GENERAL PLAN OF OPERATIONS

APPENDIX 14
Reclamation and Closure Plan

June 2014

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Table of Contents

1.0 Introduction 1-1
1.1 Purpose 1-1
1.2 Project Summary 1-1
1.3 General Environmental Information 1-2
1.4 Location and Land Status 1-2
1.5 Agency Requirements 1-3
1.5.1 United States Forest Service (USFS) 1-3
1.5.2 Alaska Department of Environmental Conservation (ADEC) 1-5
1.5.3 Alaska Department of Natural Resources (ADNR) 1-5
2.0 Applicant Information 2-1
2.1 Corporate Information 2-1
2.2 Alaska Registered Agent 2-1
2.3 Designated Contact Person for Regulatory Issues 2-1
3.0 Applicant Statement of Responsibility 3-1
4.0 Project Description 4-1
4.1 General 4-1
4.2 Surface Disturbance 4-4
4.2.1 Areas and Acreage of Disturbance 4-4
5.0 Reclamation / Closure Planning 5-1
5.1 General 5-1
5.1.1 Land Use 5-1
5.1.2 Interim Reclamation 5-2
5.1.3 Concurrent Reclamation 5-3
5.1.4 Temporary Closure 5-3
5.1.5 Final Reclamation 5-4
5.1.6 Post-Closure Care and Maintenance 5-4
5.2 Reclamation Plan Submission and Approval 5-4
5.3 Reclamation Cost Calculation and Bond Release 5-4
5.3.1 Incremental Bond Release 5-5
5.3.2 Bonding and Management during Post-Closure 5-5
5.3.3 Bond Release 5-5
5.3.4 Reporting 5-6
6.0 Reclamation Goals and Procedures 6-1
6.1 Aesthetics 6-1
6.2 Earthwork and Revegetation 6-1
6.2.1 Revegetation 6-4
6.2.2 Specific Plant Community Goals 6-6
6.3 Wildlife Use 6-6
6.4 Fish and Fish Passage 6-7
6.5 Roads and Site Access 6-7
6.5.1 Bridges and Culverts 6-7
6.6 Waste Rock Disposal and Tailings Disposal Facilities 6-7
6.7 Demolition of Structures and Equipment 6-11
6.7.1 Mine Portals 6-11

6.7.2 Hawk Inlet Facilities 6-11
6.7.3 Young Bay 6-11
6.7.4 Solid Waste 6-11
6.7.5 Hazardous Materials 6-12
6.7.6 Miscellaneous Sites and Equipment 6-12

7.0 Stability and Water Management 7-1

7.1 Mass Instability 7-1

7.1.1 Permanent Channels and Channel Inspection 7-1
7.1.2 Drainage 7-2
7.1.3 Cover Performance and Inspection 7-3
7.1.4 Erosion 7-4

8.0 Performance Goals 8-1

8.1 Water Quality 8-1

8.1.1 Monitoring Requirements 8-1
8.1.2 Waiver or Modification 8-1
8.1.3 Performance Standards and Point of Compliance 8-1
8.1.4 Contact Water Management and Post Closure Water Management 8-2

9.0 Estimate of Reclamation Costs 9-1

9.1 Closure Cost Rates 9-1

9.1.1 Closure Cost Productivities 9-1
9.1.2 Key Cost Assumptions 9-1
9.1.3 Conclusions 9-1

10.0 Acknowledgements 10-1

11.0 References 11-1

Figures

Figure 1-1: Project Location 1-4
Figure 4-1: Greens Creek Site Location Map 4-3
Figure 6-1: Reclamation Material Stockpiles 6-3
Figure 6-2: Typical Road Cut / Reclaimed Slope 6-7
Figure 6-3: Tailings Disposal Site 6-9
Figure 6-4: Engineered Cover – Typical 4 Layer Installations 6-10
Figure 6-5: Millsite and 920 Portal 6-13
Figure 6-6: Hawk Inlet 6-14

Tables

Table 1-1: Greens Creek Mining Claims 1-2
Table 4-1: Areas and Acreage of Disturbance 4-4
Table 6-1: Total Volumes of Stored Reclamation Material 6-2

Appendix

Appendix A: Land Status, Legal Description & Land Owner Authorization
Appendix B: Basis of Cost Estimate Greens Creek Mine

Acronyms

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish & Game
ADNR	Alaska Department of Natural Resources
APDES	Alaska Pollutant Discharge Elimination System
AWQS	Alaska Water Quality Standards
AS	Alaska Statute
BMP	Best Management Practices
COE	U.S. Army Corps of Engineers
FEIS	Final Environmental Impact Statement
GPO	General Plan of Operation
HGCMC	Hecla Greens Creek Mining Company
HMC	Hecla Mining Company
ML/ARD	Metal Leaching and Acid Rock Drainage
MOU	Memorandum of Understanding
MSHA	U.S. Department of Labor Mine Safety and Health Administration
NEPA	National Environmental Policy Act
Plan	Reclamation and Closure Plan
ROD	Record of Decision
SAG	semi-autogenous
SRCE	Standard Reclamation Estimate Model
TDF	Tailings Disposal Facility
USFS	U.S. Forest Service
WDF	Waste Disposal Facility
WMP	Waste Management Permit
WRD	Waste Rock Disposal
WWTP	Waste Water Treatment Plant

Units of Measure

amsl	above mean sea level
°F	Fahrenheit
ft	feet/foot
*H:*V	ratio of horizontal to vertical distance
kg/ha	kilograms per acre
lbs	pounds
tpd	tons per day
yd^3	cubic yards

1.0 Introduction

1.1 Purpose

Hecla Greens Creek Mining Company (HGCMC) a wholly owned subsidiary of Hecla Mining Company (HMC), has prepared this Reclamation and Closure Plan (Plan) to address interim, concurrent, final reclamation and post-mining land use of the Greens Creek Mine. These reclamation plan and closure cost estimates are being submitted to the U.S. Forest Service (USFS) as required under 36 CFR 228.1 et. seq. and 36 CFR 228A (Training Guide for Reclamation Bond Estimation and Administration 2004). Concurrently, the plan and cost estimate are being submitted to the Alaska Departments of Natural Resources, Division of Mining, Land and Water (ADNR) and Environmental Conservation, Division of Water (ADEC) in accordance with AS 27.19, 11 AAC 97, 11 AAC 93, AS 46.03.100, and 18 AAC 60.265.

The Plan sets performance goals applicable to interim, concurrent, and final reclamation, and addresses post-closure monitoring requirements. It also sets scheduling and other standards for reclamation and for final closure planning requirements, and it explains how detailed, regularly-updated reclamation task planning will be used for purposes of calculating a reclamation bond.

Prior to closure of the mine facilities, this Plan provides performance goals and general information on how HGCMC anticipates the facilities will be reclaimed. The Basis of Cost Estimate, which is included in Appendix B of this Plan, serves as a surrogate for the final closure condition and provides detailed assumptions necessary to develop a cost estimate for bonding purposes. Prior to actual closure, the Basis of Cost Estimate also assumes a default condition where the regulatory agencies are responsible for closure of the facilities. At closure, this Plan and the Basis of Cost Estimate will be updated based on the actual conditions that exist at the time and will become the final Plan and Basis of Cost Estimate.

HGCMC will reclaim exploration, development, mining and process-related disturbances at the Greens Creek Mine in a manner compatible with the land use selected and discussed herein. Reclamation practices will utilize best practicable established and accepted technologies and methodologies suitable for the southeast Alaska environment.

As generally discussed in the previous reclamation plan submittals, reclamation philosophies, technologies, and methodologies are, and will continue to be, subject to change. Reclamation practices are under constant scrutiny by government, industry, and the public. Therefore, reclamation plans must be, within the context of existing regulations, dynamic and capable of changing with the input of new information, ideas, and techniques (11 AAC 97.330 Amendment of Reclamation Plan).

When practical, final reclamation will be initiated immediately and completed within three years of permanent cessation of mining and milling operations where affected land cannot practicably be reclaimed concurrently. There may be circumstances where a holding period (care and maintenance with no active work) is necessary or where more than three years will be required to perform the work. Notification, in writing, of final closure will be given to the USFS, ADEC, and ADNR within 90 days prior to cessation of mining and milling operations.

Access by Federal and State regulatory personnel to the Greens Creek Mine facilities for the purpose of inspecting for reclamation or other appropriate compliance areas are statutory/regulatory mandates and will be honored by HGCMC.

1.2 Project Summary

The Greens Creek Mine has been in operation since 1989, with one temporary cessation of operations due to low metal prices from April 1993 until July 1996. HGCMC produces three concentrates containing four payable metals (silver, zinc, lead, and gold) for shipping to smelters around the world.

The mine has an estimated remaining mine life of over 10 years at a current processing rate of approximately 2,200 tons of ore per day. The project employs 360 full time employees to operate the mine and processing facilities.

1.3 General Environmental Information

The Greens Creek Mine facilities are located from sea level to 1,350 ft (amsl) above the main mine portal and mill complex. The area is characterized as a temperate rain forest considering annual precipitation and temperature. The regional annual precipitation at sites near sea level is between 40 inches (Angoon) and 225 inches (Port Walter). The air temperature at the project site is heavily influenced by the coastal marine environment, which has a moderating effect on temperature extremes. The annual average temperature at the project site ranged from 42° to 43°F between 1997 and 2000. The maximum and minimum one-hour average temperatures at the project site in 2000 were about 70° and 9°F, respectively.

The Greens Creek Mine facilities are located within the Greens Creek, Zinc Creek, Tributary Creek, Cannery Creek and Fowler Creek watersheds.

There is no known regional aquifer system in the area, but groundwater resources occur under a wide range of conditions. The many small drainages and irregular topography and geology make for numerous small-scale aquifers and groundwater flow systems. Groundwater can be found in manmade fill, peat, sand, gravel, till, and fractured bedrock aquifers. Confining materials include compressed peat beneath the existing tailings and the underlying silt and clay. Where bedrock is exposed or near the land surface, the sedimentary aquifers and confining materials are absent.

Groundwater flow systems at the project area are complex. Flow systems are driven by local precipitation and snowmelt and the local terrain. With average annual precipitation at the site of approximately 53 inches, a surplus of water is frequently available for groundwater recharge. Much of the annual precipitation runs off from saturated or low-permeability surfaces in the area.

Air quality in the vicinity is good. Sites are generally classified as to whether they attain or fail to attain air quality standards. The project site area has been designated as having attained such standards, based on available ambient data for all criteria pollutants.

1.4 Location and Land Status

The Greens Creek Mine is located near Hawk Inlet on northern Admiralty Island, in the Tongass National Forest, approximately 18 miles southwest of Juneau, Alaska (Figure 1-1). The Mine site is situated partly within the Admiralty Island National Monument, completely within the municipal boundaries of the City and Borough of Juneau, and comprised of federal and patented mining claims (Appendix A).

The USFS has issued special use permits/leases for various aspects of the operations. In addition, HGCMC holds patented and unpatented mining claims listed in Table 1-1 plus fee simple lands consisting of approximately 17 acres of uplands and 21 acres of tidelands in Hawk Inlet under a warranty deed with Bristol Resources, Inc. The patented mining claims will be conveyed to the United States at the end of mine life or in 2095 at the latest (Appendix A).

Table 1-1: Greens Creek Mining Claims

Mining Claims	Number of Claims	Acres
Patented “Big Sore”	17	7,300
Federal (North of Land Exchange)	445	8,600
Federal (North of Young Bay)	200	3,600
Total	**662**	**19,500**

1.5 Agency Requirements

1.5.1 United States Forest Service (USFS)

The USFS has numerous reclamation requirements for the Greens Creek Mine. These requirements can be categorized as general USFS mining rules, Forest and Monument specific rules, and decisions reached through the National Environmental Policy Act (NEPA) review process.

General Forest Service Mine Reclamation Requirements

- CFR 36 Part 228 Minerals, Subpart A Locatable Minerals; Sec. 228.8 f, g, h; Sec. 228.10, Sec.228.13
- Forest Service Manual 2800 (FSM 2800) Minerals and Geology (selected provisions) 2841, 2842, 2843, 2844, 2846

Monument Specific Forest Service Reclamation Requirements

- Subpart D – Miscellaneous Minerals Provisions, Sec. 228.80

Tongass National Forest Reclamation Requirements

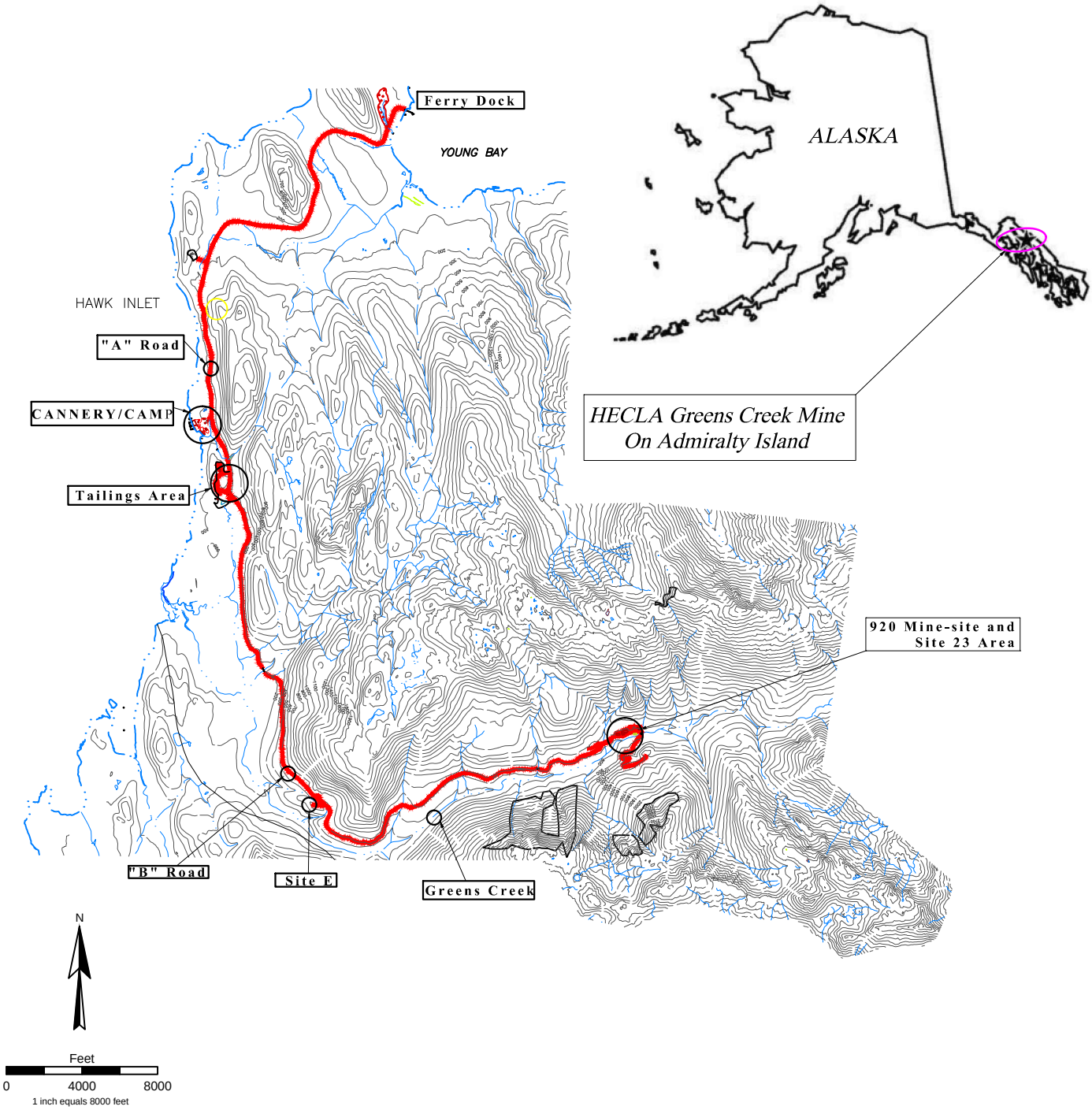
- 2008 Forest Plan

NEPA Reclamation Stipulations

- Greens Creek Final Environmental Impact Statement (1983)
- Environmental Assessment for Proposed Changes to the General Plan of Operation (GPO) for the Development and Operation of the Greens Creek Mine Admiralty Island National Monument, Alaska (1988)
- Environmental Assessment for Additional Waste Rock Disposal Capacity at Greens Creek Mine Admiralty Island National Monument, Alaska (1992)
- Greens Creek Tailings Disposal Final Environmental Impact Statement (2003)
- Greens Creek Mine Tailings Disposal Facility Expansion Final Environmental Impact Statement and Record of Decision (2013)

The 1983 Final Environmental Impact Statement (FEIS) Record of Decision (ROD) states that reclamation performed within the monument will intend to return the land to a natural condition. This includes sealing mine openings, restoring original surface drainage, removing structures, reestablishing natural contours where possible, and stabilizing the soils. Stabilizing the soils includes revegetating all disturbed areas, where necessary, and ensuring and maintaining healthy growth.

> The ROD states that detailed mitigation, monitoring, and reclamation plans will be included in the GPO. The reclamation plan includes all areas on national forest land disturbed by the project. The plan includes both lands administered by the Admiralty National Monument and Juneau Ranger District. The reclamation of the privately owned Hawk Inlet facility is also covered in this reclamation plan. The privately-owned surface facility is under the jurisdiction of the City and Borough of Juneau and ADNR.



srk consulting	Hecla	Reclamation and Closure Plan
		Title: Project Location
Job No.: 311400.010	Hecla Greens Creek Mining Company	Date: April 2011 / Approved: / Figure: 1-1
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1.5.2 Alaska Department of Environmental Conservation (ADEC)

The State of Alaska made the determination that tailings and waste rock placed in the dry tailings stack and Site 23/D are subject to the Chapter 60 solid waste requirements, which include the need to acquire a permit. Mining waste is regulated under the monofill standards 18 Alaska Administrative Code (AAC) section 60.455 which allows ADEC discretion to incorporate applicable provisions of 18 AAC 60 into a waste management permit (WMP). A waste that is not specifically addressed in Article 4 (i.e. tailings) will be classified by the ADEC and assigned the most applicable waste category.

The waste management permit contains applicable provisions of Article 1 and 2 (60.010 to 60.265) that have to do with general standards, limitations, prohibitions and administrative procedures to be followed by every disposal facility regulated under the chapter. Additionally, the waste management permit will apply relevant locational, operational, and design related requirements from the monofill standards in Article 4 (18 AAC 60.400 to 60.495). The monofill requirements also include closure and post-closure plans, notifications, monitoring and reporting.

Furthermore, the Greens Creek facilities are subject to Article 6 (18 AAC 60.700 to 60.730) which have to do with user fees and Article 7 monitoring and corrective action requirements (18 AAC 60.800 to 60.865). In Article 7, monitoring requirements specify visual, surface water and groundwater requirements. Detection monitoring is also required under Article 7. Specific inspection and monitoring requirements are detailed in Section 3.0 of this document. If a significant statistical difference exists between upgradient and downgradient locations, or if the water quality standards are exceeded in detection monitoring, then assessment monitoring will be triggered. Corrective measures will also be required. Lastly, the facilities at Greens Creek are open to waivers to any provision of the chapter under 18 AAC 60.900 upon adequate demonstration and ADEC discretion.

ADEC has statutory authority to require proof of financial responsibility under AS 46.03.100(f).

See the Waste Management Permit for Greens Creek for more details on ADEC requirements regarding bonding, temporary closure, permanent closure, post closure care, and post closure monitoring.

1.5.3 Alaska Department of Natural Resources (ADNR)

Alaska Statute (AS) 27.19, the Reclamation Act, applies to state, federal, municipal, and private land and water subject to mining operations. This statute is administered by the commissioner of ADNR. The Reclamation Act states that "a mining operation shall be conducted in a manner that prevents unnecessary and undue degradation of land and water resources and the mining operation shall be reclaimed as contemporaneously as practicable with the mining operation to leave the site in a stable condition" and 11 AAC 97.240 further states "a miner shall reclaim a mined area that has potential to generate acid rock drainage (acid mine drainage) in a manner that prevents the generation of acid rock drainage or prevents the offsite discharge of acid rock drainage." An approved reclamation plan and a performance bond are required prior to approval of a mining operation with the exception of certain small operations. The bond amount shall be set at a level not more than an amount reasonably necessary to ensure the faithful performance of the requirements of the reclamation plan. Alaska Administrative Code (11 AAC 97 Mining Reclamation) applies to the approval of reclamation plans, reclamation bonding, and enforcement of reclamation requirements under AS 27.19 for locatable mineral, leasable mineral, and material mining operations on state, federal, municipal, and private land. Nothing in the Reclamation Act precludes a federal or state agency (including the ADNR), acting under its own regulatory or proprietary authority, from establishing and enforcing additional requirements or higher standards for reclamation. The Reclamation Performance Standards are defined in 11 AAC 97.200.

ADNR's Dam Safety Program jurisdictional requirements are an ongoing part of the operation, closure, and post-closure planning of the Greens Creek Mine. Pond 7 Dam at the Greens Creek Mine is regulated under the Alaska dam safety statutes and regulations. Special Condition 10 of Certificate of Approval to Construct a Dam number 2005-6-AK00307 for the Pond 7 Dam issued May 2, 2005 and Special Condition 8 of the subsequent Certificates of Approval to Operate a Dam, beginning with certificate number FY2013-9-AK00307 dated April 8, 2013, most recently stipulated the following:

"The requirements for operation, abandonment or removal of the Pond 7 Dam (11 AAC 93.151 to 93.201) are included in each revision of the detailed mine reclamation plan. Sufficient funds for these requirements must be included in the financial assurance provided under the document currently titled "MEMORANDUM OF UNDERSTANDING BETWEEN [several parties]" last dated 5/09/07 (FS Agreement No. 07MU-11100500-059), or any revisions thereof. Submit a copy of associated sections of the Reclamation Plan and financial assurance instrument to the Dam Safety and Construction Unit of the Department during each review and revision cycle."

2.0 Applicant Information

Date:	March 2014
Location:	(Mine Portal) Latitude 58° 04’58” North Longitude 134° 37’57” West
Name of Facility:	Hecla Greens Creek Mining Company – Greens Creek Mine
Type of Facility:	Underground Silver, Lead, Zinc, and Gold Mine and Milling Operation
Business Name:	Hecla Greens Creek Mining Company PO Box 32199 Juneau, Alaska 99803
Telephone:	(907) 789-8100

2.1 Corporate Information

General Manager: Scott Hartman

Hecla Greens Creek Mining Company is a Delaware Corporation, Incorporated May 19, 1986 (f/k/a Kennecott Greens Creek Mining Company)

President, Director:	Scott Hartman
Vice President /Treasurer/Director:	James Sabala
Vice President:	Dean W. A. McDonald
Vice President:	Lawrence Radford
Secretary:	Michael L. Clary
Assistant Secretary:	Tamie D. Hansen

2.2 Alaska Registered Agent

Name:	Hecla Greens Creek Mining Company #38561F
Address:	c/o CT Corporation System (Agent) 9360 Glacier Hwy, Suite 202 Juneau, Alaska 99801

2.3 Designated Contact Person for Regulatory Issues

Name:	Christopher Wallace
Title:	Environmental Affairs Manager
Telephone:	(907) 790-8473

3.0 Applicant Statement of Responsibility

HGCMC recognizes its responsibility in the use of public (Federal) lands, and accepts that responsibility in agreeing to reclaim the Greens Creek Mine site. HGCMC will meet the requirements of its reclamation plan and return the site to a safe and stable condition consistent with the approved post-mining land use. HGCMC will meet required local, state, and federal regulations regarding reclamation of any surface area affected by the mining and processing operations. Reclamation activities and post-reclamation maintenance of remaining structures are HGCMC's responsibility.

In the event a new operator/land owner assumes control of the Greens Creek Mine, at that time, the new operator/land owner will agree to assume responsibility for the reclamation and maintenance of any affected land and structures that are the subject of this plan or existing permits. The new operator/land owner will request transfer of all applicable state and federal permits. The new operator/land owner will provide evidence that a surety is filed with USFS, ADEC, and ADNR that would cover reclamation of disturbed lands, including privately owned, as well as post-reclamation maintenance of remaining structures.

4.0 Project Description

4.1 General

The mine, located on the south side of Greens Creek, has a main access portal at an elevation of 920 feet. Personnel and supplies are brought into the mine at the 920 portal and distributed throughout the mine with rubber-tired vehicles. Underground mining methods incorporate rubber-tired diesel-powered equipment. Drift and fill is the primary mining method used to extract the ore. Long-hole stoping is also utilized in select ore zones conducive to this bulk mining method. Cemented tailings and production rock generated by the mining operations are used as backfill in mined out areas to support vehicles and equipment and to provide structural ground support, allowing subsequent mining of adjacent ore.

HGCMC mines an average of 2,200 tons of ore each day. A comparable milling rate is processed daily, producing approximately 800 tons per day (tpd) of concentrate and 1,400 tpd of tailings. On average 200 tons of waste rock is produced daily.

The mill site is located on the north side of Greens Creek approximately 800 feet from the mine. Access to the mine site from the mill site is via a bridge that crosses Greens Creek. The mill site consists of the mill buildings, fuel storage tanks, an office/shop complex, a coarse ore stockpile and production rock pile, water supply pump house, switch gear building, and a warehouse and storage area.

A selective flotation milling process is used to concentrate valuable minerals from the raw ore following grinding. The flotation process consists of size reduction, mineral concentration, and moisture reduction of the concentrate. Size reduction involves grinding the ore in semi-autogenous (SAG) and ball mills. Ore enters the SAG mill at a size of 15 inches or smaller and leaves in the 0.05-inch (-16 mesh) size range. The ore then enters the ball mill to be further reduced in size to 80% at minus 74 microns (minus 200 mesh) this material is then slurried. Further size reduction of select flotation material in tower mills assists with the concentration of target metals.

The slurry flows to flotation cells, where carbonaceous wastes, then valuable minerals, are separated from gangue materials in a series of froth flotation processes. The ore minerals in this case are sulfides of lead, zinc, copper, silver, and free gold. Waste includes various silicate, carbonate, and sulfide minerals. The valuable minerals adhere to air bubbles that rise to the surface of the tank and are removed. Small quantities of metallic gold and silver are also recovered on site using a gravity process and melted to form impure doré bars for shipment to off-site refineries.

Following separation of ore minerals from tailings, the concentrate slurries are piped to separate thickener tanks, where the water content is reduced. The thickened slurries are then compression-filtered to remove most of the remaining water. Concentrate products are reduced to some 8% by weight moisture. Tailings material moisture content is reduced to approximately 12%, the optimum moisture level to achieve maximum compaction when placed as mine backfill or at the surface Tailings Disposal Facility (TDF).

In general, tailings are preferentially placed back into the mine as structural backfill, with the remaining material placed at the TDF. Tailings reporting to the TDF are loaded at the concentrator load-out area into covered Maxhaul tractor/trailers, each with a 45-ton capacity, and hauled down the B Road to the TDF (Figure 4-1). Approximately 20 round-trips per day are required, but this varies depending on the daily underground tailings backfill requirements.

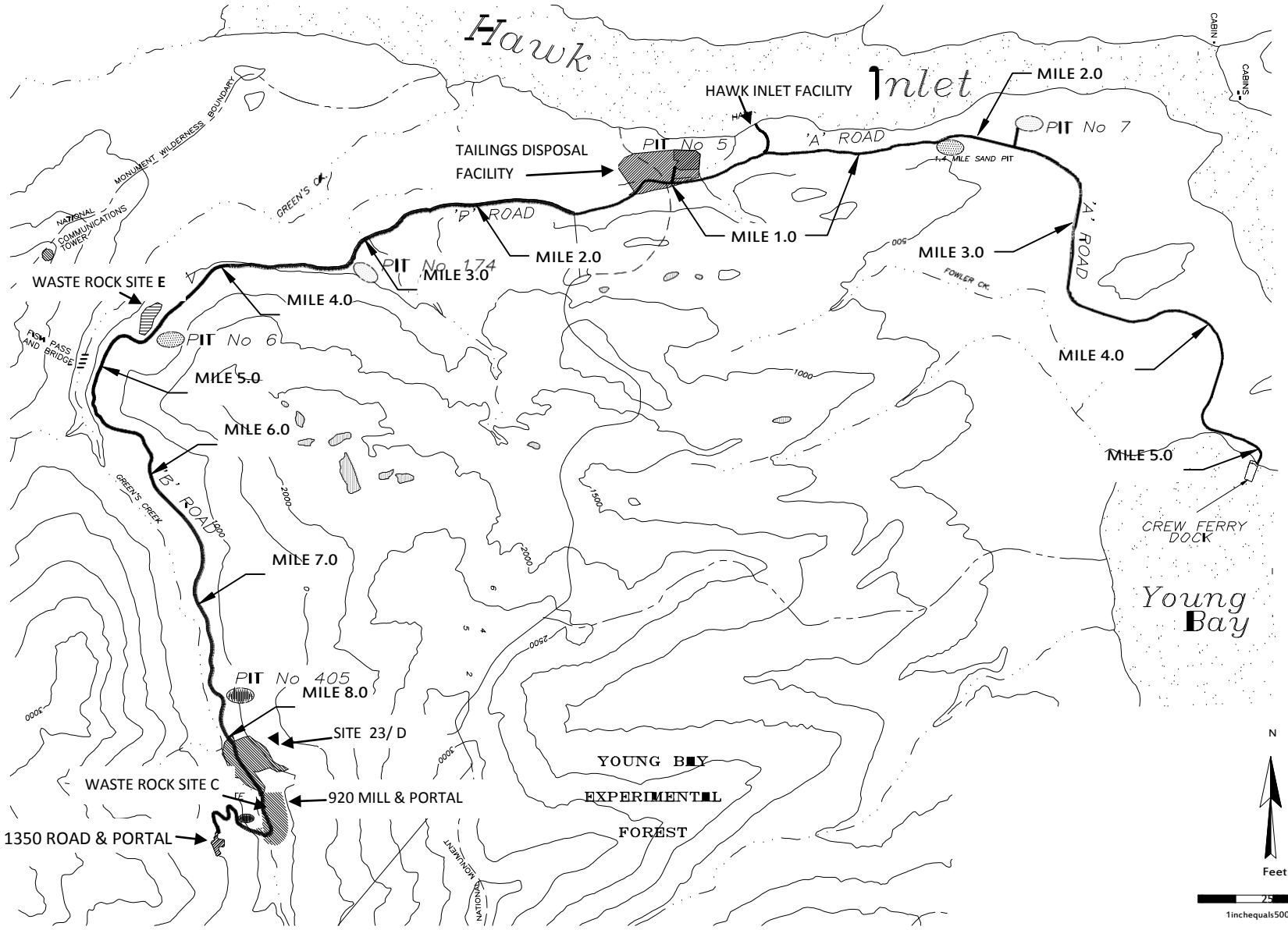
Supplies, such as fuels and reagents, are transported by barge to the Hawk Inlet dock facility and unloaded at the marine terminal complex. The cargo dock is located at the same site as the old cannery dock structure. The barge dock consists of breasting dolphins and a floating dock connected by ramp to land. HGCMC receives a yearly average of 80 barges bringing goods, road rock, and fuel to these Hawk Inlet facilities. Chemicals and containers are unloaded from barges by forklifts and transported to the process site by truck. HGCMC wastes and return materials shipping containers are placed back onto these barges by forklifts.

Hawk Inlet infrastructure also includes 200,000 gallon and 10,000 gallon bulk diesel fuel storage tanks, associated fill piping from the fuel barge unloading dock, a fuel loading facility for vehicles and the tanker truck, an electrical generator building, and warehouse. Less than 1,000 gallons of gasoline is also stored at the fuel loading facility. Assorted lubricating oils and used oils in portable tanks, totes, and drums are temporarily stored at this site's warehouse

prior to their transport to the mine/mill site. A large ore concentrate storage building (maximum 40,000 tons capacity), temporary housing facilities, and ancillary support facilities are also located at the Hawk Inlet site. Chemicals are delivered in dry and wet form in containers by barge, offloaded, and stored at the warehouse at this location.

Concentrates are transported from the mill to Hawk Inlet dock facility by covered haul truck. An enclosed telescoping boom conveyor and drop chute are used to transport concentrates from within the shore storage area directly into the holds of bulk cargo ships. Some twelve to eighteen concentrate ships are loaded by HGCMC annually in Hawk Inlet.

In 2006, the installation of infrastructure to augment the mine's use of diesel-generated power with less expensive hydroelectric power was completed. Although the Snettisham hydroelectric link has the ability to provide cheaper power, the hydroelectric power has to rely on normal or above normal precipitation in order to generate sufficient power for the mine. The Greens Creek operation relies on on-site power generation when hydroelectric power is not available, which was the case after the April 16, 2008 avalanches severed Juneau's connection to the Snettisham hydroelectric project.



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Reclamation and Closure Plan

Title: Greens Creek Site Location Map

JobNo.: 311400.010

FileName: RECL_Fig4-1_Site_Location_20120430_ML_JQG.dwg

Hecla Greens Creek Mining Company

Date: May 2012

Approved:

Figure: 4-1

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4.2 Surface Disturbance

Operations procedures have been implemented to support closure strategies with the use of tailings and waste rock for backfilling to minimize surface area used for final disposal. The primary surface operation consists of the mine portal, mill/warehouse/administration facilities, Site 23/D Waste Rock Disposal (WRD), TDF, Hawk Inlet, material sites, reclamation stockpiles, and Young Bay terminal all connected with 13 miles of access roads (Figure 4-1). The A and B access roads are single lane with vehicle turnouts to minimize disturbed acreage.

4.2.1 Areas and Acreage of Disturbance

The disturbances listed in Table 4-1 are for disturbed areas within the lease boundary on both public and private lands over the life-of-mine of Greens Creek Mine operations. The listed acres are a more refined updated estimate of areas that may be disturbed over the life of mine.

Table 4-1: Areas and Acreage of Disturbance

Project Components	Acres
920 Mill and Portal area	24
Waste Rock Site 23	22
Waste Rock Site D	8
Waste Rock Site 1350 and Portal area	5
1350 Road	4
1160 Tank	1
960 Waste Rock Area	1
Waste Rock Site C and 860 area	4
Waste Rock Site E	10
Tailing Disposal Facility	86
Hawk Inlet and Marine load out area	14
Young Bay Dock Facility	1
Access A Road	27
Access B Road	75
Power Line Right-of-way	35
Topsoil stockpiles & borrow sites	27
TOTAL	**344**

5.0 Reclamation / Closure Planning

5.1 General

HGCMC's long-term goals of reclamation during and after mining and milling operations are to shape, stabilize, revegetate, or otherwise treat the land in order to return it to a safe and stable condition consistent with the establishment of productive post-mining uses of the land. The current designated post-mining uses for the Greens Creek Mine area is for wildlife habitat and recreation as prescribed by AS 27.19.020 and is consistent with the USFS 2008 Tongass Land and Resource Management Plan that includes the Admiralty Island National Monument. HGCMC is currently incorporating practices that include contouring and stabilizing disturbed areas using best engineering practices to create seed beds which invite and promote early seral colonization, and using commercially available native plant species, if available, and soil amendments with proven on site track records.

HGCMC considers reclamation to be a progressive process tied directly to the design, construction, operation, and closure of the mining operation. Reclamation and reclamation planning will or has occurred to meet the following objectives, with some overlap:

1) Satisfy all regulatory requirements;
2) Protect water quality, and public health;
3) Return the site to a near-natural conditions to the extent practical;
4) Support lands uses consistent with the Forest Plan;
5) Minimize or eliminate long-term management requirements;
6) Ensure long-term stability; and
7) Provide a cost estimate for reclamation and post-closure obligations.

HGCMC will continue to adhere to the above general objectives in developing and implementing this reclamation plan at the Greens Creek site. Therefore, the “on-the-ground” implementation of the plan will work to ensure:

1) Stabilization and protection of surficial soil materials from wind and water erosion;
2) Stabilization of steep slopes through contouring and leveling to provide rounded land forms and suitable seedbeds;
3) Management of contact water associated with the mine, TDF, material sites, and waste disposal facility (WDF);
4) Removal and reclamation of material sites and WDF (Site 23/D) to minimize contact water and post-closure water treatment;
5) Establishment of long-term, self-sustaining vegetative communities through reseeding and/or promotion of natural invasion and succession; and
6) Establish water storage ponds and batch water treatment plant for long-term water treatment and management to meet closure water effluent discharge limits.

HGCMC will continue working with the USFS, ADNR, and Alaska Department of Fish & Game (ADF&G) with the implementation and evaluation of both concurrent and long-term reclamation activities.

The physical reclamation of the Greens Creek site will utilize best practicable proven and documented technology. Specific technologies that will be employed to satisfy these performance goals are the responsibility of HGCMC. The details and procedures for area specific reclamation such as the mine, millsite, waste rock facilities, tailing disposal facility, etc. are discussed in Section 6.0.

5.1.1 Land Use

Land Use Prior to Green Creek

Historically fishing and the canning industry have been the primary industrial users of the Admiralty Island coastal area with canneries once located at Angoon, Gambier Bay, Hood Bay, Port Gardner, Pybus Bay, and Hawk Inlet. There is no longer any active seafood processing canneries located on Admiralty Island.

Large scale logging in several bays occurred in the 1950’s and 1960’s. With the reduction of timber sales, changing

market conditions, and designation in 1978 by President Jimmy Carter declaring Admiralty Island a National Monument for the protection of its ecological, cultural, geological, historic, prehistoric and scientific values, logging activities have been minimized. In 1980, Congress designated most of the island as Wilderness and this has resulted in it being the only large island in Southeast Alaska not to have been extensively logged or developed.

Subsistence and recreational hunting, fishing, and wildlife viewing are historic uses and remain the primary attraction due to the high populations of game animals (i.e., Alaska brown bear, and Sitka Black-tailed deer). Wildlife viewing along the shoreline and estuaries in the early mornings and at twilight often provides a glimpse of either eagles or brown bears.

Coal and mineral extraction activities have been intermittent on Admiralty Island since 1895. Some hardrock lode mining occurred during the 1920's and 1930's. Modern mineral exploration and mining activities saw resurgence in the 1970's that ultimately resulted in development of the Greens Creek Mine and associated infrastructure.

Land Use during Greens Creek Operations

Subsistence and recreational hunting, fishing, and wildlife viewing are the main activities island wide. Federal authorizations allow access for hunting along the roads but limits access to the general public in some areas due to the inherent hazards associated with the operation of large mine equipment and process components. Compliance with requirements of MSHA regulations limit access to personnel trained to recognize hazards and observe safety rules to insure the health and safety of employees and visitors.

Proposed Post-Mining Land Uses

The land comprising the Greens Creek Mine, inclusive of all Admiralty Island facilities, consists of both publicly and privately owned uplands and tidelands. Greens Creek leases parcels from the United States on both the Monument and non-monument lands. HGCMC uses other public lands pursuant to special use permits issued by the USFS and leases issued by the State of Alaska. It owns land on Admiralty Island both as a result of patenting mining and millsite claims and through transfer of private lands in the historic cannery area from its predecessor. Additionally, Greens Creek holds subsurface and restricted surface use rights to approximately 7,300 acres of public lands as a result of a land exchange made pursuant to the Greens Creek Land Exchange Act of 1995 (Pub. L. 104-123 April 1, 1996).

Under the land exchange agreement, certain private lands (e.g. patented claims) owned by HGCMC ultimately will be transferred to the United States and the 7,300 acres of subsurface and restricted-use surface lands patented to Greens Creek in 1999 will revert to the United States. The land exchange agreement does not impose special reclamation requirements on these lands. It requires that they must be reclaimed in accordance with applicable laws and the approved reclamation plan.

Final reclamation of the mine facilities will take into account anticipated post-mining land uses. Since such uses likely will be limited primarily to monument-related activities, returning the surface to a near-natural condition should satisfy post-mining land use needs. Private lands that will retain their private status after mining were developed for non-monument uses prior to creation of the Admiralty Island National Monument. After closure, Greens Creek will consult with the ultimate landowners, as well as any agencies having regulatory authority over reclamation of such lands, to determine the final disposition of structures and facilities.

Post-closure water treatment facilities and associated ancillary facilities will remain until all water associated with process component meet applicable discharge standards.

5.1.2 Interim Reclamation

Interim reclamation includes all actions taken to stabilize disturbed areas during operation of the mine. Generally, the focus of interim reclamation is to reduce erosion and sedimentation of waterways, and to protect water quality.

Techniques used to protect slopes from erosion and to reduce sediment delivery into water courses include various Best Management Practices (BMPs) that are described in more detail in Appendix 5 of the General Plan of Operations (GPO). Management actions used to protect water quality include surface water diversion, groundwater diversion, and collection and treatment of contact water. These water management actions are also described in more detail in Section

8.1.4.

HGCMC routinely performs interim reclamation throughout the site. Interim reclamation has included hydroseeding, as well as construction of berms, slope drains, rock check dams, silt fences, and settling ponds, all of which minimize erosion, reduce sediment production in disturbed areas, and stabilize previously disturbed areas.

5.1.3 Concurrent Reclamation

Reclamation that is completed while the mine is still in production is termed concurrent reclamation. Concurrent reclamation differs from interim reclamation in that concurrent reclamation is designed to provide permanent, low maintenance achievement of reclamation goals.

Concurrent reclamation is encouraged for many reasons. First, it allows the mine and agencies to measure the performance of specific reclamation technologies before mine closure and to refine the techniques for site-specific conditions. Next, concurrent reclamation could potentially reduce bonding requirements, following agency sign off. Additionally, concurrent reclamation facilitates the determination of more accurate closure costs. Finally, evaluation of the performance of concurrently reclaimed areas allows for a more accurate assessment of the likelihood that specific reclamation technologies will achieve desired performance goals.

Generally, for areas in which metal leaching and acid rock drainage (ML/ARD) risk may exist, HGCMC will initiate concurrent reclamation based on a site-wide risk assessment, addressing the higher risk sites first, when possible.

Areas that have undergone concurrent reclamation during operations since 1989 are listed in the Annual Reports applicable to the year the reclamation occurred.

5.1.4 Temporary Closure

Temporary Closure means the cessation of the mining and milling operations for a period of not more than three years. If conditions require temporary closure to extend beyond three years, final reclamation will begin, unless an extension is requested by the company and approved by USFS, ADNR, and ADEC. Temporary closure scenarios, which require modifications to the plan of operation, reclamation plan, solid waste, or 404 Permit, will be coordinated with and submitted to the appropriate Federal and State agencies for approval.

Temporary closure may include planned and unplanned cessation of the mining and milling processes. Planned temporary closures which have specific conditions defining their beginning and end include, but are not limited to the following:

1) Interruptions in the active beneficiation processes to provide planned periods of quiescence for metallurgical or operating reasons;
2) Any other planned condition, which will interrupt the active beneficiation process including modification to process components or suppressed metal market conditions; and
3) Change in ownership requiring the temporary cessation of operations while operating permits are transferred to the new owner/operator.

Unplanned temporary closures may include, but are not limited to the following:

1) Closure because of unforeseen weather events;
2) A failure in a major system component or a process failure which causes the fluid management system or a portion thereof to shut down; or
3) The cessation of operations as a result of litigation.

HGCMC will notify the Agencies within ten days of the first day of the temporary closure of any unanticipated suspension or cessation of operations that is expected to last more than ninety days or more. The notice will state the nature and reason for the temporary closure, the anticipated duration of the temporary closure and any event that would reasonably be anticipated to result in either the resumption or abandonment of operations. Project operations must resume for not less than ninety consecutive days in order to terminate the temporary closure status. HGCMC will maintain the project area in a safe and secure condition during a temporary closure and HGCMC will not allow the

project area to be degraded or eroded during or as a result of the temporary closure. HGCMC will continue, in full force, all water collection and treatment, monitoring and reporting required by the reclamation plan unless otherwise agreed to by the agencies.

While the mine operation is inactive, environmental monitoring programs described in the GPO will continue to be implemented. The need for implementation of interim reclamation activities or final reclamation on components of the mine will be addressed on the basis of environmental monitoring results and consultation with the appropriate agencies.

5.1.5 Final Reclamation

After HGCMC has completed operations at Greens Creek, or at any individual facility or mine unit, final reclamation can be initiated. When a facility is no longer needed for mine operation or when it has reached its design capacity, then reclamation will be initiated as soon as practical. It is assumed that at the final stage of operations, a significant amount of site-specific reclamation experience and performance data will have been incorporated into periodic reclamation plan updates. The final reclamation plan will be submitted for approval two-years prior to planned, final reclamation of the facility. Unlike the periodic updates, which make assumptions about the anticipated closure conditions (i.e., Basis of Cost Estimate); the final plan will be based on the actual conditions that exist at closure.

5.1.6 Post-Closure Care and Maintenance

Achievement of many reclamation goals can be expected over a number of years. Following final reclamation, the site will be inspected, monitored, and maintained in a fashion that helps achieve the long-term goals set out in this Plan. HGCMC has determined long-term post-closure water treatment (active) may be required for mine drainage and TDF seepage. Specific water management practices such as batch treatment will be estimated based on closure assumptions prior to final closure, will be defined more clearly when actual closure conditions exist and may be further refined based on information obtained during post-closure monitoring. Appendix B provides more details on assumptions regarding post-closure care and maintenance.

5.2 Reclamation Plan Submission and Approval

HGCMC will continue to submit an updated Reclamation Plan as required to keep current with operations, regulatory changes, and issues identified during the regular five year third-party Environmental Compliance Audits. Each updated and revised Plan will contain sufficient detail to allow for calculation of estimated closure costs including post-closure maintenance and monitoring. The Plan will identify how the reclaimed facilities will conform to relevant performance standards.

More frequent Plan revisions may be required by the agencies if substantial increases in the disturbed area have occurred since the last update, or if specific portions of the Plan are shown to be inconsistent with performance goals.

The Plan shall contain cost calculations and a tabulation of material quantities required to complete the reclamation. The Annual Report contains a description concurrent reclamation that has occurred and anticipated reclamation projects for the following year.

The Reclamation Plan and other relevant GPO appendices will be maintained in accordance with agency monitoring requirements. These documents describe the sites monitored, the data collected, and the monitoring frequency and duration.

5.3 Reclamation Cost Calculation and Bond Release

The regulatory agencies have coordinated their financial assurance authority through a Memorandum of Understanding (MOU) to require financial assurance for performance of reclamation and facility closure and post-closure monitoring activities at Greens Creek. Proof of financial assurance, which may take any form mutually agreed upon by the agencies and HGCMC, is referred to as a “bond” in this section. Unless otherwise agreed between the agencies and HGCMC, the bond amount will be calculated on the basis of the Reclamation Plan and use of the Standard Reclamation Cost Estimate

Model (SRCE) Version 1.4.1 Build 16. The bond will address all costs that would be incurred by the agencies in taking over reclamation activities in the event of Operator default (Appendix B).

5.3.1 Incremental Bond Release

A site or area will be eligible for release or partial release of the bond amount directly attributable to that site or area when all pertinent aspects of final reclamation activities are complete. This includes, but is not limited to removing any facility and necessary materials, grading the surface, applying cover-soils as necessary, applying the approved final seed mix, and the area exhibits vegetative cover meeting the specific plant community goals as specified in Section 6.2.2. Bond release can be sought for areas reclaimed concurrently (during operation) or after final reclamation.

For a site or area subject to overlapping jurisdiction of the agencies, concurrence from all agencies having jurisdiction over the site or area will be sought as to the completeness of the reclamation. HGCMC will apply for incremental bond release by submitting a letter to the appropriate agencies requesting release of the specific site or area(s). The letter will summarize the conducted reclamation activities, the reclamation activity schedule, and the final revegetation completion date.

The agencies will approve incremental bond release through a process upon which they have agreed. The agencies may require a joint agency/HGCMC site visit to confirm that HGCMC has completed pertinent reclamation activities at the site or area(s). These reclamation requirements will be described in the final reclamation plan, in the waste management permit, and in other applicable permits. If required, HGCMC will continue monitoring the site or area(s) in compliance with applicable permits or approval until the agencies release the entire bond.

5.3.2 Bonding and Management during Post-Closure

After mining activities are completed in a particular area, HGCMC will return the area to a near-natural condition using the pertinent procedures described in this Reclamation Plan. After closure, a portion of the site's total bond will be retained for a period to be determined in consultation with the agencies, in light of the applicable post-closure care requirements, to provide for personnel, materials, equipment, and repairs necessary for monitoring, maintenance, and post-closure water management (active and passive water treatment).

If monitoring shows that a site or area is not satisfactorily progressing toward meeting performance goals, HGCMC, will within 60 days of problem identification propose for the agencies' concurrence a written corrective action plan which may require either or both:

- Continued monitoring, with continued retention of the remaining bond amount, over an extended period until progress is made toward satisfaction of the performance goals
- Implementation of additional remedial measures to correct the situation delaying or preventing attainment of those goals

If remedial measures are implemented, HGCMC will, at the discretion of appropriate agencies, restart the monitoring period, which will delay bond release. The agency holding the bond, in accordance with the agreement among the agencies, may proceed with final bond release if the problems being addressed through remedial measures represent an insignificant proportion of the disturbed area compared to the overall success of the reclamation closure.

5.3.3 Bond Release

Final release of the bond for the physical reclamation and closure of facilities will occur when monitoring demonstrates that performance goals/objectives described in Section 5.0 have been met and any post-closure monitoring required by an applicable permit or approval has been satisfactorily completed. Application for and final bond release will follow the same protocol as described above for incremental bond release. Removal of monitoring equipment and abandonment of monitoring wells (according to ADEC regulations) will follow the joint agency/HGCMC site visit for confirmation of final bond release.

Long-term post closure water treatment, monitoring, and periodic dam safety inspections will have specific financial

assurance to provide funding for potential in perpetuity operation of the designated post-closure facilities.

5.3.4 Reporting

Annual reports submitted by HGCMC will include a tabulation of disturbed and concurrently reclaimed acreage for the previous year and a description of reclamation activities planned for the following year. Annual reports are submitted to the USFS, ADEC, ADNR, and the U.S. Army Corps of Engineers (COE). Additionally, performance monitoring of reclaimed areas, and post-closure monitoring results will be reported.

6.0 Reclamation Goals and Procedures

General procedures for physical stabilization and revegetation of mined land disturbances are well documented and proven. Additionally, the procedures discussed herein for the development and management of reclaimed process components, contact water, and storm water runoff associated with the Greens Creek Mine and infrastructure. These proven techniques are incorporated throughout the Plan and, in coordination with the agencies will be continuously used during the implementation phase of final reclamation.

The ultimate goal of final reclamation of the site is to blend into the natural landscape features of Admiralty Island, minimize or eliminate long-term management requirements, and meet applicable AWQS for surface and groundwater, which is consistent with the 2008 Tongass Land and Resource Management Plan.

6.1 Aesthetics

The final reclamation plan will be reviewed by a designated professional staff from USFS, ADNR, and ADEC to assess the degree to which the reclamation plan meets the aesthetic goals of the plan. Examples of aesthetic considerations in a reclamation plan may include but are not limited to:

- reduction in the extent of long uninterrupted slope crests with the same elevation;
- design of contours on reclaimed facilities that have crenulations in plain view (e.g. having an irregularly wavy or serrate outline) that approximate those found in surrounding landforms;
- creation of slopes that have a similar profile to those found in surrounding landforms (e.g. concave or convex profiles); and
- integration of natural drainage networks into reclaimed slopes.

Aesthetic considerations may conflict with other performance goals such as stability or environmental performance of engineered covers. Where such conflicts exist, environmental protection shall take precedence over aesthetics.

6.2 Earthwork and Revegetation

Reclamation will require extensive earthwork. The mill/administration/warehouse complex will require removal of potentially acid generating rock (see SRCE User Sheet 1), grading, contouring, and possible growth media application. The TDF will require final cover construction. Generally, slopes will be constructed to 3H:1V, shallower where feasible, or match surrounding topography. Figure 6-2 and Figure 6-4 depict typical post-reclamation topography (i.e., end of operations) of the Greens Creek reclaimed access roads and the TDF once final regrading of surfaces has occurred. Potentially acid generating rock encountered in the access roads will be hauled to the TDF or underground (See SRCE User Sheet 1).

Growth media is generally described as material that will support vegetation following reclamation. It may contain organic matter, but HGCMC experience indicates that “topsoil” is not necessary for successful revegetation of disturbed areas at the site. HGCMC will use growth media salvaged from construction of access roads, material sites, TDF, and TDF ponds for reclamation and construction of covers on the TDF. Table 6-1 lists volumes of stockpiled reclamation material and the location of stockpiles are shown in Figure 6-1. Additional growth media needed to complete reclamation will be imported from off-island sources as needed for cover cap construction and revegetation.

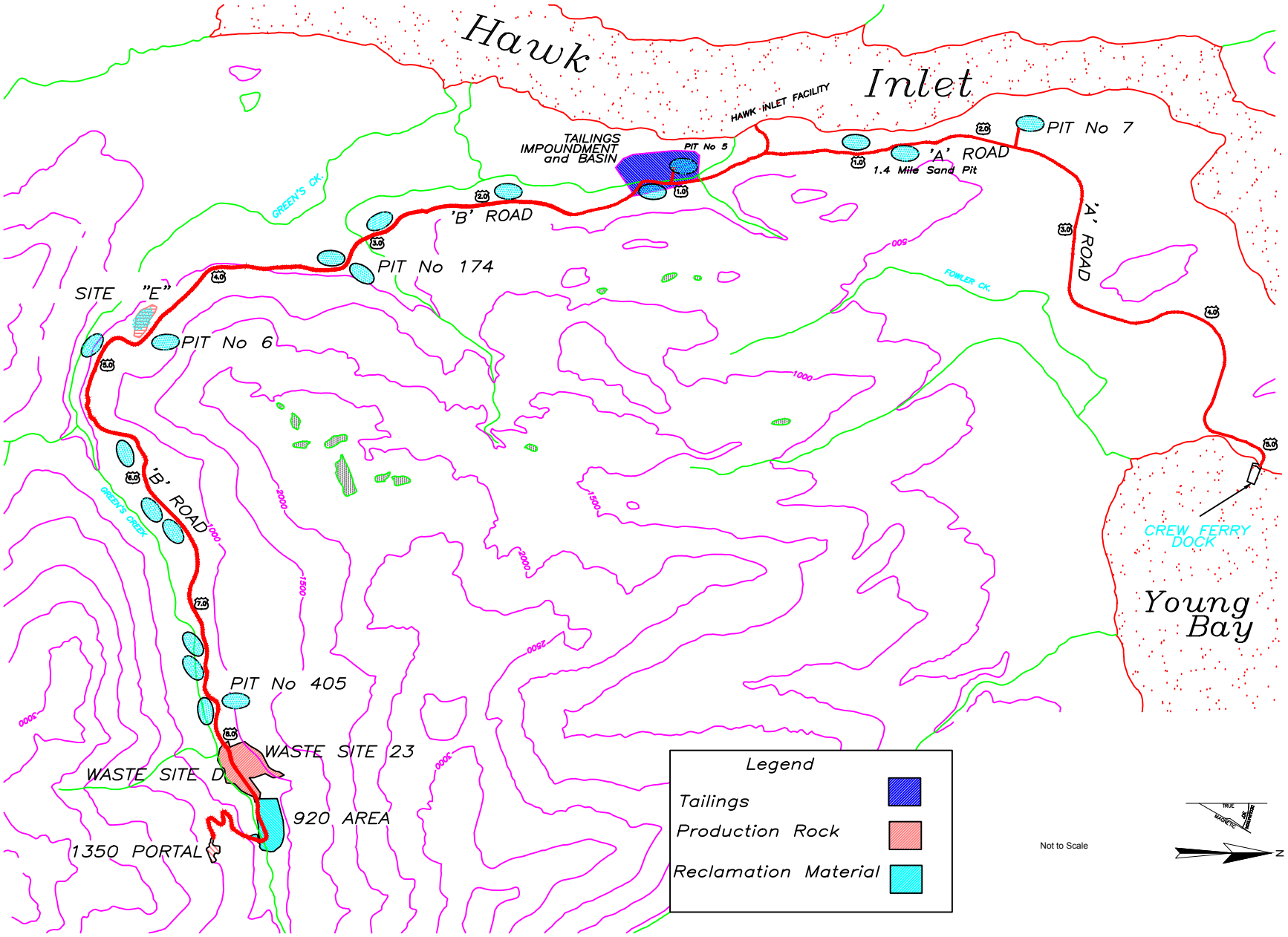
Reclamation materials, such as topsoil, till, and marine sediments are salvaged when practical and stockpiled in a manner that keeps them separate from other materials. HGCMC keeps an inventory of reclamation material stockpiles that documents their location and content so they can be located and utilized during mine closure (Table 6-1). Sites D and E have material that is suitable for the barrier layer of the cover. This silt/clay/gravel till was excavated from the mill site during construction of the mill and is currently overlain by waste rock at sites D and E. Reclamation of these sites will entail removing the waste rock in a manner that prevents comingling with the till material. Once the waste rock is removed, the till will be available for use in construction of the cover at the tailings facility. The clay matrix of the till has inhibited downward flow of drainage from the waste rock through the till.

Earthwork will utilize industry standard heavy equipment. It is anticipated that the equipment list will include dozers (track and rubber tired), water truck, motor graders, hydroseeder, grid compactor, broadcast seeder, straw blower, and disk harrow. Other equipment such as (but not limited to) front-end loaders, track and tire mounted backhoes, and haul trucks may be substituted for or included with this general equipment list. Equipment needs and use must and will remain dynamic, as specific conditions require during implementation of the plan.

Table 6-1: Total Volumes of Stored Reclamation Material

Material	Location	Reclamation Soils Subtotal by Volume (yd^3)
Till	0.9 mile A Road	4,458
Till	1.2 mile B Road	60
Peat/Organics	2.8 mile B Road	664
Till	3.2 mile B Road	5,300
Till	4.6 mile B Road	7,640
Mill Site	4.9 mile B Road	22,000
Till	5.9 mile B Road	1,165
Till	6.2 mile B Road	14,402
Till/Organics	6.3 mile B Road	672
Till/Organics	6.4 mile B Road	720
Till	7.3 mile B Road	3,810
Till	7.4 mile B Road	1,746
Till	7.5 mile B Road	647
Till	7.6 mile B Road	4,056
Till	Pit 405	10,895
Till	Pit 174	10,375
Till	Pit 6	18,418
Till/Organics	Site 23	8,000
Till	Tailings Pond 7	40,000
Till/Organics	Pit 7	107,000
Approximate	**Total**	**262,028***

*as of September 12, 2011



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Job No.: 311400.010

File Name: RECL_Fig6-1_Stockpiles_20120430_JQG.dwg

Hecla

Hecla Greens Creek Mining Company

Reclamation and Closure Plan

Title:

Reclamation Material Stockpiles

Date: April 2012

Approved:

Figure: 6-1

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6.2.1 Revegetation

Disturbed areas at Greens Creek will be reclaimed to one of three vegetation types including upland meadows, upland forest, or wetlands (*A Revegetation Manual for Alaska*, 2008). Specific seed mixtures, woody seedling density, and maps showing each vegetation type will be submitted with the final reclamation plan and subsequent reports.

Revegetation success will be monitored for three years following seedbed preparation, fertilization, and seeding, mulching, and temporary erosion control measures. Fall revegetation surveys will be conducted the first year and a fall survey will be conducted the second and third year. Growth, ground cover, and species survival will be measured and reported on an annual basis. Specific goals for different plant communities are specified in Section 6.2.2.

Upland Meadow Areas

Areas reclaimed with grass and forbs on Admiralty Island have shown significant use by a wide range of wildlife species i.e., deer, bear, rodents, raptors, and songbirds. HGCMC will generally limit open meadow areas to 10 contiguous acres to enhance edge-effect, benefit wildlife, improve aesthetics, and advance the rate of succession to the next seral stage. Forbs will propagate as natural volunteers and will not be planted or included in the seed mix

Upland Forest Areas

Forest stands will be developed using a combination of natural regeneration and reseeding or transplanting. Natural regeneration is preferred over planting as a means of establishing a coniferous overstory in small areas where seed sources are available. Natural regeneration will ensure re-establishment of Admiralty Island genotype species, follow natural successional stages, and provide unique wildlife habitat during stand development. Naturally-regenerated plants are well adapted to growing on site. The seeds either migrate from surrounding native plants or, in many instances, are already in the soil. Natural regeneration benefits the environment by ensuring the succession of naturally occurring, site adapted genotype species.

According to an Alaska Forest Management Education Alliance pamphlet on Forest Regeneration, Alaska has some unique regeneration opportunities that relate to the type of trees and cold soils in Southeast Alaska. The coastal forests of Southeast Alaska regenerate very quickly and profusely. Approximately 95% of disturbed areas seed-in naturally from surrounding stands. Western hemlock and Sitka spruce grow rapidly in this area. Natural regeneration of these climax species is evident throughout areas previously disturbed by HGCMC activities and in areas without any reclamation preparation.

HGCMC will utilize natural regeneration as the primary method of woody plant restoration in areas seeded as upland forest and in smaller disturbed areas where adequate seed trees are present. Accelerated regeneration through seeding will be implemented if necessary in more expansive reclaimed areas (several acres), or in areas that require stabilization (*Alaska Coastal Revegetation & Erosion Control Guide.* 2010). Accelerated regeneration would consist of planting more of the climax species to minimize large open areas and accelerate succession.

In areas where the trees propagate either from natural regeneration or from planted seedlings, HGCMC may thin the subsequent growth to allow the remaining trees to grow more quickly and achieve climax forest conditions[1].

Wetland Areas

Wetlands provide food, protection from predators, and other vital habitat factors for many fish and wildlife species. Wetland systems have economic value associated with recreational, commercial, and subsistence use of fish and wildlife resources. In addition, wetlands remove sediment from overland flows before they reach lakes, rivers, and bays. Wetlands intercept storm runoff and release floodwaters gradually to downstream surface and groundwater systems. A significant portion of the Greens Creek temperate rain forest setting supports wetlands. Riparian, muskeg, and forested wetland communities all occur in the area (*Streambank Revegetation and Protection – A Guide for Alaska.* 2005).

[1] As determined by the generally accepted Silvicultural Prescription for coastal forests of Southeast Alaska

Seed Mixtures:

Previously Approved Seed Mix for All Areas

The following specific seed mix was previously approved by the USFS for use in all areas being reseeded for interim, concurrent, or final reclamation at the Greens Creek Mine. This seed mixture will be phased out as the stored seed is depleted

Common Name	Scientific Name	% of Mix
Annual ryegrass	*Lolium perenne* ssp. *multiflorum*	40%
'Boreal' Red fescue	Festuca rubra	40%
'Arctared' Red fescue	Festuca rubra	20%

If either boreal red fescue or arctared fescue is unavailable, then the amounts of the available two may be adjusted to total 100%.

The application for hydric or wetlands seeding using the seed mix would be 15 lbs of pure live seed (PLS) per acre. Approximately 15 to 30 lbs of PLS per acre would be applied for mesic or upland areas depending on surface contours, grade, aspect, and rockiness of the specific site.

Revised Seed Mix for Mesic (Upland) and Hydric (Wetland) Areas

Upland

Common Name	Scientific Name	% of Mix
'Nortran' Tufted hairgrass	Deschampsia caespitosa	60%
'Boreal' Red fescue	Festuca rubra	20%
'Arctared' Red fescue	Festuca rubra	10%
'Gruening' Alpine bluegrass	Poa alpina	10%

The ADNR, Plant Material Center[2] recommends a broadcast seed at a rate of 43 pounds per acre for areas completely devoid of vegetation or when native species may be inhibited from moving into the site. For other areas the application rate for the Upland seed mix would be approximately 15-30 lbs of PLS per acre depending on surface contours, grade, aspect, rockiness of the specific site. A lower seeding rate also allows for species to move in by natural reinvasion.

Wetland

Common Name	Scientific Name	% of Mix
'Egan' American sloughgrass	Beckmannia syzigachne	45%
'Norcoast' Bering hairgrass	Deschampsia beringensis	40%
'Kenai' Polargrass	Arctagrostis latifolia	10%
'Sourdough' Bluejoint reedgrass	Calamagrostis canadensis	5%

Broadcast seed at a rate of 30 lbs per acre for areas completely devoid of vegetation and when native species may be inhibited from moving into the site. For other areas the application rate for the presently proposed seed mix would be 15 lbs of PLS per acre.

Fertilizer

Chemical fertilizers will continue to be used with the following chemical analysis and application rate (depending on availability):

- 10-20-10 (10% nitrogen, 20% phosphorus, and 10% potassium): 200 lbs/acre (225 kg/ha) or
- 22-13-6-7S-1Mg (22% nitrogen, 13% phosphorus, 6% potassium, 7% sulfur, and 1% magnesium; 200 lbs/acre (225 kg/ha) and
- 46-0-0 (nitrogen urea): 100 lbs./acre (110 kg/ha)

The specific fertilizer used will be based on availability and with prior agency notification.

[2] ADNR, Plant Material Center recommended hydric and mesic seed mixtures for the Greens Creek Site – February 14, 2014

Mulch

Disturbed areas within the Greens Creek site vary in the amount of organic matter in the growth media placed prior to seeding and fertilizing. The rate of mulch (organic materials) added has varied from 100 lbs/acre (110 kg/ha) to 1,800 lbs/acre (2,018 kg/ha). For planning purposes and closure cost estimating, the higher application rate will be used, but actual field application rates may vary depending on site specific conditions.

6.2.2 Specific Plant Community Goals

Vegetation on reclaimed areas at Greens Creek will be subject to the monitoring requirements and performance standards described below. Roads used for permanent access and other areas where buildings are maintained for post-mining use, will not be subject to vegetation standards.

Vegetation success will be monitored through annual inspections, as well as by surveys of the reclaimed areas in years 1, 2, and 3 following completion of reclamation activities. HGCMC will submit reports to the USFS, ADEC, ADNR, and COE describing the results of these revegetation surveys by the first quarter of the calendar year following completion of annual data collection and monitoring activities. The reports will include an assessment of vegetation success. Climatic variation and its effects on vegetative growth rates will be considered in this assessment.

Vegetation establishment and success on each reclaimed facility will be monitored through the establishment of transect lines. Transect locations for all reclaimed areas shall be selected by HGCMC in consultation with the appropriate agencies. Vegetation inspections of all reclaimed areas will follow the following guidelines:

- visual inspections of vegetation cover by life-form will be conducted (including annual grass, perennial grass, forbs, shrubs, trees, litter, and standing dead). Evidence of dieback, subsidence, slope failures, or erosion will be noted;
- inspections will be conducted on permanent transects;
- pedestrian traffic will be restricted to the downhill side of the transect line and people will not be allowed to walk on the plots; and
- vegetation monitoring will be conducted once each year during peak standing biomass.

Revegetation efforts will be considered successful when the following conditions are met:

- the total vegetative cover (including live biomass of perennial species, litter, and standing dead) in each revegetated area is equal to or exceeds 80% aerial cover, with a 90% statistical confidence limit;
- the density of actively growing trees is within 80% of target levels contained in the approved reclamation plan with a 90% statistical confidence;
- the reclaimed wetland and plant meadow areas have at approximately 90% total cover with graminoids and herbal species i.e., Deschampsia cespiosa, Lupinus nootkatensis, Sanguisorba canaden, etc.; and
- the reclaimed upland forest areas have a mixed conifer stand of at least two species of trees and one species of shrubs present with a mixed stand of approximately 222 trees per acre.

If vegetation monitoring indicates that, due to natural or other causes, a reclaimed area does not exhibit the potential to achieve the revegetation standards described above; a report will be prepared which describes the area in question, the situation as identified, probable causes, and a corrective action plan. This report will be submitted by HGCMC to the appropriate agencies within 60 days of problem identification. Following approval of the plan by the appropriate agencies, HGCMC will implement the plan in a timely manner. The corrective actions to be taken may include, but need not be limited to, re-establishment of topsoil thickness, reseeding, and replanting of trees and shrubs.

6.3 Wildlife Use

HGCMC will conduct qualitative wildlife species counts to monitor wildlife habitat utilization and wildlife habitat potential of the reclaimed areas if so stipulated by the agencies involved. These counts will be conducted and reported on an annual basis.

6.4 Fish and Fish Passage

The infiltration gallery and weir in upper Greens Creek above the 920 portal will be removed at final closure. HGCMC will collaborate with ADF&G, Habitat Division on the final stream bed substrate and gradient.

The constructed Fish Pass, located near river mile 3.5 on Greens Creek, will be maintained after final closure or re-engineered to meet the long-term fish passage goals set by the ADF&G, Habitat Division, HGCMC, and the 2013 ROD. Alternatives to maintaining constructed weirs may include excavation of material or blasting to create a stable long-term natural gradient that provides fish passage.

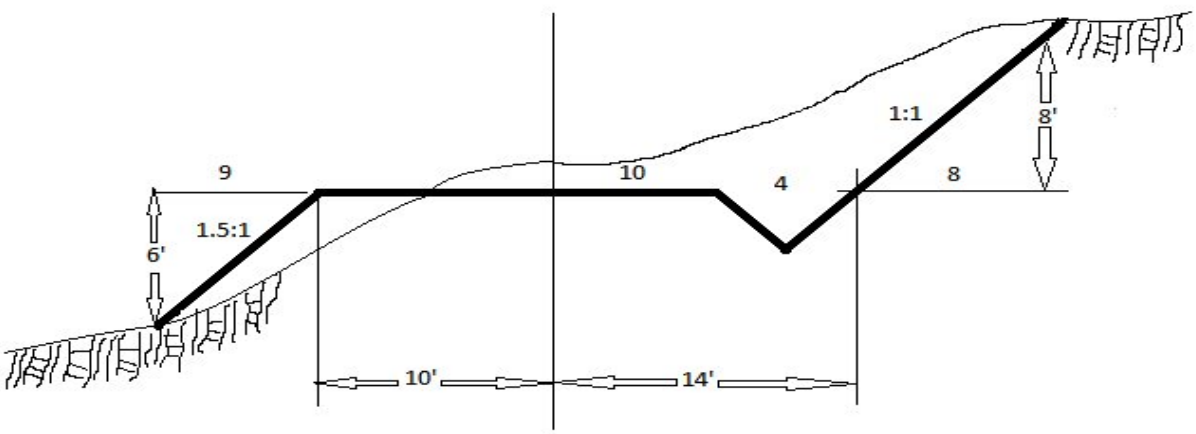
6.5 Roads and Site Access

The primary access roads from Young Bay to Hawk Inlet and from the TDF to the mill area and portal will be removed at closure. Access from Hawk Inlet to the Waste Water Treatment Plant (WWTP) located at the TDF site (Figure 6-3) will be maintained because the continued collection and treatment of contact water (Section 7.1.4) will require access to maintain and replace equipment (i.e., pipe, tanks, pumps, etc.), deliver reagents, and monitor operations of WWTP facilities.

6.5.1 Bridges and Culverts

Bridge components on the B Road and over Greens Creek that are necessary to provide pipeline crossings will be retained. Nonessential bridge components (e.g. wood decking, deck supports and splash guards) will be removed. Access to these structures will be via helicopter. Other structures (e.g. road ditch culverts) will be removed during reclamation of the road.

Figure 6-2: Typical Road Cut / Reclaimed Slope

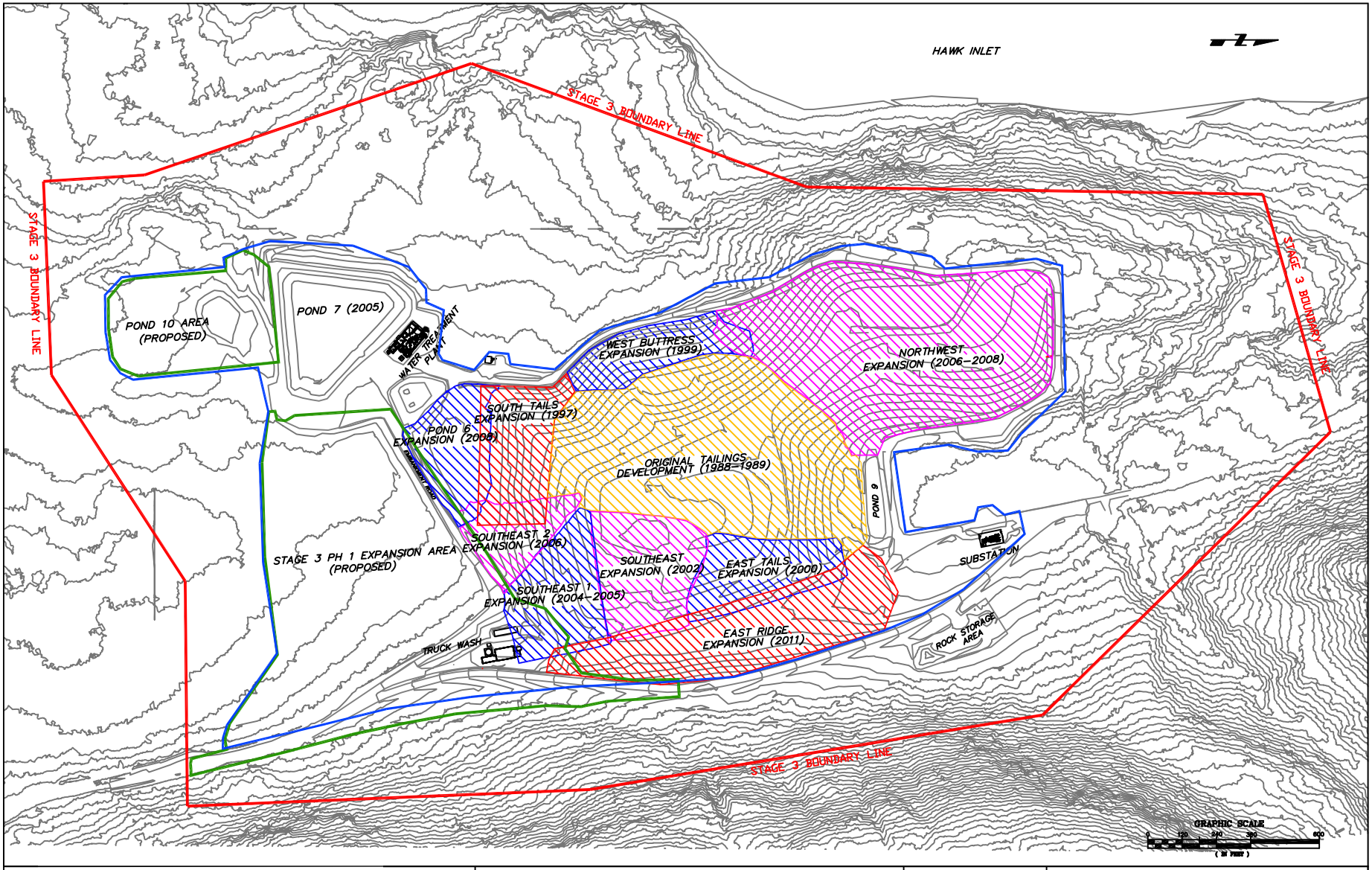


6.6 Waste Rock Disposal and Tailings Disposal Facilities

Material from WDF (Site 23/D) will be transported to the TDF or underground for final disposal. The original ground surface will be recontoured and growth media placed for revegetation. The TDF will be contoured and reclaimed with an engineered cover. The cover will be designed to include a low permeability layer or oxygen excluding layer consisting of a mixture of silt and clay covered with growth medium to promote revegetation of the areas (Figure 6-4)[3]. Drain layers consisting of sand and/or gravel may also be incorporated into the cover to promote lateral drainage within the cover profile and act as a capillary break between cover layers and the tailing pile. Pond 7, Pond 10, and two new

[3] HGCMC have commissioned studies by the Oregon State University on vegetative cover growth, including conifer reinvasion and windblown trees, on integrity of the cover that indicate the cover will meet the objectives of the design (OSU 2010).

storage ponds at or below the level of Pond 7, at the TDF (Figure 6-3), will remain to provide adequate storage for seepage, underdrain, and storm water collected at the TDF. Furthermore, eventual mine drainage will report to this pond system. In addition to Pond 7, if any of these additional ponds is defined a dam as specified by ADNR, requirements for operation, abandonment or removal will be included in the appropriate revision of the Plan. Assumptions regarding the operation and maintenance costs for ponds are included in Appendix B and SRCE. Once vegetation is established and surface water runoff meets the applicable AWQS, only TDF seepage and underdrain water, mine drainage, and precipitation (directly into the ponds) will be collected and stored for batch water treatment.



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HECLA GREENS CREEK MINING CO.

P.O BOX 32199 JUNEAU, ALASKA 99803
PHONE:(907) 789-8100

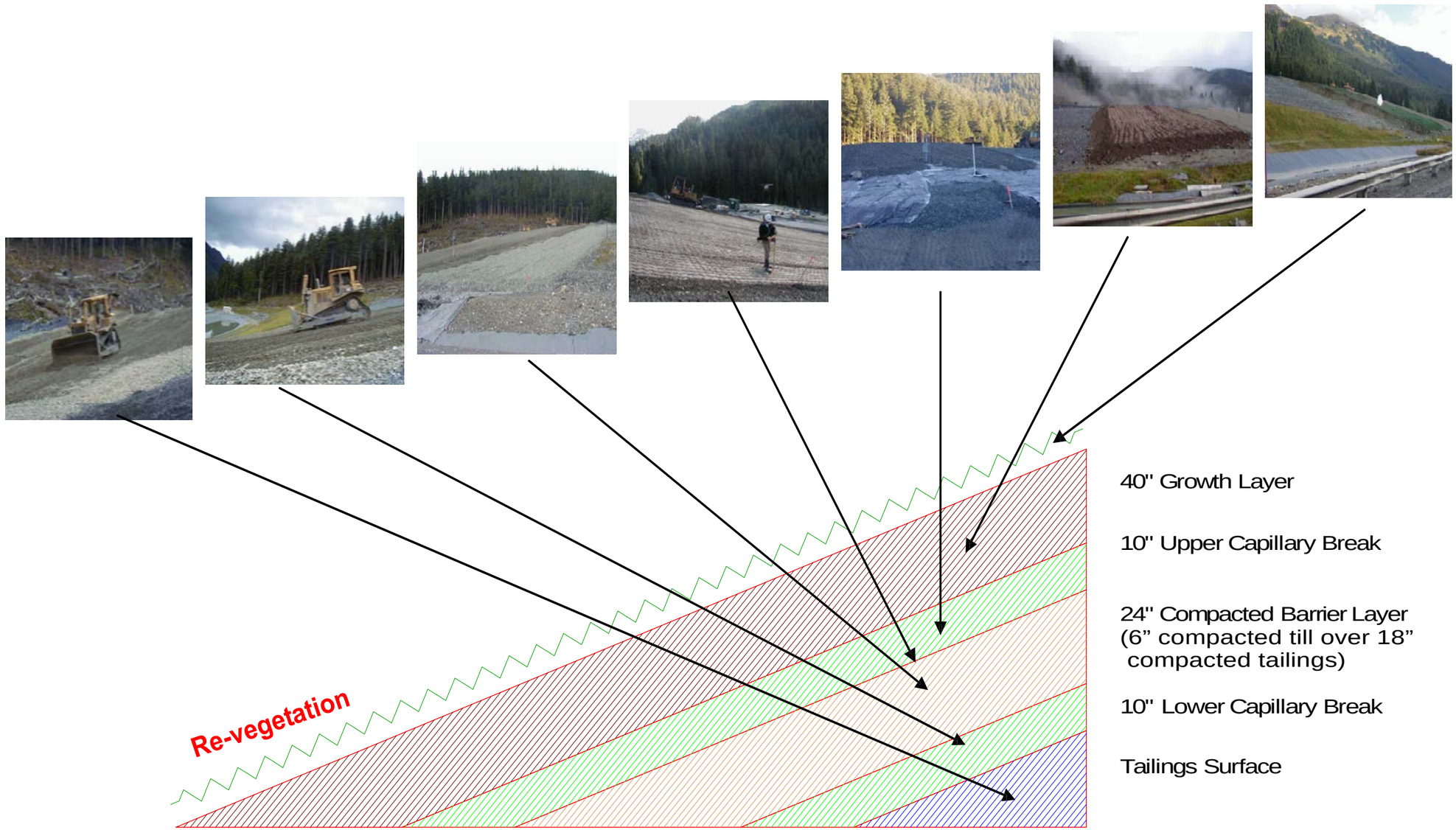
DRAWING BY: S.EDWARDS
DESIGN BY: ----
REVIEWED BY: BLP
PROJ REF: GPO

TITLE:
TAILINGS FACILITY EXPANSION AREAS (wS3P1)

DATE: 12/31/13

FIGURE: 6-3

Figure 6-4: Engineered Cover – Typical 4 Layer Installations



Typical 4 Layer Engineered Cover for Reclamation placed on a 3:1 Slope

6.7 Demolition of Structures and Equipment

6.7.1 Mine Portals

The 1350 Portal and two surface ventilation shafts will be sealed and the area recontoured to promote runoff away from the sealed portal, vent shafts, and reclaimed 1350 waste rock site. The access road from the 920 Portal to the water tank and 1350 Portal will be reclaimed after the upper portal and ventilation shafts are sealed, and water tank removed (Figure 6-5).

Four exploration drill holes (2.15 inch diameter) from the 1,350 elevation will be grouted and three internal mine ventilation shafts (8.0 ft. diameter) between levels will be plugged with concrete. A bulkhead will be constructed at the 920 Portal and the workings will be allowed to flood naturally. When the flooded underground water level reaches the 920 Portal bulkhead it will flow via gravity pipeline to the TDF water treatment plant or a passive system if it is determined that adequate treatment is provided to meet Alaska Water Quality Standards (AWQS).

6.7.2 Hawk Inlet Facilities

The facilities at Hawk Inlet are owned by HGCMC and will be partially reclaimed to leave only the historic cannery buildings (Figure 6-6). The concentrate storage and load out facility will be decontaminated (with power washer), demolished, and material recycled or disposed of in the TDF, or underground workings of the mine. Fuel storage tanks will be dismantled and removed from the site as scrap steel. The warehouse, shipping containers (Conexs), shift housing, tanks, core shed, maintenance building, and assorted trailers will be dismantled, demolished, or recycled as appropriate for the structure.

HGCMC will defer a final decision on the demolition and reclamation of the drinking water and sewage treatment facilities until a final post-mining use of the Hawk Inlet historic buildings is determined.

6.7.3 Young Bay

The A Road east of the tailings pile to Young Bay and dock facility lies outside of the National Monument in an area with a Land Use Designation of “Semi Remote Recreation”; as such, the two areas are treated slightly different within the Forest Plan in regards to minerals development and reclamation. For cost estimating purposes HGCMC assumes the A Road will be reclaimed during the closure period (Years 1-3) and the electrical transmission line will remain until Year 10. Access to the electrical transmission line by the third party owner of the line (Kwaan) following road removal will be by helicopter as in other remote areas within their distribution network. Maintenance and removal of the power line is the responsibility of the third party owner. The existing barge, pier facilities, and pilings will be removed at final closure. Pilings that cannot be pulled out will be cut at base level.

6.7.4 Solid Waste

Structures that have been constructed on Forest Service administered lands, plant site, and other structures not identified to remain for post-mining use will be demolished. All material and equipment will be salvaged and recycled when cost effective. All hazardous materials will be removed as described in Section 6.7.5 below. Materials that cannot be salvaged will be disposed of in designated areas of the underground workings as approved under the *Waste Management Permit No. 0211-BA001* issued by ADEC, removed from the site for disposal, or disposed on-site in an appropriate manner. If applicable, a solid waste permit will be obtained for on-site disposal of demolition debris.

HGCMC will recover and remove all salvageable equipment, instrumentation, furniture, unused chemicals and fuels, and other salvageable or waste material following permanent closure of the operation. Removal will consist of loading at the site, transporting to the HGCMC Hawk Inlet facility and offloading to a barge. These materials will either be shipped to buyers, recyclers, or to an approved waste disposal area.

6.7.5 Hazardous Materials

Hazardous materials that remain on-site at the time of final reclamation, whether in the form of unused process reagents, fuels or lubricants, or as residue from demolition of the site (contaminated soil, etc.) will be removed from Admiralty Island and will be properly recycled or disposed under applicable State and Federal law (SRK 2011).

6.7.6 Miscellaneous Sites and Equipment

Wells and Well Closure

Once monitoring of the TDF and other process components indicates component stability, the applicable monitoring wells for those facilities would be abandoned by plugging the well and removing the surface casing. Well abandonment will be conducted in accordance with ADEC regulations (18 AAC 80.015). Abandonment procedures generally include removal and disposal of pumps and piping, removal of the casing where possible, perforating the screened portion of the well, plugging of the well with an approved sealing material at total depth, removal of the collar, minor grading around the well site, and revegetating the area as appropriate (i.e., seeding, mulching, etc.).

At Greens Creek, bentonite or cement grout would be forced into the perforated screened interval and into the remainder of the well casing to decommission the well in a way that protects the groundwater resources.

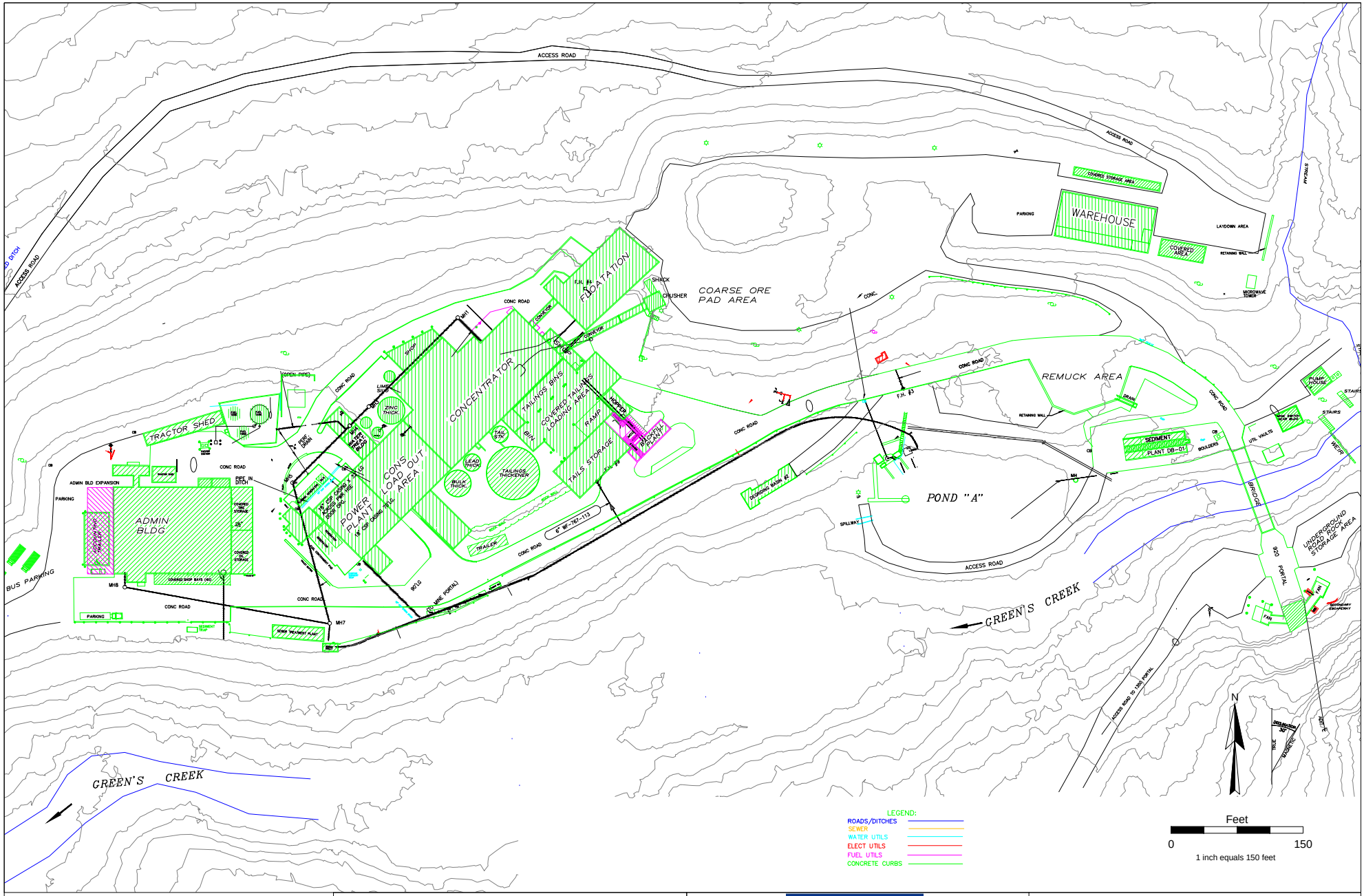
After mining and milling ceases, additional wells not needed for post-closure monitoring will require abandonment. This procedure will be revisited on a periodic basis as additional operating data becomes available and during development of final process component closure plans.

Fence Removal

The use of fences as a post-mining reclamation structure would be minimized in favor of more permanent structures, such as earthen berms, to restrict access. The use of fencing during closure will be limited to reagent areas for the WWTP or until such time that all reagents and chemicals (including, but not limited to petroleum products) are removed from the site. During final site closure, all manufactured fencing will be removed except in those area previously noted.

Mobile Equipment

For the purposes of this plan, no salvage value will be assigned to the mobile equipment. Mobile equipment and other equipment not needed for future potential uses of the site will be salvaged and removed from the site. Mobile equipment not designated for removal will be buried in designated area of the underground workings at closure. To prevent degradation of water resources or other contaminant mobilization, batteries will be removed and all fluids will be drained from all mobile vehicles prior to final disposal underground. The equipment burial locations would be surveyed and reported to the ADEC in the final closure report for the site.



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Hecla

Hecla Greens Creek Mining Company

Reclamation and Closure Plan

Title:

Mill Site and 920 Portal

Date: April 2012

Approved:

Figure: 6-5

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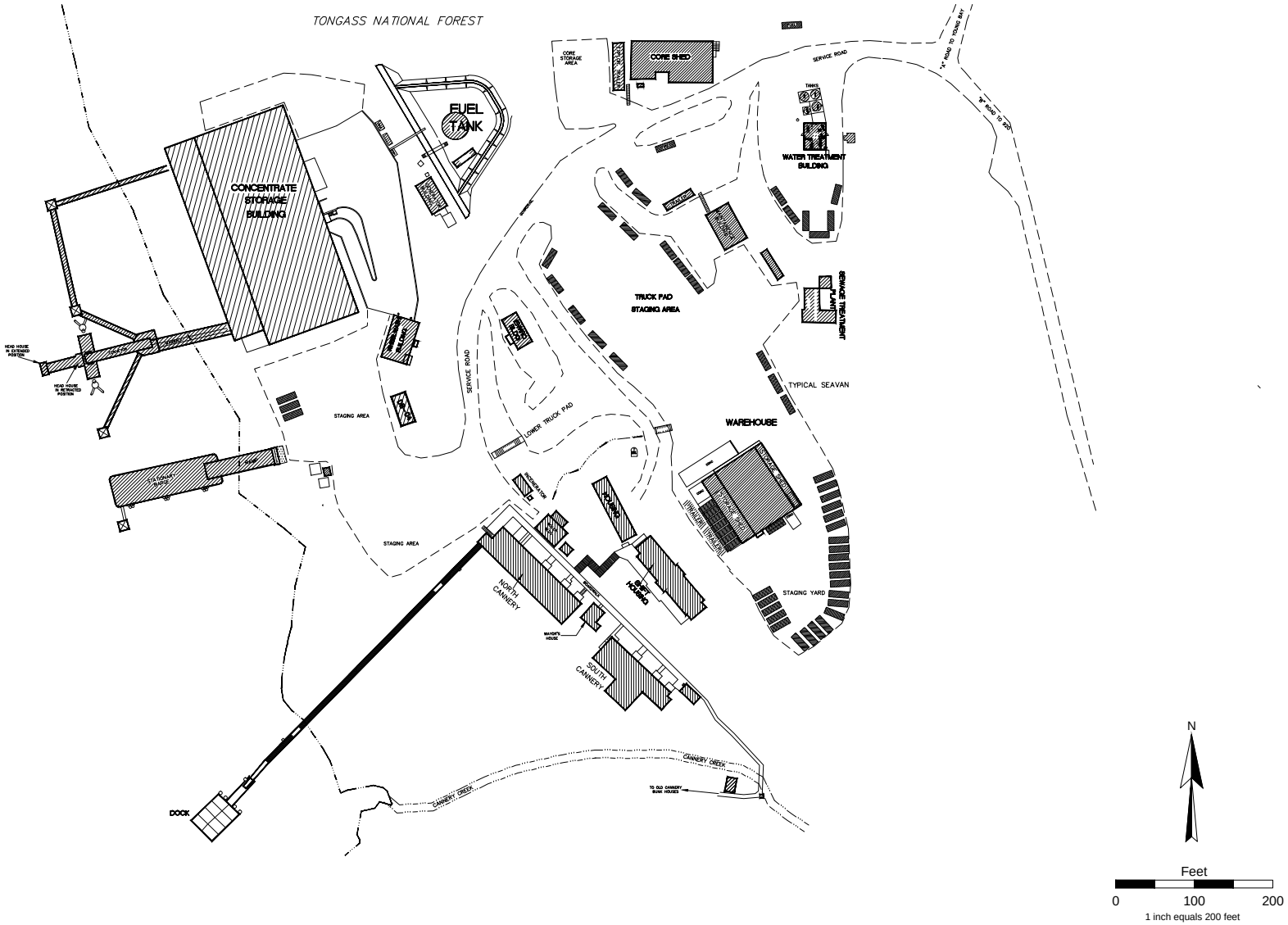

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Hecla Greens Creek Mining Company

Reclamation and Closure Plan

Title: Hawk Inlet

Job No.:	311400.010
File Name:	RECL_Fig6-6_Hawk_Inlet_20120430_ML_JQG.dwg

Date:	Approved:	Figure:
April 2012		6-6

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7.0 Stability and Water Management

7.1 Mass Instability

Semi-annual inspections of all reclaimed areas for evidence of slope instability shall be made in year 1. Annual inspections will be made in years 2, 3 and 5 following completion of reclamation activities. Additionally, the TDF reclaimed with an engineered cover will be monitored for the duration of the post-closure mandatory period specified in the waste disposal permit. HGCMC will submit slope-stability reports to the appropriate agencies, summarizing the findings of the periodic inspections.

- Underground Mine: The portal area and areas where stopes are within 50 ft of land surface will be monitored from the surface for signs of geotechnical instability. The final reclamation plan will include a map of these stope areas.
- TDF: The slopes of the tailings pile will be monitored to verify the TDF remains in a stable condition.
- Other Reclaimed Areas: The slopes of other areas throughout the permit area, including the mill area, material sites, access roads, and other support facilities will be monitored to confirm the areas remain in a stable condition.

Mass instability, including slope failure and subsidence in the above areas, will be subject to the contingency requirements described below.

Underground Mine: If crown pillar failure occurs over any stopes, or if development headings collapse near the portal, HGCMC will notify the appropriate agencies within two business days of problem discovery, will conduct a geotechnical investigation to determine the cause of such failure and will propose a corrective action plan for review. After review and approval of the plan by the appropriate agencies, HGCMC will implement the approved plan in a timely manner.

TDF: If slope movement, subsidence, erosion or other mass instability is observed in the tailings pile, HGCMC will notify the appropriate agencies within two business days of problem discovery. A geotechnical investigation will be conducted to ascertain the extent of the problem, and a report describing the situation as identified, including estimates of the volume affected by the instability and potential consequences of the instability with respect to its effect on the integrity of the cover system and drainage features. Investigation report will be developed by HGCMC and submitted to the appropriate agencies within 30 days of the date of problem identification. A corrective action plan will be submitted by HGCMC to the agencies for review and approval within 75 days of the date of problem identification. Any remedial measures undertaken in conjunction with the corrective action plan will be completed in a timely manner, which minimizes disturbance to reclaimed areas and meets all original design criteria for the tailings pile.

Other Reclaimed Areas (i.e., material sites, reclaimed roads, etc.): If slope movement, subsidence or other failure which threatens the integrity of any other reclaimed area occurs, HGCMC will notify the appropriate agencies within 30 days of problem discovery and will repair any damage that could affect other reclaimed facilities in a timely manner.

7.1.1 Permanent Channels and Channel Inspection

Surface water flows will be managed in most cases by establishing vegetative cover and constructing moderate slopes. Most slopes will be constructed with a 3H: 1V slope. Constructing slopes at 3H:1V reduces the erosive effects of water. In areas with minor flow concentrations, brush berms, silt fences, and swales will be used to reduce the velocity of the water and reduce erosion while vegetation becomes established. Also, hydroseeding of these areas will stabilize the soils.

If natural stream channels enter reclaimed areas the water will be diverted, diffused, or channeled through the reclaimed area using designed and constructed non-erosive channels. If necessary, stream channels will be stabilized with degradable fiber mat to establish vegetation. Riprap will be used to stabilize the constructed channels in areas that are subject to highly erosive stream flows.

Drainage channels and diversion structures are incorporated into the design and construction of the site facilities.

Modifications to the drainage channels will be accommodated as necessary in the design and construction of the cover at the TDF. All drainage channels and diversion structures that will be retained after closure are designed to handle flows from at least a 24 hour/25 year storm event, with minimal maintenance. These structures will be subject to the routine inspection and maintenance requirements described below.

In order to ensure that the drainage channels and diversion structures are functioning properly, they will be inspected semi-annually by site staff for signs of excessive erosion for five years following completion of reclamation activities. After the first two years of monitoring, HGCMC may propose to the appropriate agencies that inspection be conducted less frequently if appropriate. During the five year period, drainage channels and diversion structures will be inspected within 24 hours following any 24 hour storm event in excess of two inches of rainfall for signs of deterioration and erosional damage as well as excessive sedimentation.

During the remainder of the post-closure monitoring period required under the waste disposal permit, drainage channels and diversion structures will be inspected after each storm event that exceeds the largest prior storm that has occurred since completion of reclamation. The appropriate agencies may require more frequent inspection by HGCMC during the post-closure monitoring period if the drainage channels and diversion structures are shown to require frequent maintenance or repair.

Routine inspections and inspections completed after major storm events will be subject to the following requirements:

- physical damage, trash build-up, and sedimentation will be recorded on field inspection sheets
- diversion intake and outflow areas will be inspected for evidence of scouring or bypass
- any areas needing maintenance or repair will be reported on the field inspection sheets

If damage is noted, appropriate repairs will be completed by HGCMC in a timely manner. A summary of all observed damage requiring repair will be submitted annually to the appropriate agency, including as-built reports verifying the completion of the required repair.

If significant damage or overflow is caused by storms that are smaller than the structure's design storm, HGCMC will conduct an investigation to identify the cause of significant damage or overflow of diversions. A report will be prepared by HGCMC identifying the extent of the problem and the probable causes. The report will be submitted to the appropriate agencies within 30 days of the date of problem identification. A corrective action plan will also be submitted to the appropriate agencies for review and approval within 75 days of the date of problem identification. The corrective actions to be taken may include, but need not be limited to, regrading, armoring of drainage features, redesign and re-construction of channel cross-section and alignment, replacement of topsoil, reseeding, and replanting of trees and shrubs. After approval by the appropriate agencies, HGCMC will implement the plan in a timely manner.

7.1.2 Drainage

The surface of the reclaimed facilities will be maintained in a free-draining condition, which allows water to egress the facility without ponding or causing erosion, to the extent practical.

If significant ponding of water occurs on the surface of any non-wetland reclaimed facility, HGCMC will notify agencies within two business days of the date of problem identification. In addition, the extent of such ponding will be ascertained and a report describing the situation as identified, including probable causes, will be developed by HGCMC and submitted to the agencies within 30 days of the date of problem identification. A corrective action plan will be submitted by HGCMC to the agencies for review and approval within 75 days of the date of problem identification. Following approval of the corrective action plan by the agencies, HGCMC will implement the plan in a timely manner. The corrective actions to be taken may include, but need not be limited to, the following steps:

- Placement of additional fill that meets original design criteria
- Re-grading of placed fill to original design criteria
- Placement of growth medium to original design thickness
- Reseeding/planting as per original design specifications

Any such remedial measures will be undertaken in a manner that minimizes disturbance to adjacent reclaimed areas.

7.1.3 Cover Performance and Inspection

Performance monitoring of an engineered cover test plot commenced at Site 23 in 2000. Construction and monitoring of a new test plot on the tailings pile will begin after sufficient final slope area is available and information from the Site 23 test plot monitoring is incorporated into a design update. Performance data from these test plots will help guide construction of the final cover at the tailings facility. Climate data, soil suction, temperature, moisture content, and soil gas compositions will be monitored initially to verify that the cover is performing as designed. Long term cover performance will be evaluated based on visual observation of the cover surface and facility water quality monitoring.

Cover Inspection

In order to ensure that the cover systems are functioning properly, they will be inspected semi-annually for five years following completion of reclamation activities for signs of excessive erosion, damage due to blow-down of trees or damage by animals. Long-term post-closure inspections will continue annually.

The cover is designed to minimize erosion and monitoring of the cover surface by site staff during batch treatment campaigns will allow for rapid identification and remediation if a problem develops. After the first two years of inspection, HGCMC may propose to the appropriate agencies that inspection be conducted less frequently, if appropriate. During the five year period, the cover system, diversion structures, and drainage channels will also be inspected by HGCMC within 24 hours following any 24 hour storm event in excess of two inches of rainfall for signs of deterioration and erosional damage as well as sedimentation. Any necessary repairs will be completed by HGCMC in a timely manner.

If levels of erosion, which are potentially destructive to the cover, are identified, HGCMC will notify the appropriate agencies within two business days of the date of problem identification. In addition, the extent of the problem will be ascertained and a report describing the situation as identified, including probable causes, will be developed by HGCMC and submitted to the agencies within 30 days. A corrective action plan will be submitted to the agencies for review and approval within 75 days of the date of problem identification. Following approval of the corrective action plan, HGCMC will implement the corrective action plan in a timely manner. If the cover system is breached by rodents and/or other digging wildlife, the extent of the problem will be ascertained and a report describing the situation as identified, including probable causes will be developed by HGCMC and submitted to the appropriate agencies within 30 days of the date of problem identification. A corrective action plan will be submitted to the agencies for review and approval within 75 days of the date of problem identification. Following approval of the corrective action plan, HGCMC will implement the plan in a timely manner. If removal and/or relocation of animals are required, State of Alaska and Forest Service biologists will be consulted regarding the removal/relocation process. In the event of an emergency need to remove or relocate animals when no biologist is available for consultation, HGCMC will consult with qualified wildlife biologists and submit a summary report of the actions taken to the agencies.

Repair of the low permeability layer will include, but need not be limited to, the following steps:

1. Removal of growth medium from the affected and immediately adjacent area and stockpiling
2. Removal of the damaged areas of the low permeability layer or oxygen-excluding layer
3. Re-installation of the cover components in affected areas to the design performance criteria under the same QA/QC procedures as the original installation. The edges of the re-installed layers will overlap with the adjacent undisturbed layers to assure adequate joining of the layers.
4. Replacement of overlying cover layers to their original design thickness
5. Reseeding/planting as per original design specifications

All such repairs will be undertaken in a manner that minimizes the disturbance to the surrounding reclaimed area. HGCMC will submit an as-built report of the work performed under the corrective action plan to the agencies.

7.1.4 Erosion

All reclaimed areas will be inspected quarterly for two years following completion of reclamation activities for signs of excessive erosion. After the first two years of monitoring, HGCMC may propose to the appropriate agencies that inspection be conducted less frequently if appropriate. Routine monitoring will include a visual assessment of rills and gullies.

Monitoring of the constructed TDF cover for erosion will be routinely conducted to determine that there is not significant exposure of contiguous areas of low permeability or oxygen excluding layers. This monitoring will verify that there would not be a significant decrease in the performance of the reclaimed soil cover in minimizing infiltration into the pile.

Erosion of applied soil covers and growth media on reclaimed roads, material sites, the 920 area, and other reclaimed areas will be monitored to verify that there is not a significant decrease in the performance of the reclaimed soil cover in supporting vegetation and stabilizing the area.

If erosion features deeper than eight inches develop, HGCMC will repair the damaged areas in a timely manner. If large numbers of significant erosion features are evident during an inspection period (more than 25 erosion rills per acre over an area of one acre or more), then a mitigation plan to prevent recurrence of the erosion will be developed, submitted for agency review and approval, and implemented by HGCMC. Elements of such a mitigation plan may include, but need not be limited to, regrading or otherwise re-directing surface runoff away from the affected areas.

If potentially destructive levels of erosion are identified, HGCMC will notify the appropriate agencies within two business days. In addition, HGCMC will determine the extent of erosion and will submit a report describing the situation identified and probable causes to the appropriate agencies within 30 days of the date of problem identification. A corrective action plan will be submitted by HGCMC to the appropriate agencies for review and approval within 75 days of the date of problem identification. Following approval of the corrective action plan, HGCMC will implement the plan in a timely manner. This work may include, but need not be limited to, regarding, armoring of drainage features, re-establishment of topsoil thickness, reseeding, and replanting of trees and shrubs.

8.0 Performance Goals

8.1 Water Quality

8.1.1 Monitoring Requirements

GPO Appendices 1, 3 and 11 document the necessary methods, procedures, analysis, data management, and information to fulfill the water quality monitoring requirements. After closure HGCMC will continue to:

- sample and analyze groundwater monitoring wells per the appropriate appendix schedule
- sample and analyze surface water monitoring sites per the appropriate schedule
- sample and analyze sediment and marine organisms, as well as marine receiving waters as long as wastewater discharges continue under the Alaska Pollutant Discharge Elimination System (APDES) permit

If practical, remaining monitoring sites that were used in internal monitoring programs at the TDF will also continue to be monitored during the post-closure monitoring period.

8.1.2 Waiver or Modification

Water quality monitoring will be conducted for not less than five years after completion of reclamation activities and not less than three years after cessation of collection and treatment of contact water (see Section 7.1.4). HGCMC may, however, request modification of the water quality monitoring requirements at any or all monitoring sites. Modifications may include removal of water quality monitoring stations, reduction in monitoring frequency, or changes in constituents monitored. Request for changes in the monitoring requirements at a facility will be contained in a report that demonstrates that all downgradient monitoring stations have been in compliance with AWQS for at least three consecutive years. Additionally, results of monitoring at internal sites must corroborate the finding that water quality downgradient of the facility will not change in the foreseeable future. The report will be submitted by HGCMC to the appropriate agencies for their review and approval prior to changing water quality monitoring practices.

This waiver section should be interpreted jointly with provisions contained in the GPO. Where the waiver provisions contained in this document conflict with the GPO, these provisions supersede until the documents are reconciled.

If a point source discharge permit remains in effect for the components of the mine affected by the request for modification, then HGCMC will also obtain approval for any modifications of the point source discharge permit from ADEC.

8.1.3 Performance Standards and Point of Compliance

The facilities will be in compliance if:

1. all relevant AWQS are met at the downgradient monitoring points specified in the GPO; or
2. accepted detection monitoring statistical analysis, as set out in Section D of the *HECLA Greens Creek Quality Assurance Project Plan*, SRK 2012, as applied to the upgradient and downgradient stations fail to show a statistically significant increase in the constituents; or
3. observed exceedance or increase in constituents is due to natural conditions which have been documented and have been accepted by the regulatory agencies.

These provisions for the reclaimed condition of a facility would supersede the compliance provisions of the GPO that apply to operating conditions once the facility is reclaimed.

8.1.4 Contact Water Management and Post Closure Water Management

During operation of the Greens Creek Mine, water collected from the underground workings, seepage collected beneath WDF (Site 23) and the TDF, and storm water runoff of WDF (Site 23/D), the mill area and the TDF are collected and treated. Collectively, these waters, known as "contact water," are collected and treated prior to discharge under an APDES permit (Petros GeoConsulting September 2012).

HGCMC plans to phase out collection and conventional treatment of surface storm water (contact water) from some of these sources as areas are reclaimed, the engineered cover is constructed on the TDF, vegetation established, and water monitoring demonstrates the applicable AWQS are met. In order to ensure that water quality will be protected after HGCMC ceases to collect and treat contact water from these sources, the following requirements will be satisfied.

Before HGCMC will be allowed to cease collection and conventional treatment of contact water, a report will be developed by HGCMC for submission to the appropriate agencies. The report will utilize results of analysis from collected samples and a water quality predictive model of the TDF to determine whether AWQS are or will be met at downgradient stations, and will include identification of effective treatment methods. Achievement of applicable AWQS at the compliance point can be by any of the following processes alone or in combination: batch treatment using conventional WWTP (High Density Sludge Process), reduction in ARD or metals loads due to reclamation practices, deployment of demonstrated biological or other non-conventional treatment techniques, or reliance on natural attenuation mechanisms.

Monitoring described in the GPO will ensure that appropriate water quality standards are met at relevant points of compliance prior to ceasing collection and conventional treatment of the drainage from a particular site following successful reclamation.

Relevant points of compliance will be monitored for a minimum of three years after cessation of collection and treatment of contact water. If violation of the AWQS occurs at the compliance points, then HGCMC will notify the agencies and take corrective actions as required by the GPO and WMP. The corrective actions to be taken may include, but need not be limited to, changes in the passive treatment system, modification of the water management system, re-establishment of conventional treatment, or improvements to the facility reclamation.

Long-term Water Treatment: Long-term water treatment may be required for some components of the contact water through active water treatment facilities. The WWTP has the capacity to discharge 2250 gpm via gravity (more if pumped) and has adequate capacity to efficiently treat identified sources from the mine drainage, and seepage from the TDF at closure. The facility will have additional capacity to treat surface water runoff until AWQS are met.

In order to meet the Alaska APDES effluent limits for copper, lead, mercury, and zinc a High Density Sludge Process WWTP is in use during operations, will continue operating after closure, and during post-closure. The use of conventional chemical precipitation technology continues to effectively reduce constituent concentrations to effluent discharge limits.

In order to minimize pumping and post-closure WWTP operations, two new storage ponds located at or below the level of Pond 7 will provide adequate storage of accumulated contact water. Construction of the two ponds will allow full time gravity flow (no pumping) from TDF Wet Well A, Stage 3 above liner drains and the Pond 7 below liner drain. The stored contact water will be batch-treated (pumped to treatment plant when ponds approach capacity).

Water Treatment Plant Sludge Disposal: Sludge from the water treatment plant will be pumped to one or more of the water storage ponds until enough sludge accumulates to warrant batch dewatering and placement at the TDF or an approved solid waste disposal site. Because of the low flow rates and small sludge volume produced, HGCMC estimates that excess storage in Ponds 7 and 10 will allow for many decades of sludge storage. If removal from the pond(s) is warranted, and disposal at the TDF is the preferred option, a small area with drainage containment will be used to accept the sludge. Due to the oxidized character of the sludge, oxygen exclusion will not be necessary and a simple water limiting cover that promotes vegetation will be sufficient to reclaim the area that receives the sludge.

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9.0 Estimate of Reclamation Costs

The estimated reclamation costs for the various components of the Greens Creek Mine represent general mining industry accepted reclamation and closure methods. An updated version of the Standard Reclamation Cost Estimator (SRCE) Version 1.4.1 Build 16 was used to prepare this cost estimate. Assumptions used to develop the cost estimate are discussed in detail in Appendix B.

9.1 Closure Cost Rates

Mobile equipment costs were based on other operating underground, open pit mines and contractor costs in Alaska, and include:

- equipment rental costs
- consumables
- ground-engaging tools
- preventative maintenance

In determining the prevailing labor rates, the *Alaska Department of Labor and Workforces Development, Division of Labor Standards and Safety's Laborers' & Mechanics' Minimum Rates of Pay* (Pamphlet 600) (Alaska "Little Davis-Bacon") was used and will be updated as the Pamphlet is updated.

Material costs for fuel, concrete, etc., were provided by Alaska vendors. Information provided in the *2011 RS Means Heavy Construction Cost Data, Western Edition*, was used where equipment, labor, or material rates were unavailable from other sources.

9.1.1 Closure Cost Productivities

Productivity data and calculations were based on:

- *Caterpillar Handbook*, Edition 36, for productivity calculations as incorporated into the SRCE.
- *Means Heavy Construction Cost Data* for productivities/crews for demolition. A large excavator with shears and a medium excavator with grapples were added to the building demolition fleet, but no productivity increase was included because of unfamiliarity with this methodology.
- Use of best estimates and available data to populate the SRCE cost model.

9.1.2 Key Cost Assumptions

The following closure cost assumptions were made:

- Mobile equipment will be rented.
- All structures and infrastructure will be removed.
- No salvage value is assumed for scrap, equipment, or mobile fleet.

9.1.3 Conclusions

Acknowledging the social and environmental responsibility associated with modern mining operations, HGCMC recognizes and commits to the comprehensive closure and reclamation of the Greens Creek Mine site and ancillary facilities. All reclamation activities and post-reclamation maintenance of remaining structures (TDF, mine drainage pipeline, and access road) are the responsibility of HGCMC, unless and until a subsequent landowner assumes responsibility. A modification to the designated post-mining land use may require further changes to the closure and reclamation plan, along with the timelines for implementing and finalizing closure.

The reclamation cost estimate, as discussed herein and included in Appendix B (see SRCE Cost Summary tab for grand

total amount) is sufficient to fund the following:

- all elements of reclamation discussed in this Plan;
- capital to construct future replacements for the WWTP for water treatment (100 years);
- reagent and operating costs for the WWTP; and
- associated facility and access maintenance.

10.0 Acknowledgements

A. It is understood that should the nature of the operation change that a modified or supplemental plan of operations and reclamation plan may be required.

B. It is understood that approval of this reclamation plan does not constitute:

1. Certification of ownership to any person named herein; and
2. Recognition of the validity of any mining claims herein.

C. It is understood that a bond equivalent to the estimated cost of performing the agreed upon reclamation measures would be required before this plan can be approved. Bonding and any bond reduction amounts would be set on a site-specific basis by USFS in coordination with the cooperating agencies (ADEC, and ADNR).

