likely to be culturally affiliated with the discovered remains.

6.12 Socioeconomic Conditions

Constantine has always made an effort to 'hire and buy' locally in Haines and also in greater Alaska. In 2014, Alaskan expenditures, including employment, goods and services, and donations totaled more than $2,953,000, including $1,472,000 directly into the Haines economy.

6.12.1 Employment

Fifteen Haines-based workers were hired or contracted to work on the summer field program in 2014. Local Haines payroll from May 15th to October 31st totaled $406,000. Five additional Alaska-based workers were also hired, totaling $165,000, bringing the direct Alaskan employment benefit to $571,000 in 2014. Local hires assisted with pad building, camp construction, drill/water support, field surveys, core tech, core cutting, camp maintenance and

management, environmental monitoring, first aid coverage, food preparation and housekeeping, HR and accounting, and local and cross-border expediting. Other Alaska hires assisted with camp management, geology, road construction supervision, and community relations. Limited off-season local employment has continued for accounting, weather station monitoring, and community relations work. It is expected that local and Alaska residents will continue to provide qualified workers for the project.

6.12.2 Goods and Services

In 2014, goods and services procured in Haines totaled $1,062,000, with an additional $1,316,000 sourced from other Alaskan-based vendors. Major items purchased locally from Haines vendors included fuel, pad building lumber (cut by local loggers), core boxes (assembled in Haines), general camp supplies, and groceries. Local artists and vendors were also hired for silk screening, logo embroidery, and promotional item printing. Supplies obtained from other Alaskan vendors included drill muds and Bobcat rental.

Alaska-based contractors were hired for many of the large contracts, including Haines-based Southeast Roadbuilders, which accounted for significant additional local employment on the project. Other major Alaskan contractors included: Coastal Helicopters (Juneau), Tetra Tech (Anchorage) for the weather station, Tim Droke (Ketchikan) for road construction supervision, SRK Consulting (Anchorage) for hydrology work, Quantum Spatial (Anchorage) for Lidar survey, and Alaska Avalanche Specialists (Juneau).

6.13 Potential for Acid Drainage or Leachate

An environmental-geochemistry rock sampling program was included as part of the 2014 Palmer Exploration Program. The objective of the program was to understand the potential for acid rock drainage(ARD)/metals leaching(ML) from broken rock generated from road construction within the South Wall exploration area (particularly if blasting is required). Sampling was primarily focused on hanging wall basalt, which forms the bedrock and talus where road building construction is to occur.

A total of 17 surface rock samples and 15 drill core samples were collected during the field program (Figure 6-4). Seventeen surface samples were collected during a focused mapping program in June, 2014 covering the lower South Wall slopes to characterize the geology, overburden and ARD potential in the area. Fifteen core samples were collected over the length of drill hole GT14-01 (nine) and over the upper 200 meters of CMR14-61b (six). Samples of cut core were collected at a nominal spacing of one sample every 30 meters, with individual samples typically measuring 1m in length. Samples were submitted to ALS Laboratories for the ABA-PKG05 analysis package. Analysis methodology was selected following past consultation and recommendations by ARD/metals leaching specialist with Phase Geochemistry, SRK Consulting, and Alaska State Department of Natural Resources.

Results indicate that all rocks sampled to date within the hanging wall units (e.g. the rock units that road construction may disturb) have large positive net neutralizing potential (NNP) with values ranging from 26 to 594 (Table 6-4 & Table 6-5). Net neutralizing potential is equal to the neutralizing potential (NP) minus the maximum potential acidity (MPA). MPA is calculated by multiplying the total sulphur value by the constant 31.25. NP was determined using the Modified Sobek method.

The neutralizing potential ratio (NP/MPA) values also demonstrate a large excess of neutralizing capacity. The data are consistent with observations of core and surface outcrop that record very low sulphide content (typically trace to 1% disseminated pyrite within the hanging wall basalt), and abundant groundmass, veinlet and amygdule calcite. Only two of the surface samples have NP/MPA ratios less than 1.0 and were collected from the footwall quartz-sericite alteration zones. These two samples are from well outside the area of planned road disturbance and are not indicative of the rock types that will be encountered during construction.

The ABA data for both surface rock and drill core samples, combined with detailed geological mapping for the area, indicate ARD/ML is not a concern within the area of proposed road work disturbance.

