



**DEPARTMENT OF THE ARMY**  
ALASKA DISTRICT, U.S. ARMY CORPS OF ENGINEERS  
REGULATORY DIVISION  
WESTSIDE BUSINESS PARK  
2175 UNIVERSITY AVENUE, SUITE 201E  
FAIRBANKS, ALASKA 99709-4927

February 11, 2015

Regulatory Division  
POA-1988-269-M6

Mr. Chris Wallace  
Hecla Greens Creek Mining Company  
P.O. Box 32199  
Juneau, Alaska 99803-2199

Dear Mr. Wallace

Enclosed is the signed Department of the Army (DA) permit modification, file number POA-1988-269-M6, Hawk Inlet. This is the 6th permit modification of the original permit. Also enclosed is a Notice of Authorization that should be posted in a prominent location near the authorized work.

If changes to the plans or location of the work are necessary for any reason, plans must be submitted to us immediately. Federal law requires approval of any changes before construction begins.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Also enclosed is a Notification of Administrative Appeals Options and Process and Request for Appeal form regarding this DA Permit Modification (see section labeled "Initial Proffered Permit").

Please contact me via email at [Ellen.H.Lyons@usace.army.mil](mailto:Ellen.H.Lyons@usace.army.mil), by mail at the address above, or by phone at (907) 474-2166 if you have questions. For more information about the Regulatory program, please visit our website at <http://www.poa.usace.army.mil/Missions/Regulatory.aspx>.

Sincerely,

Ellen Lyons  
Project Manager

Enclosures

CF: Chris Wallace – [Cwallace@hecla-mining.com](mailto:Cwallace@hecla-mining.com)  
Steve Segó – [Steve@watermanmp.com](mailto:Steve@watermanmp.com)



**DEPARTMENT OF THE ARMY**  
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2175 UNIVERSITY AVENUE, SUITE 201E  
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February 11, 2015

Regulatory Division  
POA-1988-269-M6

**DEPARTMENT OF THE ARMY**  
**PERMIT MODIFICATION**

Department of the Army permit number POA-1988-269-M5, Hawk Inlet was issued to Hecla Green Creek Mining Company on January 9, 2015, to discharge of 253,000 cubic yards of fill material into 13.91 acres of wetlands for the following work:

- 1) Expansion of the existing tailings disposal facility (TDF) southward into the Admiralty Island National Monument;
- 2) Development of a new water management pond south of the existing TDF and expansion of existing water management ponds;
- 3) Relocation of the B Road and a truck wheel wash facility to accommodate the TDF expansion.

This is the 6th modification of the original permit. The permit is hereby modified as follows:

"This permit authorizes the placement of fill in an additional 1.28 acres of wetlands to increase the south side of the expansion area , (as shown on the attached plan (Sheet 4 of 10). This permit also modifies the original authorization with the removal of Stockpile H for a reduction of 0.69 acres of wetlands originally permitted. The total net increase of wetlands authorized by this modification is 0.59 acres of forested and scrub shrub wetlands."

The work will be performed in accordance with the enclosed plans, sheets 1-10, dated February 2015, which are incorporated in and made a part of this Permit Modification.

The project site is located within Sections 22, 23, 26 and 27, T. 43 S., R. 65 E., Copper River Meridian; USGS Quad Maps Juneau A3 and Juneau A2; Latitude 58.1172° N., Longitude 134.7466° W.; on Admiralty Island, in the City and Borough of Juneau, Alaska.

The following conditions apply to this permit modification:

**Special condition 5 is modified as follows:**

5. As compensatory mitigation, the permittee shall dedicate an additional 2.05 acres of bog/bog wetlands for a total of 53.65 acres of land of which 50.5-acres are wetlands, (identified on sheet 5 of 10, dated February 2015), into a conservation easement. The conservation easement shall be approved by the Corps of Engineers and recorded with the Juneau Recording District, including the drawing and legal description.

Proof of this recording shall be provided to the Corps of Engineers, prior to construction of the work authorized under POA-1988-269-M6, at the following address:

U.S. Army Corps of Engineers  
CEPOA-RD-NC  
2175 University Avenue, Suite 201E  
Fairbanks, Alaska 99709

**The following new condition is added to the permit:**

17. The additional 2.05 acres preserved as stated in special condition 5 above, shall be subject to all requirements of the "Mitigation Plan for Hecla Greens Creek Mining Company Greens Creek Mine Stage 3 Expansion" and dated September 2014.

All other conditions under which the subject authorization was made remain in full force and effect.

This authorization and the enclosed modified plans should be attached to the original permit. Also enclosed is a Notice of Authorization that should be posted in a prominent location near the authorized work.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

Ellen Lyons  
Project Manager



January 15, 2015

Ellen Lyons  
U.S. Army Corps of Engineers

Re: POA-1988-269-M5 Hawk Inlet

Dear Ms. Lyons,

This letter is a request by Hecla Greens Creek Mining Company (HGCMC) for increasing the wetland impact permitted in POA-1988-269-M5 from 13.91 acres to 14.5 acres.