D. It is understood that any information provided with this plan or provided in the future, that is marked "Confidential" would be treated by the agency in accordance with that agency's laws, rules, and regulations.

E. HGCMC would conduct an Environmental Closure Audit to determine if any previously unknown environmental liabilities exist as a direct or indirect result of the Greens Creek mining operation.

HGCMC has reviewed and agrees to comply with all conditions in the plan of reclamation. HGCMC understands that the bond would not be released until USFS, ADEC, and ADNR give written approval of the reclamation work.

Hecla Greens Creek Mining Company

By: _____

Title: _____

Signature: _____

Date: _____

11.0 References

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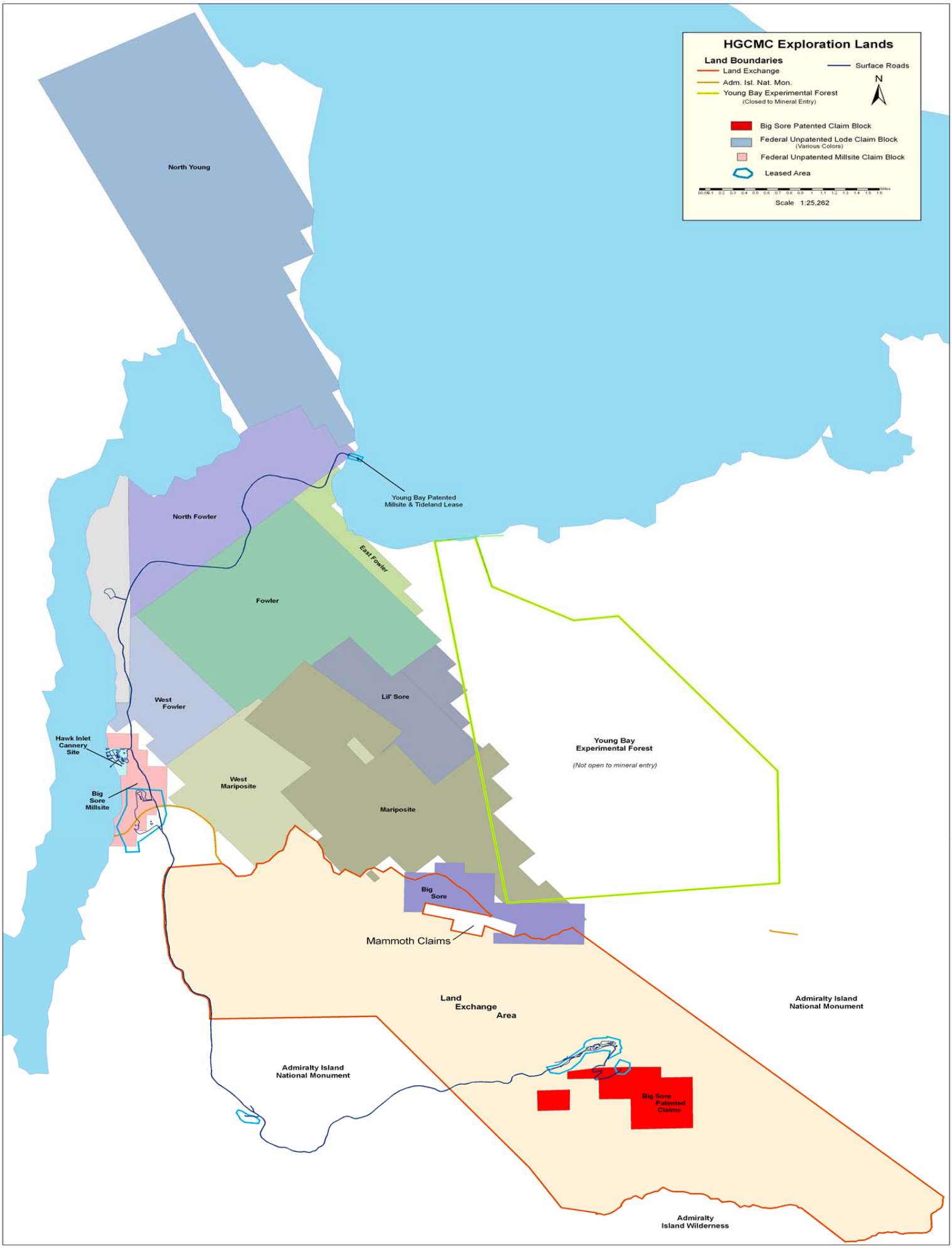
Appendices

Appendix 14.A
Land Status, Legal Description & Land Owner Authorization


HGCMC Exploration Lands
Land Boundaries
Land Exchange
Adm. Isl. Nat. Mon.
Young Bay Experimental Forest
(Closed to Mineral Entry)
Surface Roads
N
Big Sore Patented Claim Block
Federal Unpatented Lode Claim Block
(Various Colors)
Federal Unpatented Millsite Claim Block
Leased Area
Scale 1:25,262
North Young
Young Bay Patented
Millsite & Tideland Lease
North Fowler
East Fowler
Fowler
West
Fowler
Lil' Sore
Hawk Inlet
Cannery
Site
Big
Sore
Millsite
West
Mariposite
Mariposite
Young Bay
Experimental Forest
(Not open to mineral entry)
Big
Sore
Mammoth Claims
Land
Exchange
Area
Admiralty Island
National Monument
Admiralty Island
National Monument
Big Sore
Patented
Claims
Admiralty
Island Wilderness

Hecla Greens Creek Mining Company
Mining Claims

Pad_ID	Range_1	Township_1	Section_1	Qtr_Sect_1	CONDITION	TYPE	NAD27X_coord	NAD27Y_coord
L Sore11	65 E.	43 S.	25	NE		Approved in 2003	2486177	2297446
L Sore27	65 E.	43 S.	25	NE		Approved in 2005	2486089	2295612
L Sore31	65 E.	43 S.	25	NE		Approved in 2006	2485831	2296233
L Sore32	65 E.	43 S.	25	NE		Approved in 2006	2486126	2297909
L Sore33	65 E.	43 S.	25	SE		Approved in 2006	2485676	2294638
L Sore 8	65 E.	43 S.	24	SE		Approved in 2003	2486263	2300217
L Sore43	65 E.	43 S.	13	NE	Yes	Approved in 2008	2486658	2307263
L Sore37	65 E.	43 S.	13	NE		Approved in 2007	2485969	2306628
L Sore50	65 E.	43 S.	13	SE		Approved in 2010	2486157	2305021
L Sore49	65 E.	43 S.	13	SE		Approved in 2010	2486561	2305284
A Road 7	65 E.	43 S.	1	NW		Approved in 2007	2483807	2318115
A Road 4	65 E.	43 S.	1	SW		Approved in 2005	2483428	2316046
A Road 5	65 E.	43 S.	1	SE		Approved in 2005	2485349	2315720
A Road 6	65 E.	43 S.	1	SE	Yes/OK'd	Cond. in 2007	2484698	2315733
A Road 3	65 E.	43 S.	11	NE		Approved in 2005	2480173	2313824
A Road 1	65 E.	43 S.	11	SE		Approved in 2005	2479508	2311129
A Road 2	65 E.	43 S.	2	SE		Approved in 2005	2481573	2313934
NW Mam 4	66 E.	43 S.	29	SW		Approved in 2010	2493188	2293558
NW Mam 3	66 E.	43 S.	29	SW		Approved in 2010	2492410	2293350
H Sore 6	66 E.	44 S.	14	NW	Yes/OK'd	Approved in 2004	2509188	2277844
Cliff 4	66 E.	44 S.	14	NE	Yes	Cond. in 2007	2512392	2275567
Cliff 5	66 E.	44 S.	14	NE	Yes	Cond. in 2007	2512458	2276488
H Sore 9	66 E.	44 S.	11	SW	Yes	Cond. in 2005	2507631	2279158
Cliff 3	66 E.	44 S.	11	SW	Yes	Cond. in 2006	2508734	2279235
Cliff 1	66 E.	44 S.	11	SE	Yes	Cond. in 2006	2511245	2278582
Cliff 2	66 E.	44 S.	11	SE	Yes	Cond. in 2006	2510608	2279112
Up Gal10	66 E.	44 S.	17	NE		New Pad (2011)	2495492	2278024
Up Gal 5	66 E.	44 S.	17	NE	Yes/OK'd	Approved in 2005	2496665	2276614
Up Gal 2	66 E.	44 S.	16	NW	Yes/OK'd	May Re-use Pad	2497720	2277012
Up Gal 1	66 E.	44 S.	16	NW	Yes/OK'd	Approved in 2004	2499223	2277624
Up Gal 3	66 E.	44 S.	16	NW	Yes/OK'd	Approved in 2004	2499234	2276756
Up Gal 6	66 E.	44 S.	16	NW	Yes/OK'd	May Re-use Pad	2498113	2276445
Up Gal 7	66 E.	44 S.	16	NW	Yes/OK'd	Approved in 2005	2497106	2276855

Hecla Greens Creek Mining Company
Mining Claims

Pad_ID	Range_1	Township_1	Section_1	Qtr_Sect_1	CONDITION	TYPE	NAD27X_coord	NAD27Y_coord
Up Gal 8	66 E.	44 S.	16	NW	Yes/OK'd	Cond. in 2006	2498353	2277746
B Sore 4	66 E.	44 S.	16	NE	Yes	Cond. in 2005	2501509	2277872
B Sore32	66 E.	44 S.	10	NW		Approved in 2008	2502250	2281325
H Sore15	66 E.	44 S.	10	NW		Approved in 2008	2502975	2281254
B Sore33	66 E.	44 S.	10	NW		Approved in 2008	2502431	2281205
H Sore14	66 E.	44 S.	10	NW		Approved in 2008	2502582	2282255
H Sore 2	66 E.	44 S.	10	NW		Approved in 2003	2503384	2281783
B Sore34	66 E.	44 S.	10	SW		Approved in 2008	2502511	2280354
H Sore 7	66 E.	44 S.	10	SW	Yes	Cond. in 2005	2504751	2278804
H Sore 8	66 E.	44 S.	10	SW		Approved in 2005	2504667	2280444
H Sore10	66 E.	44 S.	10	SW		Approved in 2005	2503261	2280637
B Sore25	66 E.	44 S.	10	SW		Approved in 2007	2502336	2279455
B Sore26	66 E.	44 S.	10	SW		Approved in 2007	2502482	2279141
H Sore 1	66 E.	44 S.	10	NE		Approved in 2003	2505095	2282611
H Sore 3	66 E.	44 S.	10	SE		Approved in 2003	2506324	2278366
H Sore 5	66 E.	44 S.	10	SE	Yes/OK?	Approved in 2004	2506754	2280360
H Sore11	66 E.	44 S.	10	SE	Yes	Cond. in 2007	2505994	2280611
H Sore12	66 E.	44 S.	10	SE	Yes	Cond. in 2007	2506247	2280661
Gal Ck 1	66 E.	44 S.	9	NW		Approved in 2002	2497238	2281357
Gal Ck27	66 E.	44 S.	9	NW		May Re-use Pad	2497815	2281377
Gal Ck28	66 E.	44 S.	9	NW		May Re-use Pad	2498146	2281810
Gal Ck30	66 E.	44 S.	9	NW		Approved in 2007	2499093	2280963
Gal Ck31	66 E.	44 S.	9	NW		Approved in 2007	2498406	2281047
B Sore30	66 E.	44 S.	9	NE		Approved in 2008	2501679	2283007
B Sore31	66 E.	44 S.	9	NE		Approved in 2008	2501862	2282365
B Sore 1	66 E.	44 S.	9	NE		May Re-use Pad	2500265	2281878
B Sore 5	66 E.	44 S.	9	NE		Approved in 2005	2502162	2281467
B Sore 7	66 E.	44 S.	9	NE		Approved in 2006	2500051	2282213
B Sore13	66 E.	44 S.	9	NE		Approved in 2007	2499885	2280800
B Sore15	66 E.	44 S.	9	NE		Approved in 2007	2499608	2281607
B Sore20	66 E.	44 S.	9	NE		Approved in 2007	2500889	2283365
B Sore18	66 E.	44 S.	9	NE		Approved in 2007	2499748	2283104
B Sore21	66 E.	44 S.	9	NE		May Re-use Pad	2499939	2283335

Hecla Greens Creek Mining Company
Mining Claims

Pad_ID	Range_1	Township_1	Section_1	Qtr_Sect_1	CONDITION	TYPE	NAD27X_coord	NAD27Y_coord
B Sore23	66 E.	44 S.	9	NE		Approved in 2007	2501661	2280968
B Sore24	66 E.	44 S.	9	NE		Approved in 2007	2501593	2281099
B Sore36	66 E.	44 S.	9	NE		May Re-use Pad	2500342	2282574
B Sore37	66 E.	44 S.	9	NE		Approved in 2008	2501059	2282148
B Sore38	66 E.	44 S.	9	NE		Approved in 2008	2501678	2281535
Gal Ck 7	66 E.	44 S.	9	SW		Approved in 2004	2497198	2279419
Gal Ck 8	66 E.	44 S.	9	SW		Approved in 2004	2498317	2278819
Gal Ck22	66 E.	44 S.	9	SW		May Re-use Pad	2497871	2280191
Gal Ck24	66 E.	44 S.	9	SW		Approved in 2005	2497199	2280565
Gal Ck25	66 E.	44 S.	9	SW		Approved in 2005	2497821	2280667
Gal Ck26	66 E.	44 S.	9	SW		May Re-use Pad	2498817	2280058
Up Gal 9	66 E.	44 S.	9	SW	Yes	Cond. in 2006	2498055	2278236
Gal Ck29	66 E.	44 S.	9	SW		Approved in 2006	2498383	2280437
B Sore 43	66 E.	44 S.	9	SE		New Pad (2011)	2501682	2279280
B Sore 3	66 E.	44 S.	9	SE		Approved in 2005	2501436	2278881
B Sore 2	66 E.	44 S.	9	SE		Approved in 2005	2501326	2280397
B Sore 8	66 E.	44 S.	9	SE		Approved in 2006	2500642	2279389
B Sore 9	66 E.	44 S.	9	SE		May Re-use Pad	2501223	2279308
B Sore10	66 E.	44 S.	9	SE		May Re-use Pad	2502087	2280091
B Sore11	66 E.	44 S.	9	SE		Approved in 2006	2502022	2279242
B Sore12	66 E.	44 S.	9	SE		Approved in 2007	2499972	2280414
B Sore22	66 E.	44 S.	9	SE	Yes	Cond. in 2007	2501757	2278462
Gal Ck15	66 E.	44 S.	8	NW		Approved in 2004	2493159	2281258
Gal Ck16	66 E.	44 S.	8	NW		Approved in 2004	2494145	2281368
Gal Ck17	66 E.	44 S.	8	NW		Approved in 2004	2491887	2281588
Gal Ck18	66 E.	44 S.	8	NW		Approved in 2004	2492118	2281985
Gal Ck12	66 E.	44 S.	8	SW		Approved in 2004	2494009	2278948
Gal Ck11	66 E.	44 S.	8	SW		Approved in 2003	2493958	2280538
Gal Ck19	66 E.	44 S.	8	SW		Approved in 2004	2492730	2280624
Pit 23 4	66 E.	44 S.	8	NE		May Re-use Pad	2496645	2283232
Gal Ck32	66 E.	44 S.	8	NE		Approved in 2007	2495775	2281479
Gal Ck33	66 E.	44 S.	8	NE		Approved in 2007	2495617	2281841
Killer20	66 E.	44 S.	8	NE	Yes	Cond. in 2007	2494931	2282722

Hecla Greens Creek Mining Company
Mining Claims

Pad_ID	Range_1	Township_1	Section_1	Qtr_Sect_1	CONDITION	TYPE	NAD27X_coord	NAD27Y_coord
Killer21	66 E.	44 S.	8	NE		Approved in 2007	2494790	2283329
Gal Ck10	66 E.	44 S.	8	SE		May Re-use Pad	2495551	2279697
Gal Ck 9	66 E.	44 S.	8	SE		May Re-use Pad	2496406	2280128
Gal Ck13	66 E.	44 S.	8	SE		Approved in 2002	2495549	2280274
Up Gal 4	66 E.	44 S.	8	SE	Yes/OK?	Approved in 2004	2495354	2278339
Killer 23	66 E.	44 S.	5	SE		New Pad (2011)	2494402	2284238
Killer 1	66 E.	44 S.	5	SE		Approved in 2002	2495248	2285067
Pit23 3	66 E.	44 S.	5	SE		Approved in 2002	2496672	2284075
Pit23 2	66 E.	44 S.	5	SE		Approved in 2003	2495773	2284469
B Sore 44	66 E.	44 S.	4	SW		New Pad (2011)	2498637	2283586
Cub 15	66 E.	44 S.	4	SW		Approved in 2009	2498640	2284723
Cub 16	66 E.	44 S.	4	SW		Approved in 2010	2498602	2285101
Cub 17	66 E.	44 S.	4	SW		Approved in 2010	2499487	2285078
B Sore35	66 E.	44 S.	4	SW		Approved in 2008	2499370	2283766
Cub 14	66 E.	44 S.	4	SW		Approved in 2008	2498883	2284585
B Sore 42	66 E.	44 S.	4	SW		Approved in 2009	2499634	2284092
H Sore13	66 E.	44 S.	4	SE		Approved in 2008	2501937	2283871
B Sore28	66 E.	44 S.	4	SE		Approved in 2008	2501165	2283720
Cub 12	66 E.	44 S.	4	SE	Yes/OK'd	Approved in 2008	2500303	2284840
B Sore29	66 E.	44 S.	4	SE		Approved in 2008	2501399	2283377
Cub 11	66 E.	44 S.	4	SE	Yes/OK'd	May Re-use Pad	2499707	2284735
B Sore27	66 E.	44 S.	4	SE		Approved in 2008	2500773	2283730
B Sore19	66 E.	44 S.	4	SE		Approved in 2007	2499915	2283534
B Sore16	66 E.	44 S.	4	SE		May Re-use Pad	2500078	2283789
B Sore17	66 E.	44 S.	4	SE		Approved in 2007	2500348	2283971
Cub 10	66 E.	44 S.	4	SE		Approved in 2007	2501192	2285251
B Sore 39	66 E.	44 S.	4	SE		Approved in 2010	2501663	2284212
B Sore 40	66 E.	44 S.	4	SE		Approved in 2010	2501004	2284306
B Sore 41	66 E.	44 S.	4	SE		Approved in 2010	2501404	2284726
L Sore21	66 E.	43 S.	30	NW		Approved in 2005	2487317	2297828
L Sore34	66 E.	43 S.	30	NW		Approved in 2006	2488622	2297813
L Sore23	66 E.	43 S.	30	NE		Approved in 2005	2489400	2297889
NW Mam 1	66 E.	43 S.	30	SW		Approved in 2005	2488419	2294325

Hecla Greens Creek Mining Company
Mining Claims

Pad_ID	Range_1	Township_1	Section_1	Qtr_Sect_1	CONDITION	TYPE	NAD27X_coord	NAD27Y_coord
Up Zn 1	65 E.	43 S.	36	SW		May Re-use Pad	2482926	2289668
Low Zn 4	65 E.	43 S.	36	SW		Approved in 2002	2481439	2289389
Low Zn18	65 E.	43 S.	36	SW		Approved in 2005	2482725	2289026
Up Zn 4	65 E.	43 S.	36	SW		Approved in 2005	2483823	2289870
Low Zn14	65 E.	43 S.	36	SW		Approved in 2005	2481817	2288072
Low Zn15	65 E.	43 S.	36	SW		Approved in 2005	2482681	2288122
Up Zn 3	65 E.	43 S.	36	NE		Approved in 2003	2484630	2292098
Up Zn 5	65 E.	43 S.	36	NE	Yes	Cond. in 2005	2486460	2292406
Up Zn 6	65 E.	43 S.	36	NE		Approved in 2006	2484691	2291435
Low Zn19	65 E.	43 S.	35	SW		Approved in 2006	2478522	2289251
Low Zn10	65 E.	43 S.	35	SE		May Re-use Pad	2479185	2288810
Low Zn17	65 E.	43 S.	35	SE		Approved in 2005	2481128	2288437
Low Zn13	65 E.	43 S.	35	SE		Approved in 2005	2480786	2287889
Low Zn16	65 E.	43 S.	35	SE		May Re-use Pad	2479773	2287607
Killer16	66 E.	44 S.	7	NE		Approved in 2004	2491542	2282890
Killer17	66 E.	44 S.	7	NE		Approved in 2004	2490949	2282559
Gal Ck23	66 E.	44 S.	7	NE		Approved in 2004	2491452	2282216
Killer19	66 E.	44 S.	6	SE		Approved in 2006	2490392	2285155
NW Mam 2	66 E.	43 S.	32	NW	Yes	Cond. in 2005	2491949	2292327
Bruin 6	66 E.	43 S.	32	SE		Approved in 2002	2496730	2288547
Bruin 7	66 E.	43 S.	32	SE		Approved in 2004	2496023	2289209
Bruin 8	66 E.	43 S.	32	SE		May Re-use Pad	2495305	2288121
Killer11	66 E.	43 S.	32	SE		Approved in 2002	2495135	2289494
Killer10	66 E.	43 S.	32	SE		Approved in 2004	2494416	2289287
Bruin 12	66 E.	43 S.	32	SE		May Re-use Pad	2496748	2287494
Killer18	66 E.	43 S.	32	SE	Yes/OK'd	Approved in 2004	2494917	2288538
Killer14	66 E.	43 S.	32	SE	Yes	Cond. in 2004	2494688	2287715
Killer 8	66 E.	43 S.	31	SE		Approved in 2002	2490731	2288079
L Sore55	66 E.	43 S.	19	NW		New Pad (2011)	2489013	2301090
L Sore 4	66 E.	43 S.	19	NW		Approved in 2003	2487804	2301066
L Sore 1	66 E.	43 S.	19	NW		Approved in 2003	2487418	2303157
L Sore 3	66 E.	43 S.	19	NW		Approved in 2003	2486924	2302104
L Sore16	66 E.	43 S.	19	NW		Approved in 2004	2486823	2303122

Hecla Greens Creek Mining Company
Mining Claims

Pad_ID	Range_1	Township_1	Section_1	Qtr_Sect_1	CONDITION	TYPE	NAD27X_coord	NAD27Y_coord
L Sore19	66 E.	43 S.	19	NW		Approved in 2005	2488081	2302177
L Sore52	66 E.	43 S.	19	NW		Approved in 2010	2488975	2302012
L Sore51	66 E.	43 S.	19	NW		Approved in 2010	2488388	2302691
L Sore24	66 E.	43 S.	19	NE		Approved in 2005	2490398	2301388
L Sore29	66 E.	43 S.	19	NE		Approved in 2005	2489959	2300595
L Sore40	66 E.	43 S.	19	NE		Approved in 2007	2489627	2301072
L Sore53	66 E.	43 S.	19	NE		Approved in 2010	2489618	2301699
L Sore10	66 E.	43 S.	19	SW		Approved in 2003	2487286	2298854
L Sore 6	66 E.	43 S.	19	SW		Approved in 2003	2487868	2299392
L Sore 7	66 E.	43 S.	19	SW		Approved in 2003	2487256	2299545
L Sore18	66 E.	43 S.	19	SW	Yes	Cond. in 2005	2488254	2300328
L Sore22	66 E.	43 S.	19	SW		May Re-use Pad	2489179	2299144
L Sore39	66 E.	43 S.	19	SW		May Re-use Pad	2489104	2300300
L Sore28	66 E.	43 S.	19	SE		Approved in 2005	2489738	2298644
L Sore41	66 E.	43 S.	19	SE		Approved in 2007	2489656	2299104
L Sore42	66 E.	43 S.	19	SE		Approved in 2007	2489626	2300103
L Sore47	66 E.	43 S.	19	SE		Approved in 2008	2491618	2299288
L Sore54	66 E.	43 S.	19	SE		Approved in 2010	2490257	2299760
L Sore44	66 E.	43 S.	18	NW	Yes	Cond. in 2008	2487448	2307070
L Sore20	66 E.	43 S.	18	NW		Approved in 2005	2486779	2306474
L Sore26	66 E.	43 S.	18	NW		Approved in 2005	2488645	2306066
L Sore36	66 E.	43 S.	18	NW		Approved in 2007	2489125	2307985
L Sore46	66 E.	43 S.	18	SW	Yes	Cond. in 2008	2488928	2303877
L Sore45	66 E.	43 S.	18	SW	Yes	Approved in 2008	2488545	2303651
L Sore25	66 E.	43 S.	18	SW		Approved in 2005	2488167	2305085
L Sore35	66 E.	43 S.	18	SW		Approved in 2007	2488392	2305724
L Sore38	66 E.	43 S.	18	SW		Approved in 2007	2488835	2305124
L Sore48	66 E.	43 S.	18	SW		Approved in 2010	2487010	2305555
L Sore30	66 E.	43 S.	18	SE		Approved in 2005	2489580	2303753
Lakes 2	65 E.	43 S.	36	SE		Approved in 2002	2485762	2289048
Killer 9	66 E.	43 S.	32	SW		Approved in 2002	2493082	2289260
Killer 3	66 E.	43 S.	32	SW		Approved in 2003	2494199	2287353
Killer 4	66 E.	43 S.	32	SW		Approved in 2003	2493149	2287511

Hecla Greens Creek Mining Company
Mining Claims

Pad_ID	Range_1	Township_1	Section_1	Qtr_Sect_1	CONDITION	TYPE	NAD27X_coord	NAD27Y_coord
Killer13	66 E.	43 S.	32	SW	Yes	Cond. in 2004	2492416	2288343
Killer15	66 E.	43 S.	32	SW	Yes/OK'd	Approved in 2004	2494112	2288572
Low Zn 9	65 E.	44 S.	1	NW		Approved in 2003	2483330	2285999
Lakes 3	65 E.	44 S.	1	NE		Approved in 2002	2484698	2286427
Lakes 1	65 E.	44 S.	1	NE		Approved in 2002	2485216	2286600
Low Zn11	65 E.	44 S.	1	NE	Yes	Cond. in 2004	2483971	2285977
Killer 7	66 E.	44 S.	6	NE		Approved in 2002	2491596	2285996
Killer12	66 E.	44 S.	6	NE		Approved in 2003	2489815	2285585
Killer 24	66 E.	44 S.	5	NW		New Pad (2011)	2492481	2287118
Killer 25	66 E.	44 S.	5	NW		New Pad (2011)	2492763	2286356
Killer 5	66 E.	44 S.	5	NW		Approved in 2002	2493857	2286085
Killer 6	66 E.	44 S.	5	NW		Approved in 2002	2493299	2286324
Killer 22	66 E.	44 S.	5	NW		Approved in 2010	2493972	2285853
Killer 2	66 E.	44 S.	5	NE		Approved in 2002	2494878	2286114
Bruin 11	66 E.	44 S.	5	NE		Approved in 2004	2496469	2286731
Bruin 13	66 E.	44 S.	5	NE		May Re-use Pad	2495713	2286551
Bruin 9	66 E.	44 S.	5	NE		May Re-use Pad	2495331	2286904
Bruin 16	66 E.	43 S.	33	SW		New Pad (2011)	2498892	2287767
Bruin 17	66 E.	43 S.	33	SW		New Pad (2011)	2498421	2287589
Bruin 4	66 E.	43 S.	33	SW		Approved in 2004	2497224	2288985
Bruin 5	66 E.	43 S.	33	SW		Approved in 2004	2497507	2289567
Bruin 3	66 E.	43 S.	33	SW		Approved in 2003	2498259	2288463
Cub 6	66 E.	43 S.	33	SW		Approved in 2004	2499542	2288362
Bruin 14	66 E.	43 S.	33	SW	Yes/OK'd	Approved in 2007	2497829	2288933
Bruin 15	66 E.	43 S.	33	SW	Yes/OK'd	Approved in 2007	2497305	2288630
Cub 18	66 E.	44 S.	4	NW		New Pad (2011)	2499330	2286633
Bruin 1	66 E.	44 S.	4	NW		Approved in 2002	2499370	2286321
Bruin 2	66 E.	44 S.	4	NW		Approved in 2002	2499136	2287198
Cub 13	66 E.	44 S.	4	NW		Approved in 2008	2499023	2285309
Cub 1	66 E.	44 S.	4	NE		Approved in 2003	2500040	2286127
Cub 3	66 E.	44 S.	4	NE		Approved in 2002	2501175	2286090
Cub 4	66 E.	44 S.	4	NE		Approved in 2002	2500886	2286667
Cub 7	66 E.	44 S.	4	NE		Approved in 2004	2501489	2285629

Hecla Greens Creek Mining Company
Mining Claims

Pad_ID	Range_1	Township_1	Section_1	Qtr_Sect_1	CONDITION	TYPE	NAD27X_coord	NAD27Y_coord
Cub 8	66 E.	44 S.	4	NE		Approved in 2005	2499829	2285299
Cub 9	66 E.	44 S.	4	NE		Approved in 2007	2500441	2285294
N Young 2	65 E.	42 S.	23	SE		Approved in 2010	2479634	2330415
N Young 1	65 E.	42 S.	26	NE		Approved in 2010	2481639	2327457
N Young 3	65 E.	42 S.	26	NW		Approved in 2010	2478198	2329025

Authorization ID: ADM405010 Contact ID: KGC Use Code: 342, 914, 922	FS-2700-23 (03/06) OMB No. 0596-0082

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
AMENDMENT
FOR
Lease For Mining Purposes
AMENDMENT NUMBER: 2

This amendment is attached to and made a part of the lease for mining purposes (identified above) issued to Greens Creek Mining Co. on 09/01/1988 which is hereby amended as follows:

The lease is amended to reflect the Name Change from Kennecott Greens Creek Mining Company to Hecla Greens Creek Mining Company. The Authorization ID changes from ADM405010 to ADM230 with use codes 342, 914 and 922. The Contact ID changes from KGC to HGC. Authorized under ADM230 are a (1):Tailings Basin consisting of a dry tailings disposal area and a Wastewater Sedimentation Pond consisting of 123 acres(68 acres within the Admiralty National Monument and 55 acres outside the Monument on Tongass National Forest lands administered by the Juneau Ranger District); (2):a Wastewater Pipeline with a Right of Way of 4 ft wide by 32,059 feet long where it parallels the mine haul road, and 30 ft wide by 420 ft. long where it is not within the haul road corridor, for a total Wastewater Pipeline Right of Way of 5.46 acres, and (3): a outfall Pipeline Right of Way of 30 ft wide by approximately 420 ft. long for a total Outfall Right of Way of 0.29 acres. Total acreage covered by this amendment is 128.75 acres.

This Amendment is accepted subject to the conditions set forth herein, and to conditions N/A to N/A attached hereto and made a part of this Amendment.

(Holder Signature)	(Authorized Officer Signature)
Scott N. Hartman V.P. General Manager (Name and Title)	Forrest Cole Forest Supervisor (Name and Title)
Date: 1 June 2009	Date: 6.15.09

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Authorization ID: ADM405008 Contact ID: KGC Use Code: 522	FS-2700-23 (03/06) OMB No. 0596-0082

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
AMENDMENT
FOR
LEASE FOR MINING PURPOSES
AMENDMENT NUMBER: 3

This amendment is attached to and made a part of the special use authorization (identified above) issued to Kennecott Greens Creek Mining Co. on 10/27/1987 which is hereby amended as follows:

The lease is amended to reflect the name change from Kennecott Greens Greek Mining Company to Hecla Greens Creek Mining company. The Authorization ID changes from ADM405008 to ADM229. The Contact ID changes from KGC to HGC. Authorized under ADM229 is Waste Area E which is used for storage of overburden and excavated material. Total acres covered by this amendment: 10.8 acres.

This Amendment is accepted subject to the conditions set forth herein, and to conditions N/A to N/A attached hereto and made a part of this Amendment.

(Holder Signature)	(Authorized Officer Signature)
Scott N. Hartman V.P. General Manager (Name and Title)	Forrest Cole Forest Supervisor (Name and Title)
Date: 1 June 2009	Date: 6.15.09

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

A L A S K A

2008-003387-0

Recording Dist: 101 - Juneau
5/8/2008 3:14 PM Pages: 1 of 2

CC

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND AND WATER
400 WILLOUGHBY, PO BOX 111020
JUNEAU, ALASKA 99811-1020
(907) 465-3400

AMENDMENT # 1 TO LEASE AGREEMENT
ADL 106488

In accordance with the Amended Certificate of Authority issued by the State of Alaska Department of Commerce, Community, and Economic Development on April 22, 2008, the Lessee Kennecott Greens Creek Mining Company is altered to read Hecla Greens Creek Mining Company and ceases to read as originally written.

All other terms and conditions of the Lease Agreement remain unchanged.

Ronald W. Clayton, Vice President
Hecla Greens Creek Mining Company

5/1/08
Date

Southeast Region Manager
Division of Mining, Land and Water

5/8/08
Date

STATE OF IDAHO)
) ss.
County of Kootenai)

THIS IS TO CERTIFY that on this 1st day of May, 2008, before me personally appeared Ronald W. Clayton, known to me to be the Vice President of the Hecla Greens Creek Mining Company, which executed the foregoing Lease Agreement Amendment, and acknowledged to me that he executed the same for and on behalf of said corporation, and that he is fully authorized by said corporation so to do; Ronald W. Clayton acknowledged to me that he signed and executed the same freely and voluntarily, for the uses and purposes therein stated.

TRISHA JIMMERSON NOTARY PUBLIC STATE OF IDAHO

Trisha Jimmerson
Notary Public in and for the State of Idaho
My Commission Expires: 9/20/2013

STATE OF ALASKA)
1st)ss.
Judicial District)

THIS IS TO CERTIFY that on this 8th day of May, 2008 before me personally appeared Ed Collazzi, Southeast Region Manager, of the Division of Mining, Land and Water of the Department of Natural Resources of the State of Alaska, who executed the foregoing Right-of-Way Permit Amendment and acknowledged voluntarily signing the same.

Douglas T. Sanvik
Notary Public in and for the State of Alaska
My Commission Expires: w/office

STATE OF ALASKA
OFFICIAL SEAL
Douglas T. Sanvik
NOTARY PUBLIC
My Commission Expires with office.

Lease Agreement ADL 106488 is recorded in the Book 535, Pages 776-789 in the Juneau Recording District, First Judicial District, State of Alaska.

After recording in the Juneau Recording District, for official state business, no charge, return this document to: State of Alaska, DNR - Division of Mining, Land & Water, Southeast Region, 400 Willoughby Avenue, PO Box 111020, Juneau, AK 99811-1020.

HOFFMAN SILVER GILMAN & BLASCO

A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
JUNEAU, ALASKA

WASHINGTON, D.C. AND VIRGINIA OFFICE
ARLINGTON COURTHOUSE PLAZA II
2300 CLARENDON BOULEVARD, SUITE 1010
ARLINGTON, VIRGINIA 22201
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L.G. BERRY

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PAUL M. HOFFMAN
ROBERT P. BLASCO
*** CARL W. WINNER
AMY GURTON MEAD

KENAI OFFICE
100 NORTH WILLOW STREET
KENAI, ALASKA 99611
PHONE: (907) 283-2600
FACSIMILE: (907) 283-2009

BLAINE D. GILMAN

*ADMITTED IN WASHINGTON, D.C. AND ALASKA
**ADMITTED IN VIRGINIA, WASHINGTON, D.C. AND ALASKA
***ADMITTED IN WASHINGTON, D.C. AND ALASKA; RESIDING FLORIDA
ALL OTHERS ADMITTED IN ALASKA

+NON-LAWYER PROFESSIONAL

June 25, 2008

Jennifer Saran
Hecla Greens Creek Mining Company
P.O. Box 32199
Juneau, Alaska 99803

Re: State Lease ADL 106488
State Lease ADL 105125

Dear Ms. Saran;

The State leases referenced above have been officially amended to show the authorized entity as Hecla Greens Creek Mining Company. The original recorded amendments that reflect this change are enclosed for your file, as is the letter under which they were received.

Should the need ever arise, please be aware that copies of the enclosed documents are contained in our files.

Very truly yours,

Anne O'Leary
Paralegal

:aol
Enc.

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MINING, LAND & WATER

SARAH PALIN, GOVERNOR

SOUTHEAST REGION OFFICE
400 WILLOUGHBY AVE.
P.O. BOX 111020
JUNEAU, ALASKA 99811-1020
PHONE: (907) 465-3400
FAX: (907) 586-2954

RECEIVED
JUN 25 2008
Hoffman, Silver, Gilman, Blasco, P.C
Juneau, Alaska

June 23, 2008

Paul M. Hoffman
Hoffman Silver Gilman & Blasco
9360 Glacier Highway, Suite 202
Juneau, AK 99801

Re: Original Recorded Amendment #2 to Right-of-Way Permit ADL 105124 and Amendment #1 to Lease Agreement ADL 106488

Dear Mr. Hoffman:

I have enclosed the original recorded documents referenced above. The referenced amendments changed the name on the State authorizations from Kennecott Greens Creek Mining Company to Hecla Greens Creek Mining Company.

Please let me know if you have any questions about this.

Sincerely,

Doug Sanvik
Natural Resource Specialist
(907) 465-3513

Enclosures as noted

STATE OF ALASKA

TONY KNOWLES, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MINING, LAND AND WATER

400 Willoughby Avenue, SUITE 400
JUNEAU, ALASKA 99801
PHONE: (907) 465-3400
FAX: (907) 586-2954

March 29, 2000

Bill Oelklaus
Kennecott Greens Creek Mining Company
P.O. Box 32199
Juneau, Alaska 99803

Re: ADL 106488

Dear Mr. Oelklaus:

Enclosed is the recorded lease for the dock in Young Bay. The Division of Mining, Land & Water must be advised of all changes of address. It is the responsibility of the lessee to make timely payments. Failure to receive a courtesy notice of payment due does not relieve the lessee of the responsibility of making timely payments which are due on or before the 24th day of January of each year.

Sincerely,

Bob Palmer
Lands Officer

Enclosure

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND & WATER, SOUTHEAST REGION

400 Willoughby Ave., Suite 400
Juneau, Alaska 99801

ADL No. 106488

LEASE AGREEMENT

Effective this ***25th*** day of ***January, 2000*** , this lease agreement is entered into by the State of Alaska, hereafter referred to as "lessor," and ***Kennecott Greens Creek Mining Company*** , hereafter referred to as "lessee," whether one or more, whose sole addresses for purposes of notification under this lease agreement are listed in section 28.

The lessor and the lessee agree that this lease, including all attachments and documents that are incorporated in this lease by reference, contains the entire agreement between the parties, and each of the covenants and conditions in this lease including any attachments will be binding upon the parties and upon their respective successors and assigns. The lessor and the lessee further agree that this lease is conditioned upon satisfactory performance by the lessor and the lessee of all covenants and conditions contained in this lease. The lessee is aware of the provisions of Title 38, Alaska Statutes, Title 11, Alaska Administrative Code, and other applicable laws, regulations, and ordinances, and fully understands the duties and obligations of the lessee under this lease, and the rights and remedies of the lessor.

This lease is subject to all applicable state, federal, and municipal statutes, regulations, and ordinances in effect on the effective date of this lease, and insofar as is constitutionally permissible, to all statutes, regulations, and ordinances placed in effect after the effective date of this lease. A reference to a statute, regulation, or ordinance in this lease includes any change in that statute, regulation, or ordinance, whether by amendment, repeal and replacement, or other means. This lease does not limit the power of the State of Alaska, its political subdivisions, or the United States of America to enact and enforce legislation or to adopt and enforce regulations or ordinances affecting, directly or indirectly, the activities of the lessee or its agents in connection with this lease or the value of the interest held under this lease. In case of conflicting provisions, statutes, regulations, and ordinances take precedence over this lease. This lease shall not be construed as a grant or recognition of authority for promulgation or adoption of municipal ordinances that are not otherwise authorized.

1. Grant. This ***tideland*** lease is issued under the authority of ***AS 38.05.075(c)*** , for a term of ***55*** year(s) beginning on the ***25th*** day of ***January, 2000*** and ending at 12 o'clock midnight on the ***24th*** day of ***January, 2055***, unless sooner terminated, subject to: compensation as specified in section 2; the attached development plan approved by the state on ***June 10, 1999*** ; and attached stipulations, if any, that are incorporated in and made a part of this lease, for the following, hereafter referred to as the "leasehold":

Alaska Tidelands Survey 1333, located within Section 1, Township 43 South, Range 65 East, and Section 6, Township 43 South, Range 66 East, Copper River Meridian and contains 4.401 acres more or less according to the survey plat recorded in the Juneau Recording District on December 7, 1987 as plat #87-44.

Excepting and reserving any general reservations to the lessor that are required by law and that may be stated elsewhere in this lease, and the following, which the state reserves for itself and others:

Subject to all platted easements and reservations and further subject to the Special Stipulations noted on Attachment A and made a part of this lease agreement.

2. Compensation. (a) The lessee shall pay to the lessor compensation as follows, without the necessity of any billing

by the lessor: : ***Equal annual payments on or before the 24th of January of every year during said term at the rate of $1,200.00.*** The lessor may, upon 10 days' notice, review and copy any records of the lessee that are necessary to verify the lessee's compliance with this paragraph.

(b) In accordance with AS 38.05.105, the lease compensation is subject to adjustment by the lessor at the commencement of the sixth year of the term and every fifth year thereafter (the "adjustment date"). The compensation adjustment takes effect on the applicable adjustment date, regardless of whether the adjustment determination occurs before or after that date. All reasonable costs of the adjustment, including reappraisal if required by the lessor, will be borne by the lessee.

3. Denial of Warranty. The lessor makes no warranty, express or implied, nor assumes any liability whatsoever, regarding the social, economic, or environmental aspects of the leasehold, including, without limitation, the soil conditions, water drainage, access, natural or artificial hazards that may exist, or the profitability or fitness of the leasehold for any use. The lessee represents that the lessee has inspected the leasehold and determined that the leasehold is suitable for the use intended, or has voluntarily declined to do so, and accepts the leasehold "as is" and "where is."

4. Use of Leasehold. Prior to execution of this lease and to commencing use or development of the leasehold, the lessee shall submit a development plan for the leasehold to the lessor and obtain the lessor's approval of the plan. Any use or development of the leasehold must be consistent with the development plan approved by the lessor. Any proposed revisions to the development plan must be submitted to the lessor for approval before any change in use or development occurs. The lessee shall use and occupy the leasehold in compliance with the approved development plan and all applicable laws, regulations, ordinances, and orders that a public authority has put into effect or may put into effect, including those of a building or zoning authority and those relating to pollution and sanitation control. The lessee may not permit any unlawful occupation, business, or trade to be conducted on the leasehold. The lessee shall properly locate all activities and improvements on the leasehold, and may not commit waste of the parcel. The lessee shall maintain and repair the leasehold including improvements in a reasonably neat and clean condition, and shall take all necessary precautions to prevent or suppress grass, brush, or forest fires, and to prevent erosion, unreasonable deterioration, or destruction of the land or improvements. The lessee agrees not to place any aboveground or underground fuel or chemical tanks on the leasehold without the prior written approval of the lessor.

5. Encumbrance of Leasehold. The lessee may not encumber or cloud the lessor's title to the leasehold, or any portion of the leasehold, nor enter into any lease, easement, or other obligation of the lessor's title without the prior written approval of the lessor.

6. Assignment of Interest. The lessee may not assign or sublet any interest held under this lease, including a security interest, without the prior written approval of the lessor. The lessor may approve such assignment or subletting if the lessor finds it to be in the best interest of the state. No such assignment or subletting will be effective until approved by the lessor in writing, and the assignee agrees to be subject to and governed by the provisions of this lease, any subsequent amendments to this lease, any additional stipulations, or reappraisal as deemed appropriate by the lessor, and all applicable laws, regulations, and ordinances in the same manner as the original lessee. No assignment or subletting of the leasehold, or any portion thereof, by the lessee will annul the lessee's obligation to pay the compensation required for the full term of this lease. Except as provided in this lease, no subdivision of the leasehold interest may occur without the prior written approval of the lessor.

7. Conditional Lease. If all or part of the leasehold has been tentatively approved, or approved, but not yet patented, by the United States to the lessor, then this lease will be conditioned upon receipt by the lessor of such patent. If for any reason the lessor does not receive patent, any compensation paid to the lessor under this lease will not be refunded. Any prepaid compensation for land to which patent is denied the lessor will be refunded to the lessee of record in the amount of the pro-rata portion of the unexpired term. The lessor will have no further liability to the lessee for the termination of the lease.

W, lessee

8. Payment of Taxes and Assessments. The lessee shall pay prior to delinquency all taxes and assessments accruing against the leasehold.

9. Section Line Rights-of-Way. If the leasehold borders on or includes one or more section lines, the lessor hereby expressly reserves unto itself and its successors and assigns a right-of-way or rights-of-way pursuant to AS 19.10.010.

10. Navigable and Public Waters. (a) Pursuant to AS 38.05.127 and 11 AAC 53.330, the lessor reserves a public access easement to and along all public or navigable water bodies that border on or are included in this leasehold. No public access easement may be obstructed or otherwise rendered incapable of reasonable use for the purposes for which it was reserved. No public access easement may be vacated, abandoned, or extinguished without the prior written approval of the lessor.

(b) The Public Trust Doctrine guarantees public access to, and the public right to use, navigable and public waters and the land beneath them for navigation, commerce, fishing, and other purposes. This lease is issued subject to the principles of the Public Trust Doctrine regarding navigable or public waters. The lessor reserves the right to grant other interests to the leasehold consistent with the Public Trust Doctrine.

11. Condemnation of Leasehold or Improvements. If the whole or any part of the leasehold is taken by any authorized body or person vested with the power of eminent domain, by negotiation, court action, or otherwise, the following provisions control:

(1) Taking of the entire leasehold. If all of the leasehold is taken by condemnation, this lease and all rights of the lessee will immediately terminate, and the compensation will be adjusted so that it is due only until the date the lessee is required to surrender possession of the leasehold. The lessor is entitled to all the condemnation proceeds, except that the lessee will be paid the portion of the proceeds attributable to the fair market value, as determined in the condemnation proceedings, of any buildings or improvements taken that were placed on the condemned leasehold by the lessee in accordance with the approved development plan.

(2) Taking of substantial part of the leasehold. If the taking is of a substantial part of the leasehold, the following rules apply:

(A) If the taking by condemnation reduces the ground area of the leasehold by at least 30 percent or materially affects the use being made by the lessee of the leasehold, the lessee has the right to elect to terminate the lease by written notice to the lessor not later than 180 days after the date of taking.

(B) If the lessee elects to terminate, the provisions in subsection (1) of this section govern the condemned portion of the leasehold and the covenants and conditions of the lease govern disposal of the remainder of any buildings or improvements made by the lessee in accordance with the approved development plan.

(C) If the lessee does not elect to terminate, the lease continues and the lessor is entitled to the full condemnation proceeds except the portion attributable to the fair market value, as determined in the condemnation proceedings, of any buildings or improvements taken that were placed on the condemned portion of the leasehold by the lessee in accordance with the approved development plan. Compensation at the existing rate will terminate on the date the lessee is required to surrender possession of the condemned portion of the leasehold. Except as it may be adjusted from time to time under the covenants and conditions of the lease and applicable statutes, compensation for the balance of the term will be adjusted by the lessor to reflect the taking.

(3) Taking of insubstantial part of the leasehold. If the taking by condemnation reduces the ground area of the

leasehold by less than 30 percent and the lessor determines that the taking is of such an insubstantial portion that the lessee's use of the leasehold is not materially affected, the lessee may not elect to terminate the lease and the compensation provisions of subsection 2(C) of this section will govern.

12. Valid Existing Rights. This lease is subject to all valid existing rights, including easements, rights-of-way, reservations, or other interests in land in existence on the date of execution of this lease.

13. Inspection. The lessor will have reasonable access to the leasehold for purposes of inspection.

14. Mineral Reservations. This lease is subject to the reservations required by AS 38.05.125 and the rights and obligations imposed by AS 38.05.130.

15. Concurrent Use. This lease is subject to reasonable concurrent uses as provided under Article VIII, Section 8 of the Constitution of the State of Alaska. The concurrent user who is found to be at fault for damage or injury arising from noncompliance with the terms governing the user's concurrent use is liable for damages and the user's interest is subject to forfeiture or termination by the lessor. In this context, the term "concurrent user" includes the lessee and any other person or entity who lawfully uses the land subject to this lease, but does not include the State of Alaska.

16. Surface Resources. Unless otherwise provided by this lease or other written authorization, the lessee may not sell or remove from the leasehold any timber, stone, gravel, peatmoss, topsoil, or any other material valuable for building or commercial purposes. Material required for the development of the leasehold may be used only in compliance with the approved development plan.

17. Appropriation or Disturbance of Waters. During the term of this lease, the lessee will have the right to apply for an appropriation of ground or surface water on the leasehold in accordance with AS 46.15 and 11 AAC 93.060.

18. Acquisition of Rights or Interests. Any right or interest acquired during the term of this lease and accruing to the benefit of the leasehold will remain appurtenant to the leasehold, and may not be severed or transferred from the leasehold without the prior written approval of the lessor. In the event of termination or forfeiture of this lease, any such right or interest will vest in the lessor.

19. Land Alterations Due to Natural or Artificial Causes. The interest described in this lease constitutes the entire leasehold. If, through natural or artificial causes, accretion or reliction of land occurs contiguous to the leasehold, the Lessee has no right to occupy or use the accreted land unless a separate lease is entered with the Lessor with respect to such lands. The rules of law usually applicable to accretion or reliction of land do not apply to this lease, nor to the interest described in this lease.

20. Waiver or Forbearance. The receipt of compensation by the lessor, with or without knowledge of any default on the part of the lessee, is not a waiver of any provision of this lease. No failure on the part of the lessor to enforce a covenant or condition of this lease, nor the waiver of any right under this lease by the lessor, unless in writing, will discharge or invalidate the application of such covenant or condition. No forbearance or written waiver affects the right of the lessor to enforce any covenant or condition in the event of any subsequent default. The receipt of compensation by the lessor after termination or any notice of termination will not reinstate, continue, or extend this lease, or destroy, or in any manner impair the validity of any notice of termination that may have been given prior to receipt of the compensation, unless specifically stated by the lessor in writing.

21. Default and Remedies. (a) Time is of the essence in this lease. If the lessee defaults on the performance of any of the covenants or conditions of this lease, and the default is not remedied within 60 days after written notice of such default has been received by the lessee and by the holder of a security interest in the leasehold approved by the lessor, or within any additional period the lessor allows for good cause, the lessee will be subject to legal or any other administrative action deemed appropriate by the lessor, including termination of this lease. The lessor may include in

the notice of the default or give a separate written notice stating that if the default is not remedied, this lease shall terminate on a date certain, which shall be at least 60 days after receipt of the first notice. Upon the date specified in such notice, unless the default has been remedied, the lease shall expire automatically without further notice or action by the lessor and this lease and all rights of the lessee under the lease shall terminate. Upon termination of the lease the lessor shall have an immediate right to possession of the leasehold and any possession by the lessee shall be unlawful. It is specifically agreed that no judicial action shall be necessary to terminate this lease or to allow the lessor to retake possession in the event of default by the lessee. No improvements may be removed from the leasehold while the lease is in default except with the lessor's prior written approval. If this lease is terminated for default, all compensation paid by the lessee is forfeited to the lessor. The lessor is not liable for any expenditures made or undertaken by the lessee under this lease. Any costs or fees, including attorney's fees, reasonably incurred by the lessor for the enforcement of this lease, shall be added to the obligations due and payable by the lessee.

(b) The rights, if any, of third-party security interest holders or lienholders are controlled solely by AS 38.05.103 and 11 AAC 58.590. If the lessee fails to remedy the default within the time allowed in subsection (a) of this section, the holder of an approved security interest who has received notice under subsection (a) of this section may remedy the default. The holder shall act within 60 days from the date of receipt of notice under subsection (a) of this section, or within any additional period the lessor allows for good cause.

(c) The lessor may, at the lessor's option, following the lessee's default and failure to remedy, or after termination of this lease due to such default and failure to remedy, accelerate the unpaid compensation for the remainder of the term of this lease. The lessee's obligation to pay such accelerated rent to the lessor survives termination of this lease.

(d) If this lease is terminated, or all or any portion of the leasehold is abandoned by the lessee, the lessor may immediately enter, or re-enter and take possession of the leasehold, and without liability for any damage, remove all persons and property from the leasehold and may, if necessary, use summary proceedings or an action at law. The words "enter" and "re-enter" as used are not restricted to their technical legal meaning. Any entry, re-entry, possession, repossession, or dispossession by the lessor, whether taken with or without judicial action, does not absolve, relieve, release, or discharge the lessee, either in whole or part, of any liability under the lease.

(e) The lessor, upon or at any time after giving written notice of any default, may enter or re-enter the leasehold to remedy any default by the lessee or exercise any right given under this lease, all without the intervention of any court being required. The curing of such default shall not be deemed for any purpose to be for the benefit of the lessee.

(f) At any time after termination of this lease, the lessor may re-let the leasehold, or any part thereof, in the name of the lessor for such term and on such conditions as the lessor may determine, and may collect and receive the compensation therefor. The lessor shall not be responsible or liable for failure to re-let the leasehold or for any failure to collect any compensation due upon such re-letting, nor shall the lessor be required to account for or pay to the lessee any excess compensation received as a result of such re-letting. The lessee shall be liable for any deficiency, and for all costs, expenses, and fees incurred by the lessor arising out of the default, including the lessor's efforts to re-let the leasehold.

(g) No right or remedy conferred upon or reserved to the lessor in this lease or by statute, or existing in law or equity, is intended to be exclusive of any other right or remedy, and each and every right shall be cumulative.

22. Disposition of Improvements and Chattels After Termination. AS 38.05.090 will govern disposition of any lessor-approved chattels or improvements left on the leasehold after termination. At the lessor's sole option, improvements not approved by the lessor shall be removed from the leasehold and the site restored to its original condition at the lessee's sole expense, or be forfeited to the lessor. The lessee shall be liable to the lessor for any costs, expenses, or damages arising out of the disposition of improvements not approved by the lessor, and may be required to pay rent on any improvements or chattels left on the parcel in accordance with 11 AAC 58.680.

23. Indemnity to Lessor. The lessee shall indemnify, defend, and hold the lessor harmless from and against all claims, demands, judgments, damages, liabilities, penalties, and costs, including attorney's fees, for loss or damage including but not limited to property damage, personal injury, wrongful death, and wage, employment, or worker's compensation claims, arising out of or in connection with the use or occupancy of the leasehold by the lessee or by any other person holding under the lessee, or at the lessee's sufferance or invitation; and from any accident or fire on the leasehold; and from any nuisance made or suffered on the leasehold; and from any failure by the lessee to keep the leasehold in a safe and lawful condition consistent with applicable laws, regulations, ordinances, or orders; and from any assignment, sublease, or conveyance, attempted or successful, by the lessee of all or any portion of the leasehold or interest therein contrary to the covenants and conditions of this lease. The lessee holds all goods, materials, furniture, fixtures, equipment, machinery, and other property whatsoever on the parcel at the sole risk of the lessee, and shall defend, indemnify and hold the lessor harmless from any claim of loss or damage by any cause whatsoever, including claims by third parties.

24. Insurance. If required by the lessor, the lessee shall obtain insurance in an amount determined by the lessor to be sufficient. The lessor shall be named as an additional insured party of any such insurance. The types and amount of insurance shall be specified in the attached stipulations made a part of this lease agreement and may be adjusted periodically. The lessee shall maintain that insurance as long as required by the lessor. Any insurance acquired by the lessee for the purpose of providing insurance coverage under this lease must be issued by an insurer authorized to do business in the State of Alaska under the provisions of AS 21.09.010 and AS 21.27.010 for the type of policy being written.

25. Bonding. If required by the lessor, the lessee shall furnish a bond, cash deposit, certificate of deposit, or other form of security acceptable to the lessor in an amount determined by the lessor to be sufficient to ensure faithful performance of the covenants and conditions of this lease, and to cover the cost of site cleanup and restoration and any associated costs after termination of the lease. The amount and conditions of the bond shall be specified in the attached stipulations made a part of this lease agreement. The lessee shall maintain the bond as long as the lessor deems necessary, and in the amount required by the lessor, which amount may be adjusted periodically.

26. Environmental Compliance. (a) The lessee shall, at the lessee's own expense, comply with all existing and hereafter enacted environmental responsibility laws ("Environmental Laws"). The lessee shall, at the lessee's own expense, make all submissions to, provide all information to, and comply with all requirements of the appropriate governmental authority (the "Authority") under the Environmental Laws.

(b) Should the Authority require that a remedial action plan be prepared and that a remedial action be undertaken because of the presence of, or any disposal, release, spill, or discharge, or threatened disposal, release, spill, or discharge of or contamination by hazardous materials at the leasehold that occurs during the term of this lease or arises out of or in connection with the lessee's use or occupancy of the land described in section 1 of this lease, then the lessee shall, at the lessee's own expense, prepare and submit the required plans and financial assurances and carry out the approved plans. The lessee's obligations under this section shall arise if there is any event or occurrence at the leasehold during the term of this lease, or arising out of or in connection with the lessee's use or occupancy of the land described in section 1 of this lease, that requires compliance with the Environmental Laws.

(c) At no expense to the lessor, the lessee shall promptly provide all information requested by the lessor for preparation of affidavits or other documents required by the lessor to determine the applicability of the Environmental Laws to the leasehold, and shall sign the affidavits promptly when requested to do so by the lessor.

(d) The lessee shall indemnify, defend, and hold harmless the lessor from all fines, penalties, suits, judgements, procedures, claims, demands, liabilities, settlements, and actions of any kind arising out of or in any way connected with the presence of or any disposal, release, spill, or discharge or any threatened disposal, release, spill, or discharge of or contamination by hazardous materials at the leasehold that occurs during the term of the lease or arises out of or in connection with the lessee's use or occupancy of the land described in section 1 of this lease; and

from all fines, penalties, suits, judgements, procedures, claims, demands, liabilities, settlements, and actions of any kind arising out of the lessee's failure to provide all information, make all submissions, and take all steps required by the Authority under the Environmental Laws or any other law concerning any spill, discharge, or contamination that occurs during the term of this lease or arises out of or in connection with the lessee's use or occupancy of the land described in section 1 of this lease.

(e) The lessee agrees that it will not discharge or dispose of or suffer the discharge or disposal of any petroleum products, gasoline, hazardous chemicals, or hazardous materials into the atmosphere, ground, wastewater disposal system, sewer system, or any body of water.

(f) In any court action or administrative proceeding, in addition to all other applicable presumptions, it shall be rebuttably presumed that any environmental contamination of the leasehold (i) has been released on the leasehold; (ii) has resulted from acts or omissions of the lessee or its agents; and (iii) has occurred during the term of this lease. The lessee has the burden of rebutting the presumptions by clear and convincing evidence.

(g) This section of this lease does not in any way alter the State of Alaska's powers and rights or the lessee's duties and liabilities under Title 46 (or its successor) of the Alaska Statutes or other state, federal, or municipal statutes, regulations, or ordinances. For example, notwithstanding the provisions of this lease, the State of Alaska shall not be precluded from claiming under AS 46.03.822 that the lessee is strictly liable, jointly and severally, for damages and costs incurred by the state for clean up of contamination on the leasehold. The obligations and provisions of this section 26 shall survive the termination of this lease.

(h) As used in this lease, the term "hazardous materials" means any hazardous or toxic substance, material, or waste that is or becomes regulated by any municipal governmental authority, the State of Alaska, or the United States government.

27. Surrender of Leasehold. Upon the expiration, termination, or cancellation of this lease, the lessee shall peacefully leave and deliver up all of the leasehold in good, sanitary, and marketable condition, order, and repair.

28. Notices. (a) Any notice or demand by the lessee will be made by hand delivery to the Director, Division of Land, or by certified mail, postage prepaid, addressed as follows (or to a new address that the lessor designates in writing), with delivery occurring upon receipt by the lessor:

To the Lessor:

Division of Mining, Land & Water, Southeast Region
400 Willoughby Ave., Suite 400
Juneau, Alaska 99801

(b) Any notice or demand by the lessor will be made by delivery as provided in 11 AAC 02.040(c). If delivery is by mail, the notice or demand will be addressed as follows (or to a new address that the lessee or its successor in interest designates in writing):

To the Lessee:

Kennecott Greens Creek Mining Company
P.O. Box 32199
Juneau, Alaska 99803

The lessor will deliver a copy of any such notice or demand to each holder of a security interest in the leasehold

whose assignment has been approved by the lessor under section 6 of this lease. Any security interest not approved as provided in section 6 is insufficient to require notice by the lessor under AS 38.05.103.

(c) Any notice or demand regarding the lease must be in writing and will be complete if delivered as set out above.

29. Penalty Charges. The lessee shall pay a fee for any late payment or returned check issued by the lessee as follows:

(1) Late Payment Penalty: The greater of either the fee specified in 11 AAC 05.010 or interest at the rate set by AS 45.45.010(a) will be assessed on a past-due account until payment is received by the lessor. Acceptance of a late payment or of a service charge for a late payment is subject to the lessor's rights under sections 20 and 21 of this lease.

(2) Returned Check Penalty: A returned check fee as provided in 11 AAC 05.010 will be assessed for any check on which the bank refuses payment. If the bank refuses payment, the default termination date remains the same. Late penalties under subsection (1) of this section shall continue to accumulate.

30. Modification. This lease may be modified or amended only by a document signed by both parties. Any purported amendment or modification has no legal effect until placed in writing and signed by both parties.

31. Choice of Law. This lease shall be construed under the laws of the State of Alaska. The lessee confers personal jurisdiction on the courts of the State of Alaska for any litigation under this lease.

32. Severability of Clauses of Lease Agreement. If any clause or provision of this lease is, in a final judicial proceeding, determined illegal, invalid, or unenforceable under present or future laws, then the lessor and the lessee agree that the remainder of this lease will not be affected, and in lieu of each clause or provision of this lease that is illegal, invalid, or unenforceable, there will be added as a part of this lease a clause or provision as similar in terms to the illegal, invalid, or unenforceable clause or provision as may be possible, legal, valid, and enforceable.

By signing this lease, the lessor and the lessee agree to be bound by its provisions.

LESSEE:

Kennecott Greens Creek Mining Company

LESSOR:

for Bob Loeffler Director, Division of Mining, Land & Water

102-111 (revised 2/9/94)

_____, lessee

STATE OF ~~ALASKA~~ UTAH)
COUNTY OF SALT LAKE) ss.
~~Judicial District)~~

THIS IS TO CERTIFY that on this 21st day of Feb., 2000, before me personally appeared William Orchow, known to me to be the Pres. & CEO of *Kennecott Greens Creek Mining Company* the corporation which executed the foregoing Lease, and he acknowledged to me that he executed the same for and on behalf of said corporation, and that he is fully authorized by said corporation so to do; William Orchow acknowledged to me that he signed and executed the same freely and voluntarily, for the uses and purposes therein stated.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year above written.

NOTARY PUBLIC
LESLI SMITH
224 North 2200 West
Salt Lake City, Utah 84116
My Commission Expires
August 20, 2001
STATE OF UTAH

Notary Public in and for the State of ~~Alaska~~ UTAH
My Commission expires: Aug. 20, 2001

STATE OF ALASKA)
) ss.
1st Judicial District)

THIS IS TO CERTIFY THAT ON THIS 8th day of March, 2000, before me personally appeared Ron Schonenbach, of the Division of Mining, Land & Water of the Department of Natural Resources of the State of Alaska, who executed the foregoing Lease and acknowledged voluntarily signing the same.

Judith K. Hauck
Notary Public in and for the State of Alaska
My commission expires: 7/24/01

STATE OF ALASKA
OFFICIAL SEAL
Judith K. Hauck
NOTARY PUBLIC
My Commission Expires 7/24/01

Approved as to form February 9, 1994.

/s/ Elizabeth J. Barry, Assistant Attorney General

After recording in the Juneau Recording District, this document must be returned to the Department of Natural Resources, Division of Mining, Land & Water, Southeast Regional Office, 400 Willoughby Avenue, Suite 400, Juneau, Alaska 99801.

102-111 (revised 2/9/94)

W, lessee

ATTACHMENT 'A'

SPECIAL STIPULATIONS to ADL106488

1. Lease Development. The development of the Lease area shall be limited in form and scope to the area and improvements specified in the development and operations plan, included as Attachment 'B'. The lessee is responsible for accurately siting development and operations within this area. Use of the area for purposes other than those specified in this agreement is a violation of this lease. Any proposed revisions to the development and operations plan must be approved in writing by the Lessor before the change in use or development occurs. This lease must be utilized for the purpose described in the approved development plan. Failure to make substantial use of the land, consistent with the approved development plan, within five years, will, in the Director's discretion, constitute grounds for cancellation.

2. Insurance. Pursuant to lease condition #24, the Lessee shall:

a) Consult, as appropriate, with an insurance professional licensed to transact the business of insurance under Alaska Statute, Title 21, to determine what types and levels of insurance are adequate to protect the Lessee and Lessor (the State, its officers, agents and employees) relative to the liability exposures of the Lessee's commercial operations.

b) Secure or purchase at Lessee's own expense, and maintain in full force at all times during the term of the lease, adequate insurance policies and coverage levels recommended by an insurance professional, licensed to transact the business of insurance under Alaska Statute, Title 21, and acceptable to the Lessor. The Lessor will expect to see at a minimum, the following types of coverage:

Commercial General Liability Insurance: The policy shall be written on an "occurrence" form and shall not be written as a "claims-made" form unless specifically reviewed and agreed to by the Division of Risk Management, Alaska Department of Administration.

Workers' Compensation Insurance: The lessee shall provide and maintain, for all its employees, Workers' Compensation Insurance as required by AS 23.30.045. Where applicable, coverage must comply with any other statutory obligations, whether Federal (i.e. U.S.L.&H)., or, Jones Act) or other state laws in which employees are engaged in work on the leased premises. The insurance policy must contain a waiver of subrogation clause in favor of the State of Alaska.

c) Ensure that the State of Alaska, Department of Natural Resources is included as an additional insured on all liability policies held by the Lessee that provide coverage for liabilities connected to the operations of the Lessee on or in conjunction with the leased premises, referred to as ADL 106488,

d) Provide proof of insurance to the Lessor on a yearly basis. The certificate must provide for a 30-day prior notice to-the-State of Alaska in the event of cancellation, nonrenewal or material change of conditions. Failure to furnish satisfactory evidence of insurance, or lapse of the policy, are material breaches of the lease contract and shall be grounds, at the option of the Lessor, for termination of the lease agreement. Generally, the Lessor will rely upon the best professional judgement of the licensed insurance agent and, at renewal, the agent's annual re-assessment of the insured's liability exposure for determination of adequate levels of coverage. The Lessor hereby reserves the right to require additional coverage if, in it's discretion, it determines that it may be warranted. Any changes in the approved lease development and operations plan, or the existence of significant claims against the liability coverage, would warrant examination of the insurance by the state to determine adequacy.

e) In the event the Lessee becomes aware of a claim against any of it's liability coverage, the Lessee shall notify, and provide documentation and full disclosure of the claim to the Lessor within 20 days.

3. Maintenance. The State assumes no responsibility for maintenance of improvements constructed on state land nor liability for injuries or damages attributable to that construction.

4. Performance Guarantee. Pursuant to Lease Condition #25, the Lessee shall provide a surety bond or other form of security acceptable to the State in the amount of $ 35,000.00 payable to the State of Alaska. Such performance guaranty shall remain in effect for the term of this Lease and shall secure performance of the lessee's obligations hereunder. The amount of the performance guaranty may be adjusted by the Lessor upon approval of amendments to this Lease, changes in the development plan, upon any change in the activities conducted or performance of operations conducted on the premises. If Lessee fails to perform the obligations under this lease within a reasonable time, the State may perform Lessee's obligations at Lessee's expense. Lessee agrees to pay within 20 days following demand, all costs and expenses reasonably incurred by the State of Alaska as a result of the failure of the lessee to comply with the terms of this lease. The provisions of this lease shall not prejudice the State's right to obtain a remedy under any law or regulation. If the Lessor determines that the Lessee has satisfied the terms and conditions of this lease the performance guarantee may be released. The performance guarantee

may only be released in a writing signed by the Lessor or an authorized representative.

5. Solid Waste All solid waste and debris generated from the activities conducted under this Lease shall be removed to a facility approved by the ADEC prior to the expiration, completion, or termination of the Lease or activities.. Temporary storage and accumulation of solid waste (prior to its removal) shall conform to the following:

   Solid waste shall be stored in a manner that prevents a litter violation under AS 46.06.080;

   Putrescible wastes (material that can decompose and cause obnoxious odors) shall be stored in a manner that prevents the attraction of or access to wildlife or disease vectors; and

   The premises shall be maintained free of solid waste that might create a health or safety hazard.

6. Wastewater Disposal. Disposal of wastewater from any operation associated with this Lease to state lands or waters is specifically prohibited, unless otherwise approved by the Alaska Department of Environmental Conservation.

7. Fuel and hazardous substances. No fuel or hazardous substances are to be stored on the subject parcel. Prior written approval from the lessor is required for a change in this restriction. Such approval may include additional stipulations and a change in the amount required for the performance guarantee.

8. Notification. The lessee shall immediately notify DNR and DEC by phone of <u>any</u> unauthorized discharge of oil to water, <u>any</u> discharge of hazardous substances (other than oil), and <u>any</u> discharge of oil greater than 55 gallons on land. All fires and explosions must also be reported.

   The DNR 24 hour spill report number is (907) 451-2678; the Fax number is (907) 451-2751. The DEC spill report number is (800) 478-9300. DNR and DEC shall be supplied with all follow-up incident reports.

9. Inspection. Authorized representatives of the State of Alaska shall have reasonable access to the subject parcel for purposes of inspection. The Lessee may be charged fees under 11 AAC 05.010(a)(7)(M) for routine inspections of the subject parcel, inspections concerning non-compliance, and a final close-out inspection.

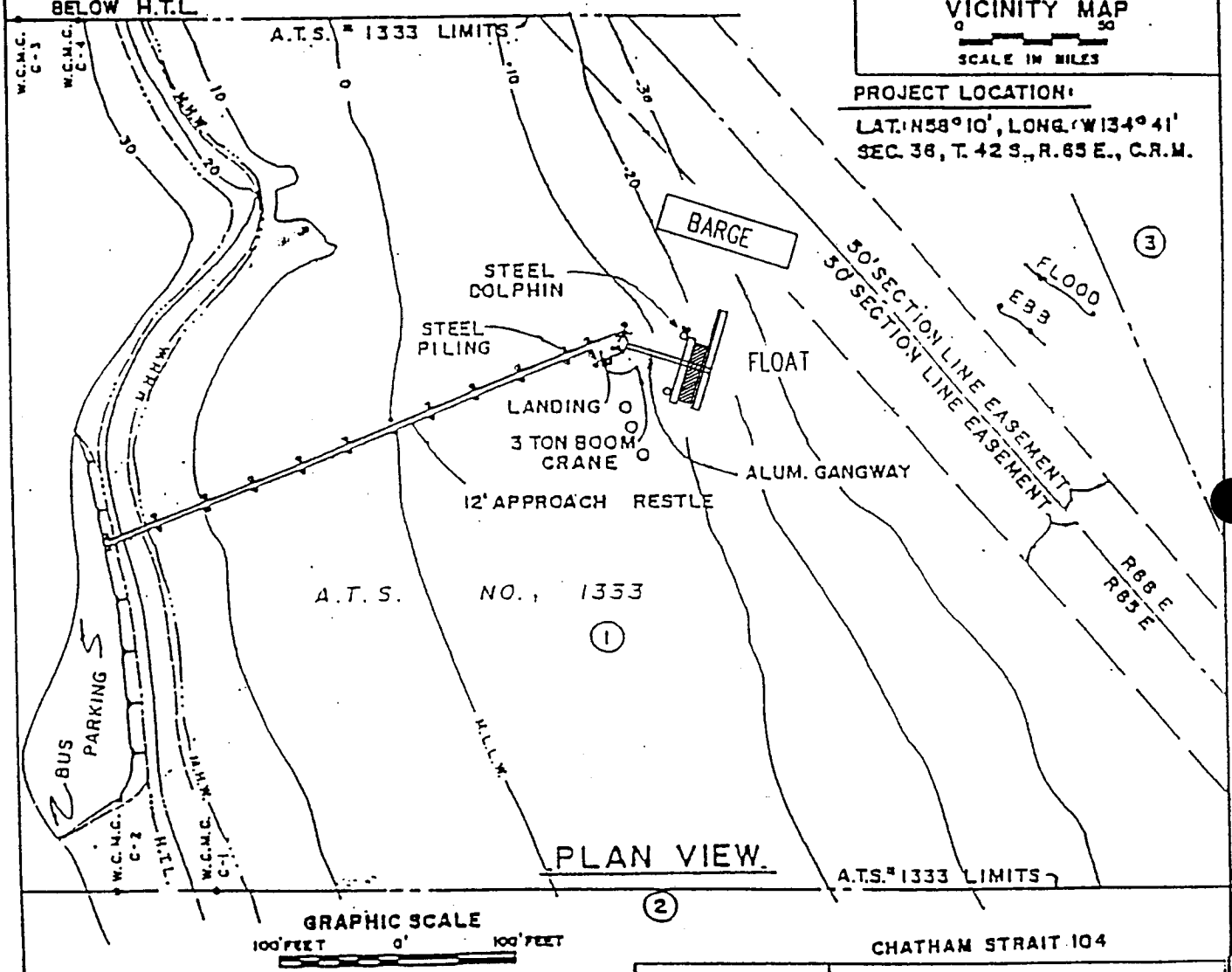
10. **Compliance with Governmental Requirements.** The lessee shall, at its expense, comply with all applicable laws, regulations, rules and orders, and the requirements and stipulations included in this Lease. Lessee shall ensure compliance by its employees, agents, contractors, subcontractors, licensees, or invitees.

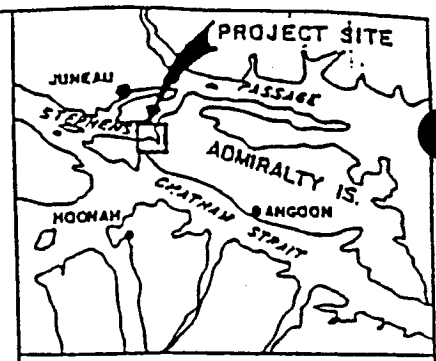
11. **Destruction of Markers.** All survey monuments, witness corners, reference monuments, mining claim posts, bearing trees, and unsurveyed lease corner posts shall be protected against damage, destruction, or obliteration. The lessee shall notify the Lessor of any damaged, destroyed, or obliterated markers and shall reestablish the markers at the lessee's expense in accordance with accepted survey practices of the Division of Land.

YOUNG'S BAY
TIDAL DATA.

H.T.L. 22.00' (HIGH TIDE LINE)
M.H.H.W. 15.85'
M.H.W. 14.85'
M.L.W. 1.55'
M.L.L.W. 0.00'
E.L.W. -6.00'

NOTE:
NO EMBANKEMENT SHALL BE PLACED BELOW H.T.L.





VICINITY MAP
0 50
SCALE IN MILES

PROJECT LOCATION:
LAT. N58° 10', LONG. W134° 41'
SEC. 36, T. 42 S., R. 65 E., C.R.M.

LAND OWNERSHIP
1. GREENS CREEK MINING LEASE AREA
2. TONGASS NATIONAL FOREST
3. WATERS OF THE STATE OF ALASKA

Date Prepared: 5/31/99	Applicant's Name: Greens Creek Mining
STATE OF ALASKA DEPARTEMENT OF NATURAL RESOURCES DIVISION OF LAND	
DEVELOPMENT PLAN DIAGRAM	
Sec.(s) 1 T. 43 S., R. 65 E., CRM	
Scale: 1" =	
SHEET 1 OF 1	LEASE FILE # ADL 106488

2000 MR -9 AM 11:05
REQUESTED BY AS/DOM L&W
0001255
JUNEAU RECORDING DISTRICT

A L A S K A

2008-003388-0

Recording Dist: 101 - Juneau
5/8/2008 3:14 PM Pages: 1 of 2

CC

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND AND WATER
400 WILLOUGHBY, PO BOX 111020
JUNEAU, ALASKA 99811-1020
(907) 465-3400

AMENDMENT # 2 TO RIGHT-OF-WAY PERMIT
ADL 105124

In accordance with the Amended Certificate of Authority issued by the State of Alaska Department of Commerce, Community, and Economic Development on April 22, 2008, the Permittee/Grantee Kennecott Greens Creek Mining Company is altered to read Hecla Greens Creek Mining Company and ceases to read as originally written.

All other terms and conditions of the Right-of-Way Permit remain unchanged.

Ronald W. Clayton, Vice President
Hecla Greens Creek Mining Company

5/2/08
Date

Southeast Region Manager
Division of Mining, Land and Water

5/8/2008
Date

STATE OF IDAHO)

) **ss.**

County of Kootenai)

THIS IS TO CERTIFY that on this 1st day of May, 2008, before me personally appeared Ronald W. Clayton, known to me to be the Vice President of the Hecla Greens Creek Mining Company, which executed the foregoing Right-of-Way Permit Amendment, and acknowledged to me that he executed the same for and on behalf of said corporation, and that he is fully authorized by said corporation so to do; Ronald W. Clayton acknowledged to me that he signed and executed the same freely and voluntarily, for the uses and purposes therein stated.

TRISHA JIMMERSON NOTARY PUBLIC STATE OF IDAHO

Notary Public in and for the State of Idaho
My Commission Expires: 9/20/2013

STATE OF ALASKA)

1st)**ss.**

1 **Judicial District**)

THIS IS TO CERTIFY that on this 8th day of May, 2008 before me personally appeared Ed Collazzi, Southeast Region Manager, of the Division of Mining, Land and Water of the Department of Natural Resources of the State of Alaska, who executed the foregoing Right-of-Way Permit Amendment and acknowledged voluntarily signing the same.

STATE OF ALASKA
OFFICIAL SEAL
Douglas T. Sanvik
NOTARY PUBLIC
My Commission Expires with office.

Notary Public in and for the State of Alaska
My Commission Expires: w/office

Right of Way Permit ADL 105124 is recorded in the Book 347, Pages 564-569 in the Juneau Recording District, First Judicial District, State of Alaska. Amendment to Right of Way Permit is recorded in Book 430, Pages 888 & 889 in the Juneau Recording District.

After recording in the Juneau Recording District, for official state business, no charge, return this document to: State of Alaska, DNR - Division of Mining, Land & Water, Southeast Region, 400 Willoughby Avenue, PO Box 111020, Juneau, AK 99811-1020.

2 of 2
2008-003388-0

HOFFMAN SILVER GILMAN & BLASCO

A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
JUNEAU, ALASKA

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ARLINGTON, VIRGINIA 22201
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ROBERT P. BLASCO
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AMY GURTON MEAD

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FACSIMILE: (907) 283-2009

BLAINE D. GILMAN

*ADMITTED IN WASHINGTON, D.C. AND ALASKA
**ADMITTED IN VIRGINIA, WASHINGTON, D.C. AND ALASKA
***ADMITTED IN WASHINGTON, D.C. AND ALASKA; RESIDING FLORIDA
ALL OTHERS ADMITTED IN ALASKA

+NON-LAWYER PROFESSIONAL

June 25, 2008

Jennifer Saran
Hecla Greens Creek Mining Company
P.O. Box 32199
Juneau, Alaska 99803

Re: State Lease ADL 106488
State Lease ADL 105125

Dear Ms. Saran;

The State leases referenced above have been officially amended to show the authorized entity as Hecla Greens Creek Mining Company. The original recorded amendments that reflect this change are enclosed for your file, as is the letter under which they were received.

Should the need ever arise, please be aware that copies of the enclosed documents are contained in our files.

Very truly yours,

Anne O'Leary
Paralegal

:aol
Enc.

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MINING, LAND & WATER

SARAH PALIN, GOVERNOR

SOUTHEAST REGION OFFICE
400 WILLOUGHBY AVE.
P.O. BOX 111020
JUNEAU, ALASKA 99811-1020
PHONE: (907) 465-3400
FAX: (907) 586-2954

RECEIVED
JUN 25 2008
Hoffman, Silver, Gilman, Blasco, P.C
Juneau, Alaska

June 23, 2008

Paul M. Hoffman
Hoffman Silver Gilman & Blasco
9360 Glacier Highway, Suite 202
Juneau, AK 99801

Re: Original Recorded Amendment #2 to Right-of-Way Permit ADL 105124 and Amendment #1 to Lease Agreement ADL 106488

Dear Mr. Hoffman:

I have enclosed the original recorded documents referenced above. The referenced amendments changed the name on the State authorizations from Kennecott Greens Creek Mining Company to Hecla Greens Creek Mining Company.

Please let me know if you have any questions about this.

Sincerely,

Doug Sanvik
Natural Resource Specialist
(907) 465-3513

Enclosures as noted

STATE OF ALASKA

TONY KNOWLES, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MINING, LAND AND WATER

400 Willoughby Avenue, SUITE 400
JUNEAU, ALASKA 99801
PHONE: (907) 465-3400
FAX: (907) 586-2954

January 25, 2001

Bill Oelklaus
P.O. Box 32199
Juneau, AK 99803-2199

Re: Rental Rate Increase for Right Of Way No. ADL 105124

Dear Mr. Oelklaus:

This letter is to announce that effective July 1, 2001 the annual rent for right of way ADL 105124 will increase from the present rate of $200 per year to $300 per year. The new rate will remain in effect for at least the next 5 years.

Per regulation, the rental rate for non-exclusive use of state land for a right of way is $100 per acre, but no less than $200. Right of Way ADL 105124 is 2.75 acres in size; consequently the annual rate is $300.

If you have any questions about this case please call me at 465-3513 or contact me by email at doug_sanvik@dnr.state.ak.us.

Thank you.

Sincerely,

Doug Sanvik

Doug Sanvik
Natural Resource Officer

Enclosures: Page 1 and Diagram of Right of Way ADL 105124

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF LAND & WATER MANAGEMENT
RIGHT-OF-WAY PERMIT

ADL 105124

THIS AGREEMENT made and entered into this 1st day of July, 19 91, by and between the STATE OF ALASKA, acting by and through the Department of Natural Resources, Division of Land and Water Management, hereinafter referred to as the grantor and Greens Creek Mining Company hereinafter referred to as the permittee.

WITNESSETH, that in accordance with the provisions of Sec. 38.05.850, A.S. and the rules and regulations promulgated thereunder, the permittee having filed an application for a right-of-way for: a marine outfall line to carry treated wastewater from a tailing impoundment

with the Division together with a map showing the definite location thereon of the line of right-of-way which the permittee has adopted and agrees to be the specific and definite location of the aforesaid right-of-way, and

WHEREAS, it is understood and agreed by the permittee herein that, as a condition to the granting of the right-of-way applied for, the land covered by said right-of-way shall be used for no purpose other than the location, construction, operation and maintenance of the said right-of-way over and across the following described State lands, to wit:

see attached Right-of-Way Permit Diagram ADL 105124, pages 5 of 6 and 6 of 6.

The said right-of-way shall extend 7984.57 feet in length and 15 feet in width, containing 2.75 acres, more or less.

TO HAVE AND TO HOLD the same until the above described land shall no longer be used for the above-mentioned purpose and subject to conditions and reservations elsewhere set forth herein and any "Special Conditions".

In the event that the right-of-way herein granted shall in any manner conflict with or overlap a previously granted right-of-way, the permittee herein shall use this right-of-way in such a manner as not to interfere with the peaceful use and enjoyment of the previously issued right-of-way and no improvements shall be constructed by the permitted herein upon the overlapping area unless the consent therefore has first been obtained from the permittee under the pre-existing right-of-way.

The permittee in the exercise of the rights and privileges granted by this indenture shall comply with all regulations now in effect or as hereafter established by the Division of Land and Water Management and all other Federal, State or Municipal laws, regulations or ordinances applicable to the area herein granted.

Legal Description

See attached Right-of-Way Permit Diagram ADL 105124
pages 5 of 6 and 6 of 6

* * * * * * * * * * *

SPECIAL CONDITIONS

1) This permit shall expire on June 30, 2016.

2) The fee for this permit is $200.00/per year. This fee may be adjusted every five years based on the division's fee schedule at that time.

3) This easement is private and non-exclusive. This division reserves the right to allow other like or compatible uses of non-exclusive use private easements and the right to require such users to enter into an equitable maintainance agreement with the original applicant. The equitableness of the agreement is determined by the Director.

4) This Right-of-Way Permit is issued for a period of 25 years and will be cancellable if the state has a higher and better use for the land. The cost of relocating the improvements shall be borne by the permittee.

5) This agreement will only become effective once the signed original document has been recorded.

Upon abandonment, termination, revocation or cancellation of this indenture, the permittee shall, within 90 days, remove all structures and improvements from the area herein granted, except those owned by the grantor, and shall restore the area to the same or similar condition as the same was upon the issuance of this permit. Should the permittee fail or refuse to remove said structures or improvements, within the time allotted, they shall revert to and become the property of the grantor. However, the permittee shall not be relieved of the cost of the removal of the structures, improvements and/or the cost of restoring the area. Provided further, however, that the grantor, in his/her discretion, may alter or modify the requirements contained in this provision if it is to the best interest of the State to do so.

The permittee shall utilize the lands herein granted consistent with the purposes of the proposed use, as revealed by the application therefore, and shall maintain the premises in a neat and orderly manner and shall adopt and apply such safety measures as shall be necessary, proper and prudent with respect to the use to which the land is subjected.

The permittee shall take all reasonable precaution to prevent and suppress brush and forest fires. No material shall be disposed of by burning in open fire during the closed season unless a permit therefor has first been obtained from the agency empowered by law to issue such permits.

Prior to any construction or development that will use, divert, obstruct, or pollute or utilize any of the waters of the State, the permittee shall first obtain approval therefor from the Commissioner of the Department of Fish and Game and file an image copy thereof with the grantor.

Any lands included in this permit which are sold under a contract to purchase shall be subject to this permit. Upon issuance of title to the purchaser, this permit shall remain in effect until its date of expiration.

In the event that the necessity for the right-of-way shall no longer exist, or the permittee should abandon or fail to use the same, then this permit shall terminate.

The State of Alaska shall be forever wholly absolved from any liability for damages which might result to the permittee herein on account of this permit having been cancelled, forfeited, or terminated prior to the expiration of the full term for which it was issued.

NOW THEREFORE, in accordance with the provisions of Sec. 38.05.850, A.S. and the rules and regulations promulgated thereunder and in accordance with the conditions heretofore set forth or attached hereto and made a part hereof, the permittee herein is hereby authorized to locate, construct, operate and maintain said right-of-way over and across the lands herein described.

IN WITNESS WHEREOF, the said grantor has caused these presents to be signed in duplicate and the permittee herein has hereunto affixed his signature on the day and year first above written.

UNITED STATES OF AMERICA)
State of Alaska) ss.

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

By: _____
Director
Division of Land and Water Management

This is to certify that on the _____ day of _____, 19____, before me, the undersigned Notary Public, personally appeared _____ known to me and known by me to be the _____ of the Division of Lands of the Department of Natural Resources, and acknowledged to me that he executed the foregoing instrument for and on behalf of said State, freely and voluntarily for the use and purpose therein set forth.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

_____
Notary Public in and for the State of Alaska
My Commission expires _____

* * * * * * * * * * * * * * * * * *

UNITED STATES OF AMERICA)
State of Alaska) ss.

(X) V. Jack Cottrell for Greens Creek Mining Co.
Permitee

This is to certify that on the 22nd day of July, 19 91, before me, the undersigned Notary Public, personally appeared V. Jack Cottrell to me personally known to be one of the persons described in and who executed the within instrument and the said Mr. Cottrell acknowledged to me that he signed and executed the same freely and voluntarily for the uses and purposes therein mentioned.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Penelope Konler
Notary Public in and for the State of Alaska
My Commission expires 11/14/91

After recording in the Juneau Recording District, this document must be returned to the Department of Natural Resources, Division of Land & Water Management, Southeast Regional Office, 400 Willoughby Avenue, Suite 400, Juneau, Alaska 99801.

SURVEYOR'S CERTIFICATE:

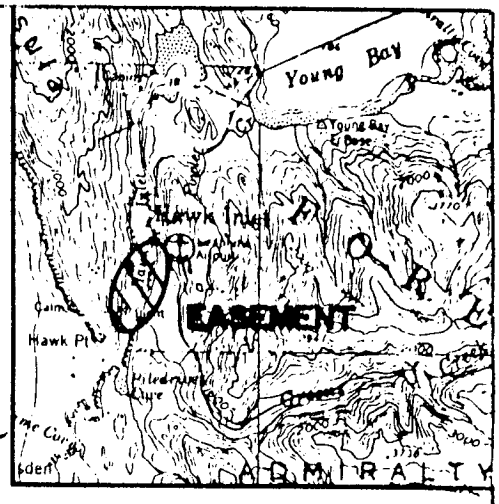
I HEREBY CERTIFY THAT I AM PROPERLY REGESTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA, THAT THIS PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, THAT THE MONUMENTS SHOWN HEREON ACTUALLY EXIST AS DESCRIBED AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT.

Thomas M. Kirchner

THOMAS M. KIRCHNER,
REGISTERED LAND SURVEYOR, No. 5713

DATE: MAY 28, 1991

STATE OF ALASKA
49TH
Thomas M. Kirchner
Thomas M. Kirchner
LS-5713
REGISTERED PROFESSIONAL LAND SURVEYOR



VICINITY MAP

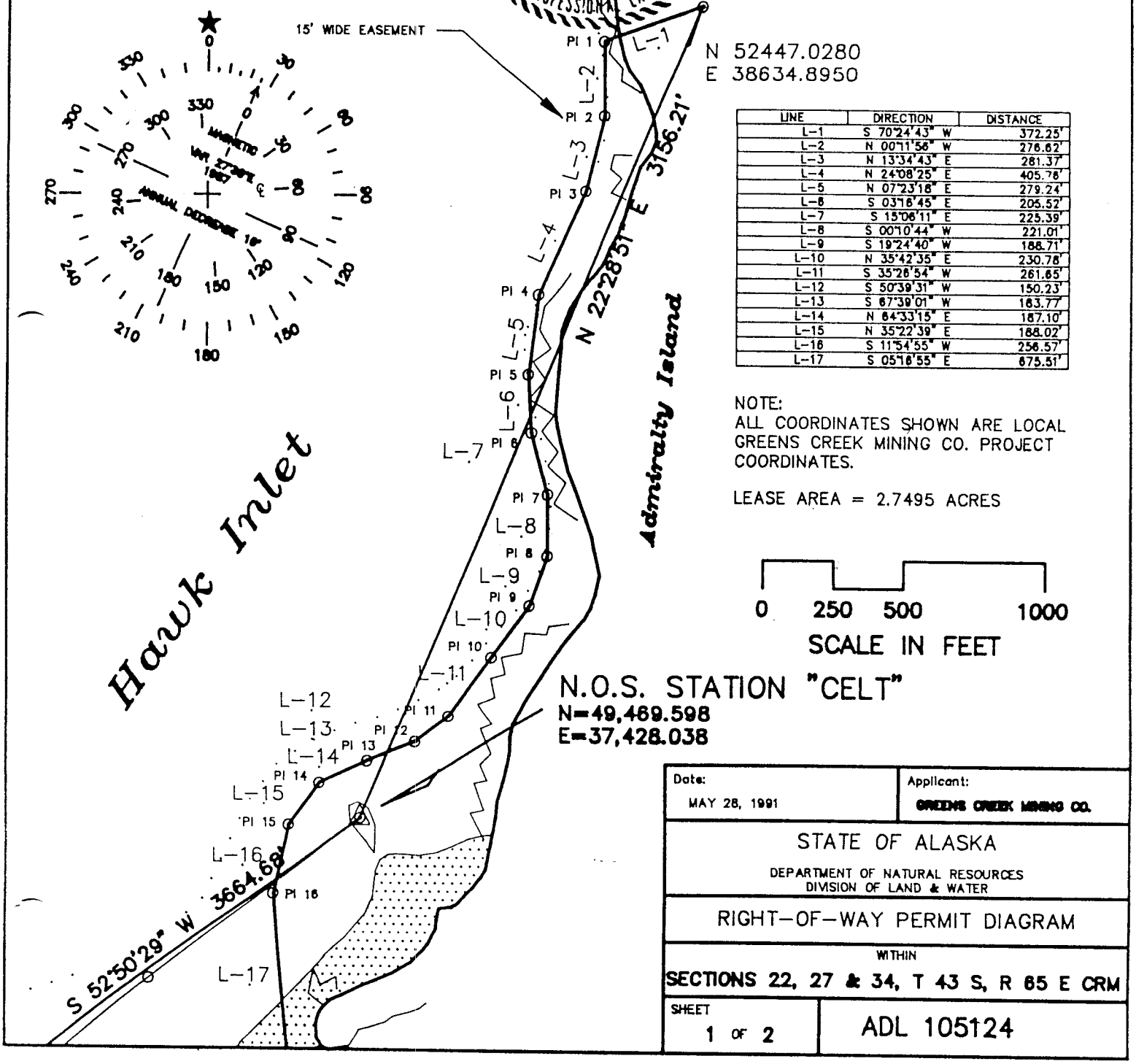
15' WIDE EASEMENT

N 52447.0280
E 38634.8950

LINE	DIRECTION	DISTANCE
L-1	S 70°24'43" W	372.25'
L-2	N 00°11'56" W	276.62'
L-3	N 13°34'43" E	281.37'
L-4	N 24°08'25" E	405.76'
L-5	N 07°23'16" E	279.24'
L-6	S 03°16'45" E	205.52'
L-7	S 15°06'11" E	225.39'
L-8	S 00°10'44" W	221.01'
L-9	S 19°24'40" W	188.71'
L-10	N 35°42'35" E	230.76'
L-11	S 35°28'54" W	261.65'
L-12	S 50°39'31" W	150.23'
L-13	S 67°39'01" W	163.77'
L-14	N 64°33'15" E	187.10'
L-15	N 35°22'39" E	188.02'
L-16	S 11°54'55" W	256.57'
L-17	S 05°16'55" E	675.51'

NOTE:
ALL COORDINATES SHOWN ARE LOCAL GREENS CREEK MINING CO. PROJECT COORDINATES.

LEASE AREA = 2.7495 ACRES



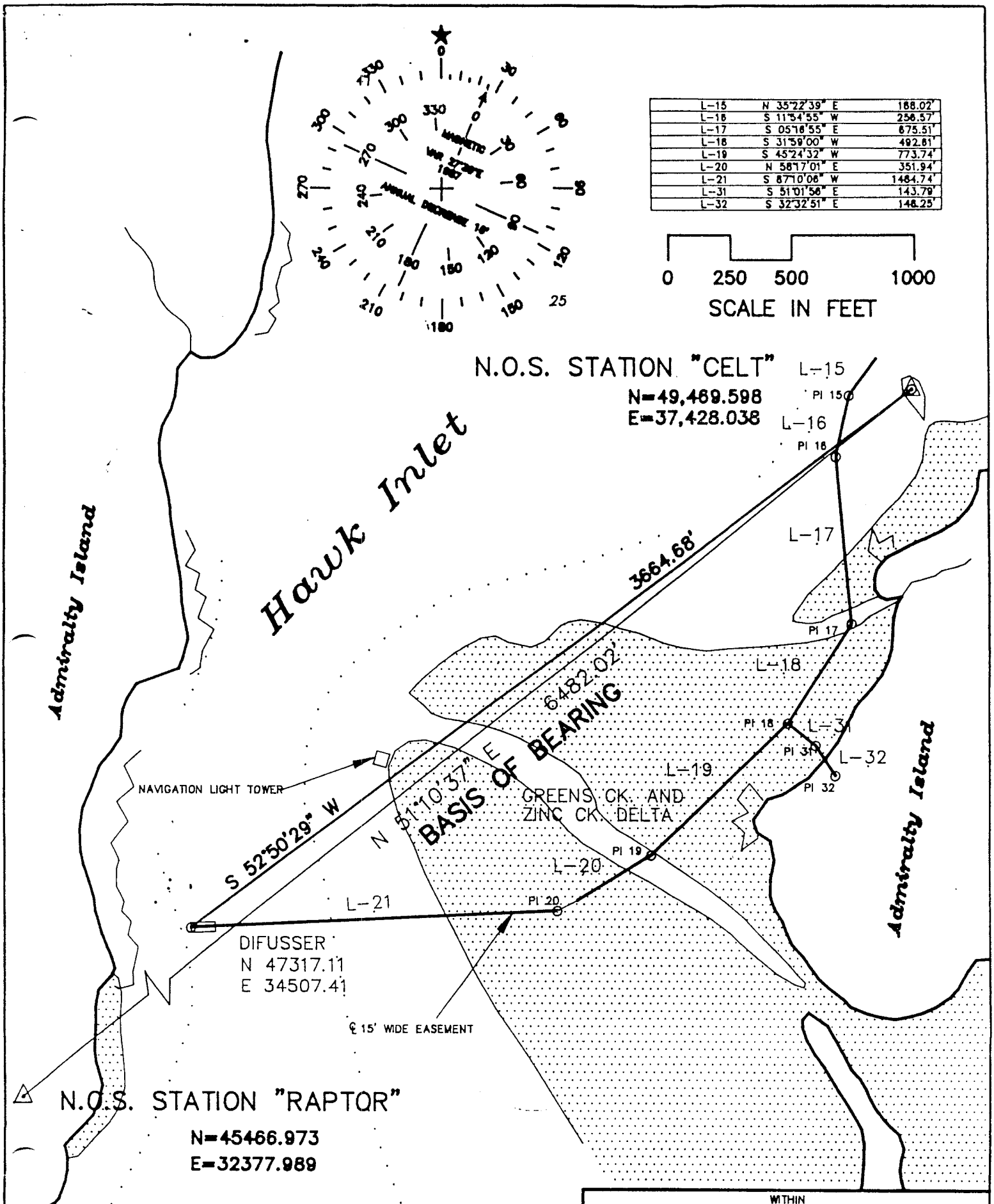
Date: MAY 28, 1991	Applicant: GREENS CREEK MINING CO.

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF LAND & WATER

RIGHT-OF-WAY PERMIT DIAGRAM

WITHIN
SECTIONS 22, 27 & 34, T 43 S, R 65 E CRM

SHEET 1 OF 2	ADL 105124

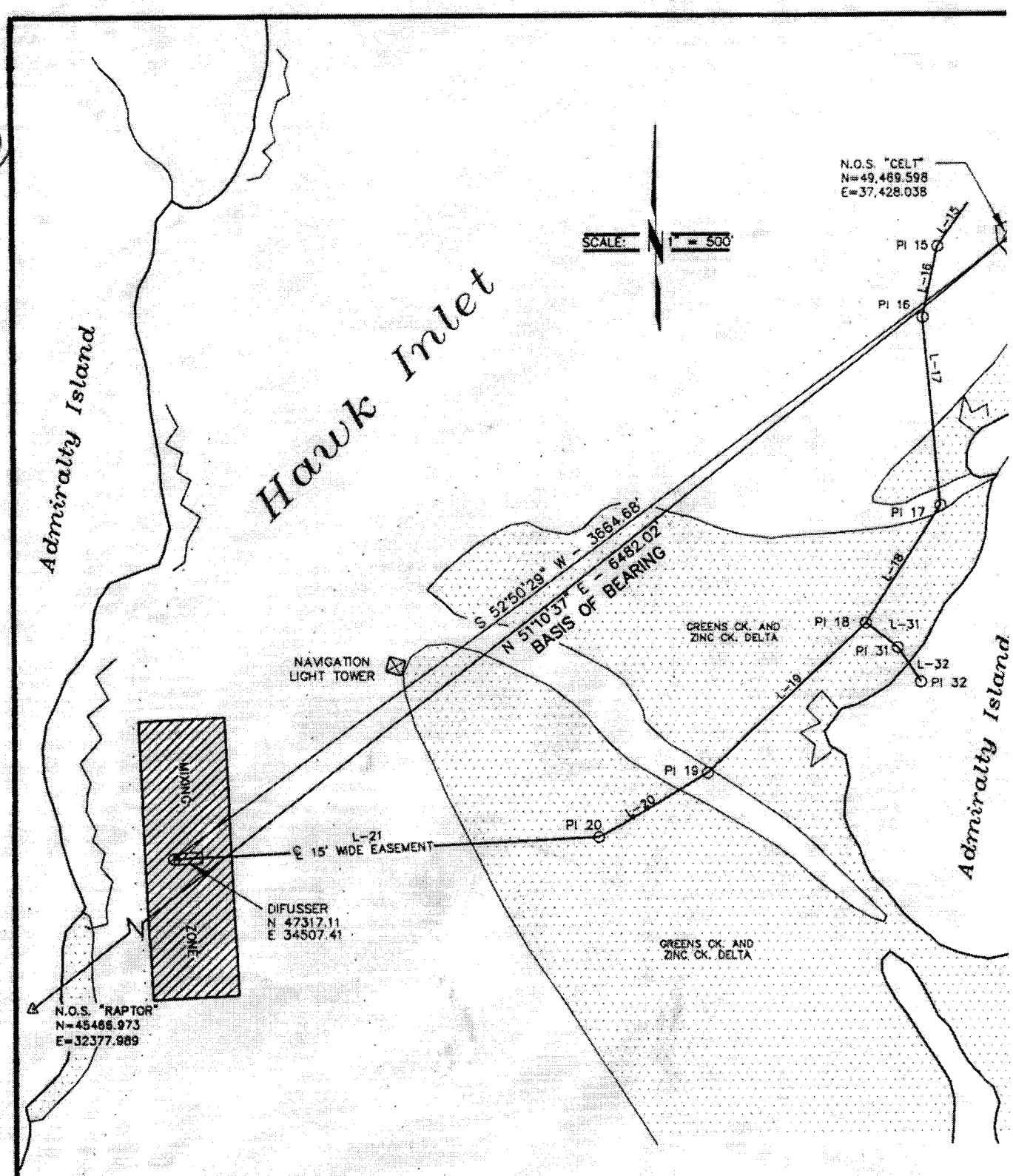


WITHIN

SECTIONS 22, 27 & 34, T 43 S, R 65 E CRM

SHEET 2 OF 2

ADL 105124



LINE TABLE		
L-15	N 35°22'39" E	188.02'
L-16	S 11°54'55" W	256.57'
L-17	S 05°16'55" E	675.51'
L-18	S 31°59'00" W	492.61'
L-19	S 45°24'32" W	773.74'
L-20	N 58°17'01" E	351.94'
L-21	S 87°10'06" W	1484.74'
L-31	S 51°01'56" E	143.79'
L-32	S 32°32'51" E	148.25'

KENNECOTT GREENS CREEK MIN

ADMIRALTY ISLAND, ALASKA

OUTFALL PIPELINE

MIXING ZONE LOCATION

WITHIN HAWK INLET

DATE: [illegible]

DRAWING BY: [illegible]

DESIGN BY: [illegible]

REVIEWED BY: [illegible]

SCALE ON SHEET: [illegible]

PREPARED BY: ALASKA LAND SURVEYING JUNEAU, ALASKA

PHONE: [illegible] FAX: [illegible]

ALAS DWG #: [illegible]

ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND AND WATER

Southeast Region
400 Willoughby Ave., P.O. Box 111020
Juneau, AK 99811-1020
(907) 465-3400

LAND USE PERMIT
AS 38.05.850

Permit No. LAS 19928

Hecla Greens Creek Mining Company (hereinafter "Permittee") is issued by the Division of Mining, Land and Water (hereinafter "Permittor') this permit to use the following **0.31** acre parcel of described land(s):

Copper River Meridian, Township 43 South, Range 63 East, Section 22

This permit is effective **October 6, 2010**, and ending on **October 5, 2015**, unless sooner terminated at the State's discretion.

This permit covers: **the maintaining of an existing mooring buoy used in association with the moorage of ore ships for the time period of October 6, 2005 – October 5, 2010, and a subsequent 5 year term defined above.**

This permit re-issuance is subject to:
(1) permittee's confirmation that there have been no modifications to the project authorized under the previous authorization;
(2) payment of the annual use fee in the amount of **$250.00** due on or before **October 6th** of each year covered under this permit; ***(The non-receipt of a courtesy billing notice does not relieve the permittee from the responsibility of paying fees on or before the due date.)***
(3) maintenance of the Performance Guarantee in the amount of **$1,000.00** as required in the Special Stipulations.

This permit re-issuance is subject to the General and Special Stipulations of the original permit issued on **October 6, 2005** (attached).

By signing, Permittee or Authorized Representative of Permittee hereby: ***(i)*** **confirms** that all of the information provided and required for the re-issuance of this permit, to the best of their knowledge, is accurate and true and ***(ii)*** the facility is being used for private, non-commercial purposes, and **agrees** to comply with all terms and conditions of this permit:

JENNIFER SARAN	ENVIRONMENTAL MANAGER	12-7-11
Signature of Permittee or Representative of Permittee	**Title**	**Date**

PO BOX 32199 JNU AK 99803	907 780 8474	jsaran@hecla-mining.com
Mailing Address	**Telephone**	**Email**

David Kelley	Regional Mgr.	12/15/11
Signature of Authorized Representative of DNR	**Title**	**Date**

ALASKA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND AND WATER

[ ] Northern Region
3700 Airport Way
Fairbanks, AK 99709
(907) 451-2705

[ ] Southcentral Region
PO Box 10-7005
Anchorage, AK 99510-7005
(907) 762-2284

[X] Southeast Region
400 Willoughby, #400
Juneau, AK 99801
(907) 465-3400

LAND USE PERMIT
Under AS 38.05.850

PERMIT # LAS 19928

Hecla GJC
~~Kennecott~~ Greens Creek Mining Company is issued this permit to use the following described land:

Copper River Meridian, Township 43 South, Range 63 East, Section 22

Containing 0.31 acre(s), and located in the vicinity of: Hawk Inlet, Adjacent to Admiralty Island.

The Development Plan for this site is shown on Attachment 'A'. This permit is issued for the purpose of authorizing a mooring buoy used in association with the moorage of ore ships.

This permit is issued for 5 years with an annual validation requirement, effective beginning October 6, 2005 and ending on October 5, 2010, unless sooner terminated at the state's discretion or unless it is not validated annually.

This permit is issued subject to: the annual payment of a land use fee of $ 250.00 on or before October 6 of each year; the posting and maintenance of a performance guarantee in the amount of $ 1,000.00 ; the annual proof of insurance outlined in stipulation #27 ; and compliance with the general stipulations in 11AAC 96.140 and all special stipulations noted on pages 2 thru 5 of this document.

Signature of Authorized State Representative	Title	Date
	Southeast Regional Manager	10/11/05

Signature of Permittee or Authorized Representative agreeing to comply with all conditions and special stipulations.	Date
Bill Oelklaus	30 September 2005

Permittee's Address	City	State	Zip
PO Box 32199,	Juneau	AK	99803

Contact Person	Work Phone	Cell Phone	E-mail
Bill Oelklaus	907-789-8170	907-723-4111	bill.oelklaus@greenscreek.com

*** Permittee is responsible for maintaining a current address with the division during the life of this authorization.**
*** Permittee is responsible for obtaining authorizations required by other agencies for the permitted activity.**

SPECIAL STIPULATIONS

1. **Termination**. This permit is not a property right but a temporary authorization, revocable by the State. The State may terminate this authorization by giving the permittee written notice.

2. **Assignment**. This permit may not be transferred or assigned to another individual or corporation.

3. **Change of Address**. Any change of address must be submitted in writing to the Regional Manager.

4. **Structures**. Permanent structures or foundations are prohibited under this permit. Temporary structures are allowed but must be constructed in such a manner that they can be disassembled and removed from the site upon permit expiration or within the 48 hour time period following the receipt of a notice from the Division of Mining, Land and Water. Prior to establishing additional temporary improvement(s) not represented on the approved site development plan (attachment A), the permittee must receive the approval of the Division of Mining, Land and Water, DNR.

5. **Permitted Use**. Improvements shall be consolidated within a minimum area of use, not to exceed the total acreage explicitly approved on page 1. This permit authorizes only those uses and temporary improvements within the permitted area as shown on Attachment 'A'. Use of this site for any other purpose is prohibited. The permittee, it's agents and employees are responsible for accurately siting the authorized operations within the permit area. Any unauthorized use of state land by the permittee including employees and agents is strictly prohibited.

6. **Violations**. This authorization is revocable immediately upon violation of any of its terms, conditions, stipulations, nonpayment of fees, or upon failure to comply with any other applicable laws, statutes and regulations (federal and state). Should any unlawful discharge, leakage, spillage, emission, or pollution of any type occur due to permittee's, or its employees', agents', contractors', subcontractors', licensees', or invitees' act or omission, permittee, at its expense shall be obligated to clean the area to the reasonable satisfaction of the State of Alaska. A permittee who is charged and convicted of any violation of state hunting, trapping or fishing laws and regulations may be subject to revocation of this permit.

8. **Compliance with Governmental Requirements**. Permittee shall, at its expense, comply with all applicable laws, regulations, rules and orders, and the requirements and stipulations included in this authorization. Permittee shall ensure compliance by its employees, agents, contractors, subcontractors, licensees, or invitees.

9. **Other Permits.** The issuance of this authorization does not alleviate the necessity of the permittee to obtain authorizations required by other agencies for this activity.

10. **Indemnification**. Permittee assumes all responsibility, risk and liability for all activities of Permittee, its employees, agents, invitees, contractors, subcontractors, or licensees directly or indirectly conducted in connection with this permit, including environmental and hazardous substance risks and liabilities, whether accruing during or after the term of this permit. Permittee shall defend, indemnify, and hold harmless the State of Alaska, its employees, and agents from and against any and all suits, claims, actions, losses, costs, penalties, and damages of whatever kind or nature, including all attorney's fees and litigation costs, arising out of, in connection with, or incident to any act or omission by Permittee, its employees, agents,invitees, contractors, subcontractors, or licensees, unless the sole proximate cause of the injury or damage is the negligence or willful misconduct of the State or anyone acting on the State's behalf. Within 15 days Permittee shall accept any such cause or action or proceeding upon tender by the State. This indemnification shall survive the termination of the permit.

11. **Maintenance**. The State assumes no responsibility for maintenance of improvements constructed on state land nor liability for injuries or damages attributable to that construction.

12. **Restoration of Site**. Upon expiration or termination of this authorization, the site shall be vacated and all improvements, personal property, and other chattels shall be removed or they will become the property of the state. The permittee shall leave the permitted area in a clean and safe condition. The permittee shall be held liable for any and all costs incurred by the state to dispose of or clean up the permitted area in violation of this condition.

13. **Inspections**. Authorized representatives of the State of Alaska shall have reasonable access to the subject parcel for purposes of inspection. The permittee may be charged fees under 11 AAC 05.010(a)(7)(M) for routine inspections of the subject parcel, inspections concerning non-compliance, and a final close-out inspection.

14. **Late Payment Penalty Charges**. The permittee shall pay a fee for any late payment. The amount is the greater of either the fee specified in 11 AAC 05.010 or interest at the rate set by AS 45.45.010(a) and will be assessed on a past-due account until payment is received by the state.

15. **Returned Check Penalty**. A returned check fee as provided in 11 AAC 05.010 will be assessed for any check on which the bank refuses payment. Late payment penalties shall continue to accumulate.

16. **Public Access**. All operations must be conducted in a manner that will ensure minimum conflict with other users of the area. Public access shall not be restricted in any way.

17. **Valid Existing Rights**. This authorization is subject to all valid existing rights in and to the land under this authorization. The State of Alaska makes no representations or warranties whatsoever, either expressed or implied, as to the existence, number, or nature of such valid existing rights.

18. **Reservation of Rights**. The state reserves the right to grant additional authorizations to third parties for compatible uses on or adjacent to the land under this authorization.

19. **Fire Prevention, Protection, and Liability**. The permittee shall take all reasonable precautions to prevent and suppress forest, brush, and grass fires and shall assume full liability for any damages to state land resulting from the negligent use of fire. The State of Alaska is not liable for damage to the permittee's personal property and is not responsible for forest fire protection of the permittee's activity.

20. **Solid Waste**. All solid waste and debris generated from the activities conducted under this authorization shall be removed to a facility approved by the ADEC. Temporary storage and accumulation of solid waste (prior to its removal) shall conform to the following:
    a. Solid waste shall be stored in a manner that prevents a litter violation under AS 46.06.080;
    b. Putrescible wastes (material that can decompose and cause obnoxious odors) shall be stored in a manner that prevents the attraction of or access to wildlife or disease vectors; and
    c. The premises shall be maintained free of solid waste that might create a health or safety hazard.

21. **Wastewater**. Disposal of wastewater from any operation associated with this authorization to state lands or waters is specifically prohibited, unless otherwise approved by the Alaska Department of Environmental Conservation.

22. **Hazardous Waste**. Disposal of hazardous waste on site is strictly prohibited. All hazardous waste shall be hauled out and disposed of in an approved ADEC disposal site.

23. **Fuel and hazardous substances**. No fuel or hazardous substances are to be stored on the subject parcel. Prior written approval from the Regional Manager is required for a change in this restriction. Such approval may include additional stipulations and a change in the amount required for the performance guarantee.

24. **Notification.** The permittee shall immediately notify the Department of Environmental Conservation (DEC) by telephone, and immediately afterwards send DEC a written notice by facsimile, hand delivery, or first class mail, informing DEC of: any unauthorized discharges of oil to water, any discharge of hazardous substances other than oil; and any discharge or cumulative discharge of oil greater than 55 gallons solely to land and outside an impermeable containment area. If a discharge, including a cumulative discharge, of oil is greater than 10 gallons but less than 55 gallons, or a discharge of oil greater than 55 gallons is made to an impermeable secondary containment area, the permittee shall report the discharge within 48 hours, and immediately afterwards send DEC a written notice by facsimile, hand delivery, or first class mail. Any discharge of oil, including a cumulative discharge, solely to land greater than one gallon up to 10 gallons must be reported in writing on a monthly basis. The posting of information requirements of 18 AAC75.305 shall be met. Scope and Duration of Initial Response Actions (18 AAC 75.310) and reporting requirements of 18 AAC 75, Article 3 also apply.