Table 6-4: Surface ABA sample results

sample	rocktype	MPA	FIZZ RATING	NNP	NP	pH	NP/MPA	S_pct_ IR08	S_pct_ GRA06	S_pct_ GRA06a	S_pct_ CAL06	C_pct_ GAS05	CO2_pct _GAS05
RGP14007	Basalt	0.6	2	60	61	8.4	97.6	0.02	0.01	0.01	0.02	0.64	2.3
RGP14008A	Basalt	1.9	2	64	66	9	35.2	0.06	0.01	0.01	0.06	0.73	2.7
RGP14009A	Basalt	2.8	2	26	29	8.6	10.31	0.09	0.01	0.01	0.09	0.4	1.5
RGP14010	QSP altered	42.8	1	-41	2	5.1	0.05	1.37	0.14	0.18	1.23	0.05	0.2
RGP14012B	QSP altered	3.1	1	-1	2	5.6	0.64	0.1	0.01	0.03	0.1	0.05	0.2
RGP14018A	Basalt	5.3	3	163	168	8.9	31.62	0.17	0.01	0.01	0.17	1.99	7.3
RGP14019	Basalt	2.8	2	63	66	8.5	23.47	0.09	0.01	0.01	0.09	0.74	2.7
RGP14021A	Basalt	8.1	3	62	70	8.8	8.62	0.26	0.01	0.01	0.25	0.78	2.9
RGP14023A	Basalt	4.4	2	49	53	9.5	12.11	0.14	0.01	0.01	0.14	0.54	2
RGP14026	Basalt	7.8	2	48	56	9.1	7.17	0.25	0.01	0.01	0.24	0.57	2.1
RGP14028A	Basalt	5.9	3	111	117	8.8	19.71	0.19	0.01	0.01	0.19	1.3	4.8
RGP14036	Basalt	2.2	3	127	129	8.9	58.97	0.07	0.01	0.01	0.07	1.51	5.5
RGP14037	Basalt	0.3	2	61	61	9.7	390.4	0.01	0.01	0.01	0.01	0.62	2.3
RGP14038	Basalt	0.3	3	84	84	9.5	268.8	0.01	0.01	0.01	0.01	0.86	3.2
RGP14039	Basalt	1.6	4	195	197	9.1	126.08	0.05	0.01	0.01	0.05	2.3	8.4
RGP14040	Basalt	26.6	4	216	243	8.7	9.15	0.85	0.01	0.01	0.85	3.66	13.4
RGP14045A	Basalt	3.4	2	62	65	9.1	18.91	0.11	0.01	0.01	0.11	0.73	2.7

Table 6-5: Drill core ABA sample results

Sample#	rocktype	MPA	FIZZ RATING	NNP	NP	pH	NP/MPA	S_pct_ IR08	S_pct_ GRA06	S_pct_ GRA06a	S_pct_ CAL06	C_pct_ GAS05	CO2_pct _GAS05
Q153816	Argillite	10.3	4	594	604	8.3	58.57	0.33	0.01	0.01	0.32	7.66	28.1
Q153825	Basalt Tuff	4.4	3	124	128	8.1	29.26	0.14	0.01	0.01	0.13	1.38	5.1
Q153831	Basalt	4.1	2	56	60	9	14.77	0.13	0.01	0.01	0.13	0.6	2.2
Q153834	Argillte	23.1	4	359	382	8.8	16.52	0.74	0.01	0.01	0.73	4.96	18.2
Q153837	Mafic Dyke	6.9	2	62	69	9.1	10.04	0.22	0.01	0.01	0.21	0.75	2.7
Q153838	Basalt	3.8	3	90	94	8.6	25.07	0.12	0.01	0.01	0.11	1.01	3.7
Q153964	Basalt	34.7	3	57	92	9	2.65	1.11	0.01	0.01	1.11	1.1	4
Q153967	Basalt	28.8	3	217	246	8.7	8.56	0.92	0.01	0.02	0.92	3.06	11.2
Q153975	Basalt (faulted)	5.3	2	28	33	8.1	6.21	0.17	0.01	0.02	0.17	0.33	1.2
Q153991	Basalt	0.9	2	43	44	9.3	46.93	0.03	0.01	0.01	0.03	0.4	1.5
Q153993	Basalt	4.4	3	116	120	8.8	27.43	0.14	0.01	0.01	0.14	1.38	5.1
Q153999	Basalt	6.6	3	80	87	8.9	13.26	0.21	0.01	0.01	0.21	0.94	3.4
Q053904	Basalt (faulted)	0.6	3	104	105	8.8	168	0.02	0.01	0.01	0.02	1.15	4.2
Q053906	Basalt (faulted)	2.8	3	98	101	8.7	35.91	0.09	0.01	0.02	0.08	1.05	3.9
Q053907	Basalt	4.1	3	92	96	9	23.63	0.13	0.01	0.01	0.13	1.1	4