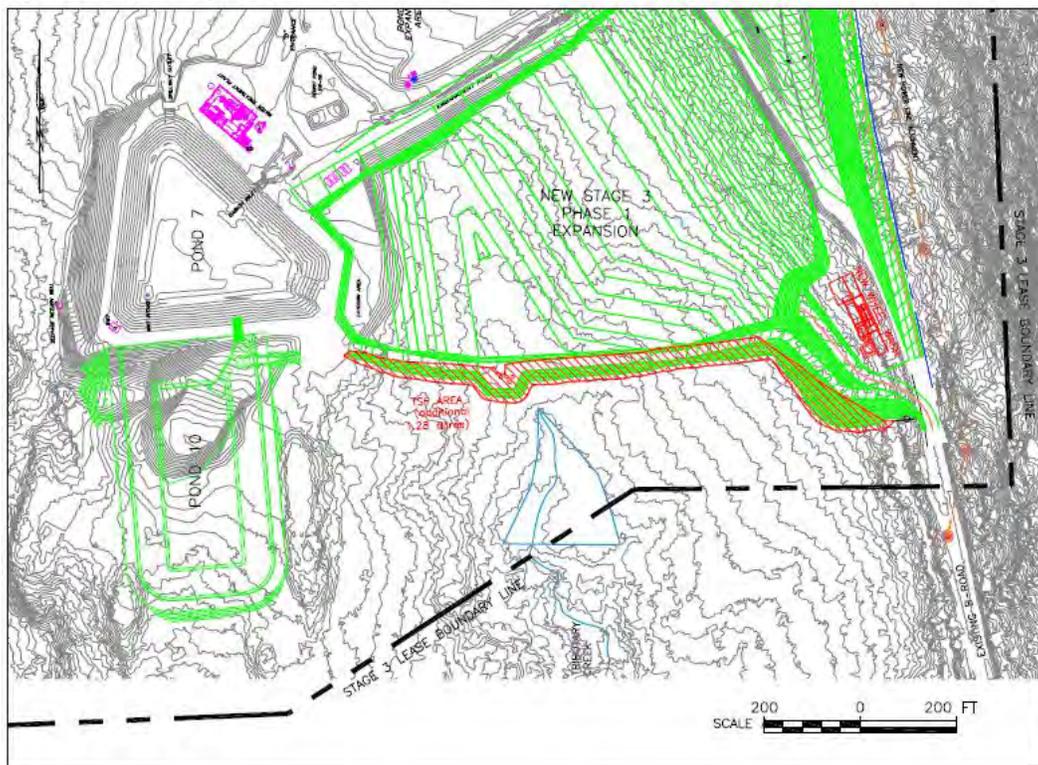
Since the beginning of the permitting process for the tailings expansion the design of the facility has been modified. After receiving the record of decision (ROD) and final environmental impact statement (FEIS) from the Forest Service in September 2013, HGCMC submitted to the U.S. Army Corps of Engineers an amended 404 permit application. This amendment aligned the 404 permit application to the alternative selected in the FEIS and also modified the proposed mitigation. While preparing the amendment the then most recent engineering drawings were used to determine wetland impacts.

After submitting the amendment (March 2014) HGCMC began a review of the logistics of the construction based upon the then current engineering drawings. One of the key items, to come out of this review, was the volume of construction rock needed to be imported to the property, approximately 400,000 cubic yards. This would require close to 300 barge loads, each taking a day to unload. Given the short construction season, limited space for stockpiling, and the potential for delays, HGCMC asked Klohn Crippen Berger, tailings disposal facility design engineers, to investigate ways of reducing this volume of material. A vast quantity of imported construction rock was slated for the new south embankment road and pipeline corridor from 1.4 B-Road to Pond 7 (Figure 1). The height of the embankment is only needed in order to bring the pipelines in on grade for gravity draining to Pond 7. Ultimately, the engineers cut the volume of imported material in half, primarily by designing the embankment to be constructed out of co-disposed waste rock and tailings, two materials that are available from the property. Also, the previous design called for the liner placement along the north face of the embankment, with the embankment material located outside of the lined tailings disposal facility. As designed now the liner extends beneath the embankment so the majority of the embankment material is within the lined tailings disposal facility, resulting in a decrease of fill material.

As amended the 404 permit application had HGCMC discharging 253,000 cubic yards of fill material into 13.91 acres of wetlands. With the redesign HGCMC will now discharge 117,000 cubic yards of fill material into 14.5 acres of wetlands. The conversion of the wetlands to uplands with the fill material will allow for the construction of the lined tailings storage facility expansion. This project expands the existing facility's capacity by about 2.1 million cubic yards which at the expected rate of fill extends the life (10 years) of the tailings facility to that which was approved in the FEIS, Selected Alternative D modified.

It was not until drafting the contract for timber clearing that HGCMC recognized the redesign had extended the southern boundary of the facility further into the adjacent wetlands. This was a result of switching the material for building the embankment road from construction rock to co-disposal of tailings and waste rock. With the redesign a collection ditch was added to the toe of the embankment road. To maintain the ditch and to have access to other infrastructure the embankment toe access road was extended from Pond 7 to the B-Road (Figure 1). It is this feature that results in the additional wetland impact.

Figure 1. Additional acreage request



The increase in wetland disturbance from the redesign is 1.28 acres (Table 1) of fen wetlands. To partially offset the additional wetland impact HGCMC will not construct Stock Pile H that impacts 0.69 acres of forested wetlands and scrub-shrub bog. By not constructing the stockpile the increase in wetland impact would be kept to 0.59 acres. The redesigned Stage 3 Expansion project will impact a

total of 14.50 acres of wetlands, comprised of 0.24-acre of Forested Wetland, 2.11-acres of Scrub-shrub Bog, and 12.15 acres of Fen (Table 1).

<b>Table 1. Summary of Redesigned Stage 3 Expansion Project Components &amp; Wetland Impacts</b>			
<b>Project Component</b>	<b>Project Component Impact</b>		<b>Project Component Fill Volume (Cubic Yards/CY)</b>
	<b>Impact footprint</b>	<b>Wetland Type Impacted</b>	
<b>Tailings Storage Area</b>			
Tailings Storage	10.13 acres	10.13 acres Fen	117,000 CY (220,000 CY) <sup>1</sup>
Tailings Access Road	0.56 acre	0.56 acre Fen	
New Wheel Wash	0.12 acre	0.12 acre Fen	
Outlet from Clean Diversion Ditch	0.01 acre	0.01 acre fen	
Embankment Toe Access Road	1.28 acre <sup>2</sup> + 0.07 acre	1.33 acre Fen 0.02 acre Forested Wetland	
Clean Rock Storage Area	0.0 acre <sup>3</sup> (0.69 acre)	0.0 acre (0.34 acre) Scrub-Shrub Bog 0.0 acre (0.35 acre) Forested Wetland	0 CY (13,000 CY)
Pond 10	2.33 acres	2.11 acres Scrub-Shrub Bog 0.22 acre Forested Wetland	20,000 CY
<b>Total</b>	<b>14.50 acres (13.91 acres)</b>	12.15 (10.87) acres Fen 2.11 (2.45) acres Scrub-Shrub Bog 0.24 (0.59) acre Forested Wetland	137,000 CY (253,000 CY)

<sup>1</sup> Values in parentheses were submitted in the amended 404 permit application.