    The permittee shall supply DEC with all follow-up incident reports. Notification of a discharge must be made to the nearest DEC Area Response Team during working hours: Anchorage (907) 269-7500, fax (907) 269-7648; Fairbanks (907) 451-2121, fax (907) 451-2362; Juneau (907) 465-5340, fax (907) 465-2237. The DEC oil spill report number outside normal business hours is (800) 478-9300.

25. **Alaska Historic Preservation Act**. The permittee shall consult the Alaska Heritage Resources Survey (907) 269-8721 so that known historic, archaeological and paleontological sites may be avoided.

The Alaska Historic Preservation Act (AS 41.35.200) prohibits the appropriation, excavation, removal, injury, or destruction of any state-owned historic, prehistoric (paleontological) or archaeological site without a permit from the commissioner. Should any sites be discovered during the course of field operations, activities that may damage the site will cease and the Office of History and Archaeology in the Division of Parks and Outdoor Recreation (907) 269-8721 shall be notified immediately.

26. **Performance Guarantee**. Performance Guaranty. The permittee shall provide a surety bond or other form of security acceptable to the State in the amount of **$ 1,000.00**, payable to the State of Alaska. Such performance guaranty shall remain in effect for the term of this authorization and shall secure performance of the permittee's obligations hereunder. The amount of the performance guaranty may be adjusted by DNR upon approval of amendments to this authorization, changes in the development plan, or upon any change in the activities or performance of operations conducted on the premises. If Permittee fails to perform the obligations under this permit within a reasonable time, the State may perform Permittee's obligations at Permittee's expense. Permittee agrees to pay within 20 days following demand, all costs and expenses reasonably incurred by the State of Alaska as a result of the failure of the permittee to comply with the terms of this permit. The provisions of this permit shall not prejudice the State's right to obtain a remedy under any law or regulation. If the Regional Manager determines to his satisfaction that the permittee has satisfied the terms and conditions of this authorization the performance guaranty may be released. The performance guaranty may only be released in a writing signed by the Regional Manager or his designee.

27. **Insurance** The Permittee shall:

a) Consult, as appropriate, with an insurance professional licensed to transact the business of insurance under Alaska Statute, Title 21, to determine what types and levels of insurance are adequate to protect the Permittee and Permittor (the State, its officers, agents and employees) relative to the liability exposures of the Permittee's commercial operations.

b) Secure or purchase at permittee's own expense, and maintain in full force at all times during the term of the permit, adequate insurance policies and coverage levels recommended by an insurance professional, licensed to transact the business of insurance under Alaska Statute, Title 21, and acceptable to the State of Alaska. The State will expect to see at a minimum, the following types of coverage:

Commercial General Liability Insurance: The policy shall be written on an "occurrence" form and shall not be written as a "claims-made" form unless specifically reviewed and agreed to by the Division of Risk Management, Alaska Department of Administration.

Workers' Compensation Insurance: The permittee shall provide and maintain, for all its employees, Workers' Compensation Insurance as required by AS 23.30.045. Where applicable, coverage must comply with any other statutory obligations, whether Federal (i.e. U.S.L.&H)., or, Jones Act) or other state laws in which employees are engaged in work on the permitted premises. The insurance policy must contain a waiver of subrogation clause in favor of the State of Alaska.

c) Ensure that the State of Alaska, Department of Natural Resources is included as an additional insured on all liability policies held by the permittee that provide coverage for liabilities connected to the operations of the permittee on or in conjunction with the permitted premises, referred to as LAS 19928.

d) Provide proof of insurance to the S.E. Regional Manager on a yearly basis. The certificate must provide for a 30-day prior notice to-the-State of Alaska in the event of cancellation, nonrenewal or material change of conditions. Failure to furnish satisfactory evidence of insurance, or lapse of the policy, are material breaches of the permit and shall be grounds, at the option of the Permittor, for termination of the permit. Generally, the State of Alaska will rely upon the best professional judgement of the licensed insurance agent and, at renewal, the agent's annual re-assessment of the insured's liability exposure for determination of adequate levels of coverage. The State of Alaska reserves the right to require additional coverage if, in it's discretion, it determines that it may be warranted. Any changes in the approved permit development and operations plan, or the existence of significant claims against the liability coverage, would warrant examination of the insurance by the state to determine adequacy.

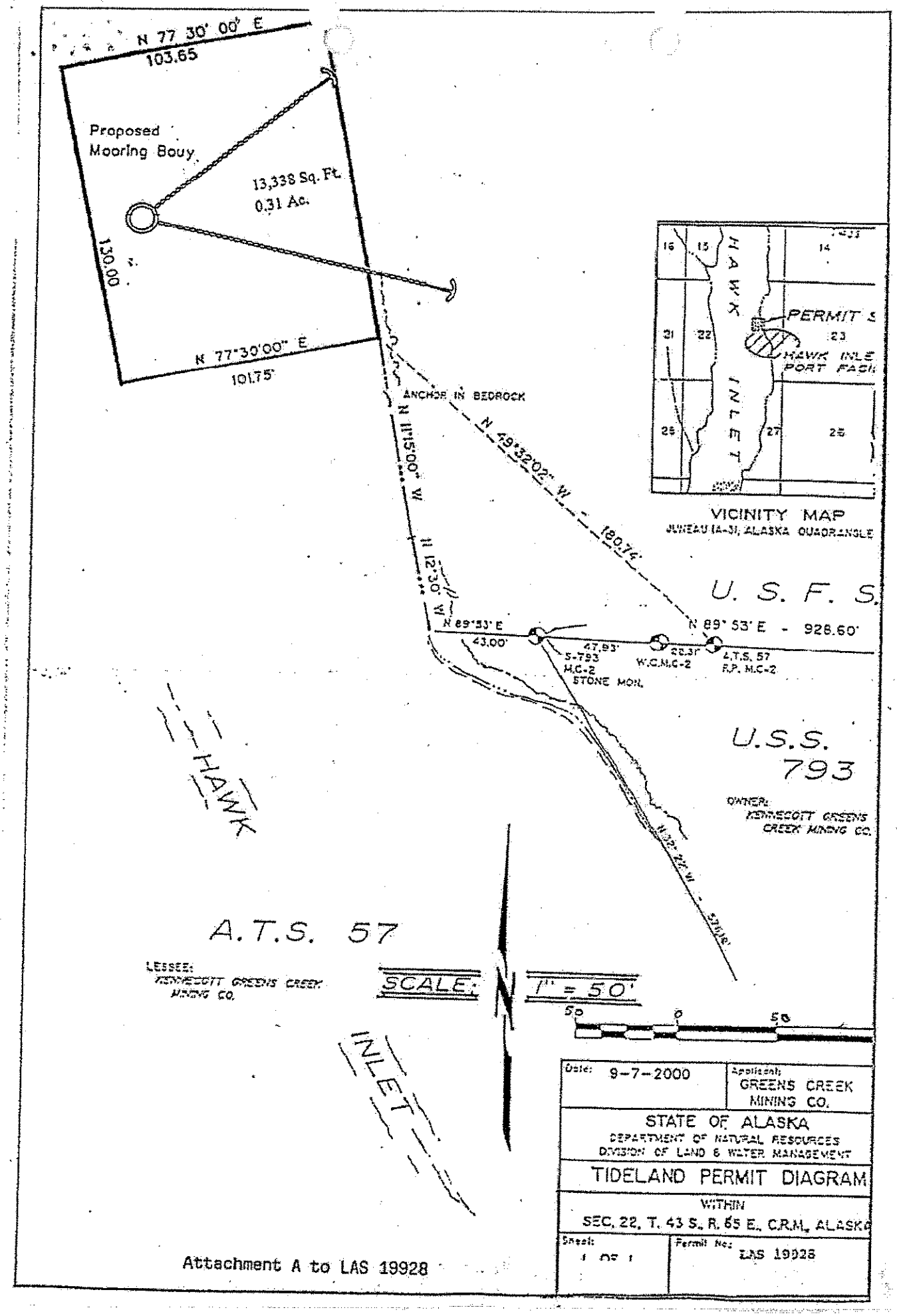
e) In the event the Permittee becomes aware of a claim against any of it's liability coverage, the Permittee shall notify, and provide documentation and full disclosure of the claim to the S.E. Regional Manager within 20

days.

28. **Site Specific Conditions.**

a. **Alaska Coastal Management Program**. Pursuant to AS 46.40 and 6 AAC 50 and the Conclusive Consistency Determination #AK 870916-03J dated 10/5/1987, the permittee shall comply with all stipulations contained therein.

The Regional Manager reserves the right to alter these stipulations before the permit is issued, in which case the permittee will be so advised. Where the above stipulations conflict with or differ from the general stipulations in 11AAC 96.140, these Special Stipulations will take precedent. DNR has the authority to implement and enforce these stipulations under AS 38.05.850. If compliance with these stipulations is not achieved, it may be sufficient cause for surrendering the performance bond, revoking this permit immediately and denial of future permits in this area. **Direct all questions on this permit to the Retained Lands Section, Division of Mining, Land and Water Southeast Region, 400 Willoughby Ave., Suite 400, Juneau, Alaska 99801, telephone (907) 465-3400.**



Attachment A to LAS 19928

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND & WATER

SEAN PARNELL, GOVERNOR

SOUTHEAST REGION OFFICE
400 WILLOUGHBY AVE.
P.O. BOX 111020
JUNEAU, ALASKA 99811-1020
PHONE: (907) 465-3400
FAX: (907) 586-2954

December 16, 2011

Hecla Greens Creek Mining Co.
Attn: Jennifer Saran
P.O. Box 32199
Juneau, AK 99803

RE: Issuance of Land Use Permit LAS 19928

Dear Ms. Saran:

Enclosed is the land use permit granting use of State tide and submerged land for the maintenance of an existing mooring buoy used in association with the moorage of ore ships in Hawk Inlet. The permit is valid through October 5, 2015, provided that you pay the annual use fee and comply with all permit conditions. We have also enclosed a site poster to be posted in a conspicuous location at the permitted site. Contact us if a replacement poster is needed prior to permit expiration.

If you have any questions or require additional assistance, please contact me at the above address, at (907)465-3511, or by email at tifany.littleton@alaska.gov.

Sincerely,

Tifany Littleton
Natural Resource Specialist

Enclosures

LAND USE PERMIT

PERMIT NUMBER: LAS 19928

PERMITTEE: Hecla Greens Creek Mining Co.

ACTIVITY: Mooring Buoy

AREA: Hawk Inlet

PERMIT TERM: 10/06/2010 – 10/05/2015

DAVID L KELLEY, DNR REPRESENTATIVE

This permit poster must be posted in a conspicuous location visible from the most common access route.

Alaska Department of
NATURAL RESOURCES
Division of Mining, Land and Water
Southeast Regional Office
400 Willoughby Avenue, Suite 400
Juneau, Alaska 99801
(907) 465-3400

C

BOOK 159 PAGE 566
Juneau Recording District

FILE COPY

WARRANTY DEED

The Grantor, Bristol Resources, Inc., an Alaskan corporation, for valuable consideration, receipt of which is hereby acknowledged, conveys and warrants to Noranda Exploration, Inc., the Grantee, a Delaware corporation, as trustee for the Parties to the Green's Creek Joint Venture Agreement, the following described real estate:

> The land embraced in U.S. Survey No. 793, being 16.83 acres, more or less, in the Juneau Recording District, First Judicial District, State of Alaska, together with all buildings and other improvements and appurtenances thereto, and articles of equipment and other personal property.
>
> The land embraced in Alaska Tidelands Survey No. 57, being 21.019 acres, more or less, according to the official plat thereof, bearing serial No. 63-1523, recorded as plat No. 387, in the Juneau Recording District, First Judicial District, State of Alaska.

situated in the State of Alaska until said Green's Creek Joint Venture Agreement, executed as of January 10, 1978, terminates pursuant to its terms; it is understood and agreed by the parties hereto that the estate conveyed hereunder is a fee simple determinable. The terms of the Green's Creek Joint Venture Agreement are hereby incorporated by reference and made a part hereof. The termination of the Green's Creek Joint Venture Agreement shall cause the above-described real estate to automatically revert to Grantor without it being necessary for Grantor to take any affirmative action to effectuate the reverter. The mailing address of Noranda Exploration, Inc., the Grantee, is 12640 W. Cedar Drive, Box 15638, Denver, Colorado 80215.

The Grantee understands and agrees that the conveyance provided for herein is made to it as trustee for the Parties to the Green's Creek Joint Venture Agreement. The Parties to said Agreement are: Noranda Exploration, Inc., a Delaware corporation; Marietta Resources International Ltd., a Delaware corporation; Texas Gas Exploration Corporation, a Louisiana corporation; Exalas Resources Corporation, an Alaskan corporation; and Bristol Resources, Inc., an Alaskan corporation. Such trusteeship is to be governed by the terms of said Green's Creek Joint Venture Agreement, which terms have been incorporated by reference and made a part hereof.

This deed is hereby made expressly subject to all existing and recorded restrictions, exceptions, reservations, easements, rights-of-way, conditions, and covenants of whatever nature, if any, and is expressly subject to all municipal, city, county or borough, and State zoning laws and other ordinances, regulations, and restrictions, including statutes and other laws of municipal, county or borough, or other governmental authorities applicable to and enforceable against the above-described real estate.

The Grantee, for itself, its successors and assigns, hereby covenants with Grantor that upon termination of said Green's Creek Joint Venture Agreement, which termination will cause the above-described real estate to automatically revert to Grantor, a quitclaim deed in a form satisfactory to Grantor will be executed in order to clear record title to the above-described real estate in Grantor. This covenant runs with the land (the above-described real estate).

This deed shall not be effective until signed by the Grantee in the space provided below.

DATED this 28th day of September, 1979.

BRISTOL RESOURCES, INC.

By W. C. Bishop
Its President

Accepted on the terms stated above.

NORANDA EXPLORATION, INC.

By G Snow
Its President

STATE OF ALASKA)
) SS.
THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on the 28th day of September, 1979, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn as such, personally appeared W. C. Bishop, to me known to be the President of Bristol Resources, Inc., a corporation, and known to me to be the person who executed the within instrument on behalf of the corporation herein named, and acknowledged to me that the same was signed as a free act and deed of the said corporation for the uses and purposes therein stated and pursuant to its Bylaws or a resolution of its Board of Directors.

WITNESS my hand and notarial seal the day and year first above written.

Debbie K. Myers
Notary Public in and for Alaska
My Commission Expires: 10-1-81

BOOK 17 PAGE 568
Juneau Recording District

STATE OF COLORADO)
) ss.
COUNTY OF JEFFERSON)

FILE COPY

THIS IS TO CERTIFY that on the 5th day of October, 19 79, before me, the undersigned, a Notary Public in and for the State of Colorado, duly commissioned and sworn as such, personally appeared G. G. Snow, to me known to be the President of Noranda Exploration, Inc., a corporation, and known to me to be the person who executed the within instrument on behalf of the corporation herein named, and acknowledged to me that the same was signed as a free act and deed of the said corporation for the uses and purposes therein stated and pursuant to its Bylaws or a resolution of its Board of Directors.

WITNESS my hand and notarial seal the day and year first above written.

Marlene Dawn Harris
Notary Public in and for Colorado
My Commission Expires: 10/3/80

79-6109
9.00
RECORDED-FILED
JUNEAU REC.
DISTRICT
Oct 31 1 23 PM '79
REQUESTED BY NORANDA EXPLORATION INC.
ADDRESS *

Appendix 14.B

Basis of Cost Estimate Greens Creek Mine

GENERAL PLAN OF OPERATIONS

APPENDIX 14.B
Basis of Cost Estimate

June 2014

Prepared for:
Hecla Greens Creek Mining Company
PO Box 32199
Juneau, Alaska 99803-2199

Prepared by:
SRK Consulting (U.S.), Inc.
4700 Business Park Blvd., Suite E-12
Anchorage, Alaska 99503

Table of Contents

1.0 Introduction and Scope of Report 1-1
2.0 Background and Brief....2-1
3.0 Work Program 3-1
3.1 Purpose of the Report.... 3-1
3.2 Project Team 3-1
4.0 Methodology....4-1
4.1 Introduction.... 4-1
4.2 Data Requirements.... 4-1
4.2.1 Project Data.... 4-1
4.2.2 Cost Data.... 4-2
4.2.3 Model Results 4-2
5.0 Data Input 5-1
5.1.1 General and Administration (G&A) 5-1
5.1 Built-In Sheets 5-1
5.1.2 Solution Management 5-3
5.1.3 Human Resources 5-4
5.1.4 Other User.... 5-4
5.1.5 Tailings 5-5
5.1.6 Roads 5-6
5.1.7 Underground Openings.... 5-6
5.1.8 Haul Materials.... 5-6
5.1.9 Foundations and Buildings 5-7
5.1.10 Ponds.... 5-7
5.1.11 Yards.... 5-8
5.1.12 Well Abandonment 5-8
5.1.13 Miscellaneous Costs.... 5-8
5.1.14 Monitoring 5-8
5.1.15 Construction Management 5-9
5.2 User Sheets.... 5-9
5.2.1 User Sheet 1 – Rock Removal 5-9
5.2.2 User Sheet 2 – Mobilization/Demobilization.... 5-9
5.2.3 User Sheet 3 – Marine Demo Summary 5-9
5.2.4 User Sheet 4 – Water Treatment Summary 5-9
5.2.5 User Sheet 5 – Administration.... 5-10
5.2.6 User Sheet 6 – Mill Demolition.... 5-10
5.2.7 User Sheet 8 - Monitoring.... 5-11
5.2.8 User Sheet 10 – Summary of RS Means Cost Calculations.... 5-11
5.2.9 User Sheet 11 – Bridge Demolition.... 5-12
5.2.10 User Sheet 12 – Surface Disturbance Summary 5-12
5.2.11 User Sheet 14 – Waste Disposal and Decontamination.... 5-12
5.3 Cost Schedule.... 5-12
6.0 Unit Cost Data Development 6-1
6.1 Project Cost Bases.... 6-1
6.2 Labor.... 6-1
6.3 Equipment.... 6-3

6.4 Materials 6-4
6.4.1 Diesel 6-4
6.4.2 Electricity and Diesel Generated Power 6-4
6.4.3 Seed 6-4
6.4.4 Cement 6-5
6.4.5 Other Miscellaneous Material Costs 6-5
6.5 Indirect Costs 6-5
7.0 Conclusions and Recommendations 7-1
8.0 References 8-1

Figures

Figure 1: Tailings Storage Facility SRCE Input Parameters
Figure 2: Incremental Distances between Facilities
Figure 3: Site 23
Figure 4: Pond A
Figure 5: Site 23 Ponds
Figure 6: Tailings Ponds

Tables

Table 5-1: Location of Previous Cost Estimate Tasks in the SRCE 5-2
Table 5-2: Camp Costs 5-3
Table 5-3: Closure Period Power Requirements 5-3
Table 5-4: Tailings Storage Facility Input Values 5-6
Table 5-5: Pond Input Values 5-7
Table 5-6: Disturbance Area Acreages 5-8
Table 5-7: Mill Demolition Tasks 5-10
Table 5-8: Water Monitoring Locations 5-11
Table 5-9: Waste Disposal 5-12
Table 6-1: Alaska Pamphlet 600 Basic Hourly Rate and Fringes by Groups Used 6-2
Table 6-2: Labor Rate Adjustment 6-3
Table 6-3: Fuel Consumption Rates 6-3
Table 6-4: Seed Costs 6-4

Attachments

Attachment A: SRCE Files
Attachment B: Cost Data File
Attachment C: Transportation Costs
Attachment D: Engineered Cover
Attachment E: Lime Cost
Attachment F: Underground Equipment
Attachment G: Seed Mix

Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (U.S.), Inc. (SRK) by Hecla Greens Creek Mining Company (HGCMC). These opinions are provided in response to a specific request from HGCMC to do so, and are subject to the contractual terms between SRK and HCGMC. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report.

1.0 Introduction and Scope of Report

SRK Consultants (U.S.), Inc. (SRK) has prepared an estimate of the costs to be incurred should the Greens Creek Mine (site) be closed under a default scenario. This report outlines the methods and assumptions used to prepare this closure cost estimate. The closure costs addressed in this report include direct and indirect costs for physical closure and long-term water treatment, monitoring and maintenance over a 100-year period of closure and post-closure. The closure period (Year 0 to Year 3) includes a holding year where only care and maintenance occurs and three years of active reclamation. The post-closure period (Year 4 to Year 100) includes long term water treatment and care, maintenance and monitoring. The 100 year term of this estimate is a proxy for in perpetuity. The costs are provided in un-discounted form and include indirect costs such as contingency, contractor overhead and profit, and agency administration.

2.0 Background and Brief

SRK was requested by Hecla Greens Creek Mining Company (HGCMC) to prepare this cost estimate as an update to the bond cost estimate prepared in 2008. This estimate also incorporates updates to the operating mine as described in the Reclamation and Closure Plan, GPO-14 (of which this report is an attachment).

SRK was also requested to use the Standardized Reclamation Cost Estimate (SRCE) to prepare the estimate. The SRCE provides a standardized approach to common closure activities encountered at mining operations. The scope of work included the following:

- prepare updated unit rates for labor, equipment and materials
- prepare an updated closure cost estimate including the closure of the mine as described in the Reclamation and Closure Plan
- prepare this report outlining the methodologies used to prepare the cost estimate

Christopher Wallace (Environmental Manager at HGCMC) and Pete Condon (Petros GeoConsulting Inc.) provided information and assisted with the completion of this work.

3.0 Work Program

3.1 Purpose of the Report

The purpose of this report is to describe the methodologies and data sources used to complete the closure cost estimate. This closure cost estimate is being submitted to the U.S. Forest Service (USFS) as required under 36 CFR 228.1 et. seq. and 36 CFR 228A (Training Guide for Reclamation Bond Estimation and Administration 2004). Concurrently, the cost estimate is being submitted to the Alaska Departments of Natural Resources, Division of Mining (ADNR) and Environmental Conservation, (ADEC) in accordance with AS 27.19, 11 AAC 97, 11 AAC 93, AS 46.03.100, and 18 AAC 60.265.

3.2 Project Team

The SRK team included Filiz Toprak and Jeff Parshley from Reno, Nevada, and Bill Jeffress from Anchorage, Alaska. Filiz Toprak prepared the closure cost estimate under the direction of Jeff Parshley who also assisted with the preparation of this report. Mr. Jeffress provided assistance with the background of the project and gathering information required to complete the work.

4.0 Methodology

4.1 Introduction

The closure cost estimate was prepared using the SRCE model version 1.4.1 build 16 available from http://www.nvbond.org. The SRCE was originally developed for the State of Nevada to provide a standardized approach to calculating bond costs for closure. Version 1.4 was developed using the Nevada model as a basis but was modified to be more generic and applicable for use in other jurisdictions and to include the option to use metric inputs.

The purpose of the SRCE is to provide a systematic approach to the development of a closure cost with modules included for the most common closure elements encountered at mining operations. The SRCE does not include closure tasks that are not commonly found at mining operations and provides blank worksheets for the development of custom calculations which can be linked into the model.

The model inputs required are the physical dimensions of the various facilities and calculations are based upon first principles. These calculations and assumptions are demonstrated on each worksheet with diagrams and examples of the calculations performed by the model.

Equipment used in the model is standardized upon Caterpillar because they have the most extensive line of equipment and the most comprehensive technical specifications and productivities available. Equipment productivities are derived from the Caterpillar Performance Handbook (2004). Productivity for other types of equipment is derived from technical specifications where available or on field experience at Nevada mine closure sites.

Crews for various tasks are derived from the RS Means Heavy Construction Data (2006). Crew productivities are also derived from RS Means and used to calculate project specific unit rates utilizing the labor, equipment and material rates as defined for the project.

4.2 Data Requirements

Data required for SRCE consists of project data and cost data. Project data are dimensions, areas, distances, etc., that are specific to the project facilities. For this project, data consisted of dimensions of the roads, tailings facility, and buildings. A discussion is provided below under the relevant headings.

4.2.1 Project Data

Project data is input into the spreadsheet under tabs with the following headings:

- Exploration
- Exploration Roads & Pads
- Waste Rock Dumps
- Heap Leach Pads
- Tailings
- Roads
- Pits
- Quarries & Borrow Pits
- Underground Openings
- Material Hauling
- Foundations and Buildings
- Other Demo & Equipment Removal
- Sediment & Drainage Control
- Process Ponds
- Landfills
- Yards, Etc.
- Waste Disposal
- Well Abandonment
- Miscellaneous Costs
- Monitoring

- Construction Management
- Solution Management
- Closure Planning
- General & Administration
- Human Resources
- Other User

Custom calculations are prepared using the "User Sheets" in the back of the model. Wherever possible these calculations are linked back to the model such that the calculations are updated whenever unit rates are updated. Cost totals from the User Sheets are linked into the Other User worksheet.

4.2.2 Cost Data

The SRCE utilizes cost data which is input into a separate file ("Cost Data File") where the user can define up to 15 different cost bases. Once loaded into the SRCE the cost bases can be selected by the user to quickly switch between cost bases. The data input in the Cost Data File include the following:

- labor rates
- equipment rates
- material costs
- miscellaneous unit costs

Some costs were derived from previous estimates provided by contractors or from other sources. In these cases the costs were updated to reflect inflation using the annual Consumer Price Index for All Urban Consumers (CPI-U) available at DLWD (2014). This inflation rate (included in User Sheet 1) is only used to update costs from previous estimates. Inflation adjustment for the five-year term of this Plan will be calculated outside of SRCE after direct and indirect costs are finalized.

4.2.3 Model Results

The model results are reflected in the Cost Summary, Cost Schedule, and Reclamation Quantities sheets of the SRCE. The cost summary sheet provides a breakdown of inputs by labor, equipment, and material categories per the headings below to provide the total direct costs per heading:

A. Earthwork/Recontouring
B. Revegetation/Stabilization
C. Detoxification/Water Treatment/Disposal of Wastes
D. Structure, Equipment and Facility Removal, and Misc.
E. Monitoring
F. Construction Management & Support
G. Closure Planning, G&A, Human Resources

These headings and their respective items' costs are furthermore reflected in the Cost Schedule sheet where scheduling by year can be carried out manually.

The Reclamation Quantities sheet sums total earthworks costs and total earthworks amounts (volumes and areas). These data are then used to calculate project-specific unit costs. This sheet can also be used to easily link calculations to the rest of the SRCE where sums of earthworks-related quantities are utilized.

5.0 Data Input

This section provides a discussion of the particular data input into the model to calculate a closure cost. Much of the data for building the SRCE came from the previous bond calculation submitted in 2008. The SRCE files are shown in Attachment A and the Cost data file are shown in Attachment B.

In order to provide a method of tracking and verifying that all the data from the previous estimate was included in the SRCE, refer to Table 5-1 which outlines the source and destination of the information within the SRCE model.

5.1 Built-In Sheets

The below headings discuss the activities and assumptions used in estimating the closure costs in the order they appear in the SRCE spreadsheet.

5.1.1 General and Administration (G&A)

Costs of air transportation (plane and helicopter), camp support, power, and water treatment were provided for by updating costs with available rates or adjusting for inflation and considering the closure and post-closure activity schedules in User Sheet 5. Calculations have been included in User Sheet 5 and entered in the G&A worksheet. Details are provided in the sections below.

5.1.1.1 Air Transportation

Helicopters and planes are utilized depending on whether they transport passengers and/or equipment. Copies of quotes or information are included in Attachment C.

5.1.1.2 Camp Support

Daily camp costs were estimated by use of quotes by ESS Support Services. These costs are presented in Table 5-2. It has been assumed that the camp would be maintained until the end of the closure period, by which time all buildings will have been removed. The price quote is a per man per day cost associated with camp occupancy based on population bands for a three year period, operating approximately 5.5 months per year. These rates include all wages, burden, transportation, and benefit costs, as well as all food, paper, chemical, and other associated direct and indirect cost. The average of the costs has been taken and utilized for the closure duration.

Table 5-1: Location of Previous Cost Estimate Tasks in the SRCE

Previous Task	SRCE Heading
Administration	
Transportation	G&A
Office Support	HR
Camp	G&A
Workforce	
Fuel, power, and water treatment	G&A
Soil cover maintenance	Other User
Maintenance/Monitoring	
Ecology	User Sheet 8
Permits	Included in Monitoring items
Water	User Sheet 8
Lab Work	User Sheet 8
Consulting	EDC (indirect)
Land Use and Monitoring	Monitoring
Roads	
Quarries	Roads
Drainage	Road Maintenance
Contouring	Roads, Constr. Mgmt
Topsoil	Roads
PAG/Metal	User Sheet 1
Vegetation	Roads
Production Rock Sites	
Soil Cover Installation	Yards
Contouring and Erosion	Yards
Vegetation	Yards
Backfill	User Sheet 1
PAG/Metal	User Sheet 1
Design and Engineering	EDC (indirect)
Tailings	
Soil Cover Installation	Waste Rock Dumps, Haul Materials
Contouring and Erosion	Waste Rock Dumps, Haul Materials
Vegetation	Waste Rock Dumps, Haul Materials
Design and Engineering	EDC (indirect)
PAG/Metal	User Sheet 1
QA/QC	User Sheet 8
Site General	
Buildings Demolition	Foundations and Buildings
Ditches	Yards
Bridges	User Sheet 11
Utilities	Other User Sheet
Structures	Foundations and Buildings
Decon and HAZMAT	User Sheet 14
Water Systems	
Pipes and Diversions	Other User
Treatments	Solution Management
Stormwater Ponds	Ponds
Wells	Well Abandonment
Design and Engineering	EDC (indirect)

Table 5-2: Camp Costs

MIN	MAX	Year 1	Year 2	Year 3
5	5	$475.90	$487.80	$499.99
6	10	$398.40	$408.36	$418.57
11	15	$251.74	$258.03	$264.48
16	20	$186.55	$191.21	$195.99
21	25	$149.71	$153.45	$157.29

5.1.1.3 Power

The power requirements of the closure phase will be based on the following demands in Table 5.3:

Table 5-3: Closure Period Power Requirements

Item	Calculated/Supported In	Reflected In
Water treatment	User Sheet 4	Solution Management sheet
Ventilation	User Sheet 5	G&A sheet
Camp	User Sheet 5	G&A sheet

Supporting information for ventilation and camp energy consumption is provided in Section 5.2.5.

5.1.2 Solution Management

HGCMC proposes to collect and store the drainage from the principal resources (underground workings and the tailings facility) in Pond 7 and Pond 10 and two additional proposed storage ponds constructed to contain up to 88 acre-ft (28.6 million gallons). The stored water will be actively treated in the water treatment facility existing on site. Water treatment from the Holding Year through to Year 3 after operations will be treated continuously. After Year 3 the expected flow of water will decrease and the water will accumulate in the storage pond and be treated in “campaigns”. It is assumed the water treatment campaign will continue through year 100. Water treatment costs are included in the Solution Management sheet. The cost for construction of the new ponds is calculated in the “Process Ponds” sheet. Changes to the water treatment plant and pipe configurations changes are included in the “Other User” sheet.

The Solution Management sheet includes the cost of pumping water for treatment. Electrical costs for Holding Year through Year 3 and Years 4-10 assume the use of grid power and diesel-generated power for batch treatment in the following years (11-100). Following the removal of Site 23 and the decreased flows, crews would be mobilized to the site and the water treatment plant would be started up for discrete campaign runs. The water treatment plant would be operated for the duration it would take to treat the accumulated inventory. Once the accumulated water is treated the plant would be deactivated until the next campaign and the crews mobilized out of the site.

The expenditures in active water treatment are reagents and power. Consumable (reagent) expenditure is provided in User Sheet 4. The currently observed power consumption of the water treatment plant operating at 2,500 gallons per minute (gpm) is 150 kilowatts (kW) energy. Electrical consumption is calculated as follows:

150 kW/2,500 gpm = 150 kW/(2,500 gal/min × 60 min/hr)

= 0.001 kilowatt hours (kWh)/gal

For grid power, the cost per gallon becomes the following:

$0.10/kWh x 0.001 kWh/gal = $0.0001/gallon

For diesel-generated power (discussed in Section 6.4.2), the cost is calculated below:

$0.32/kWh x 0.001kWh/gal = $0.00032/gallon

The treatment crew is assumed to consist of one foreman and one laborer. The durations of the campaigns for water treatment and their frequencies are backed up in User Sheet 4 and linked to the Solution Management sheet heading “Treatment.” The water treatment plant will be replaced in Year 50 and a provision for this cost is provided in “Other User.”

5.1.3 Human Resources

The size of the average active reclamation crew is estimated to be 25 persons. Most of these (such as equipment operators and laborers) are captured as the labor elements of reclamation activities in the various cost calculations by task. The rest consist of administrative and other technical personnel and are entered in the Human Resources worksheet. Human resources costs over the course of the closure period are calculated for the holding crew (2 skilled laborers), technical and administrative support over the active closure period, and the monitoring crew for Holding Year through Year 5 and Year 6 through Year 100.

This sheet also includes the cost of employing a part-time crew for batch water treatment. This sheet was used instead of entering the crew in the Solution Management sheet because extra time was required for travel, start up and shutdown of the plant past the active closure years. These labor costs are derived from the numbers of days per year as calculated in User Sheet 4 (described in Section 5.2.4).

5.1.4 Other User

The Other User worksheets have been used to include costs for items not covered under other built in worksheets in the SRCE model. Calculations from User Sheet tabs are linked and referenced here. Costs linked from the User Sheets are discussed under their respective headings and are annotated in the “Comment” column.

The items listed in the Other User Sheet include the following and can be referenced through the comments column in the SRCE:

1. Lime purchase for short-lag disposal
2. Internal mill infrastructure demolition
3. Post-closure cover maintenance - Tailings
4. Outfall pipeline and facilities maintenance
5. Various waste disposal
6. Bridge Demolition
7. Monitoring
8. Marine demo
9. Decontamination
10. Removal of miscellaneous linear items (1 backhoe+2 laborers)
11. Utilization of underground equipment for disposal
12. Small crossings over Zinc and Greens Creek bridge locations
13. Excavator for residual and short-lag material
14. Reconfiguration pumps and pipes
15. Demolish WTP
16. New pond lining
17. WTP replacement
18. Material deficit
19. Mob-demob
20. Dam maintenance and inspection
21. Pond dredging

The cost of lime purchase has been estimated through User Sheet 1 by using a quote and maintaining the 2008 assumption of 1% by weight of lime addition to the short-lag material, as discussed in User Sheet 1 (Section 5.2.1). User Sheet 1 also provides a calculation of underground haulage for material disposed of underground. The cost of surface haulage to the portal for materials disposed of underground and the materials disposed of in the tailings storage facility are calculated in the Haul Materials sheet. The accompanying excavator time is calculated in the Other User sheet by dividing the total volume of material to be handled by dividing with the corrected productivity of the excavator.

The mill demolition cost estimate is discussed in Section 5.2.6.

The 2008 plan had a provision for post-closure cover maintenance for engineered covers. The SRCE can also be made to provide an estimate of post-closure maintenance of revegetation and erosion; however, given the engineered cover maintenance is a specialized item, it has been further carried into this cost estimate to account for engineered cover-specific activities.

The maintenance of the outfall pipeline was an assumption in the 2008 estimate which has been incorporated through User Sheet 5 with the assumption of maintenance once every three years after active reclamation. User Sheet 6 includes a calculation for demolition of the water treatment plant for eventual demolition. A provision for capital cost of $100,000 in reconfiguring pumps and pipe systems during water treatment has been assumed. The required labor is assumed to span a month with support from a backhoe, and a welder is assumed for a quarter of that time. A crew is defined in the "Fleets (Crews)" sheet as User Crew 3 with the welder and associated equipment number at 0.25 (rounded and displayed as "0") and linked to the Other User sheet for direct multiplication of the crew cost with hours.

The disposal of production rock material, demolition of marine structures, monitoring, bridge demolition, waste disposal and decontamination, and monitoring are discussed in Sections 5.2.1, 5.2.3, 5.2.7, 5.2.9, and 5.2.11, respectively.

Existing growth media stockpiles will be used for cover construction on the TDF. The deficit will be purchased.

Most of the surface pipes will be removed with the potentially acid generating (PAG) material at the various locations. Two weeks of time for a crew of a backhoe with operator and two laborers (User Crew #1 in the Fleets/Crews sheet) has been used to estimate a cost to remove and dispose of any remaining surface pipes as well as culvert crossings.

The removal of materials and disposal to the underground will require double handling. These are calculated under User Sheet 1 (discussed in 5.2.1). An extra excavator is assumed to be required to excavate the material for the haulage fleet.

Dam safety inspections are included through calculations in User 8.

Mobilization-demobilization is included through calculations in User 2.

Pond dredging costs assume that sludge will be removed from the four ponds remaining throughout water treatment plant operations (Pond 7, Pond 10, New West Pond, and New South Pond). The timing will coincide with the replacement of the water treatment plant in Year 50.

5.1.5 Tailings

The tailings facility will be capped with a four layer system including (from bottom to top) a capillary break, compacted fill, a second capillary break and growth media (Attachment D). Costs for haulage and placement of site-derived growth media, the two capillary break layers and the barrier layer are calculated in the Haul Material worksheet. The costs for importing any cover material deficit is calculated in the Other User worksheet.

The tailings facility is designed with final slopes at 3H:1V. Input values are obtained from the AutoCAD file "HGCMC Stage 3 phase 1 full buildout design 11-14-13_final revised_MidbenchLengths_mth ACAD14_ ft.dwg.dwg" and are shown on Figure 1. The inputs are summarized in Table 5-4. Given an assumption of hydroseeding, it is assumed that the application of the hydroseed will include ripping/scarifying and this is not further selected in the SRCE.

Table 5-4: Tailings Storage Facility Input Values

Sub-division	Midbench length (ft)	Height (ft)	Area (acres)
Area 1 - North East	447	120	4.93
Area 2 - North	709	190	7.18
Area 3 - Far North	876	90	6.14
Area 4 - North West	574	120	7.26
Area 5 - West	1,371	220	19.63
Area 6 - South	511	190	7.89
Area 7 - East	852	170	8.34
		Total	61.37

5.1.6 Roads

Both A Road and B Road will be reclaimed. The roads include some PAG material which will need to be removed for disposal. This calls for reclamation and closure of roads by the end of the closure period. These quantities are covered under the Haul Material sheet (surface haulage) and User Sheet 1 (underground haulage). The reclamation of roads will be one of the last activities on site before the completion of the closure period in order to service the reclamation activities. It has been assumed that during the post-closure period, in the absence of roads, the crews necessary for monitoring, maintenance, and water treatment would be mobilized to site by helicopter. There will be a section of the road from Hawk Inlet to the tailings storage facility that will be left (approximately 1 mile) to allow for mobilized crews to operate past the active closure years. This section of the road will be reclaimed last.

HGCMC proposes that during the post-closure period, with the reclamation of the roads, the crews necessary for monitoring, maintenance, and water treatment would be mobilized to site by helicopter. This is provided under Section 5.2.5 (User Sheet 5).

5.1.7 Underground Openings

The Underground Openings sheet includes the cost to close adits and shafts. Portals will be closed with concrete bulkheads. The 920 portal bulkhead will be constructed to allow gravity drainage to the water treatment plant via a pipeline. Ventilation raises (two reaching the surface and two underground, between levels) will be closed with concrete caps. The dimensions for adits are required as height and width and those for the shafts are required in diameters. Given the ventilation raises in this mine are typically square-shaped, the 10 ft×10 ft dimensions were converted into diameters:

$$\text{Diameter} = (A/\pi)^{0.5}\times 2 = (H\times W/\pi)^{0.5}\times 2 = (10\times 10/3.14)^{0.5}\times 2 = 11.3 \text{ ft}$$

5.1.8 Haul Materials

The Haul Material worksheet is used to calculate the costs to haul, screen (if applicable), and compact (if applicable). Items included here are the engineered cover materials, Pit 174 glacial till wedge, the concrete foundation debris (from the Foundations and Buildings sheet), and hauling materials to the tailings storage facility and to the underground mine. The last consists of the potentially acid generating (PAG) materials (“residual” or “short-lag”) stored on the surface according to the summation of incremental distances shown in Figure 2. Furthermore, Site 23 (Figure 3) will also be hauled to the tailings storage facility. For this estimate, it has been assumed that material disposed of underground will be double-handled by first transporting to the portal and then loading the material to underground trucks for transportation to the underground dump site where a dozer will stack the material. The Haul Material sheet therefore includes the initial transportation to the portal. The underground haulage is calculated in User Sheet 1 and discussed in Section 5.2.1.

The Haul Material sheet has an over-ride for the number of equipment utilized. This has been used to make the model calculate the maximum number of trucks that can haul across the roads on site without compromising efficiency (8 trucks) where the model calculates greater numbers of trucks with increasing haulage distance. Truck numbers for haulage items for which fewer trucks are estimated by the model have not been over-ridden.

5.1.9 Foundations and Buildings

Building structures and flat areas (paved or otherwise) were obtained from the following files:

- 920_asbuilt.dwg
- 2011920-1350-Site23Disturbanceareas.dwg
- 2011HAWKINLETDISTURBANCEAREA.dwg
- HI1015.dwg
- 9201010.dwg

The SRCE utilizes the dimensions of the buildings as well as the construction material and demolition method in calculating the cost of demolition. Eave heights were assumed for most buildings based upon discussions with site personnel.

The Foundations and Buildings worksheet calculates the cost to demolish buildings, load building debris onto dump trucks and haul for 20 miles by default. To reflect the cost of double handling debris material by transporting from site to portal and double handling from portal to a location in the underground mine, the concrete slab volume calculated in this sheet and an assumed 10% of the building volume to reflect other building debris, the "Fleets (Crews)" sheet B-8 crew for large building demolition has been adjusted by setting truck and loader costs to zero, leaving only a crane. Then the aforementioned volumes are used in the "Haul Materials" sheet to estimate the cost of hauling the debris materials underground.

5.1.10 Ponds

The ponds at the site are provided in Table 5-5 and Figures 4, 5, and 6. During closure activities, some of these ponds will be removed along with the PAG material to be disposed of underground or in the tailings storage facility. Others made of concrete will be broken and hauled underground and are covered in the Foundations and Buildings sheet.

Table 5-5: Pond Input Values

Pond/Basin	Length (ft)	Width (ft)	Depth (ft)	Area (acres)	Remarks
Settling Pond 7	369	369	24.0	3.10	Backfilled in Year 100
Settling Pond 10	377	377	20.0	3.30	Backfilled in Year 100
New West Pond	295	295	20.0	2.00	Backfilled in Year 100
New South Pond	214	214	20.0	1.10	Backfilled in Year 100
Pond 9	115	115	5.0	0.30	Backfilled at the end of active closure
Settling pond C	74	74	2.0	0.1	Backfilled during closure of other facility
Lined upper pond	38	38	2.0	0.1	Backfilled during closure of other facility
Pond A	140	140	6.0	0.4	Backfilled during closure of other facility
Settling Pond 23	140	140	2.0	0.4	Backfilled during closure of other facility
Settling Pond D	90	90	4.0	0.2	Backfilled during closure of other facility
DB-01	70	12	12.0	0.02	Closure estimated in Foundations & Buildings
DB-02	64	20	4.0	0.03	Closure estimated in Foundations & Buildings
DB-03	80	12	6.0	0.02	Closure estimated in Foundations & Buildings
DB-04	80	12	6.0	0.02	Closure estimated in Foundations & Buildings
DB-05	80	18	4.0	0.03	Closure estimated in Foundations & Buildings
DB-01'	70	12	12.0	0.02	Closure estimated in Foundations & Buildings
DB-03'	80	12	6.0	0.02	Closure estimated in Foundations & Buildings
DB-04'	80	12	6.0	0.02	Closure estimated in Foundations & Buildings

Where pond shapes are not rectangular, assumed dimensions are used to accurately estimate the area.

5.1.11 Yards

The Yards worksheet is used to calculate miscellaneous surface disturbance where little or no grading is required. This includes building areas and any perimeter disturbance around other facilities. A summary of the acreage is provided in Table 5-6.

Table 5-6: Disturbance Area Acreages

Area	Acres
920 mill and portal area	24
Waste rock site 23	22
Waste rock site D	8
Waste rock site 1350 and portal area	5
1350 road	4
1160 tank	1
960 waste rock area	1
Waste rock site C and 860 area	4
Waste rock site E	10
Tailings disposal facility	86
Hawk inlet and marine load out area	14
Young Bay Dock facility	1
Access A Road	27
Access B Road	75
Powerline right of way	35
Topsoil stockpiles and borrow sites	27

Disturbance areas with Reclamation Plan acreages decreased by SRCE worksheet area calculations are the following:

- 920 mill and portal area (decreased by “Foundations and Buildings” sheet total footprint area which covers both the 920 area and Hawk Inlet)
- tailings disposal facility (decreased by “Tailings” sheet total footprint area)

5.1.12 Well Abandonment

150 monitoring wells site-wide are assumed to require closure. Of these, 128 monitoring wells will be closed immediately, leaving 22 for closure and post-closure monitoring as per the set of locations in 5.2.7. Two production wells are also included in the worksheet for abandonment during closure.

5.1.13 Miscellaneous Costs

It is assumed that one of the two substations and the power line are the responsibility of another party. Therefore, one substation will be removed and demolition costs are entered here and calculated based upon RS Means crew assumptions. The remaining substation will be removed at Year 10, at which time all surface water will gravity flow to the treatment pond and generator sets will be mobilized to site to provide power for water treatment.

5.1.14 Monitoring

The Monitoring worksheet calculates the cost to repair vegetation (re-seed), repair erosion of covers and collect soil and groundwater samples. It has been utilized to estimate revegetation maintenance and erosion maintenance costs assuming that 10% will need to be repaired. The framework of monitoring of soil and groundwater is presented in User Sheet 8.

Further monitoring activities for post-closure maintenance of the engineered tailings cover in line with the provisions of the 2008 plan (period of 5 years, cost-per-acre of utilization of a dozer, an excavator, and a compactor as well as materials maintenance) are included in the Other User sheet. The cost for Outfall pipeline maintenance is provided in the Other User sheet (through User Sheet 5).

5.1.15 Construction Management

The Construction Management sheet is used to estimate road maintenance costs. A provision has been made for road maintenance over this period. This will consist of the use of a small water truck and small grader. The number of months is calculated by the multiplication of years of active closure times the number of months in an operating season.

5.2 User Sheets

5.2.1 User Sheet 1 – Rock Removal

This sheet contains a summary table of the amounts of short-lag and residual material (to be disposed of underground or at the tailings storage facility). The amounts in the 2008 plan have been updated per the data provided in HGCMC's annual reports for active and inactive sites (2012a and 2012b). These quantities are reflected in the Haul Materials sheet for calculation of haulage costs to the portal or the tailings storage facility. This sheet is further used to estimate the cost the surface haulage of the short-lag material double-handling (prior to haulage from the portal to the underground stacking location). "Short-lag" refers to potentially acid generating (PAG) material that is assumed to be at or near the point of acidification. "Residual" refers to PAG material that is not short-lag.

An estimate of the amount of lime to be used has also been made based on the total quantities. As per the 2008 reclamation plan, the amount of lime to be used is estimated as 1% by weight of short-lag material to be hauled. The total amount of lime estimated has been linked to the "Other User" sheet. The cost for lime has been obtained from quotes provided in Attachment E.

5.2.2 User Sheet 2 – Mobilization/Demobilization

The estimation of equipment mobilization/demobilization costs is determined by the number and types of equipment to be mobilized and the number of mobilizations and demobilizations to site (equal to the number of years each piece of equipment would be used for closure).

For this exercise, the SRCE file has been evaluated as a whole. The hours calculated by the standard SRCE sheets (Tailings, Roads, Haul Material, Foundations and Buildings, Yards, and Process Ponds as well as some miscellaneous items used in Well Abandonment and Construction Management sheets) have been considered. Also taken into consideration is the underground equipment utilized in the user sheets. This exercise goes hand in hand with the task of scheduling the costs in the Cost Schedule sheet (discussed in Section 5.3).

5.2.3 User Sheet 3 – Marine Demo Summary

This sheet has been used to calculate the cost of demolition of marine structures as provided for in the 2008 estimate. The details for these items have been gathered from the individual sheets used in the 2008 plan. Costs specific to marine demolition were adjusted for inflation and an additional $500,000 added. These costs have been linked into the Other User sheet.

5.2.4 User Sheet 4 – Water Treatment Summary

This sheet provides a summary of water treatment quantities by intervals as provided by Petros GeoConsulting (2014). The pressure heads and pumping and treatment quantities and routine maintenance costs from this sheet are linked to the Solution Management sheet.

The quantity of surface water requiring treatment will vary over the closure and post closure period. This sheet provides an estimated production quantity (in gallons per minute) for each time period (interval). The annual number of days required to treat the accumulated water is also estimated and used to calculate a labor cost in the Human Resources worksheet.

5.2.5 User Sheet 5 – Administration

General and administration (G&A) and human resources have been itemized per the data provided in the 2008 Reclamation Plan cost support file "Administration Summary 2008 FINAL.xls" and reflected under the SRCE sheets for G&A and Human Resources, respectively. Costs for new long term water treatment support elements (landing craft and meals) were added. For the purposes of this estimate, general and administration includes the following items:

- Camp support
- Power costs - camp
- Power costs - ventilation
- Transportation
- Landing craft for materials/equip costs
- Meals for WTP crew

Transportation to the site will be required for personnel, monitoring, and batch treatment of water. It is assumed that during the closure period, airplanes will be used. It is estimated that about five aircraft would be used to transport staff. These numbers and the fact that staff and operational personnel will be transported to site five months of the year are taken into consideration when estimating the number of trips in a year when monitoring and batch treating water are combined. These costs are then reflected in the SRCE sheet G&A. During post-closure, helicopters will be used to transport personnel and some items after the roads have been closed.

Power costs other than the power to treat water consist of underground ventilation and power for the camp. Power requirements for one main and two auxiliary fans for air flow rate of 205,000 cfm is estimated at 290 kW. Power requirements for the camp are estimated at between 125 kW and 188 kW. These numbers are used to estimate the underground ventilation and camp energy consumption costs. Camp support costs are calculated here based on a quote from ESS Support Services.

5.2.6 User Sheet 6 – Mill Demolition

This worksheet provides a summary of the various mill demolition tasks calculated elsewhere and includes a cost item to dismantle and remove the interior infrastructure prior to demolition of the buildings. This cost item is being calculated because the SRCE Buildings and Foundations demolition costs are based upon RS Means. RS Means assumes a standard industrial building with a standard amount of interior infrastructure. This is applicable to most buildings at a mine site except for a mill which has more complicated infrastructure.

There is no published data on the time required for this task and SRK assumed a value based upon our experience with other demolition cost estimates. It is assumed two B-8 work crews would take three months to accomplish the work. The table is recreated below in Table 5-7.

Table 5-7: Mill Demolition Tasks

No.	Task	Hours	Labor Cost ($/hr)	Equip. Cost ($/hr)	Labor Cost ($)	Equip. Cost ($)	Material Cost ($)	Total Cost ($)
1	Decontamination				$307,807.91	$34,859.15	$-	$342,667.07
2	Remove all internal mill parts, cut into pieces for transport underground	2916	$395.79	$172.57	$1,178,647.20	$495,953.28		$1,674,600.48
3	Demolish building				$265,743.00	$59,053.00	N/A	$324,796.00
4	Wall Demolition				$20,660.00	$-	N/A	$20,660.00
5	Slab Demolition				$4,180.00	$10,961.00	N/A	$15,141.00
	Totals				**$1,777,038.11**	**$600,826.43**	**$-**	**$2,377,864.55**

Only Task 2 is entered in the Other User worksheet as the other tasks are calculated elsewhere (Foundations and Buildings and User 14 sheets) and only provided here to illustrate the total mill demolition costs.

5.2.7 User Sheet 8 - Monitoring

Cost items in this sheet comprise the following:

- underground Care and Maintenance
- Suite Q
- QA/QC
- Stormwater
- APDES
- marine sampling
- sediment/organism
- site-wide vegetation
- dam maintenance and inspection

Table 5-8 provides water monitoring locations with four locations proposed in addition to the 2008 reclamation plan set of monitoring locations. Different monitoring schedules have been taken from the 2008 reclamation cost estimate and reproduced. In the case of the four additional monitoring locations, they were assumed to undergo the same numbers of sampling as Site 54. These numbers may be reduced depending on monitoring results. The costs are linked to the "Other User" sheet.

Table 5-8: Water Monitoring Locations

Site	Name
6	Greens Creek Middle
9	Tributary Creek Lower
13	1350 East
27	Tailings Downgradient South Shallow
29	Tailings Downgradient West Shallow
32	Tailings Downgradient West Shallow 2
46	Bruin Creek Upper
48	Greens Creek Upper
49	Bruin Creek Lower
54	Greens Creek Lower 1
56	Site 23 Downgradient*
57	Site 23 Upgradient*
60	Tailings Stormwater Pond Downgradient 1
61	Greens Creek Flood Plain
62	Greens Creek Lower 2
609	Further Creek Lower
711	Greens Creek Above Site E
712	Greens Creek Below Site E
	Mine Drainage
	Tailings Drainage
	Site 23 Drainage

5.2.8 User Sheet 10 – Summary of RS Means Cost Calculations

Where RS Means (2012) costs are referenced and used in calculations they are manipulated to provide unit costs based upon the labor, equipment and materials costs used in the SRCE. The crew makeup and productivity is used from the RS Means database as a basis for this new calculation. This worksheet provides a summary of the RS Means calculations and is linked to allow updates to automatically occur should the input cost data be changed.

5.2.9 User Sheet 11 – Bridge Demolition

Bridge demolition costs have been updated with available labor and equipment costs and adjusted material costs. These costs have been entered in the "Other User" sheet. The related decontamination costs have been calculated in User Sheet 14. During reclamation the bridges will be modified to support the pipelines. Demolition will consist of removing bridge components that will not be needed to support the pipeline (e.g. decking, guard rails and splash guards).

5.2.10 User Sheet 12 – Surface Disturbance Summary

This sheet summarizes the surface disturbances cited in the referenced sources for use elsewhere in the spreadsheet, particularly the "Yards" sheet which aims to include the areas that are not included in the various SRCE sheets calculations.

5.2.11 User Sheet 14 – Waste Disposal and Decontamination

Decontamination and disposal of various wastes are calculated in this worksheet. The tasks are summarized in Table 5-9. Cost calculations were reproduced from the 2008 cost estimate and updated or inflated for current unit costs.

Table 5-9: Waste Disposal

Item	Activities
Waste Disposal	Industrial Waste Disposal
	Waste Material Disposal
	Scrap Shipping and Specialty Equipment for Cleanup
	Radiation Source Disposal
Decontamination	Prep of Demo Scrap
	Prep of Re-Bar Scrap
	Stockpiling Scrap
	Loading of Scrap
	Miscellaneous Demo

5.3 Cost Schedule

Cost calculated in the various worksheets are entered into the schedule by task and according to the year they will be completed. Included below are the assumptions used to build the schedule:

- The closure costs and active water treatment costs are scheduled out to 100 years to represent water treatment in perpetuity.
- There will be one "holding year" before the closure period begins.
- The closure period is scheduled to last three years.
- Reclamation activities during the closure period will be seasonal and scheduled for five and a half months per year.
- Equipment will be mobilized for each summer construction season and at year 10 and year 100 for subsequently scheduled activities.
- The removal of Site 23 to the tailings storage facility will require 2 years. Following removal of Site 23, the removal of other waste rock sites and other material moving activities will be completed.
- Prior to Year 10, pumping of water from the base of Site D to the TDF pipeline (or underground) may be required and the cost of power for this purpose is included in the estimate. After Year 10, the substation providing power for pumping will be removed and all water collection in ponds will occur via gravity flow. Power for pumping water from the ponds during batch treatment will be provided by diesel generators.
- Zinc Creek, Falls Creek, Killer Creek and Greens Creek bridges will be modified to serve as pipeline crossings for long term water management.
- Most wells will be abandoned during the active closure period. Some will remain for long term monitoring and will be abandoned in year 100.
- Post-closure activities during Years 11-99 will consist of monitoring, water treatment plant batch operations, and water treatment plant replacement in Year 50.

At the end of the active closure period, the remaining roads will be reclaimed, except for the section of B Road that leads from Hawk Inlet to the water treatment plant and ponds. The section of B Road not reclaimed at the end of active closure will be reclaimed in Year 100 when equipment will be mobilized for closure of the water treatment plant, the ponds providing for batch treatment, and the last two remaining bridges.

6.0 Unit Cost Data Development

6.1 Project Cost Bases

The SRCE works by importing user cost data from a file ("user cost data file") with different "bases". Once these data are imported, they are reproduced in the following sheets of the SRCE and used within the spreadsheet:

- labor rates
- equipment rates
- material costs
- miscellaneous unit costs

A discussion is provided below for how these rates have been fed to the user cost data file.

6.2 Labor

Labor rates have been acquired from the Alaska Pamphlet 600 effective September 2013. Taxes and fringes have been added to base rates and then adjusted for shifts of 112 hours consisting of 96 hours "straight" time and 16 hours overtime.

Table 6-2 provides an overview of the basic hourly rate and subtotal of fringes. Table 6-3 illustrates how these rates are adjusted from the base rate and fringes. Base rate and fringes are paid for straight time. For overtime, 1.5 times the base rate is paid and fringes are also included for overtime hours worked (Alaska.gov, 2013).

Table 6-1: Alaska Pamphlet 600 Basic Hourly Rate and Fringes by Groups Used

Group	BHR	H&W	PEN	TRN	Other Benefits		THR	Straight Hourly Fringe	Straight Hourly Rate	Overtime Hourly Fringe	Overtime Hourly Rate	Total Straight Time Hourly Rate	Total Overtime Hourly Rate	Total Average Hourly Rate
A0301	36.59	9.78	12.11	0.70	0.10	0.15	59.43	22.84	36.59	0.25	54.89	59.43	55.14	58.82
A1601	38.28	9.10	9.75	1.00	0.10	0.00	58.23	19.95	38.28	0.10	57.42	58.23	57.52	58.13
A1602	40.04	9.10	9.75	1.00	0.10	0.00	59.99	19.95	40.04	0.10	60.06	59.99	60.16	60.01
A1604	36.79	9.10	9.75	1.00	0.10	0.00	56.74	19.95	36.79	0.10	55.19	56.74	55.29	56.53
A2101	38.89	7.38	9.99	1.20	0.10	0.00	57.56	18.67	38.89	0.10	58.34	57.56	58.44	57.69
A2102	40.16	7.38	9.99	1.20	0.10	0.00	58.83	18.67	40.16	0.10	60.24	58.83	60.34	59.05
A2105	36.23	7.38	9.99	1.20	0.10	0.00	54.90	18.67	36.23	0.10	54.35	54.90	54.45	54.84
S0401	34.44	6.91	11.80	0.85	0.10	0.00	54.10	19.66	34.44	0.10	51.66	54.10	51.76	53.77
S1201	29.25	7.24	13.73	1.20	0.20	0.15	51.77	22.52	29.25	0.35	43.88	51.77	44.23	50.69
S1203	31.15	7.24	13.73	1.20	0.20	0.15	53.67	22.52	31.15	0.35	46.73	53.67	47.08	52.73
S2204	37.87	7.24	13.73	1.20	0.20	0.15	60.39	22.52	37.87	0.35	56.81	60.39	57.16	59.93

BHR Basic hourly Rate
H&W Health and Welfare (Not applied to overtime)
PEN Pension (Not applied to overtime)
TRN Training (Not applied to overtime)
THR Total Hourly Rate

Total Average Hourly Rage = (Straight Time + Straight Fringe) x 96 hours) + (Overtime + Overtime Fringe) x 16 hours)/112 hours per shift

Source: GreensCreek_LaborBuildup_311400 010_ft_20140114_jlh.xlsx

Table 6-2: Labor Rate Adjustment

Group	Formula	Result
A0301	((36.59+9.78+12.11+0.7+0.1+0.15)x96+(36.59x1.5+0.1+0.15)x16)/112	58.82
A1601	((38.28+9.1+9.75+1+0.1+0)x96+(38.28x1.5+0.1+0)x16)/112	58.13
A1602	((40.04+9.1+9.75+1+0.1+0)x96+(40.04x1.5+0.1+0)x16)/112	60.01
A1604	((36.79+9.1+9.75+1+0.1+0)x96+(36.79x1.5+0.1+0)x16)/112	56.53
A2101	((38.89+7.38+9.99+1.2+0.1+0)x96+(38.89x1.5+0.1+0)x16)/112	57.69
A2102	((40.16+7.38+9.99+1.2+0.1+0)x96+(40.16x1.5+0.1+0)x16)/112	59.05
A2105	((36.23+7.38+9.99+1.2+0.1+0)x96+(36.23x1.5+0.1+0)x16)/112	54.84
S0401	((34.44+6.91+11.8+0.85+0.1+0)x96+(34.44x1.5+0.1+0)x16)/112	53.77
S1201	((29.25+7.24+13.73+1.2+0.2+0.15)x96+(29.25x1.5+0.2+0.15)x16)/112	50.69
S1203	((31.15+7.24+13.73+1.2+0.2+0.15)x96+(31.15x1.5+0.2+0.15)x16)/112	52.73
S2204	((37.87+7.24+13.73+1.2+0.2+0.15)x96+(37.87x1.5+0.2+0.15)x16)/112	59.93

Source: GreensCreek_LaborBuildup_311400 010_ft_20140114_jlh.xlsx

6.3 Equipment

The SRCE has a set list of equipment for which monthly rates can be input through the user cost data file. The monthly equipment rates are converted to hourly rates and add-ons such as fuel, lube, wear, etc., are added for total rates. The source data for equipment costs is provided in the cost data file (Attachment B). Equipment rental rates and fuel consumption rates for underground mining equipment were obtained from a contractor (Attachment F).

The SRCE calculates a “wet” hourly rate (hourly rate including fuel) for equipment. For equipment not included in the Cost Data file, wet equipment rates were estimated from data provided by the 2008 reclamation plan. These fuel consumption rates are summarized in Table 6-3.

Table 6-3: Fuel Consumption Rates

Equipment	gal/hr
Track Hoe with Shear*	6
Lowboy Trailer*	8
8,000 lbs. Grade All*	3
MT2010**	5.8
MT436B**	7.3
ST2G**	3.75
ST2D**	3.75

* Source: 2008 Reclamation Plan

** Source: CMI Alaska, July 2, 2012

6.4 Materials

The following are the principal materials utilized in the model:

- off-road diesel
- electrical power
- diesel power
- hydroseed mix
- cement
- monitoring costs
- other miscellaneous unit costs

Each element is discussed separately below.

6.4.1 Diesel

The diesel fuel cost utilized for this cost estimate is that of Taku Fuel with an additional fuel surcharge of 19% added.

6.4.2 Electricity and Diesel Generated Power

Electrical power at the site is assumed to be that currently used at the site ($0.10/kWh).

The cost of diesel-generated power in $/kWh has been calculated from the cost of fuel as per the assumptions below. It is furthermore assumed that grid power would be utilized until the end of Year 10 when the closure period is over. After this, power requirements for activities such as water treatment would be supplied by generators. This generated power cost is calculated by the following formula and utilized as a user over-ride in the SRCE in the Solution Management sheet.

Fuel burn rate: 0.078 gallons/kWh

Generator repairs, maintenance, etc.: 0.062 ¢/kWh

Cost per generated kWh:

$4.14/gallon×0.078 gallons/kWh+$0.00062/kWh

≈ $0.32/kWh

6.4.3 Seed

Costs for hydroseeding were provided by HGCMC and are reproduced in Attachment G. Since the SRCE requires a cost per acre input these were converted as shown in Table 6-5.

Table 6-4: Seed Costs

Item	Cost per bag ($)	Unit (lb. bag)	Application Rate (lb/ac)	Cost per Acre ($)
Seed	35.75	15	25	59.58
Mulch	10.25	50	100	369
Fertilizer	21.40	50	300	12.40
			Total	**556.98**

Source: Quote from FMI Sales, 5/22/2013

The labor cost per acre for hydroseeding has been calculated by assuming a daily output of 15 acres.

($56.88/hour×11 hours/day) / (15 acres/day) = $41.71/acre

For the equipment cost, a rental quote has been obtained from Yukon Equipment and used to calculate hydroseeding equipment rates in $/acre.

($6,500/month×1 month/334 hrs+2 gal/hr×$4.14/gal) × (11 hours/day)/(15 acres/day)
=$20.34/acre

These data have been entered in the cost data file under “Seeding - Broadcast Mechanical” in the “Misc. Unit Costs” sheet and the revegetation method in the sheet “Material Costs” has been set to “Seeding - Broadcast Mechanical”.

6.4.4 Cement

The cost of concrete in the 2008 cost estimate was \$205/yd^3. This has been adjusted by inflation to obtain \$213/yd^3. The SRCE typically requires the cost of cement in 50-lb. bags for calculation of costs related to concrete usage, such as underground working plugging. Therefore, with the default SRCE assumption that one 50-lb bag mixes with water to make 0.21 yd^3 or 0.16 m^3 of grout/cement slurry, the \$213/yd^3 concrete cost has been converted to \$44.73/bag cement.

(\$213/yd3) × (0.21 yd3/bag) = \$44.73/bag

6.4.5 Other Miscellaneous Material Costs

Other Material costs are included in the following sheets:

- User Sheet 8 – Monitoring (discussed in Section 5.2.8)
- User Sheet 14 – Waste Disposal and Decontamination (discussed in Section 5.2.11)

6.5 Indirect Costs

Indirect costs consist of the following at the indicated rates and are valid for all cost bases provided in a cost data file:

1. Engineering and redesign 2.75%
2. Contractor profit and overhead 15%
3. Contract administration 3.5%
4. Government administration 3.5%
5. Performance bond 1.5%
6. Payment bond 1.5%
7. Insurance 0.5%
8. Scope contingency 6.5%
9. Bid contingency 6.5%

In the cost data file, insurance has been included together with the contractor overhead for a total of 15.5%. Scope contingency and bid contingency are also provided together for a total of 13%. Contract administration and government administration are provided together as a total of 7%.

7.0 Conclusions and Recommendations

The 2014 direct closure cost is estimated at $68,431,237. Together with indirect costs including engineering, design and construction plan, contingency, insurance, contractor overhead, performance bond, contractor profit, contract administration, and government indirect costs at a total of 41.25% of direct costs, or $28,227,886 the grand total is estimated at $96,659,123.

8.0 References

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Prepared by

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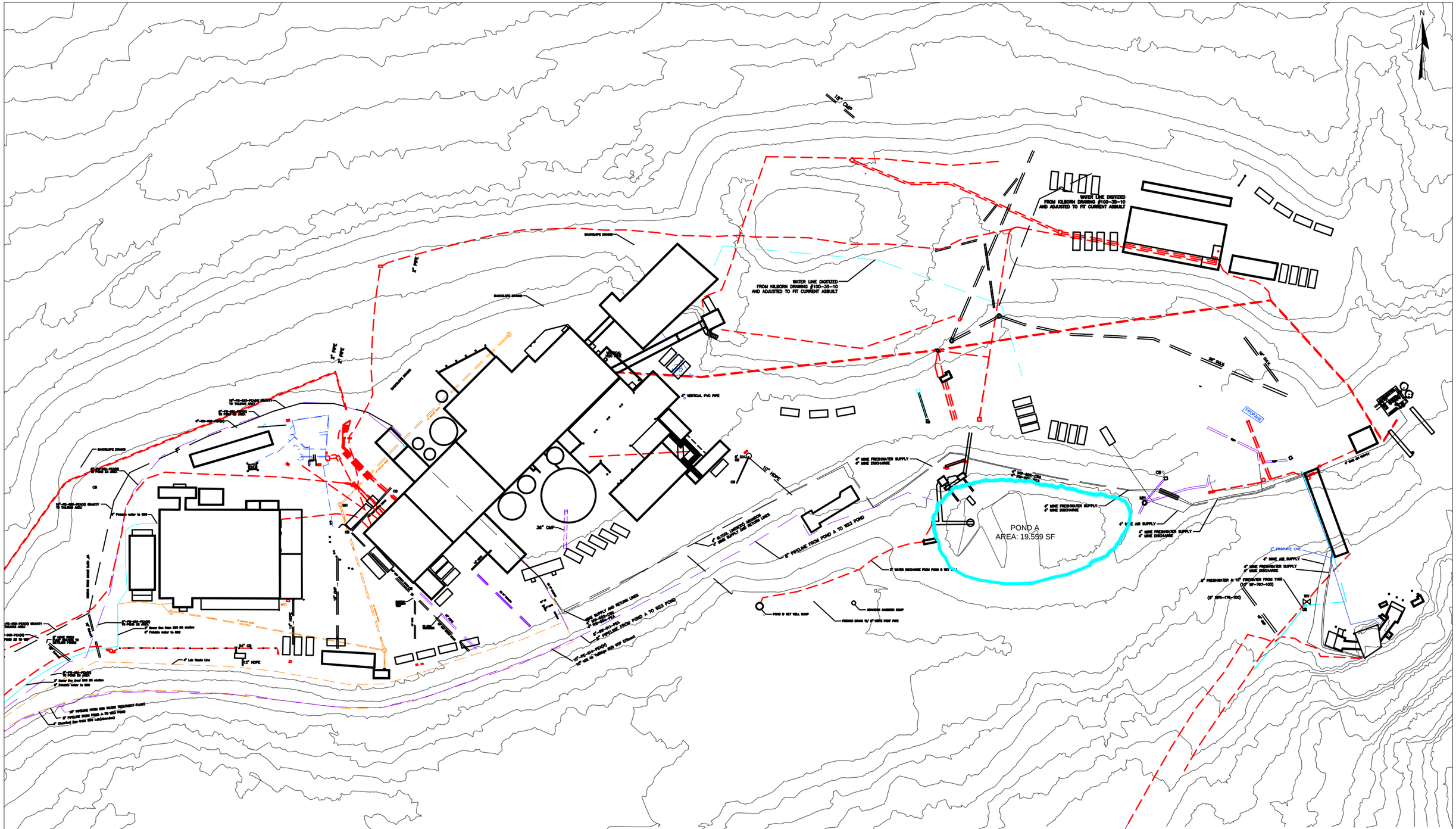
Mining Consultant

Reviewed by

Jeff Parshley
Principal Consultant

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

Figures



CULVERTS
VALVES
PUMPHOUSE PIPING
WATER LINES
AIR PIPES
FUEL LINES
HDPE PIPES
MINE DISCHARGE PIPES
GENERAL PIPES
SEWER LINES
POWER LINES

srk consulting

PREPARED FOR: Hecla

DRAWING TITLE: LINEAR ITEMS

DESIGN: -	DRAWN: TWW	REVIEWED: -	
CHECKED: -	APPROVED: -	DATE: 03/24/2014	
FILE NAME: 311400_FIG01-07_SITE 23_TWW_20140324.dwg			

HECLA GREENS CREEK MINING COMPANY

DRAWING NO. 311400.010-FIG1

SRK JOB NO. 311400.010

REVISION NO. A

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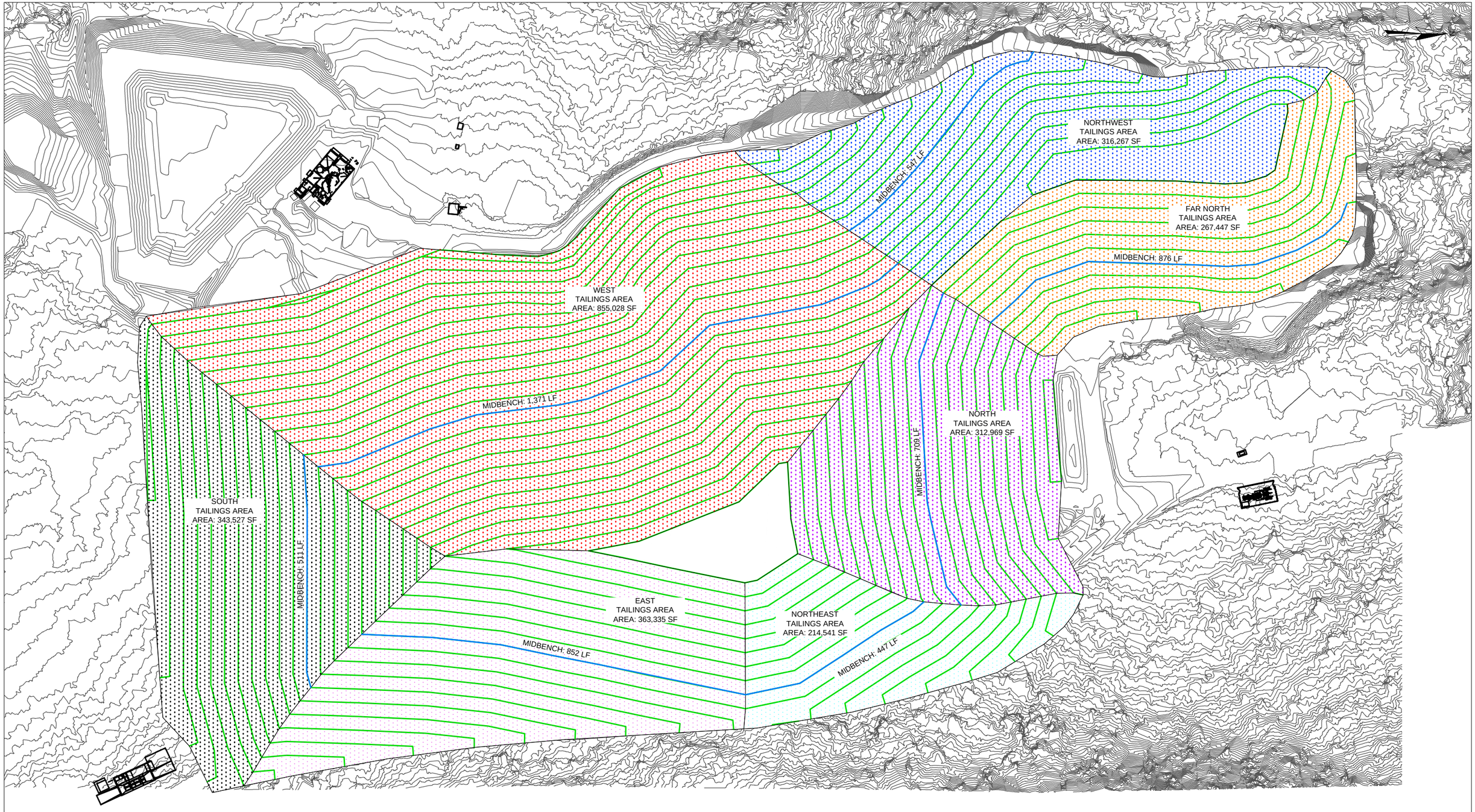

Feet
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1" = 200'

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PREPARED FOR: Hecla

DRAWING TITLE:
TAILINGS STORAGE FACILITY
SRCE INPUT PERAMETERS

DESIGN: -	DRAWN: TWW	REVIEWED: -	
CHECKED: -	APPROVED: -	DATE: 03/24/2014	
FILE NAME: 311400_FIG01-07_SITE 23_TWW_20140324.dwg			

HECLA GREENS CREEK
MINING COMPANY

DRAWING NO. 311400.010-FIG2
SRK JOB NO. 311400.010
REVISION NO. A

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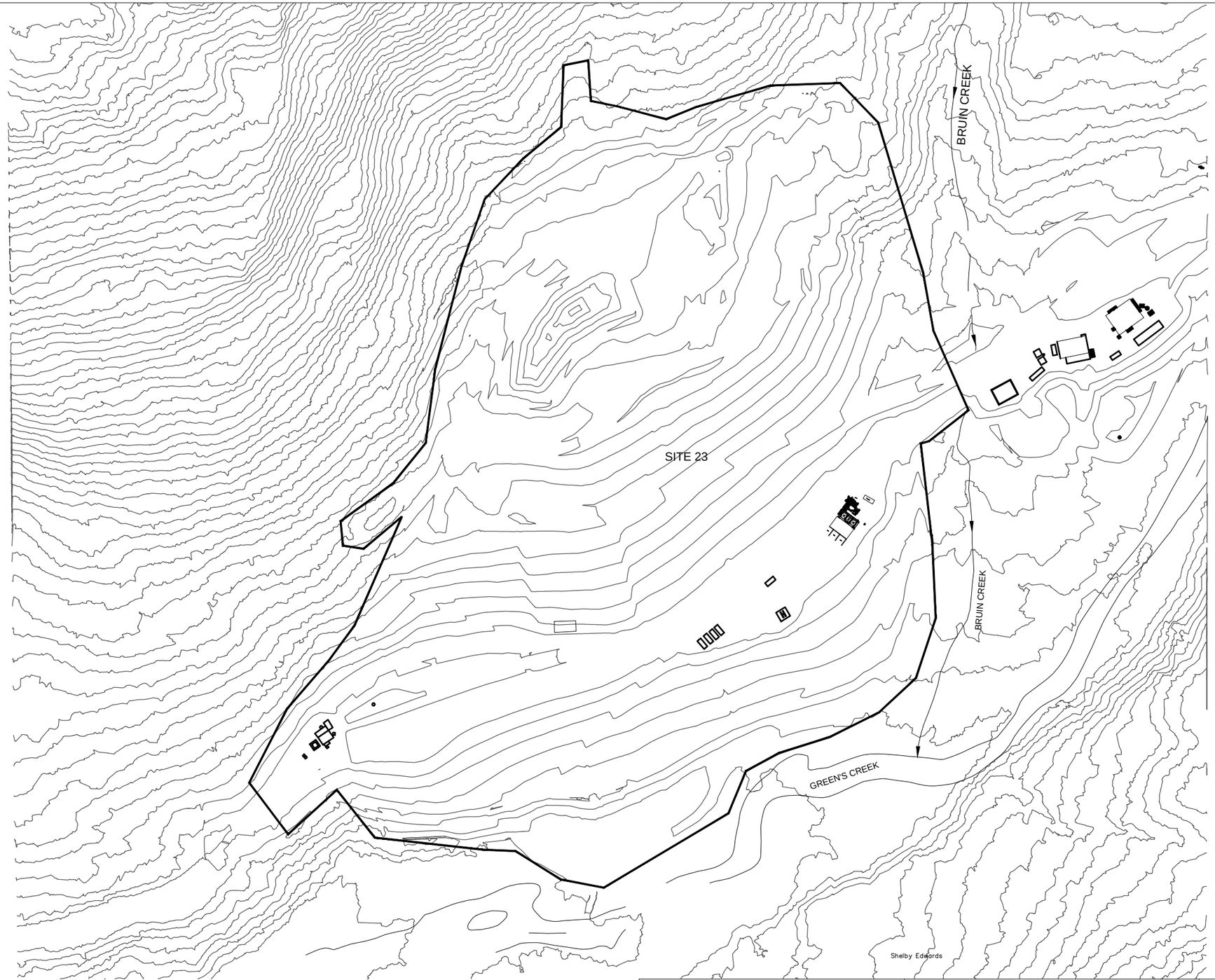

srk consulting

PREPARED FOR: Hecla

DRAWING TITLE: SITE 23

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CHECKED: -	APPROVED: -	DATE: 03/24/2014	
FILE NAME: 311400_FIG01-07_SITE 23_TWW_20140324.dwg			

HECLA GREENS CREEK MINING COMPANY

DRAWING NO. 311400.010-FIG3

SRK JOB NO. 311400.010

REVISION NO. A

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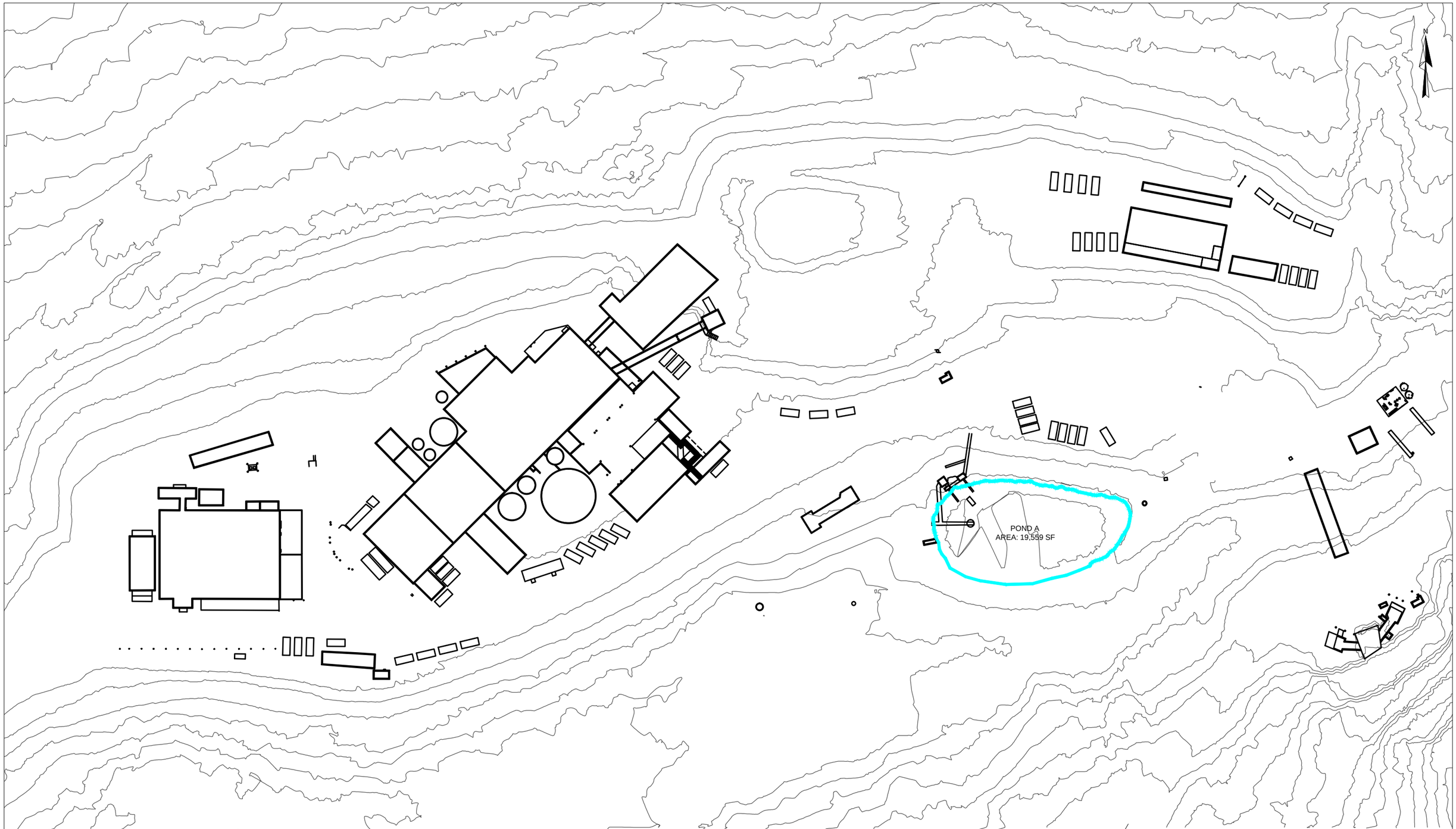

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HECLA GREENS CREEK
MINING COMPANY

DRAWING TITLE: POND A

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CHECKED: -	APPROVED: -	DATE: 03/24/2014	
FILE NAME: 311400_FIG01-07_SITE 23_TWW_20140324.dwg			

DRAWING NO. 311400.010-FIG4

SRK JOB NO. 311400.010

REVISION NO. A

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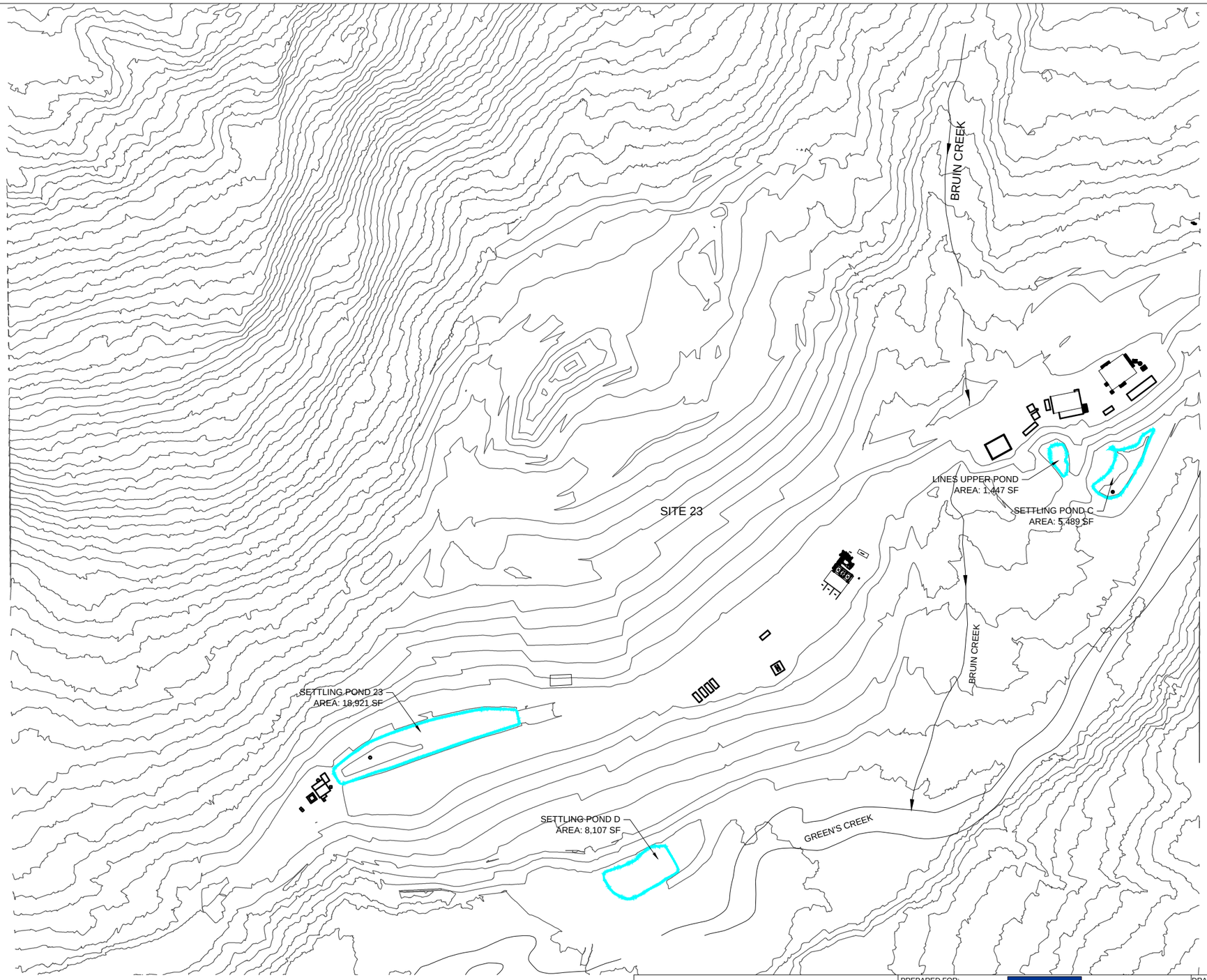

Feet
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1" = 200'

srk consulting

DESIGN: -	DRAWN: TWW	REVIEWED: -	
CHECKED: -	APPROVED: -	DATE: 03/24/2014	
FILE NAME: 311400_FIG01-07_SITE 23_TWW_20140324.dwg			

PREPARED FOR: Hecla

HECLA GREENS CREEK
MINING COMPANY

DRAWING TITLE: SITE 23 PONDS

DRAWING NO. 311400.010-FIG5

SRK JOB NO. 311400.010

REVISION NO. A

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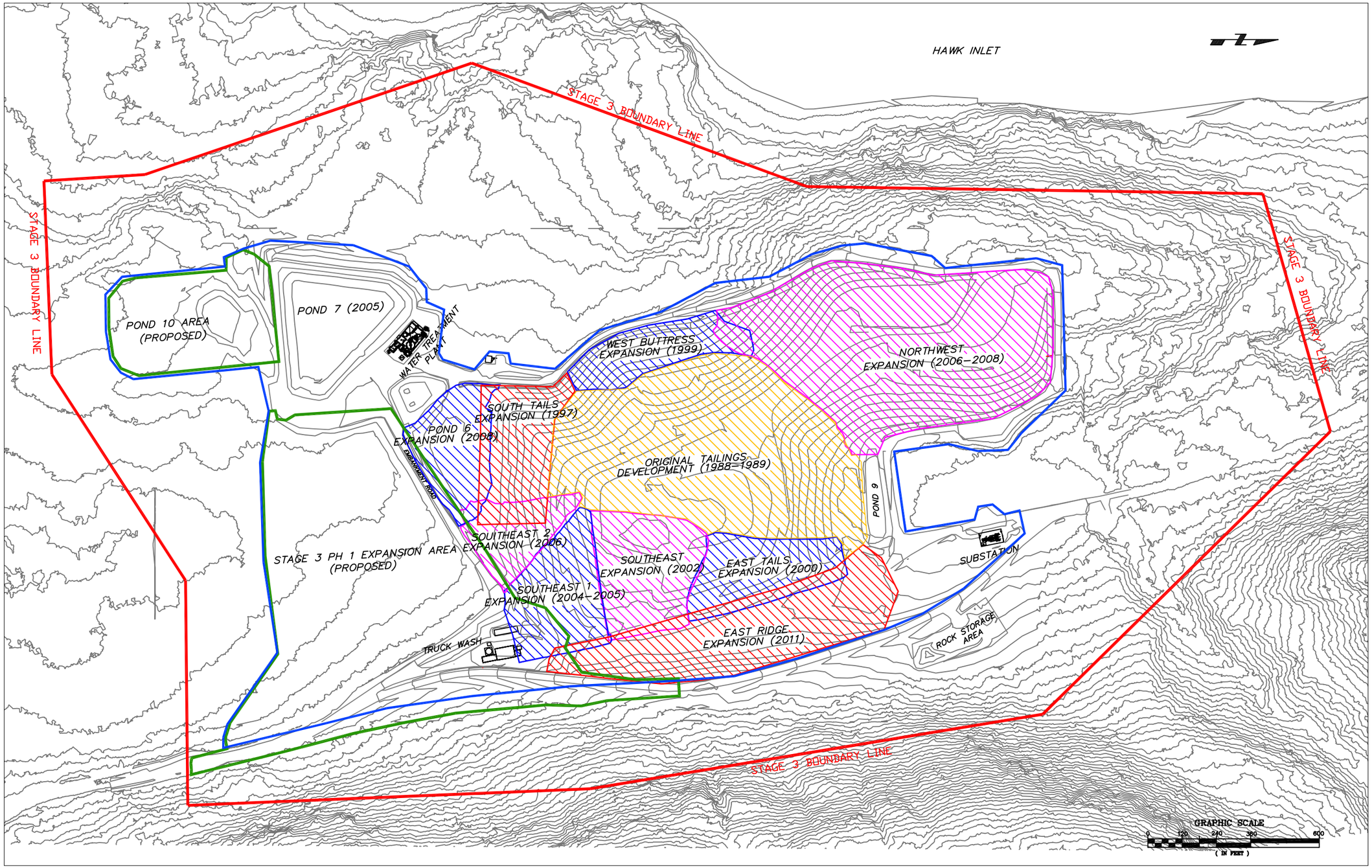

srk consulting

PREPARED FOR: Hecla

DRAWING TITLE: TAILINGS PONDS

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CHECKED: -	APPROVED: -	DATE: 05/18/2012	
FILE NAME: 311400_FIG01-07_SITE 23_TWW.dwg			

HECLA GREENS CREEK MINING COMPANY

DRAWING NO. 311400.010-FIG6

SRK JOB NO. 311400.010

REVISION NO. A

H:\HECLA\Greens Creek\311400_01 Hecla PoO Update\040_Drafting\Geoprocess\FIGURES\311400_FIG01-07_SITE 23_TWW.dwg

Attachments

Attachment A
SRCE Files

Enter Data Below in Green and Blue Spaces

STANDARDIZED RECLAMATION COST ESTIMATOR

Version 1.4.1
Build 016
NOT YET VALIDATED FOR REGULATORY USE IN NEVADA

COST DATA FILE INFORMATION

File Name:	Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Cost Data File:	Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Data Date:	March 1, 2014
Cost Data Basis:	User Data — Data Cost Units: Imperial
Author/Source:	SRK Consulting/Greens Creek

PROJECT INFORMATION

Property/Mine Name:	Greens Creek — Property Code:
Project Name:	Reclamation Plan Update 2014
Date of Submittal:	April 2014 — Average Altitude: 600 ft.
Units of Measure:	● Metric (m, km, ha, etc.) ● Imperial (ft, mi, acres, etc.)
Select One:	● Notice or Sm Exploration Plan ● Lg Exploration Plan ● Mine Operation
Select One:	● Private Land ● Public or Public/Private
Cost Estimate Type:	Surety
Cost Basis Category:	Greens Creek 2014
Cost Basis Description:	**DB (AK) Sept. '13 for double shifts 8hrs/14days labor, week begins Wednesday, CMI rental rates from 2012 increased by 3%**

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Closure Cost Estimate
Cost Summary

Project Name: Reclamation Plan Update 2014
Project Date: April 2014
Model Version: Version 1.4.1
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm

A. Earthwork/Recontouring	Labor (1)	Equipment (2)	Materials	Total
Exploration	$0	$0	$0	$0
Exploration Roads & Drill Pads	$0	$0	$0	$0
Roads	$125,742	$273,883	$0	$399,625
Well Abandonment	$37,884	$11,678	$2,944	$52,506
Pits	$0	$0	N/A	$0
Quarries & Borrow Areas	$0	$0	$0	$0
Underground Openings	$39,021	$3,758	$12,411	$55,190
Process Ponds	$131,266	$264,121	$0	$395,387
Heaps	$0	$0	$0	$0
Waste Rock Dumps	$0	$0	$0	$0
Landfills	$0	$0	$0	$0
Tailings	$0	$0	$0	$0
Foundation & Buildings Areas	$0	$0	$0	$0
Yards, Etc.	$159,653	$220,355	$0	$380,008
Drainage & Sediment Control	$0	$0	$0	$0
Generic Material Hauling	$4,052,500	$8,539,065	$0	$12,591,565
Other User Costs (from Other User sheet)	$721,893	$1,246,715	$3,478,779	$5,447,387
Other**				$0
Subtotal	**$5,267,958**	**$10,559,576**	**$3,494,134**	**$19,321,668**
Mob/Demob if included in Other User sheet	$0	$666,430	$0	$666,430
Mob/Demob				$0
Subtotal "A"	**$5,267,958**	**$11,226,006**	**$3,494,134**	**$19,988,098**

B. Revegetation/Stabilization	Labor (1)	Equipment (2)	Materials	Total
Exploration	$0	$0	$0	$0
Exploration Roads & Drill Pads	$0	$0	$0	$0
Roads	$3,593	$1,965	$53,818	$59,376
Well Abandonment				N/A
Pits	$0	$0	$0	$0
Quarries & Borrow Areas	$0	$0	$0	$0
Underground Openings				N/A
Process Ponds	$438	$240	$5,737	$6,415
Heaps	$0	$0	$0	$0
Waste Rock Dumps	$2,597	$1,420	$38,915	$42,932
Landfills	$0	$0	$0	$0
Tailings	$0	$0	$0	$0
Foundation & Buildings Areas	$0	$0	$0	$0
Yards, Etc.	$6,877	$3,761	$103,042	$113,680
Drainage & Sediment Control	$0	$0	$0	$0
Generic Material Hauling	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal "B"	**$13,505**	**$7,386**	**$201,512**	**$222,403**

C. Detoxification/Water Treatment/Disposal of Wastes**	Labor (1)	Equipment (2)	Materials	Total
Process Ponds/Sludge				$0
Heaps				$0
Dumps (Waste & Landfill)				$0
Tailings				$0
Surplus Water Disposal				$0
Monitoring				$0
Miscellaneous				$0
Solid Waste - On Site	$0	$0	N/A	$0
Solid Waste - Off Site				$0
Hazardous Materials				$0
Hydrocarbon Contaminated Soils	$0	$0	$0	$0
Pumping (from Solution Mgmt sheet)	$0	$484,560	N/A	$484,560
Evaporation (from Solution Mgmt sheet)	$0	$0	$0	$0
Treatment (from Solution Mgmt sheet)	$0	$9,448,449	$1,087,068	$10,535,517
Decontamination (from Solution Mgmt sheet)	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$776,534	$3,009,541	$7,252,457	$11,038,532
Other**				$0
Subtotal "C"	**$776,534**	**$12,942,550**	**$8,339,525**	**$22,058,609**

D. Structure, Equipment and Facility Removal, and Misc.	Labor (1)	Equipment (2)	Materials	Total
Foundation & Buildings Areas	$807,332	$224,708	$0	$1,032,040
Other Demolition	$0	$0	$0	$0
Equipment Removal	$0	$0	$0	$0
Fence Removal	$0	$0		$0
Fence Installation	$0	$0	$0	$0
Culvert Removal	$0	$0	N/A	$0
Pipe Removal	$0	$0	N/A	$0
Powerline Removal	$0			$0
Transformer Removal	$27,216			$27,216
Rip-rap, rock lining, gabions	$0	$0	$0	$0
Other Misc. Costs	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$1,598,631	$850,642	$337,187	$2,786,460
Other**				$0
Subtotal "D"	**$2,433,179**	**$1,075,350**	**$337,187**	**$3,845,716**

E. Monitoring	Labor (1)	Equipment (2)	Materials	Total
Reclamation Monitoring and Maintenance	$10,641	$28,321	$22,017	$60,979
Ground and Surface Water Monitoring	$0	$0	$0	$0
Other User Costs (from Other User sheet)	$154,968	$596,534	$4,824,653	$5,576,155
Subtotal "E"	**$165,609**	**$624,855**	**$4,846,670**	**$5,637,134**

F. Construction Management & Support	Labor	Equipment (2)	Materials	Total
Construction Management	$0	$0	N/A	$0
Construction Support	$0	$0	$0	$0
Road Maintenance	$165,247	$134,794	$0	$300,041
Other User Costs (from Other User sheet)	$29,533	$4,022	$17,290	$50,845
Other**				$0
Subtotal "F"	**$194,780**	**$138,816**	**$17,290**	**$350,886**

G. Closure Planning, G&A, Human Resources			Include?	Total
Closure Planning				$0
General & Administration				$6,418,874
Human Resources				$9,909,517
Other User Costs (from Other User sheet)	$0	$0	$0	$0
Other**				$0
Subtotal "G"	**$0**	**$0**	**$0**	**$16,328,391**

Subtotal Operational & Maintenance Costs	Labor (1)	Equipment (2)	Materials (3)	Total
Subtotal A through G	**$8,851,566**	**$26,014,962**	**$17,236,319**	**$68,431,237**

** Other Operator supplied costs - additional documentation required.

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Closure Cost Estimate
Cost Summary

Project Name: Reclamation Plan Update 2014
Project Date: April 2014
Model Version: Version 1.4.1
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm

Indirect Costs		Include?	Total
1. Engineering, Design and Construction (ED&C) Plan (7)			$1,881,859
2. Contingency (8)			$8,896,061
3. Insurance (9)	$0		$0
4. Performance Bond (10)			$2,052,937
5. Contractor Profit (11)			$10,606,842
6. Contract Administration (12)			$4,790,187
7. Government Indirect Cost (13)			$0
Subtotal Add-On Costs			**$28,227,886**
Total Indirect Costs as % of Direct Cost			41%
GRAND TOTAL			**$96,659,123**

Administrative Cost Rates (%)

	Cost Ranges for Indirect Cost Percentages				
	<=	<=	<=	>	
1. Engineering, Design and Construction (ED&C) Plan	$500,000	$2,500,000	$25,000,000	$25,000,000	Small Plan
Variable Rate	3%	3%	0.0275	3%	3%
	<=	<=	<=	>	
2. Contingency (6.5% bid, 6.5% scope)	$500,000	$5,000,000	$50,000,000	$50,000,000	Small Plan
Variable Rate	13%	13%	13%	13%	13%
3. Insurance	0.0%	of labor costs			
4. Bond (payment and performance)	3.0%	of the O&M costs if O&M costs are >$100,000			
5. Contractor overhead and profit+insurance (@0.5%)	16%	of the O&M costs			
	<=	<=	<=	>	
6. Contract Admin and Government Admin (ea. 3.5%)	$1,000,000	$15,000,000	$25,000,000	$25,000,000	
Variable Rate	7%	7%	0.07	7%	7%
0	0%	$0			

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES

NOTE :
As per Pete Condon e-mail Thu 1/23/2014 2:46 PM

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety **Cost Basis: Greens Creek 2014**

Clear Schedule

Cost Schedule and Financial Analysis

Budget Year:	2014	
First Year of Operation	2009	
Operating Period		years
Closure Year 1:	2014	
Closure Period:	4	years
Post Closure Period	96	years

Inflation Rate (r) (%):	0.0%
Market Risk (MR)(%):	0.0%
Discount Rate (i)(%):	0.0%

Closure Period:	
Post Closure Period:	

Engineering, Design and Construction Plan (%)	3%
Contingency (%)	13.0%
Contractor OH and Profit (CP)(%):	16%
Contract Administration (%)	7%

Show how many years in schedule (10 to 100) 100 Set Years <<< Set years and click "Set Years" button

	Term (t)(years): Schedule Variance	Total From Cost Summary	0 2014	1 2015	2 2016	3 2017	4 2018	5 2019	6 2020	7 2021	8 2022	9 2023	10 2024	11 2025	12 2026	13 2027
A. Earthwork/Recontouring																
Exploration	$ -	$ -														
Exploration Roads & Drill Pads	$ -	$ -														
Roads	$ -	$ 399,625				$ 399,625										
Well Abandonment	$ -	$ 52,506		$ 46,662												
Pits	$ -	$ -														
Quarries & Borrow Areas	$ -	$ -														
Underground Openings	$ -	$ 55,190				$ 55,190										
Process Ponds	$ -	$ 395,387		$ 200,348												
Heaps	$ -	$ -														
Waste Rock Dumps	$ -	$ -		$ -	$ -											
Landfills	$ -	$ -														
Tailings	$ -	$ -		$ -	$ -	$ -										
Foundation & Buildings Areas	$ -	$ -		$ -	$ -											
Yards, Etc.	$ -	$ 380,008		$ 126,669	$ 126,669	$ 126,669										
Drainage & Sediment Control	$ -	$ -														
Generic Material Hauling	$ -	$ 12,591,565		$ 4,197,188	$ 4,197,188	$ 4,197,188										
Other User Costs (from Other User sheet)	$ -	$ 5,447,387		$ 1,815,796	$ 1,815,796	$ 1,815,796										
Other**	$ -	$ -														
Mob/Demob if included in Other User sheet	$ -	$ 666,430		$ 255,079	$ 160,273	$ 166,649	$ 20,700	$ 20,700					$ -			
Mob/Demob	$ -	$ -														
Subtotal "A"	$ -	$ 19,988,098	$ -	$ 6,641,743	$ 6,299,927	$ 6,761,117	$ 20,700	$ 20,700	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
B. Revegetation/Stabilization																
Exploration	$ -	$ -														
Exploration Roads & Drill Pads	$ -	$ -														
Roads	$ -	$ 59,376				$ 59,376										
Well Abandonment		N/A														
Pits	$ -	$ -														
Quarries & Borrow Areas	$ -	$ -														
Underground Openings		N/A														
Process Ponds	$ -	$ 6,415			$ 6,415											
Heaps	$ -	$ -														
Waste Rock Dumps	$ -	$ 42,932			$ 42,932											
Landfills	$ -	$ -														
Tailings	$ -	$ -				$ -										
Foundation & Buildings Areas	$ -	$ -			$ -											
Yards, Etc.	$ -	$ 113,680		$ 37,893	$ 37,893	$ 37,893										
Drainage & Sediment Control	$ -	$ -														
Generic Material Hauling	$ -	$ -														
Other User Costs (from Other User sheet)	$ -	$ -				$ -										
Other**	$ -	$ -														
Subtotal "B"	$ -	$ 222,403	$ -	$ 37,893	$ 87,240	$ 97,269	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C. Detoxification/Water Treatment/Disposal of Wastes**																
Process Ponds/Sludge	$ -	$ -														
Heaps	$ -	$ -														
Dumps (Waste & Landfill)	$ -	$ -														
Tailings	$ -	$ -														
Surplus Water Disposal	$ -	$ -														
Monitoring	$ -	$ -														
Miscellaneous	$ -	$ -														
Solid Waste - On Site	$ -	$ -														
Solid Waste - Off Site	$ -	$ -														
Hazardous Materials	$ -	$ -														
Hydrocarbon Contaminated Soils	$ -	$ -														
Pumping (from Solution Mgmt sheet)	$ -	$ 484,560	$ 416,590	$ 3,324	$ 10,980	$ 37,044	$ 725	$ 725	$ 725	$ 725	$ 725	$ 725	$ 725	$ 130	$ 130	$ 130
Evaporation (from Solution Mgmt sheet)	$ -	$ -														
Treatment (from Solution Mgmt sheet)	$ -	$ 10,535,517	$ 145,280	$ 147,869	$ 147,869	$ 147,869	$ 108,889	$ 108,889	$ 108,889	$ 108,889	$ 108,889	$ 108,889	$ 108,889	$ 100,920	$ 100,920	$ 100,920

Decontamination (from Solution Mgmt sheet)	$ -	$ -																
Other User Costs (from Other User sheet)	$ -	$ 11,038,532	$ 642,376	$ 485,483	$ 308,997	$ 651,964												
Other**	$ -	$ -																
Subtotal "C"	$ -	$ 22,058,609	$ 1,204,245	$ 636,676	$ 467,846	$ 836,877	$ 109,614	$ 109,614	$ 109,614	$ 109,614	$ 109,614	$ 109,614	$ 109,614	$ 101,050	$ 101,050	$ 101,050		
D. Structure, Equipment and Facility Removal, and Misc.																		
Foundation & Buildings Areas	$ -	$ 1,032,040		$1,010,480														
Other Demolition	$ -	$ -																
Equipment Removal	$ -	$ -																
Fence Removal	$ -	$ -																
Fence Installation	$ -	$ -																
Culvert Removal	$ -	$ -																
Pipe Removal	$ -	$ -																
Powerline Removal	$ -	$ -																
Transformer Removal	$ -	$ 27,216												$27,216				
Rip-rap, rock lining, gabions	$ -	$ -																
Other Misc. Costs	$ -	$ -																
Other User Costs (from Other User sheet)	$ -	$ 2,786,460		$1,351,255	$1,351,255	$83,950												
Other**	$ -	$ -																
Subtotal "D"	$ -	$ 3,845,716	$ -	$ 2,361,735	$ 1,351,255	$ 83,950	$ -	$ -	$ -	$ -	$ -	$ -	$ 27,216	$ -	$ -	$ -		
E. Monitoring																		
Reclamation Monitoring and Maintenance	$ -	$ 60,979					$12,196	$12,196	$12,196	$12,196	$12,196							
Ground and Surface Water Monitoring (calculated from user input in Monitoring Sheet)	$ -	$ -		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
Other User Costs (from Other User sheet)	$ -	$ 5,576,155	$323,654	$254,718	$254,718	$254,718	$361,933	$382,180	$200,172	$200,172	$216,985	$92,957	$96,392	$93,563	$76,750	$76,750		
Subtotal "E"	$ -	$ 5,637,134	$ 323,654	$ 254,718	$ 254,718	$ 254,718	$ 374,129	$ 394,376	$ 212,368	$ 212,368	$ 229,180	$ 92,957	$ 96,392	$ 93,563	$ 76,750	$ 76,750		
F. Construction Management & Support																		
Construction Management	$ -	$ -		$0	$0	$0												
Construction Support	$ -	$ -																
Road Maintenance	$ -	$ 300,041		$100,014	$100,014	$100,014												
Other User Costs (from Other User sheet)	$ -	$ 50,845				$50,845												
Other**	$ -	$ -																
Subtotal "F"	$ -	$ 350,886	$ -	$ 100,014	$ 100,014	$ 150,859	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
G. Closure Planning, G&A, Human Resources																		
Closure Planning	$ -	$ -	$0															
General & Administration	$ -	$ 6,418,874	$395,884	$882,922	$825,502	$924,054	$117,077	$117,077	$51,935	$51,935	$51,935	$51,935	$51,935	$32,547	$32,547	$32,547		
Human Resources	$ -	$ 9,909,517	$679,406	$506,606	$506,606	$506,606	$325,789	$325,789	$108,596	$108,596	$108,596	$108,596	$108,596	$72,397	$72,397	$72,397		
Other User Costs (from Other User sheet)	$ -	$ -																
Other**	$ -	$ -																
Subtotal "G"	$ -	$ 16,328,391	$ 1,075,290	$ 1,389,528	$ 1,332,108	$ 1,430,660	$ 442,866	$ 442,866	$ 160,531	$ 160,531	$ 160,531	$ 160,531	$ 160,531	$ 104,944	$ 104,944	$ 104,944		
Subtotal Operational & Maintenance Costs																		
Subtotal A through G	$ -	$ 68,431,237	$ 2,603,189	$ 11,422,307	$ 9,893,107	$ 9,615,450	$ 947,308	$ 967,556	$ 482,513	$ 482,513	$ 499,325	$ 363,102	$ 393,753	$ 299,556	$ 282,744	$ 282,744		
Indirect Costs																		
1. Engineering, Design and Construction (ED&C) Plan (7)	$ -	$ 1,881,859	$1,881,859															
2. Contingency (8)		$ 8,896,061	$ 338,415	$ 1,484,900	$ 1,286,104	$ 1,250,008	$ 123,150	$ 125,782	$ 62,727	$ 62,727	$ 64,912	$ 47,203	$ 51,188	$ 38,942	$ 36,757	$ 36,757		
3. Insurance (9)	$ -	$ -	$0	$0	$0	$0												
4. Performance Bond (10)	$ -	$ 2,052,937	$513,234	$513,234	$513,234	$513,234												
5. Contractor Profit (11)		$ 10,606,842	$ 403,494	$ 1,770,458	$ 1,533,432	$ 1,490,395	$ 146,833	$ 149,971	$ 74,789	$ 74,789	$ 77,395	$ 56,281	$ 61,032	$ 46,431	$ 43,825	$ 43,825		
6. Contract Administration (12)		$ 4,790,187	$ 182,223	$ 799,561	$ 692,518	$ 673,081	$ 66,312	$ 67,729	$ 33,776	$ 33,776	$ 34,953	$ 25,417	$ 27,563	$ 20,969	$ 19,792	$ 19,792		
7. Government Indirect Cost (13)	$ -	$ -	$0	$0	$0	$0												
Subtotal Add-On Costs	$ (62,957)	$ 28,227,886	$ 3,319,225	$ 4,568,153	$ 4,025,287	$ 3,926,719	$ 336,294	$ 343,482	$ 171,292	$ 171,292	$ 177,260	$ 128,901	$ 139,782	$ 106,343	$ 100,374	$ 100,374		
Grand Total (Undiscounted)	$ (62,957)	$ 96,659,123	$ 5,922,414	$ 15,990,460	$ 13,918,395	$ 13,542,169	$ 1,283,603	$ 1,311,038	$ 653,805	$ 653,805	$ 676,586	$ 492,003	$ 533,535	$ 405,899	$ 383,118	$ 383,118		

Inflation Adjustment (Future Value = FV)	$FV = Se^{(rt)}$		$ 5,922,414	$ 15,990,460	$ 13,918,395	$ 13,542,169	$ 1,283,603	$ 1,311,038	$ 653,805	$ 653,805	$ 676,586	$ 492,003	$ 533,535	$ 405,899	$ 383,118	$ 383,118
Market Risk Adjustment	(MR x FV)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Future Value (Fv_{adj})	Fv_{adj} = (FV + MR)		$ 5,922,414	$ 15,990,460	$ 13,918,395	$ 13,542,169	$ 1,283,603	$ 1,311,038	$ 653,805	$ 653,805	$ 676,586	$ 492,003	$ 533,535	$ 405,899	$ 383,118	$ 383,118
Net Present Value (PV)	$PV = FV_{adj}/(1+i)^t$	$ 96,418,825	$ 5,922,414	$ 15,990,460	$ 13,918,395	$ 13,542,169	$ 1,283,603	$ 1,311,038	$ 653,805	$ 653,805	$ 676,586	$ 492,003	$ 533,535	$ 405,899	$ 383,118	$ 383,118

Grand Total (Undiscounted)		$ 96,418,825
Grand Total (Inflation Adjusted) (FV)		$ 96,418,825
Grand Total Market Risk Adjusted (Fv_{adj})		$ 96,418,825
Grand Total Net Present Value (NPV)		$ 96,418,825

Source: This worksheet was prepared and contributed by Patric Lassiter, SRK Consulting

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130
$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920

$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050

$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$90,592	$77,215	$25,166	$41,978	$28,136	$25,166	$45,413	$25,166	$25,166	$45,691	$25,166	$28,601	$41,978	$25,166	$25,166	$41,978	$28,601	$22,938	$39,751	$26,651	$22,938	$43,186
$ 90,592	$ 77,215	$ 25,166	$ 41,978	$ 28,136	$ 25,166	$ 45,413	$ 25,166	$ 25,166	$ 45,691	$ 25,166	$ 28,601	$ 41,978	$ 25,166	$ 25,166	$ 41,978	$ 28,601	$ 22,938	$ 39,751	$ 26,651	$ 22,938	$ 43,186

$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547
$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397
$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944

$ 296,586	$ 283,209	$ 231,159	$ 247,972	$ 234,130	$ 231,159	$ 251,407	$ 231,159	$ 231,159	$ 251,685	$ 231,159	$ 234,594	$ 247,972	$ 231,159	$ 231,159	$ 247,972	$ 234,594	$ 228,932	$ 245,744	$ 232,645	$ 228,932	$ 249,179