6.14 Visual Impacts

The Hanes Highway was designated a Scenic Byway in 2009 and consideration of view shed is highlighted in the Haines Comprehensive Plan for areas of Resource Development Land Use Designation.

Visual impacts to the public from the work proposed under this Plan of Operations will be minimal. The proposed road related disturbance is located at the head of a narrow valley approximately 5 miles from the Haines Highway. Road constructed in 2014 along the valley floor is, for all practical purposes, not visible from the highway. The proposed continuation of the lineal portion of the road and creek crossing, as proposed in this Plan, will not be visible from the highway. The linear road is also not visible from a 4x4 jeep trail that accesses Flower Ridge, located southeast of the Project Area.

The switchback portion of the road is located on a south-southeast facing slope that faces away from the highway and is largely hidden behind landforms with minimal, if any, visual impact from the Haines Highway. The uppermost elevations of the proposed switchback road may be visible over a short section of the 4x4 jeep trail. Pre-existing disturbance in this area includes a CAT trail constructed in the late 1970s that extends above the area of the proposed switchback construction.

Drill sites have a small footprint and blend into the existing terrain with negligible visual impact.

7 RECLAMATION COST ESTIMATE

7.1 Bonding and Reclamation Cost Estimate

The Operator intends to utilize the State of Alaska Mining Reclamation Bond Pool as a financial guarantee for reclamation.

The total area bonded, including both drill and road-related disturbance is **37.06 acres of new disturbance.** A detailed reclamation cost estimate may be found in Appendix 7. Total estimated cost of reclamation for proposed activities is **$349,306** and is summarized below in Table 7-1. Detailed breakdown for each of the main reclamation tasks are tabulated below in Table 7-2, Table 7-3, and Table 7-4.

Table 7-1: Reclamation Cost Estimate - Financial Guarantee Total

FINANCIAL GUARANTEE AMOUNT	Total
Drill Pad Reclamation & Hole Plugging	$65,938
Road/Borrow Pit/Rock Stockpile Reclamation	$276,243
Laydow n Area Equipment Removal	$7,125
FINANCIAL GUARANTEE AMOUNT	**$349,306**

Two methods of calculating the reclamation cost estimate were evaluated, as detailed in Appendix 7. One method utilizes the BLM handbook format with costs escalated to account for the premium of operating in Alaska. The BLM format includes standardized unit costs per linear meter (foot) or per acre of re-contouring and re-vegetating. The second method is a modification of the BLM format, and estimates the time and equipment required to complete certain tasks instead of using a unit cost approach. The equipment rates used for the modified BLM cost estimate are based on quotes and contracts for heavy equipment work completed recently within the Project Area. The modified BLM format is considered the more representative of the two methods, and is the one chosen for the purpose of estimating reclamation costs in this Plan.

Any additional information that is required will be provided on request. Sincerely,

Darwin Green, VP Exploration

Constantine North Inc.

Table 7-2: Reclamation Cost Estimate – Exploration Drilling

Activity	unit cost		units	cost
Task 1: Reclaim Timber-Frame Drill Pads (20)				
Disassemble and prepare sling loads*	$250.00	/hour	40	$10,000
Move crew & sling timbers to equipment laydown area via helicopter	$1,900.00	/hour	10	$19,000
Transport timbers off Project area	$500.00	/truck	1	$500
Tools including prybars, chain saws, etc.	$10.00	/hour	40	$400
Revegetation (if required)	$993.60	/acre	0.50	$497
TOTAL				**$30,397**
Task 2: Plug Open Drill Holes (40)				
Plug hole and cut casing to ground level	$250.00	/hour	40	$10,000
Bentonite holeplug consumables	$2.40	/foot	80	$192
Tools for cutting casing and manually installing holeplug	$10.00	/hour	40	$400
Fly crew and supplies to and from drill sites	$1,900.00	/hour	4	$7,600
TOTAL				**$18,192**
Mobilization/Demobilization				
Helicopter **	$1,900.00	/hour	2	$3,800
TOTAL				**$3,800**
TOTAL RECLAMATION COST				**$52,389**
TOTAL LABOR COST (30% OF RECLAMATION COST)				**$15,717**
ADMINISTRATION COSTS				
Contractor profit (10% of reclamation cost)				$5,239
Insurance (1.5% of labor cost)				$236
Bond (3% of contract cost + insurance + profit)				$1,736
Contract administration (10% of reclamation cost)				$5,239
Indirect cost (21% of contract administration cost)				$1,100
TOTAL				**$13,550**
FINANCIAL GUARANTEE AMOUNT				**$65,938**