<sup>2</sup> Additional acreage added for embankment toe access road from Pond 7 to 1.4 B-Road.

<sup>3</sup> Deletion of acreage from the construction of the clean rock stock area.

HGCMC in the mitigation plan proposed a mitigation ratio “...of 48.3 acres of wetland mitigation proposed as compensation for impacts to 13.91 acres of wetland...” The United States Army Corps of Engineers accepted this proposal, resulting in an overall mitigation ratio of 3.47:1. Using this ratio HGCMC proposes to mitigate the additional impact (0.59 acres) with an additional 2.05 acres of mitigation. This acreage will be added to the conservation easement placed on the Nevada Creek mitigation site located on the south end of Douglas Island within the City and Borough of Juneau. The following Table 2 presents a summary of the proposed changes to wetlands impacts and required mitigation:

<b>Table 2. Summary of changes to the Stage 3 Expansion Wetland Impacts &amp; Proposed Mitigation</b>				
<b>Proposed Impact Area</b>	<b>Change to Impact Area (acres)</b>	<b>Total Proposed Change (acres)</b>	<b>Mitigation Ratio</b>	<b>Total Proposed Increase in Mitigation (acres)</b>
Fen	+1.28	0.59	3.47:1	2.05 acres of wetlands
Bog	-0.34			
Forested Wetland	-0.35			

<sup>1</sup> Mapping from the delineation wetland boundaries documented by the Jurisdictional Wetland Delineation Report for Stage 3 Tailings Expansion for Hecla Greens Creek Mining Company (Bosworth Botanical consulting 2011) was used to calculate proposed project impacts.

The above proposed modifications to the 404 Permit (POA-1988-269-M5) would increase the approved impact of 13.91 acres to 14.50 acres. This will increase the total mitigation for the project to 50.35 acres of wetlands contained in 53.65 acres at the mitigation site.

A map of the Nevada Creek mitigation site showing the additional 2.05 acres of mitigation is enclosed with this letter as an attachment. The entire mitigation site, including the additional acreage, totaling 53.65 acres is included in the executed Conservation Easement, which was provided in the current permit application.

The necessary modifications were made to the drawings submitted with the permit application and subsequently incorporated into the final signed permit. The modified drawings are enclosed with this letter as attachments.

Please contact me ([cwallace@hecla-mining.com](mailto:cwallace@hecla-mining.com), 790-8473) if you have questions or need any additional information.