$ 38,556	$ 36,817	$ 30,051	$ 32,236	$ 30,437	$ 30,051	$ 32,683	$ 30,051	$ 30,051	$ 32,719	$ 30,051	$ 30,497	$ 32,236	$ 30,051	$ 30,051	$ 32,236	$ 30,497	$ 29,761	$ 31,947	$ 30,244	$ 29,761	$ 32,393
$ 45,971	$ 43,897	$ 35,830	$ 38,436	$ 36,290	$ 35,830	$ 38,968	$ 35,830	$ 35,830	$ 39,011	$ 35,830	$ 36,362	$ 38,436	$ 35,830	$ 35,830	$ 38,436	$ 36,362	$ 35,484	$ 38,090	$ 36,060	$ 35,484	$ 38,623
$ 20,761	$ 19,825	$ 16,181	$ 17,358	$ 16,389	$ 16,181	$ 17,598	$ 16,181	$ 16,181	$ 17,618	$ 16,181	$ 16,422	$ 17,358	$ 16,181	$ 16,181	$ 17,358	$ 16,422	$ 16,025	$ 17,202	$ 16,285	$ 16,025	$ 17,443
$ 105,288	$ 100,539	$ 82,062	$ 88,030	$ 83,116	$ 82,062	$ 89,249	$ 82,062	$ 82,062	$ 89,348	$ 82,062	$ 83,281	$ 88,030	$ 82,062	$ 82,062	$ 88,030	$ 83,281	$ 81,271	$ 87,239	$ 82,589	$ 81,271	$ 88,459

$ 401,874	$ 383,748	$ 313,221	$ 336,002	$ 317,246	$ 313,221	$ 340,656	$ 313,221	$ 313,221	$ 341,033	$ 313,221	$ 317,876	$ 336,002	$ 313,221	$ 313,221	$ 336,002	$ 317,876	$ 310,203	$ 332,984	$ 315,233	$ 310,203	$ 337,638

$ 401,874	$ 383,748	$ 313,221	$ 336,002	$ 317,246	$ 313,221	$ 340,656	$ 313,221	$ 313,221	$ 341,033	$ 313,221	$ 317,876	$ 336,002	$ 313,221	$ 313,221	$ 336,002	$ 317,876	$ 310,203	$ 332,984	$ 315,233	$ 310,203	$ 337,638
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 401,874	$ 383,748	$ 313,221	$ 336,002	$ 317,246	$ 313,221	$ 340,656	$ 313,221	$ 313,221	$ 341,033	$ 313,221	$ 317,876	$ 336,002	$ 313,221	$ 313,221	$ 336,002	$ 317,876	$ 310,203	$ 332,984	$ 315,233	$ 310,203	$ 337,638
$ 401,874	$ 383,748	$ 313,221	$ 336,002	$ 317,246	$ 313,221	$ 340,656	$ 313,221	$ 313,221	$ 341,033	$ 313,221	$ 317,876	$ 336,002	$ 313,221	$ 313,221	$ 336,002	$ 317,876	$ 310,203	$ 332,984	$ 315,233	$ 310,203	$ 337,638

36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130
$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 100,920	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912

														$ 8,949,711							
$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 101,050	$ 9,052,753	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$22,938	$22,938	$39,751	$22,938	$26,373	$39,751	$22,938	$22,938	$39,751	$26,373	$22,938	$39,751	$22,938	$22,938	$43,186	$22,938	$22,938	$39,751	$22,938	$26,373	$39,751	$22,938
$ 22,938	$ 22,938	$ 39,751	$ 22,938	$ 26,373	$ 39,751	$ 22,938	$ 22,938	$ 39,751	$ 26,373	$ 22,938	$ 39,751	$ 22,938	$ 22,938	$ 43,186	$ 22,938	$ 22,938	$ 39,751	$ 22,938	$ 26,373	$ 39,751	$ 22,938
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547
$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397
$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944
$ 228,932	$ 228,932	$ 245,744	$ 228,932	$ 232,367	$ 245,744	$ 228,932	$ 228,932	$ 245,744	$ 232,367	$ 228,932	$ 245,744	$ 228,932	$ 228,932	$ 9,200,883	$ 230,924	$ 230,924	$ 247,737	$ 230,924	$ 234,359	$ 247,737	$ 230,924
$ 29,761	$ 29,761	$ 31,947	$ 29,761	$ 30,208	$ 31,947	$ 29,761	$ 29,761	$ 31,947	$ 30,208	$ 29,761	$ 31,947	$ 29,761	$ 29,761	$ 1,196,115	$ 30,020	$ 30,020	$ 32,206	$ 30,020	$ 30,467	$ 32,206	$ 30,020
$ 35,484	$ 35,484	$ 38,090	$ 35,484	$ 36,017	$ 38,090	$ 35,484	$ 35,484	$ 38,090	$ 36,017	$ 35,484	$ 38,090	$ 35,484	$ 35,484	$ 1,426,137	$ 35,793	$ 35,793	$ 38,399	$ 35,793	$ 36,326	$ 38,399	$ 35,793
$ 16,025	$ 16,025	$ 17,202	$ 16,025	$ 16,266	$ 17,202	$ 16,025	$ 16,025	$ 17,202	$ 16,266	$ 16,025	$ 17,202	$ 16,025	$ 16,025	$ 644,062	$ 16,165	$ 16,165	$ 17,342	$ 16,165	$ 16,405	$ 17,342	$ 16,165
$ 81,271	$ 81,271	$ 87,239	$ 81,271	$ 82,490	$ 87,239	$ 81,271	$ 81,271	$ 87,239	$ 82,490	$ 81,271	$ 87,239	$ 81,271	$ 81,271	$ 3,266,313	$ 81,978	$ 81,978	$ 87,946	$ 81,978	$ 83,197	$ 87,946	$ 81,978
$ 310,203	$ 310,203	$ 332,984	$ 310,203	$ 314,857	$ 332,984	$ 310,203	$ 310,203	$ 332,984	$ 314,857	$ 310,203	$ 332,984	$ 310,203	$ 310,203	$ 12,467,197	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902
$ 310,203	$ 310,203	$ 332,984	$ 310,203	$ 314,857	$ 332,984	$ 310,203	$ 310,203	$ 332,984	$ 314,857	$ 310,203	$ 332,984	$ 310,203	$ 310,203	$ 12,467,197	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 310,203	$ 310,203	$ 332,984	$ 310,203	$ 314,857	$ 332,984	$ 310,203	$ 310,203	$ 332,984	$ 314,857	$ 310,203	$ 332,984	$ 310,203	$ 310,203	$ 12,467,197	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902
$ 310,203	$ 310,203	$ 332,984	$ 310,203	$ 314,857	$ 332,984	$ 310,203	$ 310,203	$ 332,984	$ 314,857	$ 310,203	$ 332,984	$ 310,203	$ 310,203	$ 12,467,197	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902

58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130
$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912

$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042

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$22,938	$39,751	$26,373	$22,938	$39,751	$22,938	$22,938	$43,186	$22,938	$22,938	$39,751	$22,938	$26,373	$39,751	$22,938	$22,938	$39,751	$26,373	$22,938	$39,751	$22,938	$22,938
$ 22,938	$ 39,751	$ 26,373	$ 22,938	$ 39,751	$ 22,938	$ 22,938	$ 43,186	$ 22,938	$ 22,938	$ 39,751	$ 22,938	$ 26,373	$ 39,751	$ 22,938	$ 22,938	$ 39,751	$ 26,373	$ 22,938	$ 39,751	$ 22,938	$ 22,938

$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547
$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397
$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944

$ 230,924	$ 247,737	$ 234,359	$ 230,924	$ 247,737	$ 230,924	$ 230,924	$ 251,172	$ 230,924	$ 230,924	$ 247,737	$ 230,924	$ 234,359	$ 247,737	$ 230,924	$ 230,924	$ 247,737	$ 234,359	$ 230,924	$ 247,737	$ 230,924	$ 230,924

$ 30,020	$ 32,206	$ 30,467	$ 30,020	$ 32,206	$ 30,020	$ 30,020	$ 32,652	$ 30,020	$ 30,020	$ 32,206	$ 30,020	$ 30,467	$ 32,206	$ 30,020	$ 30,020	$ 32,206	$ 30,467	$ 30,020	$ 32,206	$ 30,020	$ 30,020
$ 35,793	$ 38,399	$ 36,326	$ 35,793	$ 38,399	$ 35,793	$ 35,793	$ 38,932	$ 35,793	$ 35,793	$ 38,399	$ 35,793	$ 36,326	$ 38,399	$ 35,793	$ 35,793	$ 38,399	$ 36,326	$ 35,793	$ 38,399	$ 35,793	$ 35,793
$ 16,165	$ 17,342	$ 16,405	$ 16,165	$ 17,342	$ 16,165	$ 16,165	$ 17,582	$ 16,165	$ 16,165	$ 17,342	$ 16,165	$ 16,405	$ 17,342	$ 16,165	$ 16,165	$ 17,342	$ 16,405	$ 16,165	$ 17,342	$ 16,165	$ 16,165
$ 81,978	$ 87,946	$ 83,197	$ 81,978	$ 87,946	$ 81,978	$ 81,978	$ 89,166	$ 81,978	$ 81,978	$ 87,946	$ 81,978	$ 83,197	$ 87,946	$ 81,978	$ 81,978	$ 87,946	$ 83,197	$ 81,978	$ 87,946	$ 81,978	$ 81,978

$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902	$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902	$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902

$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902	$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902	$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902	$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902	$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902
$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902	$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902	$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902

80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	TOTAL
2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	
																					$ -
																					$ -
																					$ 399,625
																			$ 5,844		$ 52,506
																					$ -
																					$ -
																					$ 55,190
																			$ 195,039		$ 395,387
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																					$ -
																					$ 380,008
																					$ -
																					$ 12,591,565
																					$ 5,447,387
																					$ -
																			$ 43,028		$ 666,430
																					$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 243,911	$ -	$ 19,988,098
																					$ -
																					$ -
																					$ 59,376
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																					$ -
																					$ -
																					$ 6,415
																					$ -
																					$ 42,932
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																					$ 113,680
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$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130	$ 130		$ 484,560
																					$ -
$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 102,912	$ 205,825		$ 10,535,517

																					$ -
																					$ 11,038,532
																					$ -
$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 103,042	$ 205,954	$ -	$ 22,058,609

																			$21,560		$ 1,032,040
																					$ -
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																					$ 27,216
																					$ -
																					$ -
																					$ 2,786,460
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$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,560	$ -	$ 3,845,716

																					$ 60,979
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$43,186	$22,938	$22,938	$39,751	$22,938	$26,373	$39,751	$22,938	$22,938	$39,751	$26,373	$22,938	$39,751	$22,938	$22,938	$43,186	$22,938	$22,938	$39,751	$49,311		$ 5,576,155
$ 43,186	$ 22,938	$ 22,938	$ 39,751	$ 22,938	$ 26,373	$ 39,751	$ 22,938	$ 22,938	$ 39,751	$ 26,373	$ 22,938	$ 39,751	$ 22,938	$ 22,938	$ 43,186	$ 22,938	$ 22,938	$ 39,751	$ 49,311	$ -	$ 5,637,134

																					$ -
																					$ -
																					$ 300,041
																					$ 50,845
																					$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 350,886

																					$ -
$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547	$32,547		$ 6,418,874
$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$72,397	$144,794		$ 9,909,517
																					$ -
																					$ -
$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ 104,944	$ -	$ 16,328,391

$ 251,172	$ 230,924	$ 230,924	$ 247,737	$ 230,924	$ 234,359	$ 247,737	$ 230,924	$ 230,924	$ 247,737	$ 234,359	$ 230,924	$ 247,737	$ 230,924	$ 230,924	$ 251,172	$ 230,924	$ 230,924	$ 247,737	$ 520,737	$ -	$ 68,431,237

																					$ 1,881,859
$ 32,652	$ 30,020	$ 30,020	$ 32,206	$ 30,020	$ 30,467	$ 32,206	$ 30,020	$ 30,020	$ 32,206	$ 30,467	$ 30,020	$ 32,206	$ 30,020	$ 30,020	$ 32,652	$ 30,020	$ 30,020	$ 32,206	$ 67,696	$ -	$ 8,873,006
																					$ -
																					$ 2,052,937
$ 38,932	$ 35,793	$ 35,793	$ 38,399	$ 35,793	$ 36,326	$ 38,399	$ 35,793	$ 35,793	$ 38,399	$ 36,326	$ 35,793	$ 38,399	$ 35,793	$ 35,793	$ 38,932	$ 35,793	$ 35,793	$ 38,399	$ 80,714	$ -	$ 10,579,354
$ 17,582	$ 16,165	$ 16,165	$ 17,342	$ 16,165	$ 16,405	$ 17,342	$ 16,165	$ 16,165	$ 17,342	$ 16,405	$ 16,165	$ 17,342	$ 16,165	$ 16,165	$ 17,582	$ 16,165	$ 16,165	$ 17,342	$ 36,452	$ -	$ 4,777,773
																					$ -
$ 89,166	$ 81,978	$ 81,978	$ 87,946	$ 81,978	$ 83,197	$ 87,946	$ 81,978	$ 81,978	$ 87,946	$ 83,197	$ 81,978	$ 87,946	$ 81,978	$ 81,978	$ 89,166	$ 81,978	$ 81,978	$ 87,946	$ 184,862	$ -	$ 28,164,929

$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902	$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902	$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 705,598	$ -	$ 96,596,166

$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902	$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902	$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 705,598	$ -	$ 96,418,825
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902	$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902	$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 705,598	$ -	$ 96,418,825
$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 312,902	$ 317,557	$ 335,683	$ 312,902	$ 312,902	$ 335,683	$ 317,557	$ 312,902	$ 335,683	$ 312,902	$ 312,902	$ 340,338	$ 312,902	$ 312,902	$ 335,683	$ 705,598	$ -	$ 96,418,825

Closure Cost Estimate
Solution Mgmt

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

Color Code Key

User Input - Direct Input	**Direct Input**
User Input - Pull Down List	**Pull Down Selection**
Program Constant (can override)	**Alternate Input**
Program Calculated Value	**Locked Cell - Formula or Reference**

Standard Power Cost 0.1 $/kWh
User Override Power Cost $/kWh (used if costs for pumping differ from standard rates (e.g. use of diesel powered generator or pump)

Solution/Water Management - User Input - Pumping

	Description (required)	ID Code	Water Type (select)	Management Type (select)	Capital Cost $	Flow (Q) gpm	Pipeline Length ft	Static Head ft	Pipe Diameter (ID) in	Pipe Material (select)	Pump Efficiency %	Total Concentated Losses [1]	Operating Period: Hrs/Day	Operating Period: Days/ Month	Operating Period: Number of Months	User Overrides: Crew Size	User Overrides: Power Cost ($/kWh)
1	Holding Year (Year 0) - From Main Sump (el 950'/890'?) to A Pond		Contact Water	Active		30.00	260	10.0	4	HDPE	88	0	24.0	30.0	12	0	
2	Holding Year (Year 0) - From A Pond (el 900'/838', crest 846) to Pond 7		Contact Water	Active		169.00	3,580	10.0	8	HDPE	88	0	24.0	30.0	12	0	
3	Holding Year (Year 0) - From B Pond Sump (el 890'/826') to A Pond		Contact Water	Active		100.00	100	20.0	4	HDPE	88	0	24.0	30.0	12	0	
4	Holding Year (Year 0) - From C Pond (el 850'/796') to 23 Pond		Contact Water	Active		7.00	480	96.0	6	HDPE	88	0	24.0	30.0	12	0	
5	Holding Year (Year 0) - From D Pond (el 810'/752') to 23 Pond PS		Contact Water	Active		129.00	350	70.0	12	HDPE	88	0	24.0	30.0	12	0	
6	Holding Year (Year 0) - From 23 Pond (el 878'/822') to 23 Pond PS		Contact Water	Active		138.00	0	0.0	8	HDPE	88	0	24.0	30.0	12	0	
7	Holding Year (Year 0) - From 23 Pond Pump Station (el 878'/822') to Pond 7		Contact Water	Active		267.00	3,500	10.0	8	HDPE	88	0	24.0	30.0	12	0	
8	Holding Year (Year 0) - From Cannery Creek Potable (el 174') to Hawk Inlet W		Contact Water	Active		1.00	270	10.0	6	HDPE	88	0	24.0	30.0	12	0	
9	Holding Year (Year 0) - From Hawk Inlet Water Bldg (el 120') to Hawk Inlet Var		Contact Water	Active		1.00	450	10.0	4	HDPE	88	0	24.0	30.0	12	0	
10	Holding Year (Year 0) - From Hawk Inlet Lift Station (el 18') to Sewage Treatm		Contact Water	Active		1.00	310	62.0	4	HDPE	88	0	24.0	30.0	12	0	
11	Holding Year (Year 0) - From Sewage Treatment Plant (el 80') to DB-04		Contact Water	Active		1.00	280	10.0	4	HDPE	88	0	24.0	30.0	12	0	
12	Holding Year (Year 0) - From Seeps (4) (el 18') to DB-04		Contact Water	Active		1.00	100	20.0	2	HDPE	88	0	24.0	30.0	12	0	
13	Holding Year (Year 0) - From Herman's Gulch Sump (el 24') to DB-04		Contact Water	Active		2.00	75	15.0	6	HDPE	88	0	24.0	30.0	12	0	
14	Holding Year (Year 0) - From DB-04 (el' 24') to Pond 7 via west ditch		Contact Water	Active		14.00	800	160.0	8	HDPE	88	0	24.0	30.0	12	0	
15	Holding Year (Year 0) - From Pond 10 (bottom el 120') (including runoff) to Po		Contact Water	Active		28.00	125	25.0	8	HDPE	88	0	24.0	30.0	12	0	
16	Holding Year (Year 0) - From Pond 10 Underdrain Wet well 11 (el 115') to Pon		Contact Water	Active		15.00	155	31.0	8	HDPE	88	0	24.0	30.0	12	0	
17	Holding Year (Year 0) - From Wet well A (el 132') to Pond 7		Contact Water	Active		17.00	40	8.0	8	HDPE	88	0	24.0	30.0	12	0	
18	Holding Year (Year 0) - From Wet well 5 (170') to Pond 9		Contact Water	Active		8.00	80	16.0	8	HDPE	88	0	24.0	30.0	12	0	
19	Holding Year (Year 0) - From Wet well 3 (150') to Pond 7 via west ditch		Contact Water	Active		2.00	50	10.0	6	HDPE	88	0	24.0	30.0	12	0	
20	Holding Year (Year 0) - From Wet well 12 S3P1 above liner (110') to Pond 7 via		Contact Water	Active		8.00	150	30.0	8	HDPE	88	0	24.0	30.0	12	0	
21	Holding Year (Year 0) - From Wet well 13 S3P1 below liner (110') to Pond 7 via		Contact Water	Active		70.00	150	30.0	8	HDPE	88	0	24.0	30.0	12	0	
22	Holding Year (Year 0) - From Wet well 15 S3P1 toe pumpback (113') to Pond 7		Contact Water	Active		19.00	135	27.0	8	HDPE	88	0	24.0	30.0	12	0	
23	Holding Year (Year 0) - From Pond 7 (bottom el 122') including runoff to 2500		Contact Water	Active		809.00	240	48.0	12	HDPE	88	0	24.0	30.0	12	0	
24	Holding Year (Year 0) - From Pond 7 Underdrain pumpback(el 110') to Pond 7		Contact Water	Active		19.00	180	36.0	6	HDPE	88	0	24.0	30.0	12	0	
25	Holding Year (Year 0) - From 2500 GPM WTP (el 170') to APDES Outfall		Contact Water	Active		809.00	850	10.0	14	HDPE	88	0	24.0	30.0	12	0	
26	Holding Year (Year 0) - From APDES Outfall (el 0') to Hawk Inlet		Contact Water	Active		809.00	0	0.0	14	HDPE	88	0	24.0	30.0	12	0	
27	Years 1-3 - From A Pond (el 900'/838', crest 846) to Pond 7		Contact Water	Active		139.00	3,580	10.0	8	HDPE	88	0	24.0	30.0	36	0	
28	Years 1-3 - From B Pond Sump (el 890'/826') to A Pond		Contact Water	Active		100.00	100	20.0	4	HDPE	88	0	24.0	30.0	36	0	
29	Years 1-3 - From C Pond (el 850'/796') to 23 Pond		Contact Water	Active		7.00	480	96.0	6	HDPE	88	0	24.0	30.0	36	0	
30	Years 1-3 - From D Pond (el 810'/752') to 23 Pond PS		Contact Water	Active		129.00	350	70.0	12	HDPE	88	0	24.0	30.0	36	0	
31	Years 1-3 - From 23 Pond (el 878'/822') to 23 Pond PS		Contact Water	Active		138.00	0	0.0	8	HDPE	88	0	24.0	30.0	36	0	
32	Years 1-3 - From 23 Pond Pump Station (el 878'/822') to Pond 7		Contact Water	Active		267.00	3,500	10.0	8	HDPE	88	0	24.0	30.0	36	0	
33	Years 1-3 - From Cannery Creek Potable (el 174') to Hawk Inlet Water Bldg		Contact Water	Active		5.00	270	10.0	6	HDPE	88	0	24.0	30.0	36	0	
34	Years 1-3 - From Hawk Inlet Water Bldg (el 120') to Hawk Inlet Various		Contact Water	Active		5.00	450	10.0	4	HDPE	88	0	24.0	30.0	36	0	
35	Years 1-3 - From Hawk Inlet Lift Station (el 18') to Sewage Treatment Plant		Contact Water	Active		5.00	310	62.0	4	HDPE	88	0	24.0	30.0	36	0	
36	Years 1-3 - From Sewage Treatment Plant (el 80') to DB-04		Contact Water	Active		1.00	280	10.0	4	HDPE	88	0	24.0	30.0	36	0	
37	Years 1-3 - From Seeps (4) (el 18') to DB-04		Contact Water	Active		1.00	100	20.0	2	HDPE	88	0	24.0	30.0	36	0	
38	Years 1-3 - From Herman's Gulch Sump (el 24') to DB-04		Contact Water	Active		2.00	75	15.0	6	HDPE	88	0	24.0	30.0	36	0	
39	Years 1-3 - From DB-04 (el' 24') to Pond 7 via west ditch		Contact Water	Active		18.00	800	160.0	8	HDPE	88	0	24.0	30.0	36	0	
40	Years 1-3 - From Cannery Creek Withdrawal (el 174') to Truckwash		Contact Water	Active		35.00	550	110.0	4	HDPE	88	0	24.0	30.0	36	0	
41	Years 1-3 - From Pond 10 (bottom el 120') (including runoff) to Pond 7		Contact Water	Active		28.00	125	25.0	8	HDPE	88	0	24.0	30.0	36	0	
42	Years 1-3 - From Pond 10 Underdrain Wet well 11 (el 115') to Pond 10		Contact Water	Active		15.00	155	31.0	8	HDPE	88	0	24.0	30.0	36	0	
43	Years 1-3 - From Wet well A (el 132') to Pond 7		Contact Water	Active		17.00	40	8.0	8	HDPE	88	0	24.0	30.0	36	0	
44	Years 1-3 - From Wet well 5 (170') to Pond 9		Contact Water	Active		8.00	80	16.0	8	HDPE	88	0	24.0	30.0	36	0	
45	Years 1-3 - From Wet well 3 (150') to Pond 7 via west ditch		Contact Water	Active		2.00	50	10.0	6	HDPE	88	0	24.0	30.0	36	0	
46	Years 1-3 - From Wet well 12 S3P1 above liner (110') to Pond 7 via east ditch		Contact Water	Active		8.00	150	30.0	8	HDPE	88	0	24.0	30.0	36	0	
47	Years 1-3 - From Wet well 13 S3P1 below liner (110') to Pond 7 via east ditch		Contact Water	Active		70.00	150	30.0	8	HDPE	88	0	24.0	30.0	36	0	
48	Years 1-3 - From Wet well 15 S3P1 toe pumpback (113') to Pond 7 via east dit		Contact Water	Active		19.00	135	27.0	8	HDPE	88	0	24.0	30.0	36	0	
49	Years 1-3 - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP		Contact Water	Active		818.00	240	48.0	12	HDPE	88	0	24.0	30.0	36	0	
50	Years 1-3 - From Pond 7 Underdrain pumpback(el 110') to Pond 7		Contact Water	Active		19.00	180	36.0	6	HDPE	88	0	24.0	30.0	36	0	
51	Years 1-3 - From 2500 GPM WTP (el 170') to APDES Outfall		Contact Water	Active		818.00	850	10.0	14	HDPE	88	0	24.0	30.0	36	0	
52	Years 1-3 - From APDES Outfall (el 0') to Hawk Inlet		Contact Water	Active		818.00	0	0.0	14	HDPE	88	0	24.0	30.0	36	0	
53	Years 4-10 - From D Pond (el 810'/752') to Pond 7		Contact Water	Active		120.00	350	70.0	10	HDPE	88	0	24.0	30.0	84	0	
54	Years 4-10 - From Pond 10 (bottom el 120') (including runoff) to 2500 GPM WT		Contact Water	Active		13.00	240	48.0	8	HDPE	88	0	24.0	30.0	84	0	
55	Years 4-10 - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP		Contact Water	Active		150.00	240	48.0	12	HDPE	88	0	24.0	30.0	84	0	
56	Years 4-10 - From New Storage Pond (west) (TBD) below 110' to 2500 GPM W		Contact Water	Active		48.00	350	70.0	8	HDPE	88	0	24.0	30.0	84	0	
57	Years 4-10 - From New Storage Pond (south) (TBD) below 110' to 2500 GPM V		Contact Water	Active		20.00	350	70.0	8	HDPE	88	0	24.0	30.0	84	0	
58	Year 11-50 - From Pond 10 (bottom el 120') (including runoff) to 2500 GPM WT		Contact Water	Active		13.00	65	13.0	8	HDPE	88	0	24.0	30.0	480	0	0.323837804
59	Year 11-50 - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP		Contact Water	Active		30.00	240	48.0	12	HDPE	88	0	24.0	30.0	480	0	0.323837804
60	Year 11-50 - From New Storage Pond (west) (TBD) below 110' to 2500 GPM W		Contact Water	Active		48.00	350	70.0	8	HDPE	88	0	24.0	30.0	480	0	0.323837804
61	Year 11-50 - From New Storage Pond (south) (TBD) below 110' to 2500 GPM V		Contact Water	Active		20.00	350	70.0	8	HDPE	88	0	24.0	30.0	480	0	0.323837804
62	Year 50-100 - From Pond 10 (bottom el 120') (including runoff) to 2500 GPM W		Contact Water	Active		13.00	240	48.0	8	HDPE	88	0	24.0	30.0	600	0	0.323837804
63	Year 50-100 - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP		Contact Water	Active		60.00	240	48.0	12	HDPE	88	0	24.0	30.0	600	0	0.323837804

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Closure Cost Estimate
Solution Mgmt

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

64	**Year 50-100 - From New Storage Pond (west) (TBD) below 110' to 2500 GPM**	**Contact Water**	**Active**		**48.00**	**350**	**70.0**	**8**	**HDPE**	**88**	**0**	**24.0**	**30.0**	**600**	**0**	**0.323837804**
65	**Year 50-100 - From New Storage Pond (south) (TBD) below 110' to 2500 GPM**	**Contact Water**	**Active**		**20.00**	**350**	**70.0**	**8**	**HDPE**	**88**	**0**	**24.0**	**30.0**	**600**	**0**	**0.323837804**

Notes: 1. k (total of all losses related to valves, restrictions, etc.). Typically 8 -20. Not significant for longer pipes.
2. Default crew assumes crew of two laborers required during pumping hours

Assumed crew same as for water treatment
Assumed use of grid power until end of Year 10.

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Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

Solution/Water Management - User Input - Forced Evaporation

															Operating Period			User Overrides	
	Description (required)	ID Code	Water Type (select)	Management Type (select)	Forced Evaporation Method (select)	Capital Cost $	Flow (Q) gpm	Pipeline Length ft	Static Head ft	Pipe Diameter (ID) in	Pipe Material (select)	Pump Efficiency %	Total Concentated Losses (1)	Required Pressure at Outlet psi	Hrs/Day	Days/Month	Number of Months	Crew Size	Power Cost ($/kWh)

Notes: 1. Default crew assumes crew of two laborers required during pumping hours
3. Assumes 1-1.5 ton truck for every 2 laborers

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Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

Solution/Water Management - Water Treatment

	Description (required)	ID Code	Water Type (select)	Treatment Type (select)	Treatment Method	Montly Quantity gal	Treatment Labor Crew Size per Shift	Capital Cost $	Consumable Cost/ gal $	Treatment Operating Cost/gal $	Operating Period: Number of Months	Operating Period: Hour per Day
1	**Year 0**		**Other Water**	**Active**		**35,434,200**	**0**	**$62,889**	**$0.00**		**12.0**	**9.8**
2	**Year 1**		**Other Water**	**Active**		**35,828,400**	**0**	**$62,889**	**$0.00**		**12.0**	**10.0**
3	**Year 2**		**Other Water**	**Active**		**35,828,400**	**0**	**$62,889**	**$0.00**		**12.0**	**10.0**
4	**Year 3**		**Other Water**	**Active**		**35,828,400**	**0**	**$62,889**	**$0.00**		**12.0**	**10.0**
5	**Years 4-10**		**Other Water**	**Active**		**10,117,800**	**0**	**$440,223**	**$0.00**		**84.0**	**2.8**
6	**Years 11-50**		**Other Water**	**Active**		**4,861,800**	**0**	**$2,515,560**	**$0.00**		**480.0**	**1.4**
7	**Years 51-100**		**Other Water**	**Active**		**6,175,800**	**0**	**$3,144,450**	**$0.00**		**600.0**	**1.7**

Notes:
1. Use pumping section (above) to calculate pumping costs (including groundwater pumping).
2. Include initial materials (e.g. chemicals, organic substrate, etc.) in capital cost.
3. Treatment crew includes 1 foreman (crew defined by user above), 1 light truck if crew size > 0
4. Assumes active treatement crew works 8 hr/day, 365 days/year.
5. Assumes 1 truck per each two employees per shift

Treatment reagent cost $ per gal (not rounded to two decimals): 0.000126344
Backup calculations in User 4.

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Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

Solution/Water Management - User Input - Decontamination

	Description (required)	ID Code	Management Type (select)	Type	Disposal Location	Capital Cost $	Pumping Flow (Q) gpm	Pipeline Length ft	Static Head ft	Pipe Diameter (ID) in	Pipe Material (select)	Pump Efficiency %	Total Concentated Losses (1)	Operating Period: Number of Work Days days	Operating Period: Pumping Hrs/Day	User Overrides: Crew Size	User Overrides: Power Cost ($/kWh)

Notes:
1. Assumes triple rinse of all piping, tanks and vessels requiring decontamination
2. Standard crew includes 2 laborers and 1 foreman
3. Assumes 1-1.5 ton truck for every 2 laborers
4. Assumes crew works 8 hr/day

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Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

Water Management - Assumptions & Calculations

Manning's Roughness Coefficient

Pipe material	Manning n
HDPE	
ID < 4" (100 mm)	0.011
ID ≥ 4 in (100 mm) < 10 in (250 mm)	0.01
ID ≥ 10 in (250 mm)	0.009
PVC	
ID < 4" (100 mm)	0.011
ID ≥ 4 in (100 mm) < 10 in (250 mm)	0.01
ID ≥ 10 in (250 mm)	0.009
Brass	0.011
Cast Iron	0.013
Smooth Steel	0.012
Asbestos Cement	0.011

Water Treatment Costs

Water treatment cost = CapEx + Labor Cost + Equipment Cost (includes Operating Cost)

CapEx = User Entered Value
Consumable costs = cost of treatment chemicals or materials based quantity treated
Labor Cost = No. Months x Days/mo. x [(Supervisor Cost x 8 hrs) + (Laborer Cost x Crew Size x Hours/day)]
Operating Cost = Fuel, power, maintenance or other costs calculated based on quantity treated
Equipment Cost = No. Months x Days/mo. x [(Supervisor Truck Cost x 8 hrs) + (Labor Truck Cost x No. Crew Trucks x Hours/day)]
No. Crew Trucks = 1 per each two laborers per shift

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Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

Solution/Water Management - Pumping

	Description (required)	Flow gpm	Manning n (see above)	Losses k	Velocity ft/sec	Friction Head ft	Total Dynamic Head ft	Pump Efficiency %	Power Required kW	Horsepower Required HP	Monthly Operating Hours hrs	Pump Capital Cost $	Total Operating Cost $	Total Labor Cost $	Total Crew Equipment Cost $	Total Cost $	Cost/ m3 $
1	**Holding Year (Year 0) - From Main Sump (el 950'/890'?)**	30.00	0.010	0	0.008	0	10	88	0.06	1	720	$0	$48	$0	$0	$48	$0.00
2	**Holding Year (Year 0) - From A Pond (el 900'/838', crest**	169.00	0.010	0	0.012	2	12	88	0.43	1	720	$0	$372	$0	$0	$372	$0.00
3	**Holding Year (Year 0) - From B Pond Sump (el 890'/826**	100.00	0.010	0	0.027	1	21	88	0.45	1	720	$0	$384	$0	$0	$384	$0.00
4	**Holding Year (Year 0) - From C Pond (el 850'/796') to 23**	7.00	0.010	0	0.001	0	96	88	0.14	1	720	$0	$120	$0	$0	$120	$0.01
5	**Holding Year (Year 0) - From D Pond (el 810'/752') to 23**	129.00	0.009	0	0.004	0	70	88	1.93	3	720	$0	$1,668	$0	$0	$1,668	$0.01
6	**Holding Year (Year 0) - From 23 Pond (el 878'/822') to 2**	138.00	0.010	0	0.010	0	0	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
7	**Holding Year (Year 0) - From 23 Pond Pump Station (el**	267.00	0.010	0	0.018	5	15	88	0.85	2	720	$0	$732	$0	$0	$732	$0.00
8	**Holding Year (Year 0) - From Cannery Creek Potable (el**	1.00	0.010	0	0.000	0	10	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
9	**Holding Year (Year 0) - From Hawk Inlet Water Bldg (el**	1.00	0.010	0	0.000	0	10	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
10	**Holding Year (Year 0) - From Hawk Inlet Lift Station (el**	1.00	0.010	0	0.000	0	62	88	0.01	1	720	$0	$12	$0	$0	$12	$0.01
11	**Holding Year (Year 0) - From Sewage Treatment Plant (**	1.00	0.010	0	0.000	0	10	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
12	**Holding Year (Year 0) - From Seeps (4) (el 18') to DB-04**	1.00	0.011	0	0.001	0	20	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
13	**Holding Year (Year 0) - From Herman's Gulch Sump (el**	2.00	0.010	0	0.000	0	15	88	0.01	1	720	$0	$12	$0	$0	$12	$0.00
14	**Holding Year (Year 0) - From DB-04 (el' 24') to Pond 7 v**	14.00	0.010	0	0.001	0	160	88	0.48	1	720	$0	$420	$0	$0	$420	$0.02
15	**Holding Year (Year 0) - From Pond 10 (bottom el 120') (**	28.00	0.010	0	0.002	0	25	88	0.15	1	720	$0	$132	$0	$0	$132	$0.00
16	**Holding Year (Year 0) - From Pond 10 Underdrain Wet**	15.00	0.010	0	0.001	0	31	88	0.10	1	720	$0	$84	$0	$0	$84	$0.00
17	**Holding Year (Year 0) - From Wet well A (el 132') to Pon**	17.00	0.010	0	0.001	0	8	88	0.03	1	720	$0	$24	$0	$0	$24	$0.00
18	**Holding Year (Year 0) - From Wet well 5 (170') to Pond 9**	8.00	0.010	0	0.001	0	16	88	0.03	1	720	$0	$24	$0	$0	$24	$0.00
19	**Holding Year (Year 0) - From Wet well 3 (150') to Pond 7**	2.00	0.010	0	0.000	0	10	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
20	**Holding Year (Year 0) - From Wet well 12 S3P1 above li**	8.00	0.010	0	0.001	0	30	88	0.05	1	720	$0	$48	$0	$0	$48	$0.00
21	**Holding Year (Year 0) - From Wet well 13 S3P1 below li**	70.00	0.010	0	0.005	0	30	88	0.45	1	720	$0	$384	$0	$0	$384	$0.00
22	**Holding Year (Year 0) - From Wet well 15 S3P1 toe pum**	19.00	0.010	0	0.001	0	27	88	0.11	1	720	$0	$96	$0	$0	$96	$0.00
23	**Holding Year (Year 0) - From Pond 7 (bottom el 122') in**	809.00	0.009	0	0.025	0	48	88	8.35	12	720	$0	$7,212	$0	$0	$7,212	$0.00
24	**Holding Year (Year 0) - From Pond 7 Underdrain pumpl**	19.00	0.010	0	0.002	0	36	88	0.15	1	720	$0	$132	$0	$0	$132	$0.00
25	**Holding Year (Year 0) - From 2500 GPM WTP (el 170') to**	809.00	0.009	0	0.018	0	10	88	1.78	3	720	$0	$1,536	$0	$0	$1,536	$0.00
26	**Holding Year (Year 0) - From APDES Outfall (el 0') to Ha**	809.00	0.009	0	0.018	0	0	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
27	**Years 1-3 - From A Pond (el 900'/838', crest 846) to Pon**	139.00	0.010	0	0.010	1	11	88	0.33	1	720	$0	$864	$0	$0	$864	$0.00
28	**Years 1-3 - From B Pond Sump (el 890'/826') to A Pond**	100.00	0.010	0	0.027	1	21	88	0.45	1	720	$0	$1,152	$0	$0	$1,152	$0.00
29	**Years 1-3 - From C Pond (el 850'/796') to 23 Pond**	7.00	0.010	0	0.001	0	96	88	0.14	1	720	$0	$360	$0	$0	$360	$0.01
30	**Years 1-3 - From D Pond (el 810'/752') to 23 Pond PS**	129.00	0.009	0	0.004	0	70	88	1.93	3	720	$0	$5,004	$0	$0	$5,004	$0.01
31	**Years 1-3 - From 23 Pond (el 878'/822') to 23 Pond PS**	138.00	0.010	0	0.010	0	0	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
32	**Years 1-3 - From 23 Pond Pump Station (el 878'/822') to**	267.00	0.010	0	0.018	5	15	88	0.85	2	720	$0	$2,196	$0	$0	$2,196	$0.00
33	**Years 1-3 - From Cannery Creek Potable (el 174') to Ha**	5.00	0.010	0	0.001	0	10	88	0.01	1	720	$0	$36	$0	$0	$36	$0.00
34	**Years 1-3 - From Hawk Inlet Water Bldg (el 120') to Haw**	5.00	0.010	0	0.001	0	10	88	0.01	1	720	$0	$36	$0	$0	$36	$0.00
35	**Years 1-3 - From Hawk Inlet Lift Station (el 18') to Sewa**	5.00	0.010	0	0.001	0	62	88	0.07	1	720	$0	$180	$0	$0	$180	$0.01
36	**Years 1-3 - From Sewage Treatment Plant (el 80') to DB**	1.00	0.010	0	0.000	0	10	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
37	**Years 1-3 - From Seeps (4) (el 18') to DB-04**	1.00	0.011	0	0.001	0	20	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
38	**Years 1-3 - From Herman's Gulch Sump (el 24') to DB-0**	2.00	0.010	0	0.000	0	15	88	0.01	1	720	$0	$36	$0	$0	$36	$0.00
39	**Years 1-3 - From DB-04 (el' 24') to Pond 7 via west ditcl**	18.00	0.010	0	0.001	0	160	88	0.62	1	720	$0	$1,620	$0	$0	$1,620	$0.02
40	**Years 1-3 - From Cannery Creek Withdrawal (el 174') to**	35.00	0.010	0	0.010	1	110	88	0.83	2	720	$0	$2,160	$0	$0	$2,160	$0.01
41	**Years 1-3 - From Pond 10 (bottom el 120') (including ru**	28.00	0.010	0	0.002	0	25	88	0.15	1	720	$0	$396	$0	$0	$396	$0.00
42	**Years 1-3 - From Pond 10 Underdrain Wet well 11 (el 1**	15.00	0.010	0	0.001	0	31	88	0.10	1	720	$0	$252	$0	$0	$252	$0.00
43	**Years 1-3 - From Wet well A (el 132') to Pond 7**	17.00	0.010	0	0.001	0	8	88	0.03	1	720	$0	$72	$0	$0	$72	$0.00
44	**Years 1-3 - From Wet well 5 (170') to Pond 9**	8.00	0.010	0	0.001	0	16	88	0.03	1	720	$0	$72	$0	$0	$72	$0.00
45	**Years 1-3 - From Wet well 3 (150') to Pond 7 via west di**	2.00	0.010	0	0.000	0	10	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
46	**Years 1-3 - From Wet well 12 S3P1 above liner (110') to**	8.00	0.010	0	0.001	0	30	88	0.05	1	720	$0	$144	$0	$0	$144	$0.00
47	**Years 1-3 - From Wet well 13 S3P1 below liner (110') to**	70.00	0.010	0	0.005	0	30	88	0.45	1	720	$0	$1,152	$0	$0	$1,152	$0.00
48	**Years 1-3 - From Wet well 15 S3P1 toe pumpback (113'**	19.00	0.010	0	0.001	0	27	88	0.11	1	720	$0	$288	$0	$0	$288	$0.00
49	**Years 1-3 - From Pond 7 (bottom el 122') including runo**	818.00	0.009	0	0.025	0	48	88	8.45	12	720	$0	$21,888	$0	$0	$21,888	$0.00
50	**Years 1-3 - From Pond 7 Underdrain pumpback(el 110')**	19.00	0.010	0	0.002	0	36	88	0.15	1	720	$0	$396	$0	$0	$396	$0.00
51	**Years 1-3 - From 2500 GPM WTP (el 170') to APDES Ou**	818.00	0.009	0	0.018	0	10	88	1.81	3	720	$0	$4,680	$0	$0	$4,680	$0.00
52	**Years 1-3 - From APDES Outfall (el 0') to Hawk Inlet**	818.00	0.009	0	0.018	0	0	88	0.00	0	720	$0	$0	$0	$0	$0	$0.00
53	**Years 4-10 - From D Pond (el 810'/752') to Pond 7**	120.00	0.009	0	0.005	0	70	88	1.80	3	720	$0	$10,920	$0	$0	$10,920	$0.01
54	**Years 4-10 - From Pond 10 (bottom el 120') (including r**	13.00	0.010	0	0.001	0	48	88	0.13	1	720	$0	$756	$0	$0	$756	$0.00
55	**Years 4-10 - From Pond 7 (bottom el 122') including run**	150.00	0.009	0	0.005	0	48	88	1.54	3	720	$0	$9,324	$0	$0	$9,324	$0.00
56	**Years 4-10 - From New Storage Pond (west) (TBD) belo**	48.00	0.010	0	0.003	0	70	88	0.72	1	720	$0	$4,368	$0	$0	$4,368	$0.01
57	**Years 4-10 - From New Storage Pond (south) (TBD) bel**	20.00	0.010	0	0.001	0	70	88	0.30	1	720	$0	$1,848	$0	$0	$1,848	$0.01
58	**Year 11-50 - From Pond 10 (bottom el 120') (including r**	13.00	0.010	0	0.001	0	13	88	0.04	1	720	$0	$4,320	$0	$0	$4,320	$0.00
59	**Year 11-50 - From Pond 7 (bottom el 122') including run**	30.00	0.009	0	0.001	0	48	88	0.31	1	720	$0	$34,560	$0	$0	$34,560	$0.01
60	**Year 11-50 - From New Storage Pond (west) (TBD) belo**	48.00	0.010	0	0.003	0	70	88	0.72	1	720	$0	$80,640	$0	$0	$80,640	$0.02
61	**Year 11-50 - From New Storage Pond (south) (TBD) bel**	20.00	0.010	0	0.001	0	70	88	0.30	1	720	$0	$33,600	$0	$0	$33,600	$0.02
62	**Year 50-100 - From Pond 10 (bottom el 120') (including**	13.00	0.010	0	0.001	0	48	88	0.13	1	720	$0	$18,000	$0	$0	$18,000	$0.01
63	**Year 50-100 - From Pond 7 (bottom el 122') including ru**	60.00	0.009	0	0.002	0	48	88	0.62	1	720	$0	$87,000	$0	$0	$87,000	$0.01
64	**Year 50-100 - From New Storage Pond (west) (TBD) bel**	48.00	0.010	0	0.003	0	70	88	0.72	1	720	$0	$100,800	$0	$0	$100,800	$0.02
65	**Year 50-100 - From New Storage Pond (south) (TBD) be**	20.00	0.010	0	0.001	0	70	88	0.30	1	720	$0	$42,000	$0	$0	$42,000	$0.02
											46,800	**$0**	**$484,560**	**$0**	**$0**	**$484,560**	

Notes:
1a Assumes 2 man labor crew unless user overrides default.

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Closure Cost Estimate
Solution Mgmt

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

Solution/Water Management - Forced Evaporation

	Description (required)	Flow gpm	Manning n (see above)	Losses k	Velocity ft/sec	Friction Head ft	Total Dynamic Head ft	Pump Efficiency %	Power Required kW	Horsepower Required HP	Annual Operating Hours hrs	Evaporator/ Pump Capital $	Total Labor Cost $	Total Equipment Cost $	Total Power Cost $	Total Cost $	Cost/ m3 $
												$0	**$0**	**$0**	**$0**	**$0**	

Notes:
1. Assumes 2 man labor crew unless user overrides default.

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Closure Cost Estimate
Solution Mgmt

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

Solution/Water Management - Water Treatment

	Description (required)	Total Quantity Treated gal	Capital Cost $	Total Consumables Cost $	Total Labor Cost $	Total Equipment + Operating Cost $	Total Treatment Cost $	Cost/ m3 $
1	**Year 0**	425,210,400	$62,889	$53,723	$0	$30,660	$147,272	$0.000
2	**Year 1**	429,940,800	$62,889	$54,320	$0	$30,660	$147,869	$0.000
3	**Year 2**	429,940,800	$62,889	$54,320	$0	$30,660	$147,869	$0.000
4	**Year 3**	429,940,800	$62,889	$54,320	$0	$30,660	$147,869	$0.000
5	**Years 4-10**	849,895,200	$440,223	$107,379	$0	$214,620	$762,222	$0.000
6	**Years 11-50**	2,333,664,000	$2,515,560	$294,843	$0	$1,226,400	$4,036,803	$0.001
7	**Years 51-100**	3,705,480,000	$3,144,450	$468,163	$0	$1,533,000	$5,145,613	$0.001
		8,604,072,000	**$6,351,789**	**$1,087,068**	**$0**	**$3,096,660**	**$10,535,517**	

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Closure Cost Estimate
Solution Mgmt

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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Model Version: Version 1.4.1
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Solution/Water Management - Cost Summary

	Labor	Equipment + Operating + Power	Materials	Capital	Totals
Pumping	$0	$484,560	N/A	$0	$484,560
Forced Evaporation	$0	$0		$0	$0
Water Treatment	$0	$3,096,660	$1,087,068	$6,351,789	$10,535,517
Decontamination	$0	$0		$0	$0
TOTALS	**$0**	**$3,581,220**	**$1,087,068**	**$6,351,789**	**$11,020,077**

Solution/Water Management - Decontamination

	Description (required)	Flow gpm	Manning n (see above)	Losses k	Velocity ft/sec	Friction Head ft	Total Dynamic Head ft	Pump Efficiency %	Power Required kW	Horsepower Required HP	Total Operating Hours hrs	Pump Capital Cost $	Total Operating Cost $	Total Labor Cost $	Total Equipment Cost $	Total Cost $
												$0	**$0**	**$0**	**$0**	**$0**

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Closure Cost Estimate
Other User

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Other Cost Items Calculated Elsewhere

	Description (required)	ID Code	Facility Type	Quantity	Units	Total Capital Cost $	Material Unit Cost $	Labor Unit Cost $	Equipment/ Operating Unit Cost $	Cost Type (select)	Total Cost $	Comments
1	Lime purchase for short-lag disposal		Waste Mgmt & Disposal	4,323	tons		$226.00			A. Earthwork	$976,998	User 1 (quantity proportioned from total shortlag; lime cost adjusted for inflation)
2	Internal mill infrastructure demolition		Equipment Removal	2,916	hrs			$404.20	$172.45	D. Facility & Equipment	$1,681,511	User 6 (mill demolition in Foundations and Buildings sheet)
3	Post-closure cover maintenance - Tailings		Tailings Impoundments	349	acres*yrs		$1,120.00	$246.94	$167.55	E. Monitoring	$536,074	2008 plan page 45: hydroseeding materials; operators; equipment
4	Outfall pipeline and facilities maintenance		Water Treatment - Other	1	ls				$538,000.00	E. Monitoring	$538,000	User 5
5	Various waste disposal		Waste Mgmt & Disposal	1	ls				$926,991.04	C. Water Management	$926,991	2008 waste disposal costs adjusted for 2012; User Sheet 14
6	Bridge Demolition		Site Facilities - Structures	1	ls		$0.00	$100,641.00	$72,895.07	D. Facility & Equipment	$173,536	User 11
7	Monitoring		Monitoring/Regulatory Re	1	LS		$4,433,381.41			E. Monitoring	$4,433,381	See user 8
8	Marine demo		Equipment Removal	1	LS		$337,186.67	$261,992.67	$249,456.37	D. Facility & Equipment	$848,636	From Marine Demo 2008.xls; see User Sheet 3
9	Decontamination		Equipment Removal	1	LS		$0.00	$307,807.91	$35,159.49	C. Water Management	$342,967	User 14
10	Removal of miscellaneous linear items (1 backhoe+2 laborers)		Equipment Removal	243	hrs			$161.39	$44.19	D. Facility & Equipment	$49,956	Assume two weeks.
11	Utilization of underground equipment for disposal		UG Mine	1	LS			$526,792.63	$907,832.81	A. Earthwork	$1,434,625	User 1
12	Small crossings over Zinc and Greens Creek bridge locations		Other Facilities	260	sf		$66.50	$113.59	$15.47	F. Construction Mgmt	$50,845	User 10
13	Excavator for residual and short-lag material		Waste Rock Dump	3,356	hrs			$58.13	$100.97	A. Earthwork	$533,983	Total CY divided by corrected productivity for 345B on Productivity sheet
14	Reconfiguration pumps and pipes		H2O Treat Sys Constr - Ad	486	hrs	$100,000		$174.04	$31.01	C. Water Management	$199,656	Utilizes User Crew 3: two laborers, 1 backhoe, and 1 pipewelder for a quarter of the time
15	Demolish WTP		H2O Treat Sys Constr - Ad	1	ls			$18,132.57	$14,688.48	D. Facility & Equipment	$32,821	User Sheet 6
16	New West Pond lining - liner 1		Ponds	87,120	sf		$0.43	$1.16	$0.21	C. Water Management	$156,816	Lining of new pond; area from Ponds; 3skwk crew
17	New West Pond lining - liner 2		Ponds	87,120	sf		$0.43	$1.16	$0.21	C. Water Management	$156,816	Lining of new pond; area from Ponds; 3skwk crew
18	New South Pond lining - liner 1		Ponds	47,916	sf		$0.43	$1.16	$0.21	C. Water Management	$86,249	Lining of new pond; area from Ponds; 3skwk crew
19	New South Pond lining - liner 2		Ponds	47,916	sf		$0.43	$1.16	$0.21	C. Water Management	$86,249	Lining of new pond; area from Ponds; 3skwk crew
20	WTP replacement - year 50		Water Treatment - Contac	1	LS	$7,000,000				C. Water Management	$7,000,000	PC e-mail January 6, 2014
21	Material deficit		Stockpile	113,717	cy		$22.00			A. Earthwork	$2,501,781	Channel Construction Quote of $22/yd from 8/13/13; tailings area times growth media thickness minu
22	Mob-demob		Access Road	1	LS				$666,429.60	Mob/Demob	$666,430	User 2
23	Dam Maintenance and Inspection		Other Facilities	1	LS			$68,700.00		E. Monitoring	$68,700	User 8
24	Pipe for water collection from Pond D		Other Facilities	10,560	ft		$3.44	$6.71	$3.15	C. Water Management	$140,448	2 miles of piping e-mail January 20, 2014 Chris Wallace
25	Dredge ponds 7+10 and New West+South Ponds		Other Facilities	426,888	sf				$4.55	C. Water Management	$1,942,340	Cost from Brian Erickson email February 03, 2014; timing assumed to coincide with WTP removal
						$7,100,000	$8,810,367	$3,281,559	$6,373,883		$25,565,809	

Notes: Capital cost is lump sum (i.e. not multiplied by the quantity).
Material, Labor and Equipment/Operating costs are unit costs (i.e. multiplied by the quantity).
Transporting pipes to Hawk Inlet: 8 miles of pipe divided into 40 ft pieces, 6 pieces hauled at a time = 176 trips; 1 trip takes approximately 1 hr
Assumed construction of two pedestrian crossings at 4'W and 80'L in place of the two bridges demolished.

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Closure Cost Estimate
Other User

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Other Cost Items Calculated Elsewhere

	Description (required)	ID Code	Facility Type	Quantity	Units	Total Capital Cost $	Material Unit Cost $	Labor Unit Cost $	Equipment/ Operating Unit Cost $	Cost Type (select)	Total Cost $	Comments
1	Lime purchase for short-lag disposal		Waste Mgmt & Disposal	4,323	tons		$226.00			A. Earthwork	$976,998	User 1 (quantity proportioned from total shortlag; lime cost adjusted for inflation)
2	Internal mill infrastructure demolition		Equipment Removal	2,916	hrs			$404.20	$172.45	D. Facility & Equipment	$1,681,511	User 6 (mill demolition in Foundations and Buildings sheet)
3	Post-closure cover maintenance - Tailings		Tailings Impoundments	349	acres*yrs		$1,120.00	$246.94	$167.55	E. Monitoring	$536,074	2008 plan page 45: hydroseeding materials; operators; equipment
4	Outfall pipeline and facilities maintenance		Water Treatment - Other	1	ls				$538,000.00	E. Monitoring	$538,000	User 5
5	Various waste disposal		Waste Mgmt & Disposal	1	ls				$926,991.04	C. Water Management	$926,991	2008 waste disposal costs adjusted for 2012; User Sheet 14
6	Bridge Demolition		Site Facilities - Structures	1	ls		$0.00	$100,641.00	$72,895.07	D. Facility & Equipment	$173,536	User 11
7	Monitoring		Monitoring/Regulatory Re	1	LS		$4,433,381.41			E. Monitoring	$4,433,381	See user 8
8	Marine demo		Equipment Removal	1	LS		$337,186.67	$261,992.67	$249,456.37	D. Facility & Equipment	$848,636	From Marine Demo 2008.xls; see User Sheet 3
9	Decontamination		Equipment Removal	1	LS		$0.00	$307,807.91	$35,159.49	C. Water Management	$342,967	User 14
10	Removal of miscellaneous linear items (1 backhoe+2 laborers)		Equipment Removal	243	hrs			$161.39	$44.19	D. Facility & Equipment	$49,956	Assume two weeks.
11	Utilization of underground equipment for disposal		UG Mine	1	LS			$526,792.63	$907,832.81	A. Earthwork	$1,434,625	User 1
12	Small crossings over Zinc and Greens Creek bridge locations		Other Facilities	260	sf		$66.50	$113.59	$15.47	F. Construction Mgmt	$50,845	User 10
13	Excavator for residual and short-lag material		Waste Rock Dump	3,356	hrs			$58.13	$100.97	A. Earthwork	$533,983	Total CY divided by corrected productivity for 345B on Productivity sheet
14	Reconfiguration pumps and pipes		H2O Treat Sys Constr - Ad	486	hrs	$100,000		$174.04	$31.01	C. Water Management	$199,656	Utilizes User Crew 3: two laborers, 1 backhoe, and 1 pipewelder for a quarter of the time
15	Demolish WTP		H2O Treat Sys Constr - Ad	1	ls			$18,132.57	$14,688.48	D. Facility & Equipment	$32,821	User Sheet 6
16	New West Pond lining - liner 1		Ponds	87,120	sf		$0.43	$1.16	$0.21	C. Water Management	$156,816	Lining of new pond; area from Ponds; 3skwk crew
17	New West Pond lining - liner 2		Ponds	87,120	sf		$0.43	$1.16	$0.21	C. Water Management	$156,816	Lining of new pond; area from Ponds; 3skwk crew
18	New South Pond lining - liner 1		Ponds	47,916	sf		$0.43	$1.16	$0.21	C. Water Management	$86,249	Lining of new pond; area from Ponds; 3skwk crew
19	New South Pond lining - liner 2		Ponds	47,916	sf		$0.43	$1.16	$0.21	C. Water Management	$86,249	Lining of new pond; area from Ponds; 3skwk crew
20	WTP replacement - year 50		Water Treatment - Contac	1	LS	$7,000,000				C. Water Management	$7,000,000	PC e-mail January 6, 2014
21	Material deficit		Stockpile	113,717	cy		$22.00			A. Earthwork	$2,501,781	Channel Construction Quote of $22/yd from 8/13/13; tailings area times growth media thickness minu
22	Mob-demob		Access Road	1	LS				$666,429.60	Mob/Demob	$666,430	User 2
23	Dam Maintenance and Inspection		Other Facilities	1	LS			$68,700.00		E. Monitoring	$68,700	User 8
24	Pipe for water collection from Pond D		Other Facilities	10,560	ft		$3.44	$6.71	$3.15	C. Water Management	$140,448	2 miles of piping e-mail January 20, 2014 Chris Wallace
25	Dredge ponds 7+10 and New West+South Ponds		Other Facilities	426,888	sf				$4.55	C. Water Management	$1,942,340	Cost from Brian Erickson email February 03, 2014; timing assumed to coincide with WTP removal
						$7,100,000	$8,810,367	$3,281,559	$6,373,883		$25,565,809	

Notes: Capital cost is lump sum (i.e. not multiplied by the quantity).
Material, Labor and Equipment/Operating costs are unit costs (i.e. multiplied by the quantity).
Transporting pipes to Hawk Inlet: 8 miles of pipe divided into 40 ft pieces, 6 pieces hauled at a time = 176 trips; 1 trip takes approximately 1 hr
Assumed construction of two pedestrian crossings at 4'W and 80'L in place of the two bridges demolished.

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Closure Cost Estimate
Human Resources

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Human Resources	Totals
Salaries & Benefits	$9,909,517
Severance & Relocation	$0
TOTALS	$9,909,517

Human Resources - Salary & Benefits

	Job Description (required)	Avg. Annual Salary (incl. benefits) $	Type	Closure Year 1 #	Closure Year 2 #	Closure Year 3 #	Closure Year 4 #	Closure Year 5 #	Closure Year 6 #	Closure Year 7 #	Closure Year 8 #	Closure Year 9 #	Closure Year 10 #	Closure Year 11 #	Closure Year 12 #	Closure Year 13 #	Closure Year 14 #	Closure Year 15 #	Closure Year 16 #	Closure Year 17 #	Closure Year 18 #	Closure Year 19 #	Closure Year 20 #	Closure Year 21 #	Closure Year 22 #	Closure Year 23 #	Closure Year 24 #	Closure Year 25 #	Closure Year 26 #	Closure Year 27 #	Closure Year 28 #	Closure Year 29 #	Closure Year 30 #	Closure Year 31 #	Closure Year 32 #	Closure Year 33 #	Closure Year 34 #	Closure Year 35 #	Closure Year 36 #	Closure Year 37 #	Closure Year 38 #	Closure Year 39 #	Closure Year 40 #	Closure Year 41 #	Closure Year 42 #
1	Holding crew	$77,262	Closure G & A	2																																								
2	Hourly - Tech 5	$77,262	Closure G & A		2	2	2																																					
3	Crew for monit sched A (52 wk/yr)	$235,292	Closure G & A	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Crew for monit sched B (12 wk/yr)	$18,099	Closure G & A	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Y0 crew - foreman	$172,800	Water Treatment - Other	1																																								
6	Y0 crew - laborer	$116,790	Water Treatment - Other	1																																								
7	Y1-3 crew - laborer	$116,790	Water Treatment - Other		1	1	1																																					
8	Y4-10 WTP crew - foreman	$54,000	Water Treatment - Other					1	1	1	1	1	1	1																														
9	Y4-10 WTP crew - laborer	$36,497	Water Treatment - Other					1	1	1	1	1	1	1																														
10	Y11-15 WTP crew - foreman	$32,400	Water Treatment - Other												1	1	1	1	1																										
11	Y11-15 WTP crew - laborer	$21,898	Water Treatment - Other												1	1	1	1	1																										
12	Y16-50 WTP crew - foreman	$32,400	Water Treatment - Other																	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	Y16-50 WTP crew - laborer	$21,898	Water Treatment - Other																	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	Y51-100 WTP crew - foreman	$32,400	Water Treatment - Other																																									
15	Y51-100 WTP crew - laborer	$21,898	Water Treatment - Other																																									
	SUBTOTAL			$ 679,406	$ 506,606	$ 506,606	$ 506,606	$ 325,789	$ 325,789	$ 108,596	$ 108,596	$ 108,596	$ 108,596	$ 108,596	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397	$ 72,397

Notes:
Closure Year 1 is the Holding Year
Costs for water treatment crew are for contracting to start up, batch operate, and shut down the water treatment plant at frequencies required in the years in corresponding interval.
Costs for monitoring crew (schedules A and B) include one field tech and one laborer contracted time to travel to site and sample.
Batching days: 12

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Closure Cost Estimate
Human Resources

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Human Resources	Totals
Salaries & Benefits	$9,909,517
Severance & Relocation	$0
TOTALS	$9,909,517

Human Resources - Severance & Outplacement Benefits

	Job Description	Severance & Outplacement Cost $	Closure Year 1 #	Closure Year 2 #	Closure Year 3 #	Closure Year 4 #	Closure Year 5 #	Closure Year 6 #	Closure Year 7 #	Closure Year 8 #	Closure Year 9 #	Closure Year 10 #	Closure Year 11 #	Closure Year 12 #	Closure Year 13 #	Closure Year 14 #	Closure Year 15 #	Closure Year 16 #	Closure Year 17 #	Closure Year 18 #	Closure Year 19 #	Closure Year 20 #	Closure Year 21 #	Closure Year 22 #	Closure Year 23 #	Closure Year 24 #	Closure Year 25 #	Closure Year 26 #	Closure Year 27 #	Closure Year 28 #	Closure Year 29 #	Closure Year 30 #	Closure Year 31 #	Closure Year 32 #	Closure Year 33 #	Closure Year 34 #	Closure Year 35 #	Closure Year 36 #	Closure Year 37 #	Closure Year 38 #	Closure Year 39 #	Closure Year 40 #	Closure Year 41 #	Closure Year 42 #
1	Holding crew		2.0																																									
2	Hourly - Tech 5					2.0																																						
3	Crew for monit scheid A (52 wk/yr)							1.0																																				
4	Crew for monit sched B (12 wk/yr)																																											
5	Y0 crew - foreman		1.0																																									
6	Y0 crew - laborer		1.0																																									
7	Y1-3 crew - laborer					1.0																																						
8	Y4-10 WTP crew - foreman												1.0																															
9	Y4-10 WTP crew - laborer												1.0																															
10	Y11-15 WTP crew - foreman																	1.0																										
11	Y11-15 WTP crew - laborer																	1.0																										
12	Y16-50 WTP crew - foreman																																							1.0				
13	Y16-50 WTP crew - laborer																																							1.0				
14	Y51-100 WTP crew - foreman																																											
15	Y51-100 WTP crew - laborer																																											
		SUBTOTAL	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Notes:
1. Assumes Severance + Outplacement

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Closure Cost Estimate
Reclamation Quantities

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Data Cost File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Reclamation Quantity Summary

												Unit Costs					
	Description	Total Regrade or Haul Volume cy	Total Regrade or Haul Cost $	Total Cover Volume cy	Cover Placement Cost $	Total Growth Media Volume cy	Growth Media Placement Cost $	Total Surface Area acres	Total Scarify Cost $	Total Revetation Cost $	TOTALS $	Regrade Unit Cost $/CY	Material Haul or Backfill Unit Cost $/CY	Cover Unit Cost $/CY	Growth Media Unit Cost $/CY	Scarify Unit Cost $/CY	Area Unit Cost $/acre
1	Waste Rock Dumps		$ -		$ -		$ -	69.87	$ -	$ 42,932	$ 42,932		N/A			$0.00	$614.46
2	Tailings Impoundments		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
3	Heap Leach Pads		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
5	Open Pits		$ -							$ -	$ -		N/A				
4	Quarries & Borrow Pits		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
6	Roads	178,935	$ 138,845			155,886	$ 260,780	96.625	$ -	$ 59,376	$ 459,001	$0.78	N/A		$1.67	$0.00	$4,750.33
7	Landfills		$ -		$ -		$ -		$ -	$ -	$ -		N/A				
8	Buildings				$ -		$ -	25.9	$ -	$ -	$ -		N/A			$0.00	$0.00
9	Yards	111,000	$ 295,615		$ -	62,920	$ 84,393	185	$ -	$ 113,680	$ 493,688	$2.66	N/A		$1.34	$0.00	$2,668.58
10	Ponds	275,205	$ 355,017			16,385	$ 21,270	14.1		$ 6,415	$ 382,702	N/A	$1.29		$1.30		$27,141.99
11	Exploration Roads		$ -				$ -		$ -	$ -	$ -		N/A				
12	Exploration Trenches		$ -							$ -	$ -		N/A				
13	Diversion Ditches		$ -							$ -	$ -		N/A				
14	Sediment Ponds		$ -				$ -		$ -	$ -	$ -						
15	Generic Haulage/Backfill	2,338,349	$ 12,591,565		$ -		$ -	3.8	$ -	$ -	$ 12,591,565	N/A	$5.38			$0.00	#########
16	Adit/Decline Backfilling1		$ -								$ -	N/A					
17	Shaft Backfilling	176	$ 2,964								$ 2,964	N/A	$16.84				
	TOTALS	2,903,665	$ 13,384,006	-	$ -	235,191	$ 366,443	395.30	$ -	$ 222,403	$ 13,972,852						
	Average Costs	per CY	$4.61	per CY		per CY	$1.56	per acre	$0.00		$35,347	per acre					

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Closure Cost Estimate
Waste Rock Dumps

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$0	$0	N/A	$0
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost		$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$2,597	$1,420	$38,915	$42,932
TOTALS	**$2,597**	**$1,420**	**$38,915**	**$42,932**

Waste Rock Dumps - User Input

You must fill in ALL green cells in this section for each dump, lift or dump category

	Facility Description			Physical - MANDATORY									Cover				Growth Media			
	Description (required)	ID Code	Type	Underlying Ground Slope % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % Grade	Lift (dump) Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Dump Footprint acres	Regrade Volume (1) (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Dump to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Dump to Stockpile % grade
1	**Area 1 - North East**		**Waste Rock Dur**	**0.0**	**3.0**	**3.0**	**0.0**	**120**	**447**	**500**	**4.93**									
2	**Area 2 - North**		**Waste Rock Dur**	**0.0**	**3.0**	**3.0**	**0.0**	**190**	**709**	**600**	**7.18**									
3	**Area 3 - Far North**		**Waste Rock Dur**	**0.0**	**3.0**	**3.0**	**0.0**	**90**	**876**	**500**	**6.14**									
4	**Area 4 - North West**		**Waste Rock Dur**	**0.0**	**3.0**	**3.0**	**0.0**	**120**	**574**	**600**	**7.26**									
5	**Area 5 - West**		**Waste Rock Dur**	**0.0**	**3.0**	**3.0**	**0.0**	**220**	**1,371**	**900**	**19.63**									
6	**Area 6 - South**		**Waste Rock Dur**	**0.0**	**3.0**	**3.0**	**0.0**	**190**	**511**	**600**	**7.89**									
7	**Area 7 - East**		**Waste Rock Dur**	**0.0**	**3.0**	**3.0**	**0.0**	**170**	**852**	**600**	**8.34**									

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

HGCMC Stage 3 phase 1 full buildout design 11-14-13_final revised_MidbenchLengths_mth ACAD14_ft.dwg
GreenCreekPOO_MidbenchLengths_311400.010_mth_ft.xlsx

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Closure Cost Estimate
Waste Rock Dumps

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$0	$0	N/A	$0
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost		$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$2,597	$1,420	$38,915	$42,932
TOTALS	**$2,597**	**$1,420**	**$38,915**	**$42,932**

Waste Rock Dumps - User Input (cont.)

You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category

		Grading				Cover		Growth Media		Revegetation								
	Description (required)	Dozing Material Condition (select)	Dump Material Type (select)	Grading Equipment Fleet (select)	Slot/Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)
1	**Area 1 - North East**	**1**	**Alluvium**	**Small**	**No**					**Mix 1**	**Mix 1**							
2	**Area 2 - North**	**1**	**Alluvium**	**Small**	**No**					**Mix 1**	**Mix 1**							
3	**Area 3 - Far North**	**1**	**Alluvium**	**Small**	**No**					**Mix 1**	**Mix 1**							
4	**Area 4 - North West**	**1**	**Alluvium**	**Small**	**No**					**Mix 1**	**Mix 1**							
5	**Area 5 - West**	**1**	**Alluvium**	**Small**	**No**					**Mix 1**	**Mix 1**							
6	**Area 6 - South**	**1**	**Alluvium**	**Small**	**No**					**Mix 1**	**Mix 1**							
7	**Area 7 - East**	**1**	**Alluvium**	**Small**	**No**					**Mix 1**	**Mix 1**							

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

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Closure Cost Estimate
Waste Rock Dumps

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Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$0	$0	N/A	$0
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost		$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$2,597	$1,420	$38,915	$42,932
TOTALS	**$2,597**	**$1,420**	**$38,915**	**$42,932**

Waste Rock Dumps - Calculations

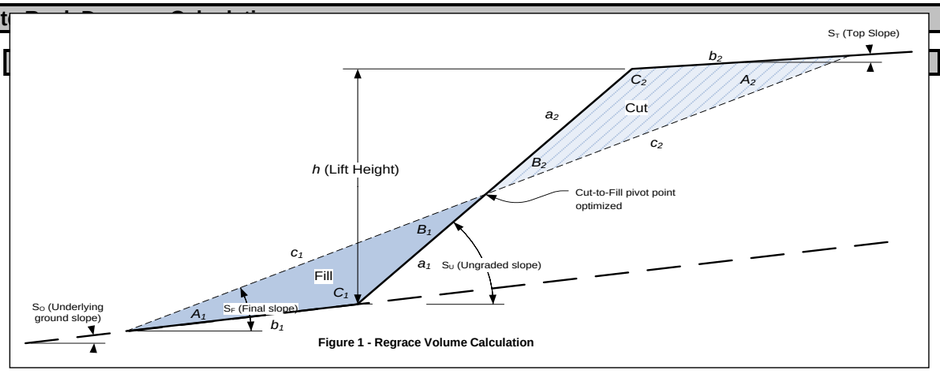

Figure 1 - Regrace Volume Calculation

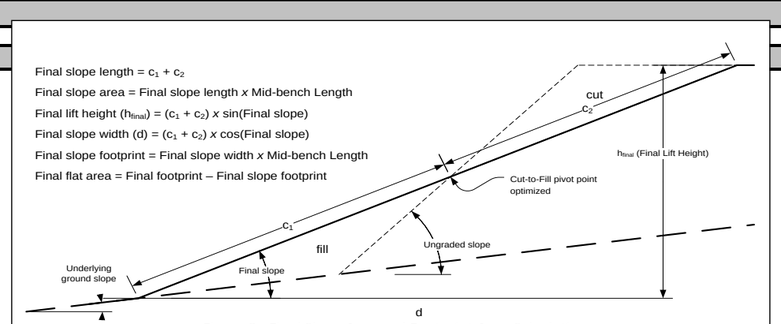

Figure 3 - Final Slope Area and Footprint Area Calculation

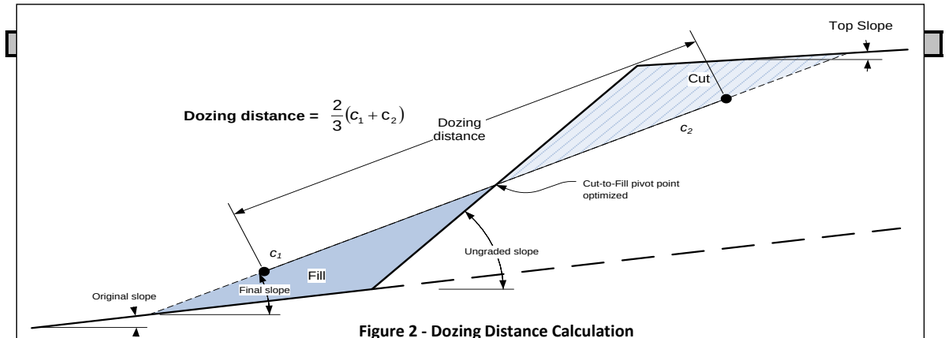

Figure 2 - Dozing Distance Calculation

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per dump

Slopes:
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Mid-bench length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr

Flat Areas:
Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation: Minimum 1 acre revegetation crew time per area

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Closure Cost Estimate
Waste Rock Dumps

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Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$0	$0	N/A	$0
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost		$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$2,597	$1,420	$38,915	$42,932
TOTALS	**$2,597**	**$1,420**	**$38,915**	**$42,932**

Waste Rock Dumps - Regrading Costs

Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)

	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	**Area 1 - North East**	0		D6R								$0	$0	$0
2	**Area 2 - North**	0		D6R								$0	$0	$0
3	**Area 3 - Far North**	0		D6R								$0	$0	$0
4	**Area 4 - North West**	0		D6R								$0	$0	$0
5	**Area 5 - West**	0		D6R								$0	$0	$0
6	**Area 6 - South**	0		D6R								$0	$0	$0
7	**Area 7 - East**	0		D6R								$0	$0	$0
												$0	**$0**	**$0**

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Closure Cost Estimate
Waste Rock Dumps

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Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$0	$0	N/A	$0
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost		$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$2,597	$1,420	$38,915	$42,932
TOTALS	**$2,597**	**$1,420**	**$38,915**	**$42,932**

Waste Rock Dumps - Cover and Growth Media Costs

		Cover (lower layer)								Growth Media Placement							
	Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost $	Cover Equipment Cost $	Total Cover Cost $	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Topsoiling Cost $
1	**Area 1 - North East**						$0	$0	$0						$0	$0	$0
2	**Area 2 - North**						$0	$0	$0						$0	$0	$0
3	**Area 3 - Far North**						$0	$0	$0						$0	$0	$0
4	**Area 4 - North West**						$0	$0	$0						$0	$0	$0
5	**Area 5 - West**						$0	$0	$0						$0	$0	$0
6	**Area 6 - South**						$0	$0	$0						$0	$0	$0
7	**Area 7 - East**						$0	$0	$0						$0	$0	$0
							$0	**$0**	**$0**						**$0**	**$0**	**$0**

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Closure Cost Estimate
Waste Rock Dumps

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Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Waste Rock Dumps - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$0	$0	N/A	$0
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost		$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$2,597	$1,420	$38,915	$42,932
TOTALS	**$2,597**	**$1,420**	**$38,915**	**$42,932**

Waste Rock Dumps - Scarifying/Revegetation Costs

	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**Area 1 - North East**	3.89	1.00	4.89	379					$0	$0	$0	$182	$99	$2,724	$3,005
2	**Area 2 - North**	9.78		9.78	601					$0	$0	$0	$364	$199	$5,447	$6,010
3	**Area 3 - Far North**	5.73	1.00	6.73	285					$0	$0	$0	$250	$137	$3,748	$4,135
4	**Area 4 - North West**	4.99	3.00	7.99	379					$0	$0	$0	$297	$162	$4,450	$4,909
5	**Area 5 - West**	21.91		21.91	696					$0	$0	$0	$814	$446	$12,203	$13,463
6	**Area 6 - South**	7.05	1.00	8.05	601					$0	$0	$0	$299	$163	$4,484	$4,946
7	**Area 7 - East**	10.52		10.52	538					$0	$0	$0	$391	$214	$5,859	$6,464
		63.87	6.00	69.87							**$0**	**$0**	**$2,597**	**$1,420**	**$38,915**	**$42,932**

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)

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Closure Cost Estimate
Roads

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Roads - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$44,066	$94,779	N/A	$138,845
Cover Placement Cost	$81,676	$179,104	N/A	$260,780
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$125,742**	**$273,883**		**$399,625**
Revegetation Cost	$3,593	$1,965	$53,818	$59,376
TOTALS	**$129,335**	**$275,848**	**$53,818**	**$459,001**

Roads - User Input

You must fill in ALL green cells and relevant blue cells in this section for each road

	Facility Description			Physical (1) - MANDATORY						User Overrides		Growth Media		
	Description (required)	ID Code	Type	Underlying Ground Slope % grade	Ungraded Slope _H:1V	Cut Slope degrees	Road Width ft	Road Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness in	Haul Distance from Growth Media Stockpile ft	Slope from Road to Stockpile % grade
1	**B-road**		**Project Road**	**20.0**	**1.5**	**60.0**	**45.0**	**43,085**	**100%**		**65.63**	**12.0**	**2,000**	**0%**
2	**A-road**		**Project Road**	**20.0**	**1.5**	**60.0**	**41.7**	**28,215**	**100%**		**27.00**	**12.0**	**2,000**	**0%**
3	**1350 road**		**Project Road**	**20.0**	**1.5**	**60.0**	**45.0**	**1,267**	**100%**		**4.00**	**12.0**	**2,000**	**0%**

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)
3. Because the work required for building roads with a dozer is similar to that required to regrade a road with a dozer, this sheet could be used to provide a rough estimate of road construction costs if a dozer is selected as the grading fleet.

Total disturbance for the roads A and B is 102 acres in rec plan. The parameters of the road inputs (except for road length) have been adjusted to reflect this acreage of disturbance.

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Cover Placement Cost	$81,676	$179,104	N/A	$260,780
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$125,742**	**$273,883**		**$399,625**
Revegetation Cost	$3,593	$1,965	$53,818	$59,376
TOTALS	**$129,335**	**$275,848**	**$53,818**	**$459,001**

Roads - User Input (cont.)

		Haul Road Safety Berms				
	Description (required)	Berm Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Number of Berms (2) (1 or 2 sides)
1	**B-road**					
2	**A-road**					
3	**1350 road**					

(2) Enter 1 if berm on only one side of road, 2 if both sides of road are bermed.

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Closure Cost Estimate
Roads

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TOTALS	**$129,335**	**$275,848**	**$53,818**	**$459,001**

Roads - User Input (cont.) You must fill in ALL green cells and relevant blue cells in this section for each road

		Grading				Growth Media			Revegetation				
	Description (required)	Dozing Material Condition (select)	Cut Material Type (select)	Recontouring Equipment Fleet(2) (select)	No. of Excavators if grade >30% (select)	Growth Media Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/ Ripping? (select)	Ripping Fleet (select)
1	**B-road**	**1**	**Alluvium**	**Med Excavator**		**Alluvium**	**Med Truck**		**Mix 1**	**None**		**No**	
2	**A-road**	**1**	**Alluvium**	**Med Excavator**		**Alluvium**	**Med Truck**		**Mix 1**	**None**		**No**	
3	**1350 road**	**1**	**Alluvium**	**Med Excavator**		**Alluvium**	**Med Truck**		**Mix 1**	**None**		**No**	

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
2. If original slope >30% only excavators are allowed.

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Closure Cost Estimate
Roads

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Roads - Cost Summary

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Cover Placement Cost	$81,676	$179,104	N/A	$260,780
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$125,742**	**$273,883**		**$399,625**
Revegetation Cost	$3,593	$1,965	$53,818	$59,376
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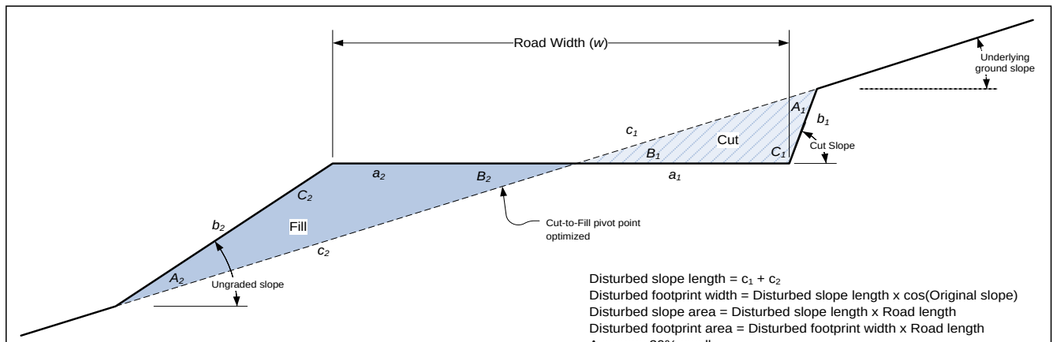
Roads - Calculations

Regrading Volume and Footprint Volume



Disturbed slope length = $c_1 + c_2$
Disturbed footprint width = Disturbed slope length x cos(Original slope)
Disturbed slope area = Disturbed slope length x Road length
Disturbed footprint area = Disturbed footprint width x Road length
Assumes 20% swell

Figure 1 - Regrading Volume Calculation

Will not allow dozer for slopes greater than 30%
For dozer regrading push distance = road width
Assumes dozer push is uphill
Assumes minimum push distance of 100 ft

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Road length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
For dozer regrading assumes push distance = 3 x road width

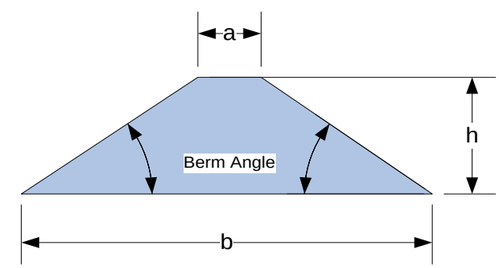
Revegetation Calculations

Minimum of 1 acre crew time per area

Safety Berm Volume Calculation

Cross Sectional Area = $\frac{(a+b)}{2} \times h$

Berm Volume = Berm Length x Cross Sectional Area x No. Sides



Total berm volume doubled if both sides of road are bermed.
If length of berm on each side of road is different, input total length of both berms and input 1 for number of sides

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Closure Cost Estimate
Roads

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Roads - Cost Summary

	Labor	Equipment	Materials	Totals
Grading Costs	$44,066	$94,779	N/A	$138,845
Cover Placement Cost	$81,676	$179,104	N/A	$260,780
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$125,742**	**$273,883**		**$399,625**
Revegetation Cost	$3,593	$1,965	$53,818	$59,376
TOTALS	**$129,335**	**$275,848**	**$53,818**	**$459,001**

Roads - Regrading Costs

	Description (required)	Regrading Volume cy	Recontouring Fleet	Fleet Productivity cy/hr	Total Fleet Hours hr	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	**B-road**	112,443	345B	480	234	$27,645	$59,459	$87,104
2	**A-road**	63,185	345B	480	132	$15,594	$33,541	$49,135
3	**1350 road**	3,307	345B	480	7	$827	$1,779	$2,606
		178,935			373	**$44,066**	**$94,779**	**$138,845**

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Roads - Cost Summary	Labor	Equipment	Materials	Totals
Grading Costs	$44,066	$94,779	N/A	$138,845
Cover Placement Cost	$81,676	$179,104	N/A	$260,780
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$125,742**	**$273,883**		**$399,625**
Revegetation Cost	$3,593	$1,965	$53,818	$59,376
TOTALS	**$129,335**	**$275,848**	**$53,818**	**$459,001**

Roads - Growth Media Costs

	Description (required)	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Topsoiling Cost $
1	**B-road**	105,877	740/988G	455	2	233	$55,482	$121,666	$177,148
2	**A-road**	43,556	740/988G	455	2	96	$22,860	$50,128	$72,988
3	**1350 road**	6,453	740/988G	455	2	14	$3,334	$7,310	$10,644
		155,886				343	**$81,676**	**$179,104**	**$260,780**

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Closure Cost Estimate
Roads

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Roads - Cost Summary	Labor	Equipment	Materials	Totals
Grading Costs	$44,066	$94,779	N/A	$138,845
Cover Placement Cost	$81,676	$179,104	N/A	$260,780
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$125,742**	**$273,883**		**$399,625**
Revegetation Cost	$3,593	$1,965	$53,818	$59,376
TOTALS	**$129,335**	**$275,848**	**$53,818**	**$459,001**

Roads - Scarifying/Revegetation Costs

	Description (required)	Total Surface Area acres	Final Slope Length ft	Ripping Hours hrs	Ripping Labor Costs $	Ripping Equipment Cost $	Total Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**B-road**	65.63	66.0		$0	$0	$0	$2,440	$1,335	$36,552	$40,327
2	**A-road**	27.00	42.0		$0	$0	$0	$1,004	$549	$15,038	$16,591
3	**1350 road**	4.00	138.0		$0	$0	$0	$149	$81	$2,228	$2,458
		96.63			**$0**	**$0**	**$0**	**$3,593**	**$1,965**	**$53,818**	**$59,376**

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Closure Cost Estimate
Underground Openings

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Underground Openings Cost Summary

	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	$23,556	$1,092	$6,987	$31,635
Shaft Backfill/Cover	$952	$2,012	N/A	$2,964
Shaft Capping	$14,513	$654	$5,424	$20,591
TOTALS	**$39,021**	**$3,758**	**$12,411**	**$55,190**

Color Code Key

User Input - Direct Input	**Direct Input**
User Input - Pull Down List	**Pull Down Selection**
Program Constant (can override)	**Alternate Input**
Program Calculated Value	**Locked Cell - Formula or Reference**

Adits, Portals & Declines - User Input

	Facility Description		Physical Characteristics				Backfill Material			
	Description (required)	ID Code	Height ft	Width ft	Backfill/ Plug Type	Distance to Bulkhead ft	Backfill Material Condition (select)	Backfill Material Type (select)	Distance to Backfill Borrow ft	Slope from Adit to Borrow Area % grade
1	**1350 portal**		**15.0**	**20.0**	**Concrete Bul**	**30**				
2	**920 portal**		**15.0**	**20.0**	**Concrete Bul**	**30**				
3	**Secondary escapeway**		**15.0**	**20.0**	**Concrete Bul**	**30**				

Notes: 1) Foam (adit) option is for smaller openings that can be plugged with simple forms and a 5 ft thick plug.
2) Foam (production) option is for larger production openings (declines, etc.) and requires larger form construction and minimum 10 ft thick plug.
3) All foam plugs include minimum 15ft of backfill from opening to plug.
4) Bat gate option is for small openings and the material cost is the same for any size opening.
5) Backfilling assumes that small dozer will push material from nearby stockpile or dump
6) Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Shaft Openings - User Input

You must fill in ALL green cells and relevant blue cells in this section for each shaft

	Facility Description		Physical Characteristics			Backfill or Foundation Cover					
	Description (required)	ID Code	Diameter ft	Shaft Depth (for backfill method) ft	Backfill/ Plug Type (select)	Backfill Material Type (select)	Cover/ Backfill Fleet (select)	Thickness (if not complete backfill) ft	Distance to Backfill Borrow ft	Slope from Shaft to Borrow Area % grade	Maximum Fleet Size (user override)
1	**Ventilation raise - 1**		**11.3**		**Concrete Ca**	**Alluvium**	**Small Truck**	**12.0**	**500**	**-5.0**	
2	**Ventilation raise - 2**		**11.3**		**Concrete Ca**	**Alluvium**	**Small Truck**	**12.0**	**500**	**-5.0**	
3	**Ventilation raise - 3**		**11.3**		**Concrete Ca**	**Alluvium**	**Small Truck**	**12.0**	**500**	**-5.0**	
4	**Ventilation raise - 4**		**11.3**		**Concrete Ca**	**Alluvium**	**Small Truck**	**12.0**	**500**	**-5.0**	

Notes:
1. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

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Closure Cost Estimate
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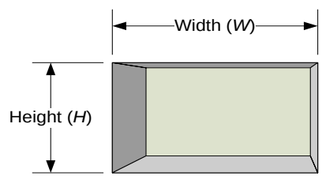
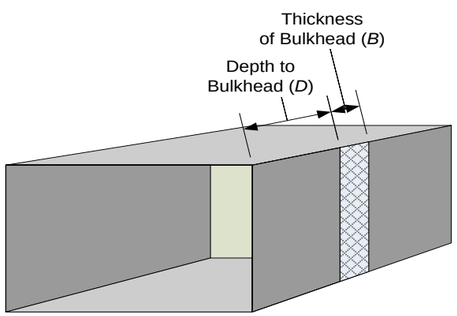
Shaft Capping	$14,513	$654	$5,424	$20,591
TOTALS	**$39,021**	**$3,758**	**$12,411**	**$55,190**

Underground Openings - Calculations

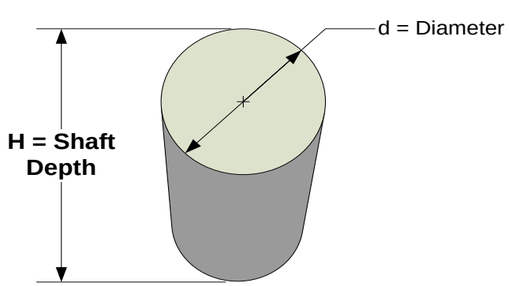
Adits, Declines and Portals - Volume Calculations





Cross-Sectional Area (A) = *W* x *H*
Volume of Concrete Bulkhead = *A* x *B*
Volume of Backfill = *A* x *D*

Shaft Volume Calculations



Radius (r) = ½d
Cross-Sectional Area (A) = πr^2
Volume = A x H

Concrete Cover/Bulkhead Volume Calculation

Using Means Heavy Construction Cost Data (2004)
- Estimage cover/bulkhead thickness
- Assumes that all concrete works are reinforced
- Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision (addressed in Misc. Costs) and Davis-Bacon Wage Rates
- Assumes 18 in thick slab

Backfill Calculations

Uses 1 large and 1 small dozer for adit backfill
- Assumes max 400 foot push
- Assumes average operator and 50 min/hr availability

Uses truck & loader load, haul place fleets for shafts
- Concrete cap will be 1.5 feet thick, reinforced, structually supported.
- If concrete cap is used, assume 10 feet of rock backfill on top of cap.
- Assumes that all concrete works are reinforced
- If backfill is used, assume overfill by 5 feet

Carpenter rate incl Fringe: 0 per hour

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Underground Openings

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Shaft Capping	$14,513	$654	$5,424	$20,591
TOTALS	**$39,021**	**$3,758**	**$12,411**	**$55,190**

Adits, Portals & Declines Plugging

Uses RS Means Heavy Construction Cost Data for bulkhead production rate, material costs and crews

				Bulkhead Construction				Backfill or Foam (1)				Bat Gate or Culvert (2,3,4)				Total Costs			
	Description (required)	Bulkhead Volume cy	Backfill (rock) Volume cy	Total Labor Cost $	Total Equipment Cost $	Total Material Cost $	Total Bulkhead Cost $	Total Labor Cost $	Total Equipment Cost $	Material (Foam) Cost $	Total Backfill Cost $	Total Labor Cost $	Total Equipment Cost $	Total Material Cost $	Total Bat Gate Cost $	Total Labor Cost $	Total Equipment Cost $	Total Material Cost $	Total Plugging Costs $
1	**1350 portal**	17		$7,852	$364	$2,329	$10,545	$0	$0	$0	$0	$0	$0	$0	$0	$7,852	$364	$2,329	**$10,545**
2	**920 portal**	17		$7,852	$364	$2,329	$10,545	$0	$0	$0	$0	$0	$0	$0	$0	$7,852	$364	$2,329	**$10,545**
3	**Secondary escapeway**	17		$7,852	$364	$2,329	$10,545	$0	$0	$0	$0	$0	$0	$0	$0	$7,852	$364	$2,329	**$10,545**
		51		**$23,556**	**$1,092**	**$6,987**	**$31,635**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$23,556**	**$1,092**	**$6,987**	**$31,635**

Notes:
1) Foam costs include 1 hour move to and setup + 1 hr. minimum crew time
2) Assumes 1 hr walk-in/walk-out time for equipment
3) Batgate assumes 8 hr install time each
4) Bat culvert backfill costs based on one 8-hr day (i.e. backfilling hours = 8 hrs).

Shaft Plugging

		Cover/Cap						Backfill/Cover		
	Description (required)	Cover Area ft2	Backfill or Cover Volume cy	Total Labor Cost $	Total Equipment Cost $	Total Material Cost $	Total Shaft Cap Cost $	Total Labor Cost $	Total Equipment Cost $	Total Backfill Cost $
1	**Ventilation raise - 1**	100	44	$3,628	$164	$1,356	$5,148	$238	$503	**$741**
2	**Ventilation raise - 2**	100	44	$3,628	$164	$1,356	$5,148	$238	$503	**$741**
3	**Ventilation raise - 3**	100	44	$3,628	$164	$1,356	$5,148	$238	$503	**$741**
4	**Ventilation raise - 4**	100	44	$3,628	$164	$1,356	$5,148	$238	$503	**$741**
		400	176	**$14,513**	**$654**	**$5,424**	**$20,591**	**$952**	**$2,012**	**$2,964**

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Closure Cost Estimate
Haul Material

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Generic Material Hauling - Cost Summary

	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	$4,052,500	$8,539,065	N/A	$12,591,565
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**

Generic Material Hauling - User Input

	Facility Description			Physical		Hauled Material			Crushing & Screening					Cover			Growth Media		
	Description (required)	ID Code	Type	Final Surface Area acres	Average Ripping Distance ft	Material Volume Required cy	Distance from Borrow Source (1) ft	Slope to Borrow Source % grade	Crush Material	Screen Material	Loss to Crushing/ Screening %	Distance to Placement Location (2) ft	Slope to Placement % grade	Cover Thickness in	Distance to Cover Borrow ft	Slope to Borrow % grade	Growth Media Thickness in	Distance to Growth Material Stockpile ft	Slope to Stockpile % grade
1	Tailings - 10-in Upper Capillary Break		Tailings Impoundments			93,936	12,700	5.0		Yes	25%	5,000	-5.0						
2	Tailings - 18 in. compacted layer from tailings		Tailings Impoundments			169,085	500	0.0											
3	Tailings - 6-Inch till		Tailings Impoundments			56,362	31,100	5.0											
4	Tailings - Growth Media (from existing stockpiles)		Tailings Impoundments			262,028	17,100	-5.0											
5	Tailings - 10-in Lower Capillary Break		Tailings Impoundments			93,936	500	0.0		Yes	25%	500	5.0						
6	Pit 174 glacial till wedge		Quarry			18,500	500	-5.0											
7	920 Foundations and buildings concrete to portal		Structures			4,762	5,333	-5.0											
8	Hawk Inlet Foundations and buildings concrete to portal		Structures			3,999	41,026	-5.0											
9	920 building debris to portal		Structures			11,917	5,333	-5.0											
10	Hawk Inlet building debris to portal		Structures			12,813	41,026	-5.0											
11	5.0 mile to tailings		Waste Rock Dump			1,000	28,037	-5.0											
12	3.9 mile to tailings		Waste Rock Dump			15,000	22,229	-5.0											
13	3.2 mile to tailings		Waste Rock Dump			600	12,778	-5.0											
14	0.9 mile to tailings		Waste Rock Dump			1,500	8,870	-5.0											
15	1.8 Mile to tailings		Waste Rock Dump			5,000	5,386	-5.0											
16	2.5 Mile to tailings		Waste Rock Dump			60,000	9,082	-5.0											
17	Zinc Ck Bridge to tailings		Waste Rock Dump			5,000	16,896	-5.0											
18	Pit 174 to tailings		Waste Rock Dump			4,000	11,616	-5.0											
19	7.3 Mile to tailings		Waste Rock Dump			500	30,202	-5.0											
20	1350 Road to tailings		Waste Rock Dump			8,000	31,759	-5.0											
21	Core Shed to tailings		Waste Rock Dump			2,000	5,386	-5.0											
22	Truck Pad to tailings		Waste Rock Dump			30,000	5,386	-5.0											
23	Con Storage to tailings		Waste Rock Dump			10,000	5,386	-5.0											
24	Tributary Creek to tailings		Waste Rock Dump			100	5,386	-5.0											
25	Site E to tailings		Waste Rock Dump			276,700	17,530	-5.0											
26	Pit 405 to tailings		Waste Rock Dump			20,000	33,317	-5.0											
27	D Pile to tailings		Waste Rock Dump			120,000	35,693	-5.0											
28	Pond 23 Bedding to tailings		Waste Rock Dump			6,000	36,221	-5.0											
29	Site C to portal		Waste Rock Dump			50,000	4,330	-5.0											
30	Mill Backslope to portal		Waste Rock Dump			25,000	3,326	-5.0											
31	Mill/Admin Fill to portal		Waste Rock Dump			100,000	3,326	-5.0											
32	Ore Pad to portal		Waste Rock Dump			18,000	3,326	-5.0											
33	Warehouse Pad to portal		Waste Rock Dump			13,000	3,326	-5.0											
34	Water Building to portal		Waste Rock Dump			3,500	3,326	-5.0											
35	Mine Portal to portal		Waste Rock Dump			4,000	1,267	-5.0											
36	960 Site to portal		Waste Rock Dump			100	1,267	-5.0											
37	1350 Site to portal		Waste Rock Dump			26,505	500	-5.0											
38	Site 23 to tailings (updated as per "SRCE update list for SRK 2014-01-19.x		Waste Rock Dump			805,505	36,200	-5.0											

Notes:
1. Input distance to crusher if material to be crushed
2. Input distance from crusher to placement if material to be crushed
3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

7920

8

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Closure Cost Estimate
Haul Material

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Generic Material Hauling - Cost Summary

	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	$4,052,500	$8,539,065	N/A	$12,591,565
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**

Generic Material Hauling - User Input (cont.)

		Hauling Material				Cover			Growth Media			Revegetation				
	Description (required)	Haul Material Type (select)	Material Hauling Fleet (select)	Each Fleet Size (from/to crusher) (user override)	Compact After Placement?	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch Type (select)	Fertilizer Type (select)	Scarify/ Rip? (select)	Scarifying/ Ripping Fleet (select)
1	Tailings - 10-in Upper Capillary Break	LS - broken	Med Truck	4												
2	Tailings - 18 in. compacted layer from tailings	LS - broken	Med Truck		Yes											
3	Tailings - 6-Inch till	LS - broken	Med Truck	8	Yes											
4	Tailings - Growth Media (from existing stockpiles)	LS - broken	Med Truck	8												
5	Tailings - 10-in Lower Capillary Break	LS - broken	Med Truck	4												
6	Pit 174 glacial till wedge	LS - broken	Med Truck													
7	920 Foundations and buildings concrete to portal	LS - broken	Small Truck													
8	Hawk Inlet Foundations and buildings concrete to portal	LS - broken	Small Truck	8												
9	920 building debris to portal	LS - broken	Small Truck													
10	Hawk Inlet building debris to portal	LS - broken	Small Truck	8												
11	5.0 mile to tailings	LS - broken	Med Truck	8												
12	3.9 mile to tailings	LS - broken	Med Truck	8												
13	3.2 mile to tailings	LS - broken	Med Truck													
14	0.9 mile to tailings	LS - broken	Med Truck													
15	1.8 Mile to tailings	LS - broken	Med Truck													
16	2.5 Mile to tailings	LS - broken	Med Truck													
17	Zinc Ck Bridge to tailings	LS - broken	Med Truck	8												
18	Pit 174 to tailings	LS - broken	Med Truck													
19	7.3 Mile to tailings	LS - broken	Med Truck	8												
20	1350 Road to tailings	LS - broken	Med Truck	8												
21	Core Shed to tailings	LS - broken	Med Truck													
22	Truck Pad to tailings	LS - broken	Med Truck													
23	Con Storage to tailings	LS - broken	Med Truck													
24	Tributary Creek to tailings	LS - broken	Med Truck													
25	Site E to tailings	LS - broken	Med Truck	8												
26	Pit 405 to tailings	LS - broken	Med Truck	8												
27	D Pile to tailings	LS - broken	Med Truck	8												
28	Pond 23 Bedding to tailings	LS - broken	Med Truck	8												
29	Site C to portal	LS - broken	Small Truck													
30	Mill Backslope to portal	LS - broken	Small Truck													
31	Mill/Admin Fill to portal	LS - broken	Small Truck													
32	Ore Pad to portal	LS - broken	Small Truck													
33	Warehouse Pad to portal	LS - broken	Small Truck													
34	Water Building to portal	LS - broken	Small Truck													
35	Mine Portal to portal	LS - broken	Small Truck													
36	960 Site to portal	LS - broken	Small Truck													
37	1350 Site to portal	LS - broken	Small Truck													
38	Site 23 to tailings (updated as per "SRCE update list for SR	LS - broken	Med Truck	8												

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

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Closure Cost Estimate
Haul Material

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Generic Material Hauling - Cost Summary

	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	$4,052,500	$8,539,065	N/A	$12,591,565
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**

Generic Material Hauling - Load, Haul, Place and Grade

		Material Haulage								Crush and/or Compact			
	Description (required)	Material Volume to Crusher cy	Final Material Volume cy	Material Haulage Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Hauling Labor Cost $	Hauling Equipment Cost $	Total Crush/ Screen Cost $	Compact Labor Cost $	Compact Equipment Cost $	Total Load/Haul/ Place Cost $
1	**Tailings - 10-in Upper Capillary Break**	125,248	93,936	740/988G	388	8	323	$179,179	$382,537	$93,936	$0	$0	$655,652
2	**Tailings - 18 in. compacted layer from tailings**	169,085	169,085	740/988G	594	2	285	$67,864	$148,818	$0	$55,798	$16,909	$289,389
3	**Tailings - 6-Inch till**	56,362	56,362	740/988G	412	8	137	$81,162	$169,495	$0	$18,599	$5,636	$274,893
4	**Tailings - Growth Media (from existing stockpiles)**	262,028	262,028	740/988G	432	8	607	$359,599	$750,974	$0	$0	$0	$1,110,573
5	**Tailings - 10-in Lower Capillary Break**	125,248	93,936	740/988G	1,189	8	105	$65,901	$140,695	$93,936	$0	$0	$300,532
6	**Pit 174 glacial till wedge**	18,500	18,500	740/988G	571	2	32	$7,620	$16,709	$0	$0	$0	$24,329
7	**920 Foundations and buildings concrete to portal**	4,762	4,762	740/988G	501	4	10	$3,562	$7,415	$0	$0	$0	$10,977
8	**Hawk Inlet Foundations and buildings concrete to portal**	3,999	3,999	740/988G	206	8	19	$11,256	$23,146	$0	$0	$0	$34,402
9	**920 building debris to portal**	11,917	11,917	740/988G	501	4	24	$8,549	$17,796	$0	$0	$0	$26,345
10	**Hawk Inlet building debris to portal**	12,813	12,813	740/988G	206	8	62	$36,730	$75,528	$0	$0	$0	$112,258
11	**5.0 mile to tailings**	1,000	1,000	740/988G	286	8	3	$1,777	$3,712	$0	$0	$0	$5,489
12	**3.9 mile to tailings**	15,000	15,000	740/988G	352	8	43	$25,474	$53,199	$0	$0	$0	$78,673
13	**3.2 mile to tailings**	600	600	740/988G	544	8	1	$592	$1,237	$0	$0	$0	$1,829
14	**0.9 mile to tailings**	1,500	1,500	740/988G	538	6	3	$1,423	$2,997	$0	$0	$0	$4,420
15	**1.8 Mile to tailings**	5,000	5,000	740/988G	498	4	10	$3,562	$7,605	$0	$0	$0	$11,167
16	**2.5 Mile to tailings**	60,000	60,000	740/988G	528	6	114	$54,072	$113,869	$0	$0	$0	$167,941
17	**Zinc Ck Bridge to tailings**	5,000	5,000	740/988G	438	8	11	$6,517	$13,609	$0	$0	$0	$20,126
18	**Pit 174 to tailings**	4,000	4,000	740/988G	591	8	7	$4,147	$8,660	$0	$0	$0	$12,807
19	**7.3 Mile to tailings**	500	500	740/988G	266	8	2	$1,185	$2,474	$0	$0	$0	$3,659
20	**1350 Road to tailings**	8,000	8,000	740/988G	259	8	31	$18,365	$38,353	$0	$0	$0	$56,718
21	**Core Shed to tailings**	2,000	2,000	740/988G	498	4	4	$1,425	$3,042	$0	$0	$0	$4,467
22	**Truck Pad to tailings**	30,000	30,000	740/988G	498	4	60	$21,373	$45,631	$0	$0	$0	$67,004
23	**Con Storage to tailings**	10,000	10,000	740/988G	498	4	20	$7,124	$15,210	$0	$0	$0	$22,334
24	**Tributary Creek to tailings**	100	100	740/988G	498	4	1	$356	$761	$0	$0	$0	$1,117
25	**Site E to tailings**	276,700	276,700	740/988G	425	8	651	$385,665	$805,411	$0	$0	$0	$1,191,076
26	**Pit 405 to tailings**	20,000	20,000	740/988G	246	8	81	$47,986	$100,212	$0	$0	$0	$148,198
27	**D Pile to tailings**	120,000	120,000	740/988G	232	8	517	$306,281	$639,627	$0	$0	$0	$945,908
28	**Pond 23 Bedding to tailings**	6,000	6,000	740/988G	226	8	27	$15,995	$33,404	$0	$0	$0	$49,399
29	**Site C to portal**	50,000	50,000	740/988G	564	4	89	$31,704	$65,995	$0	$0	$0	$97,699
30	**Mill Backslope to portal**	25,000	25,000	740/988G	488	3	51	$15,156	$31,740	$0	$0	$0	$46,896
31	**Mill/Admin Fill to portal**	100,000	100,000	740/988G	488	3	205	$60,920	$127,582	$0	$0	$0	$188,502
32	**Ore Pad to portal**	18,000	18,000	740/988G	488	3	37	$10,995	$23,027	$0	$0	$0	$34,022
33	**Warehouse Pad to portal**	13,000	13,000	740/988G	488	3	27	$8,024	$16,803	$0	$0	$0	$24,827
34	**Water Building to portal**	3,500	3,500	740/988G	488	3	7	$2,080	$4,356	$0	$0	$0	$6,436
35	**Mine Portal to portal**	4,000	4,000	740/988G	473	2	8	$1,905	$4,025	$0	$0	$0	$5,930
36	**960 Site to portal**	100	100	740/988G	473	2	1	$238	$503	$0	$0	$0	$741
37	**1350 Site to portal**	26,505	26,505	740/988G	571	2	46	$10,954	$23,146	$0	$0	$0	$34,100
38	**Site 23 to tailings (updated as per "SRCE update list for SR**	805,505	805,505	740/988G	226	8	3,564	$2,111,385	$4,409,345	$0	$0	$0	$6,520,730
		2,400,973	2,338,349				7,225	**$3,978,102**	**$8,328,648**	**$187,873**	**$74,398**	**$22,545**	**$12,591,565**

Notes: Final Material Volume includes allowance for additional material hauled to crushing/screening plant based on Loss to Crushing/Screening input above.