Table 7-3: Reclamation Cost Estimate – Exploration Access Road, Rock Stockpiles and Borrow Pits

Activity	unit cost		units	cost
Task 1: Reclaim Road from 6.0km to 7.9km				
Load haul trucks (CAT 966 or similar)	$1,200	/day	21	$25,200
Haul rock (three CAT 730's or similar)	$3,750	/day	21	$78,750
Re-contour backfilled road (CAT 330 or similar)	$1,500	/day	21	$31,500
Re-vegetation	$994	/acre	29.75	$29,558
TOTAL				**$165,008**
Task 2: Reclaim Borrow Pits and Rock Stockpile Sites				
Re-contour (CAT 966 or similar)	$1,200	/day	1	$1,200
Re-vegetation	$994	/acre	2.86	$2,842
TOTAL				**$4,042**
Task 3: Reclaim Road from 4.0km to 6.0km				
Remove, crush, and bury culverts (CAT 330 or similar)	$1,500	/day	1	$1,500
Remove bridges and abutments (CAT 330 and CAT 966 or similar)	$2,700	/day	5	$13,500
Haul bridges to Haines (truck and trailer)	$1,000	/day	3	$3,000
Re-contour roads (CAT 330 and CAT 966 or similar)	$2,700	/day	7	$18,900
Re-vegetation	$994	/acre	3.95	$3,928
TOTAL				**$40,828**
Mobilization/Demobilization				
Excavator	$1,400	/each	1	$1,400
Truck	$1,000	/each	3	$3,000
Loader	$1,200	/each	1	$1,200
Set-up fuel station	$4,000	/each	1	$4,000
TOTAL				**$9,600**
TOTAL RECLAMATION COST				**$219,478**
TOTAL LABOR COST (30% OF RECLAMATION COST)				**$65,843**
ADMINISTRATION COSTS				
Contractor profit (10% of reclamation cost)				$21,948
Insurance (1.5% of labor cost)				$988
Bond (3% of contract cost + insurance + profit)				$7,272
Contract administration (10% of reclamation cost)				$21,948
Indirect cost (21% of contract administration cost)				$4,609
TOTAL				**$56,765**
FINANCIAL GUARANTEE AMOUNT				**$276,243**

Table 7-4: Reclamation Cost Estimate - Removal of Equipment

Activity	unit cost		units	cost
Task 1: Removal of Trailers/Equipment/Fuel from Laydown Area				
Removal of two office trailers	$500	/truck	2	$1,000
Removal of portable toilets	$500	/truck	1	$500
Removal of fuel & fuel tanks	$500	/truck	1	$500
Removal of drill rigs/equipment/supplies by drill contractor	No cost	/truck	0.00	-
General labor for site clean-up	$25	/hour	40.00	$1,000
Recontour site (CAT 330 and CAT 966 or similar)	$1,200	/day	1	$1,200
Revegetation	$993.60	/acre	1.47	$1,461
TOTAL				**$5,661**
Mobilization/Demobilization				
Heavy equipment mobilization included in Road reclamation estimate	No cost			$0
TOTAL				**$0**
TOTAL RECLAMATION COST				**$5,661**
TOTAL LABOR COST (30% OF RECLAMATION COST)				**$1,698**
ADMINISTRATION COSTS				
Contractor profit (10% of reclamation cost)				$566
Insurance (1.5% of labor cost)				$25
Bond (3% of contract cost + insurance + profit)				$188
Contract administration (10% of reclamation cost)				$566
Indirect cost (21% of contract administration cost)				$119
TOTAL				**$1,464**
FINANCIAL GUARANTEE AMOUNT				**$7,125**