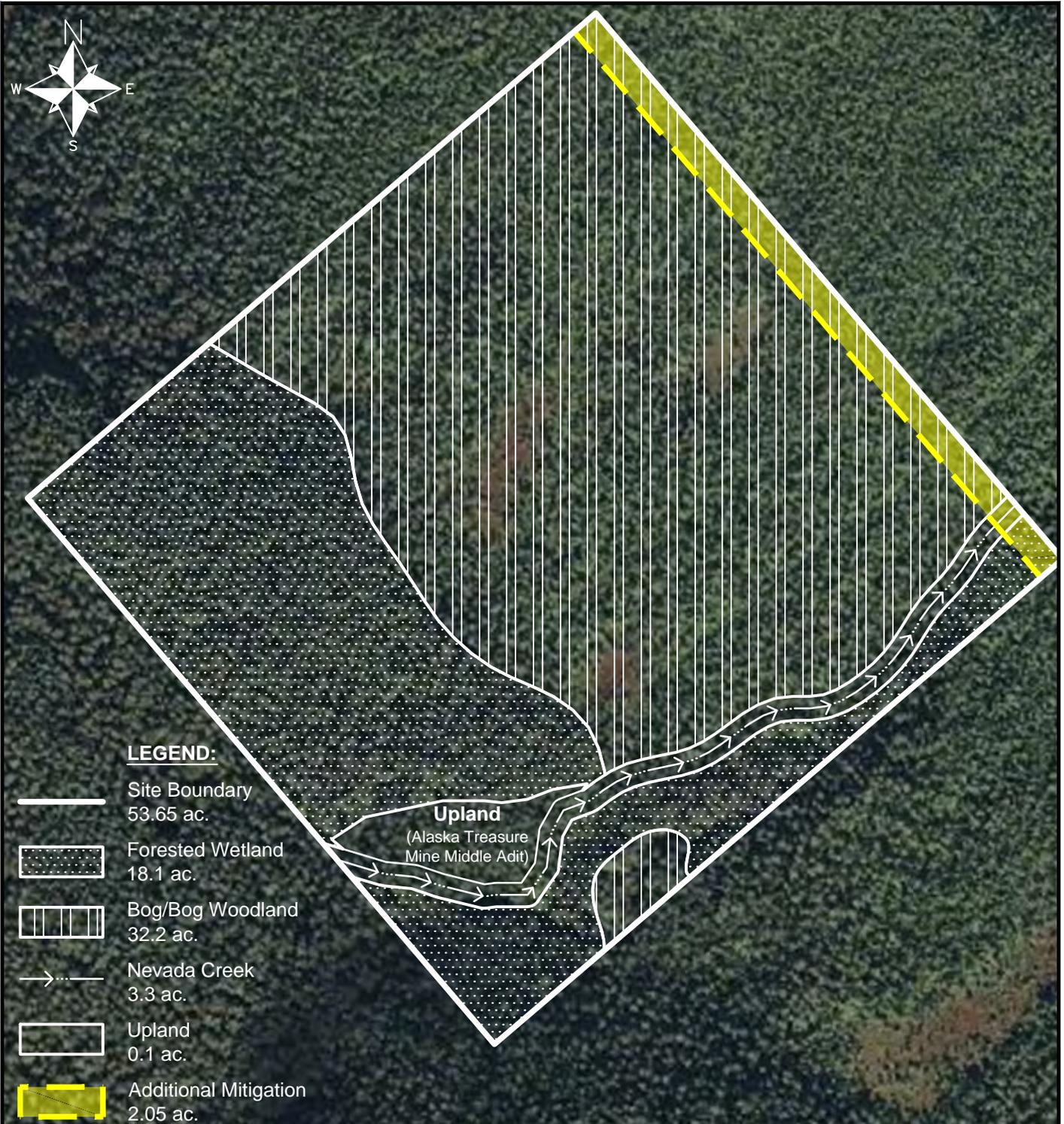
Sincerely,

A handwritten signature in black ink that reads "Christopher Wallace". The signature is written in a cursive style with a large initial "C" and a distinct "W".

Christopher Wallace  
Environmental Manager

Enclosures: (6)

1/14/2015 10:47 AM S:\ELSAK\Juneau\Juneau Creek Mitigation Partners\2067.01-Greens Creek Mine Tailings Expansion\2067.01-Figures\2067.01\_MT.dwg Brian



**LEGEND:**

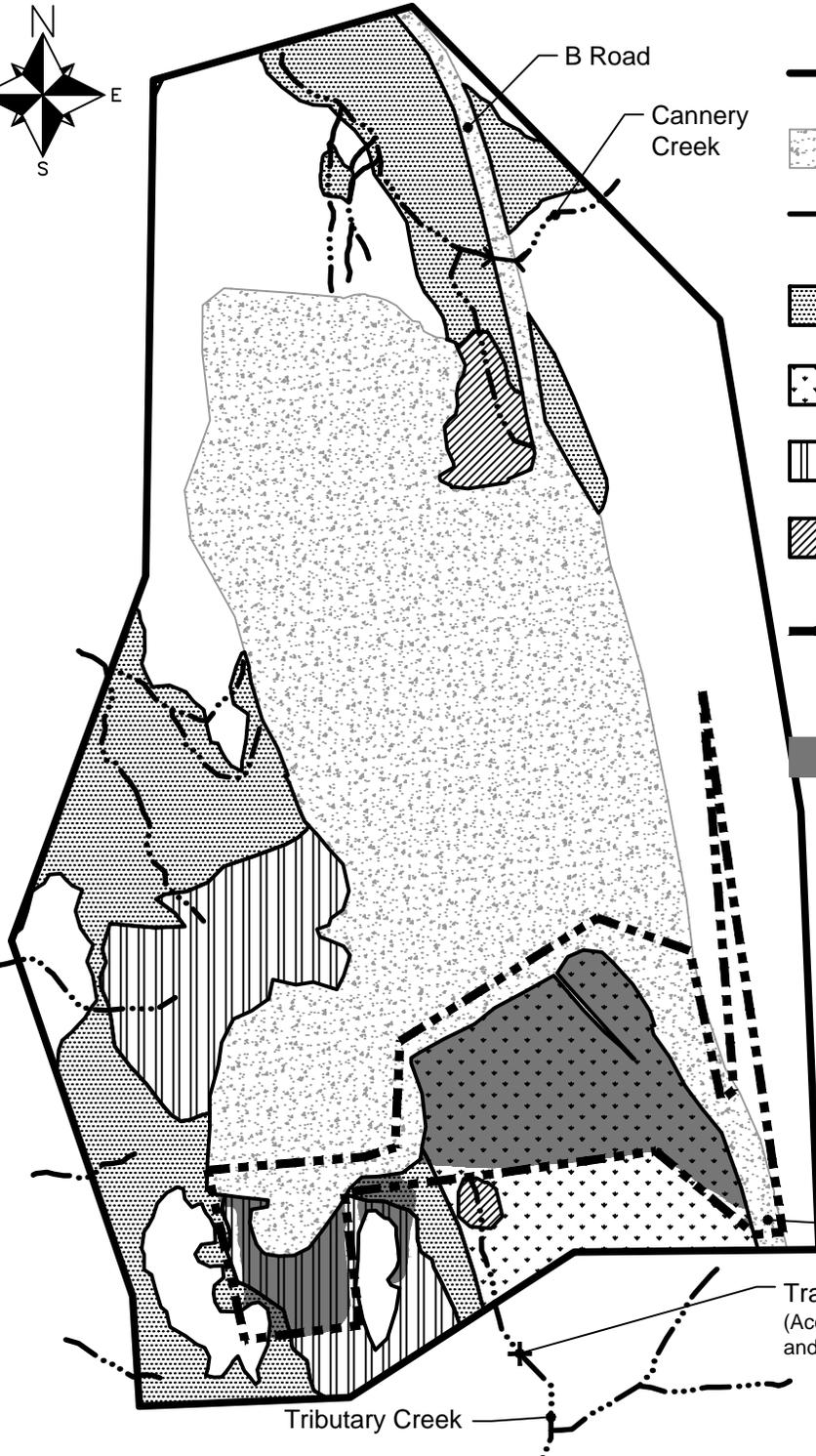
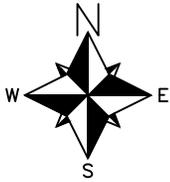
-  Site Boundary  
53.65 ac.
-  Forested Wetland  
18.1 ac.
-  Bog/Bog Woodland  
32.2 ac.
-  Nevada Creek  
3.3 ac.
-  Upland  
0.1 ac.
-  Additional Mitigation  
2.05 ac.