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Closure Cost Estimate
Haul Material

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Generic Material Hauling - Cost Summary

	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	$4,052,500	$8,539,065	N/A	$12,591,565
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**

Generic Material Hauling - Cover and Growth Media Costs

		Cover Placement								Growth Media Placement							
	Description (required)	Cover Volume cy	Cover Placement Fleet	Cover Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Cover Placement Cost $	Growth Media Volume cy	Growth Media Placement Fleet	Growth Media Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Topsoil Placement Cost $
1	Tailings - 10-in Upper Capillary Break						$0	$0	$0	0					$0	$0	$0
2	Tailings - 18 in. compacted layer from tailings						$0	$0	$0	0					$0	$0	$0
3	Tailings - 6-Inch till						$0	$0	$0	0					$0	$0	$0
4	Tailings - Growth Media (from existing stockpiles)						$0	$0	$0	0					$0	$0	$0
5	Tailings - 10-in Lower Capillary Break						$0	$0	$0	0					$0	$0	$0
6	Pit 174 glacial till wedge						$0	$0	$0	0					$0	$0	$0
7	920 Foundations and buildings concrete to portal						$0	$0	$0	0					$0	$0	$0
8	Hawk Inlet Foundations and buildings concrete to portal						$0	$0	$0	0					$0	$0	$0
9	920 building debris to portal						$0	$0	$0	0					$0	$0	$0
10	Hawk Inlet building debris to portal						$0	$0	$0	0					$0	$0	$0
11	5.0 mile to tailings						$0	$0	$0	0					$0	$0	$0
12	3.9 mile to tailings						$0	$0	$0	0					$0	$0	$0
13	3.2 mile to tailings						$0	$0	$0	0					$0	$0	$0
14	0.9 mile to tailings						$0	$0	$0	0					$0	$0	$0
15	1.8 Mile to tailings						$0	$0	$0	0					$0	$0	$0
16	2.5 Mile to tailings						$0	$0	$0	0					$0	$0	$0
17	Zinc Ck Bridge to tailings						$0	$0	$0	0					$0	$0	$0
18	Pit 174 to tailings						$0	$0	$0	0					$0	$0	$0
19	7.3 Mile to tailings						$0	$0	$0	0					$0	$0	$0
20	1350 Road to tailings						$0	$0	$0	0					$0	$0	$0
21	Core Shed to tailings						$0	$0	$0	0					$0	$0	$0
22	Truck Pad to tailings						$0	$0	$0	0					$0	$0	$0
23	Con Storage to tailings						$0	$0	$0	0					$0	$0	$0
24	Tributary Creek to tailings						$0	$0	$0	0					$0	$0	$0
25	Site E to tailings						$0	$0	$0	0					$0	$0	$0
26	Pit 405 to tailings						$0	$0	$0	0					$0	$0	$0
27	D Pile to tailings						$0	$0	$0	0					$0	$0	$0
28	Pond 23 Bedding to tailings						$0	$0	$0	0					$0	$0	$0
29	Site C to portal						$0	$0	$0	0					$0	$0	$0
30	Mill Backslope to portal						$0	$0	$0	0					$0	$0	$0
31	Mill/Admin Fill to portal						$0	$0	$0	0					$0	$0	$0
32	Ore Pad to portal						$0	$0	$0	0					$0	$0	$0
33	Warehouse Pad to portal						$0	$0	$0	0					$0	$0	$0
34	Water Building to portal						$0	$0	$0	0					$0	$0	$0
35	Mine Portal to portal						$0	$0	$0	0					$0	$0	$0
36	960 Site to portal						$0	$0	$0	0					$0	$0	$0
37	1350 Site to portal						$0	$0	$0	0					$0	$0	$0
38	Site 23 to tailings (updated as per "SRCE update list for SR						$0	$0	$0	0					$0	$0	$0
							$0	**$0**	**$0**						**$0**	**$0**	**$0**

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Generic Material Hauling - Cost Summary

	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	$4,052,500	$8,539,065	N/A	$12,591,565
Cover Placement Cost	$0	$0	N/A	$0
Topsoil Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$4,052,500**	**$8,539,065**	**$0**	**$12,591,565**

Generic Material Hauling - Scarifying/Revegetation Costs

	Description (required)	Total Surface Area acres	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Cost $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Cost $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**Tailings - 10-in Upper Capillary Break**	0.10		$0	$0	$0	$0	$0	$0	$0
2	**Tailings - 18 in. compacted layer from tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
3	**Tailings - 6-Inch till**	0.10		$0	$0	$0	$0	$0	$0	$0
4	**Tailings - Growth Media (from existing stockpiles)**	0.10		$0	$0	$0	$0	$0	$0	$0
5	**Tailings - 10-in Lower Capillary Break**	0.10		$0	$0	$0	$0	$0	$0	$0
6	**Pit 174 glacial till wedge**	0.10		$0	$0	$0	$0	$0	$0	$0
7	**920 Foundations and buildings concrete to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
8	**Hawk Inlet Foundations and buildings concrete to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
9	**920 building debris to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
10	**Hawk Inlet building debris to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
11	**5.0 mile to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
12	**3.9 mile to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
13	**3.2 mile to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
14	**0.9 mile to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
15	**1.8 Mile to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
16	**2.5 Mile to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
17	**Zinc Ck Bridge to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
18	**Pit 174 to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
19	**7.3 Mile to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
20	**1350 Road to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
21	**Core Shed to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
22	**Truck Pad to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
23	**Con Storage to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
24	**Tributary Creek to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
25	**Site E to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
26	**Pit 405 to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
27	**D Pile to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
28	**Pond 23 Bedding to tailings**	0.10		$0	$0	$0	$0	$0	$0	$0
29	**Site C to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
30	**Mill Backslope to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
31	**Mill/Admin Fill to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
32	**Ore Pad to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
33	**Warehouse Pad to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
34	**Water Building to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
35	**Mine Portal to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
36	**960 Site to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
37	**1350 Site to portal**	0.10		$0	$0	$0	$0	$0	$0	$0
38	**Site 23 to tailings (updated as per "SRCE update list for SR**	0.10		$0	$0	$0	$0	$0	$0	$0
		3.80		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

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Closure Cost Estimate
Foundations & Buildings

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety **Cost Basis: Greens Creek 2014**

Buildings & Foundation Demolition Cost Summary

	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

Buildings & Foundation - User Input

You must fill in ALL green cells and relevant blue cells in this section for each building or facility

	Facility Description			Physical - MANDATORY								Foundation Cover (1)			Growth Media (1) (entire footprint)		
	Description (required)	ID Code	Type	Length ft	Width ft	Eve Height ft	Slab Thickness in	Foundation Wall Thickness in	Foundation Wall Height ft	Average Flat Area Long Dimension (ripping distance) ft	Building Area Footprint (including surrounding facilities) acres	Foundation Cover Thickness in	Distance from Foundation Cover Borrow Area ft	Slope from Facility to Borrow Area % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	4 Power plant minor rectangle 1		Process - Other	22	8	12	6	12	2	23	0.00						
2	4160 tran		Process - Other	9	5	12	6	12	2	10	0.00						
3	4161 tran		Process - Other	13	8	12	6	12	2	15	0.00						
4	4162 tran		Process - Other	7	6	12	6	12	2	9	0.00						
5	860 batch plant		Process - Other	40	24	12	6	12	2	47	0.02						
6	860 batch plant bin walls (3)		Process - Other	15	1	12	6	12	2	15	0.00						
7	860 batch plant wall		Process - Other	40	1	12	6	12	2	40	0.00						
8	860 lab bldg		Process - Other	56	44	12	6	12	2	71	0.06						
9	860 safety		Process - Other	55	33	12	6	12	2	64	0.04						
10	Admin surface building shop		Process - Other	134.5	100	12	6	12	2	168	0.31						
11	Admin surface building shop entrance		Process - Other	22	10	12	6	12	2	24	0.01						
12	Batch plant		Process - Other	54	16	12	6	12	2	56	0.02						
13	Batch plant neighbour		Process - Other	20	8	12	6	12	2	22	0.00						
14	Bin		Process - Other	30	18	12	6	12	2	35	0.01						
15	Bollards		Process - Other	1.5	2	12	6	12	2	2	0.00						
16	Bulk thickener		Process - Other	31	31	12	6	12	2	44	0.02						
17	Bulk thickener concrete pad		Process - Other	48	40	12	6	12	2	62	0.04						
18	Caison/Caisson		Process - Other	5	5	12	6	12	2	7	0.00						
19	Cement storage		Process - Other	82	35	12	6	12	2	89	0.07						
20	Conc road		Process - Other	290	290	0	6	0	0	410	1.93						
21	Concentrator		Process - Other	178	113	70	6	12	2	211	0.46						
22	Concrete areas around batch plant		Process - Other	20	8	12	6	12	2	22	0.00						
23	Conners		Process - Other	31	8	12	6	12	2	32	0.01						
24	Cons load out area		Process - Other	82	78	12	6	12	2	113	0.15						
25	Cons load out area neighbour		Process - Other	65.75	30	12	6	12	2	72	0.05						
26	Conveyor		Process - Other	114	9	5	6	12	2	114	0.02						
27	Conveyor		Process - Other	40	8	12	6	12	2	41	0.01						
28	Covered area		Process - Other	52	20	12	6	12	2	56	0.02						
29	Covered oil storage		Process - Other	49.5	25	12	6	12	2	55	0.03						
30	Covered shop bays (4x)		Process - Other	86.5	12	12	6	12	2	87	0.02						
31	covered storage area		Process - Other	100	10	12	6	12	2	100	0.02						
32	Covered tailings loading area		Process - Other	115	43	12	6	12	2	123	0.11						
33	Covered tire storage		Process - Other	49.5	25	12	6	12	2	55	0.03						
34	Crusher		Process - Other	21	18	12	6	12	2	28	0.01						
35	Elec		Process - Other	4.5	2	12	6	12	2	5	0.00						
36	Elec panel		Process - Other	2	1	12	6	12	2	2	0.00						
37	Elec panel		Process - Other	2	1	12	6	12	2	2	0.00						
38	Elec vault		Process - Other	5.25	3	12	6	12	2	6	0.00						
39	Enviro chalet		Process - Other	40	21	12	6	12	2	45	0.02						
40	Existing sediment trap		Process - Other	10	6	12	6	12	2	11	0.00						
41	Fan		Process - Other	36	16	12	6	12	2	39	0.01						
42	Fan		Process - Other	34	16	12	6	12	2	38	0.01						
43	Filter bank 1		Process - Other	13	5	12	6	12	2	14	0.00						
44	Filter bank 2		Process - Other	13	5	12	6	12	2	14	0.00						
45	flotation		Process - Other	114	60	24	6	12	2	129	0.16						
46	Four storage buildings		Process - Other	80	32	12	6	12	2	86	0.06						
47	Fuel containment area - fuel tank 1		Process - Other	29	29	12	6	12	2	41	0.02						
48	Fuel containment area - fuel tank 2		Process - Other	20	20	12	6	12	2	28	0.01						
49	Fuel containment area - fuel tank 3		Process - Other	20	20	12	6	12	2	28	0.01						
50	Fuel containment pad		Process - Other	70	56	12	6	12	2	90	0.09						
51	Fueling station		Process - Other	13.5	11	12	6	12	2	17	0.00						
52	Generator		Process - Other	30	10	12	6	12	2	32	0.01						
53	Generator		Process - Other	30	10	12	6	12	2	32	0.01						
54	Geo bldg		Process - Other	42	32	12	6	12	2	53	0.03						

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

55	**Helicopter pad**		Process - Other	19.75	20					28	0.01						
56	**Hopper**		Process - Other	38	16	12	6	12	2	41	0.01						
57	**hopper**		Process - Other	36	17	12	6	12	2	40	0.01						
58	**Lead thick**		Process - Other	20.5	21	12	6	12	2	29	0.01						
59	**MCC**		Process - Other	10.5	7	12	6	12	2	13	0.00						
60	**Microwave tower**		Process - Other	15	10	12	6	12	2	18	0.00						
61	**Mine switch gear bldg**		Process - Other	26.5	22	12	6	12	2	34	0.01						
62	**Power plant**		Process - Other	78.5	64	12	6	12	2	101	0.12						
63	**Power plant "covered"**		Process - Other	27.25	22	12	6	12	2	35	0.01						
64	**Propane**		Process - Other	7.5	5	12	6	12	2	9	0.00						
65	**Pump house**		Process - Other	26	22	12	6	12	2	34	0.01						
66	**Pump shed**		Process - Other	17	10	12	6	12	2	20	0.00						
67	**Pump station**		Process - Other	26	25	12	6	12	2	36	0.01						
68	**ramp**		Process - Other	40	20	12	6	12	2	45	0.02						
69	**Rectangles by covered area 1**		Process - Other	80	32	12	6	12	2	86	0.06						
70	**Rectangles by warehouse 1**		Process - Other	160	64	12	6	12	2	172	0.24						
71	**Rectangles in laydown area 1**		Process - Other	80	32	12	6	12	2	86	0.06						
72	**Rectangles next to telepedestal - 1**		Process - Other	180	72	12	6	12	2	194	0.30						
73	**Sediment trap**		Process - Other	12	6	12	6	12	2	13	0.00						
74	**Sewer lift station**		Process - Other	7	7	12	6	12	2	10	0.00						
75	**Sewer treatment plan minor rectangles**		Process - Other	160	64	12	6	12	2	172	0.24						
76	**Sewer treatment plant**		Process - Other	60	16	12	6	12	2	62	0.02						
77	**Sewer vault**		Process - Other	18	10	12	6	12	2	21	0.00						
78	**Sewer vault**		Process - Other	2.75	3	12	6	12	2	4	0.00						
79	**Shack**		Process - Other	16.5	8	12	6	12	2	18	0.00						
80	**shed**		Process - Other	12	12	12	6	12	2	17	0.00						
81	**Shop**		Process - Other	58	33	12	6	12	2	67	0.04						
82	**Shop**		Process - Other	49.5	14	12	6	12	2	51	0.02						
83	**Shop bay**		Process - Other	36.75	10	12	6	12	2	38	0.01						
84	**Solitary rectangles - 1**		Process - Other	20	8	12	6	12	2	22	0.00						
85	**Solitary rectangles - 2**		Process - Other	20	8	12	6	12	2	22	0.00						
86	**Solitary rectangles - 3**		Process - Other	20	8	12	6	12	2	22	0.00						
87	**Stack**		Process - Other	10	10	12	6	12	2	14	0.00						
88	**Stairs**		Process - Other	85	5	12	6	12	2	85	0.01						
89	**Star trailer**		Process - Other	58.75	15	12	6	12	2	61	0.02						
90	**Storage shed**		Process - Other	20	8	12	6	12	2	22	0.00						
91	**Substation**		Process - Other	50	40	12	6	12	2	64	0.05						
92	**Tail stk**		Process - Other	19	19	12	6	12	2	27	0.01						
93	**Tailings bins**		Process - Other	81	21	12	6	12	2	84	0.04						
94	**tailings thickener**		Process - Other	61	61	12	6	12	2	86	0.09						
95	**Telepedestal abandoned and buried**		Process - Other	4	4	12	6	12	2	6	0.00						
96	**Tractor shed**		Process - Other	92.25	16	12	6	12	2	94	0.03						
97	**Tractor shed**		Process - Other	27.75	19	12	6	12	2	33	0.01						
98	**Trans**		Process - Other	12.5	13	12	6	12	2	18	0.00						
99	**Turbine generator**		Process - Other	32.25	8	12	6	12	2	33	0.01						
100	**Util vaults 1**		Process - Other	9.5	6	12	6	12	2	11	0.00						
101	**Util vaults 2**		Process - Other	9	5	12	6	12	2	10	0.00						
102	**Vault**		Process - Other	6	4	12	6	12	2	7	0.00						
103	**Vaults**		Process - Other	13	7	12	6	12	2	15	0.00						
104	**Vaults**		Process - Other	4	4	12	6	12	2	6	0.00						
105	**Warehouse**		Process - Other	108	52	12	6	12	2	120	0.13						
106	**Water treat bldg**		Process - Other	33.5	25	12	6	12	2	42	0.02						
107	**Water treat bldg**		Process - Other	28.5	25	12	6	12	2	38	0.02						
108	**Wet well**		Process - Other	6	6	12	6	12	2	8	0.00						
109	**Zinc thickener**		Process - Other	31	31	12	6	12	2	44	0.02						
110	**Zinc thickener neighbouring circle 1**		Process - Other	13	13	12	6	12	2	18	0.00						
111	**Zinc thickener neighbouring circle 2**		Process - Other	13	13	12	6	12	2	18	0.00						
112	**DB-01**		Process - Other	70	12	0	6	6	12	71	0.02						
113	**DB-01'**		Process - Other	70	12	0	6	6	12	71	0.02						
114	**DB-02**		Process - Other	64	20	0	6	6	4	67	0.03						
115	**DB-03**		Process - Other	80	12	0	6	6	6	81	0.02						
116	**DB-03'**		Process - Other	80	12	0	6	6	6	81	0.02						
117	**DB-04**		Process - Other	80	12	0	6	6	6	81	0.02						

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Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
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Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

118	**DB-04'**		Process - Other	**80**	**12**	**0**	**6**	**6**	**6**	**81**	**0.02**						
119	**DB-05**		Process - Other	**80**	**18**	**0**	**6**	**6**	**4**	**82**	**0.03**						
120	**New elect**		Process - Other	**41**	**32**	**12**	**6**			**52**	**0.03**						
121	**New light vehicle**		Process - Other	**53**	**41**	**12**	**6**			**67**	**0.05**						
122	**Hawk Inlet - 22' dia tank**		Process - Other	**25**	**25**	**12**	**6**	**12**	**2**	**35**	**0.01**						
123	**Hawk Inlet - 22' dia tank**		Process - Other	**25**	**25**	**12**	**6**	**12**	**2**	**35**	**0.01**						
124	**Hawk Inlet - 22' tank's Pad**		Process - Other	**67**	**27**	**12**	**6**	**12**	**2**	**72**	**0.04**						
125	**Hawk Inlet - Above ground cable tray**		Process - Other	**51.5**	**2**	**12**	**6**	**12**	**2**	**52**	**0.00**						
126	**Hawk Inlet - Bathroom**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
127	**Hawk Inlet - Bathroom**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
128	**Hawk Inlet - Boiler building**		Process - Other	**34**	**24**	**12**	**6**	**12**	**2**	**42**	**0.02**						
129	**Hawk Inlet - Building between north and south canneries, next to sewer t**		Process - Other	**26**	**24**	**12**	**6**	**12**	**2**	**35**	**0.01**						
130	**Hawk Inlet - Building next to boiler building**		Process - Other	**12.5**	**9**	**12**	**6**	**12**	**2**	**15**	**0.00**						
131	**Hawk Inlet - Building next to generator building**		Process - Other	**24**	**12**	**12**	**6**	**12**	**2**	**27**	**0.01**						
132	**Hawk Inlet - Building next to generator building**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
133	**Hawk Inlet - Building next to south cannery**		Process - Other	**25**	**13**	**12**	**6**	**12**	**2**	**28**	**0.01**						
134	**Hawk Inlet - Bunk house on pilings**		Process - Other	**12.5**	**19**	**12**	**6**	**12**	**2**	**22**	**0.01**						
135	**Hawk Inlet - Conc**		Process - Other	**22**	**20**	**12**	**6**	**12**	**2**	**30**	**0.01**						
136	**Hawk Inlet - Conc log retaining wall**		Process - Other	**77**	**20**	**12**	**6**	**12**	**2**	**80**	**0.04**						
137	**Hawk Inlet - Concentrate storage building**		Process - Other	**281**	**162**	**24**	**6**	**12**	**2**	**324**	**1.04**						
138	**Hawk Inlet - Concrete drain**		Process - Other	**24.5**	**3**	**12**	**6**	**12**	**2**	**25**	**0.00**						
139	**Hawk Inlet - Conveyor, headhouse etc.**		Process - Other	**71**	**56**	**12**	**6**	**12**	**2**	**90**	**0.09**						
140	**Hawk Inlet - Core shed**		Process - Other	**103.5**	**52**	**12**	**6**	**12**	**2**	**116**	**0.12**						
141	**Hawk Inlet - diesel**		Process - Other	**15.25**	**6**	**12**	**6**	**12**	**2**	**16**	**0.00**						
142	**Hawk Inlet - Diesel buiding**		Process - Other	**20**	**10**	**12**	**6**	**12**	**2**	**22**	**0.00**						
143	**Hawk Inlet - Explor. Trailer**		Process - Other	**60.75**	**14**	**12**	**6**	**12**	**2**	**62**	**0.02**						
144	**Hawk Inlet - Filter skid**		Process - Other	**11.5**	**10**	**12**	**6**	**12**	**2**	**15**	**0.00**						
145	**Hawk Inlet - Float 1**		Process - Other	**41**	**24**	**12**	**6**	**12**	**2**	**48**	**0.02**						
146	**Hawk Inlet - Float 3**		Process - Other	**39**	**23**	**12**	**6**	**12**	**2**	**45**	**0.02**						
147	**Hawk Inlet - Float plane dock**		Process - Other	**49**	**38**	**12**	**6**	**12**	**2**	**62**	**0.04**						
148	**Hawk Inlet - Fuel tank**		Process - Other	**36**	**36**	**12**	**6**	**12**	**2**	**51**	**0.03**						
149	**Hawk Inlet - Fuel tank**		Process - Other	**8**	**4**	**12**	**6**	**12**	**2**	**9**	**0.00**						
150	**Hawk Inlet - Gas**		Process - Other	**12**	**8**	**12**	**6**	**12**	**2**	**14**	**0.00**						
151	**Hawk Inlet - Generator building**		Process - Other	**42**	**23**	**12**	**6**	**12**	**2**	**48**	**0.02**						
152	**Hawk Inlet - H10**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
153	**Hawk Inlet - H11**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
154	**Hawk Inlet - H12**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
155	**Hawk Inlet - H13**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
156	**Hawk Inlet - H14**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
157	**Hawk Inlet - H9**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
158	**Hawk Inlet - Hawk inlet maintenance buidling**		Process - Other	**50.75**	**34**	**12**	**6**	**12**	**2**	**61**	**0.04**						
159	**Hawk Inlet - Housing**		Process - Other	**80**	**23**	**12**	**6**	**12**	**2**	**83**	**0.04**						
160	**Hawk Inlet - Housing**		Process - Other	**38**	**24**	**12**	**6**	**12**	**2**	**45**	**0.02**						
161	**Hawk Inlet - Incinerator**		Process - Other	**25**	**12**	**12**	**6**	**12**	**2**	**28**	**0.01**						
162	**Hawk Inlet - Laundry**		Process - Other	**20**	**8**	**12**	**6**	**12**	**2**	**22**	**0.00**						
163	**Hawk Inlet - Oil discharge**		Process - Other	**37**	**2**	**12**	**6**	**12**	**2**	**37**	**0.00**						
164	**Hawk Inlet - Oil tank**		Process - Other	**16**	**8**	**12**	**6**	**12**	**2**	**18**	**0.00**						
165	**Hawk Inlet - Oil tank**		Process - Other	**8**	**4**	**12**	**6**	**12**	**2**	**9**	**0.00**						
166	**Hawk Inlet - Poles**		Process - Other	**4**	**4**	**12**	**6**	**12**	**2**	**6**	**0.00**						
167	**Hawk Inlet - Pump**		Process - Other	**10**	**8**	**12**	**6**	**12**	**2**	**13**	**0.00**						
168	**Hawk Inlet - Pump house**		Process - Other	**5**	**4**	**12**	**6**	**12**	**2**	**6**	**0.00**						
169	**Hawk Inlet - Pump station**		Process - Other	**10**	**7**	**12**	**6**	**12**	**2**	**12**	**0.00**						
170	**Hawk Inlet - Ramp**		Process - Other	**90**	**20**	**12**	**6**	**12**	**2**	**92**	**0.04**						
171	**Hawk Inlet - Rec trailer**		Process - Other	**40**	**8**	**12**	**6**	**12**	**2**	**41**	**0.01**						
172	**Hawk Inlet - Rectangles around hawk inlet maint bldg**		Process - Other	**200**	**80**	**12**	**6**	**12**	**2**	**215**	**0.37**						
173	**Hawk Inlet - Rectangles between trailer and storage shed**		Process - Other	**126**	**56**	**12**	**6**	**12**	**2**	**138**	**0.16**						
174	**Hawk Inlet - Rectangles by rec trailer**		Process - Other	**100**	**40**	**12**	**6**	**12**	**2**	**108**	**0.09**						
175	**Hawk Inlet - Rectangles by warehouse**		Process - Other	**420**	**168**	**12**	**6**	**12**	**2**	**452**	**1.62**						
176	**Hawk Inlet - Sewage treatment plant**		Process - Other	**45.75**	**43**	**12**	**6**	**12**	**2**	**62**	**0.04**						
177	**Hawk Inlet - Sewer lift station**		Process - Other	**5**	**5**	**12**	**6**	**12**	**2**	**7**	**0.00**						
178	**Hawk Inlet - shed**		Process - Other	**49**	**17**	**12**	**6**	**12**	**2**	**52**	**0.02**						
179	**Hawk Inlet - shed**		Process - Other	**46.75**	**17**	**12**	**6**	**12**	**2**	**50**	**0.02**						
180	**Hawk Inlet - Shift Housing**		Process - Other	**115**	**30**	**12**	**6**	**12**	**2**	**119**	**0.08**						

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety **Cost Basis: Greens Creek 2014**

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

181	**Hawk Inlet - Stationary barge**		Process - Other	**140**	**40**	**12**	**6**	**12**	**2**	**146**	**0.13**						
182	**Hawk Inlet - Storage shed**		Process - Other	**94**	**10**	**12**	**6**	**12**	**2**	**95**	**0.02**						
183	**Hawk Inlet - storage shed**		Process - Other	**94**	**20**	**12**	**6**	**12**	**2**	**96**	**0.04**						
184	**Hawk Inlet - Sump**		Process - Other	**12.5**	**10**	**12**	**6**	**12**	**2**	**16**	**0.00**						
185	**Hawk Inlet - Tank**		Process - Other	**30**	**8**	**12**	**6**	**12**	**2**	**31**	**0.01**						
186	**Hawk Inlet - Tank**		Process - Other	**8**	**4**	**12**	**6**	**12**	**2**	**9**	**0.00**						
187	**Hawk Inlet - Tanks next to water treatment building**		Process - Other	**12**	**12**	**12**	**6**	**12**	**2**	**17**	**0.00**						
188	**Hawk Inlet - Trailer**		Process - Other	**61**	**14**	**12**	**6**	**12**	**2**	**63**	**0.02**						
189	**Hawk Inlet - Trailer**		Process - Other	**60.75**	**14**	**12**	**6**	**12**	**2**	**62**	**0.02**						
190	**Hawk Inlet - Trailer**		Process - Other	**42**	**12**	**12**	**6**	**12**	**2**	**44**	**0.01**						
191	**Hawk Inlet - trailer**		Process - Other	**40**	**10**	**12**	**6**	**12**	**2**	**41**	**0.01**						
192	**Hawk Inlet - trailer**		Process - Other	**40**	**10**	**12**	**6**	**12**	**2**	**41**	**0.01**						
193	**Hawk Inlet - trailer**		Process - Other	**31.75**	**10**	**12**	**6**	**12**	**2**	**33**	**0.01**						
194	**Hawk Inlet - Trans**		Process - Other	**6**	**4**	**12**	**6**	**12**	**2**	**7**	**0.00**						
195	**Hawk Inlet - Transformer**		Process - Other	**12**	**12**	**12**	**6**	**12**	**2**	**17**	**0.00**						
196	**Hawk Inlet - used oil tank**		Process - Other	**25**	**8**	**12**	**6**	**12**	**2**	**26**	**0.00**						
197	**Hawk Inlet - Warehouse**		Process - Other	**94**	**60**	**12**	**6**	**12**	**2**	**112**	**0.13**						
198	**Hawk Inlet - Water treatment building**		Process - Other	**34.5**	**29**	**12**	**6**	**12**	**2**	**45**	**0.02**						
199	**Hawk Inlet - Wheelwash building**		Process - Other	**55**	**34**	**12**	**6**	**12**	**2**	**65**	**0.04**						
200	**Hawk inlet new housing part I**		Process - Other	**124**	**75**	**40**	**6**			**145**	**0.21**						
201	**Hawk inlet new housing part II**		Process - Other	**91**	**25**	**40**	**6**			**94**	**0.05**						

Notes:
1. Foundation cover only calculated to cover slab. Growth media estimated over entire footprint area
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

Conc road from 920_asbuilt_ft.dwg (layer 311400 010 Concrete surface); **Growth media and revegetation under Yards**
Source:
920_asbuilt.dwg
2011920-1350-Site23Disturbanceareas.dwg
2011HAWKINLETDISTURBANCEAREA.dwg
All acres and reseeding/reveg/ripping calculations are in the Yards sheet
Cost to haul the broken concrete underground is included in the Haul Material sheet
Concentrator height from 30010210.DWG

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Closure Cost Estimate
Foundations & Buildings

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary

	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

Buildings & Foundation - User Input (cont.) You must fill in ALL green cells and relevant blue cells in this section for each building or facility

		Construction Materials		Slab Demolition		Foundation Cover			Growth Media			Revegetation				
	Description (required)	Building Type (select)	Foundation Wall Type (select)	Slab Demo Method (select)	Slab Breaking Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1	4 Power plant minor rectangle 1	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
2	4160 tran	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
3	4161 tran	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
4	4162 tran	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
5	860 batch plant	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
6	860 batch plant bin walls (3)	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
7	860 batch plant wall	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
8	860 lab bldg	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
9	860 safety	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
10	Admin surface building shop	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
11	Admin surface building shop entrance	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
12	Batch plant	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
13	Batch plant neighbour	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
14	Bin	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
15	Bollards	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
16	Bulk thickener	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
17	Bulk thickener concrete pad	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
18	Caison/Caisson	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
19	Cement storage	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
20	Conc road	Lg. concrete	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
21	Concentrator	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
22	Concrete areas around batch plant	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
23	Conners	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
24	Cons load out area	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
25	Cons load out area neighbour	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
26	Conveyor	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
27	Conveyor	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
28	Covered area	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
29	Covered oil storage	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
30	Covered shop bays (4x)	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
31	covered storage area	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
32	Covered tailings loading area	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
33	Covered tire storage	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
34	Crusher	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
35	Elec	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
36	Elec panel	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
37	Elec panel	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
38	Elec vault	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
39	Enviro chalet	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
40	Existing sediment trap	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
41	Fan	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
42	Fan	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
43	Filter bank 1	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
44	Filter bank 2	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
45	flotation	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
46	Four storage buildings	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
47	Fuel containment area - fuel tank 1	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
48	Fuel containment area - fuel tank 2	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
49	Fuel containment area - fuel tank 3	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
50	Fuel containment pad	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
51	Fueling station	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
52	Generator	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
53	Generator	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
54	Geo bldg	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											
55	Helicopter pad	Lg. steel	Block 4 in (100 mm) thick	Break & bury	Med Excavator											

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Date of Submittal: April 2014
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Model Version: Version 1.4.1
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Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

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Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

56	**Hopper**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
57	**hopper**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
58	**Lead thick**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
59	**MCC**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
60	**Microwave tower**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
61	**Mine switch gear bldg**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
62	**Power plant**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
63	**Power plant "covered"**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
64	**Propane**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
65	**Pump house**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
66	**Pump shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
67	**Pump station**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
68	**ramp**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
69	**Rectangles by covered area 1**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
70	**Rectangles by warehouse 1**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
71	**Rectangles in laydown area 1**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
72	**Rectangles next to telepedestal - 1**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
73	**Sediment trap**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
74	**Sewer lift station**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
75	**Sewer treatment plan minor rectangles**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
76	**Sewer treatment plant**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
77	**Sewer vault**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
78	**Sewer vault**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
79	**Shack**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
80	**shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
81	**Shop**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
82	**Shop**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
83	**Shop bay**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
84	**Solitary rectangles - 1**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
85	**Solitary rectangles - 2**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
86	**Solitary rectangles - 3**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
87	**Stack**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
88	**Stairs**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
89	**Star trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
90	**Storage shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
91	**Substation**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
92	**Tail stk**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
93	**Tailings bins**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
94	**tailings thickener**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
95	**Telepedestal abandoned and buried**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
96	**Tractor shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
97	**Tractor shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
98	**Trans**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
99	**Turbine generator**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
100	**Util vaults 1**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
101	**Util vaults 2**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
102	**Vault**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
103	**Vaults**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
104	**Vaults**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
105	**Warehouse**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
106	**Water treat bldg**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
107	**Water treat bldg**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
108	**Wet well**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
109	**Zinc thickener**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
110	**Zinc thickener neighbouring circle 1**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
111	**Zinc thickener neighbouring circle 2**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
112	**DB-01**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
113	**DB-01'**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
114	**DB-02**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
115	**DB-03**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
116	**DB-03'**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
117	**DB-04**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
118	**DB-04'**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

119	**DB-05**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
120	**New elect**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
121	**New light vehicle**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
122	**Hawk Inlet - 22' dia tank**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
123	**Hawk Inlet - 22' dia tank**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
124	**Hawk Inlet - 22' tank's Pad**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
125	**Hawk Inlet - Above ground cable tray**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
126	**Hawk Inlet - Bathroom**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
127	**Hawk Inlet - Bathroom**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
128	**Hawk Inlet - Boiler building**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
129	**Hawk Inlet - Building between north and south canneries,**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
130	**Hawk Inlet - Building next to boiler building**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
131	**Hawk Inlet - Building next to generator building**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
132	**Hawk Inlet - Building next to generator building**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
133	**Hawk Inlet - Building next to south cannery**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
134	**Hawk Inlet - Bunk house on pilings**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
135	**Hawk Inlet - Conc**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
136	**Hawk Inlet - Conc log retaining wall**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
137	**Hawk Inlet - Concentrate storage building**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
138	**Hawk Inlet - Concrete drain**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
139	**Hawk Inlet - Conveyor, headhouse etc.**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
140	**Hawk Inlet - Core shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
141	**Hawk Inlet - diesel**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
142	**Hawk Inlet - Diesel buiding**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
143	**Hawk Inlet - Explor. Trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
144	**Hawk Inlet - Filter skid**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
145	**Hawk Inlet - Float 1**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
146	**Hawk Inlet - Float 3**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
147	**Hawk Inlet - Float plane dock**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
148	**Hawk Inlet - Fuel tank**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
149	**Hawk Inlet - Fuel tank**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
150	**Hawk Inlet - Gas**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
151	**Hawk Inlet - Generator building**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
152	**Hawk Inlet - H10**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
153	**Hawk Inlet - H11**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
154	**Hawk Inlet - H12**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
155	**Hawk Inlet - H13**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
156	**Hawk Inlet - H14**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
157	**Hawk Inlet - H9**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
158	**Hawk Inlet - Hawk inlet maintenance buidling**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
159	**Hawk Inlet - Housing**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
160	**Hawk Inlet - Housing**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
161	**Hawk Inlet - Incinerator**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
162	**Hawk Inlet - Laundry**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
163	**Hawk Inlet - Oil discharge**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
164	**Hawk Inlet - Oil tank**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
165	**Hawk Inlet - Oil tank**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
166	**Hawk Inlet - Poles**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
167	**Hawk Inlet - Pump**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
168	**Hawk Inlet - Pump house**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
169	**Hawk Inlet - Pump station**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
170	**Hawk Inlet - Ramp**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
171	**Hawk Inlet - Rec trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
172	**Hawk Inlet - Rectangles around hawk inlet maint bldg**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
173	**Hawk Inlet - Rectangles between trailer and storage shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
174	**Hawk Inlet - Rectangles by rec trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
175	**Hawk Inlet - Rectangles by warehouse**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
176	**Hawk Inlet - Sewage treatment plant**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
177	**Hawk Inlet - Sewer lift station**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
178	**Hawk Inlet - shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
179	**Hawk Inlet - shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
180	**Hawk Inlet - Shift Housing**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
181	**Hawk Inlet - Stationary barge**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

182	**Hawk Inlet - Storage shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
183	**Hawk Inlet - storage shed**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
184	**Hawk Inlet - Sump**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
185	**Hawk Inlet - Tank**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
186	**Hawk Inlet - Tank**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
187	**Hawk Inlet - Tanks next to water treatment building**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
188	**Hawk Inlet - Trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
189	**Hawk Inlet - Trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
190	**Hawk Inlet - Trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
191	**Hawk Inlet - trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
192	**Hawk Inlet - trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
193	**Hawk Inlet - trailer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
194	**Hawk Inlet - Trans**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
195	**Hawk Inlet - Transformer**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
196	**Hawk Inlet - used oil tank**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
197	**Hawk Inlet - Warehouse**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
198	**Hawk Inlet - Water treatment building**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
199	**Hawk Inlet - Wheelwash building**	**Lg. steel**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
200	**Hawk inlet new housing part I**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											
201	**Hawk inlet new housing part II**	**Lg. concrete**	**Block 4 in (100 mm) thick**	**Break & bury**	**Med Excavator**											

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety **Cost Basis: Greens Creek 2014**

Buildings & Foundation Demolition Cost Summary

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Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

Buildings & Foundation - Calculations

Building Volume Calculations

Using Means Heavy Construction Cost Data (2004) calculates cubic feet from building dimensions
Estimage slab thickness and wall thickness if not known
Assumes that all concrete slabs are reinforced
Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision
(addressed in Misc. Costs) and Davis-Bacon Wage Rates
Demolition costs do not include hauling or disposing if debris - Use Waste Disposal module

Slab Demolition Calculations

Minimum 1 hr excavator time for slab demolition

Cover Volume Calculation

Foundation area x cover thickness
If "Bury in Place" is selected as slab demolition method, cover thickness is adjusted such that
total cover (cover + growth media) equals value entered in "Minimum thickness of cover over unbroken slab" cell above

Ripping/Scarifying Calculations

Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation

Minimum 1 acre revegetation crew time per area

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Closure Cost Estimate
Foundations & Buildings

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

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Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

Building & Foundation Demolition Costs

Uses RS Means Heavy Construction Cost Data for building and wall demolition cost calculations. Uses CAT Handbook for slab breaking production.

								Building Demolition			Wall Demolition			Slab Demolition			Total Costs		
	Description (required)	Building Footprint (slab area) sqft	Building Volume cu ft	Wall Length ft	Wall Area sq ft	Slab Demolition Fleet	Slab Volume cy	Total Labor Cost $	Total Equipment Cost $	Total Building Demolition Cost $	Total Labor Cost $	Total Equipment Cost $	Total Wall Demolition Cost $	Total Labor Cost $	Total Equipment Cost $	Total Slab Breaking Cost $	Total Labor Cost $	Total Equipment Cost $	Total Demolition Costs $
1	**4 Power plant minor rectangle 1**	176	2,112	60	120	345B	3	$190	$42	$232	$324	$0	$324	$118	$315	$433	$632	$357	$989
2	**4160 tran**	45	540	28	56	345B	1	$49	$11	$60	$151	$0	$151	$118	$315	$433	$318	$326	$644
3	**4161 tran**	104	1,248	42	84	345B	2	$112	$25	$137	$227	$0	$227	$118	$315	$433	$457	$340	$797
4	**4162 tran**	42	504	26	52	345B	1	$45	$10	$55	$140	$0	$140	$118	$315	$433	$303	$325	$628
5	**860 batch plant**	960	11,520	128	256	345B	18	$1,037	$230	$1,267	$691	$0	$691	$118	$315	$433	$1,846	$545	$2,391
6	**860 batch plant bin walls (3)**	15	180	32	64	345B	0	$16	$4	$20	$173	$0	$173	$0	$0	$0	$189	$4	$193
7	**860 batch plant wall**	40	480	82	164	345B	1	$43	$10	$53	$443	$0	$443	$118	$315	$433	$604	$325	$929
8	**860 lab bldg**	2,464	29,568	200	400	345B	46	$2,661	$591	$3,252	$1,080	$0	$1,080	$118	$315	$433	$3,859	$906	$4,765
9	**860 safety**	1,788	21,450	175	350	345B	33	$1,931	$429	$2,360	$945	$0	$945	$118	$315	$433	$2,994	$744	$3,738
10	**Admin surface building shop**	13,450	161,400	469	938	345B	249	$14,526	$3,228	$17,754	$2,533	$0	$2,533	$496	$1,321	$1,817	$17,555	$4,549	$22,104
11	**Admin surface building shop entrance**	220	2,640	64	128	345B	4	$238	$53	$291	$346	$0	$346	$118	$315	$433	$702	$368	$1,070
12	**Batch plant**	864	10,368	140	280	345B	16	$933	$207	$1,140	$756	$0	$756	$118	$315	$433	$1,807	$522	$2,329
13	**Batch plant neighbour**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
14	**Bin**	540	6,480	96	192	345B	10	$583	$130	$713	$518	$0	$518	$118	$315	$433	$1,219	$445	$1,664
15	**Bollards**	2	27	6	12	345B	0	$2	$1	$3	$32	$0	$32	$0	$0	$0	$34	$1	$35
16	**Bulk thickener**	961	11,532	124	248	345B	18	$1,038	$231	$1,269	$670	$0	$670	$118	$315	$433	$1,826	$546	$2,372
17	**Bulk thickener concrete pad**	1,920	23,040	176	352	345B	36	$2,074	$461	$2,535	$950	$0	$950	$118	$315	$433	$3,142	$776	$3,918
18	**Caison/Caisson**	25	300	20	40	345B	0	$27	$6	$33	$108	$0	$108	$0	$0	$0	$135	$6	$141
19	**Cement storage**	2,870	34,440	234	468	345B	53	$3,100	$689	$3,789	$1,264	$0	$1,264	$118	$315	$433	$4,482	$1,004	$5,486
20	**Conc road**	84,100	0	1,160	0	345B	1,557	$0	$0	$0	$0	$0	$0	$3,072	$8,180	$11,252	$3,072	$8,180	$11,252
21	**Concentrator**	20,114	1,407,980	582	1,164	345B	372	$126,718	$28,160	$154,878	$3,143	$0	$3,143	$732	$1,951	$2,683	$130,593	$30,111	$160,704
22	**Concrete areas around batch plant**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
23	**Conners**	248	2,976	78	156	345B	5	$268	$60	$328	$421	$0	$421	$118	$315	$433	$807	$375	$1,182
24	**Cons load out area**	6,396	76,752	320	640	345B	118	$6,908	$1,535	$8,443	$1,728	$0	$1,728	$236	$629	$865	$8,872	$2,164	$11,036
25	**Cons load out area neighbour**	1,973	23,670	192	384	345B	37	$2,130	$473	$2,603	$1,037	$0	$1,037	$118	$315	$433	$3,285	$788	$4,073
26	**Conveyor**	1,026	5,130	246	492	345B	19	$462	$103	$565	$1,328	$0	$1,328	$118	$315	$433	$1,908	$418	$2,326
27	**Conveyor**	320	3,840	96	192	345B	6	$346	$77	$423	$518	$0	$518	$118	$315	$433	$982	$392	$1,374
28	**Covered area**	1,040	12,480	144	288	345B	19	$1,123	$250	$1,373	$778	$0	$778	$118	$315	$433	$2,019	$565	$2,584
29	**Covered oil storage**	1,213	14,553	148	296	345B	22	$1,310	$291	$1,601	$799	$0	$799	$118	$315	$433	$2,227	$606	$2,833
30	**Covered shop bays (4x)**	1,038	12,456	197	394	345B	19	$1,121	$249	$1,370	$1,064	$0	$1,064	$118	$315	$433	$2,303	$564	$2,867
31	**covered storage area**	1,000	12,000	220	440	345B	19	$1,080	$240	$1,320	$1,188	$0	$1,188	$118	$315	$433	$2,386	$555	$2,941
32	**Covered tailings loading area**	4,945	59,340	316	632	345B	92	$5,341	$1,187	$6,528	$1,706	$0	$1,706	$177	$472	$649	$7,224	$1,659	$8,883
33	**Covered tire storage**	1,213	14,553	148	296	345B	22	$1,310	$291	$1,601	$799	$0	$799	$118	$315	$433	$2,227	$606	$2,833
34	**Crusher**	378	4,536	78	156	345B	7	$408	$91	$499	$421	$0	$421	$118	$315	$433	$947	$406	$1,353
35	**Elec**	7	81	12	24	345B	0	$7	$2	$9	$65	$0	$65	$0	$0	$0	$72	$2	$74
36	**Elec panel**	2	18	6	12	345B	0	$2	$0	$2	$32	$0	$32	$0	$0	$0	$34	$0	$34
37	**Elec panel**	2	18	6	12	345B	0	$2	$0	$2	$32	$0	$32	$0	$0	$0	$34	$0	$34
38	**Elec vault**	14	173	16	32	345B	0	$16	$3	$19	$86	$0	$86	$0	$0	$0	$102	$3	$105
39	**Enviro chalet**	820	9,840	121	242	345B	15	$886	$197	$1,083	$653	$0	$653	$118	$315	$433	$1,657	$512	$2,169
40	**Existing sediment trap**	55	660	31	62	345B	1	$59	$13	$72	$167	$0	$167	$118	$315	$433	$344	$328	$672
41	**Fan**	576	6,912	104	208	345B	11	$622	$138	$760	$562	$0	$562	$118	$315	$433	$1,302	$453	$1,755
42	**Fan**	544	6,528	100	200	345B	10	$588	$131	$719	$540	$0	$540	$118	$315	$433	$1,246	$446	$1,692
43	**Filter bank 1**	65	780	36	72	345B	1	$70	$16	$86	$194	$0	$194	$118	$315	$433	$382	$331	$713
44	**Filter bank 2**	65	780	36	72	345B	1	$70	$16	$86	$194	$0	$194	$118	$315	$433	$382	$331	$713
45	**flotation**	6,840	164,160	348	696	345B	127	$14,774	$3,283	$18,057	$1,879	$0	$1,879	$248	$661	$909	$16,901	$3,944	$20,845
46	**Four storage buildings**	2,560	30,720	224	448	345B	47	$2,765	$614	$3,379	$1,210	$0	$1,210	$118	$315	$433	$4,093	$929	$5,022
47	**Fuel containment area - fuel tank 1**	841	10,092	116	232	345B	16	$908	$202	$1,110	$626	$0	$626	$118	$315	$433	$1,652	$517	$2,169
48	**Fuel containment area - fuel tank 2**	400	4,800	80	160	345B	7	$432	$96	$528	$432	$0	$432	$118	$315	$433	$982	$411	$1,393
49	**Fuel containment area - fuel tank 3**	400	4,800	80	160	345B	7	$432	$96	$528	$432	$0	$432	$118	$315	$433	$982	$411	$1,393
50	**Fuel containment pad**	3,920	47,040	252	504	345B	73	$4,234	$941	$5,175	$1,361	$0	$1,361	$142	$378	$520	$5,737	$1,319	$7,056
51	**Fueling station**	145	1,742	49	98	345B	3	$157	$35	$192	$265	$0	$265	$118	$315	$433	$540	$350	$890
52	**Generator**	300	3,600	80	160	345B	6	$324	$72	$396	$432	$0	$432	$118	$315	$433	$874	$387	$1,261
53	**Generator**	300	3,600	80	160	345B	6	$324	$72	$396	$432	$0	$432	$118	$315	$433	$874	$387	$1,261
54	**Geo bldg**	1,344	16,128	148	296	345B	25	$1,452	$323	$1,775	$799	$0	$799	$118	$315	$433	$2,369	$638	$3,007
55	**Helicopter pad**	385	0	79	0	345B	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

56	**Hopper**	608	7,296	108	216	345B	11	$657	$146	$803	$583	$0	$583	$118	$315	$433	$1,358	$461	$1,819
57	**hopper**	612	7,344	106	212	345B	11	$661	$147	$808	$572	$0	$572	$118	$315	$433	$1,351	$462	$1,813
58	**Lead thick**	420	5,043	82	164	345B	8	$454	$101	$555	$443	$0	$443	$118	$315	$433	$1,015	$416	$1,431
59	**MCC**	74	882	35	70	345B	1	$79	$18	$97	$189	$0	$189	$118	$315	$433	$386	$333	$719
60	**Microwave tower**	150	1,800	50	100	345B	3	$162	$36	$198	$270	$0	$270	$118	$315	$433	$550	$351	$901
61	**Mine switch gear bldg**	583	6,996	97	194	345B	11	$630	$140	$770	$524	$0	$524	$118	$315	$433	$1,272	$455	$1,727
62	**Power plant**	5,024	60,288	285	570	345B	93	$5,426	$1,206	$6,632	$1,539	$0	$1,539	$189	$503	$692	$7,154	$1,709	$8,863
63	**Power plant "covered"**	600	7,194	99	198	345B	11	$647	$144	$791	$535	$0	$535	$118	$315	$433	$1,300	$459	$1,759
64	**Propane**	38	450	25	50	345B	1	$41	$9	$50	$135	$0	$135	$118	$315	$433	$294	$324	$618
65	**Pump house**	572	6,864	96	192	345B	11	$618	$137	$755	$518	$0	$518	$118	$315	$433	$1,254	$452	$1,706
66	**Pump shed**	174	2,091	55	110	345B	3	$188	$42	$230	$297	$0	$297	$118	$315	$433	$603	$357	$960
67	**Pump station**	650	7,800	102	204	345B	12	$702	$156	$858	$551	$0	$551	$118	$315	$433	$1,371	$471	$1,842
68	**ramp**	800	9,600	120	240	345B	15	$864	$192	$1,056	$648	$0	$648	$118	$315	$433	$1,630	$507	$2,137
69	**Rectangles by covered area 1**	2,560	30,720	224	448	345B	47	$2,765	$614	$3,379	$1,210	$0	$1,210	$118	$315	$433	$4,093	$929	$5,022
70	**Rectangles by warehouse 1**	10,240	122,880	448	896	345B	190	$11,059	$2,458	$13,517	$2,419	$0	$2,419	$378	$1,007	$1,385	$13,856	$3,465	$17,321
71	**Rectangles in laydown area 1**	2,560	30,720	224	448	345B	47	$2,765	$614	$3,379	$1,210	$0	$1,210	$118	$315	$433	$4,093	$929	$5,022
72	**Rectangles next to telepedestal - 1**	12,960	155,520	504	1,008	345B	240	$13,997	$3,110	$17,107	$2,722	$0	$2,722	$473	$1,258	$1,731	$17,192	$4,368	$21,560
73	**Sediment trap**	66	792	35	70	345B	1	$71	$16	$87	$189	$0	$189	$118	$315	$433	$378	$331	$709
74	**Sewer lift station**	49	588	28	56	345B	1	$53	$12	$65	$151	$0	$151	$118	$315	$433	$322	$327	$649
75	**Sewer treatment plan minor rectangles**	10,240	122,880	448	896	345B	190	$11,059	$2,458	$13,517	$2,419	$0	$2,419	$378	$1,007	$1,385	$13,856	$3,465	$17,321
76	**Sewer treatment plant**	960	11,520	152	304	345B	18	$1,037	$230	$1,267	$821	$0	$821	$118	$315	$433	$1,976	$545	$2,521
77	**Sewer vault**	180	2,160	56	112	345B	3	$194	$43	$237	$302	$0	$302	$118	$315	$433	$614	$358	$972
78	**Sewer vault**	8	91	11	22	345B	0	$8	$2	$10	$59	$0	$59	$0	$0	$0	$67	$2	$69
79	**Shack**	124	1,485	48	96	345B	2	$134	$30	$164	$259	$0	$259	$118	$315	$433	$511	$345	$856
80	**shed**	144	1,728	48	96	345B	3	$156	$35	$191	$259	$0	$259	$118	$315	$433	$533	$350	$883
81	**Shop**	1,914	22,968	182	364	345B	35	$2,067	$459	$2,526	$983	$0	$983	$118	$315	$433	$3,168	$774	$3,942
82	**Shop**	668	8,019	126	252	345B	12	$722	$160	$882	$680	$0	$680	$118	$315	$433	$1,520	$475	$1,995
83	**Shop bay**	368	4,410	94	188	345B	7	$397	$88	$485	$508	$0	$508	$118	$315	$433	$1,023	$403	$1,426
84	**Solitary rectangles - 1**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
85	**Solitary rectangles - 2**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
86	**Solitary rectangles - 3**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
87	**Stack**	100	1,200	40	80	345B	2	$108	$24	$132	$216	$0	$216	$118	$315	$433	$442	$339	$781
88	**Stairs**	425	5,100	180	360	345B	8	$459	$102	$561	$972	$0	$972	$118	$315	$433	$1,549	$417	$1,966
89	**Star trailer**	881	10,575	148	296	345B	16	$952	$212	$1,164	$799	$0	$799	$118	$315	$433	$1,869	$527	$2,396
90	**Storage shed**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
91	**Substation**	2,000	24,000	180	360	345B	37	$2,160	$480	$2,640	$972	$0	$972	$118	$315	$433	$3,250	$795	$4,045
92	**Tail stk**	361	4,332	76	152	345B	7	$390	$87	$477	$410	$0	$410	$118	$315	$433	$918	$402	$1,320
93	**Tailings bins**	1,701	20,412	204	408	345B	32	$1,837	$408	$2,245	$1,102	$0	$1,102	$118	$315	$433	$3,057	$723	$3,780
94	**tailings thickener**	3,721	44,652	244	488	345B	69	$4,019	$893	$4,912	$1,318	$0	$1,318	$142	$378	$520	$5,479	$1,271	$6,750
95	**Telepedestal abandoned and buried**	16	192	16	32	345B	0	$17	$4	$21	$86	$0	$86	$0	$0	$0	$103	$4	$107
96	**Tractor shed**	1,430	17,159	216	432	345B	26	$1,544	$343	$1,887	$1,166	$0	$1,166	$118	$315	$433	$2,828	$658	$3,486
97	**Tractor shed**	513	6,161	93	186	345B	10	$554	$123	$677	$502	$0	$502	$118	$315	$433	$1,174	$438	$1,612
98	**Trans**	156	1,875	50	100	345B	3	$169	$38	$207	$270	$0	$270	$118	$315	$433	$557	$353	$910
99	**Turbine generator**	258	3,096	81	162	345B	5	$279	$62	$341	$437	$0	$437	$118	$315	$433	$834	$377	$1,211
100	**Util vaults 1**	52	627	30	60	345B	1	$56	$13	$69	$162	$0	$162	$118	$315	$433	$336	$328	$664
101	**Util vaults 2**	45	540	28	56	345B	1	$49	$11	$60	$151	$0	$151	$118	$315	$433	$318	$326	$644
102	**Vault**	21	252	19	38	345B	0	$23	$5	$28	$103	$0	$103	$0	$0	$0	$126	$5	$131
103	**Vaults**	91	1,092	40	80	345B	2	$98	$22	$120	$216	$0	$216	$118	$315	$433	$432	$337	$769
104	**Vaults**	16	192	16	32	345B	0	$17	$4	$21	$86	$0	$86	$0	$0	$0	$103	$4	$107
105	**Warehouse**	5,616	67,392	320	640	345B	104	$6,065	$1,348	$7,413	$1,728	$0	$1,728	$201	$535	$736	$7,994	$1,883	$9,877
106	**Water treat bldg**	838	10,050	117	234	345B	16	$905	$201	$1,106	$632	$0	$632	$118	$315	$433	$1,655	$516	$2,171
107	**Water treat bldg**	713	8,550	107	214	345B	13	$770	$171	$941	$578	$0	$578	$118	$315	$433	$1,466	$486	$1,952
108	**Wet well**	36	432	24	48	345B	1	$39	$9	$48	$130	$0	$130	$118	$315	$433	$287	$324	$611
109	**Zinc thickener**	961	11,532	124	248	345B	18	$1,038	$231	$1,269	$670	$0	$670	$118	$315	$433	$1,826	$546	$2,372
110	**Zinc thickener neighbouring circle 1**	169	2,028	52	104	345B	3	$183	$41	$224	$281	$0	$281	$118	$315	$433	$582	$356	$938
111	**Zinc thickener neighbouring circle 2**	169	2,028	52	104	345B	3	$183	$41	$224	$281	$0	$281	$118	$315	$433	$582	$356	$938
112	**DB-01**	840	0	164	1,968	345B	16	$0	$0	$0	$5,314	$0	$5,314	$118	$315	$433	$5,432	$315	$5,747
113	**DB-01'**	840	0	164	1,968	345B	16	$0	$0	$0	$5,314	$0	$5,314	$118	$315	$433	$5,432	$315	$5,747
114	**DB-02**	1,280	0	168	672	345B	24	$0	$0	$0	$1,814	$0	$1,814	$118	$315	$433	$1,932	$315	$2,247
115	**DB-03**	960	0	184	1,104	345B	18	$0	$0	$0	$2,981	$0	$2,981	$118	$315	$433	$3,099	$315	$3,414
116	**DB-03'**	960	0	184	1,104	345B	18	$0	$0	$0	$2,981	$0	$2,981	$118	$315	$433	$3,099	$315	$3,414
117	**DB-04**	960	0	184	1,104	345B	18	$0	$0	$0	$2,981	$0	$2,981	$118	$315	$433	$3,099	$315	$3,414
118	**DB-04'**	960	0	184	1,104	345B	18	$0	$0	$0	$2,981	$0	$2,981	$118	$315	$433	$3,099	$315	$3,414

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

119	**DB-05**	1,440	0	196	784	345B	27	$0	$0	$0	$2,117	$0	$2,117	$118	$315	$433	$2,235	$315	$2,550
120	**New elect**	1,312	15,744	146	0	345B	24	$1,889	$472	$2,361	$0	$0	$0	$118	$315	$433	$2,007	$787	$2,794
121	**New light vehicle**	2,173	26,076	188	0	345B	40	$3,129	$782	$3,911	$0	$0	$0	$118	$315	$433	$3,247	$1,097	$4,344
122	**Hawk Inlet - 22' dia tank**	625	7,500	100	200	345B	12	$675	$150	$825	$540	$0	$540	$118	$315	$433	$1,333	$465	$1,798
123	**Hawk Inlet - 22' dia tank**	625	7,500	100	200	345B	12	$675	$150	$825	$540	$0	$540	$118	$315	$433	$1,333	$465	$1,798
124	**Hawk Inlet - 22' tank's Pad**	1,809	21,708	188	376	345B	34	$1,954	$434	$2,388	$1,015	$0	$1,015	$118	$315	$433	$3,087	$749	$3,836
125	**Hawk Inlet - Above ground cable tray**	103	1,236	107	214	345B	2	$111	$25	$136	$578	$0	$578	$118	$315	$433	$807	$340	$1,147
126	**Hawk Inlet - Bathroom**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
127	**Hawk Inlet - Bathroom**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
128	**Hawk Inlet - Boiler building**	816	9,792	116	232	345B	15	$881	$196	$1,077	$626	$0	$626	$118	$315	$433	$1,625	$511	$2,136
129	**Hawk Inlet - Building between north and south canneries,**	624	7,488	100	200	345B	12	$674	$150	$824	$540	$0	$540	$118	$315	$433	$1,332	$465	$1,797
130	**Hawk Inlet - Building next to boiler building**	113	1,350	43	86	345B	2	$122	$27	$149	$232	$0	$232	$118	$315	$433	$472	$342	$814
131	**Hawk Inlet - Building next to generator building**	288	3,456	72	144	345B	5	$311	$69	$380	$389	$0	$389	$118	$315	$433	$818	$384	$1,202
132	**Hawk Inlet - Building next to generator building**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
133	**Hawk Inlet - Building next to south cannery**	313	3,750	75	150	345B	6	$338	$75	$413	$405	$0	$405	$118	$315	$433	$861	$390	$1,251
134	**Hawk Inlet - Bunk house on pilings**	231	2,775	62	124	345B	4	$250	$56	$306	$335	$0	$335	$118	$315	$433	$703	$371	$1,074
135	**Hawk Inlet - Conc**	440	5,280	84	168	345B	8	$475	$106	$581	$454	$0	$454	$118	$315	$433	$1,047	$421	$1,468
136	**Hawk Inlet - Conc log retaining wall**	1,540	18,480	194	388	345B	29	$1,663	$370	$2,033	$1,048	$0	$1,048	$118	$315	$433	$2,829	$685	$3,514
137	**Hawk Inlet - Concentrate storage building**	45,382	1,089,156	885	1,770	345B	840	$98,024	$21,783	$119,807	$4,779	$0	$4,779	$1,654	$4,405	$6,059	$104,457	$26,188	$130,645
138	**Hawk Inlet - Concrete drain**	74	882	55	110	345B	1	$79	$18	$97	$297	$0	$297	$118	$315	$433	$494	$333	$827
139	**Hawk Inlet - Conveyor, headhouse etc.**	3,941	47,286	253	506	345B	73	$4,256	$946	$5,202	$1,366	$0	$1,366	$142	$378	$520	$5,764	$1,324	$7,088
140	**Hawk Inlet - Core shed**	5,408	64,895	312	624	345B	100	$5,841	$1,298	$7,139	$1,685	$0	$1,685	$201	$535	$736	$7,727	$1,833	$9,560
141	**Hawk Inlet - diesel**	88	1,052	42	84	345B	2	$95	$21	$116	$227	$0	$227	$118	$315	$433	$440	$336	$776
142	**Hawk Inlet - Diesel buiding**	200	2,400	60	120	345B	4	$216	$48	$264	$324	$0	$324	$118	$315	$433	$658	$363	$1,021
143	**Hawk Inlet - Explor. Trailer**	851	10,206	150	300	345B	16	$919	$204	$1,123	$810	$0	$810	$118	$315	$433	$1,847	$519	$2,366
144	**Hawk Inlet - Filter skid**	115	1,380	43	86	345B	2	$124	$28	$152	$232	$0	$232	$118	$315	$433	$474	$343	$817
145	**Hawk Inlet - Float 1**	984	11,808	130	260	345B	18	$1,063	$236	$1,299	$702	$0	$702	$118	$315	$433	$1,883	$551	$2,434
146	**Hawk Inlet - Float 3**	897	10,764	124	248	345B	17	$969	$215	$1,184	$670	$0	$670	$118	$315	$433	$1,757	$530	$2,287
147	**Hawk Inlet - Float plane dock**	1,862	22,344	174	348	345B	34	$2,011	$447	$2,458	$940	$0	$940	$118	$315	$433	$3,069	$762	$3,831
148	**Hawk Inlet - Fuel tank**	1,296	15,552	144	288	345B	24	$1,400	$311	$1,711	$778	$0	$778	$118	$315	$433	$2,296	$626	$2,922
149	**Hawk Inlet - Fuel tank**	32	384	24	48	345B	1	$35	$8	$43	$130	$0	$130	$118	$315	$433	$283	$323	$606
150	**Hawk Inlet - Gas**	90	1,080	39	78	345B	2	$97	$22	$119	$211	$0	$211	$118	$315	$433	$426	$337	$763
151	**Hawk Inlet - Generator building**	945	11,340	129	258	345B	18	$1,021	$227	$1,248	$697	$0	$697	$118	$315	$433	$1,836	$542	$2,378
152	**Hawk Inlet - H10**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
153	**Hawk Inlet - H11**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
154	**Hawk Inlet - H12**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
155	**Hawk Inlet - H13**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
156	**Hawk Inlet - H14**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
157	**Hawk Inlet - H9**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
158	**Hawk Inlet - Hawk inlet maintenance buidling**	1,713	20,554	169	338	345B	32	$1,850	$411	$2,261	$913	$0	$913	$118	$315	$433	$2,881	$726	$3,607
159	**Hawk Inlet - Housing**	1,800	21,600	205	410	345B	33	$1,944	$432	$2,376	$1,107	$0	$1,107	$118	$315	$433	$3,169	$747	$3,916
160	**Hawk Inlet - Housing**	912	10,944	124	248	345B	17	$985	$219	$1,204	$670	$0	$670	$118	$315	$433	$1,773	$534	$2,307
161	**Hawk Inlet - Incinerator**	300	3,600	74	148	345B	6	$324	$72	$396	$400	$0	$400	$118	$315	$433	$842	$387	$1,229
162	**Hawk Inlet - Laundry**	160	1,920	56	112	345B	3	$173	$38	$211	$302	$0	$302	$118	$315	$433	$593	$353	$946
163	**Hawk Inlet - Oil discharge**	74	888	78	156	345B	1	$80	$18	$98	$421	$0	$421	$118	$315	$433	$619	$333	$952
164	**Hawk Inlet - Oil tank**	132	1,584	49	98	345B	2	$143	$32	$175	$265	$0	$265	$118	$315	$433	$526	$347	$873
165	**Hawk Inlet - Oil tank**	32	384	24	48	345B	1	$35	$8	$43	$130	$0	$130	$118	$315	$433	$283	$323	$606
166	**Hawk Inlet - Poles**	16	192	16	32	345B	0	$17	$4	$21	$86	$0	$86	$0	$0	$0	$103	$4	$107
167	**Hawk Inlet - Pump**	80	960	36	72	345B	1	$86	$19	$105	$194	$0	$194	$118	$315	$433	$398	$334	$732
168	**Hawk Inlet - Pump house**	20	240	18	36	345B	0	$22	$5	$27	$97	$0	$97	$0	$0	$0	$119	$5	$124
169	**Hawk Inlet - Pump station**	65	780	33	66	345B	1	$70	$16	$86	$178	$0	$178	$118	$315	$433	$366	$331	$697
170	**Hawk Inlet - Ramp**	1,800	21,600	220	440	345B	33	$1,944	$432	$2,376	$1,188	$0	$1,188	$118	$315	$433	$3,250	$747	$3,997
171	**Hawk Inlet - Rec trailer**	320	3,840	96	192	345B	6	$346	$77	$423	$518	$0	$518	$118	$315	$433	$982	$392	$1,374
172	**Hawk Inlet - Rectangles around hawk inlet maint bldg**	16,000	192,000	560	1,120	345B	296	$17,280	$3,840	$21,120	$3,024	$0	$3,024	$579	$1,542	$2,121	$20,883	$5,382	$26,265
173	**Hawk Inlet - Rectangles between trailer and storage shed**	7,056	84,672	364	728	345B	131	$7,620	$1,693	$9,313	$1,966	$0	$1,966	$260	$692	$952	$9,846	$2,385	$12,231
174	**Hawk Inlet - Rectangles by rec trailer**	4,000	48,000	280	560	345B	74	$4,320	$960	$5,280	$1,512	$0	$1,512	$142	$378	$520	$5,974	$1,338	$7,312
175	**Hawk Inlet - Rectangles by warehouse**	70,560	846,720	1,176	2,352	345B	1,307	$76,205	$16,934	$93,139	$6,350	$0	$6,350	$2,575	$6,858	$9,433	$85,130	$23,792	$108,922
176	**Hawk Inlet - Sewage treatment plant**	1,944	23,333	177	354	345B	36	$2,100	$467	$2,567	$956	$0	$956	$118	$315	$433	$3,174	$782	$3,956
177	**Hawk Inlet - Sewer lift station**	25	300	20	40	345B	0	$27	$6	$33	$108	$0	$108	$0	$0	$0	$135	$6	$141
178	**Hawk Inlet - shed**	821	9,849	132	264	345B	15	$886	$197	$1,083	$713	$0	$713	$118	$315	$433	$1,717	$512	$2,229
179	**Hawk Inlet - shed**	783	9,397	127	254	345B	15	$846	$188	$1,034	$686	$0	$686	$118	$315	$433	$1,650	$503	$2,153
180	**Hawk Inlet - Shift Housing**	3,450	41,400	290	580	345B	64	$3,726	$828	$4,554	$1,566	$0	$1,566	$130	$346	$476	$5,422	$1,174	$6,596
181	**Hawk Inlet - Stationary barge**	5,600	67,200	360	720	345B	104	$6,048	$1,344	$7,392	$1,944	$0	$1,944	$201	$535	$736	$8,193	$1,879	$10,072

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Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

182	**Hawk Inlet - Storage shed**	940	11,280	208	416	345B	17	$1,015	$226	$1,241	$1,123	$0	$1,123	$118	$315	$433	$2,256	$541	$2,797
183	**Hawk Inlet - storage shed**	1,880	22,560	228	456	345B	35	$2,030	$451	$2,481	$1,231	$0	$1,231	$118	$315	$433	$3,379	$766	$4,145
184	**Hawk Inlet - Sump**	125	1,500	45	90	345B	2	$135	$30	$165	$243	$0	$243	$118	$315	$433	$496	$345	$841
185	**Hawk Inlet - Tank**	240	2,880	76	152	345B	4	$259	$58	$317	$410	$0	$410	$118	$315	$433	$787	$373	$1,160
186	**Hawk Inlet - Tank**	32	384	24	48	345B	1	$35	$8	$43	$130	$0	$130	$118	$315	$433	$283	$323	$606
187	**Hawk Inlet - Tanks next to water treatment building**	144	1,728	48	96	345B	3	$156	$35	$191	$259	$0	$259	$118	$315	$433	$533	$350	$883
188	**Hawk Inlet - Trailer**	854	10,248	150	300	345B	16	$922	$205	$1,127	$810	$0	$810	$118	$315	$433	$1,850	$520	$2,370
189	**Hawk Inlet - Trailer**	851	10,206	150	300	345B	16	$919	$204	$1,123	$810	$0	$810	$118	$315	$433	$1,847	$519	$2,366
190	**Hawk Inlet - Trailer**	504	6,048	108	216	345B	9	$544	$121	$665	$583	$0	$583	$118	$315	$433	$1,245	$436	$1,681
191	**Hawk Inlet - trailer**	400	4,800	100	200	345B	7	$432	$96	$528	$540	$0	$540	$118	$315	$433	$1,090	$411	$1,501
192	**Hawk Inlet - trailer**	400	4,800	100	200	345B	7	$432	$96	$528	$540	$0	$540	$118	$315	$433	$1,090	$411	$1,501
193	**Hawk Inlet - trailer**	310	3,715	83	166	345B	6	$334	$74	$408	$448	$0	$448	$118	$315	$433	$900	$389	$1,289
194	**Hawk Inlet - Trans**	24	288	20	40	345B	0	$26	$6	$32	$108	$0	$108	$0	$0	$0	$134	$6	$140
195	**Hawk Inlet - Transformer**	144	1,728	48	96	345B	3	$156	$35	$191	$259	$0	$259	$118	$315	$433	$533	$350	$883
196	**Hawk Inlet - used oil tank**	200	2,400	66	132	345B	4	$216	$48	$264	$356	$0	$356	$118	$315	$433	$690	$363	$1,053
197	**Hawk Inlet - Warehouse**	5,640	67,680	308	616	345B	104	$6,091	$1,354	$7,445	$1,663	$0	$1,663	$201	$535	$736	$7,955	$1,889	$9,844
198	**Hawk Inlet - Water treatment building**	983	11,799	126	252	345B	18	$1,062	$236	$1,298	$680	$0	$680	$118	$315	$433	$1,860	$551	$2,411
199	**Hawk Inlet - Wheelwash building**	1,870	22,440	178	356	345B	35	$2,020	$449	$2,469	$961	$0	$961	$118	$315	$433	$3,099	$764	$3,863
200	**Hawk inlet new housing part I**	9,300	372,000	398	0	345B	172	$44,640	$11,160	$55,800	$0	$0	$0	$343	$912	$1,255	$44,983	$12,072	$57,055
201	**Hawk inlet new housing part II**	2,275	91,000	232	0	345B	42	$10,920	$2,730	$13,650	$0	$0	$0	$118	$315	$433	$11,038	$3,045	$14,083
			6,677,070				8,761	**$616,094**	**$138,597**	**$754,691**	**$158,948**	**$0**	**$158,948**	**$32,290**	**$86,111**	**$118,401**	**$807,332**	**$224,708**	**$1,032,040**

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Buildings & Foundation Demolition Cost Summary

	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

Building & Foundation - Foundation Cover and Growth Media Costs

		Foundation Cover								Growth Media								Total Cover & Growth Media Costs		
	Description (required)	Cover Volume cy	Cover Repacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Cover Cost $	Growth Media Volume cy	Growth Media Repacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Growth Media Cost $	Total Labor Cost $	Total Equipment Cost $	Total Costs $
1	**4 Power plant minor rectangle 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
2	**4160 tran**						$0	$0	$0						$0	$0	$0	$0	$0	$0
3	**4161 tran**						$0	$0	$0						$0	$0	$0	$0	$0	$0
4	**4162 tran**						$0	$0	$0						$0	$0	$0	$0	$0	$0
5	**860 batch plant**						$0	$0	$0						$0	$0	$0	$0	$0	$0
6	**860 batch plant bin walls (3)**						$0	$0	$0						$0	$0	$0	$0	$0	$0
7	**860 batch plant wall**						$0	$0	$0						$0	$0	$0	$0	$0	$0
8	**860 lab bldg**						$0	$0	$0						$0	$0	$0	$0	$0	$0
9	**860 safety**						$0	$0	$0						$0	$0	$0	$0	$0	$0
10	**Admin surface building shop**						$0	$0	$0						$0	$0	$0	$0	$0	$0
11	**Admin surface building shop entrance**						$0	$0	$0						$0	$0	$0	$0	$0	$0
12	**Batch plant**						$0	$0	$0						$0	$0	$0	$0	$0	$0
13	**Batch plant neighbour**						$0	$0	$0						$0	$0	$0	$0	$0	$0
14	**Bin**						$0	$0	$0						$0	$0	$0	$0	$0	$0
15	**Bollards**						$0	$0	$0						$0	$0	$0	$0	$0	$0
16	**Bulk thickener**						$0	$0	$0						$0	$0	$0	$0	$0	$0
17	**Bulk thickener concrete pad**						$0	$0	$0						$0	$0	$0	$0	$0	$0
18	**Caison/Caisson**						$0	$0	$0						$0	$0	$0	$0	$0	$0
19	**Cement storage**						$0	$0	$0						$0	$0	$0	$0	$0	$0
20	**Conc road**						$0	$0	$0						$0	$0	$0	$0	$0	$0
21	**Concentrator**						$0	$0	$0						$0	$0	$0	$0	$0	$0
22	**Concrete areas around batch plant**						$0	$0	$0						$0	$0	$0	$0	$0	$0
23	**Conners**						$0	$0	$0						$0	$0	$0	$0	$0	$0
24	**Cons load out area**						$0	$0	$0						$0	$0	$0	$0	$0	$0
25	**Cons load out area neighbour**						$0	$0	$0						$0	$0	$0	$0	$0	$0
26	**Conveyor**						$0	$0	$0						$0	$0	$0	$0	$0	$0
27	**Conveyor**						$0	$0	$0						$0	$0	$0	$0	$0	$0
28	**Covered area**						$0	$0	$0						$0	$0	$0	$0	$0	$0
29	**Covered oil storage**						$0	$0	$0						$0	$0	$0	$0	$0	$0
30	**Covered shop bays (4x)**						$0	$0	$0						$0	$0	$0	$0	$0	$0
31	**covered storage area**						$0	$0	$0						$0	$0	$0	$0	$0	$0
32	**Covered tailings loading area**						$0	$0	$0						$0	$0	$0	$0	$0	$0
33	**Covered tire storage**						$0	$0	$0						$0	$0	$0	$0	$0	$0
34	**Crusher**						$0	$0	$0						$0	$0	$0	$0	$0	$0
35	**Elec**						$0	$0	$0						$0	$0	$0	$0	$0	$0
36	**Elec panel**						$0	$0	$0						$0	$0	$0	$0	$0	$0
37	**Elec panel**						$0	$0	$0						$0	$0	$0	$0	$0	$0
38	**Elec vault**						$0	$0	$0						$0	$0	$0	$0	$0	$0
39	**Enviro chalet**						$0	$0	$0						$0	$0	$0	$0	$0	$0
40	**Existing sediment trap**						$0	$0	$0						$0	$0	$0	$0	$0	$0
41	**Fan**						$0	$0	$0						$0	$0	$0	$0	$0	$0
42	**Fan**						$0	$0	$0						$0	$0	$0	$0	$0	$0
43	**Filter bank 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
44	**Filter bank 2**						$0	$0	$0						$0	$0	$0	$0	$0	$0
45	**flotation**						$0	$0	$0						$0	$0	$0	$0	$0	$0
46	**Four storage buildings**						$0	$0	$0						$0	$0	$0	$0	$0	$0
47	**Fuel containment area - fuel tank 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
48	**Fuel containment area - fuel tank 2**						$0	$0	$0						$0	$0	$0	$0	$0	$0
49	**Fuel containment area - fuel tank 3**						$0	$0	$0						$0	$0	$0	$0	$0	$0
50	**Fuel containment pad**						$0	$0	$0						$0	$0	$0	$0	$0	$0
51	**Fueling station**						$0	$0	$0						$0	$0	$0	$0	$0	$0
52	**Generator**						$0	$0	$0						$0	$0	$0	$0	$0	$0
53	**Generator**						$0	$0	$0						$0	$0	$0	$0	$0	$0
54	**Geo bldg**						$0	$0	$0						$0	$0	$0	$0	$0	$0
55	**Helicopter pad**						$0	$0	$0						$0	$0	$0	$0	$0	$0

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

56	**Hopper**						$0	$0	$0						$0	$0	$0	$0	$0	$0
57	**hopper**						$0	$0	$0						$0	$0	$0	$0	$0	$0
58	**Lead thick**						$0	$0	$0						$0	$0	$0	$0	$0	$0
59	**MCC**						$0	$0	$0						$0	$0	$0	$0	$0	$0
60	**Microwave tower**						$0	$0	$0						$0	$0	$0	$0	$0	$0
61	**Mine switch gear bldg**						$0	$0	$0						$0	$0	$0	$0	$0	$0
62	**Power plant**						$0	$0	$0						$0	$0	$0	$0	$0	$0
63	**Power plant "covered"**						$0	$0	$0						$0	$0	$0	$0	$0	$0
64	**Propane**						$0	$0	$0						$0	$0	$0	$0	$0	$0
65	**Pump house**						$0	$0	$0						$0	$0	$0	$0	$0	$0
66	**Pump shed**						$0	$0	$0						$0	$0	$0	$0	$0	$0
67	**Pump station**						$0	$0	$0						$0	$0	$0	$0	$0	$0
68	**ramp**						$0	$0	$0						$0	$0	$0	$0	$0	$0
69	**Rectangles by covered area 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
70	**Rectangles by warehouse 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
71	**Rectangles in laydown area 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
72	**Rectangles next to telepedestal - 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
73	**Sediment trap**						$0	$0	$0						$0	$0	$0	$0	$0	$0
74	**Sewer lift station**						$0	$0	$0						$0	$0	$0	$0	$0	$0
75	**Sewer treatment plan minor rectangles**						$0	$0	$0						$0	$0	$0	$0	$0	$0
76	**Sewer treatment plant**						$0	$0	$0						$0	$0	$0	$0	$0	$0
77	**Sewer vault**						$0	$0	$0						$0	$0	$0	$0	$0	$0
78	**Sewer vault**						$0	$0	$0						$0	$0	$0	$0	$0	$0
79	**Shack**						$0	$0	$0						$0	$0	$0	$0	$0	$0
80	**shed**						$0	$0	$0						$0	$0	$0	$0	$0	$0
81	**Shop**						$0	$0	$0						$0	$0	$0	$0	$0	$0
82	**Shop**						$0	$0	$0						$0	$0	$0	$0	$0	$0
83	**Shop bay**						$0	$0	$0						$0	$0	$0	$0	$0	$0
84	**Solitary rectangles - 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
85	**Solitary rectangles - 2**						$0	$0	$0						$0	$0	$0	$0	$0	$0
86	**Solitary rectangles - 3**						$0	$0	$0						$0	$0	$0	$0	$0	$0
87	**Stack**						$0	$0	$0						$0	$0	$0	$0	$0	$0
88	**Stairs**						$0	$0	$0						$0	$0	$0	$0	$0	$0
89	**Star trailer**						$0	$0	$0						$0	$0	$0	$0	$0	$0
90	**Storage shed**						$0	$0	$0						$0	$0	$0	$0	$0	$0
91	**Substation**						$0	$0	$0						$0	$0	$0	$0	$0	$0
92	**Tail stk**						$0	$0	$0						$0	$0	$0	$0	$0	$0
93	**Tailings bins**						$0	$0	$0						$0	$0	$0	$0	$0	$0
94	**tailings thickener**						$0	$0	$0						$0	$0	$0	$0	$0	$0
95	**Telepedestal abandoned and buried**						$0	$0	$0						$0	$0	$0	$0	$0	$0
96	**Tractor shed**						$0	$0	$0						$0	$0	$0	$0	$0	$0
97	**Tractor shed**						$0	$0	$0						$0	$0	$0	$0	$0	$0
98	**Trans**						$0	$0	$0						$0	$0	$0	$0	$0	$0
99	**Turbine generator**						$0	$0	$0						$0	$0	$0	$0	$0	$0
100	**Util vaults 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
101	**Util vaults 2**						$0	$0	$0						$0	$0	$0	$0	$0	$0
102	**Vault**						$0	$0	$0						$0	$0	$0	$0	$0	$0
103	**Vaults**						$0	$0	$0						$0	$0	$0	$0	$0	$0
104	**Vaults**						$0	$0	$0						$0	$0	$0	$0	$0	$0
105	**Warehouse**						$0	$0	$0						$0	$0	$0	$0	$0	$0
106	**Water treat bldg**						$0	$0	$0						$0	$0	$0	$0	$0	$0
107	**Water treat bldg**						$0	$0	$0						$0	$0	$0	$0	$0	$0
108	**Wet well**						$0	$0	$0						$0	$0	$0	$0	$0	$0
109	**Zinc thickener**						$0	$0	$0						$0	$0	$0	$0	$0	$0
110	**Zinc thickener neighbouring circle 1**						$0	$0	$0						$0	$0	$0	$0	$0	$0
111	**Zinc thickener neighbouring circle 2**						$0	$0	$0						$0	$0	$0	$0	$0	$0
112	**DB-01**						$0	$0	$0						$0	$0	$0	$0	$0	$0
113	**DB-01'**						$0	$0	$0						$0	$0	$0	$0	$0	$0
114	**DB-02**						$0	$0	$0						$0	$0	$0	$0	$0	$0
115	**DB-03**						$0	$0	$0						$0	$0	$0	$0	$0	$0
116	**DB-03'**						$0	$0	$0						$0	$0	$0	$0	$0	$0
117	**DB-04**						$0	$0	$0						$0	$0	$0	$0	$0	$0
118	**DB-04'**						$0	$0	$0						$0	$0	$0	$0	$0	$0

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Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
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Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

119	**DB-05**						$0	$0	$0					$0	$0	$0	$0	$0	$0
120	**New elect**						$0	$0	$0					$0	$0	$0	$0	$0	$0
121	**New light vehicle**						$0	$0	$0					$0	$0	$0	$0	$0	$0
122	**Hawk Inlet - 22' dia tank**						$0	$0	$0					$0	$0	$0	$0	$0	$0
123	**Hawk Inlet - 22' dia tank**						$0	$0	$0					$0	$0	$0	$0	$0	$0
124	**Hawk Inlet - 22' tank's Pad**						$0	$0	$0					$0	$0	$0	$0	$0	$0
125	**Hawk Inlet - Above ground cable tray**						$0	$0	$0					$0	$0	$0	$0	$0	$0
126	**Hawk Inlet - Bathroom**						$0	$0	$0					$0	$0	$0	$0	$0	$0
127	**Hawk Inlet - Bathroom**						$0	$0	$0					$0	$0	$0	$0	$0	$0
128	**Hawk Inlet - Boiler building**						$0	$0	$0					$0	$0	$0	$0	$0	$0
129	**Hawk Inlet - Building between north and south canneries,**						$0	$0	$0					$0	$0	$0	$0	$0	$0
130	**Hawk Inlet - Building next to boiler building**						$0	$0	$0					$0	$0	$0	$0	$0	$0
131	**Hawk Inlet - Building next to generator building**						$0	$0	$0					$0	$0	$0	$0	$0	$0
132	**Hawk Inlet - Building next to generator building**						$0	$0	$0					$0	$0	$0	$0	$0	$0
133	**Hawk Inlet - Building next to south cannery**						$0	$0	$0					$0	$0	$0	$0	$0	$0
134	**Hawk Inlet - Bunk house on pilings**						$0	$0	$0					$0	$0	$0	$0	$0	$0
135	**Hawk Inlet - Conc**						$0	$0	$0					$0	$0	$0	$0	$0	$0
136	**Hawk Inlet - Conc log retaining wall**						$0	$0	$0					$0	$0	$0	$0	$0	$0
137	**Hawk Inlet - Concentrate storage building**						$0	$0	$0					$0	$0	$0	$0	$0	$0
138	**Hawk Inlet - Concrete drain**						$0	$0	$0					$0	$0	$0	$0	$0	$0
139	**Hawk Inlet - Conveyor, headhouse etc.**						$0	$0	$0					$0	$0	$0	$0	$0	$0
140	**Hawk Inlet - Core shed**						$0	$0	$0					$0	$0	$0	$0	$0	$0
141	**Hawk Inlet - diesel**						$0	$0	$0					$0	$0	$0	$0	$0	$0
142	**Hawk Inlet - Diesel buiding**						$0	$0	$0					$0	$0	$0	$0	$0	$0
143	**Hawk Inlet - Explor. Trailer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
144	**Hawk Inlet - Filter skid**						$0	$0	$0					$0	$0	$0	$0	$0	$0
145	**Hawk Inlet - Float 1**						$0	$0	$0					$0	$0	$0	$0	$0	$0
146	**Hawk Inlet - Float 3**						$0	$0	$0					$0	$0	$0	$0	$0	$0
147	**Hawk Inlet - Float plane dock**						$0	$0	$0					$0	$0	$0	$0	$0	$0
148	**Hawk Inlet - Fuel tank**						$0	$0	$0					$0	$0	$0	$0	$0	$0
149	**Hawk Inlet - Fuel tank**						$0	$0	$0					$0	$0	$0	$0	$0	$0
150	**Hawk Inlet - Gas**						$0	$0	$0					$0	$0	$0	$0	$0	$0
151	**Hawk Inlet - Generator building**						$0	$0	$0					$0	$0	$0	$0	$0	$0
152	**Hawk Inlet - H10**						$0	$0	$0					$0	$0	$0	$0	$0	$0
153	**Hawk Inlet - H11**						$0	$0	$0					$0	$0	$0	$0	$0	$0
154	**Hawk Inlet - H12**						$0	$0	$0					$0	$0	$0	$0	$0	$0
155	**Hawk Inlet - H13**						$0	$0	$0					$0	$0	$0	$0	$0	$0
156	**Hawk Inlet - H14**						$0	$0	$0					$0	$0	$0	$0	$0	$0
157	**Hawk Inlet - H9**						$0	$0	$0					$0	$0	$0	$0	$0	$0
158	**Hawk Inlet - Hawk inlet maintenance buidling**						$0	$0	$0					$0	$0	$0	$0	$0	$0
159	**Hawk Inlet - Housing**						$0	$0	$0					$0	$0	$0	$0	$0	$0
160	**Hawk Inlet - Housing**						$0	$0	$0					$0	$0	$0	$0	$0	$0
161	**Hawk Inlet - Incinerator**						$0	$0	$0					$0	$0	$0	$0	$0	$0
162	**Hawk Inlet - Laundry**						$0	$0	$0					$0	$0	$0	$0	$0	$0
163	**Hawk Inlet - Oil discharge**						$0	$0	$0					$0	$0	$0	$0	$0	$0
164	**Hawk Inlet - Oil tank**						$0	$0	$0					$0	$0	$0	$0	$0	$0
165	**Hawk Inlet - Oil tank**						$0	$0	$0					$0	$0	$0	$0	$0	$0
166	**Hawk Inlet - Poles**						$0	$0	$0					$0	$0	$0	$0	$0	$0
167	**Hawk Inlet - Pump**						$0	$0	$0					$0	$0	$0	$0	$0	$0
168	**Hawk Inlet - Pump house**						$0	$0	$0					$0	$0	$0	$0	$0	$0
169	**Hawk Inlet - Pump station**						$0	$0	$0					$0	$0	$0	$0	$0	$0
170	**Hawk Inlet - Ramp**						$0	$0	$0					$0	$0	$0	$0	$0	$0
171	**Hawk Inlet - Rec trailer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
172	**Hawk Inlet - Rectangles around hawk inlet maint bldg**						$0	$0	$0					$0	$0	$0	$0	$0	$0
173	**Hawk Inlet - Rectangles between trailer and storage shed**						$0	$0	$0					$0	$0	$0	$0	$0	$0
174	**Hawk Inlet - Rectangles by rec trailer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
175	**Hawk Inlet - Rectangles by warehouse**						$0	$0	$0					$0	$0	$0	$0	$0	$0
176	**Hawk Inlet - Sewage treatment plant**						$0	$0	$0					$0	$0	$0	$0	$0	$0
177	**Hawk Inlet - Sewer lift station**						$0	$0	$0					$0	$0	$0	$0	$0	$0
178	**Hawk Inlet - shed**						$0	$0	$0					$0	$0	$0	$0	$0	$0
179	**Hawk Inlet - shed**						$0	$0	$0					$0	$0	$0	$0	$0	$0
180	**Hawk Inlet - Shift Housing**						$0	$0	$0					$0	$0	$0	$0	$0	$0
181	**Hawk Inlet - Stationary barge**						$0	$0	$0					$0	$0	$0	$0	$0	$0

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

182	**Hawk Inlet - Storage shed**						$0	$0	$0					$0	$0	$0	$0	$0	$0
183	**Hawk Inlet - storage shed**						$0	$0	$0					$0	$0	$0	$0	$0	$0
184	**Hawk Inlet - Sump**						$0	$0	$0					$0	$0	$0	$0	$0	$0
185	**Hawk Inlet - Tank**						$0	$0	$0					$0	$0	$0	$0	$0	$0
186	**Hawk Inlet - Tank**						$0	$0	$0					$0	$0	$0	$0	$0	$0
187	**Hawk Inlet - Tanks next to water treatment building**						$0	$0	$0					$0	$0	$0	$0	$0	$0
188	**Hawk Inlet - Trailer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
189	**Hawk Inlet - Trailer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
190	**Hawk Inlet - Trailer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
191	**Hawk Inlet - trailer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
192	**Hawk Inlet - trailer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
193	**Hawk Inlet - trailer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
194	**Hawk Inlet - Trans**						$0	$0	$0					$0	$0	$0	$0	$0	$0
195	**Hawk Inlet - Transformer**						$0	$0	$0					$0	$0	$0	$0	$0	$0
196	**Hawk Inlet - used oil tank**						$0	$0	$0					$0	$0	$0	$0	$0	$0
197	**Hawk Inlet - Warehouse**						$0	$0	$0					$0	$0	$0	$0	$0	$0
198	**Hawk Inlet - Water treatment building**						$0	$0	$0					$0	$0	$0	$0	$0	$0
199	**Hawk Inlet - Wheelwash building**						$0	$0	$0					$0	$0	$0	$0	$0	$0
200	**Hawk inlet new housing part I**						$0	$0	$0					$0	$0	$0	$0	$0	$0
201	**Hawk inlet new housing part II**						$0	$0	$0					$0	$0	$0	$0	$0	$0
							$0	**$0**	**$0**					**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary

	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

Building & Foundation - Scarifying/Revegetation Costs

					Scarifying/Ripping			Revegetation				Total Scarify & Revegation Costs			
	Description (required)	Flat Area acres	Area Long Dimension ft	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $	Total Labor Cost $	Total Equipment Cost $	Total Material Cost $	Total Costs $
1	**4 Power plant minor rectangle 1**	0.10	23		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	**4160 tran**	0.10	10		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	**4161 tran**	0.10	15		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	**4162 tran**	0.10	9		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	**860 batch plant**	0.10	47		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	**860 batch plant bin walls (3)**	0.10	15		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
7	**860 batch plant wall**	0.10	40		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	**860 lab bldg**	0.10	71		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
9	**860 safety**	0.10	64		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	**Admin surface building shop**	0.30	168		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
11	**Admin surface building shop entrance**	0.10	24		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
12	**Batch plant**	0.10	56		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	**Batch plant neighbour**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
14	**Bin**	0.10	35		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	**Bollards**	0.10	2		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
16	**Bulk thickener**	0.10	44		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
17	**Bulk thickener concrete pad**	0.10	62		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
18	**Caison/Caisson**	0.10	7		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
19	**Cement storage**	0.10	89		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
20	**Conc road**	1.90	410		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
21	**Concentrator**	0.50	211		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
22	**Concrete areas around batch plant**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
23	**Conners**	0.10	32		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
24	**Cons load out area**	0.10	113		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
25	**Cons load out area neighbour**	0.10	72		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
26	**Conveyor**	0.10	114		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
27	**Conveyor**	0.10	41		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
28	**Covered area**	0.10	56		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
29	**Covered oil storage**	0.10	55		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
30	**Covered shop bays (4x)**	0.10	87		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
31	**covered storage area**	0.10	100		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
32	**Covered tailings loading area**	0.10	123		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
33	**Covered tire storage**	0.10	55		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
34	**Crusher**	0.10	28		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
35	**Elec**	0.10	5		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
36	**Elec panel**	0.10	2		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
37	**Elec panel**	0.10	2		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
38	**Elec vault**	0.10	6		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
39	**Enviro chalet**	0.10	45		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
40	**Existing sediment trap**	0.10	11		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
41	**Fan**	0.10	39		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
42	**Fan**	0.10	38		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
43	**Filter bank 1**	0.10	14		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
44	**Filter bank 2**	0.10	14		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	**flotation**	0.20	129		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
46	**Four storage buildings**	0.10	86		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	**Fuel containment area - fuel tank 1**	0.10	41		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
48	**Fuel containment area - fuel tank 2**	0.10	28		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
49	**Fuel containment area - fuel tank 3**	0.10	28		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
50	**Fuel containment pad**	0.10	90		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
51	**Fueling station**	0.10	17		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
52	**Generator**	0.10	32		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
53	**Generator**	0.10	32		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
54	**Geo bldg**	0.10	53		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
55	**Helicopter pad**	0.10	28		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

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Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

56	**Hopper**	0.10	41		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
57	**hopper**	0.10	40		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
58	**Lead thick**	0.10	29		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
59	**MCC**	0.10	13		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
60	**Microwave tower**	0.10	18		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
61	**Mine switch gear bldg**	0.10	34		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
62	**Power plant**	0.10	101		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
63	**Power plant "covered"**	0.10	35		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
64	**Propane**	0.10	9		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
65	**Pump house**	0.10	34		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
66	**Pump shed**	0.10	20		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
67	**Pump station**	0.10	36		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
68	**ramp**	0.10	45		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
69	**Rectangles by covered area 1**	0.10	86		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
70	**Rectangles by warehouse 1**	0.20	172		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
71	**Rectangles in laydown area 1**	0.10	86		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
72	**Rectangles next to telepedestal - 1**	0.30	194		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
73	**Sediment trap**	0.10	13		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
74	**Sewer lift station**	0.10	10		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
75	**Sewer treatment plan minor rectangles**	0.20	172		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
76	**Sewer treatment plant**	0.10	62		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
77	**Sewer vault**	0.10	21		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
78	**Sewer vault**	0.10	4		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
79	**Shack**	0.10	18		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
80	**shed**	0.10	17		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
81	**Shop**	0.10	67		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
82	**Shop**	0.10	51		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
83	**Shop bay**	0.10	38		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
84	**Solitary rectangles - 1**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
85	**Solitary rectangles - 2**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
86	**Solitary rectangles - 3**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
87	**Stack**	0.10	14		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
88	**Stairs**	0.10	85		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
89	**Star trailer**	0.10	61		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
90	**Storage shed**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
91	**Substation**	0.10	64		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
92	**Tail stk**	0.10	27		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
93	**Tailings bins**	0.10	84		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
94	**tailings thickener**	0.10	86		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
95	**Telepedestal abandoned and buried**	0.10	6		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
96	**Tractor shed**	0.10	94		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
97	**Tractor shed**	0.10	33		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
98	**Trans**	0.10	18		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
99	**Turbine generator**	0.10	33		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
100	**Util vaults 1**	0.10	11		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
101	**Util vaults 2**	0.10	10		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
102	**Vault**	0.10	7		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
103	**Vaults**	0.10	15		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
104	**Vaults**	0.10	6		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
105	**Warehouse**	0.10	120		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
106	**Water treat bldg**	0.10	42		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
107	**Water treat bldg**	0.10	38		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
108	**Wet well**	0.10	8		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
109	**Zinc thickener**	0.10	44		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
110	**Zinc thickener neighbouring circle 1**	0.10	18		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
111	**Zinc thickener neighbouring circle 2**	0.10	18		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
112	**DB-01**	0.10	71		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
113	**DB-01'**	0.10	71		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
114	**DB-02**	0.10	67		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
115	**DB-03**	0.10	81		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
116	**DB-03'**	0.10	81		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
117	**DB-04**	0.10	81		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
118	**DB-04'**	0.10	81		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Buildings & Foundation Demolition Cost Summary	Labor	Equipment	Materials	Totals
Building Demolition Cost	$616,094	$138,597	N/A	$754,691
Wall Demolition Cost	$158,948	$0	N/A	$158,948
Slab Demolition	$32,290	$86,111	N/A	$118,401
Subtotal Demolition	**$807,332**	**$224,708**	**$0**	**$1,032,040**
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

119	**DB-05**	0.10	82		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
120	**New elect**	0.10	52		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
121	**New light vehicle**	0.10	67		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
122	**Hawk Inlet - 22' dia tank**	0.10	35		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
123	**Hawk Inlet - 22' dia tank**	0.10	35		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
124	**Hawk Inlet - 22' tank's Pad**	0.10	72		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
125	**Hawk Inlet - Above ground cable tray**	0.10	52		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
126	**Hawk Inlet - Bathroom**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
127	**Hawk Inlet - Bathroom**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
128	**Hawk Inlet - Boiler building**	0.10	42		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
129	**Hawk Inlet - Building between north and south canneries,**	0.10	35		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
130	**Hawk Inlet - Building next to boiler building**	0.10	15		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
131	**Hawk Inlet - Building next to generator building**	0.10	27		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
132	**Hawk Inlet - Building next to generator building**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
133	**Hawk Inlet - Building next to south cannery**	0.10	28		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
134	**Hawk Inlet - Bunk house on pilings**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
135	**Hawk Inlet - Conc**	0.10	30		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
136	**Hawk Inlet - Conc log retaining wall**	0.10	80		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
137	**Hawk Inlet - Concentrate storage building**	1.00	324		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
138	**Hawk Inlet - Concrete drain**	0.10	25		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
139	**Hawk Inlet - Conveyor, headhouse etc.**	0.10	90		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
140	**Hawk Inlet - Core shed**	0.10	116		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
141	**Hawk Inlet - diesel**	0.10	16		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
142	**Hawk Inlet - Diesel buiding**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
143	**Hawk Inlet - Explor. Trailer**	0.10	62		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
144	**Hawk Inlet - Filter skid**	0.10	15		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
145	**Hawk Inlet - Float 1**	0.10	48		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
146	**Hawk Inlet - Float 3**	0.10	45		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
147	**Hawk Inlet - Float plane dock**	0.10	62		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
148	**Hawk Inlet - Fuel tank**	0.10	51		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
149	**Hawk Inlet - Fuel tank**	0.10	9		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
150	**Hawk Inlet - Gas**	0.10	14		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
151	**Hawk Inlet - Generator building**	0.10	48		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
152	**Hawk Inlet - H10**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
153	**Hawk Inlet - H11**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
154	**Hawk Inlet - H12**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
155	**Hawk Inlet - H13**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
156	**Hawk Inlet - H14**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
157	**Hawk Inlet - H9**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
158	**Hawk Inlet - Hawk inlet maintenance buidling**	0.10	61		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
159	**Hawk Inlet - Housing**	0.10	83		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
160	**Hawk Inlet - Housing**	0.10	45		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
161	**Hawk Inlet - Incinerator**	0.10	28		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
162	**Hawk Inlet - Laundry**	0.10	22		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
163	**Hawk Inlet - Oil discharge**	0.10	37		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
164	**Hawk Inlet - Oil tank**	0.10	18		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
165	**Hawk Inlet - Oil tank**	0.10	9		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
166	**Hawk Inlet - Poles**	0.10	6		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
167	**Hawk Inlet - Pump**	0.10	13		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
168	**Hawk Inlet - Pump house**	0.10	6		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
169	**Hawk Inlet - Pump station**	0.10	12		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
170	**Hawk Inlet - Ramp**	0.10	92		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
171	**Hawk Inlet - Rec trailer**	0.10	41		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
172	**Hawk Inlet - Rectangles around hawk inlet maint bldg**	0.40	215		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
173	**Hawk Inlet - Rectangles between trailer and storage shed**	0.20	138		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
174	**Hawk Inlet - Rectangles by rec trailer**	0.10	108		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
175	**Hawk Inlet - Rectangles by warehouse**	1.60	452		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
176	**Hawk Inlet - Sewage treatment plant**	0.10	62		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
177	**Hawk Inlet - Sewer lift station**	0.10	7		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
178	**Hawk Inlet - shed**	0.10	52		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
179	**Hawk Inlet - shed**	0.10	50		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
180	**Hawk Inlet - Shift Housing**	0.10	119		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
181	**Hawk Inlet - Stationary barge**	0.10	146		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

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Buildings & Foundation Demolition Cost Summary

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Growth Media Placement Cost	$0	$0	N/A	$0
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$0**	**$0**	**$0**	**$0**
Revegetation Cost	$0	$0	$0	$0
TOTALS	**$807,332**	**$224,708**	**$0**	**$1,032,040**

182	**Hawk Inlet - Storage shed**	0.10	95		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
183	**Hawk Inlet - storage shed**	0.10	96		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
184	**Hawk Inlet - Sump**	0.10	16		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
185	**Hawk Inlet - Tank**	0.10	31		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
186	**Hawk Inlet - Tank**	0.10	9		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
187	**Hawk Inlet - Tanks next to water treatment building**	0.10	17		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
188	**Hawk Inlet - Trailer**	0.10	63		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
189	**Hawk Inlet - Trailer**	0.10	62		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
190	**Hawk Inlet - Trailer**	0.10	44		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
191	**Hawk Inlet - trailer**	0.10	41		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
192	**Hawk Inlet - trailer**	0.10	41		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
193	**Hawk Inlet - trailer**	0.10	33		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
194	**Hawk Inlet - Trans**	0.10	7		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
195	**Hawk Inlet - Transformer**	0.10	17		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
196	**Hawk Inlet - used oil tank**	0.10	26		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
197	**Hawk Inlet - Warehouse**	0.10	112		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
198	**Hawk Inlet - Water treatment building**	0.10	45		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
199	**Hawk Inlet - Wheelwash building**	0.10	65		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
200	**Hawk inlet new housing part I**	0.20	145		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
201	**Hawk inlet new housing part II**	0.10	94		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		25.90			**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

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Closure Cost Estimate
Process Ponds

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Process Ponds - Cost Summary

	Labor	Equipment	Materials	Totals
Backfilling Costs	$111,201	$243,816	N/A	$355,017
Growth Media Placement Costs	$6,667	$14,603	N/A	$21,270
Liner Cutting & Folding Costs	$13,398	$5,702	N/A	$19,100
Subtotal Earthworks	**$131,266**	**$264,121**	**$0**	**$395,387**
Revegetation Costs	$438	$240	$5,737	$6,415
TOTALS	**$131,704**	**$264,361**	**$5,737**	**$401,802**

Process Ponds - User Input

You must fill in ALL green cells and relevant blue cells in this section for each pond

	Facility Description		Pond Dimensions (1)					Backfill - (If trucks are used) (1)				Growth Media		
	Description (required)	ID Code	Pond Length ft	Pond Width ft	Pond Depth ft	Pond Sideslope Angle _H:1V	Disturbed Area (if calculated elsewhere) acres	Percent Backfill (100% if blank)	Distance from Backfill Borrow ft	Slope from Facility to Borrow Area % grade	Pond Volume (if calculated elsewhere) cy	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	**Settling pond C (backfilled during closure of other facility)**		**74**	**74**	**2.0**	**3.0**	**0.13**	**0%**						
2	**Lined upper pond (backfilled during closure of other facility)**		**38**	**38**	**2.0**	**3.0**	**0.03**	**0%**						
3	**Pond A (backfilled during closure of other facility)**		**140**	**140**	**6.0**	**3.0**	**0.45**	**0%**						
4	**Settling Pond 23 (backfilled during closure of other facility)**		**140**	**140**	**2.0**	**3.0**	**0.08**	**0%**						
5	**Settling Pond D**		**90**	**90**	**4.0**	**3.0**	**0.19**		**500**	**-5%**		**12**	**500**	**-5%**
6	**Settling Pond 7**		**369**	**369**	**24.0**	**3.0**	**3.36**	**100%**	**500**	**-5%**		**12**	**500**	**-5%**
7	**Pond 9**		**115**	**115**	**5.0**	**3.0**	**0.30**	**100%**	**500**	**-5%**		**12**	**500**	**-5%**
8	**New West pond (I) construction**		**295**	**295**	**20.0**	**3.0**	**2.00**		**500**	**-5%**				
9	**New West pond (I) closure**		**295**	**295**	**20.0**	**3.0**	**2.00**	**100%**	**500**	**-5%**		**12**	**500**	**-5%**
10	**New South pond (II) construction**		**214**	**214**	**16.0**	**3.0**	**1.05**		**500**	**-5%**				
11	**New South pond (II) closure**		**214**	**214**	**16.0**	**3.0**	**1.05**	**100%**	**500**	**-5%**		**12**	**500**	**-5%**
12	**Pond 10**		**377**	**377**	**20.0**	**3.0**	**3.26**	**100%**	**500**	**-5%**		**12**	**500**	**-5%**

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

Except for Pond 7 and Pond 9, the ponds will be removed during closure of other facilities. D-pond will be backfilled in Y10.
New storage pond liner in Other User sheet.

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Process Ponds

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TOTALS	**$131,704**	**$264,361**	**$5,737**	**$401,802**

Process Ponds - User Input (cont.)

		Liner	Backfill			Growth Media			Revegetation		
	Description (required)	Crew Cut & Fold Time (2) hrs	Backfill Material Type (select)	Backfill Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)
1	Settling pond C (backfilled during closure of other facility)										
2	Lined upper pond (backfilled during closure of other facili	12.0									
3	Pond A (backfilled during closure of other facility)										
4	Settling Pond 23 (backfilled during closure of other facility)										
5	Settling Pond D		Alluvium	Small Truck		Alluvium	Small Truck		Mix 1	None	
6	Settling Pond 7		Alluvium	Med Truck		Alluvium	Med Truck		Mix 1	None	
7	Pond 9		Alluvium	Med Truck		Alluvium	Med Truck		Mix 1	None	
8	New West pond (I) construction		Alluvium	Med Truck							
9	New West pond (I) closure	24.0	Alluvium	Med Truck		Alluvium	Med Truck		Mix 1	None	
10	New South pond (II) construction		Alluvium	Med Truck							
11	New South pond (II) closure	24.0	Alluvium	Med Truck		Alluvium	Med Truck		Mix 1	None	
12	Pond 10	24.0	Alluvium	Med Truck		Alluvium	Med Truck		Mix 1	None	

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
(2) Pond liner removal crew (2Clab + excavator) = 2 General Laborers + 325C Excavator

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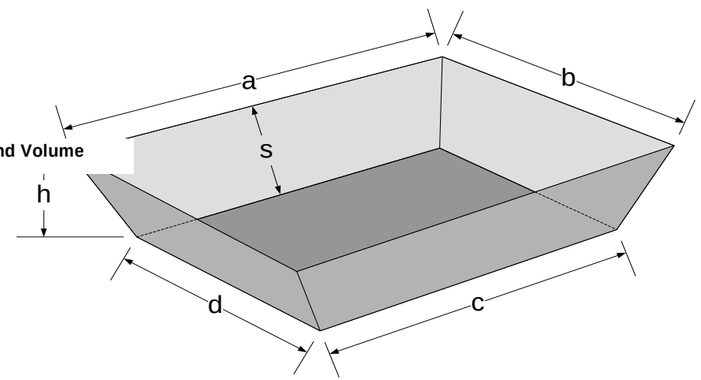
Process Ponds - Calculations

Pond Volume Calculation

Figure 1 - Pond Volume



Area and Volume of the Frustrum of a Pyramid

$$\text{Surface Area} = ab + cd + (a+b+c+d) \times \frac{s}{2}$$

$$\text{Volume} = \frac{h\,(ab + cd + \sqrt{abcd}\,)}{3}$$

Revegetation Calculations

Minimum 1 acre revegetation crew time per area

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Process Ponds - Cost Summary

	Labor	Equipment	Materials	Totals
Backfilling Costs	$111,201	$243,816	N/A	$355,017
Growth Media Placement Costs	$6,667	$14,603	N/A	$21,270
Liner Cutting & Folding Costs	$13,398	$5,702	N/A	$19,100
Subtotal Earthworks	**$131,266**	**$264,121**	**$0**	**$395,387**
Revegetation Costs	$438	$240	$5,737	$6,415
TOTALS	**$131,704**	**$264,361**	**$5,737**	**$401,802**

Process Ponds - Liner Cutting and Folding

	Description (required)	Crew Hours hrs	Total Labor Cost $	Total Equipment Cost $	Total Cover Cost $
1	**Settling pond C (backfilled during closure of other facility)**		$0	$0	$0
2	**Lined upper pond (backfilled during closure of other facili**	12	$1,914	$815	$2,729
3	**Pond A (backfilled during closure of other facility)**		$0	$0	$0
4	**Settling Pond 23 (backfilled during closure of other facility**		$0	$0	$0
5	**Settling Pond D**		$0	$0	$0
6	**Settling Pond 7**		$0	$0	$0
7	**Pond 9**		$0	$0	$0
8	**New West pond (I) construction**		$0	$0	$0
9	**New West pond (I) closure**	24	$3,828	$1,629	$5,457
10	**New South pond (II) construction**		$0	$0	$0
11	**New South pond (II) closure**	24	$3,828	$1,629	$5,457
12	**Pond 10**	24	$3,828	$1,629	$5,457
		84	**$13,398**	**$5,702**	**$19,100**

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Closure Cost Estimate
Process Ponds

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Process Ponds - Cost Summary

	Labor	Equipment	Materials	Totals
Backfilling Costs	$111,201	$243,816	N/A	$355,017
Growth Media Placement Costs	$6,667	$14,603	N/A	$21,270
Liner Cutting & Folding Costs	$13,398	$5,702	N/A	$19,100
Subtotal Earthworks	**$131,266**	**$264,121**	**$0**	**$395,387**
Revegetation Costs	$438	$240	$5,737	$6,415
TOTALS	**$131,704**	**$264,361**	**$5,737**	**$401,802**

Process Ponds - Backfill and Growth Media Costs

		Pond Backfill								Growth Media							
	Description (required)	Backfill Volume cy	Backfill Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours hrs	Total Labor Cost $	Total Equipment Cost $	Total Backfill Cost $	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Topsoiling Cost $
1	**Settling pond C (backfilled during closure of other facility)**	0					$0	$0	$0						$0	$0	$0
2	**Lined upper pond (backfilled during closure of other facili**	0					$0	$0	$0						$0	$0	$0
3	**Pond A (backfilled during closure of other facility)**	0					$0	$0	$0						$0	$0	$0
4	**Settling Pond 23 (backfilled during closure of other facility**	0					$0	$0	$0						$0	$0	$0
5	**Settling Pond D**	908	740/988G	589	2	2	$476	$1,006	$1,482	300	740/988G	589	2	1	$238	$503	$741
6	**Settling Pond 7**	79,944	740/988G	589	2	136	$32,384	$71,015	$103,399	5,421	740/988G	589	2	9	$2,143	$4,700	$6,843
7	**Pond 9**	1,866	740/988G	589	2	3	$714	$1,567	$2,281	484	740/988G	589	2	1	$238	$522	$760
8	**New West pond (I) construction**	41,796	740/988G	589	2	71	$16,907	$37,074	$53,981						$0	$0	$0
9	**New West pond (I) closure**	41,796	740/988G	589	2	71	$16,907	$37,074	$53,981	3,227	740/988G	589	2	5	$1,191	$2,611	$3,802
10	**New South pond (II) construction**	16,785	740/988G	589	2	28	$6,667	$14,621	$21,288						$0	$0	$0
11	**New South pond (II) closure**	16,785	740/988G	589	2	28	$6,667	$14,621	$21,288	1,694	740/988G	589	2	3	$714	$1,567	$2,281
12	**Pond 10**	75,325	740/988G	589	2	128	$30,479	$66,838	$97,317	5,259	740/988G	589	2	9	$2,143	$4,700	$6,843
		275,205				467	**$111,201**	**$243,816**	**$355,017**	16,385				28	**$6,667**	**$14,603**	**$21,270**

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Closure Cost Estimate
Process Ponds

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Process Ponds - Cost Summary

	Labor	Equipment	Materials	Totals
Backfilling Costs	$111,201	$243,816	N/A	$355,017
Growth Media Placement Costs	$6,667	$14,603	N/A	$21,270
Liner Cutting & Folding Costs	$13,398	$5,702	N/A	$19,100
Subtotal Earthworks	**$131,266**	**$264,121**	**$0**	**$395,387**
Revegetation Costs	$438	$240	$5,737	$6,415
TOTALS	**$131,704**	**$264,361**	**$5,737**	**$401,802**

Process Ponds - Revegetation Costs

	Description (required)	Surface Area acres	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**Settling pond C (backfilled during closure of other facility)**	0.10	$0	$0	$0	$0
2	**Lined upper pond (backfilled during closure of other facili**	0.10	$0	$0	$0	$0
3	**Pond A (backfilled during closure of other facility)**	0.40	$0	$0	$0	$0
4	**Settling Pond 23 (backfilled during closure of other facility**	0.10	$0	$0	$0	$0
5	**Settling Pond D**	0.20	$37	$20	$111	$169
6	**Settling Pond 7**	3.40	$126	$69	$1,894	$2,089
7	**Pond 9**	0.30	$37	$20	$167	$225
8	**New West pond (I) construction**	2.00	$0	$0	$0	$0
9	**New West pond (I) closure**	2.00	$74	$41	$1,114	$1,229
10	**New South pond (II) construction**	1.10	$0	$0	$0	$0
11	**New South pond (II) closure**	1.10	$41	$22	$613	$676
12	**Pond 10**	3.30	$123	$67	$1,838	$2,028
		14.10	**$438**	**$240**	**$5,737**	**$6,415**

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Closure Cost Estimate
Yards, Etc.

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Yards, Etc. - Cost Summary

	Labor	Equipment	Materials	Totals
Regrading Cost	$133,222	$162,393	N/A	$295,615
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$26,431	$57,962	N/A	$84,393
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$159,653**	**$220,355**		**$380,008**
Revegetation Cost	$6,877	$3,761	$103,042	$113,680
TOTALS	**$166,530**	**$224,116**	**$103,042**	**$493,688**

Yards, Etc. - User Input — **You must fill in ALL green cells and relevant blue cells in this section for each building or facility**

	Facility Description			Physical			Cover			Growth Media		
	Description (required)	ID Code	Type	Area acres	Average Flat Area Long Dimension (ripping distance) ft	Regrade Volume (calculated elsewhere) cy	Cover Thickness in	Distance from Cover Borrow Area ft	Slope from Facility to Borrow Area % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	**920 mill and portal area**		Yard	**24.00**	**1,000**	**39,000**				**12**	**500**	**-5.0**
2	**Waste rock site D**		Yard	**8.00**	**600**	**13,000**						
3	**Waste rock site 1350 and portal area**		Yard	**5.00**	**500**	**8,000**						
4	**1160 tank**		Yard	**1.00**	**200**	**2,000**						
5	**960 waste rock area**		Yard	**1.00**	**200**	**2,000**						
6	**Waste rock site C and 860 area**		Yard	**4.00**	**400**	**6,000**						
7	**Waste rock site E**		Yard	**10.00**	**700**	**16,000**						
8	**Hawk inlet and marine load out area**		Yard	**14.00**	**800**	**23,000**				**12**	**500**	**-5.0**
9	**Young Bay Dock facility**		Yard	**1.00**	**200**	**2,000**				**12**	**500**	**-5.0**
10	**Topsoil stockpiles and borrow areas**		Yard	**27.00**	**1,100**							
11	**Tailings (disturbance area minus design footprint)**		Yard	**33.00**	**1,200**							
12	**Power Line Right-of-way**		Yard	**35.00**								
13	**Waste rock site 23**		Yard	**22.00**	**100**							

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivty Sheet)

Acreages from 2012 reclamation plan

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Closure Cost Estimate
Yards, Etc.

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Yards, Etc. - Cost Summary	Labor	Equipment	Materials	Totals
Regrading Cost	$133,222	$162,393	N/A	$295,615
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$26,431	$57,962	N/A	$84,393
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$159,653**	**$220,355**		**$380,008**
Revegetation Cost	$6,877	$3,761	$103,042	$113,680
TOTALS	**$166,530**	**$224,116**	**$103,042**	**$493,688**

Yards, Etc. - User Input (cont.) — You must fill in ALL green cells and relevant blue cells in this section for each building or facility

		Grading			Cover			Growth Media			Revegetation				
	Description (required)	Dozing Material Condition (select)	Dozing Material Type (select)	Grading Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1	920 mill and portal area	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
2	Waste rock site D	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
3	Waste rock site 1350 and portal area	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
4	1160 tank	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
5	960 waste rock area	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
6	Waste rock site C and 860 area	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
7	Waste rock site E	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
8	Hawk inlet and marine load out area	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
9	Young Bay Dock facility	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
10	Topsoil stockpiles and borrow areas	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
11	Tailings (disturbance area minus design footprint)	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
12	Power Line Right-of-way	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	
13	Waste rock site 23	1	Alluvium	Small				Alluvium	Med Truck		Mix 1	None		No	

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

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Closure Cost Estimate
Yards, Etc.

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Yards, Etc. - Cost Summary

	Labor	Equipment	Materials	Totals
Regrading Cost	$133,222	$162,393	N/A	$295,615
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$26,431	$57,962	N/A	$84,393
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$159,653**	**$220,355**		**$380,008**
Revegetation Cost	$6,877	$3,761	$103,042	$113,680
TOTALS	**$166,530**	**$224,116**	**$103,042**	**$493,688**

Yards, Etc. - Calculations

Grading Calculations

Average push distance assumed to be 2/3 of the 600 feet maximum from Catepillar Handbook or 400 feet
Material assumed to be loose stockile (1.2 productivity factor)
Slope assumed to be 0 to 5% (1.0 productivity factor)

Cover Volume Calculation

Yard area x cover thickness

Ripping/Scarifying Calculations

Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr ripping/scarifying per area

Revegetation

Minimum 1 acre revegetation crew time per area

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Yards, Etc.

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Yards, Etc. - Cost Summary

	Labor	Equipment	Materials	Totals
Regrading Cost	$133,222	$162,393	N/A	$295,615
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$26,431	$57,962	N/A	$84,393
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$159,653**	**$220,355**		**$380,008**
Revegetation Cost	$6,877	$3,761	$103,042	$113,680
TOTALS	**$166,530**	**$224,116**	**$103,042**	**$493,688**

Yards, Etc. - Regrading Costs

Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side)

	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost $	Total Equipment Cost $	Total Regrading Cost $
1	**920 mill and portal area**	39,000	400	102	1.0	1.0	0.79	50	780	$46,808	$57,057	$103,865
2	**Waste rock site D**	13,000	400	102	1.0	1.0	0.79	50	260	$15,603	$19,019	$34,622
3	**Waste rock site 1350 and portal area**	8,000	400	102	1.0	1.0	0.79	50	160	$9,602	$11,704	$21,306
4	**1160 tank**	2,000	400	102	1.0	1.0	0.79	50	40	$2,400	$2,926	$5,326
5	**960 waste rock area**	2,000	400	102	1.0	1.0	0.79	50	40	$2,400	$2,926	$5,326
6	**Waste rock site C and 860 area**	6,000	400	102	1.0	1.0	0.79	50	120	$7,201	$8,778	$15,979
7	**Waste rock site E**	16,000	400	102	1.0	1.0	0.79	50	320	$19,203	$23,408	$42,611
8	**Hawk inlet and marine load out area**	23,000	400	102	1.0	1.0	0.79	50	460	$27,605	$33,649	$61,254
9	**Young Bay Dock facility**	2,000	400	102	1.0	1.0	0.79	50	40	$2,400	$2,926	$5,326
10	**Topsoil stockpiles and borrow areas**									$0	$0	$0
11	**Tailings (disturbance area minus design footprint)**									$0	$0	$0
12	**Power Line Right-of-way**									$0	$0	$0
13	**Waste rock site 23**									$0	$0	$0
		111,000							2,220	**$133,222**	**$162,393**	**$295,615**

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Closure Cost Estimate
Yards, Etc.

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Yards, Etc. - Cost Summary

	Labor	Equipment	Materials	Totals
Regrading Cost	$133,222	$162,393	N/A	$295,615
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$26,431	$57,962	N/A	$84,393
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$159,653**	**$220,355**		**$380,008**
Revegetation Cost	$6,877	$3,761	$103,042	$113,680
TOTALS	**$166,530**	**$224,116**	**$103,042**	**$493,688**

Yards, Etc. - Cover and Growth Media Costs

		Cover								Growth Media							
	Description (required)	Cover Volume cy	Topsoil Repacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Cover Cost $	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost $	Total Equipment Cost $	Total Topsoiling Cost $
1	**920 mill and portal area**						$0	$0	$0	38,720	740/988G	571	2	68	$16,192	$35,508	$51,700
2	**Waste rock site D**						$0	$0	$0						$0	$0	$0
3	**Waste rock site 1350 and portal area**						$0	$0	$0						$0	$0	$0
4	**1160 tank**						$0	$0	$0						$0	$0	$0
5	**960 waste rock area**						$0	$0	$0						$0	$0	$0
6	**Waste rock site C and 860 area**						$0	$0	$0						$0	$0	$0
7	**Waste rock site E**						$0	$0	$0						$0	$0	$0
8	**Hawk inlet and marine load out area**						$0	$0	$0	22,587	740/988G	571	2	40	$9,525	$20,887	$30,412
9	**Young Bay Dock facility**						$0	$0	$0	1,613	740/988G	571	2	3	$714	$1,567	$2,281
10	**Topsoil stockpiles and borrow areas**						$0	$0	$0						$0	$0	$0
11	**Tailings (disturbance area minus design footprint)**						$0	$0	$0						$0	$0	$0
12	**Power Line Right-of-way**						$0	$0	$0						$0	$0	$0
13	**Waste rock site 23**						$0	$0	$0						$0	$0	$0
							$0	**$0**	**$0**	62,920				111	**$26,431**	**$57,962**	**$84,393**

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Closure Cost Estimate
Yards, Etc.

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Yards, Etc. - Cost Summary

	Labor	Equipment	Materials	Totals
Regrading Cost	$133,222	$162,393	N/A	$295,615
Cover Placement Cost	$0	$0	N/A	$0
Growth Media Placement Cost	$26,431	$57,962	N/A	$84,393
Ripping/Scarifying Cost	$0	$0	N/A	$0
Subtotal Earthworks	**$159,653**	**$220,355**		**$380,008**
Revegetation Cost	$6,877	$3,761	$103,042	$113,680
TOTALS	**$166,530**	**$224,116**	**$103,042**	**$493,688**

Yards, Etc. - Scarifying/Revegetation Costs

	Description (required)	Surface Area acres	Area Long Dimension ft	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs $	Scarifying/ Ripping Equipment Cost $	Total Scarifying/ Ripping Costs $	Revegetation Labor Cost $	Revegetation Equipment Cost $	Revgetation Material Cost $	Total Revegetation Cost $
1	**920 mill and portal area**	24.00			$0	$0	$0	$892	$488	$13,368	$14,748
2	**Waste rock site D**	8.00			$0	$0	$0	$297	$163	$4,456	$4,916
3	**Waste rock site 1350 and portal area**	5.00			$0	$0	$0	$186	$102	$2,785	$3,073
4	**1160 tank**	1.00			$0	$0	$0	$37	$20	$557	$614
5	**960 waste rock area**	1.00			$0	$0	$0	$37	$20	$557	$614
6	**Waste rock site C and 860 area**	4.00			$0	$0	$0	$149	$81	$2,228	$2,458
7	**Waste rock site E**	10.00			$0	$0	$0	$372	$203	$5,570	$6,145
8	**Hawk inlet and marine load out area**	14.00			$0	$0	$0	$520	$285	$7,798	$8,603
9	**Young Bay Dock facility**	1.00			$0	$0	$0	$37	$20	$557	$614
10	**Topsoil stockpiles and borrow areas**	27.00			$0	$0	$0	$1,004	$549	$15,038	$16,591
11	**Tailings (disturbance area minus design footprint)**	33.00			$0	$0	$0	$1,227	$671	$18,380	$20,278
12	**Power Line Right-of-way**	35.00			$0	$0	$0	$1,301	$712	$19,494	$21,507
13	**Waste rock site 23**	22.00			$0	$0	$0	$818	$447	$12,254	$13,519
		185.00			**$0**	**$0**	**$0**	**$6,877**	**$3,761**	**$103,042**	**$113,680**

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Closure Cost Estimate
Well Abandonment

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Well Abandonment	Labor	Equipment	Materials	Totals
Production, Dewatering, Infiltration Wells	$3,184	$2,589	$180	$5,953
Monitoring Wells	$34,700	$9,089	$2,764	$46,553
TOTALS	**$37,884**	**$11,678**	**$2,944**	**$52,506**

Production, Dewatering and Infiltration Well Closure

	Description (required)	ID Code	Number of Holes	Casing Diam in	Average Depth(1) ft bgs	Depth to First Water ft bgs	Original Static Water Level ft bgs	Top of Slotted Casing(2) ft bgs	Blank Casing Below Top of Screen(2) ft	Type of Pump (if any) (select)	Depth to Pump ft bgs	Hole Plug Method (select)	Casing Volume per ft cf	Perforation Length (3,4) ft	Grout Volume per Hole(4,5) cy	Cement Volume per Hole(6) cy	Inert Media Volume per Hole(7) cy	Pump Removal Labor Cost $	Pump Removal Equip Cost $	Perf Labor Cost $	Perf Equip Cost (8) $	Grout + Cement Labor Cost(9) $	Grout + Cement Equip Cost(9) $	Grout + Cement Material Cost $	Inert Media Labor Cost(10) $	Inert Media Equip Cost(9) $
1	**DW-3**		**1**	**6.0**	**73**	**70**	**20**	**38**	**36**	**Submersil**	**70**	**Grout Only**	0.200	36	0.79	0.10		$167	$363	$519	$423	$536	$346	$68	$326	$86
2	**DW-4**		**1**	**6.0**	**125**	**70**	**20**	**78**	**48**	**Submersil**	**70**	**Grout Only**	0.200	75	1.56	0.10		$167	$363	$571	$555	$571	$368	$112	$326	$86
																		$334	**$726**	**$1,090**	**$978**	**$1,107**	**$714**	**$180**	**$653**	**$171**

(1) For previously abandoned holes enter "0" for depth
(2) Wells abandoned per Nevada Administrative Code (NAC 534.420). Hole grouted and perforated from bottom to 50 feet (15.24m) above the top of the screen, or first water encountered or original static water level, depending on vertical hydraulic gradient and well construction parameters. Inert media (cuttings or alluvium) used from top of grout to top seal.
(3) Perforation length = amount of blank casing below first water (for confined aquifers) or predicted recovered water table (unconfined aquifers) + 50 feet (15.24m) of blank casing above water table
(4) Assumes 50' (15.24m) sanitary seal at top of hole. Therefore, perforation and grouting only required to bottom of sanitary seal.
(5) Assumes 100% loss to formation for grout (abandonite) for screened and perforated sections.
(6) Assumes 10' (3m) top seal of cement in casing only. See note 4.
(7) Inert material is cuttings or alluvium sourced locally.
(8) Includes perforation tool wear cost/ft of perforation (see Productivty Sheet).
(9) See Productivity Sheet for hourly production. Minimum 1 hr per hole + fixed hours per hole for move and setup. If no perforation required, use standard drill rig.
(10) See Productivity Sheet for hourly production. Minimum 1 hr per hole.

Notes:

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Well Abandonment

	Labor	Equipment	Materials	Totals
Production, Dewatering, Infiltration Wells	$3,184	$2,589	$180	$5,953
Monitoring Wells	$34,700	$9,089	$2,764	$46,553
TOTALS	**$37,884**	**$11,678**	**$2,944**	**$52,506**

Monitoring Well Closure

	Description (required)	ID Code	Number of Holes	Casing Diam in	Average Depth ft bgs	Top of Screen(1) ft bgs	Hole Plug Method (select)	Casing Volume per ft ft3	Grout Volume/ Well(2,3) cy	Cement Volume per Hole(4) cy	Inert Backfill Volume per Hole(5) cy	Total Grouting Hours/ Hole hr	Total Inert Media Hours/ Hole hr	Grout + Cement Labor Cost(6) $	Grout + Cement Equip Cost(6) $	Grout + Cement Material Cost $	Inert Material Labor Cost(7) $	Inert Material Equip Cost(7) $
1	**Monitoring wells - closure period**		**130**	**4.0**	**20**	**15**	**Grout Only**	0.090	0.00	0.08				$0	$0	$2,278	$28,293	$7,418
2	**Monitoring wells - post-closure period**		**20**	**4.0**	**20**	**15**	**Grout Only**	0.090	0.00	0.08				$0	$0	$350	$4,353	$1,141
3	**Underground boreholes (Three holes approximately 500'**		**3**	**2.2**	**500**	**490**	**Grout Only**	0.030	0.67	0.03		4.0		$2,054	$530	$136	$0	$0
														$2,054	**$530**	**$2,764**	**$32,646**	**$8,559**

Wells abandoned per NAC 534.420 with bentonite grout placed to 50 feet above the top of the screen (see note 1).
(1) Assumes top of screen is at or above the static water level (in unconfined aquifers) or the depth of first water encountered (in confined aquifers).
(2) Assumes 25% loss to formation for grouting
(3) Grouting only required to 50' (15.24m) above the top of screen because monitor wells are constructed with a seal in the annular space.
(4) Assumes top 10' (3m) plugged with cement.
(5) Assumes hole plugged with inert material (cuttings or alluvium) above grout up to cement surface plug.
(6) See Productivity Sheet for hourly production. Minimum 1 hr per hole + fixed hours per hole for move and setup (see Productivty Sheet).
(7) See Productivity Sheet for hourly production. Minimum 1 hr per hole.

Notes:

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Well Abandonment	Labor	Equipment	Materials	Totals
Production, Dewatering, Infiltration Wells	$3,184	$2,589	$180	$5,953
Monitoring Wells	$34,700	$9,089	$2,764	$46,553
TOTALS	**$37,884**	**$11,678**	**$2,944**	**$52,506**

Well Construction

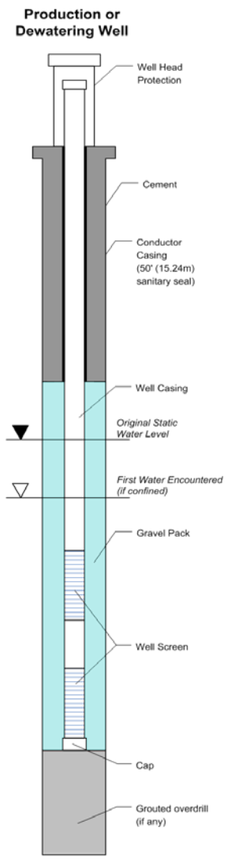

Figure 1 - Production Well

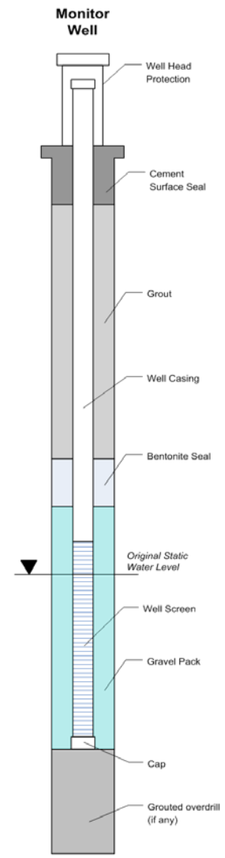

Figure 2 - Monitor Well

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Closure Cost Estimate
Misc. Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
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Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Miscellaneous Cost Summary

	Labor	Equipment	Materials	Totals
Fence Removal	$0	$0	N/A	$0
Fence Installation	$0	$0	$0	$0
Culvert & Buried Pipe Removal	$0	$0	N/A	$0
Surface Pipe Removal	$0	$0	N/A	$0
Power Lines	$0	N/A	N/A	$0
Substations/Transformers	$27,216	N/A	N/A	$27,216
Rip-rap, rock lining, gabions	$0	$0	$0	$0
Other Costs	$0	$0	$0	$0
TOTALS	**$27,216**	**$0**	**$0**	**$27,216**

Fence Removal

You must fill in ALL green and blue cells

	Description (required)	ID Code	Length ft	Type (select type)	Labor Cost $	Equipment Cost $	Total Cost $
					$0	**$0**	**$0**

Notes:

Fence Installation

You must fill in ALL green and blue cells

	Description (required)	ID Code	Length ft	Type (select type)	Labor Cost $	Equipment Cost $	Material Cost ($)
1							
					$0	**$0**	**$0**

Notes:

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Closure Cost Estimate
Misc. Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Miscellaneous Cost Summary

	Labor	Equipment	Materials	Totals
Fence Removal	$0	$0	N/A	$0
Fence Installation	$0	$0	$0	$0
Culvert & Buried Pipe Removal	$0	$0	N/A	$0
Surface Pipe Removal	$0	$0	N/A	$0
Power Lines	$0	N/A	N/A	$0
Substations/Transformers	$27,216	N/A	N/A	$27,216
Rip-rap, rock lining, gabions	$0	$0	$0	$0
Other Costs	$0	$0	$0	$0
TOTALS	**$27,216**	**$0**	**$0**	**$27,216**

Culvert & Buried Pipe Removal

You must fill in ALL green and blue cells

			Input			Costs	
	Description (required)	ID Code	Length ft	Type (select type)	Location (select)	Labor Cost $	Equipment Cost $
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
						$0	**$0**

Notes:

Surface Pipe Removal

You must fill in ALL green and blue cells

			Input			Costs	
	Description (required)	ID Code	Length ft	Type (select type)	Location (select)	Labor Cost $	Equipment Cost $
1							
2							
						$0	**$0**

Notes:

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Closure Cost Estimate
Misc. Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Miscellaneous Cost Summary

	Labor	Equipment	Materials	Totals
Fence Removal	$0	$0	N/A	$0
Fence Installation	$0	$0	$0	$0
Culvert & Buried Pipe Removal	$0	$0	N/A	$0
Surface Pipe Removal	$0	$0	N/A	$0
Power Lines	$0	N/A	N/A	$0
Substations/Transformers	$27,216	N/A	N/A	$27,216
Rip-rap, rock lining, gabions	$0	$0	$0	$0
Other Costs	$0	$0	$0	$0
TOTALS	**$27,216**	**$0**	**$0**	**$27,216**

Power Line and Substation Removal — **You must fill in ALL green and blue cells**

	Description (required)	ID Code	Input: Power Line Length miles	Power Line Type (select)	Number of Substations #	Location (select)	Power Line Removal $
1	**Removal of one substation Year 10**			**Double Pole**	**1**	**On-site**	$0
							$0

Notes: If substation owned by operator, use Other Demo & Equipment Removal sheet
User may need to add line items in Foundations & Buildings for substation slab demolition and fence removal
Labor/Equipment costs assume approximately 80% of cost are equipment and 20% are labor related costs
920_asbuilt_ft.dwg\utilities-power and 1350-power
1 substation stays to service the water treatment

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Closure Cost Estimate
Misc. Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Miscellaneous Cost Summary

	Labor	Equipment	Materials	Totals
Fence Removal	$0	$0	N/A	$0
Fence Installation	$0	$0	$0	$0
Culvert & Buried Pipe Removal	$0	$0	N/A	$0
Surface Pipe Removal	$0	$0	N/A	$0
Power Lines	$0	N/A	N/A	$0
Substations/Transformers	$27,216	N/A	N/A	$27,216
Rip-rap, rock lining, gabions	$0	$0	$0	$0
Other Costs	$0	$0	$0	$0
TOTALS	**$27,216**	**$0**	**$0**	**$27,216**

Rip-Rap & Rock Lining — **You must fill in ALL green and blue cells**

			Input		Costs		
	Description (required)	**ID Code**	**Area** S.Y.	**Type** (select type)	**Labor Cost** $	**Equipment Cost** $	**Material Cost** $
1							
					$0	**$0**	**$0**

Notes:

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Closure Cost Estimate
Misc. Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
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Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	$0	$0	N/A	$0
Fence Installation	$0	$0	$0	$0
Culvert & Buried Pipe Removal	$0	$0	N/A	$0
Surface Pipe Removal	$0	$0	N/A	$0
Power Lines	$0	N/A	N/A	$0
Substations/Transformers	$27,216	N/A	N/A	$27,216
Rip-rap, rock lining, gabions	$0	$0	$0	$0
Other Costs	$0	$0	$0	$0
TOTALS	**$27,216**	**$0**	**$0**	**$27,216**

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Closure Cost Estimate
Monitoring

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Reclamation Monitoring & Maintenance - Cost Summary

	Labor	Equipment	Lab & Materials	Totals
Revegetation Maintenance	$1,469	$804	$22,017	$24,290
Erosion Maintenance	$9,172	$27,517	N/A	$36,689
Reclamation Monitoring	$0	$0	N/A	$0
Subtotal Reclamation Monitoring	**$10,641**	**$28,321**	**$22,017**	**$60,979**
Water Quality Monitoring	$0	$0	$0	$0
TOTAL MONITORING	**$10,641**	**$28,321**	**$22,017**	**$60,979**

Clear Sheet

Reclamation Maintenance

Description	Total Revegetation Surface Area (1,2) acres	% Area Requiring Reseeding	Seed Mix (select)	Area Requiring Reseeding acres	Seed $/acres	Labor $/acres	Equipment $/acres	Totals $
Revegetation Maintenance	395	**10%**	**Mix 1**	39.5	$556.98	$37.17	$20.34	
Labor								$1,469
Equipment								$804
Materials								$22,017
Cost/Acre								$614
							Subtotal	**$24,290**

Notes: 1) Surface area is NOT the same as footprint disturbance area typically used for permitting purposes.
2) If BRCE model, revegetation surface area determined by area included in PER, LOM or Surety estimate

	Total Volume Growth Media cy	% Volume Requiring Maintenance	Average Growth Media Placement Cost $/CY	Volume Requiring Replacement cy		Labor (assume: 25%) $/acres	Equipment (assume: 75%) $/acres	Total $
Erosion Maintenance	235,191	**10%**	$1.56	23,519		$9,172.00	$27,517.00	$36,689

Notes:

Reclamation Monitoring

Description	Hrs/Day	Days/Year	Number of Years	Rate $/hr		
Field Work						
Field Geologist/Engineer				$125.00		$0
Range Scientist				$125.00		$0
Reporting						
Field Geologist/Engineer				$125.00		$0
Range Scientist				$125.00		$0
					Subtotal	**$0**
Travel						
	Hrs/Trip hr	**Trips/Year**	**Years**	**Truck Cost** $/hr		
Travel				$10.75		$0
					Subtotal	**$0**
					Total Reclamation Monitoring	**$0**

Notes:

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Closure Cost Estimate
Monitoring

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Reclamation Monitoring & Maintenance - Cost Summary

	Labor	Equipment	Lab & Materials	Totals
Revegetation Maintenance	$1,469	$804	$22,017	$24,290
Erosion Maintenance	$9,172	$27,517	N/A	$36,689
Reclamation Monitoring	$0	$0	N/A	$0
Subtotal Reclamation Monitoring	**$10,641**	**$28,321**	**$22,017**	**$60,979**
Water Quality Monitoring	$0	$0	$0	$0
TOTAL MONITORING	**$10,641**	**$28,321**	**$22,017**	**$60,979**

Clear Sheet

Water and Rock Sample Analysis

Description	Samples #	Events/Year	No. Years	First Sample Year closure year (1-100)	No. of Samplers	Days/Event	Hrs/Day	Analysis Cost $/sample	Supplies $/sample	Lab Cost $
										$0.00

Notes: Sampling labor cost = No. Samplers x Years x Events/year x Days/event x Hour/Day x Labor Rate
Sampling equipment costs include 1 pickup truck for every two samplers

Ground & Surface Water Monitoring

Pump Costs

Description	No. of units		Years		Cost $
Pump (purchased)		Replacement period (yrs):			$0
				Subtotal Field Work	**$0**

Notes: Replacement period = frequency of pump replacement

Reporting

Description	Hrs/Event	Rate $/hr	Cost $
Field Geologist/Engineer			
		Subtotal Reporting	

Notes:

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Closure Cost Estimate
Constr. Mgmt

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Greens_Creek_RecPln_SCRE Update_311400 010_ft_20140408_DFT_bj.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Construction Management & Road Maintenance - Cost Summary	Labor	Equipment	Materials	Totals
Construction Management	$0	$0	N/A	$0
Construction Support		$0		$0
Road Maintenance	$165,247	$134,794	$0	$300,041
TOTAL CONSTRUCTION MANAGEMENT	**$165,247**	**$134,794**	**$0**	**$300,041**

Clear Sheet

Construction Management

Construction Management Staff

Description	Duration mo.	Hours/ Month hr.	Number of Supervisors	Supervisor Rate $/hr	Labor Cost $	Equipment Cost[1] $	Totals $
Active Reclamation					$0	$0	$0
Monitoring & Maintenance					$0	$0	$0
				Total Staff	**$0**	**$0**	**$0**

Construction Management Support

Description	Duration mo.	Number of Units		Rental Rate $/mo	Generator Cost $/mo	Equipment Cost[1] $	Totals $
Temporary Office Rental						$0	$0
Temporary Toilets						$0	$0
					Total Support	**$0**	**$0**

Notes: Office rental assumes only 1 generator required for every 4 trailers

Total Construction Management **$0**

Road Maintenance

Description	Fleet Size (select)	Number	Duration mo.	Hours/ Month hr.	Labor Cost $	Equipment Cost $	Totals $
Active Reclamation							
Water Truck	Small	1	17	72	$65,150	$58,699	$123,849
Grader	Small	1	17	72	$71,292	$54,197	$125,489
Monitoring & Maintenance							
Water Truck	Small				$0	$0	$0
Grader	Small	1	3	160	$28,805	$21,898	$50,703
Description	**Gallons/ Day**	**Days/ Month**	**Duration mo.**	**Cost/ Gallon $**			**Totals $**
Water Fees							
Water Fees							$0
				Total Project Maintenance	**$165,247**	**$134,794**	**$300,041**

Notes: 1) Supervisor equipment = pickup truck
Duration: 3 years * 5.5 months/year.
2) Road Maintenance Hawk Inlet to WTP
Duration: 12 hours * 40 days (Frequency: grade the road once every 2.5 years)

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Closure Cost Estimate
Labor Rates

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS

	Greens Creek	
Cost Basis/Project Region	2014	DB (AK) Sept. '13 for double shifts 8hrs/14days labor, week begins Wednesday, CMI rental rates from 2012 increased by 3%
Power Equipment Operators	none	$0.00
Truck Drivers	none	$0.00
Laborers	none	$0.00

INDIRECT COSTS

Unemployment (%)	
Retirement/SS/Medicare (%)	
Workman's Compensation (%)	

Other Indirects

State Payroll Tax (13),(15),(17),(	
Total Other Indirects	**0.00%**

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Labor Group	Base Rate ($/hr)	Zone Adjustment ($/hr)	Hourly Wage ($/hr)	Fringe ($/hr)	Retirement/ Medicare ($/hr)	Unemployment Insurance ($/hr)	Workman's Compensation ($/hr)	Other Indirect Costs ($/hr)	Additional User Markups to Base Rate† ($/hr)	%	($/hr)	Total ($/hr)
Equipment Operators ($/hr) (2)													
Bulldozers													
D6R		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
D6R w/ Winch		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
D7R		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
D8R		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
D9R		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
D10R		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
D11R		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
Wheeled Dozers													
824G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
834G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
844		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
854G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
Motor Graders													
120H		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
14G/H		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
16G/H		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
24M		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
Track Excavators													
312C		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
320C		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
325C		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
330C		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
345B		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
365BL		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
385BL		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
Scrapers													
631G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
637G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
Wheeled Loaders													
924G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
928G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
950G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
966G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
972G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
980G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
988G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
990		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
992G		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
994D		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
L2350		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
Shovels													
PC2000		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
PC3000		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
PC4000		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
PC5500		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
PC8000		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
Hydraulic Hammers													
H-120 (fits 325)													
H-160 (fits 345)													
H-180 (fits 365/385)													
Demolition Shears													
S340 (fits 322/325/330)													
S365 (fits 330/345)													
S390 (fits 365/385)													
Demolition Grapples													
G315 (fits 322/325)													
G320 (fits 325/330)													
G330 (fits 345/365)													

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Closure Cost Estimate
Labor Rates

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS

Cost Basis/Project Region	Greens Creek 2014	DB (AK) Sept. '13 for double shifts 8hrs/14days labor, week begins Wednesday, CMI rental rates from 2012 increased by 3%
Power Equipment Operators	none	$0.00
Truck Drivers	none	$0.00
Laborers	none	$0.00

INDIRECT COSTS

Unemployment (%)	
Retirement/SS/Medicare (%)	
Workman's Compensation (%)	

Other Indirects

State Payroll Tax (13),(15),(17),(	
Total Other Indirects	**0.00%**

HOURLY LABOR RATE TABLE

Other Equipment

420D 4WD Backhoe		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
428D 4WD Backhoe		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
CS533E Vibratory Roller		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
CS633E Vibratory Roller		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
CP533E Sheepsfoot Compactor		$54.84	$0.00	$54.84	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$54.84
CP633E Sheepsfoot Compactor		$54.84	$0.00	$54.84	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$54.84
Light Truck - 1.5 Ton		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
Supervisor's Truck		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
Flatbed Truck		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
Air Compressor + tools		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
Welding Equipment		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
Heavy Duty Drill Rig		$59.93	$0.00	$59.93	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$59.93
Pump (plugging) Drill Rig		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
Concrete Pump					$0.00							$0	
Gas Engine Vibrator		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
Generator 5KW					$0.00							$0	
HDEP Welder (pipe or liner)					$0.00							$0	
5 Ton Crane		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
20 Ton Crane		$58.13	$0.00	$58.13	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.13
50 Ton Crane		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01
120 Ton Crane		$60.01	$0.00	$60.01	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$60.01

NOTES:

(1) Equipment Type:	Catepillar model or equivalent, LeTourneau
(2) Equipment Operator Source:	
(3) Zone Basis:	

Truck Drivers ($/hr) (4)

725		$57.69	$0.00	$57.69	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$57.69
730		$57.69	$0.00	$57.69	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$57.69
735		$57.69	$0.00	$57.69	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$57.69
740		$59.05	$0.00	$59.05	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$59.05
769D		$59.05	$0.00	$59.05	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$59.05
773E		$59.05	$0.00	$59.05	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$59.05
777D		$59.05	$0.00	$59.05	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$59.05
785C		$59.05	$0.00	$59.05	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$59.05
793C		$59.05	$0.00	$59.05	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$59.05
797B		$59.05	$0.00	$59.05	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$59.05
613E (5,000 gal) Water Wagon		$54.84	$0.00	$54.84	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$54.84
621E (8,000 gal) Water Wagon		$54.84	$0.00	$54.84	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$54.84
777D Water Truck		$54.84	$0.00	$54.84	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$54.84
785C Water Truck		$54.84	$0.00	$54.84	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$54.84
Dump Truck (10-12 yd3)		$54.84	$0.00	$54.84	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$54.84

NOTES:

(4) Truck Driver Source:	
(5) Zone Basis:	

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Closure Cost Estimate
Labor Rates

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Color Code Key	
User Input - Direct Input	**Direct Input**
User Input - Pull Down List	**Pull Down Selection**
Program Constant (can override)	**Alternate Input**
Program Calculated Value	**Locked Cell - Formula or Reference**

ZONE ADJUSTMENTS

Cost Basis/Project Region	**Greens Creek 2014**	DB (AK) Sept. '13 for double shifts 8hrs/14days labor, week begins Wednesday, CMI rental rates from 2012 increased by 3%
Power Equipment Operators	**none**	$0.00
Truck Drivers	**none**	$0.00
Laborers	**none**	$0.00

INDIRECT COSTS

Unemployment (%)	
Retirement/SS/Medicare (%)	
Workman's Compensation (%)	

Other Indirects

State Payroll Tax (13),(15),(17),(	
Total Other Indirects	**0.00%**

HOURLY LABOR RATE TABLE

Laborers ($/hr) (6,7)

General Laborer		$50.69	$0.00	$50.69	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$50.69
Skilled Laborer		$57.73	$0.00	$57.73	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$57.73
Driller's Helper		$56.53	$0.00	$56.53	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$56.53
Rodmen (reinforcing concrete)		$53.77	$0.00	$53.77	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$53.77
Cement finisher		$53.77	$0.00	$53.77	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$53.77
Carpenter		$58.82	$0.00	$58.82	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$58.82

NOTES:

(6) Laborer Source:	
(7) Carpenter Source:	
(8) Zone Basis:	

Project Management and Technical Labor ($/hr) (9)

Project Manager		$150.00	$0.00	$150.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$150.00
Foreman		$75.00	$0.00	$75.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$75.00
Field Geologist/Engineer		$125.00	$0.00	$125.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$125.00
Field Tech/Sampler		$75.00	$0.00	$75.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$75.00
Range Scientist		$125.00	$0.00	$125.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0	$125.00
Senior Planning Engineer					$0.00								
Project Engineer					$0.00								
Mechanic/Fitter					$0.00								
					$0.00								
					$0.00								
					$0.00								
					$0.00								

NOTES:

(9) Project Manager:	
(9) Foreman Source:	
(9) Techical Labor Source:	
Other Labor Source:	
Other Labor Source:	
†Additional User Markups	
(These are added by the user to the	
base rate to account for site-specific	
conditions or corporate requirements)	

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Closure Cost Estimate
Equipment Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Monthly Rental Basis: 486 hrs month

EQUIPMENT RENTAL RATE TABLE

EQUIPMENT TYPE (1)	Monthly Owner/Rental Rate	Equipment Hourly Rate	Fuel/Lube/ Wear	Total Rate
Bulldozers				
D6R	$17,647.33	$36.31	$36.84	$73.15
D6R w/ Winch	$21,176.80	$43.57	$36.84	$80.41
D7R	$25,588.63	$52.65	$44.05	$96.70
D8R	$29,118.10	$59.91	$55.77	$115.69
D9R	$35,294.67	$72.62	$80.51	$153.13
D10R			$102.26	$102.26
D11R			$148.13	$148.13
Wheeled Dozers				
824G			$44.55	$44.55
834G			$52.21	$52.21
844			$62.16	$62.16
854G			$78.73	$78.73
Motor Graders				
120H	$14,117.87	$29.05	$16.58	$45.62
14G/H	$24,706.27	$50.84	$55.06	$105.89
16G/H	$34,412.30	$70.81	$66.00	$136.80
24M			$64.23	$64.23
Track Excavators				
312C	$8,470.72	$17.43	$7.79	$25.22
320C	$13,059.03	$26.87	$28.86	$55.74
325C	$15,000.23	$30.86	$37.02	$67.88
330C	$21,176.80	$43.57	$33.98	$77.55
345B	$24,706.27	$50.84	$50.13	$100.97
365BL	$40,588.87	$83.52	$60.80	$144.31
385BL			$90.79	$90.79
Scrapers				
631G			$93.04	$93.04
637G			$134.24	$134.24
Wheeled Loaders				
924G	$6,529.51	$13.44	$16.29	$29.73
928G	$7,941.30	$16.34	$27.85	$44.19
950G	$13,235.50	$27.23	$23.17	$50.40
966G	$18,529.70	$38.13	$48.65	$86.78
972G	$21,176.80	$43.57	$53.21	$96.79
980G	$24,706.27	$50.84	$44.19	$95.03
988G	$38,824.13	$79.89	$88.26	$168.14
990	$61,765.67	$127.09	$70.44	$197.53
992G	$114,707.67	$236.02	$171.10	$407.13
994D			$149.18	$149.18
L2350			$273.49	$273.49
Shovels				
PC2000			$153.32	$153.32
PC3000			$207.19	$207.19
PC4000			$290.07	$290.07
PC5500			$493.11	$493.11
PC8000			$617.43	$617.43
Hydraulic Hammers				
H-120 (fits 325)	$15,000.23	$30.86	$4.96	$35.82
H-160 (fits 345)	$24,706.27	$50.84	$9.67	$60.51
H-180 (fits 365/385)	$30,882.83	$63.54	$11.46	$75.00
Demolition Shears				
S340 (fits 322/325/330)				$0.00
S365 (fits 330/345)				$0.00
S390 (fits 365/385)				$0.00
Demolition Grapples				
G315 (fits 322/325)				$0.00
G320 (fits 325/330)				$0.00
G330 (fits 345/365)				$0.00
Other Equipment				
420D 4WD Backhoe	$4,764.78	$9.80	$18.72	$28.53
428D 4WD Backhoe	$5,823.62	$11.98	$18.72	$30.70
CS533E Vibratory Roller	$8,823.67	$18.16	$15.54	$33.70
CS633E Vibratory Roller	$13,235.50	$27.23	$19.68	$46.92
CP533E Sheepsfoot Compactor	$8,823.67	$18.16	$15.54	$33.70
CP633E Sheepsfoot Compactor	$132,355.00	$272.34	$19.68	$292.02
Light Truck - 1.5 Ton	$2,205.92	$4.54	$6.22	$10.75
Supervisor's Truck	$3,088.28	$6.35	$4.14	$10.50
Flatbed Truck	$3,088.28	$6.35	$19.48	$25.83
Air Compressor + tools	$1,500.02	$3.09	$4.14	$7.23
Welding Equipment	$794.13	$1.63	$8.29	$9.92
Heavy Duty Drill Rig	$30,000.47	$61.73	$49.73	$111.46
Pump (plugging) Drill Rig	$1,323.55	$2.72	$41.44	$44.16
Concrete Pump	$5,735.38	$11.80	$41.44	$53.24
Gas Engine Vibrator	$1,102.96	$2.27	$4.14	$6.41
Generator 5KW	$669.50	$1.38	$6.22	$7.59
HDEP Welder (pipe or liner)	$2,647.10	$5.45	$8.29	$13.73
5 Ton Crane	$7,941.30	$16.34	$12.43	$28.77
20 Ton Crane	$15,882.60	$32.68	$16.58	$49.26
50 Ton Crane	$24,706.27	$50.84	$19.48	$70.31
120 Ton Crane	$44,118.33	$90.78	$21.55	$112.33
Trucks				
725	$21,176.80	$43.57	$34.51	$78.08
730	$22,941.53	$47.20	$36.94	$84.14
735	$28,235.73	$58.10	$52.14	$110.24
740	$31,765.20	$65.36	$53.81	$119.17
769D			$38.33	$38.33
773E			$48.69	$48.69
777D			$69.41	$69.41
785C			$100.49	$100.49
793C			$173.00	$173.00
797B			$243.45	$243.45
613E (5,000 gal) Water Wagon	$7,941.30	$16.34	$33.07	$49.41
621E (8,000 gal) Water Wagon			$44.55	$44.55
777D Water Truck			$69.41	$69.41
785C Water Truck			$100.49	$100.49
Dump Truck (10-12 yd^3)	$7,941.30	$16.34	$23.16	$39.50

NOTES:

(1) Power Equipment Source:	
(2) Power Equipment Type:	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels
(3) Drilliing Equipment Source:	
(4) Other Equipment Source:	
(5) Drill rig includes support (pipe) truck	

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Closure Cost Estimate
Equipment Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm

FUEL, LUBE AND WEAR CALCULATIONS

EQUIPMENT TYPE	PM Cost Per Hour (1)	Under carriage or Tires (2)	G.E.T Consumption (3)	Fuel Use Rate gal/hr (4)	Cost@ 4.14/gal	Total Hourly Equipment Cost
Bulldozers						
D6R	$6.64		$4.30	6.25	$25.90	$36.84
D6R w/ Winch	$6.64		$4.30	6.25	$25.90	$36.84
D7R	$6.59		$6.38	7.50	$31.08	$44.05
D8R	$7.13		$8.24	9.75	$40.40	$55.77
D9R	$8.65		$12.81	14.25	$59.05	$80.51
D10R	$9.74		$17.93	18.00	$74.59	$102.26
D11R	$11.67		$26.65	26.50	$109.81	$148.13
Wheeled Dozers						
824G		$0.00		10.75	$44.55	$44.55
834G		$0.00		12.60	$52.21	$52.21
844		$0.00		15.00	$62.16	$62.16
854G		$0.00		19.00	$78.73	$78.73
Motor Graders						
120H				4.00	$16.58	$16.58
14G/H	$5.78	$10.57	$12.81	6.25	$25.90	$55.06
16G/H	$4.69	$12.72	$17.51	7.50	$31.08	$66.00
24M				15.50	$64.23	$64.23
Track Excavators						
312C				1.88	$7.79	$7.79
320C	$4.66		$3.90	4.90	$20.30	$28.86
325C	$4.76		$4.91	6.60	$27.35	$37.02
330C				8.20	$33.98	$33.98
345B			$6.21	10.60	$43.92	$50.13
365BL	$6.10			13.20	$54.70	$60.80
385BL	$6.95		$11.32	17.50	$72.52	$90.79
Scrapers						
631G	$7.10	$16.73	$7.05	15.00	$62.16	$93.04
637G	$10.24	$16.73	$8.86	23.75	$98.42	$134.24
Wheeled Loaders						
924G		$4.90		2.75	$11.40	$16.29
928G	$4.62	$4.90	$3.83	3.50	$14.50	$27.85
950G		$6.59		4.00	$16.58	$23.17
966G	$5.55	$10.33	$8.94	5.75	$23.83	$48.65
972G	$5.67	$10.33	$11.31	6.25	$25.90	$53.21
980G		$13.11		7.50	$31.08	$44.19
988G	$8.51	$17.51	$12.10	12.10	$50.14	$88.26
990				17.00	$70.44	$70.44
992G	$12.16	$34.97	$28.66	23.00	$95.31	$171.10
994D				36.00	$149.18	$149.18
L2350				66.00	$273.49	$273.49
Shovels						
PC2000				37.00	$153.32	$153.32
PC3000				50.00	$207.19	$207.19
PC4000				70.00	$290.07	$290.07
PC5500				119.00	$493.11	$493.11
PC8000				149.00	$617.43	$617.43
Hydraulic Hammers						
H-120 (fits 325)	N/A		$4.96			$4.96
H-160 (fits 345)	N/A		$9.67			$9.67
H-180 (fits 365/385)	N/A		$11.46			$11.46
Demolition Shears						
S340 (fits 322/325/330)	N/A					$0.00
S365 (fits 330/345)	N/A					$0.00
S390 (fits 365/385)	N/A					$0.00
Demolition Grapples						
G315 (fits 322/325)	N/A					$0.00
G320 (fits 325/330)	N/A					$0.00
G330 (fits 345/365)	N/A					$0.00
Other Equipment						
420D 4WD Backhoe	$3.29		$3.00	3.00	$12.43	$18.72
428D 4WD Backhoe	$3.29		$3.00	3.00	$12.43	$18.72
CS533E Vibratory Roller				3.75	$15.54	$15.54
CS633E Vibratory Roller				4.75	$19.68	$19.68
CP533E Sheepsfoot Compactor				3.75	$15.54	$15.54
CP633E Sheepsfoot Compactor				4.75	$19.68	$19.68
Light Truck - 1.5 Ton				1.50	$6.22	$6.22
Supervisor's Truck				1.00	$4.14	$4.14
Flatbed Truck				4.70	$19.48	$19.48
Air Compressor + tools			N/A	1.00	$4.14	$4.14
Welding Equipment			N/A	2.00	$8.29	$8.29
Heavy Duty Drill Rig				12.00	$49.73	$49.73
Pump (plugging) Drill Rig				10.00	$41.44	$41.44
Concrete Pump			N/A	10.00	$41.44	$41.44
Gas Engine Vibrator			N/A	1.00	$4.14	$4.14
Generator 5KW			N/A	1.50	$6.22	$6.22
HDEP Welder (pipe or liner)			N/A	2.00	$8.29	$8.29
5 Ton Crane				3.00	$12.43	$12.43
20 Ton Crane				4.00	$16.58	$16.58
50 Ton Crane				4.70	$19.48	$19.48
120 Ton Crane				5.20	$21.55	$21.55
Trucks						
725	$15.03			4.70	$19.48	$34.51
730	$15.39			5.20	$21.55	$36.94
735	$21.68			7.35	$30.46	$52.14
740	$23.35			7.35	$30.46	$53.81
769D				9.25	$38.33	$38.33
773E				11.75	$48.69	$48.69
777D				16.75	$69.41	$69.41
785C				24.25	$100.49	$100.49
793C				41.75	$173.00	$173.00
797B				58.75	$243.45	$243.45
613E (5,000 gal) Water Wagon	$7.24	$0.97		6.00	$24.86	$33.07
621E (8,000 gal) Water Wagon				10.75	$44.55	$44.55
777D Water Truck				16.75	$69.41	$69.41
785C Water Truck				24.25	$100.49	$100.49
Dump Truck (10-12 yd3) (5)	N/A	$1.61	N/A	5.20	$21.55	$23.16

Notes:

(1) PM Source:	
(2) Undercarriage Source:	
(3) G.E.T. Source:	CAT Historical Data
(4) Fuel Use Source:	Caterpillar Handbook, Edition 35, Ch. 20; or estimated average for smaller vehicles
(5) Dump Truck Oper. Cost Source:	Means Heavy Construction (2008)

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Closure Cost Estimate
Equipment Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm

TIRE COST TABLES

Equipment	Tire Size	# of Tires Per Piece of Equipment	Cost Per Tire	Tire Cost (1)(2)	Life Expectency Hours (Low/Zone A) (3)	Tire Cost per Hour
Bulldozers						
D6R			N/A			
D6R w/ Winch			N/A			
D7R			N/A			
D8R			N/A			
D9R			N/A			
D10R			N/A			
D11R			N/A			
Wheeled Dozers						
824G	29.5R25	4		$0.00	3,500	$0.00
834G	35/65-R33	4		$0.00	3,500	$0.00
844	45/65-R39	4		$0.00	3,500	$0.00
854G	45/65-R45	4		$0.00	3,500	$0.00
Motor Graders						
120H	13PR24	6		$0.00	3,500	
14G/H	20.5R25	6	$6,165.81	$36,994.86	3,500	$10.57
16G/H	23.5R25	6	$7,419.03	$44,514.18	3,500	$12.72
24M	23.5R25	6		$0.00	3,500	
Track Excavators						
312C			N/A			
320C			N/A			
325C			N/A			
330C			N/A			
345B			N/A			
365BL			N/A			
385BL			N/A			
Scrapers						
631G	37.25R35	4	$16,729.11	$66,916.44	4,000	$16.73
637G	37.25R35	4	$16,729.11	$66,916.44	4,000	$16.73
Wheeled Loaders						
924G	17.5R25	4	$5,510.69	$22,042.76	4,500	$4.90
928G	17.5R25	4	$5,510.69	$22,042.76	4,500	$4.90
950G	26.5R25	4	$7,419.03	$29,676.12	4,500	$6.59
966G	26.5R25	4	$11,624.64	$46,498.56	4,500	$10.33
972G	26.5R25	4	$11,624.64	$46,498.56	4,500	$10.33
980G	29.5R25	4	$14,753.36	$59,013.44	4,500	$13.11
988G	35/65-33	4	$19,693.61	$78,774.44	4,500	$17.51
990	41.25/70-39	4		$0.00	4,500	
992G	45/65R45	4	$39,345.74	$157,382.96	4,500	$34.97
994D	55/85R57	4		$0.00	4,500	
L2350	55/85R57	4		$0.00	4,500	
Shovels						
PC2000			N/A			
PC3000			N/A			
PC4000			N/A			
PC5500			N/A			
PC8000			N/A			
Hydraulic Hammers						
H-120 (fits 325)			N/A			
H-160 (fits 345)			N/A			
H-180 (fits 365/385)			N/A			
Demolition Shears						
S340 (fits 322/325/330)			N/A			
S365 (fits 330/345)			N/A			
S390 (fits 365/385)			N/A			
Demolition Grapples						
G315 (fits 322/325)			N/A			
G320 (fits 325/330)			N/A			
G330 (fits 345/365)			N/A			
Other Equipment						
420D 4WD Backhoe	340/80R18-19.5LR24	2		$0.00	3,000	
428D 4WD Backhoe	340/80R18-16.9R28	2		$0.00	3,000	
CS533E Vibratory Roller			N/A			
CS633E Vibratory Roller			N/A			
CP533E Sheepsfoot Compactor			N/A			
CP633E Sheepsfoot Compactor			N/A			
Light Truck - 1.5 Ton		4		$0.00	3,000	
Supervisor's Truck		4		$0.00	3,000	
Flatbed Truck		22		$0.00	3,000	
Air Compressor + tools			N/A			
Welding Equipment			N/A			
Heavy Duty Drill Rig		4		$0.00	3,000	
Pump (plugging) Drill Rig		4		$0.00	3,000	
Concrete Pump			N/A			
Gas Engine Vibrator			N/A			
Generator 5KW			N/A			
HDEP Welder (pipe or liner)			N/A			
5 Ton Crane		4		$0.00	3,000	
20 Ton Crane		4		$0.00	3,000	
50 Ton Crane		6		$0.00	3,000	
120 Ton Crane		6		$0.00	3,000	
Trucks						
725	23.5R25	6		$0.00	2,000	
730	23.5R25	6		$0.00	2,000	
735	26.5R25	6		$0.00	2,000	
740	29.5R25	6		$0.00	2,000	
769D	18.00R33	6		$0.00	6,000	
773E	24.00R35	6		$0.00	5,000	
777D	27.00R49	6		$0.00	5,000	
785C	33.00R51	6		$0.00	4,000	
793C	40.00R57	6		$0.00	4,000	
797B	40.00R57	6		$0.00	4,000	
613E (5,000 gal) Water Wagon	23.5R25	6	$968.00	$5,808.00	6,000	$0.97
621E (8,000 gal) Water Wagon	33.25R29	6		$0.00	8,000	
777D Water Truck	27.00R49	6		$0.00	5,000	
785C Water Truck	33.00R51	6		$0.00	4,000	
Dump Truck (10-12 yd3)		10	$968.00	$9,680.00	6,000	$1.61

Notes:

(1) Unit Cost Basis:	
(2) Cost Basis:	
(3) Tire Cost Source:	
(4) Tire Wear Source:	

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Closure Cost Estimate
Material Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety **Cost Basis: Greens Creek 2014**

Color Code Key	
User Input - Direct Input	**Direct Input**
User Input - Pull Down List	**Pull Down Selection**
Program Constant (can override)	**Alternate Input**
Program Calculated Value	**Locked Cell - Formula or Reference**

Revegetation Materials

Seed Mixes

Seed Mix	Description		Cost/Acre
None			
Mix 1	Basins		$556.98
Mix 2	Low Hills		
Mix 3	Uplands		
Mix 4	Riparian or Custom		
User Mix 1			
User Mix 2			
User Mix 3			
User Mix 4			
	Cost/lb	**lbs/Acre**	**Cost/Acre**
User Mix 5 (from Seed Mix shee	#DIV/0!	$0.00	$0.00
Notes:			

Mulch

Item	Cost/lb	lbs/Acre	Cost/Acre
None			
Straw Mulch		10	
Hydro Mulch		10	
Timber Mulch		10	
		10	
Notes:			

Revegetation Method

Slopes

Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Waste Rock Dumps	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Heap Leach	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Tailings	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Quarries & Borrow Pits	**Mechanical Broadcast**	$37.17	$20.34	$57.51

Flat Areas and Undifferentiated

Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Exploration Trenches	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Exploration Roads	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Waste Rock Dumps	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Heap Leach	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Tailings	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Quarries & Borrow Pits	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Roads	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Pits	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Haul Material	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Foundations & Buildings	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Sediment & Drainge Control	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Process Ponds	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Landfills	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Yards, Etc.	**Mechanical Broadcast**	$37.17	$20.34	$57.51
Revegetation Maintenance	**Mechanical Broadcast**	$37.17	$20.34	$57.51

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Closure Cost Estimate
Material Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety **Cost Basis: Greens Creek 2014**

Amendments			
Item	**Cost/lb**	**lbs/Acre**	**Cost/Acre**
None			
Organic Matter		10	
Treated Sludge		10	
Chemical		10	
		10	
Notes:			

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Closure Cost Estimate
Material Costs

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Cost Estimate Type: Surety **Cost Basis: Greens Creek 2014**

Well Abandonment Materials

Description	Cost/50lb bag	Units	Cost/unit*
Cement	$46.00	cy	$219.05
Grout (Low Grade Bentonite)	$12.15	cy	$57.86
Inert Material/Cuttings		cy	
		cy	
		cy	

* Assumes 1 bag mixes with water to make 0.21 y3 or 0.16 m3 of grout/cement slurry.

Monitoring Costs

Description	Units	Cost/unit
Monitor Well Pump	ea.	$2,150.00
Sampling Supplies	ea.	$0.00
Underground Care and Maintenanc	ea.	$64,000.00
Suite Q	ea.	$742.52
QA/QC	ea.	$972.22
Stormwater - sites	ea.	$149.57
APDES - discharge	ea.	$186.97
marine sampling/maintenance	ea.	$2,500.00
HI sed.organism contractor and lab	ea.	$33,000.00
Site-wide vegetation	ea.	$480.77
Shipping	ea.	$80.13
Professional Services	ea.	$16,000.00
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	

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Closure Cost Estimate
Material Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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Cost Estimate Type: Surety **Cost Basis: Greens Creek 2014**

Fuel, Etc.

Description	Units	Cost/unit	User Overrides
Off-road Diesel - delivered (1)	$/gal	$4.144	
Pickup Truck Mileage	$/mi		
Electical Power	$/kWh	$0.100	
Diesel power	$/kWh	$0.324	
Water treatment reagents	$/gal		
March 21, 2014 James Carson at Taku Fuel			

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Closure Cost Estimate
Misc. Unit Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Revegetation

	Means Number	Unit	Crew	Daily Output	Daily Output User	Materials	Labor	Equipment	Total	Notes
Seeding - Broadcast Hand (1)		acres					$37.17	$0.00	$37.17	
Seeding - Broadcast Mechanical (1)		acres					$37.17	$20.34	$57.51	
Seeding - Drill (1)		acres		365			$37.17	$20.34	$57.51	
Seeding - Hydroseeding (1)				365			$37.17	$20.34	$57.51	
Shrub Planting - bare root 6-10 in (150- 250mm) (2)	02910-400-0561	ea.	1 Clab	365			$1.11	$0.00	$1.11	
Tree Planting - bare root 11-16 in (270- 400mm) (3)	02910-400-0562	ea.	1 Clab	260			$1.56	$0.00	$1.56	
Cactus Planting (4)		ea.	1 Clab						$0.00	
NOTES:										
(1) Seeding Source:										
(2) Shrub Source:										
(3) Tree Source:										
(4) Cactus Source:										

Building and Wall Demolition

Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .
All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets

	Means Number	Unit	Crew	Daily Output	Daily Output User	Labor	Equipment	Premium	Total	Notes
Building Demolition										
Lg. steel	02220-110-0012	C.F.	B-8	21500		$0.09	$0.02		$0.11	
Lg. concrete	02220-110-0050	C.F.	B-8	15300		$0.12	$0.03		$0.15	
Lg. masonry	02220-110-0080	C.F.	B-8	20100		$0.09	$0.02		$0.11	
Lg. mixed	02220-110-0100	C.F.	B-8	20100		$0.09	$0.02		$0.11	
Sm. steel	02220-110-0500	C.F.	B-3	14800		$0.19	$0.07		$0.26	
Sm. concrete	02220-110-0600	C.F.	B-3	11300		$0.25	$0.09		$0.34	
Sm. masonry	02220-110-0650	C.F.	B-3	14800		$0.19	$0.07		$0.26	
Sm. wood	02220-110-0700	C.F.	B-3	14800		$0.19	$0.07		$0.26	
Wall Demolition										
Block 4 in (100 mm) thick	02220-130-2000	S.F.	1 Clab	180		$2.25	$0.00	20%	$2.70	
Block 6 in (150 mm) thick	02220-130-2040	S.F.	1 Clab	170		$2.39	$0.00	20%	$2.87	
Block 8 in (200 mm) thick	02220-130-2080	S.F.	1 Clab	150		$2.70	$0.00	20%	$3.24	
Block 12 in (300 mm) thick	02220-130-2100	S.F.	1 Clab	150		$2.70	$0.00	20%	$3.24	
Conc 6 in (150 mm) thick	02220-130-2400	S.F.	B-9	160		$16.79	$0.36	10%	$18.87	
Conc 8 in (200 mm) thick	02220-130-2420	S.F.	B-9	140		$19.19	$0.41	10%	$21.56	
Conc 10 in (250 mm) thick	02220-130-2440	S.F.	B-9	120		$22.39	$0.48	10%	$25.16	
Conc 12 in (300 mm) thick	02220-130-2500	S.F.	B-9	100		$26.87	$0.58	10%	$30.20	

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Closure Cost Estimate
Misc. Unit Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Waste Disposal

Unit rates from Means Heavy Construction 2006 Edition by permission of R.S.Means/Reed Construction Data .

	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment		Total	Notes
Rubbish Handling										
Dumpster delivery (average for all sizes)	02220-350-0910	ea.							$0.00	
Haul (average for all sizes)	02220-350-0920	ea.							$0.00	
Rent per month (average for all sizes)	02220-350-0940	ea.							$0.00	
Disposal fee per ton (tonne) (average for all sizes)	02220-350-0950	ton							$0.00	
NOTES:										
Dumpster Cost Source										
Dumpster Disposal Fee Source:										
Hazardous Material Handling - Solids (+ Liquids in drums)										
Pickup fees 55 gal (200 L). drums	02110-300-1100	ea.			$230.00				$230.00	
Bulk material (average)	02110-300-1220/1230	ton			$380.00				$380.00	
Transport - truck load (80 drums, 25 cy (m3), 18 tons)	02110-300-1260/1270	mile			$5.23				$5.23	
Dump site solid disposal fee	02110-300-6000/6020	ton			$267.00				$267.00	
NOTES:										
Solid Handling Cost Source										
Solid Disposal Fee Source:										
Hazardous Material Handling - Liquids										
Vacuum Truck Pickup (2200 gal/8300 L)	02110-300-3110	hr.			$129.00				$129.00	
Vacuum Truck Pickup (5000 gal/19000 L)	02110-300-3120	hr.			$184.00				$184.00	
Dump site liquid disposal fee	02110-300-6000/6020	ton			$267.00				$267.00	
NOTES:										
Liquid Handling Cost Source										
Liquid Disposal Fee Source:										
Hydrocarbon Contaminated Soils (HCS)										
Insitu Biotreatment	02115-200-2020/2021	C.Y.			$16.85				$16.85	
HCS disposal fee	02115-200-2050/2055	C.Y.			$267.00				$267.00	
NOTES:										
Insitu Treatment Cost Source										
HCS Disposal Fee Source:										

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Closure Cost Estimate
Misc. Unit Costs

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Concrete Structure Installation

Weekly dumpster rental rates from Means Heavy Construction 2005 Edition with permission by R.S.Means/Reed Construction Data .
Weekly dumpster rental rates include haul to off-site disposal site and disposal fees

	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Reinforced Concrete Bulkheads and Shaft Covers										
Grade walls - 15 in (400mm) thick, 8 ft (2.5m) high	03310-240-4300	C.Y.	C-14D	80.02	$137.00	$151.23	$7.01		$295.24	includes reinforcing
Grade walls - 15 in (400mm) thick, 12 ft (3.7m) high	03310-240-4350	C.Y.	C-14D	26.2	$137.00	$461.90	$21.42		$620.32	includes reinforcing
Elevated conc, 1-way beam & slab - 15ft (4.6m) span	03310-240-2700	C.Y.	C-14B	20.59	$226.00	$604.71	$27.26		$857.97	includes reinforcing
Elevated conc, 1-way beam & slab - 25ft (7.5m) span	03310-240-2750	C.Y.	C-14B	28.36	$218.00	$439.04	$19.79		$676.83	includes reinforcing
Bat Gate/Foam Plug Installation										
Bat Gate (5)		ea.			$2,732.39					materials $/ea. Installed
Culvert Gate (5)		ea.			$5,464.79					materials $/ea. Installed
Adit Foam Plug (6)		ea./C.Y.			$273.24					materials $/cy placed
Production Opening Foam Plug (6)		ea./C.Y.			$273.24					materials $/cy placed

NOTES:
(5) Bat Gate Source:
(6) Foam Plug Source:

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Closure Cost Estimate
Misc. Unit Costs

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Misc. Linear Projects

Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .
All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets

	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Fencing Installation										
Barbed 3-strand	02820-170-1650	L.F.	B-80A	760	$0.45	$2.21	$0.11		$2.77	
Barbed 4-strand	extrapolated	L.F.	B-80A	570	$0.60	$2.95	$0.15		$3.70	
Barbed 5-strand	02820-130-0920	L.F.	B-80A	456	$0.75	$3.69	$0.19		$4.63	
Chain link 8-10ft (2.5-3m) Install	02820-130-0920	L.F.	B-80C	180	$32.50	$9.34	$0.48		$42.32	
Wood stockade fence 6 ft (2 m) high - Install	02820-510-1240	L.F.	B-80C	150	$13.75	$11.21	$0.57		$25.53	
	user	L.F.							$0.00	
	user	L.F.							$0.00	
	user	L.F.							$0.00	
	user	L.F.							$0.00	
Fencing Removal										
Barbed 3-strand Removal	02220-220-1600	L.F.	2 Clab	430		$2.97	$0.20		$3.17	
Barbed 4-strand Removal	extrapolated	L.F.	2 Clab	355		$3.59	$0.24		$3.83	
Barbed 5-strand Removal	02220-220-1650	L.F.	2 Clab	280		$4.56	$0.31		$4.87	
Chain link 8-10 ft (2.5-3 m) Removal	02220-220-1700	L.F.	B-6	445		$2.90	$0.79		$3.69	
Wood, all types 4-6 ft ("1.5-2 m) high - Removal	02220-220-1775	L.F.	2 Clab	430		$2.97	$0.20		$3.17	
	user	L.F.								
	user	L.F.							$0.00	
	user	L.F.							$0.00	
	user	L.F.							$0.00	
Culvert Removal										
12 in (300 mm) Diameter	02220-220-2900	L.F.	B-6	175		$7.38	$2.02		$9.40	
18 in (450 mm) Diameter	02220-220-2930	L.F.	B-6	150		$8.61	$2.36		$10.97	
24 in (600 mm) Diameter	02220-220-2960	L.F.	B-6	120		$10.76	$2.95		$13.71	
36 in (1m) Diameter	02220-220-3000	L.F.	B-6	90		$14.35	$3.93		$18.28	
Pipeline Removal										
0.75 in (20mm) - 4 in (100 mm) diameter	02220-381-1600	L.F.	B-20	700		$2.76	$0.12		$2.88	
6 in (150 mm) - 8 in (200 mm)	02220-381-1700	L.F.	B-20	500		$3.86	$0.17		$4.03	
10 in (250 mm) - 18 in (450 mm)	02220-381-1800	L.F.	B-20	300		$6.44	$0.29		$6.73	
20 in (500 mm) - 36 in (1 m)	02220-381-1900	L.F.	B-20	200		$9.66	$0.43		$10.09	
Pipe and Drainpipe Installation										
Water 4in (100mm) 40ft (12m) length, welded HDPE	02510-760-0100	L.F.	B-22A	400	$3.44	$6.71	$3.15		$13.30	
Water 6in (150mm) 40ft (12m) length, welded HDPE	02510-760-0200	L.F.	B-22A	380	$7.80	$7.06	$3.31		$18.17	
Water 12in (300mm) 40ft (12m) length, welded HDPE	02510-760-0500	L.F.	B-22A	260		$10.32	$4.84		$15.16	
Drain 4in (100mm) perforated PVC	02620-630-2100	L.F.	B-14	315	$1.40	$10.01	$1.00		$12.41	
Drain 6in (150mm) perforated PVC	02620-630-2110	L.F.	B-14	300	$2.95	$10.51	$1.05		$14.51	
Drain 4in (100mm) corrugated, perf or plain	02620-660-0040	L.F.	2 Clab	1200	$0.54	$1.06	$0.07		$1.67	
Drain 6in (150mm) corrugated., perf or plain	02620-660-0060	L.F.	2 Clab	900	$1.71	$1.42	$0.10		$3.23	

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Closure Cost Estimate
Misc. Unit Costs

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
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Model Version: Version 1.4.1
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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Drain Rock Preparation										
Crushing		C.Y.								
Screening		C.Y.							$1.00	
TOTAL									$1.00	
Misc.										
Backhoe work	02210-700-0120	C.Y.	B-11M	28		$16.61	$8.15		$24.76	
Powerline and Transformer Removal										
Single Pole		mile							$37,975.39	
Double Pole		mile							$43,400.45	
Transformer (9)		ea.							$27,215.83	
NOTES:										
(7) Single Pole Source:	NVEnergy estimate (2009) Adjusted to 2012									
(8) Double Pole Source:										
(9) Transformer Source:										

Erosion and Sedimentation Control

Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .
All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets

	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Rip-Rap & Rock Lining										
Rip-Rap 3/8 to 1/4 CY (m3) pieces, grouted	02370-450-0110	S.Y.	B-13	80	$20.00	$33.78	$7.03		$60.81	assumes on-site source of rip-rap
Rip-Rap 18 in (450 mm) min thick, no grout	02370-450-0200	S.Y.	B-13	53	$5.90	$50.98	$10.61		$67.49	assumes on-site source of rip-rap
Gabions, 6 in (150 mm) deep	02370-450-0400	S.Y.	B-13	200	$8.80	$13.51	$2.81		$25.12	assumes on-site source rock fill for gabions
Gabions, 9 in (250 mm) deep	02370-450-0500	S.Y.	B-13	163	$11.05	$16.58	$3.45		$31.08	assumes on-site source rock fill for gabions
Gabions, 12 in (300 mm) deep	02370-450-0200	S.Y.	B-13	153	$16.15	$17.66	$3.68		$37.49	assumes on-site source rock fill for gabions
Gabions, 18 in (450 mm) deep	02370-450-0200	S.Y.	B-13	102	$21.50	$26.49	$5.51		$53.50	assumes on-site source rock fill for gabions
Gabions, 36 in (1m) deep	02370-450-0200	S.Y.	B-13	60	$34.50	$45.04	$9.37		$88.91	assumes on-site source rock fill for gabions
HDEP Liner Installation										
Finish grading large area	2310-100-0100	S.F.	B-11L	54000		$0.02	$0.02		$0.04	
Compaction-riding, vibrating roller - 12in (300mm) lifts	2315-310-5100	C.Y.	B-10Y	2600		$0.33	$0.10		$0.43	
60 mil HDPE	2660-610-0010	S.F.	3 Skwk	1600	$0.43	$1.16	$0.21	10%	$1.98	
80 mil HDPE	user	S.F.	3 Skwk	149	$9.00	$12.42	$2.27		$23.69	
40 mil VLDPE	user	S.F.	3 Skwk	150	$7.00	$12.34	$2.25		$21.59	
	user	S.F.	3 Skwk	149		$12.42	$2.27		$14.69	
	user	S.F.	3 Skwk	149		$12.42	$2.27		$14.69	

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Closure Cost Estimate
Misc. Unit Costs

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Cost Estimate Type: Surety **Cost Basis: Greens Creek 2014**

Construction Management Support											
Office Trailer, Furnished, no hook-ups		0150-500-0250	mo.			$140.00				$140.00	
Toilet Portable, chemical		1590-400-6410	mo.			$198.20				$198.20	
TOTAL						$338.20				$338.20	
Pump and Casing Removal											
	Pump Type	**Measurement**	**Unit**				**Labor**	**Equipment**		**Total**	**Notes**
Pump Removal											
Submersible		ft to pump	L.F.				$2.39	$5.19		$7.58	
Line Shaft		ft to pump	L.F.				$5.57	$12.11		$17.68	
NOTES:											
(10) Pump Removal Source:		WDC Exploration 12/2005 (adjusted to 2012)									

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
RIPPING						
Rip road						
Waste rock dumps, heaps, tails - rip flat surfaces						
Surface preparation						
Scarify						
Small Dozer w/ multi-shank						
D6R				$73.15	$60.01	$133.16
Totals				$73.15	$60.01	$133.16
Medium Dozer w/ multi-shank						
D8R				$115.69	$60.01	$175.70
Totals				$115.69	$60.01	$175.70
Large Dozer w/ multi-shank						
D10R				$102.26	$60.01	$162.27
Totals				$102.26	$60.01	$162.27
Grader w/ multi-shank						
16G/H				$136.80	$60.01	$196.81
Totals				$136.80	$60.01	$196.81
GRADING						
Grading storage and structure areas						
Grading waste rock dumps and heaps						
Grading landfills						
Constructing pit safety berms						
Small Dozer Fleet						
D6R				$73.15	$60.01	$133.16
Totals				$73.15	$60.01	$133.16
Medium Dozer Fleet						
D8R				$115.69	$60.01	$175.70
Totals				$115.69	$60.01	$175.70
Large Dozer Fleet						
D10R				$102.26	$60.01	$162.27
Totals				$102.26	$60.01	$162.27
EXPLORATION GRADING						
Backfilling and grading exploration trenches						
Grading flat exploration roads						
Small Dozer Fleet						
D7R				$96.70	$60.01	$156.71
Totals				$96.70	$60.01	$156.71
Medium Dozer Fleet						
D8R				$115.69	$60.01	$175.70
Totals				$115.69	$60.01	$175.70
Large Dozer Fleet						
D8R				$115.69	$60.01	$175.70
Totals				$115.69	$60.01	$175.70

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EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
EXCAVATING						
Earthen Berms						
Diversion ditch excavation and backfill						
Underground openings backfill - excavate and place						
Pit berm construction (excavator option)						
Small Excavator						
325C				$67.88	$58.13	$126.01
Totals				$67.88	$58.13	$126.01
Medium Excavator						
345B				$100.97	$58.13	$159.10
Totals				$100.97	$58.13	$159.10
Large Excavator						
385BL				$90.79	$58.13	$148.92
Totals				$90.79	$58.13	$148.92
EXCAVATE AND RECONTOUR						
Recontour large roads (haul roads, access roads, etc.)						
Ponds - Excavate and pull liner and bury						
Small Excavator + Dozer						
325C				$67.88	$58.13	$126.01
D6R				$73.15	$60.01	$133.16
Total Equipment				$141.03	$118.14	$259.17
Medium Excavator + Dozer						
345B				$100.97	$58.13	$159.10
D9R				$153.13	$60.01	$213.14
Totals				$254.10	$118.14	$372.24
Large Excavator + Dozer						
385BL				$90.79	$58.13	$148.92
D10R				$102.26	$60.01	$162.27
Totals				$193.05	$118.14	$311.19
EXPLORATION ROAD/PAD RECONTOUR						
Recontour small roads (exploration roads, service roads, etc.)						
Cut and Fill reclamation on slopes						
Drill pad recountour						
Drill sump backfill						
Small Dozer						
D6R				$73.15	$60.01	$133.16
Totals				$73.15	$60.01	$133.16
Large Dozer						
D8R				$115.69	$60.01	$175.70
Totals				$115.69	$60.01	$175.70
Grader						
14G/H				$105.89	$60.01	$165.90
Totals				$105.89	$60.01	$165.90
Small Excavator						
320C				$55.74	$58.13	$113.87
Totals				$55.74	$58.13	$113.87
Medium Excavator						
345B				$100.97	$58.13	$159.10
Totals				$100.97	$58.13	$159.10

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Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
LOAD, HAUL AND PLACE MATERIAL						
Rock placement						
Haul overburden for backfill						
Haul borrow for backfill						
Haul cover or growth media						
Small Truck/Loader Fleet						
740				$119.17	$59.05	$178.22
988G	Loader			$168.14	$60.01	$228.15
D7R		1		$96.70	$60.01	$156.71
Totals				$384.01	$179.07	$563.08
Medium Truck/Loader Fleet						
740				$119.17	$59.05	$178.22
988G	Loader			$168.14	$60.01	$228.15
D8R		1		$115.69	$60.01	$175.70
Totals				$403.00	$179.07	$582.07
Large Truck/Loader Fleet						
777D				$69.41	$59.05	$128.46
992G	Loader			$407.13	$60.01	$467.14
D10R		1		$102.26	$60.01	$162.27
Totals				$578.80	$179.07	$757.87
Extra Large Truck/Loader Fleet						
785C				$100.49	$59.05	$159.54
992G	Loader			$407.13	$60.01	$467.14
D11R		1		$148.13	$60.01	$208.14
Totals				$655.75	$179.07	$834.82
Scraper/Dozer Fleet						
631G				$93.04	$60.01	$153.05
D10R				$102.26	$60.01	$162.27
D7R		1		$96.70	$60.01	$156.71
Totals				$292.00	$180.03	$472.03
Tandem Scraper Fleet						
637G				$134.24	$60.01	$194.25
D7R		1		$96.70	$60.01	$156.71
Totals				$230.94	$120.02	$350.96
MISC. LOAD AND HAUL AND EARTHWORKS						
Sludge removal						
Drainage controls						
Misc. - Cat 325B Excavator / 10-12 yd3 Truck						
325C				$67.88	$58.13	$126.01
Dump Truck (10-12 yd3)				$39.50	$54.84	$94.34
Totals				$107.38	$112.97	$220.35
Misc. - Cat D9R Dozer/ Loader (5 yd3) / 10-12 yd3 Truck						
D9R				$153.13	$60.01	$213.14
966G				$86.78	$60.01	$146.79
Dump Truck (10-12 yd3)				$39.50	$54.84	$94.34
Totals				$279.41	$174.86	$454.27
Misc. - Cat D6 Dozer / Cat 966 Loader / 10-12 yd3 Truck						
D6R				$73.15	$60.01	$133.16
966G				$86.78	$60.01	$146.79
Dump Truck (10-12 yd3)				$39.50	$54.84	$94.34
Totals				$199.43	$174.86	$374.29

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
CONCRETE BREAKING						
Slab demolition						
Footing demolition						
Wall demolition						
Small - Cat 325B Excavator w/ H140D s Hammer						
325C				$67.88	$58.13	$126.01
H-120 (fits 325)				$35.82	$0.00	$35.82
D9R				$153.13	$60.01	$213.14
Totals				$256.83	$118.14	$374.97
Medium - Cat 345B Excavator w/ H180D s Hammer						
345B				$100.97	$58.13	$159.10
H-160 (fits 345)				$60.51	$0.00	$60.51
D9R				$153.13	$60.01	$213.14
Totals				$314.61	$118.14	$432.75
Large - Cat 385B Excavator w/ H180D s Hammer						
385BL				$90.79	$58.13	$148.92
H-180 (fits 365/385)				$75.00	$0.00	$75.00
D9R				$153.13	$60.01	$213.14
Totals				$318.92	$118.14	$437.06
DRILL HOLE ABANDONMENT						
Drill Hole - Grout or Cement						
Pump (plugging) Drill Rig				$44.16	$58.13	$102.29
Driller's Helper		2		$0.00	$113.06	$113.06
Totals				$44.16	$171.19	$215.35
Drill Hole - Inert Media (Means Crew B-11M+ 1 Laborer)						
420D 4WD Backhoe				$28.53	$58.13	$86.66
General Laborer		1		$0.00	$50.69	$50.69
Totals				$28.53	$108.82	$137.35
Drill Hole - Casing Perforation or Removal						
Heavy Duty Drill Rig				$111.46	$59.93	$171.39
Driller's Helper		2		$0.00	$113.06	$113.06
Totals				$111.46	$172.99	$284.45
MAINTENANCE FLEET						
Road Grading, Dust Suppression, Clean Up						
Maintenance - Small Water Truck and Cat 14G Grader						
613E (5,000 gal) Water Wagon				$49.41	$54.84	$104.25
120H				$45.62	$60.01	$105.63
Totals				$95.03	$114.85	$209.88
Maintenance - Medium Water Truck and Cat 16G Grader						
613E (5,000 gal) Water Wagon				$49.41	$54.84	$104.25
14G/H				$105.89	$60.01	$165.90
Totals				$155.30	$114.85	$270.15
Maintenance - Large Water Truck and Cat 16G Grader						
777D Water Truck				$69.41	$54.84	$124.25
16G/H				$136.80	$60.01	$196.81
Totals				$206.21	$114.85	$321.06
PROJECT SUPERVISION						
Foreman		1		$0.00	$75.00	$75.00
Supervisor's Truck		1		$10.50	$58.13	$68.63
Totals				$10.50	$133.13	$143.63

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Fleets (Crews)

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
MEANS CREW DEFINITIONS						
Crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . For use with misc. unit costs where Means is the source for productivity						
1 Clab - Seedling Planting/Block Wall Demolition						
General Laborer		1		$0.00	$50.69	$50.69
Totals				$0.00	$50.69	$50.69
2 Clab - Barbed Wire/Wood Fence Removal, Drainpipe Installation, Pumping, Evaporation						
General Laborer		2		$0.00	$101.38	$101.38
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$10.75	$159.51	$170.26
2 Clab + Excavator - Pond Liner Cut and Fold						
General Laborer		2		$0.00	$101.38	$101.38
325C				$67.88	$58.13	$126.01
Totals				$67.88	$159.51	$227.39
2 Clab + Welder - Bat Gates						
General Laborer		2		$0.00	$101.38	$101.38
Welding Equipment				$9.92	$58.13	$68.05
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$20.67	$217.64	$238.31
3 Clab - Foam Adit Plugs						
General Laborer		2		$0.00	$101.38	$101.38
420D 4WD Backhoe				$28.53	$58.13	$86.66
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$39.28	$217.64	$256.92
3 Clab + Welder - Culvert Bat Gate						
General Laborer		2		$0.00	$101.38	$101.38
Welding Equipment				$9.92	$58.13	$68.05
420D 4WD Backhoe				$28.53	$58.13	$86.66
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$49.20	$275.77	$324.97
3 Clab D - 3 Laborers + Foreman - Decontamination						
General Laborer		3		$0.00	$152.07	$152.07
Foreman		1		$0.00	$75.00	$75.00
Supervisor's Truck		1		$10.50	$58.13	$68.63
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$21.25	$343.33	$364.58
3 SKWK - Liner Installation						
Skilled Laborer		3		$0.00	$173.19	$173.19
HDEP Welder (pipe or liner)		1		$13.73	$0.00	$13.73
420D 4WD Backhoe		1		$28.53	$58.13	$86.66
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
Totals				$42.26	$231.32	$273.58

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EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-3 - Small Building Demoltion						
LABOR						
General Laborer		2		$0.00	$101.38	$101.38
Foreman		1		$0.00	$75.00	$75.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
EQUIPMENT						
928G		1		$44.19	$60.01	$104.20
Dump Truck (10-12 yd3)		2		$79.00	$109.68	$188.68
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
Totals				$123.19	$346.07	$469.26
B-6 - Chain Link Fence/Culvert Removal						
General Laborer		2		$0.00	$101.38	$101.38
928G		1		$44.19	$60.01	$104.20
Totals				$44.19	$161.39	$205.58
B-8 - Large Building Demolition						
LABOR						
General Laborer		2		$0.00	$101.38	$101.38
Foreman		1		$0.00	$75.00	$75.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
EQUIPMENT						
928G		1	0	$0.00	$0.00	$0.00
20 Ton Crane		1		$49.26	$58.13	$107.39
Dump Truck (10-12 yd3)		2	0	$0.00	$0.00	$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
				$0.00		$0.00
Totals				$49.26	$234.51	$283.77
B-9 - Concrete Wall Demolition						
General Laborer		4		$0.00	$202.76	$202.76
Foreman		1		$0.00	$75.00	$75.00
Air Compressor + tools				$7.23	$58.13	$65.36
Totals				$7.23	$335.89	$343.12

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Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-10Y - General Compaction						
General Laborer		1		$0.00	$50.69	$50.69
CS533E Vibratory Roller		1		$33.70	$58.13	$91.83
Totals				$33.70	$108.82	$142.52
B-11L - Fine Grading for Evaporation Pond Liner Base						
General Laborer		1		$0.00	$50.69	$50.69
14G/H		1		$105.89	$60.01	$165.90
Totals				$105.89	$110.70	$216.59
B-11M - Backhoe Work						
420D 4WD Backhoe		1		$28.53	$58.13	$86.66
Totals				$28.53	$58.13	$86.66
B-12G - Rip-Rap Machine Placed (Modified)						
966G		1		$86.78	$60.01	$146.79
325C		1		$67.88	$58.13	$126.01
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$165.41	$176.27	$341.68
B-13 - Grouted Rip-Rap & Gabion Baskets						
General Laborer		4		$0.00	$202.76	$202.76
Foreman		1		$0.00	$75.00	$75.00
50 Ton Crane		1		$70.31	$60.01	$130.32
Totals				$70.31	$337.77	$408.08
B-14 PVC Drain Pipe Installation						
Foreman		1		$0.00	$75.00	$75.00
General Laborer		4		$0.00	$202.76	$202.76
420D 4WD Backhoe		1		$28.53	$58.13	$86.66
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$39.28	$394.02	$433.30
B-20 - Remove Pipelines						
Foreman		1		$0.00	$75.00	$75.00
Skilled Laborer		1		$0.00	$57.73	$57.73
General Laborer		1		$0.00	$50.69	$50.69
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$10.75	$241.55	$252.30
B-22A - HDEP Installation - Pipe or Liner						
Skilled Laborer		1		$0.00	$57.73	$57.73
General Laborer		2		$0.00	$101.38	$101.38
D7R		1		$96.70	$60.01	$156.71
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
420D 4WD Backhoe		1		$28.53	$58.13	$86.66
Generator 5KW		1		$7.59	$0.00	$7.59
HDEP Welder (pipe or liner)		1		$13.73	$0.00	$13.73
Totals				$157.30	$335.38	$492.68
B-80A - Install Barbed Wire Fence						
General Laborer		3		$0.00	$152.07	$152.07
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$10.75	$210.20	$220.95

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EQUIPMENT FLEETS

ACTIVITY AND FLEET		Standard Labor Crew	User Defined Labor Crew	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-80C - Install Chain Link Fence (Flatbed truck has small crane)						
General Laborer		3		$0.00	$152.07	$152.07
Light Truck - 1.5 Ton		1		$10.75	$58.13	$68.88
Totals				$10.75	$210.20	$220.95
C-14B - Elevated Concrete Slabs (Reinforced Concrete Shaft Covers)						
Foreman		1		$0.00	$75.00	$75.00
Supervisor's Truck		1		$10.50	$58.13	$68.63
Carpenter		16		$0.00	$941.12	$941.12
General Laborer		2		$0.00	$101.38	$101.38
Rodmen (reinforcing concrete)		4		$0.00	$215.08	$215.08
Cement finisher		2		$0.00	$107.54	$107.54
Gas Engine Vibrator		1		$6.41	$58.13	$64.54
Concrete Pump		1		$53.24	$0.00	$53.24
Totals				$70.15	$1,556.38	$1,626.53
C-14D - Concrete Walls Formed in Place (Reinforced Concrete Adit Bulkheads)						
Foreman		1		$0.00	$75.00	$75.00
Supervisor's Truck		1		$10.50	$58.13	$68.63
Carpenter		18		$0.00	$1,058.76	$1,058.76
General Laborer		2		$0.00	$101.38	$101.38
Rodmen (reinforcing concrete)		2		$0.00	$107.54	$107.54
Cement finisher		1		$0.00	$53.77	$53.77
Gas Engine Vibrator		1		$6.41	$58.13	$64.54
Concrete Pump		1		$53.24	$0.00	$53.24
Totals				$70.15	$1,512.71	$1,582.86

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Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

Closure Cost Estimate
Productivity

Dozer Operator Skill:	Average
Grader Operator Skill:	Average
Truck/Scraper Operator:	Average
Loader Operator Skill:	Average
Excavator Operator Skill:	Average
Dozer Job Efficiency:	50 min/hr
Truck Job Efficiency:	50 min/hr
Scraper Job Efficiency:	50 min/hr
Loader Job Efficiency:	50 min/hr
Excavator Job Efficiency:	50 min/hr
Grader Job Efficiency:	50 min/hr

Productivity - Bulldozers

Dozer Specifications

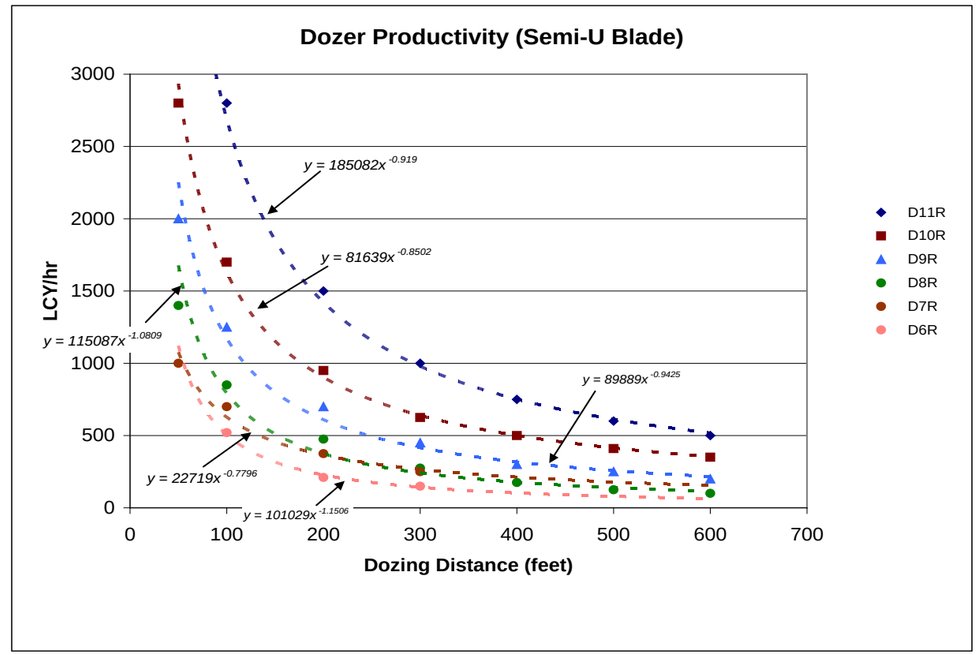
Description	D11R	D10R	D9R	D8R	D7R	D6R
Blade Width (SU) (ft)	18.33	15.92	14.17	12.92	12.08	10.67
Shank Guage (3 shanks) (ft)	9.83	8.67	7.67	7.08	6.5	6.5
Pocket Spacing (ft)	4.75	4.33	3.87	3.58	3.25	3.25
Ripping Width (Ripper + 1 Pocket) (ft)	14.58	13	11.54	10.66	9.75	9.75
Ripping Speed (mph)	1	1	1	1	1	1
Ripping Maneuver (turn) Time (min)	0.25	0.25	0.25	0.25	0.25	0.25
Altitude Deration Factor	1	1	1	1	1	1
Ripping Hourly Production (excluding maneuvering time) (ft)	5,280	5,280	5,280	5,280	5,280	5,280

Source: Caterpillar Performance Handbook Edition 35

Dozer Productivity vs. Grading Distance

Average Dozing Distance (feet)	Production (LCY/hr) D11R	D10R	D9R	D8R	D7R	D6R
50	4,800	2,800	2,000	1,400	1,000	
100	2,800	1,700	1,250	850	700	520
200	1,500	950	700	475	375	210
300	1,000	625	450	275	250	150
400	750	500	300	175		
500	600	410	250	125		
600	500	350	200	100		
dozer productivity = k x Dozing Distance^p (see graph)						
k =	185082	81639	89889	115087	22719	101029
p =	-0.919	-0.8502	-0.9425	-1.0809	-0.7796	-1.1506

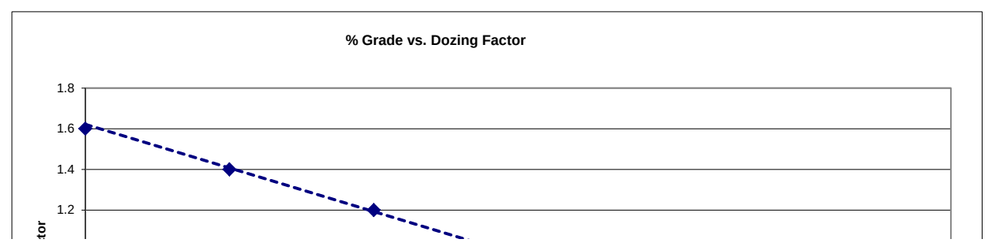
Source: Caterpillar Performance Handbook Edition 35



Productivity - Bulldozers (cont.)

% Grade vs. Dozing Factor

% Grade	Dozing Factor
-30	1.6
-20	1.4
-10	1.2
0	1
10	0.8
20	0.55
30	0.3



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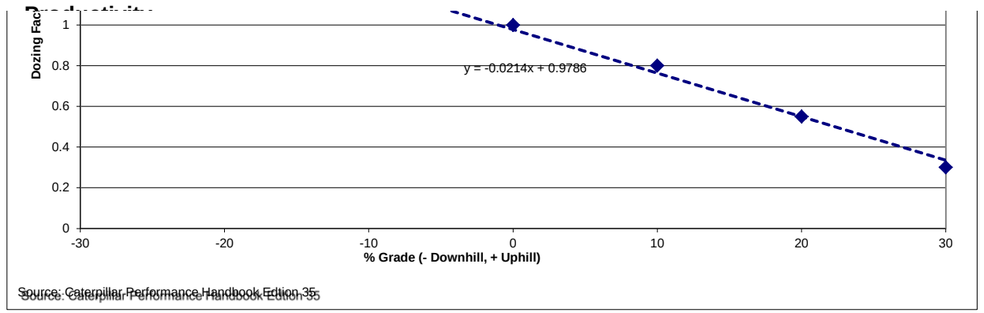
Source: Caterpillar Performance Handbook Edition 35

% Grade Dozing Factor = -0.0214x + 0.9786
(see graph)



Job Condition Correction Factors - Bulldozers	
OPERATOR	
Average	0.75
MATERIAL (1)	
Loose stockpile	1.2
Normal	1
Hard to cut; frozen — with tilt cylinder	0.8
Hard to drift; "dead" (dry,non-cohesive material) or very sticky material	0.8
Rock, ripped or blasted	0.6
SLOT DOZING OR SIDE BY SIDE (1)	1.2
VISIBILITY	
Good conditions	1
JOB EFFICIENCY	
50 min/hr	0.83

(1) Selected in facility worksheets.
Other factors included as standard factors.
Source: Caterpillar Performance Handbook Edition 35

Material Densities(1)		
Material	**lb/cy**	**kg/m³**
Alluvium	2,900	1,720
Basalt	3,300	1,960
Clay - Dry	2,500	1,480
Granite - broken	2,800	1,660
Gravel	2,550	1,510
LS - broken	2,600	1,540
LS - crushed	2,600	1,540
Sandstone	2,550	1,510
Shale	2,100	1,250
Stone - crushed	2,700	1,600
Tailings - Coarse (dry, loose sand)	2,400	1,420
Tailings - Slimes (loose sand & clay)	2,700	1,600
Topsoil	1,600	950

(1) Source: Caterpillar Performance Handbook Edition 35

Note: uses Sand & Gravel - Dry from Caterpillar Handbook

Productivity - Scrapers

Scraper Specifications		
Description	**631G**	**637G**
Empty Weight	100,600	112,760
Payload Capacity (cy)		
Struck	24	24
Heaped	34	34
Average	29	29
Loaded by	One D10R	Self*
Load Time (min)	1	1
Maneuver and Spread (min)	1	1
Job Efficiency	1	1
Rolling Resistance**	3	3
Altitude Deration Factor	1	1

* Requires pair

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

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Weight of Materials			Downhill Scraper Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)											
			631G						637G PP					
Material	lb/cy	Scraper Load lb	Loaded Weight (lbs)	22	16	10	5	1	Loaded Weight (lbs)	25	15	10	5	1
Alluvium	2,900	84,100	184,700	7.5	10	13	33	33	196,860	7	10	18.5	34	34
Basalt	3,300	95,700	196,300	7.5	10	13	24.5	33	208,460	7	10	18.5	25	34
Clay - Dry	2,500	72,500	173,100	7.5	10	13	33	33	185,260	7	10	18.5	34	34
Granite - broken	2,800	81,200	181,800	7.5	10	13	33	33	193,960	7	10	18.5	34	34
Gravel	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
LS - broken	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
LS - crushed	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
Sandstone	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
Shale	2,100	60,900	161,500	7.5	10	18	33	33	173,660	10	13.5	18.5	34	34
Stone - crushed	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Tailings - Coarse (dry, loose sand)	2,400	69,600	170,200	7.5	10	13	33	33	182,360	7	10	18.5	34	34
Tailings - Slimes (loose sand & clay)	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Topsoil	1,600	46,400	147,000	7.5	10	18	33	33	159,160	10	13.5	18.5	34	34
			Empty	10	18	24.5	33	33	Empty	10	13.5	18.5	34	34

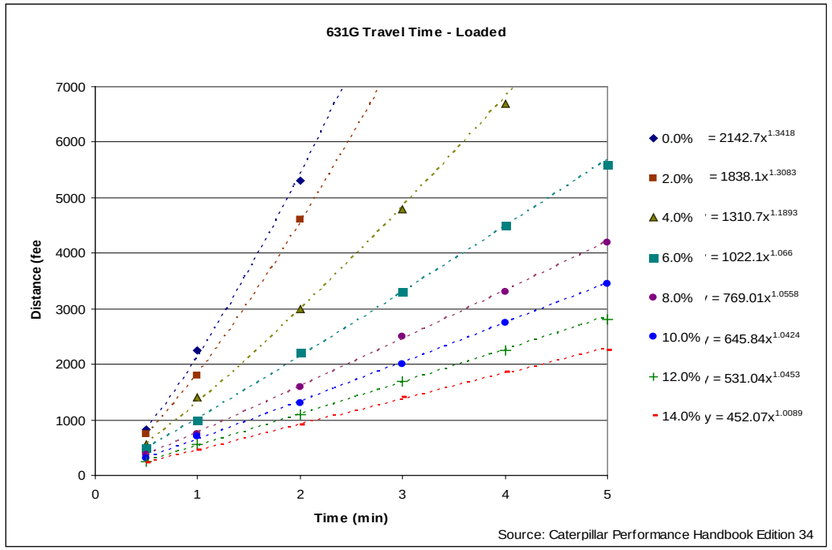
Source: Caterpillar Performance Handbook Edition 34

Productivity - Scrapers (cont.)

631G Scraper Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min) 0.5	1	2	3	4	5	k	p
0	825	2,250	5,300				2142.7	1.3418
2	750	1,800	4,600				1838.1	1.3083
4	550	1,400	3,000	4,800	6,700		1310.7	1.1893
6	490	1,000	2,200	3,300	4,500	5,600	1022.1	1.066
8	375	750	1,600	2,500	3,300	4,200	769.01	1.0558
10	300	700	1,300	2,000	2,750	3,450	645.84	1.0424
12	250	550	1,100	1,700	2,250	2,800	531.04	1.0453
14	[illegible]	450	900	1,400	1,850	2,250	452.07	1.0089

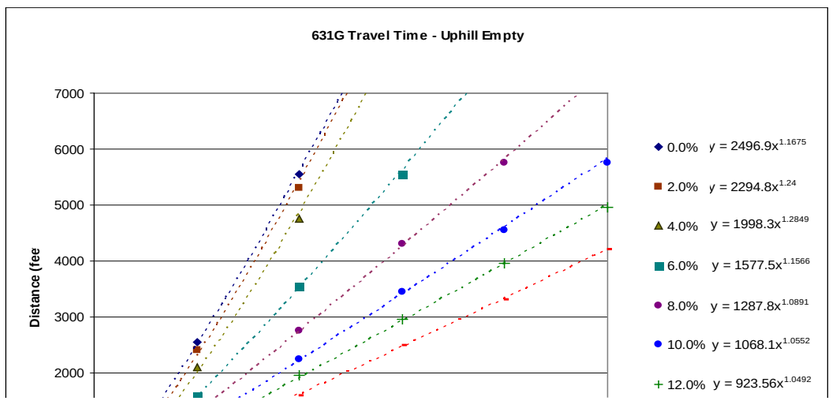
Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35



Source: Caterpillar Performance Handbook Edition 34

631G Scraper Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min) 0.5	1	2	3	4	5	k	p
0	1,100	2,550	5,550				2496.9	1.1675
2	950	2,400	5,300				2294.8	1.24
4	800	2,100	4,750				1998.3	1.2849
6	700	1,600	3,550	5,550			1557.5	1.1566
8	600	1,300	2,750	4,300	5,750		1287.8	1.0891
10	500	1,100	2,250	3,450	4,550	5,750	1068.1	1.0552
12	450	900	1,950	2,950	3,950	4,950	923.56	1.0492
14	[illegible]	800	1,600	2,500	3,300	4,200	783.37	1.0444



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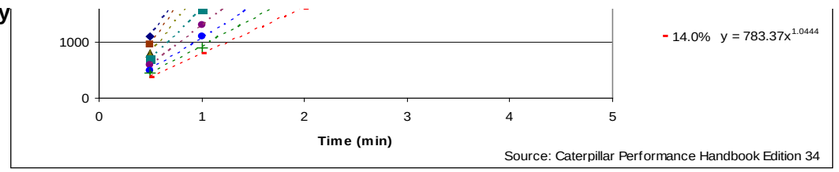
Travel Time (min) =

Source: Caterpillar Performance Handbook Edition 35



Source: Caterpillar Performance Handbook Edition 34

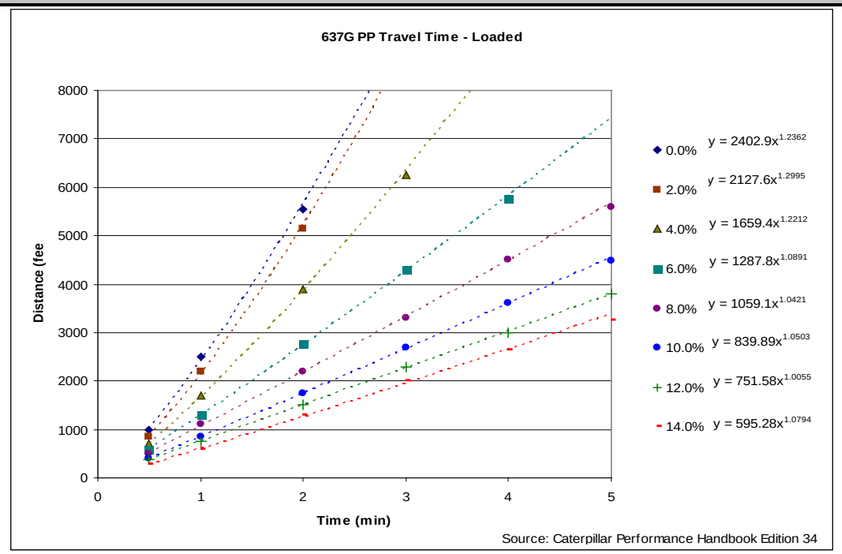
Productivity - Scrapers (cont.)

637G Push-Pull Scraper Travel Time - Uphill Loaded

Total Resistance (%) (rolling + grade)	Time (min) 0.5	1	2	3	4	5	k	p
0	1,000	2,500	5,550				2402.9	1.2362
2	850	2,200	5,150				2127.6	1.2995
4	700	1,700	3,900	6,250			1659.4	1.2212
6	600	1,300	2,750	4,300	5,750		1287.8	1.0891
8	500	1,100	2,200	3,300	4,500	5,600	1059.1	1.0421
10	400	850	1,750	2,700	3,600	4,475	839.89	1.0503
12	375	750	1,500	2,300	3,000	3,800	751.58	1.0055
14		600	1,300	2,000	2,650	3,250	595.28	1.0794

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35



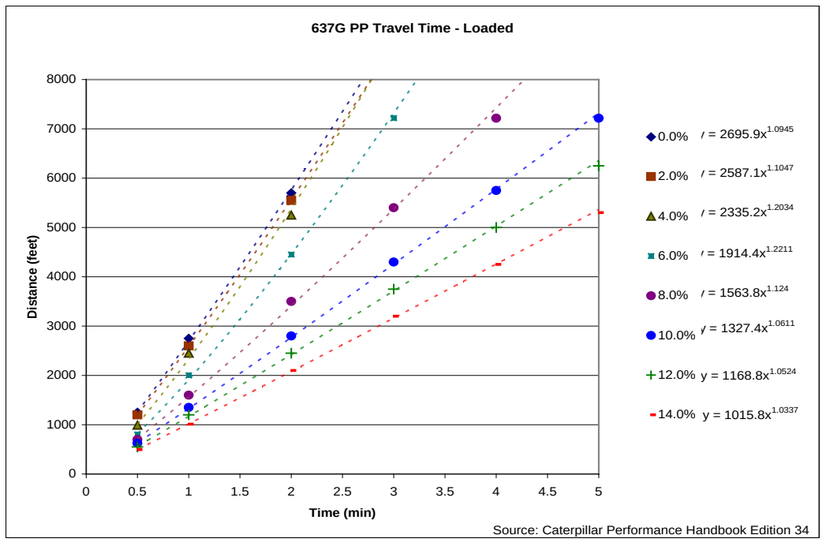
Source: Caterpillar Performance Handbook Edition 34

637G Push-Pull Scraper Travel Time - Uphill Empty

Total Resistance (%) (rolling + grade)	Time (min) 0.5	1	2	3	4	5	k	p
0	1,250	2,750	5,700				2695.9	1.0945
2	1,200	2,600	5,550				2587.1	1.1047
4	990	2,450	5,250				2335.2	1.0234
6	800	2,000	4,450	7,216			1914.4	1.2211
8	700	1,600	3,500	5,400	7,216		1563.8	1.124
10	625	1,350	2,800	4,300	5,750	7,216	1327.4	1.0611
12	550	1,200	2,450	3,750	5,000	6,250	1168.8	1.0524
14		1,010	2,100	3,200	4,250	5,300	1015.8	1.0337

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35



Source: Caterpillar Performance Handbook Edition 34

Productivity - Haul Trucks

Haul Truck Specifications

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Description	769D	773E	777D	785C	793C	797B
Chassis Weight (lb)	53,506	70,330	113,160	170,000	259,500	473,600
Body Weight (lb)	17,350	20,300	34,785	36,788	70,785	104,200
Standard Liner Weight (lb)	7,000	8,600	12,040	16,846	24,418	8,800
Total Truck Weight (lb)	77,856	99,230	159,985	223,634	354,703	586,600
Payload Capacity (cy)						
Struck	21.6	34.8	55	78.5	126	228
Heaped	31.7	46	78.6	102	169	290
Average	26.65	40.4	66.8	90.25	147.5	259
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials					Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)														
					769D					773E					777D				
Material	lb/cy	Truck (769D) Load lb	Truck (773E) Load lb	Truck (777D) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	77,285	117,160	193,720	155,141	11	11	15	26	216,390	7	7	13	23	353,705	7	9	12	29
Basalt	3,300	87,945	133,320	220,440	165,801	11	11	11	20	232,550	7	7	13	23	380,425	7	7	12	21
Clay - Dry	2,500	66,625	101,000	167,000	144,481	11	11	15	26	200,230	7	9	13	23	326,985	7	9	16	29
Granite - broken	2,800	74,620	113,120	187,040	152,476	11	11	15	26	212,350	7	7	13	23	347,025	7	9	12	29
Gravel	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
LS - broken	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
LS - crushed	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
Sandstone	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
Shale	2,100	55,965	84,840	140,280	133,821	11	11	15	26	184,070	7	9	13	31	300,265	7	9	16	29
Stone - crushed	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Tailings - Coarse (dry, loose sand)	2,400	63,960	96,960	160,320	141,816	11	11	15	26	196,190	7	9	13	23	320,305	7	9	16	29
Tailings - Slimes (loose sand & clay)	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Topsoil	1,600	42,640	64,640	106,880	120,496	11	11	15	26	163,870	7	9	17	31	266,865	9	12	16	29
					Empty	15	15	26	36	Empty	13	17	23	42	Empty	16	16	29	39

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials					Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)														
					785C					793C					797B				
Material	lb/cy	Truck (785C) Load lb	Truck (793C) Load lb	Truck (797B) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	261,725	427,750	751,100	485,359	8	8	14	27	782,453	7	7	10	17	1,337,700	7	7	9	17
Basalt	3,300	297,825	486,750	854,700	521,459	8	8	14	27	841,453	7	7	10	17	1,441,300	7	7	9	17
Clay - Dry	2,500	225,625	368,750	647,500	449,259	8	11	14	36	723,453	7	7	10	25	1,234,100	7	7	9	23
Granite - broken	2,800	252,700	413,000	725,200	476,334	8	8	14	27	767,703	7	7	10	17	1,311,800	7	7	9	17
Gravel	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	1,247,050	7	7	9	23
LS - broken	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	1,260,000	7	7	9	23
LS - crushed	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	1,260,000	7	7	9	23
Sandstone	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	1,247,050	7	7	9	23
Shale	2,100	189,525	309,750	543,900	413,159	8	11	14	36	664,453	7	7	10	25	1,130,500	7	7	13	23
Stone - crushed	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	1,285,900	7	7	9	23
Tailings - Coarse (dry, loose sand)	2,400	216,600	354,000	621,600	440,234	8	11	14	36	708,703	7	7	10	25	1,208,200	7	7	9	23
Tailings - Slimes (loose sand & clay)	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	1,285,900	7	7	9	23
Topsoil	1,600	144,400	236,000	414,400	368,034	8	11	19	36	590,703	7	10	13	25	1,001,000	7	9	13	23
					Empty	14	19	36	36	Empty	10	13	17	33	Empty	13	17	23	42

Source: Caterpillar Performance Handbook Edition 35

Productivity - Haul Trucks (cont.)

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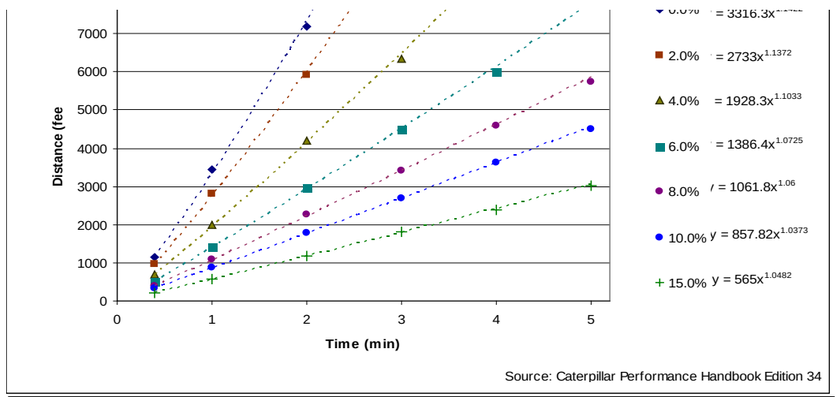
769D Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,148	3,428	7,183				3316.3	1.1422
4	689	1,984	4,198	6,330			1928.3	1.1033
6	508	1,427	2,952	4,510	6,002		1386.4	1.0725
8	394	1,082	2,263	3,411	4,592	5,740	1061.8	1.06
10	328	869	1,771	2,690	3,608	4,510	857.82	1.0373
15	213	574	1,181	1,804	2,394	3,018	565	1.0482

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35

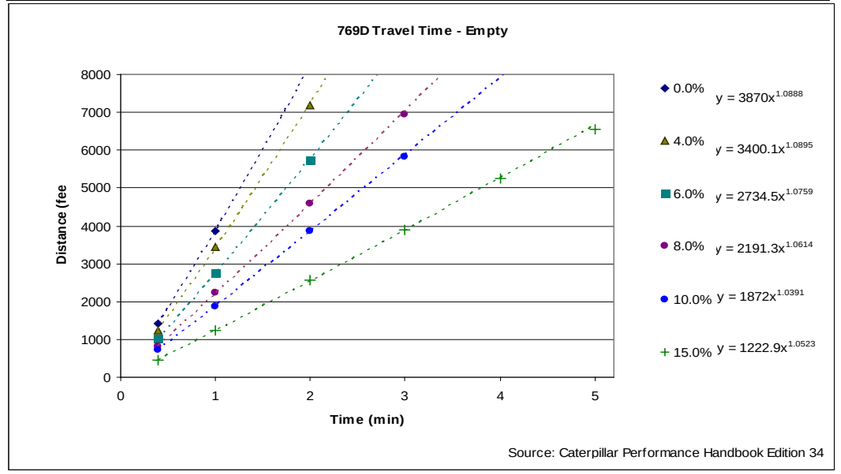


Source: Caterpillar Performance Handbook Edition 34

769D Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,427	3,870					3870	1.0888
4	1,246	3,444	7,183				3400.1	1.0895
6	1,017	2,755	5,740				2734.5	1.0759
8	820	2,230	4,592	6,954			2191.3	1.0614
10	722	1,870	3,870	5,838			1872	1.0391
15	459	1,246	2,558	3,903	5,248	6,560	1222.9	1.0523

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35



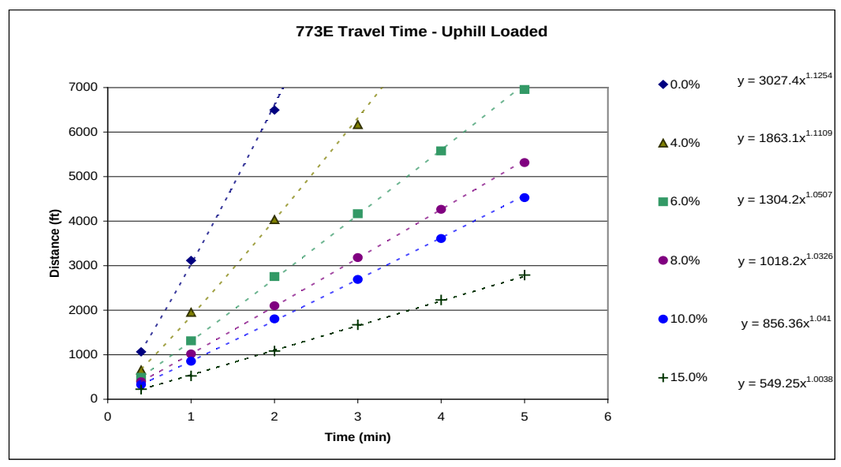
Source: Caterpillar Performance Handbook Edition 34

Productivity - Haul Trucks (cont.)

773E Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,066	3,117	6,496				3027.4	1.1254
4	656	1,952	4,035	6,168			1863.1	1.1109
6	492	1,312	2,756	4,167	5,577	6,955	1304.2	1.0507
8	394	1,017	2,100	3,182	4,265	5,315	1018.2	1.0326
10	328	853	1,804	2,690	3,609	4,528	856.36	1.041
15	226	525	1,083	1,673	2,231	2,789	549.25	1.0038

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35



773E Travel Time - Uphill Loaded

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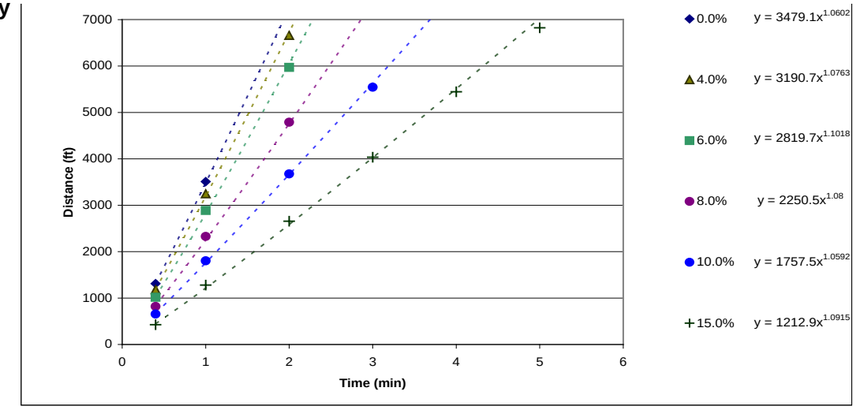
773E Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,312	3,510	7,218				3479.1	1.0602
4	1,181	3,248	6,660				3190.7	1.0763
6	1,017	2,887	5,971				2819.7	1.1018
8	820	2,329	4,790	7,218			2250.5	1.08
10	656	1,804	3,675	5,545			1757.5	1.0592
15	427	1,280	2,657	4,035	5,446	6,824	1212.9	1.0915

$$\sqrt[p]{\frac{distance}{k}}$$

Travel Time (min) =

Source: Caterpillar Performance Handbook Edition 35



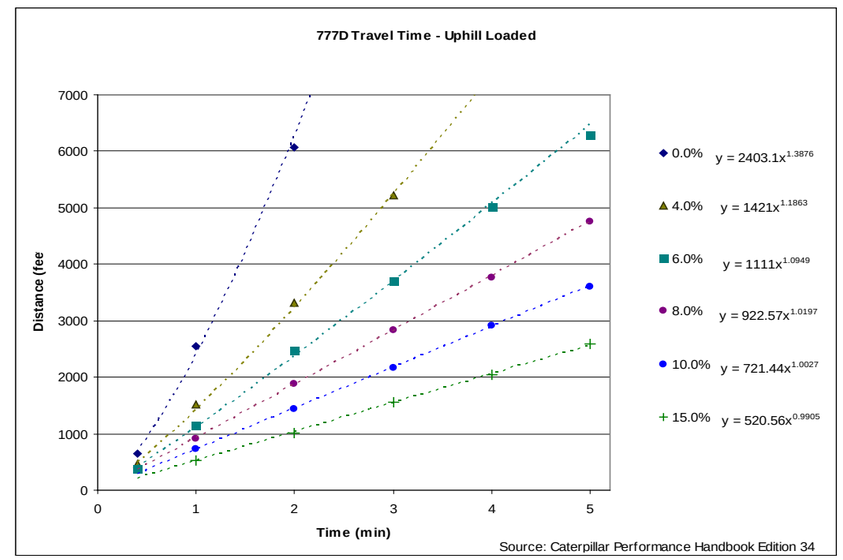
Productivity - Haul Trucks (cont.)

777D Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	656	2,558	6,068				2403.1	1.3876
4	459	1,509	3,313	5,215	7,085		1412	1.1863
6	394	1,148	2,460	3,706	5,018	6,298	1111	1.0949
8		918	1,886	2,837	3,772	4,756	922.57	1.0197
10		722	1,443	2,165	2,919	3,608	721.44	1.0027
15		525	1,017	1,558	2,034	2,591	520.56	0.9905

$$\sqrt[p]{\frac{distance}{k}}$$

Travel Time (min) =

Source: Caterpillar Performance Handbook Edition 35

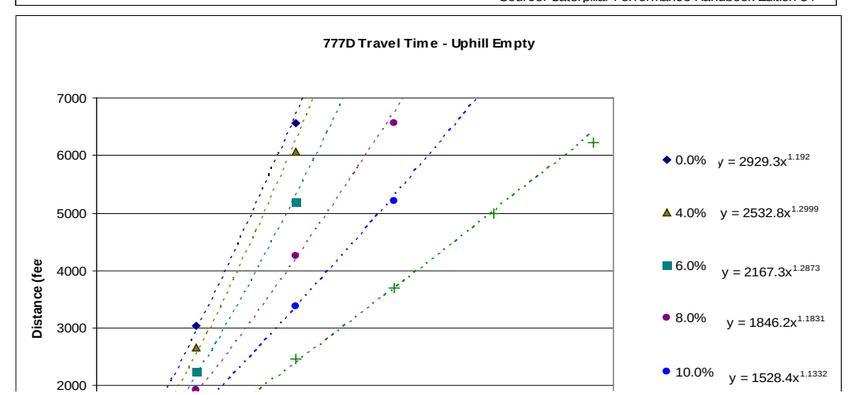


777D Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	968	3,034	6,560				2929.3	1.192
4	754	2,657	6,068				2532.8	1.2999
6	656	2,247	5,182				2167.3	1.2873
8	607	1,935	4,248	6,560			1846.2	1.1831
10	525	1,607	3,378	5,215	7,282		1528.4	1.1332
15	410	1,197	2,460	3,706	4,986	6,232	1139.7	1.072

$$\sqrt[p]{\frac{distance}{k}}$$

Travel Time (min) =

Source: Caterpillar Performance Handbook Edition 35



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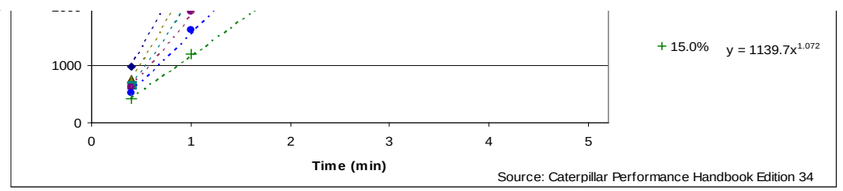


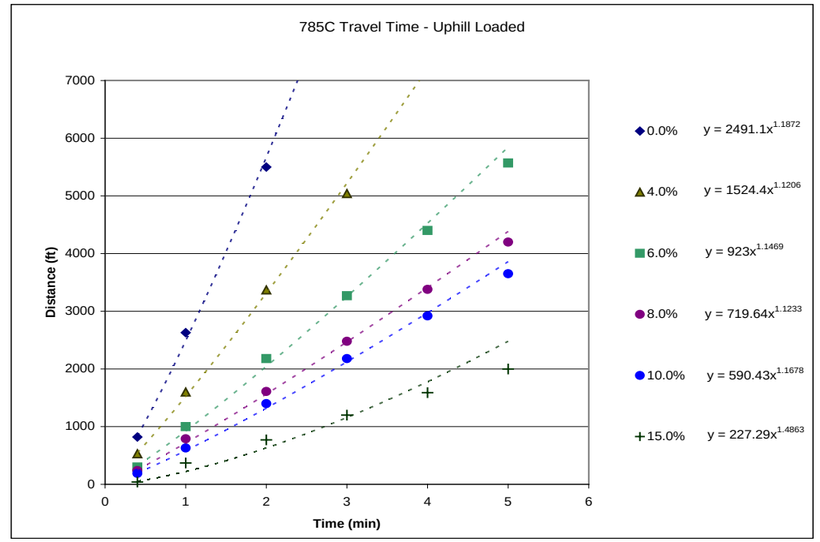
Productivity - Haul Trucks (cont.)