**AMENDED MITIGATION SITE MAP**

**CITY:** Juneau    **BOROUGH:** Juneau    **STATE:** Alaska  
**WATERWAY:** Tributary Creek Watershed  
**PROPOSED ACTIVITY:** Stage 3 Expansion  
**DIRECTIONS TO SITE:**  
 The Greens Creek Mine project site is located on northern Admiralty Island. The Nevada Creek mitigation site is located on southern Douglas Island. Both sites are accessed by boat, helicopter or float plane.

**APPLICANT:** Hecla Greens Creek Mining Company  
**FILE #:** POA-1988-0269-2  
**PROJECT:**    S. 26    T. 43S    R. 65E    M. C.R.M.  
**LAT.:** 58.1172 °N    **LONG.:** -134.7466 °W  
**MITIGATION:**    S. 3,4,9,10    T. 66S    R. 65E    M. C.R.M.  
**LAT.:** 58.2277 °N    **LONG.:** -134.3133 °W  
 POA-1988-269-M6, Hawk Inlet  
 Sheet 5 of 10  
 February 2015



**LEGEND:**

- Permit Boundary
- Existing Disposal Facility
- Stream
- Culvert Location
- Forested Wetland
- Fen
- Scrub-shrub Bog
- Marsh
- Proposed Stage 3 Expansion Area (Total disturbance footprint = 16 acres.)
- Proposed Wetland Impacts (14.5 ac. Total)
  - Forested Wetland (0.24 ac.)
  - Scrub-shrub Bog (2.11 ac.)
  - Fen (12.15 ac.)

B Road

Trap 16 Location  
(According to Alaska Department of Fish and Game Technical Report No.11-07)

Tributary Creek



SCALE IN FEET

**PROJECT IMPACTS OVERVIEW**

**CITY:** Juneau **BOROUGH:** Juneau **STATE:** Alaska

**WATERWAY:** Tributary Creek Watershed

**PROPOSED ACTIVITY:** Stage 3 Expansion

**DIRECTIONS TO SITE:**

The Greens Creek Mine project site is located on northern Admiralty Island. The Nevada Creek mitigation site is located on southern Douglas Island. Both sites are accessed by boat, helicopter or float plane.

POA-1988-269-M6, Hawk Inlet

Sheet 6 of 10

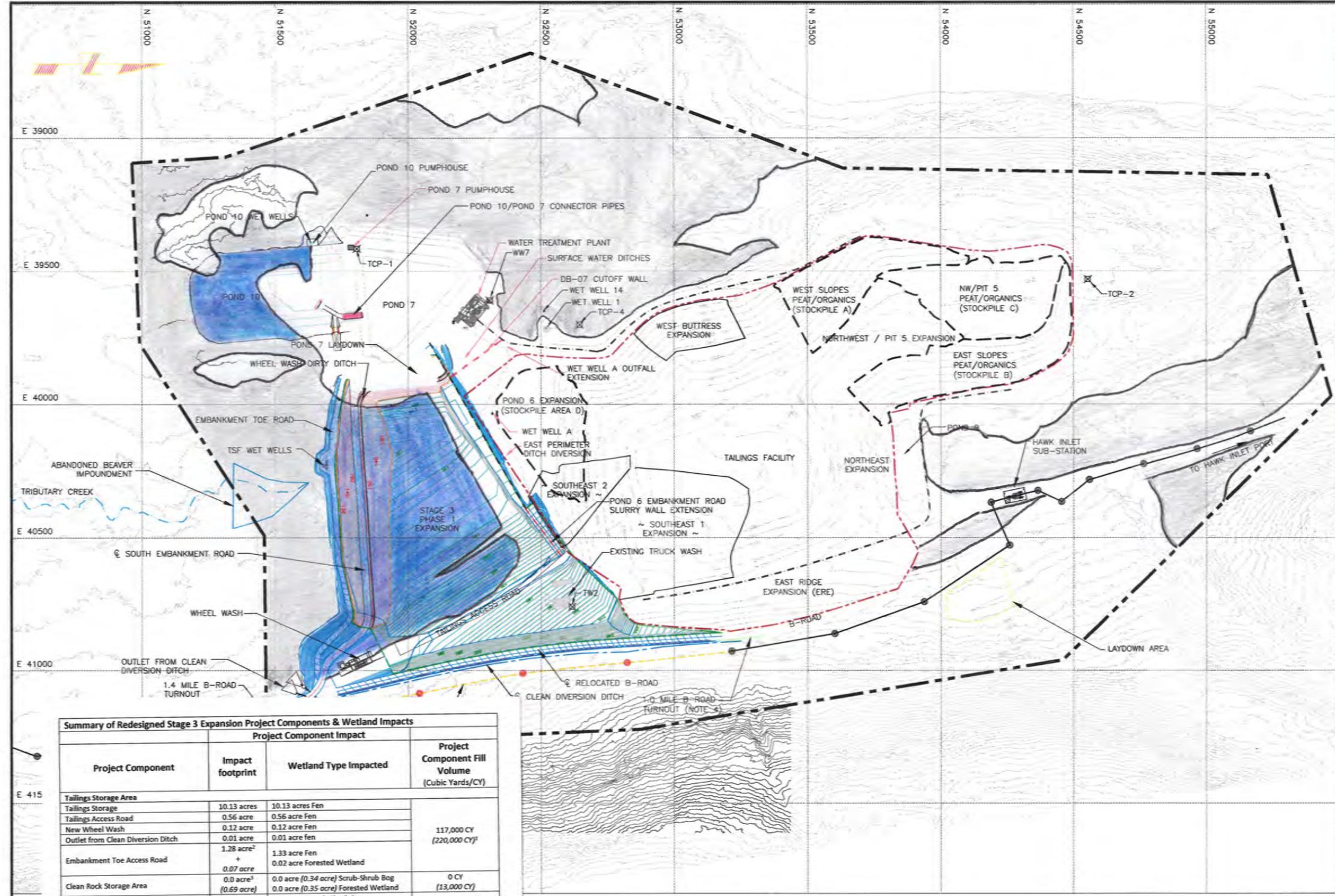
February 2015

SURVEY CONTROL POINTS (ft)				
#	NAME	NORTHING	EASTING	ELEVATION
1	TCP-1	51808.14	39415.36	144.98
2	WW7	52306.18	39609.58	202.25
3	TCP-4	52648	39700.69	144.59
4	TCP-2	54554.44	39531.25	268.65
5	TW2	52617.62	40759.33	200.4

ALL CONTROL POINTS HAVE REGULAR GPS COVERAGE. CONTROL POINT TW2 WILL BE LOST DURING DEMOLITION OF EXISTING TRUCK WASH.

- LEGEND**
- EXISTING TAILINGS PLACEMENT BOUNDARY
  - PROPOSED STAGE 3 PHASE 1 TAILINGS BOUNDARY
  - STAGE 3 LEASE BOUNDARY
  - EXISTING SLURRY WALLS
  - NEW SLURRY WALLS
  - EXISTING POWERLINE AND POLES
  - NEW POWERLINE AND POLES
  - SURVEY CONTROL POINTS
  - POWER POLE
  - WETLAND (NO IMPACT)
  - WETLAND (IMPACT 14.5 ACRES)

- GENERAL NOTES**
1. BASE TOPOGRAPHY AND ROADS PROVIDED BY HGMC. BASE TOPOGRAPHY CURRENT AS OF MAY 2014.
  2. LOCATIONS AND ELEVATIONS ARE IN FEET AND ALL COORDINATES AND ELEVATIONS ARE REFERENCED TO LOCAL DATUM UNLESS OTHERWISE NOTED.
  3. EXISTING DITCH ALIGNMENTS NOT SHOWN.
  4. ALL B-ROAD MILE DESIGNATIONS REPRESENT APPROXIMATE DISTANCES FROM HAWK INLET PORT.



Summary of Redesigned Stage 3 Expansion Project Components & Wetland Impacts			
Project Component	Project Component Impact		Project Component Fill Volume (Cubic Yards/CY)
	Impact footprint	Wetland Type Impacted	
<b>Tailings Storage Area</b>			
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<sup>1</sup> Values in parentheses were submitted in the amended 404 permit application.  
<sup>2</sup> Additional acreage added for embankment toe access road from Pond 7 to 1.4 B-Road.  
<sup>3</sup> Deletion of acreage from the construction of the clean rock stock area.