785C Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	820	2,630	5,500				2491.1	1.1872
4	530	1,600	3,370	5,040			1524.4	1.1206
6	300	1,000	2,180	3,270	4,400	5,570	923	1.1469
8	240	790	1,610	2,480	3,380	4,200	719.64	1.1233
10	190	630	1,400	2,180	2,920	3,650	590.43	1.1678
15	40	370	770	1,200	1,590	2,000	227.29	1.4863

$$\sqrt[p]{\frac{distance}{k}}$$

Travel Time (min) =

Source: Caterpillar Performance Handbook Edition 35

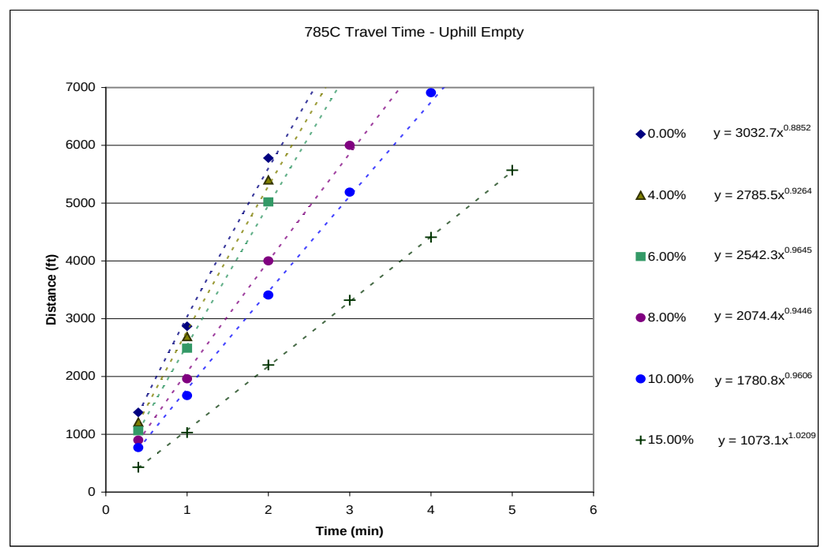


785C Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,380	2,870	5,780				3032.7	0.8852
4	1,210	2,690	5,400				2785.5	0.9264
6	1,060	2,490	5,020				2542.3	0.9645
8	900	1,960	4,000	6,000			2074.4	0.9446
10	770	1,670	3,410	5,190	6,910		1780.8	0.9606
15	430	1,030	2,200	3,320	4,410	5,570	1073.1	1.0209

$$\sqrt[p]{\frac{distance}{k}}$$

Travel Time (min) =

Source: Caterpillar Performance Handbook Edition 35



Productivity - Haul Trucks (cont.)

793C Travel Time - Uphill Loaded

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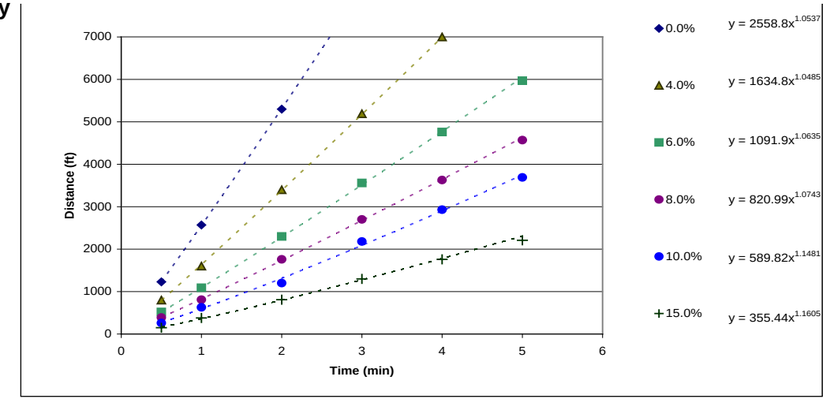
793C Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,230	2,570	5,300				2558.8	1.0537
4	800	1,600	3,400	5,190	7,000		1634.8	1.0485
6	520	1,090	2,300	3,560	4,760	5,970	1091.9	1.0635
8	390	810	1,760	2,700	3,630	4,570	820.99	1.0743
10	260	630	1,200	2,180	2,930	3,690	589.82	1.1481
15	150	380	810	1,300	1,760	2,210	355.44	1.1605

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

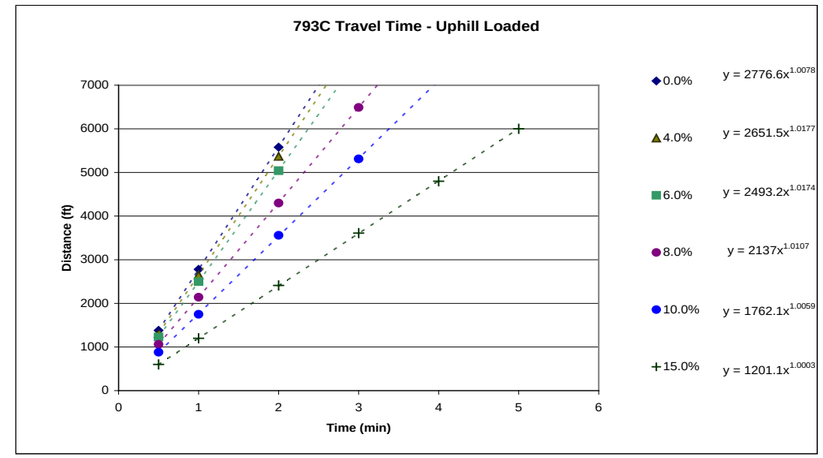
Source: Caterpillar Performance Handbook Edition 35



793C Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,380	2,780	5,580				2776.6	1.0078
4	1,310	2,650	5,370				2651.5	1.0177
6	1,230	2,500	5,040				2493.2	1.0174
8	1,060	2,140	4,300	6,490			2137	1.0107
10	880	1,750	3,560	5,310			1762.1	1.0059
15	600	1,200	2,410	3,610	4,800	6,000	1201.1	1.0003

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35

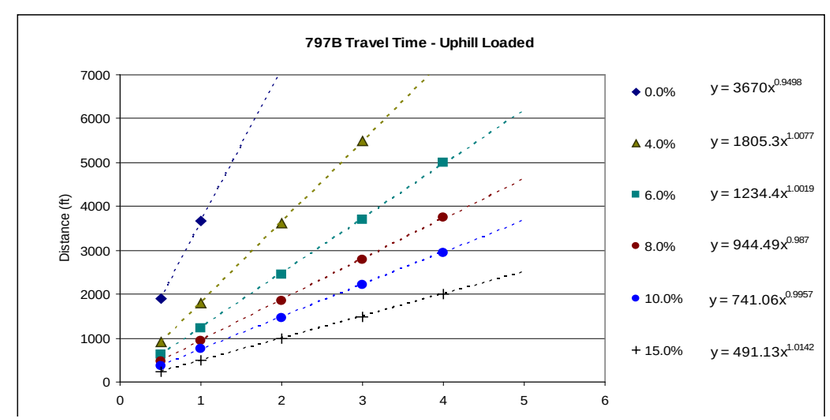


Productivity - Haul Trucks (cont.)

797B Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,900	3,670					3670	0.9498
4	900	1,800	3,620	5,480			1805.3	1.0077
6	620	1,230	2,450	3,700	5,000		1234.4	1.0019
8	480	940	1,850	2,790	3,750		944.49	0.987
10	370	750	1,460	2,220	2,950		741.06	0.9957
15	240	500	1,000	1,480	2,000		491.13	1.0142

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35



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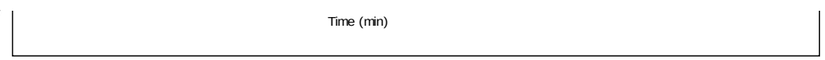
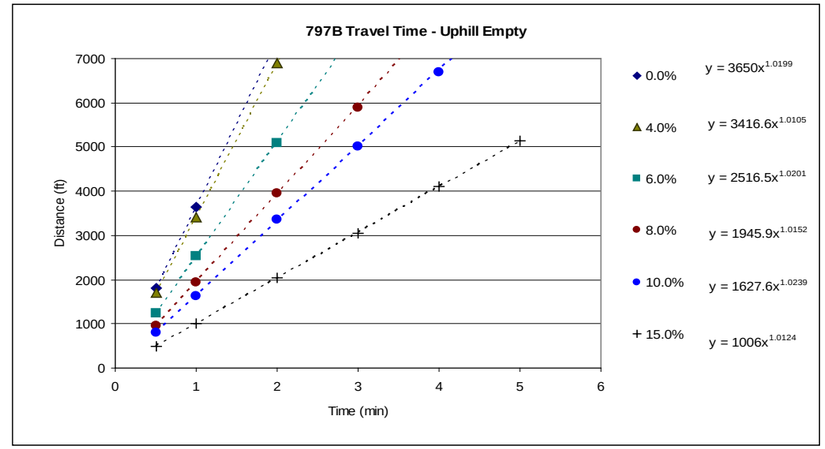


797B Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,800	3,650					3650	1.0199
4	1,700	3,400	6,900				3416.6	1.0105
6	1,240	2,520	5,100				2516.5	1.0201
8	960	1,950	3,960	5,900			1945.9	1.0152
10	800	1,620	3,350	5,000	6,700		1627.6	1.0239
15	500	1,000	2,040	3,050	4,100	5,130	1006	1.0124

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35



Productivity - Articulated Trucks

Articulated Truck Specifications				
Description	725	730	735	740
Chassis Weight (lb)				
Body Weight (lb)				
Standard Liner Weight (lb)				
Operating Weight (Empty) (lb)	50,120	51,220	65,830	72,070
Payload Capacity (cy)				
Struck	14.5	17.1	19.3	23.3
Heaped	18.8	22.1	31.8	30.2
Average	16.65	19.6	25.55	26.75
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
				725					730				
Material	lb/cy	Truck (725) Load lb	Truck (730) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	48,285	56,840	98,405	9	9	13	30	108,060	5	8	13	29
Basalt	3,300	54,945	64,680	105,065	5	9	13	22	115,900	5	8	13	29
Clay - Dry	2,500	41,625	49,000	91,745	9	13	13	30	100,220	8	8	13	29
Granite - broken	2,800	46,620	54,880	96,740	9	13	13	30	106,100	5	8	13	29
Gravel	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
LS - broken	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
LS - crushed	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
Sandstone	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
Shale	2,100	34,965	41,160	85,085	9	13	22	30	92,380	8	13	13	29
Stone - crushed	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Tailings - Coarse (dry, loose sand)	2,400	39,960	47,040	90,080	9	13	13	30	98,260	8	8	13	29
Tailings - Slimes (loose sand & clay)	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Topsoil	1,600	26,640	31,360	76,760	9	13	22	30	82,580	8	13	22	35

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				Empty	13	13	22	35	Empty	13	13	22	35

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
				735					740				
Material	lb/cy	Truck (735) Load lb	Truck (740) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	74,095	77,575	139,925	7	9	13	27	149,645	7	9	17	23
Basalt	3,300	84,315	88,275	150,145	7	9	13	27	160,345	7	9	13	23
Clay - Dry	2,500	63,875	66,875	129,705	7	9	13	27	138,945	9	13	17	31
Granite - broken	2,800	71,540	74,900	137,370	7	9	13	27	146,970	7	9	17	23
Gravel	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
LS - broken	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
LS - crushed	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
Sandstone	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
Shale	2,100	53,655	56,175	119,485	9	9	18	27	128,245	7	13	17	31
Stone - crushed	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Tailings - Coarse (dry, loose sand)	2,400	61,320	64,200	127,150	7	9	13	27	136,270	9	13	17	31
Tailings - Slimes (loose sand & clay)	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Topsoil	1,600	40,880	42,800	106,710	9	13	18	36	114,870	9	13	17	31
				Empty	13	18	27	42	Empty	17	17	23	31

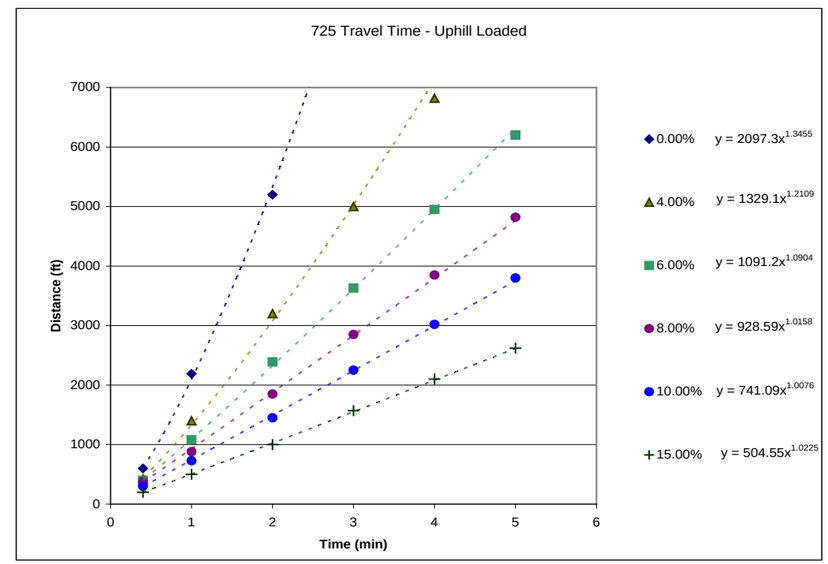
Source: Caterpillar Performance Handbook Edition 35

Productivity - Articulated Trucks (cont.)

725 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	600	2,190	5,200				2097.3	1.3455
4	420	1,400	3,200	5,000	6,820		1329.1	1.2109
6	400	1,080	2,390	3,630	4,950	6,200	1091.2	1.0904
8	380	880	1,850	2,850	3,850	4,820	928.59	1.0158
10	300	729	1,450	2,250	3,020	3,800	741.09	1.0076
15	200	500	1,000	1,570	2,100	2,620	504.55	1.0225

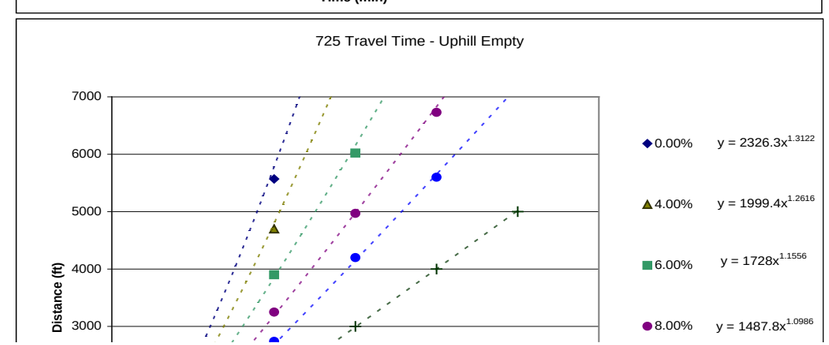
Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35



725 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	680	2,480	5,570				2326.3	1.3122
4	620	2,070	4,700				1999.4	1.2616
6	590	1,770	3,900	6,020			1728	1.1556
8	540	1,490	3,250	4,970	6,730		1487.8	1.0986
10	470	1,270	2,740	4,200	5,600	7,050	1271.2	1.0754
15	390	960	2,000	3,000	4,000	5,000	979.82	1.0145

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$



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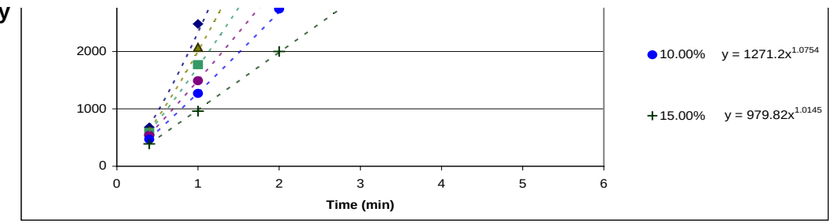
Source: Caterpillar Performance Handbook Edition 35

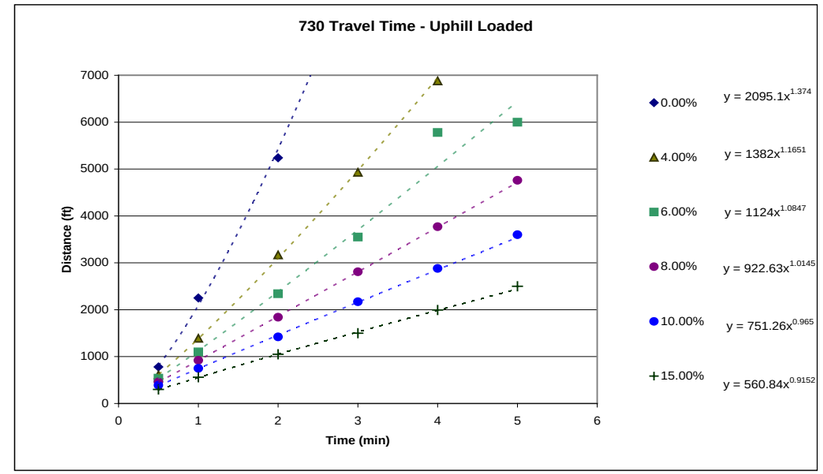


Productivity - Articulated Trucks (cont.)

730 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	780	2,250	5,240				2095	1.374
4	610	1,390	3,170	4,930	6,880		1382	1.1651
6	540	1,100	2,340	3,550	5,780	6,000	112	1.0847
8	460	920	1,840	2,810	3,770	4,760	922.63	1.0145
10	390	750	1,420	2,170	2,880	3,600	751.26	0.965
15	300	560	1,050	1,500	1,995	2,500	560.84	0.9152

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

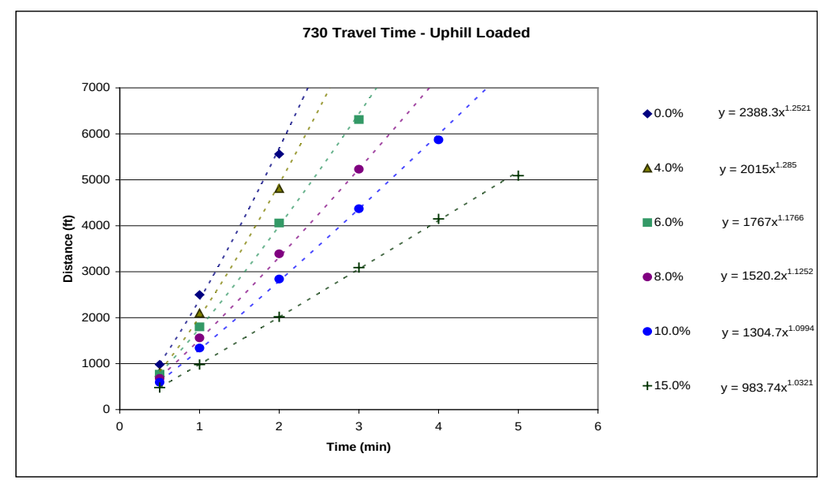
Source: Caterpillar Performance Handbook Edition 35



730 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	980	2,500	5,560				2388	1.25621
4	810	2,100	4,810				2015	1.285
6	770	1,800	4,060	6,310			1767	1.1766
8	680	1,560	3,390	5,230	7,070		1520.2	1.1252
10	595	1,340	2,840	4,370	5,870		1304.7	1.0994
15	480	980	2,020	3,090	4,150	5,090	983.74	1.0321

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

Source: Caterpillar Performance Handbook Edition 35



Productivity - Articulated Trucks (cont.)

735 Travel Time - Uphill Loaded

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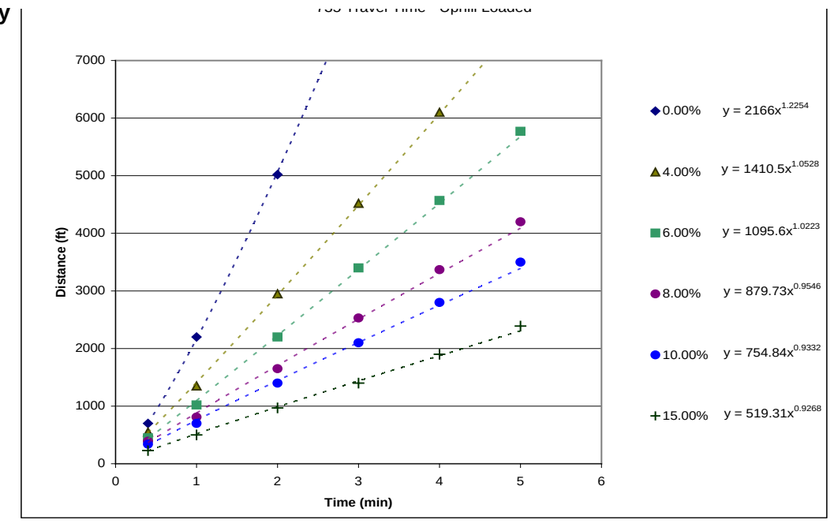
735 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	700	2,200	5,020				2166	1.2254
4	550	1,350	2,950	4,520	6,100		1410.5	1.0528
6	450	1,020	2,200	3,400	4,570	5,770	1095.6	1.0223
8	390	810	1,650	2,530	3,370	4,200	879.73	0.9546
10	340	700	1,400	2,100	2,800	3,500	754.84	0.9332
15	230	500	970	1,400	1,900	2,390	519.31	0.9268

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

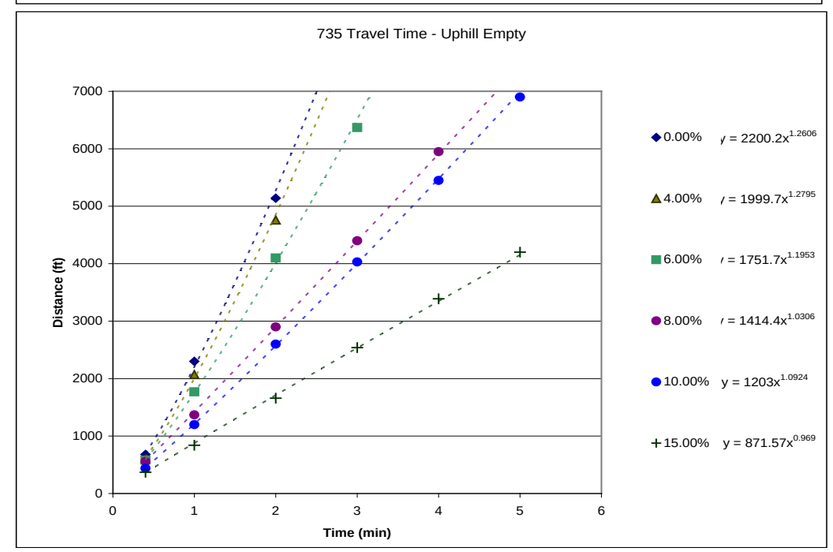
Source: Caterpillar Performance Handbook Edition 35



735 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	680	2,300	5,140				2200.2	1.2606
4	610	2,070	4,760				1999.7	1.2795
6	580	1,770	4,100	6,370			1751.7	1.1953
8	560	1,370	2,900	4,400	5,950		1414.4	1.0306
10	440	1,200	2,600	4,030	5,450	6,900	1203	1.0924
15	370	840	1,660	2,540	3,390	4,200	871.57	0.969

Travel Time (min) = $\sqrt[p]{\frac{distance}{k}}$

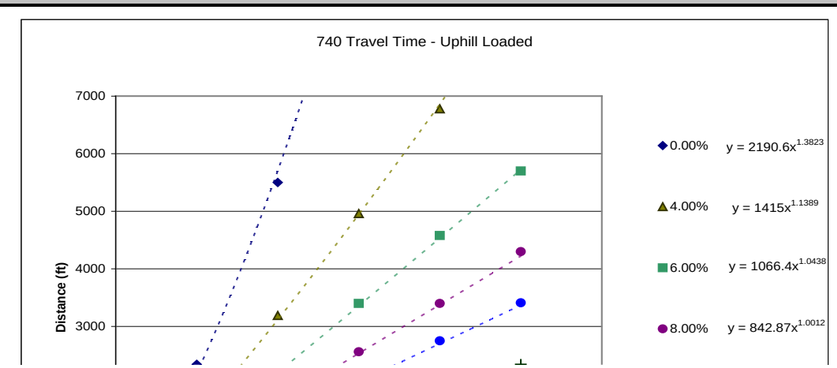
Source: Caterpillar Performance Handbook Edition 35



Productivity - Articulated Trucks (cont.)

740 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	600	2,340	5,500				2190.6	1.3823
4	500	1,390	3,190	4,960	6,780		1415	1.1389
6	420	1,020	2,200	3,400	4,580	5,700	1066.4	1.0438
8	350	800	1,650	2,560	3,400	4,300	842.87	1.0012
10	290	640	1,350	2,040	2,750	3,410	686.02	0.9889
15	200	450	940	1,400	1,830	2,340	474.86	0.9789

$\sqrt[p]{\frac{distance}{k}}$



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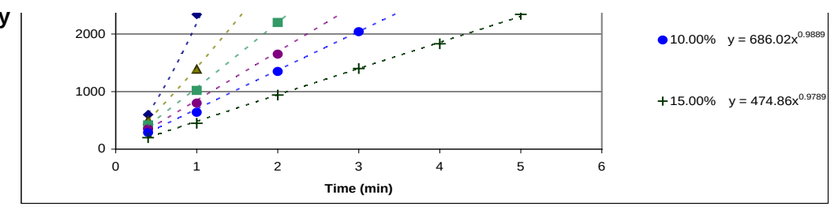
Travel Time (min) =

Source: Caterpillar Performance Handbook Edition 35

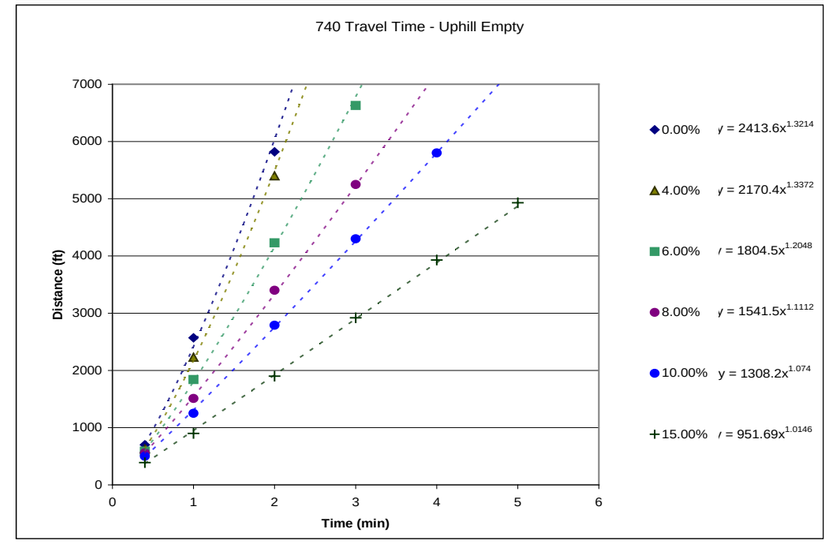


740 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min) 0.5	1	2	3	4	5	k	p
0	700	2,570	5,820				2413.6	1.3214
4	630	2,230	5,400				2170.4	1.3372
6	590	1,840	4,230	6,630			1804.5	1.2048
8	560	1,510	3,400	5,250	7,120		1541.5	1.1112
10	500	1,250	2,790	4,300	5,800		1308.2	1.074
15	390	900	1,900	2,920	3,930	4,930	951.69	1.0146

$$\sqrt[p]{\frac{distance}{k}}$$

Travel Time (min) =

Source: Caterpillar Performance Handbook Edition 35



Productivity - Wheel Loaders

Wheel Loader Specifications														
Description	924G	928G	950G	966G	972G	972G (2)	980G	988G	988G(2)	990	992G	992G(2)	994D	L2350
Payload Capacity (cy)														
Struck	2.2	2.5	3.46	4.46	4.71	4.71	6.34	6.9	6.9	9.5	13.2	13.2	18	
Heaped	2.7	3.25	4	5.25	5.5	5.5	7.25	8.33	8.33	11.25	16	16	22.5	
Average	2.45	2.875	3.73	4.855	5.105	5.105	6.795	7.615	7.615	10.375	14.6	14.6	20.25	53
Matched Truck	N/A	N/A	N/A	725	730	735	N/A	740	769D	773D	777D	785C	793C	797B
Average Cycle Time (min)	0.45	0.45	0.5	0.5	0.5	0.5	0.55	0.55	0.55	0.55	0.6	0.6	0.6	0.75
Passes to Fill Truck	N/A	N/A	N/A	3	4	5	N/A	4	3	4	5	6	7	5
Altitude Deration Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Operator Efficiency	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	N/A	N/A	N/A	1.5	2	2.5	N/A	2.2	1.65	2.2	3	3.6	4.2	3.75
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Loader matched to small truck fleet
Loader matched to medium truck fleet
Loader matched to large truck fleet
Loader matched to extra large truck fleet

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered
992G (2) - can be used to load 785 with 6 passes

Source: Caterpillar Performance Handbook Edition 35; LeTourneau/actual Chilean mine operating data for L2350.

Wheeled Loaders	General Purpose	Spade Nose-Rock
928G	3.25 cubic yard	not available
966G	5.0 cubic yard	not available
972G	5.5 cubic yard	not available
988G	not available	8.3 cubic yard
992G	not available	16.0 cubic yard

note: capacities are 2:1 heaped, SAE standards

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NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECo & available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators

Bucket capacity and width dictated by material weight and configuration, ie., shot, loose, tight bank, stockpile, rock, etc. Typical Nevada applications were used to determine above bucket capacities as related to materials & densities. Job site specifics may alter specific bucket requirements. (Cashman Equipment, Elko, Nevada - February 21, 2005)

Productivity - Shovels

Shovel Specifications (Komatsu equivalent)

Description	PC2000	PC3000	PC4000	PC5500	PC8000
Payload Capacity (cy)					
Struck	10.46	18.84	26.16	33.48	47.09
Heaped	14.39	25.9	35.97	46.04	64.75
Average	12.43	22.37	31.07	39.76	55.92
Matched Truck	740	777D	785C	793C	797B
Average Cycle Time (min)	0.49	0.49	0.59	0.59	0.69
Passes to Fill Truck	2.05	2.84	3.38	4.69	5.11
Altitude Deration Factor	1	1	0.9	1	1
Operator Efficiency	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	1.68	2.33	3.32	4.61	5.86
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5

Shovel matched to small truck fleet
Shovel matched to medium truck fleet
Shovel matched to large truck fleet
Shovel matched to extra large truck fleet

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered
992G (2) - can be used to load 785 with 6 passes
Source: Caterpillar Performance Handbook Edition 35; Komatsu actual Peruvian mine (Lagunas Norte) operating data for PC4000.

Productivity - Motor Graders

Motor Grader Specifications

Description	120H	14G/H	16G/H	24M
Grader Width (ft)	8	9.25	10.08	14.04
Blade Width (ft)	12	14	16	16
Ripper Width (7 shanks) (ft)	7.6	8.5	9.75	12.83
Road Maintence Speed (mph)				
Minimum	3	3	3	3
Maximum	9.5	9.5	9.5	9.5
Average	6.25	6.25	6.25	6.25
Hourly Production	33,000	33,000	33,000	33,000
Ripping Speed (mph)	1	1	1	1
Minimum	0	0	0	0
Maximum	3	3	3	3
Average	1.5	1.5	1.5	1.5
Altitude Deration Factor	1	1	1	1
Hourly Production (with job efficiency correction & altitude deration factors) (excluding manuever time)	6,574	6,574	6,574	6,574
Maneuver time per pass (min)	0.5	0.5	0.5	0.5
Operator Efficiency	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83

Source: Caterpillar Performance Handbook Edition 35

Productivity - Excavators

Track Excavator Specifications

Description	312C	320C	325C	330C	345B	365BL	385BL
Bucket Capacity (cy)	0.68	1.57	2.22	2.22	3	4.6	7.3
Fill Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9

Track Excavators	Hvy Duty Rock	Extreme Service Exc (e.g. haulroad recontour)	Hvy Duty Trench
312C	30", 0.68 cubic yd	47", 0.94 cubic yd	22", .42 cubic yd
320C	30", 0.90 cubic yd	55.1", 1.57 cubic yd	23.6", .58 cubic yd

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Average Bucket Load (cy)	0.612	1.413	1.998	1.998	2.7	4.14	6.57
Soil Type	packed earth	hard clay	hard clay	hard clay	hard clay	hard clay	hard clay
Job Condition	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard
Cycle Times (minutes) - based on hard clay							
Load Bucket	0.07	0.09	0.09	0.09	0.13	0.1	0.19
Swing Loaded	0.06	0.06	0.06	0.07	0.07	0.09	0.06
Dump Bucket	0.03	0.03	0.04	0.04	0.02	0.04	0.03
Swing Empty	0.05	0.05	0.06	0.07	0.06	0.07	0.07
Total Cycle Time	0.21	0.23	0.25	0.27	0.28	0.3	0.35
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Operator Efficiency	1	1	1	1	1	1	1
Altitude Deration Factor	1	1	1	1	1	1	1
Corrected Productivity (LCY/hr)	145	306	398	369	480	687	935
Exploration Road Cycle Time (1) (min)	N/A	0.38	0.4	N/A	0.42	N/A	N/A
Exploration Road Corr Prod (LCY/hr)	N/A	185	249	N/A	320	N/A	N/A
Track Width (ft)	8.17	9.17	9.83	10.5	11.42	11.5	11.5
Ditch/Trench Excavation							
Bucket Capacity (cy)	0.42	0.58	0.88	0.89	2.09	3.27	2.75
Fill Factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Corrected Productivity (LCY/hr)	50	63	88	82	186	271	196

Source: Caterpillar Performance Handbook Edition 35

325C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .88 cubic yd
330C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .89 cubic yd
345B	43.2", 1.69 cubic yd	65", 3.0 cubic yd	48", 2.09 cubic yd
365BL	60", 3.25 cubic yd	82", 4.6 cubic yd	59", 3.27 cubic yd
385BL	85", 6.30 cubic yd.	96.0, 7.30 cubic yd	57", 2.75 cubic yd

Note: capacities are 2:1 heaped, SAE standards
NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECo &

available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators Bucket capacity and width dictated by material weight and configuration, ie., shot, loose, tight bank, stockpile, rock, etc. Typical Nevada applications were used to determine above bucket capacities as related to materials & densities. Job site specifics may alter specific bucket requirements (Cashman Equipment, Elko, Nevada - February 21, 2005)

(1) Exploration cycle time assumes feathering/smoothing performed by excavator

Concrete Breaking Production

Track Excavator w/Hammer Specifications			
Description	**325C**	**345B**	**385BL**
Hydraulic Hammer	H120D s	H160D s	H180D s
Material	reinforced concrete		
Min Shift Production (yd3/8hr)	160	300	350
Max Shift Production (yd3/8hr)	300	850	1,550
Avg Shift Production (8hr)	230	575	950
Job Efficiency	0.83	0.83	0.83
Altitude Deration Factor	1	1	1

Source: Caterpillar Performance Handbook Edition 35

Drill Hole Plugging Productivity

Drill Hole Plugging Productivity		
Description	**Drill Rig**	**Pump Rig**
Move-to-hole, set-up, tear-down (1)	2	2
Trip in tremmie pipe (1)	500	
Pulling casing (threaded, not	200	
Single-pass perforating (water wells)	Productivity(all p	Passes
4	60	4
6	60	4
8	50	4
12	45	6
18	40	9
24	28	12
Perforation setup,trip in/out,tear-down	2	
Perforation tool cost (wear cost)(3)	2.5	
Inert Material Placement (backfill)		
Grouting/Cement (4) (cy/hr)		5.33
Cuttings (see below) (cy/hr)		3.5

Sources: 1. Drillers daily logs from Newmont, Barrick, New West Gold, Agnico Eagle, Idaho General Mines Inc.

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2. Drillers daily logs from Newmont, Barrick, Target Minerals
3. Drillers daily logs from Newmont
4. WDC Exploration, Dec 2005

Sournce: WDC Exploration, Dec 2005

Cuttings Placement Productivity		
Shift productivity (Means 02210-700-0120; Crew B11M)	28	cy / shift
Shift length	8	hours
Estimated Hourly Productivity	3.5	cy / hour

Altitude Deration Table

	Elevation											
	0-760 m (0-2500')		760-1500 m (2500-5000')		1500-2300 m (5000-7000')		2300-3000 m (7500-10,000')		3000-3800 m (10,000-12,000')		3800-4600 m (12,500-15,000')	
MODEL	CAT	User	CAT	User	CAT	User	CAT	User	CAT	User	CAT	User
Bulldozers												
D6R	100		100		100		100		92		84	
D6R w/ Winch	100		100		100		100		92		84	
D7R	100		100		100		100		100		96	
D8R	100		100		100		93		85		77	
D9R	100		100		100		93		85		77	
D10R	100		100		100		100		97		89	
D11R	100		100		100		93		85		77	
Wheeled Dozers												
824G	100		100		100		100		92		84	
834G	100		100		100		100		92		84	
844	100		100		100		100		100		96	
854G	100		100		100		93		85		77	
Graders												
120H	100		100		100		100		96		93	
14G/H	100		100		100		100		98		96	
16G/H	100		100		100		100		98		96	
24M	100		100		100		100		98		96	
Excavators												
312C	100		100		100		83		78		73	
320C	100		100		90		87		83		76	
325C	100		100		100		100		100		100	
330C	100		100		100		100		100		100	
345B	100		100		100		100		93		93	
365BL	100		100		100		86		86		86	
385BL	100		100		100		93		85		78	
Scrapers												
631G	100		100		100		100		97		90	
637G	100		100		100		95		87		80	
Loaders												
924G	100		100		100		100		97		89	
928G	100		100		100		100		92		85	
950G	100		100		100		100		100		100	
966G	100		100		100		100		96		88	
972G	100		100		92		84		77		70	
980G	100		100		100		100		96		88	
988G	100		100		100		95		85		75	
990	100		100		100		100		92		85	
992G	100		100		100		100		93		87	
994D	100		100		100		100		96		88	
L2350	100		100		100		100		96		90	
Shovels												
PC2000	100		100		100		100		96		90	
PC3000	100		100		100		100		96		90	
PC4000	100		100		100		100		96		90	
PC5500	100		100		100		100		96		90	
PC8000	100		100		100		100		96		90	
Other Equipment												
420D 4WD Backhoe	99		97		95		91		91		91	
428D 4WD Backhoe	99		97		95		91		91		91	
CS533E Vibratory Roller	100		100		98		95		91		86	
CS633E Vibratory Roller	100		100		100		100		91		86	
CP533E Sheepsfoot Compactor	100		100		98		95		91		100	
CP633E Sheepsfoot Compactor	100		100		100		100		91		86	

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Light Truck - 1.5 Ton												
Supervisor's Truck												
Flatbed Truck												
Air Compressor + tools												
Welding Equipment												
Heavy Duty Drill Rig												
Pump (plugging) Drill Rig												
Concrete Pump												
Gas Engine Vibrator												
Generator 5KW												
HDEP Welder (pipe or liner)												
5 Ton Crane												
20 Ton Crane												
50 Ton Crane												
120 Ton Crane												
Trucks												
725	100		100		100		100		100		95	
730	100		100		100		100		100		95	
735	100		100		100		100		99		91	
740	100		100		100		100		99		91	
769D	100		100		100		93		88		82	
773E	100		100		100		100		93		85	
777D	100		100		100		100		93		87	
785C	100		100		100		93		86		80	
793C	100		100		100		100		100		93	
797B	100		100		100		100		100		93	
613E (5,000 gal) Water Wagon	100		100		100		100		95		87	
621E (8,000 gal) Water Wagon	100		100		100		100		97		90	
777D Water Truck	100		100		100		100		93		87	
785C Water Truck	100		100		100		93		86		80	
Dump Truck (10-12 yd^3) (5)												

Notes:
User entered deration value will override values from CAT Performance Handbook, except L2350 Loader: data from actual mine performance in Chile.
Komatsu altitude deration assumed from LeTourneau L2350

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Closure Cost Estimate
User 1

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 1 - Project Basic Data; Shortlag and Residual Rock Removal; Other Mat'l Haulage

Lime application assumptions	amount/rate	Remarks
Shortlag total (cy):	258872.5	
Shortlag density (t/cy):	1.67	610,000 tons divided by 365,000 cy as per Site E material relocation exercise
Shortlag Total (tons)	432317	
Application rate of lime to shortlag (t/t):	0.01	
Lime required (tons)	4323	
Density lime:	1.7	
Cost of lime ($/lb):	0.114	
Cost of lime ($/ton):	228	
Annual months of operation	5.5	
# days a year of operation	168	

hours per month	486
months per year	5.5
hours per year	2673
Inflation rate factor (SNH Indirect comments Jan14.docx	1.12

	rental ($/mo)	hourly ($/hr)	indirects	total hourly ($/hr)
Lowboy trailer	5390	11.09	7.5	18.59
Gradall	4928	10.14	15.5	25.64

User Sheet 1 - Project Basic Data; Shortlag and Residual Rock Removal; Other Mat'l Haulage

Pyritic Rock Removal Requirements			
Site	PAG cy total	Distance to tailings	Distance to UG
5.0 mile	1000	5.31	
3.9 mile	15000	4.21	
3.2 mile	600	2.42	
0.9 mile	1500	1.68	
1.8 Mile	5000	1.02	
2.5 Mile	60000	1.72	
Zinc Ck Bridge	5000	3.2	
Pit 174	4000	2.2	
7.3 Mile	500	5.72	
1350 Road	8000	6.015	
Core Shed	2000	1.02	
Truck Pad	30000	1.02	
Con Storage	10000	1.02	
Tributary Creek	100	1.02	
Site E	276700	3.32	
Pit 405	20000	6.31	
D Pile	120000	6.76	1.7
Pond 23 Bedding	6000	6.86	
Site C	50000		0.82
Mill Backslope	25000		0.63
Mill/Admin Fill	100000		0.63
Ore Pad	18000		0.63
Warehouse Pad	13000		0.63
Water Building	3500		0.63
Mine Portal	4000		0.24
960 Site	100		0.24
1350 Site	26505		0
Total	805505		

See Haul Materials sheet for estimate details.
Distances from User 15.

Site	PAG cy total	Shortlag %	Shortlag cy
5.0 mile	1000	100	1000
3.9 mile	15000	75	11250
3.2 mile	600	100	600
0.9 mile	1500	100	1500
1.8 Mile	5000	80	4000
2.5 Mile	60000	100	60000
Zinc Ck Bridge	5000	100	5000
Pit 174	4000	80	3200
7.3 Mile	500	50	250
1350 Road	8000	40	3200
Core Shed	2000	30	600
Truck Pad	30000	20	6000
Con Storage	10000	50	5000
Tributary Creek	100	100	100
Site E	276700	10	27670
Pit 405	20000	20	4000
D Pile	120000	20	24000
Pond 23 Bedding	6000	75	4500
Site C	50000	20	10000
Mill Backslope	25000	75	18750
Mill/Admin Fill	100000	25	25000
Ore Pad	18000	80	14400
Warehouse Pad	13000	75	9750
Water Building	3500	50	1750
Mine Portal	4000	100	4000
960 Site	100	100	100
1350 Site	26505	50	13252.5
Total	805505		258872.5

See Haul Materials sheet for estimate details.

Closure Cost Estimate
User 1

User Sheet 1 - Project Basic Data; Shortlag and Residual Rock Removal; Other Mat'l Haulage

Dozer (D6)	73.15
Dozer operator	60.01
UG Truck(s) $/hr	272.13
UG truck Operator(s) $/hr	115.38
UG Fleet $/hr	520.67

UG Equipment	Monthly rental	gal/hr	hourly rental	$ fuel/hr	$/hr maint.	hourly rental w/ fuel	operator ($/hr)	total rental rate
MT2010 - $27,500 (5.8 gallons per hour)	27,500.00	5.8	56.58	24.0341444	41	121.62	57.69	179.31
MT436B - $31,500 (7.3 gallons per hour)	31,500.00	7.3	64.81	30.2498714	41	136.06	57.69	193.75
Dozer D6						73.15	60.01	133.16
Loader 966 (operated by operators of other equipment)			38.13	48.64996683		86.78	0	86.78

Assumptions:

Capacity of underground truck: 32 metric tons.	32.00
Capacity of underground truck: 19.2 m3.	19.16
Capacity of underground truck: 25 cy.	25.06
Conversion from m3 to cy: 1.308 cy.	1.31
Default # of underground trucks: 2.	2.00
Number of underground fleets: 1.	1.00
Surface loader: 966.	966.00
Surface loader cycle time: 0.5 minutes.	0.50
Surface truck bucket capacity: 4.	4.00
Passes to fill truck: 7.	7.00
Number of minutes for truck driver to load himself: 4.	4.00
Number of months in year: 5.5.	5.50

Fleet	Cost/Hour (Avg)	Hours (Avg)	Cost (Avg)
Mucker (Loader)	73.00	10,700.00	830,700.00
Trucks	41.00	16,900.00	742,000.00

UNDERGROUND HAULAGE

Site	Truck cycle time (hrs)	Total amt. (cy)	# loads (trips)	Truck Hrs per site	Fleet hours per site	Mo. per site
All building debris to UG	0.42	33,491	1337	278.54	139.27	0.29
Material from Site C	0.42	50,000	1996	415.83	207.92	0.43
Material from Mill Backslope	0.42	25,000	998	207.92	103.96	0.21
Material from Mill/Admin Fill	0.42	100,000	3991	831.46	415.73	0.86
Material from Ore Pad	0.42	18,000	719	149.79	74.90	0.15
Material from Warehouse Pad	0.42	13,000	519	108.13	54.06	0.11
Material from Water Building	0.42	3,500	140	29.17	14.58	0.03
Material from Mine Portal	0.42	4,000	160	33.33	16.67	0.03
Material from 960 Site	0.42	100	4	0.83	0.42	0.00
Material from 1350 Site	0.42	26,505	1058	220.42	110.21	0.23
Total		273,596		2,275.42	1,137.71	2.34

Notes:
Assume truck driver loads truck and stacks load underground. Loader hours equal to total hours divided by the fleet quantity.
Underground haul distance is an average estimated haul distance.

Site	Labor sum ($)	Surface loader hrs	Surface loader cost ($)	Equip. sum ($)	Cost per site	
All building debris to UG	64,486.52	279	14,956.28	111,130.97	175,617.49	
Material from Site C	96,271.57	416	22,328.15	165,906.82	262,178.39	
Material from Mill Backslope	48,135.79	208	11,164.07	82,953.41	131,089.20	
Material from Mill/Admin Fill	192,494.91	831	44,645.11	331,730.52	524,225.43	
Material from Ore Pad	34,678.99	150	8,043.06	59,763.03	94,442.02	
Material from Warehouse Pad	25,032.54	108	5,805.77	43,139.10	68,171.64	
Material from Water Building	6,752.52	29	1,566.10	11,636.75	18,389.27	
Material from Mine Portal	7,717.16	33	1,789.83	13,299.14	21,016.30	
Material from 960 Site	192.93	1	44.75	332.48	525.41	
Material from 1350 Site	51,029.72	220	11,835.26	87,940.59	138,970.31	
Total	526,792.63	2,275	122178.3708	907,832.81	1,434,625.44	**<--Other User item #11**

Closure Cost Estimate
User 2

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 2 - Mobilization/Demobilization

	Grading	Hauling	Cover Placement	Growth Media Placement	Other	# trucks	YEARS 0	1	2	3	4	5	(...)	99	100
A. Earthwork/Recontouring															
Roads			740/988G		345B (recontouring)	2									
Well Abandonment					Rig										
Underground Openings															
Process Ponds				740/988G	740/988G (backfill)	2									
Waste Rock Dumps															
Tailings															
Foundation & Buildings Areas															
Yards, Etc.	D6			740/988G		2									
Drainage & Sediment Control															
Generic Material Hauling		740/988G/D8				8									
Other User Costs (from Other User sheet)															
Utilization of underground equipment for disposal (User 1)					Minetruck			x	x	x					
Excavator for residual and short-lag material					345 excavator			x	x	x					
C. Detoxification/Water Treatment/Disposal of Wastes**															
Other User Costs (from Other User sheet)															
Various waste disposal (User 14)					Vacuum truck					x					
Decontamination (User 14)					Vacuum truck					x					
Reconfiguration pumps and pipes (User Crew 3)					User Crew 3: 420D 4WD Backhoe, Welding Equipment			x							
New West Pond lining - liner 1					3 skwk - 420 D backhoe; welding equipment	8		x							
New West Pond lining - liner 2					3 skwk - 420 D backhoe; welding equipment	8		x							
New South Pond lining - liner 1					3 skwk - 420 D backhoe; welding equipment	8		x							
New South Pond lining - liner 2					3 skwk - 420 D backhoe; welding equipment	8		x							
D. Structure, Equipment and Facility Removal, and Misc.															
Foundation & Buildings Areas					345B; B-8 (adjusted):20-ton crane; B-9: air compressor										
Other User Costs (from Other User sheet)															
Internal mill infrastructure demolition (User 6)					120 ton crane ; Track Hoe ; 365 Excavator ; 8,000 lbs gradall ; Lowboy Trailer			x							
Bridge Demolition (User 11)					120 Ton Crane; Track Hoe with Shear; Lowboy Trailer; 8,000lbs gradall; 345B Excavator; 740 Articulating Truck			x							
Removal of miscellaneous linear items (1 backhoe+2 laborers) (User Crew 1)					928G			x							
Demolish WTP (User 6)					120 ton crane ; Track Hoe ; Excavator ; 8,000 lbs gradall ; Lowboy Trailer										x
Remove log bridges (User Crew 4)					325C; 725										x
E. Monitoring															
Other User Costs (from Other User sheet)															
Post-closure cover maintenance - Tailings (User Crew 2)					D6R; 330C; CP533E Sheepsfoot Compactor			x	x	x	x	x			
F. Construction Management & Support															
Road Maintenance	Small grader				Small water truck										
Other User Costs (from Other User sheet)															
Small crossings over Zinc and Greens Creek bridge locations (User 10) (Crew C-12)					12-ton crane			x							

Rate to ship from Seattle to HGCMC	
Per 100 lb	$ 6.90

	Weight (lb)	Mob	Demob	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year (...)	Year 99	Year 100
Bulldozers												
D6R	45,000	3,105	3,105	6,210	1	1	1	1	1			
D6R w/ Winch	48,000	3,312	3,312	6,624								
D7R	68,500	4,727	4,727	9,453								
D8R	85,000	5,865	5,865	11,730	1	1	1					
D9R	108,000	7,452	7,452	14,904								
Motor Graders												
120H	31,000	2,139	2,139	4,278								
14G/H	47,000	3,243	3,243	6,486								
16G/H												
24M												
Track Excavators												
312C	29,000	2,001	2,001	4,002								
320C	46,500	3,209	3,209	6,417								
325C	65,000	4,485	4,485	8,970								1
330C	80,000	5,520	5,520	11,040	1	1	1	1	1			
345B	100,000	6,900	6,900	13,800	1	1	1					
365BL	155,000	10,695	#####	21,390	1							
Scrapers												
631G												
637G PP												
Wheeled Loaders												
924G	22,800	1,573	1,573	3,146								
928G	28,000	1,932	1,932	3,864	1							
950G	39,500	2,726	2,726	5,451								
966G	53,000	3,657	3,657	7,314								
972G	56,000	3,864	3,864	7,728								
980G	67,000	4,623	4,623	9,246								
988G	110,000	7,590	7,590	15,180								
990												
992G												
Hydraulic Hammers												
H-120 (fits 325)	4,500	311	311	621								
H-160 (fits 345)	8,500	587	587	1,173								
H-180 (fits 365/385)	13,000	897	897	1,794								
Demolition Shears												
S340 (fits 322/325/330)	4,000	276	276	552								
S365 (fits 330/345)	7,500	518	518	1,035								
S390 (fits 365/385)	9,500	656	656	1,311								
Demolition Grapples												
G315 (fits 322/325)	3,500	242	242	483								
G320 (fits 325/330)	4,500	311	311	621								
G330 (fits 345/365)	8,000	552	552	1,104								
Other Equipment												
420D 4WD Backhoe	17,500	1,208	1,208	2,415	8		1					
428D 4WD Backhoe	18,000	1,242	1,242	2,484								
CS533E Vibratory Roller	25,000	1,725	1,725	3,450								
CS663E Vibratory Roller	41,000	2,829	2,829	5,658								
CP533E Sheepsfoot Compactor	25,000	1,725	1,725	3,450	1	1	1	1	1			
CP663E Sheepsfoot Compactor	41,000	2,829	2,829	5,658								
Light Truck - 1.5 Ton												
Supervisor's Truck												

Closure Cost Estimate
User 2

Flatbed Truck													
Air Compressor + tools	1,300	90	90	179	1	1							1
Welding Equipment	19,500	1,346	1,346	2,691	8		1						
Heavy Duty Drill Rig													
Pump (plugging) Drill Rig	1,000	69	69	138	1								1
Concrete Pump													
Gas Engine Vibrator													
HDEP Welder (pipe or liner)													
Concrete mixer truck	24,200	1,670	1,670	3,340									
5 Ton Crane	25,000	1,725	1,725	3,450									
20 Ton Crane	38,500	2,657	2,657	5,313	1	1							1
50 Ton Crane	70,000	4,830	4,830	9,660									
120 Ton Crane	95,000	6,555	6,555	13,110	1								1
100 ton marine crane	90,000	6,210	6,210	12,420									
Trucks													
725 (articulated)	49,000	3,381	3,381	6,762									1
730 (articulated)	51,000	3,519	3,519	7,038									
735 (articulated)	70,000	4,830	4,830	9,660									
740 (articulated)	73,000	5,037	5,037	10,074	8	8	8						
769D													
613E (5,000 gal) Water Wagon (assume same as 725)				6,762	1	1	1						
621E (8,000 gal) Water Wagon (assume same as 725)				6,762									
Dump Truck (10-12 yd3) (5)	28,600	1,973	1,973	3,947	1	1	1						
Miscellaneous													
Lowboy trailer	55,000	3,795	3,795	7,590	1								
8000 lbs gradall	8,000	552	552	1,104	1								1
Track hoe (assume same as 725)				6,762	1								1
150 kW Generator													
Minetruck MT2010	60,000	4,140	4,140	8,280	2	2	2						
Minetruck MT436B	75,000	5,175	5,175	10,350									
Scooptram ST2G, ST2D	17,500	1,208	1,208	2,415									
Hydroseeder	5,000	345	345	690	1	1	1						1
Vacuum truck (assume same as small water truck)				6,762			1						
				Subtotal	$ 255,079.20	$ 160,273.20	$ 166,648.80	$ 20,700.00	$ 20,700.00	$ -	$ -	$ 43,028.40	$ 666,429.60

Closure Cost Estimate

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 3 - Marine Demo Summary
Marine Demo Summary
Source:
Marine Demo 2008.xls

Sites	Labor	Equipment	Material	Total
Hawk Inlet	64,996.45	60,215.10		125,211.55
Young Bay	30,329.55	22,574.60		52,904.15
Miscellaneous			170,520.00	170,520.00
Other (e-mail 2013/01/03)	166,666.67	166,666.67	166,666.67	500,000.00
SUM	261,992.67	249,456.37	337,186.67	848,635.71
Note: Marine environment work includes equipment costs for unique water based demolition needs				

<--Other User item #8

Labor	50.69
Marine demo worker	57.73

	2008 costs	2012 estimate
Mobilization	65000	72800
Tug Rental	15000	16800
Barge Rental	15000	16800
Demobilization	40000	44800
Slings/Cables/Misc	17250	19320

	dry rate	wet rate	operator	equip+operator
100 Ton Marine Crane	490	548.8	60.01	608.81
345 Excavator		77.55	58.13	135.68
50-Ton Crane		70.31	60.01	130.32
Lowboy Trailer		18.59	58.13	76.72053498
8,000lbs Gradall		25.64	58.13	83.7699177

User Sheet 3 - Marine Demo Summary

Task Cost Estimate

Element: Site General
Area: Marine Demo
Task: Hawk Inlet
Subtask:

Description:
Salvage equipment at shiploader, freight barge and float plane dock
Demolish structures, decontaminate and ship scrap metal
Demolish foundations, removal of all piling, dolphins and support structures/walkways
Maintain SEAPRO preparedness during closure
Decontamination included in Site General - Hawk Inlet Demo

Category	Unit Price	Number Required	Unit	Estimated Cost	Comments
Labor					
Labor	50.69	200	hr	10,138.00	
Marine demo worker	57.73	750	hr	43,297.50	
100 Ton Marine Crane operator	60.01	100	hr	6,001.00	
345 Excavator operator	58.13	40	hr	2,325.20	
50-Ton Crane operator	60.01	20	hr	1,200.20	
Lowboy Trailer operator	58.13	10	hr	581.30	
8,000lbs Gradall operator	58.13	25	hr	1,453.25	
Labor Subtotal				64,996.45	
Equipment					
100 Ton Marine Crane	548.80	100	hr	54,880.00	Barge included
345 Excavator	77.55	40	hr	3,102.00	
50-Ton Crane	70.31	20	hr	1,406.20	Shore based
Lowboy Trailer	18.59	10	hr	185.91	
8,000lbs Gradall	25.64	25	hr	641.00	
Equipment Subtotal				60,215.10	

User Sheet 3 - Marine Demo Summary
Task Cost Estimate
Description:
Salvage decking, breakwater barge, docking bar
Pull pile and salvage, or cut at mudline (may not
Due to shallow depth of beach, may have to utili
Maintain SEAPRO preparedness at site until pro
Category
Labor
Labor
Marine demo worker
100 Ton Marine Crane operator
345 Excavator operator
50-Ton Crane operator
Lowboy Trailer operator
8,000lbs Gradall operator
Labor Subtotal
Equipment
100 Ton Marine Crane
345 Excavator
50-Ton Crane
Lowboy Trailer
8,000lbs Gradall
Equipment Subtotal

Closure Cost Estimate

Element: Site General
Area: Marine Demo
Task: Young Bay
Subtask:

ge and misc equipment
be able to pull out due to screw fin design on piling base)
ze ground based equipment toward the shore
jects are complete.

Unit Price	Number Required	Unit	Estimated Cost	Comments
50.69	100	hr	5,069.00	
57.73	300	hr	17,319.00	
60.01	30	hr	1,800.30	
58.13	50	hr	2,906.50	
60.01	20	hr	1,200.20	
58.13	10	hr	581.30	
58.13	25	hr	1,453.25	
			30,329.55	
548.80	30	hr	16,464.00	Barge included
77.55	50		3,877.50	
70.31	20	hr	1,406.20	Shore based
18.59	10	hr	185.91	Shore based
25.64	25	hr	641.00	Shore based
			22,574.60	

User Sheet 3 - Marine Demo Summary

Task Cost Estimate

Element: Site General
Area: Marine Demo
Task: Miscellaneous Demo Equipment Costs
Subtask:

Description:
Due to specialty aspect of Marine based work, miscellaneous equipment costs are added to the overall estimates
Mobilization/Demobilization of equipment
Tugs rentals
Lifting gear
Salvage equipment
Contractor Profits on services/equipment

Category	Unit Price	Number Required	Unit	Estimated Cost
Materials				
Mobilization	72,800.00	1	lot	72,800.00
Tug Rental	16,800.00	1	lot	16,800.00
Barge Rental	16,800.00	1	lot	16,800.00
Demobilization	44,800.00	1	lot	44,800.00
Slings/Cables/Misc	19,320.00	1	lot	19,320.00
				170,520.00

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 4 - Water Treatment Summary

Area/Source	Active Production Destination	Flow GPM	Head ft	Pipe Diameter in
Underground				
1350 Drain (el LIDAR 1300')	Main Sump	25	-350	4
Main Sump (el 950'/890'?)	A Pond	75	-52	4
920 Area				
A Pond (el 900'/838', crest 846)	Pond 7	214	-716	8
B Pond Sump (el 890'/826')	A Pond	100	20	4
C Pond (el 850'/796')	23 Pond	7	96	6
D Pond (el 810'/752')	23 Pond PS	129	70	12
23 Pond (el 878'/822')	23 Pond PS	138	0	8
23 Pond Pump Station (el 878'/822')	Pond 7	267	-700	8
800 and 400 GPM WTPs (el 940'/874+20' head)	Pond 7	500	-752	10
Greens Creek Pumps (el 915'/852')	1160 Head Tank	500	296	8
Sewage Treatment (el 940'/876'+10' head)	A Pond	5	-38	lined ditch
1160 Head Tank (1160'/1128'+20' head)	Various 920	variable	-254	10
Hawk Inlet				
Cannery Creek Potable (el 174')	Hawk Inlet Water	18	-54	6
Hawk Inlet Water Bldg (el 120')	Hawk Inlet Variou	18	-90	4
Hawk Inlet Lift Station (el 18')	Sewage Treatme	18	62	4
Sewage Treatment Plant (el 80')	DB-04	18	-56	4
Seeps (4) (el 18')	DB-04	1	20	2
Herman's Gulch Sump (el 24')	DB-04	2	15	6
DB-04 (el' 24')	Pond 7 via west	31	160	8
Tailings Area				
Cannery Creek Withdrawal (el 174')	Truckwash	35	110	4
Truckwash (el 175')	Pond 7 via east	35	-53	12
Pond 9 (el 186')	Pond 7 via west	55	-64	18
Pond 10 (bottom el 120') (including runoff)	Pond 7	28	25	8
Pond 10 Underdrain Wet well 11 (el 115')	Pond 10	15	31	8
E. Upslope Infiltration (var 190')	Wet well 13	50	-66	
Wet well A (el 132')	Pond 7	17	8	8
Unlined area drains	various wet wells	19	various	
Above liner drains	various wet wells	14	various	
Below liner drains (excluding ponds)	various wet wells	30	various	
Area runoff (excluding Pond 7 and Pond 10)	Pond 7 via ditche	169	various	
Wet well 5 (170')	Pond 9	8	16	8
Wet well 3 (150')	Pond 7 via west	2	10	6
Wet well 12 S3P1 above liner (110')	Pond 7 via east	8	30	8
Wet well 13 S3P1 below liner (110')	Pond 7 via east	70	30	8
Wet well 15 S3P1 toe pumpback (113')	Pond 7 via east	19	27	8
Pond 7 (bottom el 122') including runoff	2500 GPM WTP	1406	48	12
Pond 7 Underdrain pumpback(el 110')	Pond 7	19	36	6
New Storage Pond (west) (TBD) below 110'				
New Storage Pond (south) (TBD) below 110'				
2500 GPM WTP (el 170')	APDES Outfall	1406	-170	14
APDES Outfall (el 0')	Hawk Inlet	1406	0	14

Adding green components minus 4 GPM gives Pond 7 input through Year 3
Wet well 15 has 4 GPM included which is already in area runoff total

TBD = To be determined; N/A = Not applicable
Note: GC 920 as-built has elevations ~60 higher than LIDAR survey, Greens Creek elevation at GC bridge is 840' per LIDAR
Flow data from EDE Dec 2013 Stage 3 Phase 1 Water Balance unless stated otherwise.

User Sheet 4 - Water Treatment Summary

Holding Year (Year 0)

Destination	Flow	Head	Pipe Diameter
	GPM	ft	in
Main Sump	25	-350	4
A Pond	30	-52	4
Pond 7	169	-716	8
A Pond	100	20	4
23 Pond	7	96	6
23 Pond PS	129	70	12
23 Pond PS	138	0	8
Pond 7	267	-700	8
Pond 7	0	-752	10
1160 Head Tank	0	296	8
A Pond	0	-38	lined ditch
Various 920	0	-254	10
Hawk Inlet Water Bldg	1	-54	6
Hawk Inlet Various	1	-90	4
Sewage Treatment Plant	1	62	4
DB-04	1	-56	4
DB-04	1	20	2
DB-04	2	15	6
Pond 7 via west ditch	14	160	8
Truckwash	0	110	4
Pond 7 via east ditch	0	-53	12
Pond 7 via west ditch	55	-64	18
Pond 7	28	25	8
Pond 10	15	31	8
Wet well 13	50	-66	
Pond 7	17	8	8
various wet wells	19	various	
various wet wells/ditches	14	various	
various wet wells/ditches	30	various	
Pond 7 via ditches	169	various	
Pond 9	8	16	8
Pond 7 via west ditch	2	10	6
Pond 7 via east ditch	8	30	8
Pond 7 via east ditch	70	30	8
Pond 7 via east ditch	19	27	8
2500 GPM WTP	809	48	12
Pond 7	19	36	6
APDES Outfall	809	-170	14
Hawk Inlet	809	0	14

Remove 45 GPM mine operations water use
Remove 35 GPM wheel wash

User Sheet 4 - Water Treatment Summary

Years 1-3

Destination	Flow	Head	Pipe Diameter
	GPM	ft	in
Main Sump	25	-350	4
Mine flooding	30	variable	matrix
Pond 7	139	-716	8
A Pond	100	20	4
23 Pond	7	96	6
23 Pond PS	129	70	12
23 Pond PS	138	0	8
Pond 7	267	-700	8
Pond 7	0	-752	10
Underground	0	40	8
A Pond	0	-38	lined ditch
Various 920	0	-254	10
Hawk Inlet Water Bldg	5	-54	6
Hawk Inlet Various	5	-90	4
Sewage Treatment Plant	5	62	4
DB-04	1	-56	4
DB-04	1	20	2
DB-04	2	15	6
Pond 7 via west ditch	18	160	8
Truckwash	35	110	4
Pond 7 via east ditch	35	-53	12
Pond 7 via west ditch	55	-64	18
Pond 7	28	25	8
Pond 10	15	31	8
Wet well 13	50	-66	
Pond 7	17	8	8
various wet wells	19	various	
various wet wells/ditches	14	various	
various wet wells/ditches	30	various	
Pond 7 via ditches	169	various	
Pond 9	8	16	8
Pond 7 via west ditch	2	10	6
Pond 7 via east ditch	8	30	8
Pond 7 via east ditch	70	30	8
Pond 7 via east ditch	19	27	8
2500 GPM WTP	818	48	12
Pond 7	19	36	6
APDES Outfall	818	-170	14
Hawk Inlet	818	0	14

Add 35 GPM wheel wash back in
Add 4 GPM camp water back in

User Sheet 4 - Water Treatment Summary

Years 4-10

Destination	Flow	Head	Pipe Diameter
	GPM	ft	in
Mine flooding	25	variable	matrix
Mine flooding	5	variable	matrix
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
Pond 7	120	70	10
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
2500 GPM WTP Batched	13	48	8
Returned to native drainages	N/A	N/A	N/A
Wet well 13	50	-66	
New storage pond (west)	19	-22	8
various wet wells	19	various	
various wet wells/ditches	14	various	
various wet wells/ditches	10	various	
Returned to native drainages	N/A	N/A	N/A
Returned to native drainages	N/A	N/A	N/A
Wet well A	2	-18	drain
New storage pond (south)	8	-5	8
Returned to native drainages	N/A	N/A	N/A
Returned to native drainages	N/A	N/A	N/A
2500 GPM WTP Batched	150	48	12
New storage pond (west)	19	-5	6
2500 GPM WTP Batched	48	70	8
2500 GPM WTP Batched	20	70	8
APDES Outfall Batched	231	-170	14
Hawk Inlet	231	0	14

Added two new ponds for gravity flow
Pond 10 is overflow storage for Pond 7
Removed Pond 10 below liner flow
Wet well 3 gravity drains to Wet well A
Removed Pond 9
Removed wheel wash
Removed Site D runoff

User Sheet 4 - Water Treatment Summary

Year 11-50

Destination	Flow	Head	Pipe Diameter
	GPM	ft	in
Mine flooding	25	variable	matrix
Mine flooding	5	variable	matrix
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
Returned to natural drainage	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
2500 GPM WTP Batched	13	48	8
N/A	N/A	N/A	N/A
Wet well 13	50	-66	
New storage pond (west)	19	-22	8
various wet wells	19	various	
various wet wells/ditches	14	various	
various wet wells/ditches	10	various	
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
Wet well A	2	-18	drain
New storage pond (south)	8	-5	8
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
2500 GPM WTP Batched	30	48	12
New storage pond (west)	19	-5	6
2500 GPM WTP Batched	48	70	8
2500 GPM WTP Batched	20	70	8
APDES Outfall Batched	111	-170	14
Hawk Inlet	111	0	14

Removed 120 GPM of Site D drainage. No Flow from 920.

User Sheet 4 - Water Treatment Summary

Year 50-100

Destination	Flow	Head	Pipe Diameter
	GPM	ft	in
Pond 7 via portal discharge	25	-768	4-10
Pond 7 via portal discharge	5	-768	4-10
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
2500 GPM WTP Batched	13	48	8
N/A	N/A	N/A	N/A
Wet well 13	50	-66	
New storage pond (west)	19	-22	8
various wet wells	19	various	
various wet wells/ditches	14	various	
various wet wells/ditches	10	various	
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
Wet well A	2	-18	drain
New storage pond (south)	8	-5	8
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
2500 GPM WTP Batched	60	48	12
New storage pond (west)	19	-5	6
2500 GPM WTP Batched	48	70	8
2500 GPM WTP Batched	20	70	8
APDES Outfall Batched	141	-170	14
Hawk Inlet	141	0	14

Added portal drainage back in after mine fills in Year 50.

User Sheet 4 - Water Treatment Summary

Gravity flow

Ratio of pipe length to head: 5

			Flow GPM	Length ft	Effective H ft	Pipe Diame in
Active Production - From 1350 Drain (el LIDAR 1300') to Main Sump	Contact Water	Active	25	1750	10	4
Active Production - From Main Sump (el 950'/890'?) to A Pond	Contact Water	Active	75	260	10	4
Active Production - From A Pond (el 900'/838', crest 846) to Pond 7	Contact Water	Active	214	3580	10	8
Active Production - From B Pond Sump (el 890'/826') to A Pond	Contact Water	Active	100	100	20	4
Active Production - From C Pond (el 850'/796') to 23 Pond	Contact Water	Active	7	480	96	6
Active Production - From D Pond (el 810'/752') to 23 Pond PS	Contact Water	Active	129	350	70	12
Active Production - From 23 Pond (el 878'/822') to 23 Pond PS	Contact Water	Active	138	0	0	8
Active Production - From 23 Pond Pump Station (el 878'/822') to Pond 7	Contact Water	Active	267	3500	10	8
Active Production - From 800 and 400 GPM WTPs (el 940'/874+20' head) to Pond 7	Contact Water	Active	500	3760	10	10
Active Production - From Greens Creek Pumps (el 915'/852') to 1160 Head Tank	Contact Water	Active	500	1480	296	8
Active Production - From Sewage Treatment (el 940'/876'+10' head) to A Pond	Contact Water	Active	5	190	10	lined ditch
Active Production - From 1160 Head Tank (1160'/1128'+20' head) to Various 920	Contact Water	Active	variable	1270	10	10
Active Production - From Cannery Creek Potable (el 174') to Hawk Inlet Water Bldg	Contact Water	Active	18	270	10	6
Active Production - From Hawk Inlet Water Bldg (el 120') to Hawk Inlet Various	Contact Water	Active	18	450	10	4
Active Production - From Hawk Inlet Lift Station (el 18') to Sewage Treatment Plant	Contact Water	Active	18	310	62	4
Active Production - From Sewage Treatment Plant (el 80') to DB-04	Contact Water	Active	18	280	10	4
Active Production - From Seeps (4) (el 18') to DB-04	Contact Water	Active	1	100	20	2
Active Production - From Herman's Gulch Sump (el 24') to DB-04	Contact Water	Active	2	75	15	6
Active Production - From DB-04 (el' 24') to Pond 7 via west ditch	Contact Water	Active	31	800	160	8
Active Production - From Cannery Creek Withdrawal (el 174') to Truckwash	Contact Water	Active	35	550	110	4
Active Production - From Truckwash (el 175') to Pond 7 via east ditch	Contact Water	Active	35	265	10	12
Active Production - From Pond 9 (el 186') to Pond 7 via west ditch	Contact Water	Active	55	320	10	18
Active Production - From Pond 10 (bottom el 120') (including runoff) to Pond 7	Contact Water	Active	28	125	25	8
Active Production - From Pond 10 Underdrain Wet well 11 (el 115') to Pond 10	Contact Water	Active	15	155	31	8
Active Production - From E. Upslope Infiltration (var 190') to Wet well 13	Contact Water	Active	50	330	10	0
Active Production - From Wet well A (el 132') to Pond 7	Contact Water	Active	17	40	8	8
Active Production - From Unlined area drains to various wet wells	Contact Water	Active	19	#VALUE!	various	0
Active Production - From Above liner drains to various wet wells/ditches	Contact Water	Active	14	#VALUE!	various	0
Active Production - From Below liner drains (excluding ponds) to various wet wells/ditches	Contact Water	Active	30	#VALUE!	various	0
Active Production - From Area runoff (excluding Pond 7 and Pond 10) to Pond 7 via ditches	Contact Water	Active	169	#VALUE!	various	0

Closure Cost Estimate
User 4

Active Production - From Wet well 5 (170') to Pond 9	Contact Water	Active	8	80	16	8
Active Production - From Wet well 3 (150') to Pond 7 via west ditch	Contact Water	Active	2	50	10	6
Active Production - From Wet well 12 S3P1 above liner (110') to Pond 7 via east ditch	Contact Water	Active	8	150	30	8
Active Production - From Wet well 13 S3P1 below liner (110') to Pond 7 via east ditch	Contact Water	Active	70	150	30	8
Active Production - From Wet well 15 S3P1 toe pumpback (113') to Pond 7 via east ditch	Contact Water	Active	19	135	27	8
Active Production - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP	Contact Water	Active	1406	240	48	12
Active Production - From Pond 7 Underdrain pumpback(el 110') to Pond 7	Contact Water	Active	19	180	36	6
Active Production - From New Storage Pond (west) (TBD) below 110' to	Contact Water	Active	0	0	0	0
Active Production - From New Storage Pond (south) (TBD) below 110' to	Contact Water	Active	0	0	0	0
Active Production - From 2500 GPM WTP (el 170') to APDES Outfall	Contact Water	Active	1406	850	10	14
Active Production - From APDES Outfall (el 0') to Hawk Inlet	Contact Water	Active	1406	0	0	14
Holding Year (Year 0) - From 1350 Drain (el LIDAR 1300') to Main Sump	Contact Water	Active	25	1750	10	4
Holding Year (Year 0) - From Main Sump (el 950'/890'?) to A Pond	Contact Water	Active	30	260	10	4
Holding Year (Year 0) - From A Pond (el 900'/838', crest 846) to Pond 7	Contact Water	Active	169	3580	10	8
Holding Year (Year 0) - From B Pond Sump (el 890'/826') to A Pond	Contact Water	Active	100	100	20	4
Holding Year (Year 0) - From C Pond (el 850'/796') to 23 Pond	Contact Water	Active	7	480	96	6
Holding Year (Year 0) - From D Pond (el 810'/752') to 23 Pond PS	Contact Water	Active	129	350	70	12
Holding Year (Year 0) - From 23 Pond (el 878'/822') to 23 Pond PS	Contact Water	Active	138	0	0	8
Holding Year (Year 0) - From 23 Pond Pump Station (el 878'/822') to Pond 7	Contact Water	Active	267	3500	10	8
Holding Year (Year 0) - From 800 and 400 GPM WTPs (el 940'/874+20' head) to Pond 7	Contact Water	Active	0	3760	10	10
Holding Year (Year 0) - From Greens Creek Pumps (el 915'/852') to 1160 Head Tank	Contact Water	Active	0	1480	296	8
Holding Year (Year 0) - From Sewage Treatment (el 940'/876'+10' head) to A Pond	Contact Water	Active	0	190	10	12
Holding Year (Year 0) - From 1160 Head Tank (1160'/1128'+20' head) to Various 920	Contact Water	Active	0	1270	10	10
Holding Year (Year 0) - From Cannery Creek Potable (el 174') to Hawk Inlet Water Bldg	Contact Water	Active	1	270	10	6
Holding Year (Year 0) - From Hawk Inlet Water Bldg (el 120') to Hawk Inlet Various	Contact Water	Active	1	450	10	4
Holding Year (Year 0) - From Hawk Inlet Lift Station (el 18') to Sewage Treatment Plant	Contact Water	Active	1	310	62	4
Holding Year (Year 0) - From Sewage Treatment Plant (el 80') to DB-04	Contact Water	Active	1	280	10	4
Holding Year (Year 0) - From Seeps (4) (el 18') to DB-04	Contact Water	Active	1	100	20	2
Holding Year (Year 0) - From Herman's Gulch Sump (el 24') to DB-04	Contact Water	Active	2	75	15	6
Holding Year (Year 0) - From DB-04 (el' 24') to Pond 7 via west ditch	Contact Water	Active	14	800	160	8
Holding Year (Year 0) - From Cannery Creek Withdrawal (el 174') to Truckwash	Contact Water	Active	0	550	110	4
Holding Year (Year 0) - From Truckwash (el 175') to Pond 7 via east ditch	Contact Water	Active	0	265	10	12
Holding Year (Year 0) - From Pond 9 (el 186') to Pond 7 via west ditch	Contact Water	Active	55	320	10	18
Holding Year (Year 0) - From Pond 10 (bottom el 120') (including runoff) to Pond 7	Contact Water	Active	28	125	25	8
Holding Year (Year 0) - From Pond 10 Underdrain Wet well 11 (el 115') to Pond 10	Contact Water	Active	15	155	31	8
Holding Year (Year 0) - From E. Upslope Infiltration (var 190') to Wet well 13	Contact Water	Active	50	330	10	0
Holding Year (Year 0) - From Wet well A (el 132') to Pond 7	Contact Water	Active	17	40	8	8
Holding Year (Year 0) - From Unlined area drains to various wet wells	Contact Water	Active	19	#VALUE!	various	0
Holding Year (Year 0) - From Above liner drains to various wet wells/ditches	Contact Water	Active	14	#VALUE!	various	0
Holding Year (Year 0) - From Below liner drains (excluding ponds) to various wet wells/ditches	Contact Water	Active	30	#VALUE!	various	0
Holding Year (Year 0) - From Area runoff (excluding Pond 7 and Pond 10) to Pond 7 via ditches	Contact Water	Active	169	#VALUE!	various	0
Holding Year (Year 0) - From Wet well 5 (170') to Pond 9	Contact Water	Active	8	80	16	8
Holding Year (Year 0) - From Wet well 3 (150') to Pond 7 via west ditch	Contact Water	Active	2	50	10	6
Holding Year (Year 0) - From Wet well 12 S3P1 above liner (110') to Pond 7 via east ditch	Contact Water	Active	8	150	30	8
Holding Year (Year 0) - From Wet well 13 S3P1 below liner (110') to Pond 7 via east ditch	Contact Water	Active	70	150	30	8
Holding Year (Year 0) - From Wet well 15 S3P1 toe pumpback (113') to Pond 7 via east ditch	Contact Water	Active	19	135	27	8
Holding Year (Year 0) - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP	Contact Water	Active	809	240	48	12
Holding Year (Year 0) - From Pond 7 Underdrain pumpback(el 110') to Pond 7	Contact Water	Active	19	180	36	6
Holding Year (Year 0) - From 2500 GPM WTP (el 170') to APDES Outfall	Contact Water	Active	809	850	10	14
Holding Year (Year 0) - From APDES Outfall (el 0') to Hawk Inlet	Contact Water	Active	809	0	0	14
Years 1-3 - From 1350 Drain (el LIDAR 1300') to Main Sump	Contact Water	Active	25	1750	10	4
Years 1-3 - From Main Sump (el 950'/890'?) to Mine flooding	Contact Water	Active	30	#VALUE!	variable	matrix
Years 1-3 - From A Pond (el 900'/838', crest 846) to Pond 7	Contact Water	Active	139	3580	10	8
Years 1-3 - From B Pond Sump (el 890'/826') to A Pond	Contact Water	Active	100	100	20	4
Years 1-3 - From C Pond (el 850'/796') to 23 Pond	Contact Water	Active	7	480	96	6
Years 1-3 - From D Pond (el 810'/752') to 23 Pond PS	Contact Water	Active	129	350	70	12
Years 1-3 - From 23 Pond (el 878'/822') to 23 Pond PS	Contact Water	Active	138	0	0	8
Years 1-3 - From 23 Pond Pump Station (el 878'/822') to Pond 7	Contact Water	Active	267	3500	10	8
Years 1-3 - From Sewage Treatment (el 940'/876'+10' head) to A Pond	Contact Water	Active	0	190	10	lined ditch
Years 1-3 - From 1160 Head Tank (1160'/1128'+20' head) to Various 920	Contact Water	Active	0	1270	10	10
Years 1-3 - From Cannery Creek Potable (el 174') to Hawk Inlet Water Bldg	Contact Water	Active	5	270	10	6
Years 1-3 - From Hawk Inlet Water Bldg (el 120') to Hawk Inlet Various	Contact Water	Active	5	450	10	4
Years 1-3 - From Hawk Inlet Lift Station (el 18') to Sewage Treatment Plant	Contact Water	Active	5	310	62	4
Years 1-3 - From Sewage Treatment Plant (el 80') to DB-04	Contact Water	Active	1	280	10	4
Years 1-3 - From Seeps (4) (el 18') to DB-04	Contact Water	Active	1	100	20	2
Years 1-3 - From Herman's Gulch Sump (el 24') to DB-04	Contact Water	Active	2	75	15	6
Years 1-3 - From DB-04 (el' 24') to Pond 7 via west ditch	Contact Water	Active	18	800	160	8
Years 1-3 - From Cannery Creek Withdrawal (el 174') to Truckwash	Contact Water	Active	35	550	110	4
Years 1-3 - From Truckwash (el 175') to Pond 7 via east ditch	Contact Water	Active	35	265	10	12
Years 1-3 - From Pond 9 (el 186') to Pond 7 via west ditch	Contact Water	Active	55	320	10	18
Years 1-3 - From Pond 10 (bottom el 120') (including runoff) to Pond 7	Contact Water	Active	28	125	25	8
Years 1-3 - From Pond 10 Underdrain Wet well 11 (el 115') to Pond 10	Contact Water	Active	15	155	31	8
Years 1-3 - From E. Upslope Infiltration (var 190') to Wet well 13	Contact Water	Active	50	330	10	0
Years 1-3 - From Wet well A (el 132') to Pond 7	Contact Water	Active	17	40	8	8
Years 1-3 - From Unlined area drains to various wet wells	Contact Water	Active	19	#VALUE!	various	0
Years 1-3 - From Above liner drains to various wet wells/ditches	Contact Water	Active	14	#VALUE!	various	0
Years 1-3 - From Below liner drains (excluding ponds) to various wet wells/ditches	Contact Water	Active	30	#VALUE!	various	0
Years 1-3 - From Area runoff (excluding Pond 7 and Pond 10) to Pond 7 via ditches	Contact Water	Active	169	#VALUE!	various	0
Years 1-3 - From Wet well 5 (170') to Pond 9	Contact Water	Active	8	80	16	8
Years 1-3 - From Wet well 3 (150') to Pond 7 via west ditch	Contact Water	Active	2	50	10	6
Years 1-3 - From Wet well 12 S3P1 above liner (110') to Pond 7 via east ditch	Contact Water	Active	8	150	30	8
Years 1-3 - From Wet well 13 S3P1 below liner (110') to Pond 7 via east ditch	Contact Water	Active	70	150	30	8
Years 1-3 - From Wet well 15 S3P1 toe pumpback (113') to Pond 7 via east ditch	Contact Water	Active	19	135	27	8
Years 1-3 - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP	Contact Water	Active	818	240	48	12
Years 1-3 - From Pond 7 Underdrain pumpback(el 110') to Pond 7	Contact Water	Active	19	180	36	6
Years 1-3 - From New Storage Pond (west) (TBD) below 110' to	Contact Water	Active	0	0	0	0
Years 1-3 - From New Storage Pond (south) (TBD) below 110' to	Contact Water	Active	0	0	0	0
Years 1-3 - From 2500 GPM WTP (el 170') to APDES Outfall	Contact Water	Active	818	850	10	14
Years 1-3 - From APDES Outfall (el 0') to Hawk Inlet	Contact Water	Active	818	0	0	14
Years 4-10 - From 1350 Drain (el LIDAR 1300') to Mine flooding	Contact Water	Active	25	#VALUE!	variable	matrix
Years 4-10 - From Main Sump (el 950'/890'?) to Mine flooding	Contact Water	Active	5	#VALUE!	variable	matrix

Years 4-10 - From D Pond (el 810'/752') to Pond 7	Contact Water	Active	120	350	70	10
Years 4-10 - From Pond 10 (bottom el 120') (including runoff) to 2500 GPM WTP Batched	Contact Water	Active	13	240	48	8
Years 4-10 - From E. Upslope Infiltration (var 190') to Wet well 13	Contact Water	Active	50	330	10	0
Years 4-10 - From Wet well A (el 132') to New storage pond (west)	Contact Water	Active	19	110	10	8
Years 4-10 - From Unlined area drains to various wet wells	Contact Water	Active	19	#VALUE!	various	0
Years 4-10 - From Above liner drains to various wet wells/ditches	Contact Water	Active	14	#VALUE!	various	0
Years 4-10 - From Below liner drains (excluding ponds) to various wet wells/ditches	Contact Water	Active	10	#VALUE!	various	0
Years 4-10 - From Wet well 3 (150') to Wet well A	Contact Water	Active	2	90	10	drain
Years 4-10 - From Wet well 12 S3P1 above liner (110') to New storage pond (south)	Contact Water	Active	8	25	10	8
Years 4-10 - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP Batched	Contact Water	Active	150	240	48	12
Years 4-10 - From Pond 7 Underdrain pumpback(el 110') to New storage pond (west)	Contact Water	Active	19	25	10	6
Years 4-10 - From New Storage Pond (west) (TBD) below 110' to 2500 GPM WTP Batched	Contact Water	Active	48	350	70	8
Years 4-10 - From New Storage Pond (south) (TBD) below 110' to 2500 GPM WTP Batched	Contact Water	Active	20	350	70	8
Years 4-10 - From 2500 GPM WTP (el 170') to APDES Outfall Batched	Contact Water	Active	231	850	10	14
Years 4-10 - From APDES Outfall (el 0') to Hawk Inlet	Contact Water	Active	231	0	0	14
Year 11-50 - From 1350 Drain (el LIDAR 1300') to Mine flooding	Contact Water	Active	25	125	25	matrix
Year 11-50 - From Main Sump (el 950'/890'?) to Mine flooding	Contact Water	Active	5	25	5	matrix
Year 11-50 - From Pond 10 (bottom el 120') (including runoff) to 2500 GPM WTP Batched	Contact Water	Active	13	65	13	8
Year 11-50 - From E. Upslope Infiltration (var 190') to Wet well 13	Contact Water	Active	50	330	10	0
Year 11-50 - From Wet well A (el 132') to New storage pond (west)	Contact Water	Active	19	110	10	8
Year 11-50 - From Unlined area drains to various wet wells	Contact Water	Active	19	#VALUE!	various	0
Year 11-50 - From Above liner drains to various wet wells/ditches	Contact Water	Active	14	#VALUE!	various	0
Year 11-50 - From Below liner drains (excluding ponds) to various wet wells/ditches	Contact Water	Active	10	#VALUE!	various	0
Year 11-50 - From Wet well 3 (150') to Wet well A	Contact Water	Active	2	90	10	drain
Year 11-50 - From Wet well 12 S3P1 above liner (110') to New storage pond (south)	Contact Water	Active	8	25	10	8
Year 11-50 - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP Batched	Contact Water	Active	30	240	48	12
Year 11-50 - From Pond 7 Underdrain pumpback(el 110') to New storage pond (west)	Contact Water	Active	19	25	10	6
Year 11-50 - From New Storage Pond (west) (TBD) below 110' to 2500 GPM WTP Batched	Contact Water	Active	48	350	70	8
Year 11-50 - From New Storage Pond (south) (TBD) below 110' to 2500 GPM WTP Batched	Contact Water	Active	20	350	70	8
Year 11-50 - From 2500 GPM WTP (el 170') to APDES Outfall Batched	Contact Water	Active	111	850	10	14
Year 11-50 - From APDES Outfall (el 0') to Hawk Inlet	Contact Water	Active	111	0	0	14
Year 50-100 - From 1350 Drain (el LIDAR 1300') to Pond 7 via portal discharge	Contact Water	Active	25	3840	10	4
Year 50-100 - From Main Sump (el 950'/890'?) to Pond 7 via portal discharge	Contact Water	Active	5	3840	10	4

Year 50-100 - From Pond 10 (bottom el 120') (including runoff) to 2500 GPM WTP Batched	Contact Water	Active	13	240	48	8
Year 50-100 - From E. Upslope Infiltration (var 190') to Wet well 13	Contact Water	Active	50	330	10	0
Year 50-100 - From Wet well A (el 132') to New storage pond (west)	Contact Water	Active	19	110	10	8
Year 50-100 - From Unlined area drains to various wet wells	Contact Water	Active	19	#VALUE!	various	0
Year 50-100 - From Above liner drains to various wet wells/ditches	Contact Water	Active	14	#VALUE!	various	0
Year 50-100 - From Below liner drains (excluding ponds) to various wet wells/ditches	Contact Water	Active	10	#VALUE!	various	0
Year 50-100 - From Wet well 3 (150') to Wet well A	Contact Water	Active	2	90	10	12
Year 50-100 - From Wet well 12 S3P1 above liner (110') to New storage pond (south)	Contact Water	Active	8	25	10	8
Year 50-100 - From Pond 7 (bottom el 122') including runoff to 2500 GPM WTP Batched	Contact Water	Active	60	240	48	12
Year 50-100 - From Pond 7 Underdrain pumpback(el 110') to New storage pond (west)	Contact Water	Active	19	25	10	6
Year 50-100 - From New Storage Pond (west) (TBD) below 110' to 2500 GPM WTP Batched	Contact Water	Active	48	350	70	8
Year 50-100 - From New Storage Pond (south) (TBD) below 110' to 2500 GPM WTP Batched	Contact Water	Active	20	350	70	8
Year 50-100 - From 2500 GPM WTP (el 170') to APDES Outfall Batched	Contact Water	Active	141	850	10	14
Year 50-100 - From APDES Outfall (el 0') to Hawk Inlet	Contact Water	Active	141	0	0	14

Effective heads take into account the initial positive head, assumed as 10 ft on average.

Closure Cost Estimate
User 4

NA

Head ft	Remarks
-350	
-52	
-716	
20	
96	
70	
0	
-700	
-752	
296	
-38	
-254	
-54	
-90	
62	
-56	
20	
15	
160	
110	
-53	
-64	
25	
31	
-66	
8	
various	
various	
various	
various	

Closure Cost Estimate
User 4

16	
10	
30	
30	
27	
48	
36	
0	
0	
-170	
0	
-350	
-52	
-716	
20	
96	
70	
0	
-700	
-752	
296	
-38	0
-254	
-54	
-90	
62	
-56	
20	
15	
160	
110	
-53	
-64	
25	
31	
-66	
8	
various	
various	
various	
various	
16	
10	
30	
30	
27	
48	
36	
-170	
0	
-350	
variable	
-716	
20	
96	
70	
0	
-700	
-38	
-254	
-54	
-90	
62	
-56	
20	
15	
160	
110	
-53	
-64	
25	
31	
-66	
8	
various	
various	
various	
various	
16	
10	
30	
30	
27	
48	
36	
0	
0	
-170	
0	
variable	
variable	

Closure Cost Estimate
User 4

70	
48	
-66	
-22	
various	
various	
various	
-18	
-5	
48	
-5	
70	
70	
-170	
0	
25	
5	
13	
-66	
-22	
various	
various	
various	
-18	
-5	
48	
-5	
70	
70	
-170	
0	
-768	0
-768	0

Closure Cost Estimate
User 4

48	
-66	
-22	
various	
various	
various	
-18	drain
-5	
48	
-5	
70	
70	
-170	
0	

Closure Cost Estimate
User 5

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 5 - Administration

Administrative Staff

Source: Administration Summary 2008 FINAL.xls

Years	# years	Staff days
Holding year	1	168
Year 1	1	168
Year 2	1	168
Year 3	1	168
Year 4-5	2	168
Year 6-14	9	
Year 15-32	18	
Year 33-50	18	
Year 51-100	50	

Air Transport Cost

Cost of helicopter	Cost	Unit
Temsco Bell 500	935	$/hr
Temsco A Star b2	1836	$/hr
Ward Air Beaver	370	round trip

February 03, 2014, Brian Erickson e-mail

Monthly Staff Transport for IWMP and APDES Monitoring

Months	Staff transport	IWMP frequency	APDES frequency (see User 8)	
1	11	1	4	13
2	11	1	4	13
3	11	1	5	14
4	11	1	4	13
5	11	1	4	13
6		1	5	5
7		1	4	4
8		1	4	4
9		1	5	5
10		1	4	4
11		1	4	4
12		1	5	5
Note:		Total		97

Staff transport is twice a month

Annual Staff Transport for IWMP and APDES Monitoring

Years	# years	Staff transport	IWMP frequency (see User 8)	APDES frequency (see User 8)	Batching Ponds (See User 4)	Annual trips
Active period	1					
Holding Year	1	12	12	52	15.00	52
Y1	1	55	12	52	16.00	97
Y2	1	55	12	52	16.00	97
Y3	1	55	12	52	16.00	97
Y4	1	0	12	52	5.00	52
Y5	1	0	12	52	5.00	52
Y6-Y10	5	0	4	4	5.00	5
Y11-Y15	5	0	2	4	3.00	4
Y16-Y50	35	0	2	4	3.00	4
Y51-Y100	50	0	1	4	3.00	4

Note:
Where there is no staff transport, the greatest of the frequencies of the other columns is assumed.

		Total # trips:			832
		Total # batch trips:			368
Landing craft for	$/batch	6000	$6000 per campaign per SNH 5/13/13	$ 2,208,000	**<--G&A - Administration item #5**
Meals for WTP c	$/batch	3000	$3000 per campaign per SNH 5/13/13	$ 1,104,000	**<--G&A - Administration item #6**

Overall Transporation	# trips/year	Cost/trip	Cost per year	Total cost	Comments
Holding Year	52	370	19,240	19,240	Beaver
Y1	97	370	35,890	35,890	Beaver
Y2	97	370	35,890	35,890	Beaver
Y3	97	1386	134,442	134,442	Ave. of passenger/passenger+equipment
Y4	52	1386	72,072	72,072	Ave. of passenger/passenger+equipment
Y5	52	1386	72,072	72,072.00	Ave. of passenger/passenger+equipment
Y6-Y10	5	1386	6,930	34,650	Ave. of passenger/passenger+equipment
Y11-Y15	4	1386	5,544	27,720	Ave. of passenger/passenger+equipment
Y16-Y50	4	1386	5,544	194,040	Ave. of passenger/passenger+equipment
Y51-Y100	4	1386	5,544	277,200.00	Ave. of passenger/passenger+equipment
			TOTAL	903,216	**<--G&A - Administration item #4**

Closure Cost Estimate
User 5

Staff Transport	# trips/year	Comments
Holding Year	12	
Y1	55	Beaver; 5 months, twice a month, 25 persons divided by 5 person plane capacity
Y2	55	Beaver; 5 months, twice a month, 25 persons divided by 5 person plane capacity
Y3	55	Beaver; 5 months, twice a month, 25 persons divided by 5 person plane capacity
Y4	0	
Y5	0	
Y11-Y15	0	
Y16-Y50	0	
Y51-Y100	0	

Outfall pipeline and facilities mai 538000 $15,000 adjusted for inflation and assumed to be repeated every three years over the course of the period

NOTES
1) Management support will be reduced after Year 3 (one year after cover installations)
Additional costs in subsequent years are for the continued use of the APDES 002 outfall line post closure (in perpetuity or as necessary).
The costs represent all aspects of maintaining the outfall pipeline and facilities and provide ample dollars for continued APDES
sampling and marine sampling as necessary in conjunction with the line inspection/repair/cleaning on a 3 year schedule.

	Ventilation					General					Yr-by-Yr
Power:	kW	hrs/day	days/year	kWh	Cost	kW*	hrs/day	days/year	kWh	Cost	$
Holding	290	8	165	382,800	38280	85	8	165	112200	11220	49500
Year 1	290	12	165	574,200	57420	85	12	165	168300	16830	74250
Year 2						85	12	165	168300	16830	16830
Year 3						85	12	165	168300	16830	16830
					95700					61710	

*e-mail 01/04/2013 <--G&A - Administration item #3 <--G&A - Administration item #2

Camp Support Costs

Pricing Bands		
MIN	MAX	
5	5	$475.90
6	10	$398.40
11	15	$251.74
16	20	$186.55
21	25	$149.71

Source: e-mail February 21, 2014

Item	# of Personnel p	Cost/(person×da	Cost per year	Cost
Camp support - Holding year	2	$475.90	159,902	159902.4
Camp support - Year 1	25	$149.71	628,782	628782
Camp support - Year 2	25	$149.71	628,782	628782
Camp support - Year 3	25	$149.71	628,782	628782
				2046248.4

<--G&A - Administration item #1

*

Closure Cost Estimate
User 5

User Sheet 5 - Administration - Schedule

		Δ	HY	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23
Transportation																										
Staff, monitoring, WTP batch combined	903216	0	19240	35890	35890	134442	72072	72072	6930	6930	6930	6930	6930	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544
Transportation total	903216	0	19240	35890	35890	134442	72072	72072	6930	6930	6930	6930	6930	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544
Camp	2046248.4	0	159902.4	628782	628782	628782																				
Landing craft for materials/equip trips			15	16	16	16	5	5	5	5	5	5	5	3	3	3	3	3	3	3	3	3	3	3	3	3
Landing craft for materials/equip costs	2208000	0	90000	96000	96000	96000	30000	30000	30000	30000	30000	30000	30000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
Meals for WTP crew per SNH 5/13/13	1104000	0	45000	48000	48000	48000	15000	15000	15000	15000	15000	15000	15000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
Soltn Mgmt																										
Pumping	#REF!	#REF!	#REF!	3324	10980	37044	725.1429	725.1429	725.1429	725.1429	725.1429	725.1429	725.1429	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333
Landing craft for materials/equip	$ 2,208,000	0	90000	96000	96000	96000	30000	30000	30000	30000	30000	30000	30000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
Meals for WTP crew per SNH 5/13/13	$ 1,104,000	0	45000	48000	48000	48000	15000	15000	15000	15000	15000	15000	15000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
Subtotal landing aircraft and meals for WTP	$ 3,312,000	0	135000	144000	144000	144000	45000	45000	45000	45000	45000	45000	45000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000
Monitoring labor																										
Crew for monit sched A	235292		1	1	1	1	1	1																		
Crew for monit sched B	18099								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Camp+transportation (for schedule)	2949464.4	-305	179142.4	664672	664672	763224	72077	72077	6935	6935	6935	6935	6935	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547
Power (for schedule)			49500	74250	16830	16830																				
Landing craft for materials/equip costs (for schedule)			90000	96000	96000	96000	30000	30000	30000	30000	30000	30000	30000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
Meals for WTP crew per SNH 5/13/13			45000	48000	48000	48000	15000	15000	15000	15000	15000	15000	15000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
Total (for schedule)			363642.4	882922	825502	924054	117077	117077	51935	51935	51935	51935	51935	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547

		Rate	Hrs/Day
Assume field tech	1	75	12
Assume laborer	1	50.69	12
Assume # days for sampling, travel, reporting	3		
Total per monit. Campaign	4524.84		

Interval	Campaign/year	$/year	Schedule
holding year	52	235292	A
years 1 -5	52	235292	A
years 6 - 10	4	18099	B
years 11-15	4	18099	B
years 16 - 100	4	18099	B

Closure Cost Estimate
User 5

Y24	Y25	Y26	Y27	Y28	Y29	Y30	Y31	Y32	Y33	Y34	Y35	Y36	Y37	Y38	Y39	Y40	Y41	Y42	Y43	Y44	Y45	Y46	Y47	Y48	Y49	Y50	Y51	Y52	Y53	Y54	Y55	Y56
5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544
5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333
18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547
18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547

Closure Cost Estimate
User 5

Y57	Y58	Y59	Y60	Y61	Y62	Y63	Y64	Y65	Y66	Y67	Y68	Y69	Y70	Y71	Y72	Y73	Y74	Y75	Y76	Y77	Y78	Y79	Y80	Y81	Y82	Y83	Y84	Y85	Y86	Y87	Y88	Y89
5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544
5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333
18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547
18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547

Closure Cost Estimate
User 5

Y90	Y91	Y92	Y93	Y94	Y95	Y96	Y97	Y98	Y99	Y100
5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544
5544	5544	5544	5544	5544	5544	5544	5544	5544	5544	5544
3	3	3	3	3	3	3	3	3	3	3
18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333	129.7333
18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
27000	27000	27000	27000	27000	27000	27000	27000	27000	27000	27000
1	1	1	1	1	1	1	1	1	1	1
5547	5547	5547	5547	5547	5547	5547	5547	5547	5547	5547
18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9000	9000	9000	9000	9000	9000	9000	9000	9000	9000	9000
32547	32547	32547	32547	32547	32547	32547	32547	32547	32547	32547

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 6 - Mill Demolition Summary

#	Building Demolition and Transportation Task	Crew	Hours	Labor Cost ($/h	Equipment Cost	Labor Cost ($)	Equipment Cost	Material Cost ($	Total Cost ($)
1	Decontamination (User 14)					$ 307,807.91	$ 35,159.49	$ -	$ 342,967.40
2*	Remove all internal mill parts, cut into pieces for transport underground.	B-8	2,916	$ 404.20	$ 172.45	$ 1,178,647.20	$ 502,864.20		$ 1,681,511.40
3	Building Demolition (from "Foundations & Buildings" sheet)					$ 265,743.00	$ 59,053.00	N/A	$ 324,796.00
4	Wall Demolition (from "Foundations & Buildings" sheet)					$ 20,660.00	$ -	N/A	$ 20,660.00
5	Slab Demolition (from "Foundations & Buildings" sheet)					$ 4,180.00	$ 11,141.00	N/A	$ 15,321.00
	Totals					$ 1,777,038.11	$ 608,217.69	$ -	$ 2,385,255.80

*** Other User item #2 - Internal mill infrastructure demolition**

NOTES:
Item 1: Decontamination in User Sheet 14.
Item 2: Two crews (B-8) for 3 months.
Item 3-5: Demolition costs are calculated in the Foundations and Buildings worksheet.

Task Cost Estimate		Element:	Site General		
		Area:	Tailings Impoundment		
		Task:	Tailings Water Treatment Plant		
		Subtask:			
Description:					
Category	Unit Price	Number Required	Unit	Estimated Cost	
Labor					
Steel Worker	58	221	hr	12,758	
Concrete Demo Crew	336	16	hr	5,374	
Labor Subtotal				18,133	**<--Other User item #15**
Equipment					
120 ton crane	112	10	hr	1,123	
Track Hoe	180	13	hr	2,340	
Track Hoe W/ Hammer	360	13	hr	4,680	
Excavator	144	33	hr	4,762	
8,000 lbs gradall	65	26	hr	1,690	
Lowboy Trailer	19	5	hr	93	
Equipment Subtotal				14,688	**<--Other User item #15**

Foundations and Buildings Mill Items

		building demo			wall demo			slab demo		
		L	E	T	L	E	T	L	E	T
62	Power plant	5,426	1,206	6,632	1,539	-	1,539	189	503	692
24	Cons load out area	6,908	1,535	8,443	1,728	-	1,728	236	629	865
21	Concentrator	126,718	28,160	154,878	3,143	-	3,143	732	1,951	2,683
81	Shop	2,067	459	2,526	983	-	983	118	315	433
82	Shop	722	160	882	680	-	680	118	315	433
45	Flotation	14,774	3,283	18,057	1,879	-	1,879	248	661	909
93	Tailings bins	1,837	408	2,245	1,102	-	1,102	118	315	433
32	covered tailings loading area	5,341	1,187	6,528	1,706	-	1,706	177	472	649
56	hopper	657	146	803	583	-	583	118	315	433
57	hopper	661	147	808	572	-	572	118	315	433
12	batch plant	933	207	1,140	756	-	756	118	315	433
106	water treatment building	905	201	1,106	632	-	632	118	315	433
107	water treatment building	770	171	941	578	-	578	118	315	433
137	concentrator storage building	98,024	21,783	119,807	4,779	-	4,779	1,654	4,405	6,059
	SUM	265,743	59,053	324,796	20,660	-	20,660	4,180	11,141	15,321

Closure Cost Estimate
User 7

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 7 - Summary of Available Cover Materials

Cover Materials	Inches	Remarks	Haul Distance	
Growth Media Layer	40	Sourced from onsite stockpiles and deficit from new quarry.	5000	Quarry assumed 25,000 feet down A road
Upper capillary break	10	Gravel	12700	
Compacted Till	6	From site D and E	31100	
Tailings placed and compacted	18	Compacted, sourced from tailings	500	average of distance from tails to Site E and Site D.
Lower capillary break	10	Screened waste rock from Site 23	500	

Material	**Location**	**Volume soil (cy)**
Till	0.9 A Road	4,458
Till	1.2 B Road	60
Peat/Organics	2.8 B Road	664
Till	3.2 B Road	5,300
Till	4.6 B Road	7,640
Mill Site	4.9 B Road	22,000
Till	5.9 B Road	1,165
Till	6.2 B Road	14,402
Till/Organics	6.3 B Road	672
Till/Organics	6.4 B Road	720
Till	7.3 B Road	3,810
Till	7.4 B Road	1,746
Till	7.5 B Road	647
Till	7.6 B Road	4,056
Till	Pit 405	10,895
Till	Pit 174	10,375
Till	Pit 6	18,418
Till/Organics	Site 23	8,000
Till	Tailings Pond 7	40,000
Till/Organics	Pit 7	107,000
	Total	262,028

Source: 2011 HGCMC reclamation materials_revised SEPT 2011.xls

Used in estimating material deficit based on required amount and the available quantity herein. See Other User item #21

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 8 - Monitoring

Underground Care and Maintenance	64,000
Suite Q	743
QA/QC	972
Stormwater - sites	150
APDES - discharge	187
marine sampling/maintenance	2,500
HI sed.organism contractor and lab	33,000
Site-wide vegetation	481
Shipping	80

SAMPLE SUITE	Site Number:	SAMPLES NUMBER OF YEARS IWMP sampling:	Total Samples	Cost / Sample	Cost	Subtotal	-	1	2	3	4	5
Suite Q	48	Greens Creek Upper	187	743	138,851		12	12	12	12	12	12
Suite Q	6	Greens Creek Middle	117	743	86,875		12	12	12	12	12	12
Suite Q	54	Greens Creek Lower 1	117	743	86,875		12	12	12	12	12	12
Suite Q	62	Greens Creek Lower 2	187	743	138,851		12	12	12	12	12	12
Suite Q	61	Greens Creek Flood Plain	117	743	86,875		12	12	12	12	12	12
Suite Q	49	Bruin Creek Lower	35	743	25,988		4	4	4	4	4	4
Suite Q	46	Bruin Creek Upper	35	743	25,988		4	4	4	4	4	4
Suite Q	56	Site 23 Downgradient*	14	743	10,395		4	2	2	2	2	2
Suite Q	57	Site 23 Upgradient*	14	743	10,395		4	2	2	2	2	2
Suite Q	13	1350 East	14	743	10,395		4	2	2	2	2	2
Suite Q	9	Tributary Creek Lower	119	743	88,360		4	4	4	4	4	4
Suite Q	27	Tailings Downgradient South Shallow	119	743	88,360		4	4	4	4	4	4
Suite Q	29	Talings Downgradient West Shallow	119	743	88,360		4	4	4	4	4	4
Suite Q	32	Tailings Downgradient West Shallow 2	119	743	88,360		4	4	4	4	4	4
Suite Q	609	Further Creek Lower	119	743	88,360		4	4	4	4	4	4
Suite Q	60	Tailings Stormwater Pond Downgradient 1	119	743	88,360		4	4	4	4	4	4
Suite Q	711	Greens Creek Above Site E	23	743	17,078		2	2	2	2	2	2
Suite Q	712	Greens Creek Below Site E	23	743	17,078		2	2	2	2	2	2
Suite Q		Tailings Stormwater Pond Downgradient 2										
Suite Q		Mine Drainage	187	743	138,851		12	12	12	12	12	12
Suite Q		Tailings Drainage	187	743	138,851		12	12	12	12	12	12
Suite Q		Site 23 Drainage	94	743	69,797		12	12	12	12	12	12
Suite Q		QA/QC					40	40	40	40	40	40
		QA/QC SUBTOTAL	485	972	471,528							
* Average of quarterly sampling in first three years through the five-year period. Site 23 will have been removed by end of Year 3.						2,004,834						
		APDES permit related sampling:										
APDES - discharge		002 outfall discharge	692	187	129,380		52	52	52	52	52	52
stormwater sites		stormwater sites (10 sites)	120	150	17,949		20	20	20	20	20	20
marine sampling		marine sampling (3 sites)	387	2,500	967,500		12	12	12	12	12	12
HI sed.organism contractor and lab		HI sed.and organism	22	33,000	726,000		2	2	2	2	2	2
						1,840,829						
shipping		(max. of all frequencies)					52	52	52	52	52	52
		yearly cost	692	80	55,449							
		total cost				55,449						
		other:										
		site-wide vegetation	12	481	5,769		2	1	1	1	1	1
						5,769						
		maintenance and professional services:										
		Ug care and maintenance	1	64,000	64,000		1					
		marine maintenance	185	2,500	462,500							
						526,500						
							323,654	254,718	254,718	254,718	254,718	254,718
		Post-closure cover maintenance - Tailings									107,215	107,215
		Outfall pipeline and facilities maintenance										16,813
		Dam Maintenance and Inspection										3,435
		Annually					323,654	254,718	254,718	254,718	361,933	382,180

MONITORING G $ 4,433,381

Closure Cost Estimate
User 8

Check: 0

Dam Maintenance and Inspection	
Inspection/hr	125
Hrs inspection and reporting	20
Cost inspection and reporting	2500
Helicopter	935
Total per inspection	3435
# inspections:	20
Total:	68700

144	1	1	0
138	1	5	1
42	1	5	6
24	1	3	11
20	1	2	14
13	1	2	16
17	1	1	18
13	1	4	19
15	1	1	33
10	1	67	34

6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
4	4	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	4	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
4	4	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	4	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
1	1	1	1	1	1	1	1					1					1										1					
1	1	1	1	1	1	1	1					1					1										1					
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1					1					1										1					
1	1	1	1	1	1	1	1					1					1										1					
4	4	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	4	4	4	4	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	4	4	4	4													1										1					
10	10	10	10	10	5	5	5	5	5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
6	6	6	6	6	6	6	6	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1	1	1	1	1	1	1	1	1	1																							
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
1	1	1	1	1																												
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92,957	92,957	92,957	92,957	92,957	76,750	76,750	76,750	73,780	73,780	25,166	25,166	28,136	25,166	25,166	25,166	25,166	28,878	25,166	25,166	25,166	25,166	25,166	25,166	25,166	22,938	22,938	26,651	22,938	22,938	22,938	22,938	22,938
107,215	107,215	107,215																														
		16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813
				3,435					3,435					3,435					3,435					3,435					3,435			
200,172	200,172	216,985	92,957	96,392	93,563	76,750	76,750	90,592	77,215	25,166	41,978	28,136	25,166	45,413	25,166	25,166	45,691	25,166	28,601	41,978	25,166	25,166	41,978	28,601	22,938	39,751	26,651	22,938	43,186	22,938	22,938	39,751

39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
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1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938
		16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813
	3,435					3,435					3,435					3,435					3,435					3,435					3,435	
22,938	26,373	39,751	22,938	22,938	39,751	26,373	22,938	39,751	22,938	22,938	43,186	22,938	22,938	39,751	22,938	26,373	39,751	22,938	22,938	39,751	26,373	22,938	39,751	22,938	22,938	43,186	22,938	22,938	39,751	22,938	26,373	39,751

72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938	22,938
		16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813			16,813		
			3,435					3,435					3,435					3,435					3,435					3,435
22,938	22,938	39,751	26,373	22,938	39,751	22,938	22,938	43,186	22,938	22,938	39,751	22,938	26,373	39,751	22,938	22,938	39,751	26,373	22,938	39,751	22,938	22,938	43,186	22,938	22,938	39,751	22,938	26,373

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 10 - Summary of RS Means Cost Calculations

Summary of RS Means Costs

RS Means Cost	Crew	Daily Output	Labor-Hours/Un	Unit	Material	Labor	Equipment
31 32 19.16 1550	2 clab	2,500	0.01	S.Y.	1.13	0.61	-
02 41 16.33 0100	B-21C	250	0.22	S.F.	-	63.88	11.03
02 41 13.90 0700	B-9	126	0.32	S.F.	-	106.48	2.29
02 41 13.33 0800	B-80A	100	0.24	S.F.	-	50.45	2.58
02 41 13.33 0900	B-21A	5	8.00	S.F.	-	2,346.64	394.08
32 34 20.10 1700	C-12	153	0.31	S.F.	66.50	113.59	15.47

					Labor	Equipment
2 clab	laborers	2	50.69	101.38		
			subtotal	101.38	101.38	
B-21C	foreman	1	75.00	75.00		
	laborers	3	50.69	152.07		
	crane operator	1	58.13	58.13		
	crane 12 ton	1	49.26	49.26		
			subtotal	334.46	285.20	49.26
B-9				343.12	335.89	7.23
B-80A				220.95	210.20	10.75
B-21A	foreman	1	75.00	75.00		
	laborer	1	50.69	50.69		
	plumber	1	58.82	58.82		
	plumber appren	1	50.69	50.69		
	crane operator	1	58.13	58.13		
	12 ton crane	1	49.26	49.26		
			subtotal	342.59	293.33	49.26
E-2	foreman	1	75.00	75.00		
	steel worker	4	57.73	230.92		
	crane operator	1	60.01	60.01		
	oiler	1	50.69	50.69		
	90 ton crane	1	112.33	112.33		
			subtotal	528.95	416.62	112.33
C-12	carpenter forem	1	76.47	76.47		
	carpenters	3	58.82	176.46		
	laborer	1	50.69	50.69		
	crane operator	1	58.13	58.13		
	12 ton crane	1	49.26	49.26		
					361.75	49.26

Assume	90 ton crane	to be	120 ton crane
	crane 12 ton	to be	20 ton crane

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 11 - Bridge Demolition
Bridge Demolition
For decontamination, see User Sheet 14

Item	Labor	Equipment	Total hourly
Steel Worker	53.77	-	54
120 Ton Crane	60.01	112.33	172
Track Hoe with Shear	58.13	204.86	263
Lowboy Trailer	58.13	18.59	77
8,000lbs gradall	60.01	25.64	86
345B Excavator	58.13	100.97	159
740 Articulating Truck	59.05	119.17	178

Summary	Labour	Equipment	Materials*	Subtotal
Zinc Creek Bridge - 3.0 Mile	40,854	30,782		71,636
Falls Creek Bridge - 3.4 Mile	12,909	9,763		22,672
Killer Creek Bridge- 7.4 Mile	18,930	12,004		30,933
Greens Creek Bridge	27,948	20,346		48,294
TOTAL	100,641	72,895		173,536

* included in User Sheet 14
Linked to Other User item #6
Sources: Bridges 2008.xls

		Zinc Creek Bridge - 3.0 Mile		Falls Creek Bridge - 3.4 Mile		Killer Creek Bridge- 7.4 Mile		Greens Creek Bridge	
Category	Unit Price	hours Required	Estimated Cost	hours Required	Estimated Cost	hours Required	Estimated Cost	hours Required	Estimated Cost
Labor									
Steel Worker	53.77	450	24,197	150	8,066	240	12,905	320	17,206
120 Ton Crane operator	60.01	90	5,401	25	1,500	35	2,100	60	3,601
Track Hoe with Shear operator	58.13	80	4,650	30	1,744	35	2,035	50	2,907
Lowboy Trailer operator	58.13	40	2,325	10	581	15	872	25	1,453
8,000lbs gradall operator	60.01	50	3,001	15	900	15	900	25	1,500
345B Excavator operator	58.13	20	1,163	0	-	0	-	20	1,163
740 Articulating Truck operator	59.05	2	118	2	118	2	118	2	118
Labor Subtotal			40,854		12,909		18,930		27,948
Equipment									
120 Ton Crane	112.33	90	10,110	25	2,808	35	3,932	60	6,740
Track Hoe with Shear	204.862908	80	16,389	30	6,146	35	7,170	50	10,243
Lowboy Trailer	18.59053498	40	744	10	186	15	279	25	465
8,000lbs gradall	25.6399177	50	1,282	15	385	15	385	25	641
345B Excavator	100.97	20	2,019		-		-	20	2,019
740 Articulating Truck	119.17	2	238	2	238	2	238	2	238
Equipment Subtotal			30,782		9,763		12,004		20,346

Closure Cost Estimate
User 12

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 12 - Surface Disturbance Summary

Surface disturbance areas	acres
920 mill and portal area	24
Waste rock site 23	22
Waste rock site D	8
Waste rock site 1350 and portal area	5
1350 road	4
1160 tank	1
960 waste rock area	1
Waste rock site C and 860 area	4
Waste rock site E	10
Tailings disposal facility	86
Hawk inlet and marine load out area	14
Young Bay Dock facility	1
Access A Road	27
Access B Road	75
Powerline right of way	35
Topsoil stockpiles and borrow sites	27
TOTAL	344

Source: HGCMC_Draft_ Rec_Plan _311400 00_20140318_bj.doc
Linked to Yards.