POA-1988-269-M6, Hawk Inlet  
 Sheet 7 of 10  
 February 2015

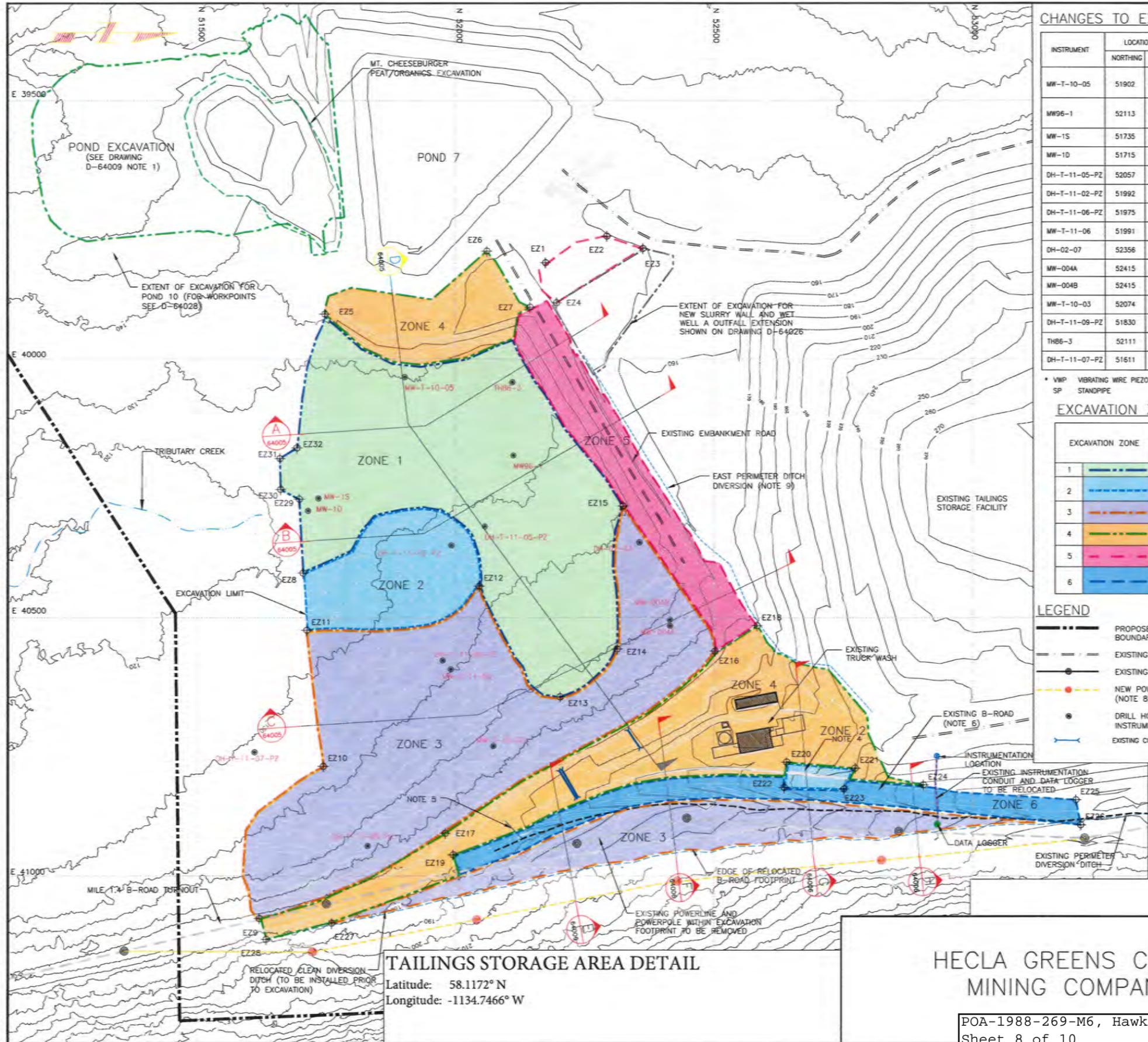


PROJECT	TAILINGS STORAGE FACILITY STAGE 3 - PHASE 1 EXPANSION	
TITLE	TAILINGS STORAGE AREA GENERAL ARRANGEMENT	
SCALE	AS SHOWN	DWG. NO. D-64002

# PROJECT SITE MAP

Latitude: 58.1172° N Longitude: -1134.7466° W

HECLA GREENS CREEK  
 MINING COMPANY



**CHANGES TO EXISTING INSTRUMENTATION**

INSTRUMENT	LOCATION (ft.)		TYPE*	COMMENTS
	NORTHING	EASTING		
MW-T-10-05	51902	40035	SP	INSTALL VIBRATING WIRE PIEZOMETER WITH TIP AT 20 FT. BELOW GROUND SURFACE; GROUT TO SURFACE; AND EXTEND CABLES AS SHOWN IN D-64019.
MW96-1	52113	40186	SP	INSTALL VIBRATING WIRE PIEZOMETER WITH TIP AT 20 FT. BELOW GROUND SURFACE; GROUT TO SURFACE; AND EXTEND CABLES AS SHOWN IN D-64019.
MW-15	51735	40269	SP	GROUT TO SURFACE USING PROPER WELL ABANDONMENT TECHNIQUES
MW-10	51715	40293	SP	GROUT TO SURFACE USING PROPER WELL ABANDONMENT TECHNIQUES
DH-T-11-05-P2	52057	40323	VWP	EXTEND EXISTING INSTRUMENT CABLES AS SHOWN IN D-64019.
DH-T-11-02-P2	51992	40360	VWP	EXTEND EXISTING INSTRUMENT CABLES AS SHOWN IN D-64019.
DH-T-11-06-P2	51975	40583	VWP	EXTEND EXISTING INSTRUMENT CABLES AS SHOWN IN D-64019.
MW-T-11-06	51991	40600	SP	GROUT TO SURFACE USING PROPER WELL ABANDONMENT TECHNIQUES
DH-02-07	52356	40354	SP	GROUT TO SURFACE USING PROPER WELL ABANDONMENT TECHNIQUES
MW-004A	52415	40516	SP	INSTALL VIBRATING WIRE PIEZOMETER. EXTEND INSTRUMENTATION CABLES AS SHOWN IN D-64019.
MW-004B	52415	40504	SP	GROUT TO SURFACE USING PROPER WELL ABANDONMENT TECHNIQUES
MW-T-10-03	52074	40749	SP	GROUT TO SURFACE USING PROPER WELL ABANDONMENT TECHNIQUES
DH-T-11-09-P2	51830	40942	VWP	EXTEND EXISTING INSTRUMENTATION CABLES AS SHOWN IN D-64012.
TH86-3	52111	40045	UNKNOWN	GROUT TO SURFACE USING PROPER WELL ABANDONMENT TECHNIQUES
DH-T-11-07-P2	51611	40761	VWP	DO NOT DISTURB

\* VWP VIBRATING WIRE PIEZOMETER  
 SP STANDPIPE

**EXCAVATION ZONES**

EXCAVATION ZONE	MATERIAL TO BE EXCAVATED	EXPECTED BASE UNIT(S) OF EXCAVATION
1	PEAT AND/OR TOPSOIL	CLAY (NOTE 11)
2	PEAT, TOPSOIL, CLAY, SILTY SAND AND GRAVEL, AND/OR ROCKFILL	BEDROCK
3	PEAT AND/OR TOPSOIL	SILTY SAND AND GRAVEL AND/OR BEDROCK (NOTE 12)
4	UNSUITABLE ROCKFILL	NATIVE GROUND OR AS DIRECTED BY QA FIELD ENGINEER
5	UNSUITABLE ROCKFILL	TOP OF SLURRY WALL
6	UNSUITABLE ROCKFILL (NOTE 10)	CLEAN ROCKFILL

**LEGEND**

- PROPOSED STAGE 3 LEASE BOUNDARY
- - - EXISTING SLURRY WALLS
- EXISTING POWERLINE AND POLES
- - - NEW POWERLINE AND POLES (NOTE 8)
- DRILL HOLE WITH INSTRUMENTATION (NOTE 7)
- EXISTING CULVERT