Closure Cost Estimate
User 14

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 14 - Waste Disposal and Decontamination

Labor total	Equipment	Materials	Total	
307,807.91	35,159.49		342,967.40	**<--Other User item #9**

Source: Miscellaneous 2008.xls

Task		
Industrial Waste Disposal		112,896.00
Waste Material Disposal		13,608.00
Scrap Shipping and Specialty Equipment for cleanup		792,423.04
Radiation source disposal		8,064.00
	SUM:	926,991.04

	2008 costs	Adjusted/updated	
Industrial Waste Disposal	5600	6,272.00	Rabanco containers
Waste Material Disposal	675	756.00	Adjusted for inflation
Shipping Scrap/Salvage Equip	75000	84,000.00	Adjusted for inflation
Mobilization/Demobe	2500	2,800.00	Adjusted for inflation
Vacuum truck/steam cleaner	6500	23,000.00	Quote February 04, 2014
Pickup transportation	1000	1,120.00	Adjusted for inflation
Extra shipping containers/flats	644	721.28	Adjusted for inflation
Radioactive waste disposal	450	504.00	Adjusted for inflation

Costs for Materials, Equipment	2008 costs	Adjusted/updated	
Prep of Demo Scrap	17.00	19.04	Adjusted for inflation
Prep of Re-Bar Scrap	17.00	19.04	Adjusted for inflation
Stock Piling Scrap	88.00	98.56	Adjusted for inflation
Loading of Scrap	305.00	341.60	Adjusted for inflation
Miscellaneous Demo	1,000.00	1,120.00	Adjusted for inflation
Pond cleaning equipment	12,000.00	13,440.00	Adjusted for inflation
Miscellaneous Materials	2,000.00	2,240.00	Adjusted for inflation
Concrete	205.00	229.60	Adjusted for inflation

Note:
Demolition included in Foundations and Buildings sheet
Salvage included in the User Sheet 6
Decontamination Crew (includes equipment - see 3 Clab - D) 364.58

Task Cost Estimate

Element: Site General
Area: Miscellaneous
Task: Industrial Waste Disposal
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost	Comments
					Small monthly shipments
Industrial Waste Disposal	6272	18	mo	112896	Monthly shipments/small quantities

Closure Cost Estimate
User 14

Task Cost Estimate

Element: Site General
Area: Miscellaneous
Task: Waste Material Disposal
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost	Comments
Waste Material Disposal	756	18	mo	13608	Small monthly shipments

Task Cost Estimate

Element: Site General
Area: Miscellaneous
Task: Scrap Shipping and Specialty Equipment for cleanup
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost	Comments
Transportation					
Shipping Scrap/Salvage Equip	84000	5	per trip	420000	3000-5000 tons per trip includes weight measurements for salvage equipment and scrap
Equipment rental					
Mobilization/Demobe	2800	1	per	2800	For specialty equipment
Vacuum truck/steam cleaner	23000	12	per	276000	Monthly rental
4 Pickup transportation	4480	18	per	80640	4 pickups-lease
Extra shipping containers/flats	721.28	18	per	12983.04	Demurrage or purchase

Task Cost Estimate

Element: Site General
Area: Miscellaneous
Task: Radioactive source disposal
Subtask:

Description: Radioactive source disposal includes the removal and shipment off island of radioactive sources

Category	Unit Price	Number Required	Unit	Estimated Cost	Comments
Radioactive waste disposal	504	16	units	8064	

Source:
920 General Mill Area 2008.xls
Hawk Inlet2008.xls
Tailings Impoundment 2008.xls
Bridges 2008.xls

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: Sediment Basin DB01 and Pond "A"
Subtask:

Closure Cost Estimate
User 14

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	50	hr	18,229.00
Decon labor+equip subtotal				18,229.00
Equipment				
Pond cleaning equipment	13,440.00	1	lot	13,440.00
Equipment Subtotal				13,440.00

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: Water Pump House
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	1.2	hr	437.50
Decon labor+equip subtotal				437.50

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: 920 Warehouse, incl telecommunications
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	3.6	hr	1,312.49
Decon labor+equip subtotal				1,312.49

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: Warehouse Sheds
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	0.8	hr	291.66
Decon labor+equip subtotal				291.66

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: Coarse Ore Feeder
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decontamination Crew	364.58	4.4	hr	1,604.15
Decon labor+equip subtotal				1,604.15

Closure Cost Estimate
User 14

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: Re-Grind Building & Zinc Cleaner Expansion
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	30	hr	10,937.40
Decon labor+equip subtotal				10,937.40

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: Back-Fill plant
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	6	hr	2,187.48
Decon labor+equip subtotal				2,187.48

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: Tailings Loadout and Tailings Storage
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	30	hr	10,937.40
Decon labor+equip subtotal				10,937.40

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: Concentrator
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	235	hr	85,676.30
Decon labor+equip subtotal				85,676.30

Task Cost Estimate

Element: Site General
Area: 920 General Mill Area
Task: Concentrator
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				

Decontamination Crew	364.58	235	hr	85,676.30
Decon labor+equip subtotal				85,676.30

Task Cost Estimate		Element:	Site General	
		Area:	920 General Mill Area	
		Task:	Concentrate Loadout	
		Subtask:		
Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	10	hr	3,645.80
Decon labor+equip subtotal				3,645.80

Task Cost Estimate		Element:	Site General	
		Area:	920 General Mill Area	
		Task:	800 GPM Water Treatment Plant @ 920	
		Subtask:		
Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	5	hr	1,822.90
Decon labor+equip subtotal				1,822.90

Task Cost Estimate		Element:	Site General	
		Area:	920 General Mill Area	
		Task:	400 GPM Water Treatment Plant @ 920	
		Subtask:		
Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	3	hr	1,093.74
Decon labor+equip subtotal				1,093.74

Task Cost Estimate		Element:	Site General	
		Area:	920 General Mill Area	
		Task:	Power House	
		Subtask:		
Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	50	hr	18,229.00
Decon labor+equip subtotal				18,229.00

Task Cost Estimate			Element:	Site General
			Area:	920 General Mill Area
			Task:	Surface Shop and Admin Building
			Subtask:	
Category	Unit Price	Number Required	Unit	Estimated Cost

Decon labor+equip				
Decontamination Crew	364.58	27	hr	9,843.66
Decon labor+equip subtotal				9,843.66

Task Cost Estimate
Element: Site General
Area: 920 General Mill Area
Task: Miscellaneous 920 Support Areas
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	5	hr	1,822.90
Decon labor+equip subtotal				1,822.90

Task Cost Estimate
Element: Site General
Area: 920 General Mill Area
Task: Surface Paving
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	11	hr	4,010.38
Decon labor+equip subtotal				4,010.38

Task Cost Estimate
Element: Site General
Area: 920 General Mill Area
Task: Assay Lab
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	10	hr	3,645.80
Decon labor+equip subtotal				3,645.80

Task Cost Estimate
Element: Site General
Area: 920 General Mill Area
Task: 860 Safety Building
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	1.2	hr	437.50
Decon labor+equip subtotal				437.50

Task Cost Estimate
Element: Site General
Area: Bridges
Task: Zinc Creek Bridge - 3.0 Mile
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost

Decon labor+equip				
Decontamination Crew	364.58	18	hr	6,562.44
Decon labor+equip subtotal				6,562.44

Task Cost Estimate

Element: Site General
Area: Bridges
Task: Greens Creek Bridge
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	14	hr	5,104.12
Decon labor+equip subtotal				5,104.12

Task Cost Estimate

Element: Site General
Area: Hawk Inlet
Task: Concentrate Storage Building
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	50	hr	18,229.00
Decon labor+equip subtotal				18,229.00

Task Cost Estimate

Element: Site General
Area: Hawk Inlet
Task: Wheel Wash
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	4	hr	1,458.32
Decon labor+equip subtotal				1,458.32

Task Cost Estimate

Element: Site General
Area: Hawk Inlet
Task: Degritting Basin DB04
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	2	hr	729.16
Decon labor+equip subtotal				729.16

Task Cost Estimate

Element: Site General
Area: Hawk Inlet
Task: Generator Shack
Subtask:

Closure Cost Estimate
User 14

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	4	hr	1,458.32
Decon labor+equip subtotal				1,458.32

Task Cost Estimate

Element: Site General
Area: Hawk Inlet
Task: Warehouse
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	5.6	hr	2,041.65
Decon labor+equip subtotal				2,041.65

Task Cost Estimate

Element: Site General
Area: Hawk Inlet
Task: Services Building
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	4	hr	1,458.32
Decon labor+equip subtotal				1,458.32

Task Cost Estimate

Element: Site General
Area: Hawk Inlet
Task: Fuel Tank Farm
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	40	hr	14,583.20
Decon labor+equip subtotal				14,583.20

Task Cost Estimate

Element: Site General
Area: Hawk Inlet
Task: Water Tanks and Potable Building
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	2	hr	729.16

Task Cost Estimate

Element: Site General
Area: Hawk Inlet
Task: Sewage Plant Area
Subtask:

Closure Cost Estimate
User 14

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	6	hr	2,187.48
Decon labor+equip subtotal				2,187.48

Task Cost Estimate

Element: Site General
Area: Tailings Impoundment
Task: Tank 7 (previsouly Tank 6)
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	6	hr	2,187.48
Decon labor+equip subtotal		161		2,187.48

Task Cost Estimate

Element: Site General
Area: Tailings Impoundment
Task: Wheel Wash
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	2	hr	729.16
Decon labor+equip subtotal				729.16

Task Cost Estimate

Element: Site General
Area: Tailings Impoundment
Task: Wet Well #1
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	2	hr	729.16
Decon labor+equip subtotal				729.16

Task Cost Estimate

Element: Site General
Area: Tailings Impoundment
Task: Pond 23 Pump House
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	2	hr	729.16
Decon labor+equip subtotal				729.16

Task Cost Estimate

Element: Site General
Area: Tailings Impoundment

Closure Cost Estimate
User 14

Task: Tailings Water Treatment Plant
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Decon labor+equip				
Decontamination Crew	364.58	10	hr	3,645.80
Decon labor+equip subtotal				3,645.80

Task Cost Estimate

Element: Site General
Area: 1350 Area
Task: Remove 1160' Water Tank
Subtask:

Category	Unit Price	Number Required	Unit	Estimated Cost
Labor				
Steel Demo Worker	58.13	8	hr	465.04
Laborer	50.69	50	hr	2,534.50
Labor Subtotal				2,999.54
Equipment				
50-Ton Crane	70.31	10	hr	703.10
Excavator	90.79	20	hr	1,815.80
8,000lbs gradall	25.64	5	hr	128.20
Flat bed	25.83	8	hr	206.64
Equipment Subtotal				2,853.74

Closure Cost Estimate
User 15

Project Name: Reclamation Plan Update 2014 - Reclamation Plan
Date of Submittal: April 2014
File Name: Hecla_RecPln_SCRE Update_Appx B_Att A_311400 010_ft_20140408.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: Greens_Creek_RecPln_Cost_Data_311400 010_ft_20140404_ft.xlsm
Cost Estimate Type: Surety Cost Basis: Greens Creek 2014

User Sheet 15 - Distances between facilities (miles)

Site	To TDF	To UG
5.0 mile	5.31	
3.9 mile	4.21	
0.9 mile	1.68	
Hawk Inlet	1.02	
Tailings	0	
1.8 Mile	1.02	
2.5 Mile	1.72	
3.2 mile	2.42	
Zinc Ck Bridge	2.31	
Pit 174	2.2	
Site E	3.32	
7.3 Mile	5.72	
1350 Road	6.015	
Pit 405	6.31	
D Pile	6.76	1.7
Site 23	6.86	
Site C		0.82
Mill		0.63
960 Site		0.24
1350 Site		0

.

Attachment B

Cost Data File

Equipment Costs

File Name:	*Greens_Creek_RecPln_Cost_Data_Appx*
Date:	*April 1, 2014*
Cost Basis:	*User Data*
Author/Source:	*SRK Consulting/Greens Creek*

Monthly Rental Basis (operating hrs/ period)	*486*		*486*	

MONTHLY EQUIPMENT RATE TABLE [Cost Per Month] (1)

EQUIPMENT TYPE (2)	Basis 1	Basis 2	Basis 3	Basis 4
	Greens Creek 2 - Rental	*do not use*	*Greens Creek 2014*	
Bulldozers				
D6R	$17,133		$17,647	
D6R w/ Winch	$20,560		$21,177	
D7R	$24,843		$25,589	
D8R	$28,270		$29,118	
D9R	$34,267		$35,295	
D10R				
D11R				
Wheeled Dozers				
824G				
834G				
844				
854G				
Motor Graders				
120H	$13,707		$14,118	
14G/H	$23,987		$24,706	
16G/H	$33,410		$34,412	
24M				
Track Excavators				
312C	$8,224		$8,471	
320C	$12,679		$13,059	
325C	$14,563		$15,000	
330C	$20,560		$21,177	
345B	$23,987		$24,706	
365BL	$39,407		$40,589	
385BL				
Scrapers				
631G				
637G PP				
Wheeled Loaders				
924G	$6,339		$6,530	
928G	$7,710		$7,941	
950G	$12,850		$13,236	
966G	$17,990		$18,530	
972G	$20,560		$21,177	
980G	$23,987		$24,706	
988G	$37,693		$38,824	
990	$59,967		$61,766	
992G	$111,367		$114,708	
994D				
L-2350				
Shovels				
KOM PC2000				
KOM PC3000				
KOM PC4000				
KOM PC5500				
KOM PC8000				

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	
Hydraulic Hammers				
H-120 (fits 325)	$14,563		$15,000	
H-160 (fits 345)	$23,987		$24,706	
H-180 (fits 365/385)	$29,983		$30,883	
Demolition Shears				
S340 (fits 322/325/330)				
S365 (fits 330/345)				
S390 (fits 365/385)				
Demolition Grapples				
G315 (fits 322/325)				
G320 (fits 325/330)				
G330 (fits 345/365)				
Other Equipment				
420D 4WD Backhoe	$4,626		$4,765	
428D 4WD Backhoe	$5,654		$5,824	
CS533E Vibratory Roller	$8,567		$8,824	
CS663E Vibratory Roller	$12,850		$13,236	
CP533E Sheepsfoot Compactor	$8,567		$8,824	
CP663E Sheepsfoot Compactor	$128,500		$132,355	
Light Truck - 1.5 Ton	$2,142		$2,206	
Supervisor's Truck	$2,998		$3,088	
Flatbed Truck	$2,998		$3,088	
Air Compressor + tools	$1,456		$1,500	
Welding Equipment	$771		$794	
Heavy Duty Drill Rig	$29,127		$30,000	
Pump (plugging) Drill Rig	$1,285		$1,324	
Concrete Pump	$5,568		$5,735	
Gas Engine Vibrator	$1,071		$1,103	
Generator 5KW	$650		$670	
HDEP Welder (pipe or liner)	$2,570		$2,647	
5 Ton Crane	$7,710		$7,941	
20 Ton Crane	$15,420		$15,883	
50 Ton Crane	$23,987		$24,706	
120 Ton Crane	$42,833		$44,118	
Trucks				
725 (articulated)	$20,560		$21,177	
730 (articulated)	$22,273		$22,942	
735 (articulated)	$27,413		$28,236	
740 (articulated)	$30,840		$31,765	
769D				
773E				
777D				
785C				
793C				
797B				
613E (5,000 gal) Water Wagon	$7,710		$7,941	
621E (8,000 gal) Water Wagon				
777D Water Truck				
785C Water Truck				
Dump Truck (10-12 yd^3) (5)	$7,710		$7,941	

NOTES:

(1) Power Equipment Source:	CMIAK 10/12/2012			
(2) Power Equipment Type:	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels
(3) Drilliing Equipment Source:	CMIAK 10/12/2012			
(4) Other Equipment Source:	CMIAK 10/12/2012			

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	

PREVENTATIVE MAINTENANCE COST [Cost Per Hour] (1)

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4
	Rental	***do not use***	***Greens Creek 2014***	
Bulldozers				
D6R	$6.64		$6.64	
D6R w/ Winch	$6.64		$6.64	
D7R	$6.59		$6.59	
D8R	$7.13		$7.13	
D9R	$8.65		$8.65	
D10R	$9.74		$9.74	
D11R	$11.67		$11.67	
Wheeled Dozers				
824G				
834G				
844				
854G				
Motor Graders				
120H				
14G/H	$5.78		$5.78	
16G/H	$4.69		$4.69	
24M				
Track Excavators				
312C				
320C	$4.66		$4.66	
325C	$4.76		$4.76	
330C				
345B				
365BL	$6.10		$6.10	
385BL	$6.95		$6.95	
Scrapers				
631G	$7.10		$7.10	
637G PP	$10.24		$10.24	
Wheeled Loaders				
924G				
928G	$4.62		$4.62	
950G				
966G	$5.55		$5.55	
972G	$5.67		$5.67	
980G				
988G	$8.51		$8.51	
990				
992G	$12.16		$12.16	
994D				
L-2350				
Shovels				
KOM PC2000				
KOM PC3000				
KOM PC4000				
KOM PC5500				
KOM PC8000				
Hydraulic Hammers				
H-120 (fits 325)	N/A	N/A	N/A	N/A
H-160 (fits 345)	N/A	N/A	N/A	N/A
H-180 (fits 365/385)	N/A	N/A	N/A	N/A
Demolition Shears				
S340 (fits 322/325/330)	N/A	N/A	N/A	N/A
S365 (fits 330/345)	N/A	N/A	N/A	N/A
S390 (fits 365/385)	N/A	N/A	N/A	N/A
Demolition Grapples				
G315 (fits 322/325)	N/A	N/A	N/A	N/A
G320 (fits 325/330)	N/A	N/A	N/A	N/A
G330 (fits 345/365)	N/A	N/A	N/A	N/A

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	
Other Equipment				
420D 4WD Backhoe	$3.29		$3.29	
428D 4WD Backhoe	$3.29		$3.29	
CS533E Vibratory Roller				
CS663E Vibratory Roller				
CP533E Sheepsfoot Compactor				
CP663E Sheepsfoot Compactor				
Light Truck - 1.5 Ton				
Supervisor's Truck				
Flatbed Truck				
Air Compressor + tools				
Welding Equipment				
Heavy Duty Drill Rig				
Pump (plugging) Drill Rig				
Concrete Pump				
Gas Engine Vibrator				
Generator 5KW				
HDEP Welder (pipe or liner)				
5 Ton Crane				
20 Ton Crane				
50 Ton Crane				
120 Ton Crane				
Trucks				
725 (articulated)	$15.03	Inc's tires	$15.03	Inc's tires
730 (articulated)	$15.39	Inc's tires	$15.39	Inc's tires
735 (articulated)	$21.68	Inc's tires	$21.68	Inc's tires
740 (articulated)	$23.35	Inc's tires	$23.35	Inc's tires
769D				
773E				
777D				
785C				
793C				
797B				
613E (5,000 gal) Water Wagon	$7.24	Assumed equal to du	$7.24	Assumed equal to dur
621E (8,000 gal) Water Wagon				
777D Water Truck				
785C Water Truck				
Dump Truck (10-12 yd3) (5)	$7.24		$7.24	
(1) PM Source:				

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	

G.E.T CONSUMPTION [Cost Per Hour] (1) (Wear Items)

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4
	Rental	***do not use***	***Greens Creek 2014***	
Bulldozers				
D6R	$4.30		$4.30	
D6R w/ Winch	$4.30		$4.30	
D7R	$6.38		$6.38	
D8R	$8.24		$8.24	
D9R	$12.81		$12.81	
D10R	$17.93		$17.93	
D11R	$26.65		$26.65	
Wheeled Dozers				
824G				
834G				
844				
854G				
Motor Graders				
120H				
14G/H	$12.81		$12.81	
16G/H	$17.51		$17.51	
24M				
Track Excavators				
312C				
320C	$3.90		$3.90	
325C	$4.91		$4.91	
330C				
345B	$6.21		$6.21	
365BL				
385BL	$11.32		$11.32	
Scrapers				
631G	$7.05		$7.05	
637G PP	$8.86		$8.86	
Wheeled Loaders				
924G				
928G	$3.83		$3.83	
950G				
966G	$8.94		$8.94	
972G	$11.31		$11.31	
980G				
988G	$12.10		$12.10	
990				
992G	$28.66		$28.66	
994D				
L-2350				
Shovels				
KOM PC2000				
KOM PC3000				
KOM PC4000				
KOM PC5500				
KOM PC8000				
Hydraulic Hammers				
H-120 (fits 325)	$4.96		$4.96	
H-160 (fits 345)	$9.67		$9.67	
H-180 (fits 365/385)	$11.46		$11.46	
Demolition Shears				
S340 (fits 322/325/330)				
S365 (fits 330/345)				
S390 (fits 365/385)				
Demolition Grapples				
G315 (fits 322/325)				
G320 (fits 325/330)				
G330 (fits 345/365)				

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	
Other Equipment				
420D 4WD Backhoe	$3.00		$3.00	
428D 4WD Backhoe	$3.00		$3.00	
CS533E Vibratory Roller				
CS663E Vibratory Roller				
CP533E Sheepsfoot Compactor				
CP663E Sheepsfoot Compactor				
Light Truck - 1.5 Ton				
Supervisor's Truck				
Flatbed Truck				
Air Compressor + tools	N/A	N/A	N/A	N/A
Welding Equipment	N/A	N/A	N/A	N/A
Heavy Duty Drill Rig				
Pump (plugging) Drill Rig				
Concrete Pump	N/A	N/A	N/A	N/A
Gas Engine Vibrator	N/A	N/A	N/A	N/A
Generator 5KW	N/A	N/A	N/A	N/A
HDEP Welder (pipe or liner)	N/A	N/A	N/A	N/A
5 Ton Crane				
20 Ton Crane				
50 Ton Crane				
120 Ton Crane				
Trucks				
725 (articulated)				
730 (articulated)				
735 (articulated)				
740 (articulated)				
769D				
773E				
777D				
785C				
793C				
797B				
613E (5,000 gal) Water Wagon				
621E (8,000 gal) Water Wagon				
777D Water Truck				
785C Water Truck				
Dump Truck (10-12 yd3) (5)	$2.81		$2.81	
Notes: (1) G.E.T. Source:	CAT Historical Data	CAT Historical Data	CAT Historical Data	CAT Historical Data

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	

TIRE COST TABLE [Cost Per Tire(1,2,3)]

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4
	Rental	***do not use***	***Greens Creek 2014***	
Bulldozers				
D6R	N/A	N/A	N/A	N/A
D6R w/ Winch	N/A	N/A	N/A	N/A
D7R	N/A	N/A	N/A	N/A
D8R	N/A	N/A	N/A	N/A
D9R	N/A	N/A	N/A	N/A
D10R	N/A	N/A	N/A	N/A
D11R	N/A	N/A	N/A	N/A
Wheeled Dozers				
824G				
834G				
844				
854G				
Motor Graders				
120H				
14G/H	$6,165.81		$6,165.81	
16G/H	$7,419.03		$7,419.03	
24M				
Track Excavators				
312C	N/A	N/A	N/A	N/A
320C	N/A	N/A	N/A	N/A
325C	N/A	N/A	N/A	N/A
330C	N/A	N/A	N/A	N/A
345B	N/A	N/A	N/A	N/A
365BL	N/A	N/A	N/A	N/A
385BL	N/A	N/A	N/A	N/A
Scrapers				
631G	$16,729.11		$16,729.11	
637G PP	$16,729.11		$16,729.11	
Wheeled Loaders				
924G	$5,510.69		$5,510.69	
928G	$5,510.69		$5,510.69	
950G	$7,419.03		$7,419.03	
966G	$11,624.64		$11,624.64	
972G	$11,624.64		$11,624.64	
980G	$14,753.36		$14,753.36	
988G	$19,693.61		$19,693.61	
990				
992G	$39,345.74		$39,345.74	
994D				
L-2350				
Shovels				
KOM PC2000	N/A	N/A	N/A	N/A
KOM PC3000	N/A	N/A	N/A	N/A
KOM PC4000	N/A	N/A	N/A	N/A
KOM PC5500	N/A	N/A	N/A	N/A
KOM PC8000	N/A	N/A	N/A	N/A
Hydraulic Hammers				
H-120 (fits 325)	N/A	N/A	N/A	N/A
H-160 (fits 345)	N/A	N/A	N/A	N/A
H-180 (fits 365/385)	N/A	N/A	N/A	N/A
Demolition Shears				
S340 (fits 322/325/330)	N/A	N/A	N/A	N/A
S365 (fits 330/345)	N/A	N/A	N/A	N/A
S390 (fits 365/385)	N/A	N/A	N/A	N/A
Demolition Grapples				
G315 (fits 322/325)	N/A	N/A	N/A	N/A
G320 (fits 325/330)	N/A	N/A	N/A	N/A
G330 (fits 345/365)	N/A	N/A	N/A	N/A

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	
Other Equipment				
420D 4WD Backhoe				
428D 4WD Backhoe				
CS533E Vibratory Roller	N/A	N/A	N/A	N/A
CS663E Vibratory Roller	N/A	N/A	N/A	N/A
CP533E Sheepsfoot Compactor	N/A	N/A	N/A	N/A
CP663E Sheepsfoot Compactor	N/A	N/A	N/A	N/A
Light Truck - 1.5 Ton				
Supervisor's Truck				
Flatbed Truck				
Air Compressor + tools	N/A	N/A	N/A	N/A
Welding Equipment	N/A	N/A	N/A	N/A
Heavy Duty Drill Rig				
Pump (plugging) Drill Rig				
Concrete Pump	N/A	N/A	N/A	N/A
Gas Engine Vibrator	N/A	N/A	N/A	N/A
Generator 5KW	N/A	N/A	N/A	N/A
HDEP Welder (pipe or liner)	N/A	N/A	N/A	N/A
5 Ton Crane				
20 Ton Crane				
50 Ton Crane				
120 Ton Crane				
Trucks				
725 (articulated)				
730 (articulated)				
735 (articulated)				
740 (articulated)				
769D				
773E				
777D				
785C				
793C				
797B				
613E (5,000 gal) Water Wagon	$968.00	Assumed = dmp trck	$968.00	
621E (8,000 gal) Water Wagon				
777D Water Truck				
785C Water Truck				
Dump Truck (10-12 yd3) (5)	$968.00		$968.00	
Notes:				
(1) Unit Cost Basis:	Cost per set			
(2) Cost Basis:	Total cost for all required tires.			
(3) Tire Cost Source:	Purcell Tire Quote 07/09/2012			
(4) Tire Wear Source (defined in model):	Caterpillar Handbook, Edition 35; Ch. 20			

Format Version:	***SRCE Data File v1.12***
File Name:	***Greens_Creek_RecPln_Cost_Data_Appx B Att B_311400 010_20140408.xlsm***
Date:	***April 1, 2014***
Cost Type:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Units of Measure:	**Imperial**

No. of Bases/Regions:	3

Basis/Region	Basis/Region Name	Basis/Region Description
Basis 1	***Greens Creek 2 -Rental***	DB (AK) Sept. '12 for double shifts 8hrs/14days labor, week begins Wednesday, CMI equipment costs
Basis 2	***do not use***	notes
Basis 3	***Greens Creek 2014***	DB (AK) Sept. '13 for double shifts 8hrs/14days labor, week begins Wednesday, CMI rental rates from 2012 increased by 3%
Basis 4		
Basis 5		
Basis 6		
Basis 7		
Basis 8		
Basis 9		
Basis 10		
Basis 11		
Basis 12		
Basis 13		
Basis 14		
Basis 15		

Format Version:	***SRCE Data File v1.12***
File Name:	***Greens_Creek_RecPln_Cost_Data_Appx B Att B_311400 010_20140408.xlsm***
Date:	***April 1, 2014***
Cost Type:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Units of Measure:	**Imperial**

No. of Bases/Regions:	3

Basis/Region	Basis/Region Name	Basis/Region Description
Basis 1	***Greens Creek 2 -Rental***	DB (AK) Sept. '12 for double shifts 8hrs/14days labor, week begins Wednesday, CMI equipment costs
Basis 2	***do not use***	notes
Basis 3	***Greens Creek 2014***	DB (AK) Sept. '13 for double shifts 8hrs/14days labor, week begins Wednesday, CMI rental rates from 2012 increased by 3%
Basis 4		
Basis 5		
Basis 6		
Basis 7		
Basis 8		
Basis 9		
Basis 10		
Basis 11		
Basis 12		
Basis 13		
Basis 14		
Basis 15		

Equipment Costs

File Name:	*Greens_Creek_RecPln_Cost_Data_Appx*
Date:	*April 1, 2014*
Cost Basis:	*User Data*
Author/Source:	*SRK Consulting/Greens Creek*

Monthly Rental Basis (operating hrs/ period)	*486*		*486*	

MONTHLY EQUIPMENT RATE TABLE [Cost Per Month] (1)

EQUIPMENT TYPE (2)	Basis 1	Basis 2	Basis 3	Basis 4
	Greens Creek 2 - Rental	*do not use*	*Greens Creek 2014*	
Bulldozers				
D6R	$17,133		$17,647	
D6R w/ Winch	$20,560		$21,177	
D7R	$24,843		$25,589	
D8R	$28,270		$29,118	
D9R	$34,267		$35,295	
D10R				
D11R				
Wheeled Dozers				
824G				
834G				
844				
854G				
Motor Graders				
120H	$13,707		$14,118	
14G/H	$23,987		$24,706	
16G/H	$33,410		$34,412	
24M				
Track Excavators				
312C	$8,224		$8,471	
320C	$12,679		$13,059	
325C	$14,563		$15,000	
330C	$20,560		$21,177	
345B	$23,987		$24,706	
365BL	$39,407		$40,589	
385BL				
Scrapers				
631G				
637G PP				
Wheeled Loaders				
924G	$6,339		$6,530	
928G	$7,710		$7,941	
950G	$12,850		$13,236	
966G	$17,990		$18,530	
972G	$20,560		$21,177	
980G	$23,987		$24,706	
988G	$37,693		$38,824	
990	$59,967		$61,766	
992G	$111,367		$114,708	
994D				
L-2350				
Shovels				
KOM PC2000				
KOM PC3000				
KOM PC4000				
KOM PC5500				
KOM PC8000				

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	
Hydraulic Hammers				
H-120 (fits 325)	$14,563		$15,000	
H-160 (fits 345)	$23,987		$24,706	
H-180 (fits 365/385)	$29,983		$30,883	
Demolition Shears				
S340 (fits 322/325/330)				
S365 (fits 330/345)				
S390 (fits 365/385)				
Demolition Grapples				
G315 (fits 322/325)				
G320 (fits 325/330)				
G330 (fits 345/365)				
Other Equipment				
420D 4WD Backhoe	$4,626		$4,765	
428D 4WD Backhoe	$5,654		$5,824	
CS533E Vibratory Roller	$8,567		$8,824	
CS663E Vibratory Roller	$12,850		$13,236	
CP533E Sheepsfoot Compactor	$8,567		$8,824	
CP663E Sheepsfoot Compactor	$128,500		$132,355	
Light Truck - 1.5 Ton	$2,142		$2,206	
Supervisor's Truck	$2,998		$3,088	
Flatbed Truck	$2,998		$3,088	
Air Compressor + tools	$1,456		$1,500	
Welding Equipment	$771		$794	
Heavy Duty Drill Rig	$29,127		$30,000	
Pump (plugging) Drill Rig	$1,285		$1,324	
Concrete Pump	$5,568		$5,735	
Gas Engine Vibrator	$1,071		$1,103	
Generator 5KW	$650		$670	
HDEP Welder (pipe or liner)	$2,570		$2,647	
5 Ton Crane	$7,710		$7,941	
20 Ton Crane	$15,420		$15,883	
50 Ton Crane	$23,987		$24,706	
120 Ton Crane	$42,833		$44,118	
Trucks				
725 (articulated)	$20,560		$21,177	
730 (articulated)	$22,273		$22,942	
735 (articulated)	$27,413		$28,236	
740 (articulated)	$30,840		$31,765	
769D				
773E				
777D				
785C				
793C				
797B				
613E (5,000 gal) Water Wagon	$7,710		$7,941	
621E (8,000 gal) Water Wagon				
777D Water Truck				
785C Water Truck				
Dump Truck (10-12 yd^3) (5)	$7,710		$7,941	

NOTES:

(1) Power Equipment Source:	CMIAK 10/12/2012			
(2) Power Equipment Type:	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels
(3) Drilliing Equipment Source:	CMIAK 10/12/2012			
(4) Other Equipment Source:	CMIAK 10/12/2012			

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	

PREVENTATIVE MAINTENANCE COST [Cost Per Hour] (1)

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4
	Rental	***do not use***	***Greens Creek 2014***	
Bulldozers				
D6R	$6.64		$6.64	
D6R w/ Winch	$6.64		$6.64	
D7R	$6.59		$6.59	
D8R	$7.13		$7.13	
D9R	$8.65		$8.65	
D10R	$9.74		$9.74	
D11R	$11.67		$11.67	
Wheeled Dozers				
824G				
834G				
844				
854G				
Motor Graders				
120H				
14G/H	$5.78		$5.78	
16G/H	$4.69		$4.69	
24M				
Track Excavators				
312C				
320C	$4.66		$4.66	
325C	$4.76		$4.76	
330C				
345B				
365BL	$6.10		$6.10	
385BL	$6.95		$6.95	
Scrapers				
631G	$7.10		$7.10	
637G PP	$10.24		$10.24	
Wheeled Loaders				
924G				
928G	$4.62		$4.62	
950G				
966G	$5.55		$5.55	
972G	$5.67		$5.67	
980G				
988G	$8.51		$8.51	
990				
992G	$12.16		$12.16	
994D				
L-2350				
Shovels				
KOM PC2000				
KOM PC3000				
KOM PC4000				
KOM PC5500				
KOM PC8000				
Hydraulic Hammers				
H-120 (fits 325)	N/A	N/A	N/A	N/A
H-160 (fits 345)	N/A	N/A	N/A	N/A
H-180 (fits 365/385)	N/A	N/A	N/A	N/A
Demolition Shears				
S340 (fits 322/325/330)	N/A	N/A	N/A	N/A
S365 (fits 330/345)	N/A	N/A	N/A	N/A
S390 (fits 365/385)	N/A	N/A	N/A	N/A
Demolition Grapples				
G315 (fits 322/325)	N/A	N/A	N/A	N/A
G320 (fits 325/330)	N/A	N/A	N/A	N/A
G330 (fits 345/365)	N/A	N/A	N/A	N/A

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	
Other Equipment				
420D 4WD Backhoe	$3.29		$3.29	
428D 4WD Backhoe	$3.29		$3.29	
CS533E Vibratory Roller				
CS663E Vibratory Roller				
CP533E Sheepsfoot Compactor				
CP663E Sheepsfoot Compactor				
Light Truck - 1.5 Ton				
Supervisor's Truck				
Flatbed Truck				
Air Compressor + tools				
Welding Equipment				
Heavy Duty Drill Rig				
Pump (plugging) Drill Rig				
Concrete Pump				
Gas Engine Vibrator				
Generator 5KW				
HDEP Welder (pipe or liner)				
5 Ton Crane				
20 Ton Crane				
50 Ton Crane				
120 Ton Crane				
Trucks				
725 (articulated)	$15.03	Inc's tires	$15.03	Inc's tires
730 (articulated)	$15.39	Inc's tires	$15.39	Inc's tires
735 (articulated)	$21.68	Inc's tires	$21.68	Inc's tires
740 (articulated)	$23.35	Inc's tires	$23.35	Inc's tires
769D				
773E				
777D				
785C				
793C				
797B				
613E (5,000 gal) Water Wagon	$7.24	Assumed equal to du	$7.24	Assumed equal to dur
621E (8,000 gal) Water Wagon				
777D Water Truck				
785C Water Truck				
Dump Truck (10-12 yd3) (5)	$7.24		$7.24	
(1) PM Source:				

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	

G.E.T CONSUMPTION [Cost Per Hour] (1) (Wear Items)

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4
	Rental	***do not use***	***Greens Creek 2014***	
Bulldozers				
D6R	$4.30		$4.30	
D6R w/ Winch	$4.30		$4.30	
D7R	$6.38		$6.38	
D8R	$8.24		$8.24	
D9R	$12.81		$12.81	
D10R	$17.93		$17.93	
D11R	$26.65		$26.65	
Wheeled Dozers				
824G				
834G				
844				
854G				
Motor Graders				
120H				
14G/H	$12.81		$12.81	
16G/H	$17.51		$17.51	
24M				
Track Excavators				
312C				
320C	$3.90		$3.90	
325C	$4.91		$4.91	
330C				
345B	$6.21		$6.21	
365BL				
385BL	$11.32		$11.32	
Scrapers				
631G	$7.05		$7.05	
637G PP	$8.86		$8.86	
Wheeled Loaders				
924G				
928G	$3.83		$3.83	
950G				
966G	$8.94		$8.94	
972G	$11.31		$11.31	
980G				
988G	$12.10		$12.10	
990				
992G	$28.66		$28.66	
994D				
L-2350				
Shovels				
KOM PC2000				
KOM PC3000				
KOM PC4000				
KOM PC5500				
KOM PC8000				
Hydraulic Hammers				
H-120 (fits 325)	$4.96		$4.96	
H-160 (fits 345)	$9.67		$9.67	
H-180 (fits 365/385)	$11.46		$11.46	
Demolition Shears				
S340 (fits 322/325/330)				
S365 (fits 330/345)				
S390 (fits 365/385)				
Demolition Grapples				
G315 (fits 322/325)				
G320 (fits 325/330)				
G330 (fits 345/365)				

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	
Other Equipment				
420D 4WD Backhoe	$3.00		$3.00	
428D 4WD Backhoe	$3.00		$3.00	
CS533E Vibratory Roller				
CS663E Vibratory Roller				
CP533E Sheepsfoot Compactor				
CP663E Sheepsfoot Compactor				
Light Truck - 1.5 Ton				
Supervisor's Truck				
Flatbed Truck				
Air Compressor + tools	N/A	N/A	N/A	N/A
Welding Equipment	N/A	N/A	N/A	N/A
Heavy Duty Drill Rig				
Pump (plugging) Drill Rig				
Concrete Pump	N/A	N/A	N/A	N/A
Gas Engine Vibrator	N/A	N/A	N/A	N/A
Generator 5KW	N/A	N/A	N/A	N/A
HDEP Welder (pipe or liner)	N/A	N/A	N/A	N/A
5 Ton Crane				
20 Ton Crane				
50 Ton Crane				
120 Ton Crane				
Trucks				
725 (articulated)				
730 (articulated)				
735 (articulated)				
740 (articulated)				
769D				
773E				
777D				
785C				
793C				
797B				
613E (5,000 gal) Water Wagon				
621E (8,000 gal) Water Wagon				
777D Water Truck				
785C Water Truck				
Dump Truck (10-12 yd3) (5)	$2.81		$2.81	
Notes: (1) G.E.T. Source:	CAT Historical Data	CAT Historical Data	CAT Historical Data	CAT Historical Data

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	

TIRE COST TABLE [Cost Per Tire(1,2,3)]

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4
	Rental	***do not use***	***Greens Creek 2014***	
Bulldozers				
D6R	N/A	N/A	N/A	N/A
D6R w/ Winch	N/A	N/A	N/A	N/A
D7R	N/A	N/A	N/A	N/A
D8R	N/A	N/A	N/A	N/A
D9R	N/A	N/A	N/A	N/A
D10R	N/A	N/A	N/A	N/A
D11R	N/A	N/A	N/A	N/A
Wheeled Dozers				
824G				
834G				
844				
854G				
Motor Graders				
120H				
14G/H	$6,165.81		$6,165.81	
16G/H	$7,419.03		$7,419.03	
24M				
Track Excavators				
312C	N/A	N/A	N/A	N/A
320C	N/A	N/A	N/A	N/A
325C	N/A	N/A	N/A	N/A
330C	N/A	N/A	N/A	N/A
345B	N/A	N/A	N/A	N/A
365BL	N/A	N/A	N/A	N/A
385BL	N/A	N/A	N/A	N/A
Scrapers				
631G	$16,729.11		$16,729.11	
637G PP	$16,729.11		$16,729.11	
Wheeled Loaders				
924G	$5,510.69		$5,510.69	
928G	$5,510.69		$5,510.69	
950G	$7,419.03		$7,419.03	
966G	$11,624.64		$11,624.64	
972G	$11,624.64		$11,624.64	
980G	$14,753.36		$14,753.36	
988G	$19,693.61		$19,693.61	
990				
992G	$39,345.74		$39,345.74	
994D				
L-2350				
Shovels				
KOM PC2000	N/A	N/A	N/A	N/A
KOM PC3000	N/A	N/A	N/A	N/A
KOM PC4000	N/A	N/A	N/A	N/A
KOM PC5500	N/A	N/A	N/A	N/A
KOM PC8000	N/A	N/A	N/A	N/A
Hydraulic Hammers				
H-120 (fits 325)	N/A	N/A	N/A	N/A
H-160 (fits 345)	N/A	N/A	N/A	N/A
H-180 (fits 365/385)	N/A	N/A	N/A	N/A
Demolition Shears				
S340 (fits 322/325/330)	N/A	N/A	N/A	N/A
S365 (fits 330/345)	N/A	N/A	N/A	N/A
S390 (fits 365/385)	N/A	N/A	N/A	N/A
Demolition Grapples				
G315 (fits 322/325)	N/A	N/A	N/A	N/A
G320 (fits 325/330)	N/A	N/A	N/A	N/A
G330 (fits 345/365)	N/A	N/A	N/A	N/A

Equipment Costs

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

Monthly Rental Basis (operating hrs/ period)	***486***		***486***	
Other Equipment				
420D 4WD Backhoe				
428D 4WD Backhoe				
CS533E Vibratory Roller	N/A	N/A	N/A	N/A
CS663E Vibratory Roller	N/A	N/A	N/A	N/A
CP533E Sheepsfoot Compactor	N/A	N/A	N/A	N/A
CP663E Sheepsfoot Compactor	N/A	N/A	N/A	N/A
Light Truck - 1.5 Ton				
Supervisor's Truck				
Flatbed Truck				
Air Compressor + tools	N/A	N/A	N/A	N/A
Welding Equipment	N/A	N/A	N/A	N/A
Heavy Duty Drill Rig				
Pump (plugging) Drill Rig				
Concrete Pump	N/A	N/A	N/A	N/A
Gas Engine Vibrator	N/A	N/A	N/A	N/A
Generator 5KW	N/A	N/A	N/A	N/A
HDEP Welder (pipe or liner)	N/A	N/A	N/A	N/A
5 Ton Crane				
20 Ton Crane				
50 Ton Crane				
120 Ton Crane				
Trucks				
725 (articulated)				
730 (articulated)				
735 (articulated)				
740 (articulated)				
769D				
773E				
777D				
785C				
793C				
797B				
613E (5,000 gal) Water Wagon	$968.00	Assumed = dmp trck	$968.00	
621E (8,000 gal) Water Wagon				
777D Water Truck				
785C Water Truck				
Dump Truck (10-12 yd3) (5)	$968.00		$968.00	
Notes:				
(1) Unit Cost Basis:	Cost per set			
(2) Cost Basis:	Total cost for all required tires.			
(3) Tire Cost Source:	Purcell Tire Quote 07/09/2012			
(4) Tire Wear Source (defined in model):	Caterpillar Handbook, Edition 35; Ch. 20			

Labor Rates

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE [1] OR JOB DESCRIPTION	Basis 1		Basis 2		Basis 3	
	Greens Creek 2 -Rental		*do not use*		*Greens Creek 2014*	
EQUIPMENT OPERATORS - Labor Groups and Base Pay Rate ($/hr) [2]						
Bulldozers						
D6R	A1602	$58.38				$60.01
D6R w/ Winch	A1602	$58.38				$60.01
D7R	A1602	$58.38				$60.01
D8R	A1602	$58.38				$60.01
D9R	A1602	$58.38				$60.01
D10R	A1602	$58.38				$60.01
D11R	A1602	$58.38				$60.01
Wheeled Dozers						
824G	A1602	$58.38				$60.01
834G	A1602	$58.38				$60.01
844	A1602	$58.38				$60.01
854G	A1602	$58.38				$60.01
Motor Graders						
120H	A1602	$58.38				$60.01
14G/H	A1602	$58.38				$60.01
16G/H	A1602	$58.38				$60.01
24M	A1602	$58.38				$60.01
Track Excavators						
312C	A1601	$56.49				$58.13
320C	A1601	$56.49				$58.13
325C	A1601	$56.49				$58.13
330C	A1601	$56.49				$58.13
345B	A1601	$56.49				$58.13
365BL	A1601	$56.49				$58.13
385BL	A1601	$56.49				$58.13
Scrapers						
631G	A1602	$58.38				$60.01
637G PP	A1602	$58.38				$60.01
Wheeled Loaders						
924G	A1602	$58.38				$60.01
928G	A1602	$58.38				$60.01
950G	A1602	$58.38				$60.01
966G	A1602	$58.38				$60.01
972G	A1602	$58.38				$60.01
980G	A1602	$58.38				$60.01
988G	A1602	$58.38				$60.01
990	A1602	$58.38				$60.01
992G	A1602	$58.38				$60.01
994D	A1602	$58.38				$60.01
L-2350	A1602	$58.38				$60.01
Shovels						
KOM PC2000	A1602	$58.38				$60.01
KOM PC3000	A1602	$58.38				$60.01
KOM PC4000	A1602	$58.38				$60.01
KOM PC5500	A1602	$58.38				$60.01
KOM PC8000	A1602	$58.38				$60.01

Labor Rates

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Basis 1		Basis 2		Basis 3	
	Greens Creek 2 -Rental		*do not use*		*Greens Creek 2014*	
Other Equipment						
420D 4WD Backhoe	A1601	$56.49				$58.13
428D 4WD Backhoe	A1601	$56.49				$58.13
CS533E Vibratory Roller	A1601	$56.49				$58.13
CS663E Vibratory Roller	A1601	$56.49				$58.13
CP533E Sheepsfoot Compactor	A2105	$53.31				$54.84
CP663E Sheepsfoot Compactor	A2105	$53.31				$54.84
Light Truck - 1.5 Ton	A1601	$56.49				$58.13
Supervisor's Truck	A1601	$56.49				$58.13
Flatbed Truck	A1601	$56.49				$58.13
Air Compressor + tools	A1601	$56.49				$58.13
Welding Equipment	A1601	$56.49				$58.13
Heavy Duty Drill Rig	S2204	$58.87				$59.93
Pump (plugging) Drill Rig	A1601	$56.49				$58.13
Concrete Pump						
Gas Engine Vibrator	A1601	$56.49				$58.13
Generator 5KW						
HDEP Welder (pipe or liner)						
5 Ton Crane	A1601	$56.49				$58.13
20 Ton Crane	A1601	$56.49				$58.13
50 Ton Crane	A1602	$58.38				$60.01
120 Ton Crane	A1602	$58.38				$60.01
Fringe Benefits						
Equip Op Fringe Benefits ($/hr)		$0.00				$0.00
Zone and Area Adjustments - Miles and Rates ($hr) (3)						
Equipment Zone 1	none	$0.00			none	$0.00
Equipment Zone 2	none	$0.00			none	$0.00
Equipment Zone 3	none	$0.00			none	$0.00
Equipment Zone 4	none	$0.00			none	$0.00
Equipment Zone 5						
Equipment Zone 6						
Equipment Zone 7						
NOTES:						
(1) Equipment Type:	Catepillar model or equivalent		Catepillar model or equivalent		Catepillar model or equivalent	
(2) Equipment Operator Source:	Alaska Dept. of Labor and					
(3) Zone Basis:						
TRUCK DRIVERS - Labor Groups and Base Pay Rate ($/hr) (4)						
725 (articulated)	A2101	$56.16				$57.69
730 (articulated)	A2101	$56.16				$57.69
735 (articulated)	A2101	$56.16				$57.69
740 (articulated)	A2102	$57.52				$59.05
769D	A2102	$57.52				$59.05
773E	A2102	$57.52				$59.05
777D	A2102	$57.52				$59.05
785C	A2102	$57.52				$59.05
793C	A2102	$57.52				$59.05
797B	A2102	$57.52				$59.05
613E (5,000 gal) Water Wagon	A2105	$53.31				$54.84
621E (8,000 gal) Water Wagon	A2105	$53.31				$54.84
777D Water Truck	A2105	$53.31				$54.84
785C Water Truck	A2105	$53.31				$54.84
Dump Truck (10-12 yd3)	A2105	$53.31				$54.84
Fringe Benefits						
Truck Driver Fringe Benefits ($/hr)		$0.00				$0.00
Zone and Area Adjustments (5)						
Truck Zone 1	none	$0.00			none	$0.00
Truck Zone 2	none	$0.00				
Truck Zone 3	none	$0.00				
Truck Zone 4						
Truck Zone 5						
Truck Zone 6						
Truck Zone 7						

Labor Rates

File Name:	***Greens_Creek_RecPln_Cost_Data_Appx***
Date:	***April 1, 2014***
Cost Basis:	***User Data***
Author/Source:	***SRK Consulting/Greens Creek***

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Basis 1		Basis 2		Basis 3	
	Greens Creek 2 -Rental		*do not use*		*Greens Creek 2014*	
LABORERS - Labor Groups and Base Pay Rate ($/hr) (6,7)						
General Laborer	S1201	$49.65				$50.69
Skilled Laborer	S1203	$51.69				$57.73
Driller's Helper	A1604	$54.89				$56.53
Rodmen (reinforcing concrete)	S0401	$52.26				$53.77
Cement finisher	S0401	$52.26				$53.77
Carpenter	A0301	$57.21				$58.82
Fringe Benefits						
Laborer Fringe Benefits ($/hr)						$0.00
Carpenter Fringe Benefits ($/hr)						$0.00
Zone and Area Adjustments (8)						
Laborer Zone 1	none	$0.00			none	$0.00
Laborer Zone 2	none	$0.00				
Laborer Zone 3	none	$0.00				
Laborer Zone 4						
Laborer Zone 5						
Laborer Zone 6						
Laborer Zone 7						
NOTES:						
(6) Laborer Source:	Alaska DB 2012					
(7) Carpenter Source:	Alaska DB 2012					
(8) Zone Basis:	Not used					
PROJECT MANAGEMENT AND TECHNICAL LABOR - Base Pay Rate ($/hr) (9)						
Project Manager		$150.00				$150.00
Foreman		$75.00				$75.00
Field Geologist/Engineer		$125.00				$125.00
Field Tech/Sampler		$75.00				$75.00
Range Scientist		$125.00				$125.00
Senior Planning Engineer						
Project Engineer						
Mechanic/Fitter						
NOTES:						
(9) Project Manager:	SRK Staff Engineer					
(9) Foreman Source:	SRK Field Tech					
(9) Techical Labor Source:	SRK Typical					
INDIRECT COSTS						
SOCIAL SECURITY, WORKMAN'S COMP, INSURANCE, ETC.						
Unemployment (%)						
Retirement/SS/Medicare (%)						
Workman's Compensation (%)						
State Payroll Tax (13),(15),(17),(18)						
NOTES:						
(10) Workman's Comp Source:						
(11) Social Security/Medicare						
(12) Workmans Compensation						
(13), (14) & (15) State Payol taxes						

File Name:	*Greens_Creek_RecPln_Cost_Da*
Date:	*April 1, 2014*
Cost Basis:	*User Data*
Author/Source:	*SRK Consulting/Greens Creek*

RECLAMATION MATERIAL COST TABLE

MATERIAL TYPE		Basis 1	Basis 2	Basis 3
		Greens Creek 2 - Rental	*do not use*	*Greens Creek 2014*
Revegetation Materials				
Seed Mixes				
Seed Mix	Units			
None				
Mix 1	Cost/Acre	$187.50		$556.98
Mix 2	Cost/Acre			
Mix 3	Cost/Acre			
Mix 4	Cost/Acre			
User Mix 1	Cost/Acre			
User Mix 2	Cost/Acre			
User Mix 3	Cost/Acre			
User Mix 4	Cost/Acre			
User Mix 5 (see Seed Mix sheet)	Cost/Acre			
	Notes:			
Mulch				
Item	Units			
None				
Straw Mulch	Cost/lb			
Hydro Mulch	Cost/lb			
Timber Mulch	Cost/lb			
	Cost/lb			
	Cost/lb			
	Notes:			
Amendments				
Item	Units			
None				
Organic Matter	Cost/lb			
Treated Sludge	Cost/lb			
Chemical	Cost/lb			
	Cost/lb			
	Cost/lb			
	Cost/lb			
	Notes:			
Well Abandonment Materials				
Description	Units			
Cement	50lb bag	$46.00	adjusted with inflatio	$46.00
Grout (Low Grade Bentonite)	50lb bag	$12.15	NV cost	$12.15
Inert Material/Cuttings	cy			
	Notes:			
Monitoring Costs				
Description	Units	Cost/unit	Cost/unit	Cost/unit
Monitor Well Pump	ea.	$2,150.00	NV cost	$2,150.00
Sampling Supplies	ea.	$0.00	included	$0.00
Underground Care and Maintenanc	ea.	$64,000.00	adjusted for inflation	$64,000.00
Suite Q	ea.	$742.52	adjusted for inflation	$742.52
QA/QC	ea.	$972.22	2008 costs adjusted	$972.22
Stormwater - sites	ea.	$149.57	2008 costs adjusted	$149.57
APDES - discharge	ea.	$186.97	2008 costs adjusted	$186.97
marine sampling/maintenance	ea.	$2,500.00	2008 costs adjusted	$2,500.00
HI sed.organism contractor and lab	ea.	$33,000.00	2008 costs adjusted	$33,000.00
Site-wide vegetation	ea.	$480.77	2008 costs adjusted	$480.77
Shipping	ea.	$80.13	2008 costs adjusted	$80.13
Professional Services	ea.	$16,000.00	2008 costs adjusted	$16,000.00

Fuel, Etc.				
Description	Units	Cost/unit	Cost/unit	Cost/unit
Off-road Diesel - delivered [1]	$/gal	$3.77	, JS, June 28, 2012	$4.14
Pickup Truck Travel	$/mi			
Electical Power	$/kWh	$0.1000		$0.1000
Diesel power	$/kWh	$0.29		$0.32
Water treatment reagents	$/gal			
	Notes:			March 21, 2014 James Carson at Taku Fuel

Nevada Standardized Bond Calculation
Misc. Unit Costs

File Name:	*Greens_Creek_RecPln_Cost_Data_Appx B Att B_311400 010_20140408.xlsm*
Date:	*April 1, 2014*
Cost Basis:	*User Data*
Author/Source:	*SRK Consulting/Greens Creek*

MISCELLANEOUS COST TABLE

JOB DESCRIPTION		Basis 1		Basis 2		Basis 3	
		Greens Creek 2 - Rental		*do not use*		*Greens Creek 2014*	
REVEGETATION							
Item	**Units**	**Labor**	**Equip**	**Labor**	**Equip**	**Labor**	**Equip**
Seeding - Broadcast Manual (1)	$/acres	$41.71	$0.00			$37.17	$0.00
Seeding - Broadcast Mechanical (1)	$/acres	$41.71	$59.40			$37.17	$20.34
Seeding - Drill (1)	$/acres	$41.71	$59.40			$37.17	$20.34
Seeding - Hydroseeding (1)	$/acres	$41.71	$59.40			$37.17	$20.34
Item	**Units**	**Materials**		**Materials**		**Materials**	
Shrub Planting - bare root 6-10 in (150- 250mm) (2)	ea.						
Tree Planting - bare root 11-16 in (270- 400mm) (3)	ea.						
Cactus Planting (4)	ea.						
NOTES:							
(1) Seeding Source:							
(2) Shrub Source:							
(3) Tree Source:							
(4) Cactus Source:							
BUILDING and WALL DEMOLITION							
Item	**Units**		**Premium**		**Premium**		**Premium**
Building Demolition							
Lg. steel	C.F.						
Lg. concrete	C.F.						
Lg. masonry	C.F.						
Lg. mixed	C.F.						
Sm. steel	C.F.						
Sm. concrete	C.F.						
Sm. masonry	C.F.						
Sm. wood	C.F.						
Wall Demolition							
Block 4 in thick	S.F.		20%				20%
Block 6 in thick	S.F.		20%				20%
Block 8 in thick	S.F.		20%				20%
Block 12 in thick	S.F.		20%				20%
Conc 6 in thick	S.F.		10%				10%
Conc 8 in thick	S.F.		10%				10%
Conc 10 in thick	S.F.		10%				10%
Conc 12 in thick	S.F.		10%				10%
WASTE DISPOSAL							
Item	**Units**	**Materials**		**Materials**		**Materials**	
Rubbish and Waste Handling							
Dumpster delivery (average for all sizes)	ea.						
Haul (average for all sizes)	ea.						
Rent per month (average for all sizes)	ea.						
Disposal fee per ton (tonne) (average for all sizes)	ton						
NOTES:							
Dumpster Cost Source							
Disposal Fee Source:							
Hazardous Material Handling - Solids							
Pickup fees 55 gal. drums	ea.	$230.00				$230.00	
Bulk material (average)	ton	$380.00				$380.00	
Transport - truck load (80 drums, 25 cy (m3), 18 tons)	mile	$5.23				$5.23	
Dump site disposal fee	ton	$267.00				$267.00	
NOTES:							
Solid Handling Cost Source		2012 Means Heavy Construction					
Solid Disposal Fee Source:		2012 Means Heavy Construction					
Hazardous Material Handling - Liquids							
Vacuum Truck Pickup (2200 gal or 9,700 litres)	hr.	$129.00				$129.00	
Vacuum Truck Pickup (5000 gal or 2,000 litres)	hr.	$184.00				$184.00	
Dump site disposal fee	ton	$267.00				$267.00	
NOTES:							
Liquid Handling Cost Source		2012 Means Heavy Construction					
Liquid Disposal Fee Source:		2012 Means Heavy Construction					
Hydrocarbon Contaminated Soils (HCS)							
Insitu Biotreatment	C.Y	$16.85				$16.85	
HCS disposal fee	C.Y	$267.00				$267.00	

Nevada Standardized Bond Calculation
Misc. Unit Costs

File Name:	*Greens_Creek_RecPln_Cost_Data_Appx B Att B_311400 010_20140408.xlsm*
Date:	*April 1, 2014*
Cost Basis:	*User Data*
Author/Source:	*SRK Consulting/Greens Creek*

MISCELLANEOUS COST TABLE

JOB DESCRIPTION		Basis 1		Basis 2		Basis 3	
		Greens Creek 2 - Rental		*do not use*		*Greens Creek 2014*	
UNDERGROUND OPENING CLOSURE							
Item	**Units**	**Materials**	**Premium**	**Materials**	**Premium**	**Materials**	**Premium**
Reinforced Concrete Bulkheads and Shaft Covers							
Grade walls - 15 in thick, 8 ft high	C.Y	$137.00				$137.00	
Grade walls - 15 in thick, 12 ft high	C.Y	$137.00				$137.00	
Elevated conc, 1-way beam & slab - 15ft span	C.Y	$226.00				$226.00	
Elevated conc, 1-way beam & slab - 25ft span	C.Y	$218.00				$218.00	
Item	**Units**	**Materials**		**Materials**		**Materials**	
Small Adit Plugging							
Bat Gate (5)	ea.	$2,732.39				$2,732.39	
Culvert Gate (5)	C.Y	$5,464.79				$5,464.79	
Adit Foam Plug (6)	C.Y	$273.24				$273.24	
Production Opening Foam Plug (6)	C.Y	$273.24				$273.24	
NOTES:							
(5) Bat Gate Source:		NV BLM, 2/2006: 8 hr + 1hr mob/demob + 1hr setup per gate (adjusted to 2011)					
(6) Foam Plug Source:		NV BLM, 2/2006: 8 hr + 1hr mob/demob + 1hr setup per adit; 16 hrs per production opening (adjusted to 2011)					
MISC. LINEAR PROJECTS							
Item	**Units**	**Materials**	**Premium**	**Materials**	**Premium**	**Materials**	**Premium**
Fencing Installation							
Barbed 3-strand	ft	$0.45				$0.45	
Barbed 4-strand	ft	$0.60				$0.60	
Barbed 5-strand	ft	$0.75				$0.75	
Chain link 8 ft -10 ft Install	ft	$32.50				$32.50	
Wood stockade fence 6 ft high - Install	ft	$13.75				$13.75	
	ft						
	ft						
Fencing Removal							
Barbed 3-strand Removal	ft						
Barbed 4-strand Removal	ft						
Barbed 5-strand Removal	ft						
Chain link 8 ft -10 ft Removal	ft						
Wood, all types 4 ft -6 ft high Removal	ft						
	ft						
	ft						
Culvert Removal							
12 in (300 mm) Diameter	ft						
18 in (450 mm) Diameter	ft						
24 in (600 mm) Diameter	ft						
36 in (1m) Diameter	ft						
Pipeline Removal							
Plastic Pipe 3/4 in (mm) - 4 in (100 mm) diameter	ft						
6 in (150 mm) - 8 in (200 mm)	ft						
10 in (250 mm) - 18 in (450 mm)	ft						
20 in (500 mm) - 36 in (1 m)	ft						
Pipe and Drainpipe Installation							
Water 4in (100mm) 40ft (12m) length, welded HDPE	ft	$3.44				$3.44	
Water 6in (150mm) 40ft (12m) length, welded HDPE	ft	$7.80				$7.80	
Water 12in (300mm) 40ft (12m) length, welded HDPE	ft						
Drain 4in (100mm) perforated PVC	ft	$1.40				$1.40	
Drain 6in (150mm) perforated PVC	ft	$2.95				$2.95	
Drain 4in (100mm) corrugated, perf or plain	ft	$0.54				$0.54	
Drain 6in (150mm) corrugated., perf or plain	ft	$1.71				$1.71	
Drain Rock Preparation							
Item	**Units**		**Total**		**Total**		**Total**
Crushing	C.Y						
Screening	C.Y		$1.00				$1.00
Misc.							
Item	**Units**		**Premium**		**Premium**		**Premium**
Backhoe work	C.Y						
Powerline and Transformer Removal			**Total**		**Total**		**Total**
Single Pole Powerlines (7)	mile		$37,975				$37,975
Double Pole Powerlines (8)	mile		$43,400				$43,400
Substation (9)	unit		$27,216				$27,216
NOTES:							
(7) Single Pole Source:		NVEnergy estimate (2009) Adjusted to 2012				NVEnergy estimate (2009) Adjusted to 2012	

Nevada Standardized Bond Calculation
Misc. Unit Costs

File Name:	*Greens_Creek_RecPln_Cost_Data_Appx B Att B_311400 010_20140408.xlsm*
Date:	*April 1, 2014*
Cost Basis:	*User Data*
Author/Source:	*SRK Consulting/Greens Creek*

MISCELLANEOUS COST TABLE

JOB DESCRIPTION		Basis 1		Basis 2		Basis 3	
		Greens Creek 2 - Rental		*do not use*		*Greens Creek 2014*	
EROSION, EVAPORATION and SEDIMENTATION CONTROL							
Item	**Units**	**Materials**	**Premium**	**Materials**	**Premium**	**Materials**	**Premium**
Rip-Rap & Rock Lining							
Rip-Rap 3/8 to 1/4 C.Y. pieces, grouted	S.Y.	$20.00				$20.00	
Rip-Rap 18 in min thick, no grout	S.Y.	$5.90				$5.90	
Gabions, 6 in deep	S.Y.	$8.80				$8.80	
Gabions, 9 in deep	S.Y.	$11.05				$11.05	
Gabions, 12 in deep	S.Y.	$16.15				$16.15	
Gabions, 18 in deep	S.Y.	$21.50				$21.50	
Gabions, 36 in deep	S.Y.	$34.50				$34.50	
Liner Installation							
Item	**Units**	**Materials**	**Premium**	**Materials**	**Premium**	**Materials**	**Premium**
Site grading	S.F.						
Compaction	S.F.						
Item	**Units**		**Materials**		**Materials**		**Materials**
60 mil HDPE Liner	S.F.		$0.43				$0.43
Construction Management Support							
Item	**Units**		**Materials**		**Materials**		**Materials**
Office Trailer, Furnished, no hook-ups	month		$140.00				$140.00
Toilet Portable, chemical	month		$198.20				$198.20
PRODUCTION OR DEWATERING WELL PUMP REMOVAL							
Item	**Units**	**Labor**	**Equip**	**Labor**	**Equip**	**Labor**	**Equip**
Pump Type							
Submersible (10)	ft to pump	$2.39	$5.19			$2.39	$5.19
Line Shaft (10)	ft to pump	$5.57	$12.11			$5.57	$12.11
NOTES:							
(10) Pump Removal Source:		WDC Exploration 12/2005 (adjusted to 2012)				WDC Exploration 12/2005 (adjusted to 2012)	

File Name:	***CostData STD 3.xls***
Date:	***December 1, 2005***
Cost Basis:	***Standardized Data***
Author/Source:	***SRK Consulting/Greens Creek***

Administrative Cost Rates (%)

	Cost Ranges for Indirect Cost Percentages				
	<=	<=	<=	>	
1. Engineering, Design and Construction (ED&C) Plan	$500,000	$2,500,000	$25,000,000	$25,000,000	Small Plan
Variable Rate	3%	3%	3%	3%	3%
	<=	<=	<=	>	
2. Contingency (6.5% bid, 6.5% scope)	$500,000	$5,000,000	$50,000,000	$50,000,000	Small Plan
Variable Rate	13%	13%	13%	13%	13%
3. Insurance		of labor costs			
4. Bond (payment and performance)	3.0%	of the O&M costs if O&M costs are >$100,000			
5. Contractor overhead and profit+insurance (@0.5%)	15.5%	of the O&M costs			
	<=	<=	<=	>	
6. Contract Admin and Government Admin (ea. 3.5%)	$1,000,000	$15,000,000	$25,000,000	$25,000,000	
Variable Rate	7%	7%	7%	7%	7%

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES

NOTE :

As per Pete Condon e-mail Thu 1/23/2014 2:46 PM

Attachment C

Transportation Costs

Quote

11111 E Trent
Spokane, WA 99206

Phone: (509) 927-4071
Fax: (509) 927-2330

Sales Order Number: 0018417
Sales Order Date: 5/22/2013
Salesperson: ECD
Customer Number: GRECRE

Hecla Greens Creek Mining CO
PO Box 32199
Juneau, AK 99803-2199

Ship To:
Greens Creek Mining Co.
C/O Alaska Marine Lines
5615 W, Marginal Way SW
Seattle, WA 98106

Confirm To: Nate Trigg - Purchasing

Customer P.O.	Ship VIA	F.O.B.	Terms
QUOTE	BESWAY	Ship Point	Net 30 Days

Quantity	Unit	Item Number	Description	Price	Amount
200.0	EACH	RAINIER101	Rainier Fiber, 100% Wood Fiber 5 pallets @ 40 bags. Need to order full pallets of 40 bags. Same unit price for 280 or 320 bags.	10.25	2,050.00
50.0	EACH	FE040	Fertilizer, 22-13-6-7S-1Mg This analysis is special run blend and is minimum quantity.	21.40	1,070.00
24.0	LBS	SE009	Greens Creek Seed Mix - Packed 15 lbs PLS/bag.	35.75	858.00
		/MSCFRTSPK	Misc Freight Charges - Spokane Estimated inbound freight to AML for all items.		550.00

All items can be delivered to AML within 7 days ARO.

This price quotation is valid to July 31, 2013.

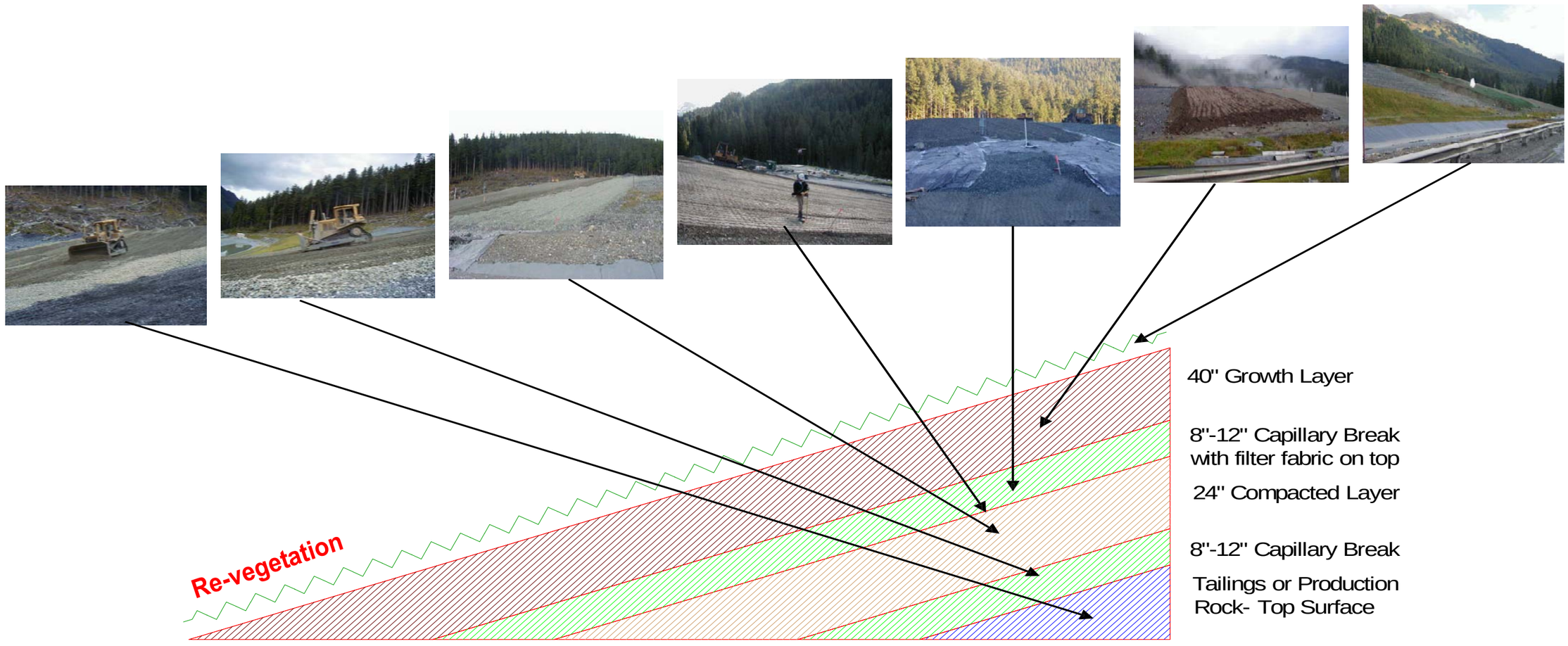
Equipment orders will not be processed without customer's signed purchase authorization.
Finance arrangements, if desired, must be set forth with accompanying financial information
and are subject to approval before shipment is made.

Net Order: 4,528.00

Purchase Authorized By: _____
Address: _____
Phone / Fax: _____
Signature: _____

Attachment D

Engineered Cover

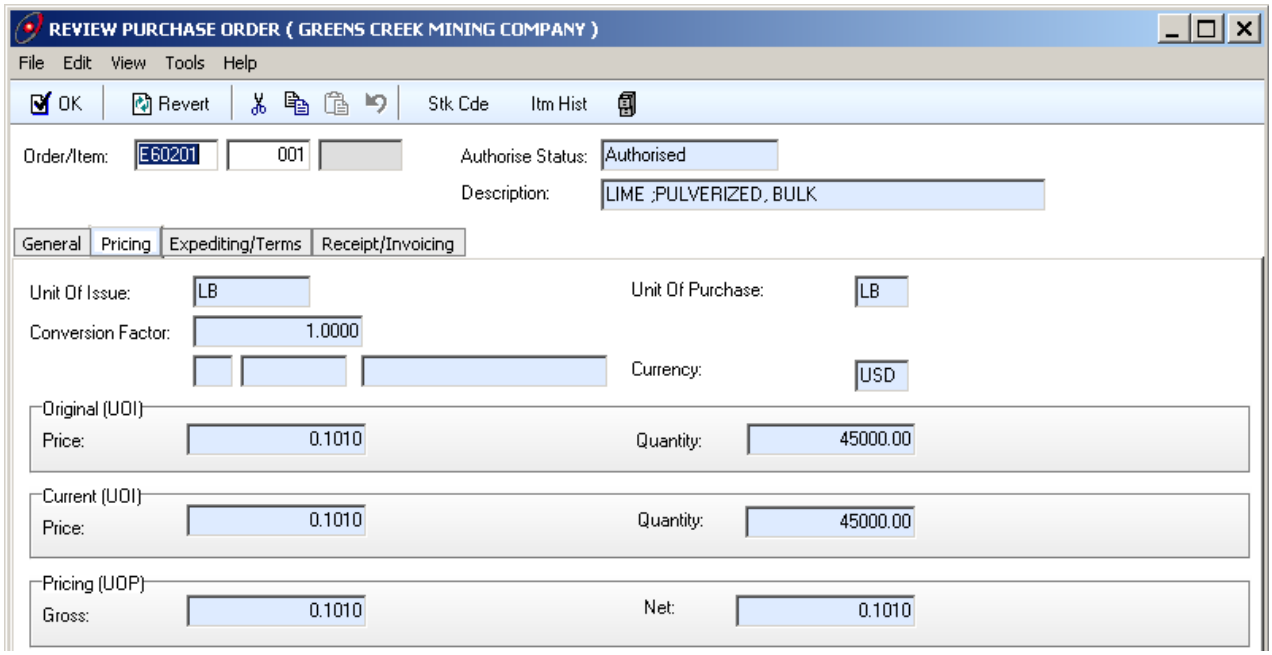


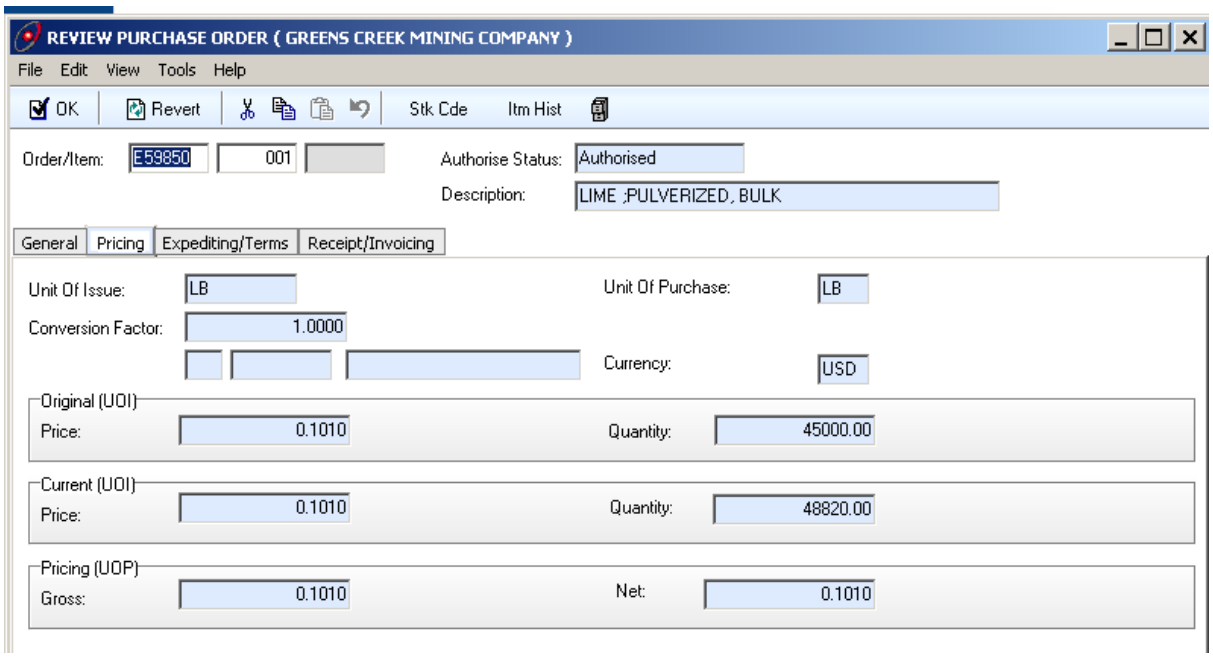
Typical 4 Layer Engineered Cover for Reclamation placed on a 3:1 Slope

Attachment E

Lime Cost

GRAYMONT WESTERN U.S. INC





REVIEW PURCHASE ORDER (GREENS CREEK MINING COMPANY)

File Edit View Tools Help

OK | Revert | Stk Cde | Itm Hist

Order/Item: E59455 001

Authorise Status: Authorised

Description: LIME ;PULVERIZED, BULK

General | Pricing | Expediting/Terms | Receipt/Invoicing

Unit Of Issue: LB

Unit Of Purchase: LB

Conversion Factor: 1.0000

Currency: USD

Original (UOI)

Price: 0.1010

Quantity: 45000.00

Current (UOI)

Price: 0.1010

Quantity: 44340.00

Pricing (UOP)

Gross: 0.1010

Net: 0.1010

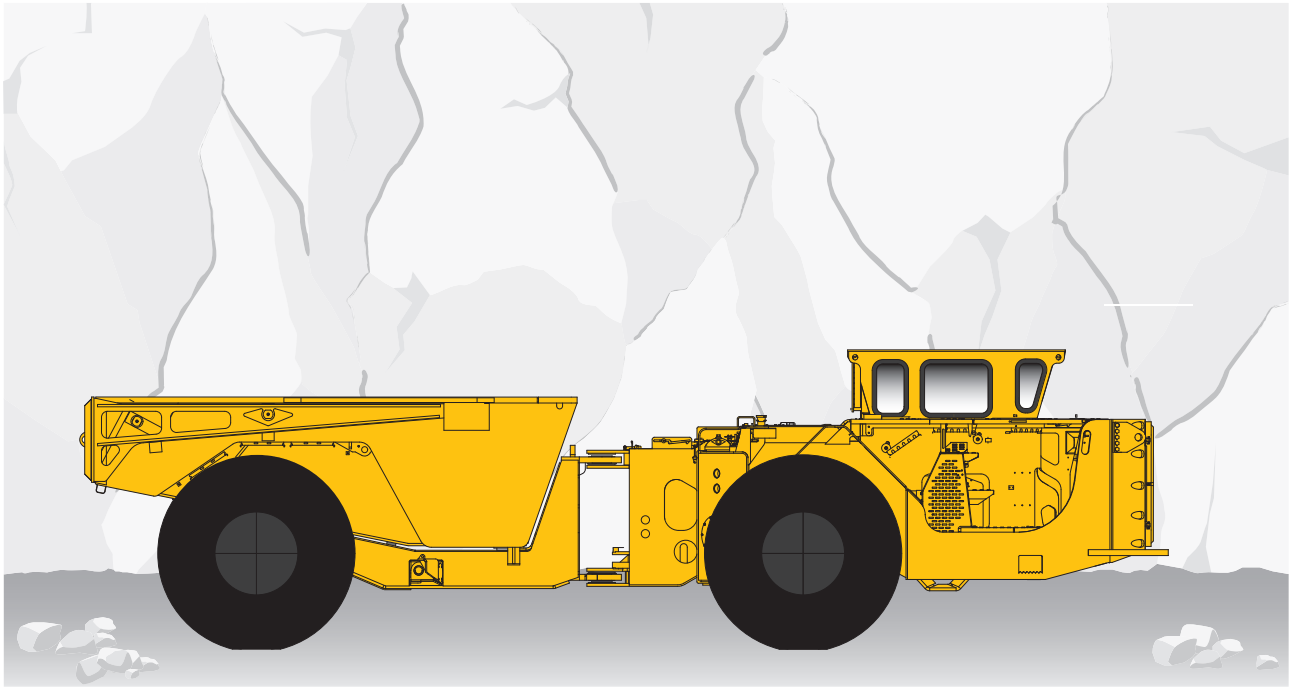
Attachment F

Underground Equipment

Atlas Copco Underground trucks

Minetruck MT2010

Technical specification



The Minetruck MT2010 is a 20 metric tonne underground truck, designed for small to medium-scale underground operations and high speed development.

Features

Dump box

- Optimum box profile for clean and fast dumping
- Box support for safe work under box

Operator's compartment

- FOPS/ROPS approved canopy with back protection
- 3 point mounting access for entry and exit from operator's compartment
- Optional back up camera and monitor for maximum safety and operator assistance
- Optional spacious and ergonomically designed compartment for maximum safety and minimal operator fatigue with:
  - Forward seated enclosed cabin
  - ISO ROPS/FOPS certified for maximum safety
  - Air conditioning for convenient working conditions

Power frame

- A high power-to-weight ratio for high ramp haulage performance
- Oversized power train components for long life and low costs

General

- Great serviceability with centralized service points
- Long-life roller bearing centre hinge
- Anti skid material at service access points
- Central manual lubrication
- Hydraulic hoses, electric cables and hot surfaces are well routed and protected
- SAHR brake system
- CE certified

Specifications

CAPACITIES

kg	Tramming capacity	20 000
m³	Standard box volume (SAE heaped)	9.0

MOTION TIMES

sec	Dumping	15

WEIGHTS

Standard equipped vehicle (empty weight)		
kg	Approximate weight	20 500
	Front axle load	13 800
	Rear axle load	6 700

Engine

- Cummins..... QSL9C300, Tier/Stage 3
- Power rating at 2 100 rpm .....224 kW/300 hp
- Maximum torque at 1 350 rpm.....1 369 Nm
- MSHA Part 7 ventilation rate ..... 368 m^3/min
- MSHA Part 7 particulate index..... 396 m^3/min
- Rock Tough purifier and silencer
- Dry type air cleaner
- Exhaust heat protection
- Cooling package with tube type radiator

Transmission and converter

- Converter; single stage with automatic lock-up
- Dana.....5000 Series

Axles

- Spiral bevel differential, full floating, planetary wheel end drive Rock Tough ..... Model 457
- Conventional front and rear differential
- Degree of oscillation..... 20° (10° on each side)

Brakes

- Fully enclosed, force cooled, multiple wet discs at each wheel end
- Service/parking/emergency ..... SAHR

Tyres

Tubeless, steel radial, lug tread design for underground mine service

- Dimension..... 18.00R25

* *As applications and conditions vary, Atlas Copco recommends that the user consults with tyre suppliers to obtain the optimum tyre selection*

Operator's compartment

- Side seated operator for bi-directional operation
- Canopy FOPS/ROPS approved
- Grammer seat with retractable seat belt
- Two pilot operated levers for steering and gear shifting
- External sound level according to ISO 6393 LwA 122 dB(A)
- Sound level in canopy according to ISO 6394 LpA 108 dB(A)
- Sound level in cabin according to ISO 6394 LpA 85 dB(A)
- Whole body vibration value A(8)w in range of 0.5 to 2m/s² (typical value for similar machines).

Hydraulic system

- Filtration type ..... suction
- Heavy duty gear type pumps
- Hydraulic tank capacity.....223 litres
- Cylinders, double acting, chrome plated stems, diameter:
  - Steer cylinders (2) .....115 mm
  - Dump cylinders (2) .....140 mm
- System pressure.....15.5 MPa

Electrical system

- Voltage, system start & accessories.....24 V
- Alternator, high output ..... 140 A
- Hydraulic warning system; temperature, level
- LED lights 8 x 40W
- Isolation switch lockout

Fuel

- Fuel tank capacity.....379 litres

Other

- Central manual lubrication
- Fire extinguisher .....2x6 kg
- Fuel gauge in panel

Optional equipment

Main frame
- Optional box sizes
- Shipping covers
- Wheel chocks
- Tele dump CE certification

Ergonomics
- Forward facing enclosed cab with wheel control steering
- Low built canopy
- Heater (not for low built)
- Air conditioner, cabin

System
- Ansul Checkfire, autofire suppression
- Ansul single bottle fire suppression with engine shutdown
- Lincoln auto lube with timer
- Wiggins fast fuel fill
- Back up camera and monitor
- Manual hydraulic tank fill pump

Drive train
- Neutral break apply

Electrical system
- Tail and brake lights
- Block heater (120V or 240V)

Controls and instruments
- Blockout 3rd and/or 4th gears
- Speedometer

Power unit
- Corrosion resistant radiator

Documentation
- LinkOne parts book, CD
- Operator's and maintenance manual - plasticized

Parts kit
- 1 000 hour consumables

Other
- Tool box

Grade performance

STANDARD CONFIGURATION, BOX EMPTY

%	Grade	0.0	2.0	4.0	6.0	8.3	10.0	12.5	14.3	16.0	18.0	20.0
Ratio	Grade	–	–	–	–	1:12	1:10	1:8	1:7	–	–	1:5
km/h	1st gear	4.5	4.5	4.5	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4
	2nd gear	8.0	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8	7.8
	3rd gear	14.1	14.1	14.0	13.9	13.8	13.8	13.7	13.6	13.5	13.5	13.1
	4th gear	25.1	24.9	24.7	24.4	24.2	23.4	21.9	19.6			

3% rolling resistance assumed. Actual performance may vary depending on the application.

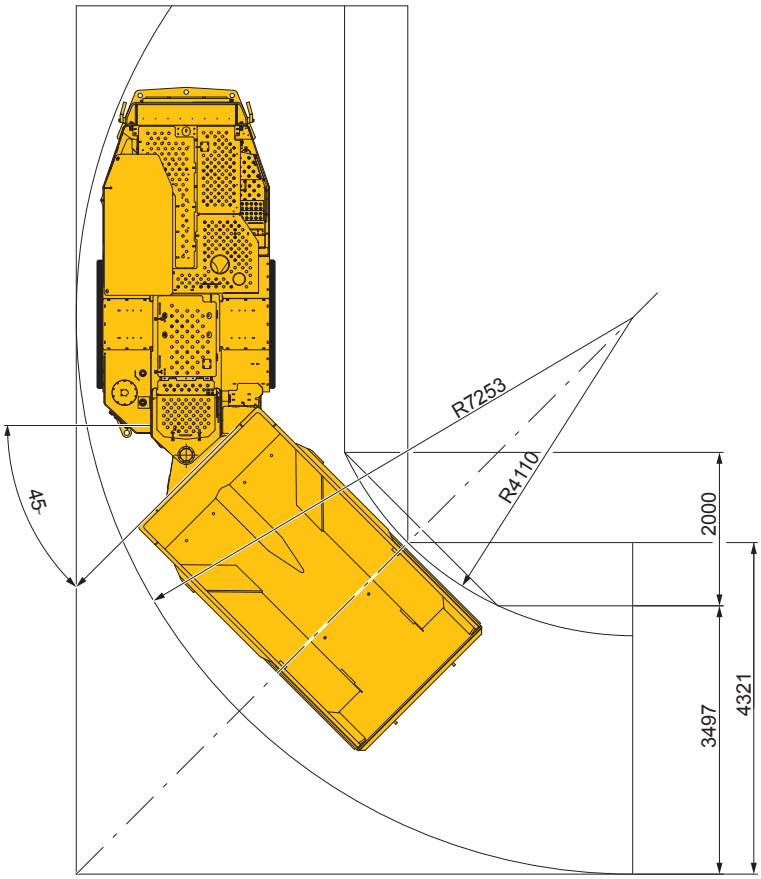
STANDARD CONFIGURATION, BOX LOADED

%	Grade	0.0	2.0	4.0	6.0	8.3	10.0	12.5	14.3	16.0	18.0	20.0
Ratio	Grade	–	–	–	–	1:12	1:10	1:8	1:7	–	–	1:5
km/h	1st gear	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4	4.3	4.3	4.3
	2nd gear	8.0	7.9	7.9	7.8	7.8	7.8	7.7	7.7	7.6	7.3	7.0
	3rd gear	14.0	13.8	13.7	13.5	13.2	12.3	10.9				
	4th gear	24.7	24.2	22.4	17.6							

3% rolling resistance assumed. Actual performance may vary depending on the application.

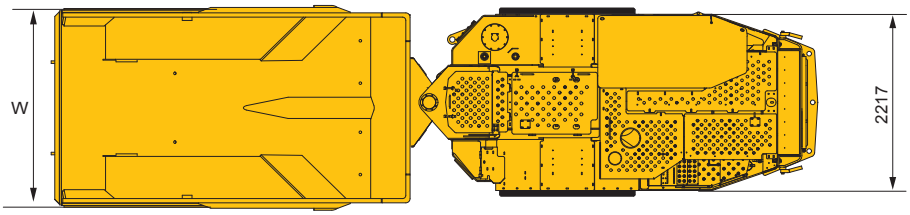
Measurements

TURNING RADIUS



» Dimensions

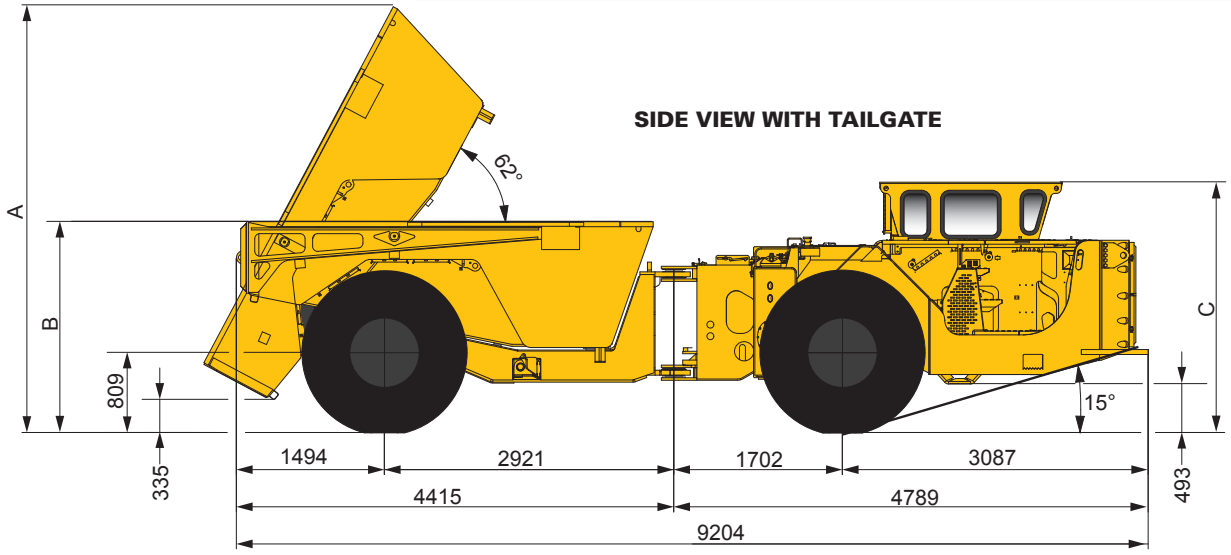
- All dimensions are shown in millimetres
- All dimensions shown are based on standard vehicle configuration with 27 mm tyre deflection, unloaded



TOP VIEW BOX WITH TAILGATE

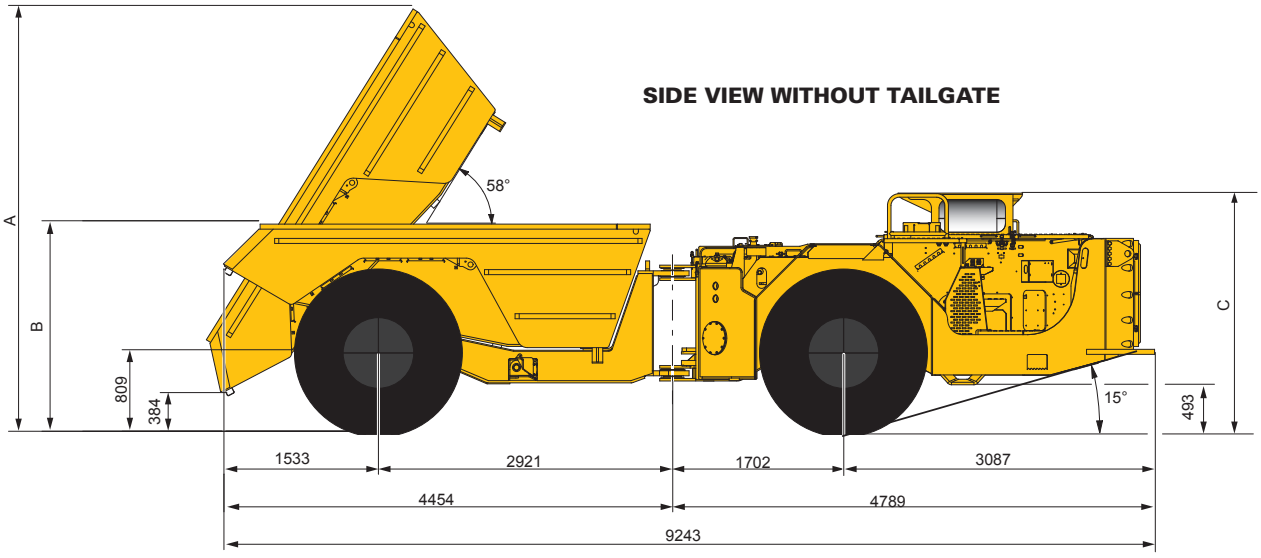
Measurements and weights

DUMP BOXES WITH TAILGATE		STD			
Volume, SAE heaped (m3)		**11.0**	**10.0**	**9.1**	**8.4**
Volume, SAE struck (m3)		9.2	8.0	7.1	6.5
Maximum material density (t/m3)		1.8	2.0	2.2	2.4
Width, dump box (mm)	(W)	2 400	2 400	2 400	2 400
Dump position: box height, max (mm)	(A)	4 445	4 341	4 301	4 199
Tramming position: dump box height (mm)	(B)	2 358	2 230	2 131	2 059



OPERATORS COMPARTMENT	
Height (mm)	**C**
Cabin	2 530
Canopy standard	2 510
Canopy low profile	2 400

DUMP BOXES WITHOUT TAILGATE		STD					
Volume, SAE heaped (m3)		**11.0**	**10.0**	**9.0**	**8.4**	**7.7**	**6.7**
Volume, SAE struck (m3)		9.2	8.0	7.0	6.3	5.6	4.6
Maximum material density (t/m3)		1.8	2.0	2.2	2.4	2.6	3.0
Width, dump box (mm)	(W)	2 435	2 435	2 435	2 435	2 435	2 435
Dump position: box height, max (mm)	(A)	4 444	4 330	4 226	4 197	4 097	4 097
Tramming position: dump box height (mm)	(B)	2 351	2 214	2 089	2 054	1 934	1 934



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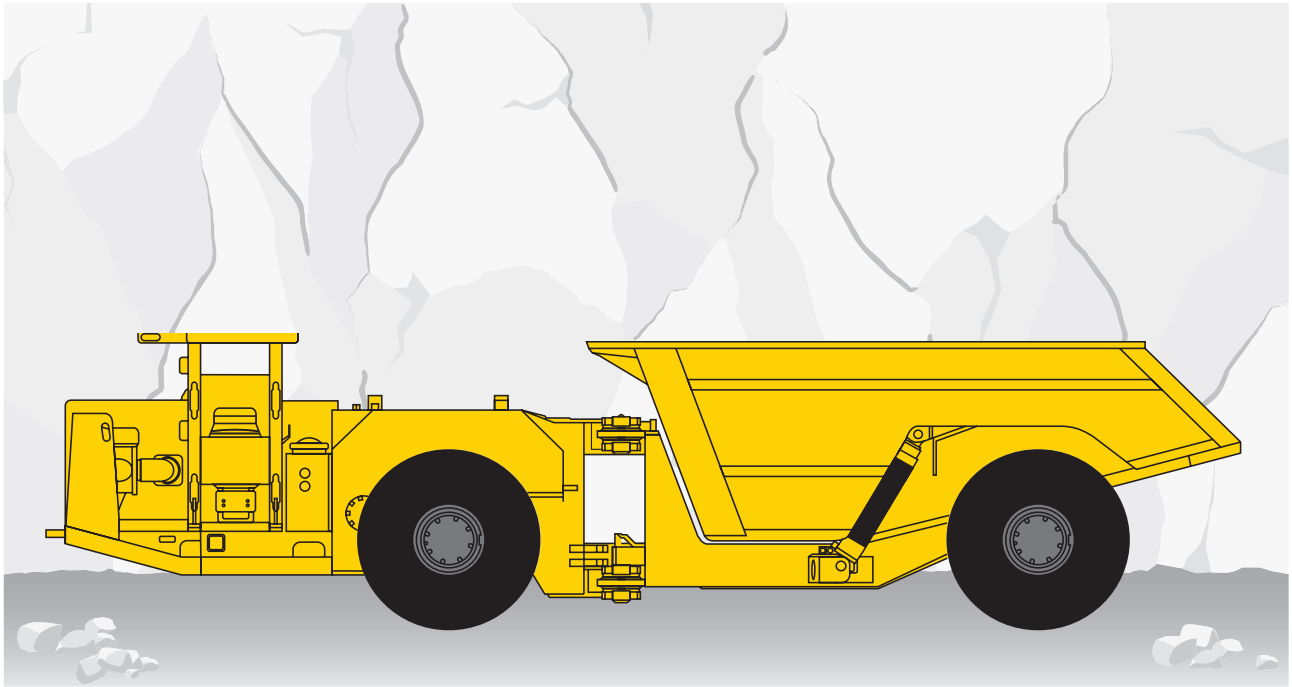
02/2011

Atlas Copco Underground trucks

Minetruck MT436B

Technical specification



The Minetruck MT436B is a 32.6 metric ton capacity underground truck, for large operations, in mining and construction.

Features

- ISO ROPS/FOPS canopy with back protection
- Jacobs engine brake provides increased brake life, automatic engine over speed protection, and reduced heat from braking
- Electric transmission shift control for convenient shifting
- Converter lockup provides better power transfer, less heat and longer component life
- Centralized lubrication simplifies maintenance
- SAHR brake system offers long component life and reliable braking

Specifications

Capacity	
Tramming	32 650 kg

Motion times	
Dump box	
Dumping	14 seconds

Engine

- Detroit Diesel engine ..... DDEC IV Series 60, EPA Tier2/EU Stage 2
- Power rating at 2 100 rpm .....298 kW/400 hp
- Maximum torque at 1 350 rpm.....1 898 Nm
- MSHA Part 7 ventilation rate ..... 793 m^3/min
- MSHA Part 7 particulate index..... 241 m^3/min
- Dry type air cleaner
- Exhaust heat protection
- Remote engine oil drain
- Cooling package with V-core tube radiator

Transmission

- Full power shift, 4 speed forward/reverse
- Dana.....6000 Series

Converter

- Single stage with Lock Up
- Dana..... .....CL-8000 Series

Axles

- Spiral bevel differential, full floating, planetary wheel end drive
- Rock Tough.....508
- Conventional front differential
- Rear axle, trunnion mounted, self-lubricating bushings
- Degree of oscillation .....18° (9° each side)

Brakes

Fully enclosed, force cooled, multiple wet discs at each wheel end

- Service/parking/emergency..... .....SAHR

Tyres

Tubeless, rubber, smooth tread design for underground mine service, on demountable rims

- Dimension.....26.5R25, L4*

** As applications and conditions vary, Atlas Copco recommends that the user consults with tyre suppliers to obtain the optimum tyre selection*

Operator's compartment

- Canopy; ISO ROPS/FOPS approved
- Side seated operator for bi-directional operation
- Grammer seat with retractable seat belts
- Two pilot operated joysticks for steering and dump control

External sound level according to ISO 6393 LwA 123 dB(A)

- Sound level in canopy according to ISO 6394 LpA 104 dB(A)
- Sound level in cabin according to ISO 6394 LpA 85 dB(A)
- Whole body vibration value A(8)w in range of 0.5 to 2m/s²

(typical value for similar machines)

Hydraulic system

- System pressure .....15.8 MPa
- Hydraulic tank capacity .....238 litres
- Filtration, return line .....4.0 µm
- Heavy duty gear type pumps
- Cylinders, double acting, chrome plated stems, diameter:
  - Steer cylinders (2).....152 mm
  - Dump cylinders (2) .....228 mm

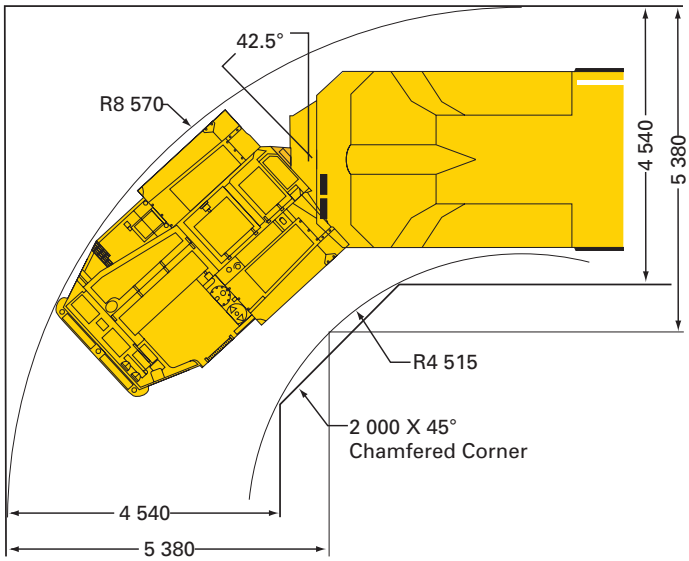
Electrical system

- Voltage, system start & accessories .....24 V
- Alternator, high output .....140 A
- Hydraulic warning system; level, hyd. temp
- Hella projection lights 4 x x70W
- Isolation switch lockout

Fuel

- Fuel tank capacity.....439 litres
- Fuel filtration .....8.0 µm
- Anti-siphon fuel supply

Turning radius



- *Turning angle +/- 42.5°*
- *Turning radius left and right are symmetrical*
- *Dimensions shown are based on standard vehicle configuration with 25 mm tyre deflection*
- *All dimensions are shown in millimetres*

Grade performance

NB. 3% rolling resistance assumed. Actual performance may vary depending on the application

Standard configuration, box empty

Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
Ratio					1:12	1:10	1:8	1:7			1:5
1st gear (km/h)	5.01	5.00	4.99	4.98	4.96	4.95	4.94	4.93	4.92	4.91	4.90
2nd gear (km/h)	8.95	8.92	8.88	8.84	8.81	8.77	8.73	8.70	8.66	8.62	8.59
3rd gear (km/h)	15.82	15.70	15.6	15.59	15.47	15.36	15.24	14.22	13.14	11.68	10.05
4th gear (km/h)	28.10	27.73	27.36	26.40	22.73	17.56					

Standard configuration, box loaded

Percent grade	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
Ratio					1:12	1:10	1:8	1:7			1:5
1st gear (km/h)	4.99	4.97	4.94	4.92	4.90	4.87	4.85	4.83	4.80	4.78	4.76
2nd gear (km/h)	8.89	8.82	8.74	8.67	8.59	8.51	7.87	7.12	6.08	4.97	
3rd gear (km/h)	15.63	15.39	15.16	13.36	10.29						
4th gear (km/h)	27.51	24.03									

Optional equipment

Main frame
- Wheel chocks
- Shipping covers, cabin
- Tele dump

Ergonomics
- Enclosed, cabin
- Heater
- Air conditioner, cabin
- KAB 555 seat with retractable seatbelts cabin
- Side seated with steering wheel, canopy

System
- Ansul dual bottle fire suppression with engine shutdown
- Electric hydraulic tank fill pump
- Lincoln auto lube with timer
- Electric brake release pump

Electrical system
- Amber strobe light - power on
- Load lights
- Side lights- opposite operator‘s cabin
- Tail and brake lights
- Front and rear red lights 2 each
- Block heater, 240 V
- 24/12 V power converter cabin

Controls and instruments
- Blockout 3rd and/or 4th gears (only side seated versions)
- Fuel gauge in panel (front seated cabin)
- Load man weighing system
- Speedometer
- Back up camera and monitor

Power unit
- Epoxy coated radiator

Documentation
- CatBase parts catalogue, CD
- LinkOne parts catalogue, CD
- Parts and service manual - plasticized
- Extra DDEC manual kit

Parts and Services
- Preventive maintenance kits
- Repair and rebuild kits
- Tool kit
- Face mechanics tool set
- Shop mechanics tool set
- Service tool box for RCS

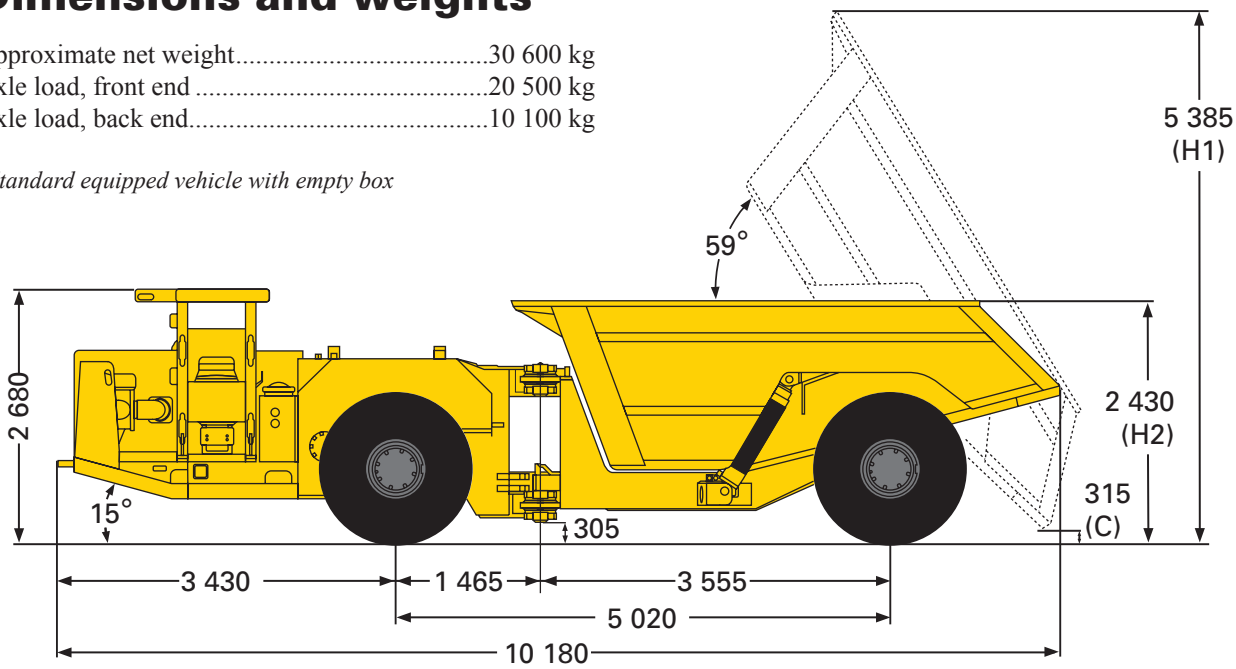
Dump boxes

Dump box data		STD			
Material density (t/m³)		**1.8**	**2.0**	**2.2**	**2.4**
Volume, SEA struck (m³)		16.6	14.4	13.0	11.8
Volume, Semi-heaped (m³)		18.4	16.3	14.8	13.8
Volume, SAE heaped (m³)		20.2	18.2	16.7	15.8
Width, dump box (mm)	W	3 355 3 050	3 355 3050	3 050	3 050
Dump position: Box height, max (mm)	H1	5 440 5 520	5 320 5 385	5 410	5 240
Tramming position: Dump box height (mm)	H2	2 510 2 595	2 430	2 370	2 255
Dump position: Clearance (mm)	C	210	315	350	250

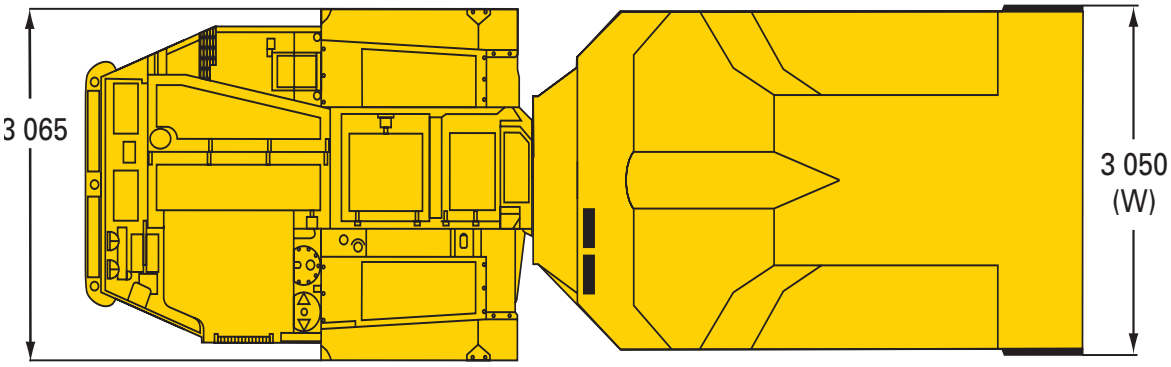
Dimensions and weights*

Approximate net weight.....30 600 kg
Axle load, front end .....20 500 kg
Axle load, back end.....10 100 kg

**Standard equipped vehicle with empty box*



Side view



Top view

- *Dimensions shown are based on standard vehicle configuration with 25 mm tyre deflection*
- *All dimensions are shown in millimetres.*

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9851 2249 01 M
04/2011

Attachment G

Seed Mix

Quote

11111 E Trent
Spokane, WA 99206

Phone: (509) 927-4071
Fax: (509) 927-2330

Sales Order Number: 0018417
Sales Order Date: 5/22/2013
Salesperson: ECD
Customer Number: GRECRE

Hecla Greens Creek Mining CO
PO Box 32199
Juneau, AK 99803-2199

Ship To:
Greens Creek Mining Co.
C/O Alaska Marine Lines
5615 W, Marginal Way SW
Seattle, WA 98106

Confirm To: Nate Trigg - Purchasing

Customer P.O.	Ship VIA	F.O.B.	Terms
QUOTE	BESWAY	Ship Point	Net 30 Days

Quantity	Unit	Item Number	Description	Price	Amount
200.0	EACH	RAINIER101	Rainier Fiber, 100% Wood Fiber 5 pallets @ 40 bags. Need to order full pallets of 40 bags. Same unit price for 280 or 320 bags.	10.25	2,050.00
50.0	EACH	FE040	Fertilizer, 22-13-6-7S-1Mg This analysis is special run blend and is minimum quantity.	21.40	1,070.00
24.0	LBS	SE009	Greens Creek Seed Mix - Packed 15 lbs PLS/bag.	35.75	858.00
		/MSCFRTSPK	Misc Freight Charges - Spokane Estimated inbound freight to AML for all items.		550.00

All items can be delivered to AML within 7 days ARO.

This price quotation is valid to July 31, 2013.

Equipment orders will not be processed without customer's signed purchase authorization.
Finance arrangements, if desired, must be set forth with accompanying financial information
and are subject to approval before shipment is made.

Net Order: 4,528.00

Purchase Authorized By: _____
Address: _____
Phone / Fax: _____
Signature: _____