**NOTES:**

1. FOR GENERAL NOTES SEE D-64002.
2. FINAL EXTENT OF EXCAVATION ZONES AS DIRECTED BY FIELD QA ENGINEER.
3. ZONE BOUNDARIES AND EXCAVATION DEPTH HAVE BEEN ESTIMATED FROM AVAILABLE SITE INVESTIGATIONS, ACTUAL CONDITIONS WILL VARY. EXCAVATION ACTIVITIES TO BE COMPLETED IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS.
4. EXCAVATE TO BEDROCK BELOW EXISTING B-ROAD CAP BEDROCK WITH TYPE 4 FILL (FILL TYPES DEFINED ON D-64013).
5. EXISTING CULVERTS AND EROSION PROTECTION TO BE REMOVED.
6. EXISTING B-ROAD SHALL STAY OPERATIONAL UNTIL RELOCATED B-ROAD IS COMPLETED.
7. THE CONTRACTOR SHALL PROTECT ALL EXISTING INSTRUMENTATION.
8. NEW POWER POLE LOCATIONS WILL REQUIRE ADDITIONAL CLEARING FOR EQUIPMENT ACCESS
9. RE-ROUTE EXISTING PERIMETER DITCH AS SHOWN PRIOR TO EXCAVATION. DITCH TO BE RELOCATED AS REQUIRED TO MAINTAIN FLOW TO POND 7.
10. TOP 4 FT OF ZONE 6 EXCAVATED MATERIAL TO BE STORED IN CONTAINMENT. REMAINING MATERIAL MAY BE USABLE AS GENERAL FILL WITH APPROVAL OF ENGINEER.
11. GEOTEXTILE PERMEATEX HS1010 (OR APPROVED EQUIVALENT) OVERLAIN WITH A MINIMUM 2 FOOT LIFT OF COMPACTED TYPE 1 FILL TO BE PROGRESSIVELY PLACED OVER EXPOSED CLAY OR TILL AS A RUNNING SURFACE DURING EXCAVATION OF ZONE 1 AND ZONE 2. FILL TYPES DEFINED ON D-64013.

WP#	WORK POINTS (FT)		
	NORTHING	EASTING	EL.*
EZ1	52176	39814	148.0
EZ2	52294	39762	150.0
EZ3	52364	39786	150.0
EZ4	52197	38881	148.0
EZ5	51748	39913	142.0
EZ6	52082	39791	147.0
EZ7	52146	38899	152.0
EZ8	51705	40413	124.0
EZ9	51620	41082	172.0
EZ10	51744	40788	137.0
EZ11	51713	40524	128.0
EZ12	52046	40438	138.0
EZ13	52203	40553	152.0
EZ14	52313	40561	150.0
EZ15	52324	40284	139.0
EZ16	52502	40565	165.0
EZ17	51980	40917	165.0
EZ18	52583	40515	172.0
EZ19	51996	40959	174.0
EZ20	52640	40780	202.0
EZ21	52772	40792	218.0
EZ22	52635	40829	228.0
EZ23	52750	40832	240.0
EZ24	52905	40824	250.0
EZ25	53199	40853	278.0
EZ26	53209	40901	280.0
EZ27	51761	41091	172.0
EZ28	51633	41122	172.0
EZ29	51698	40270	122.0
EZ30	51662	40252	122.0
EZ31	51661	40192	123.0
EZ32	51694	40171	122.0

\* ALL ELEVATIONS ARE EXISTING GROUND LEVEL.

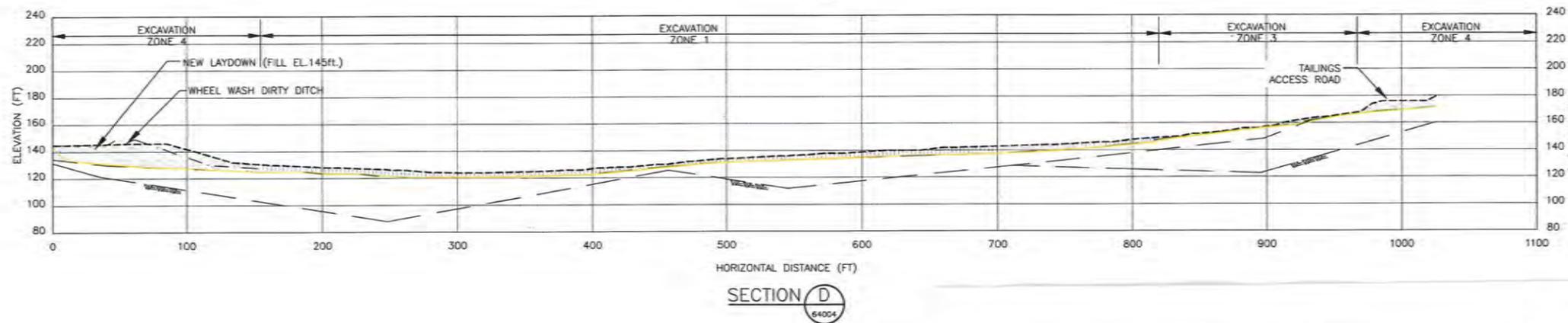
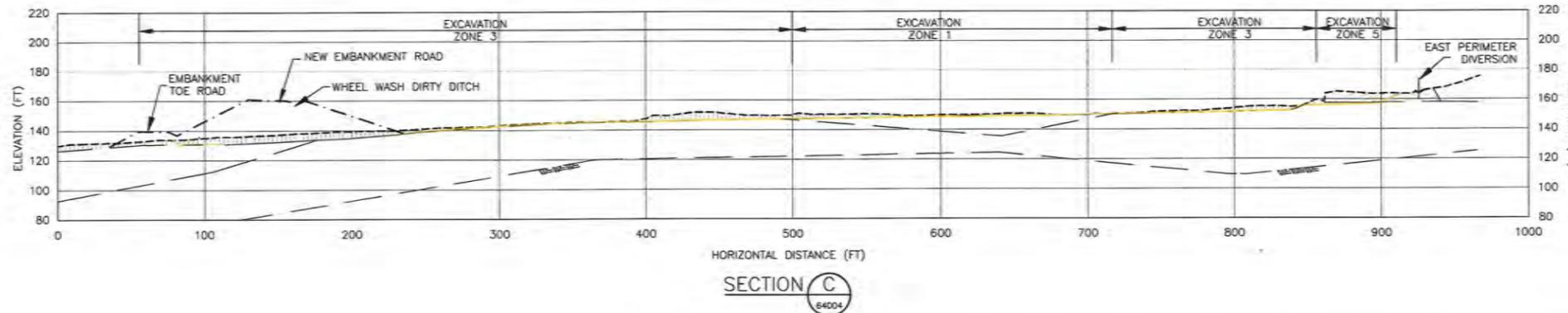
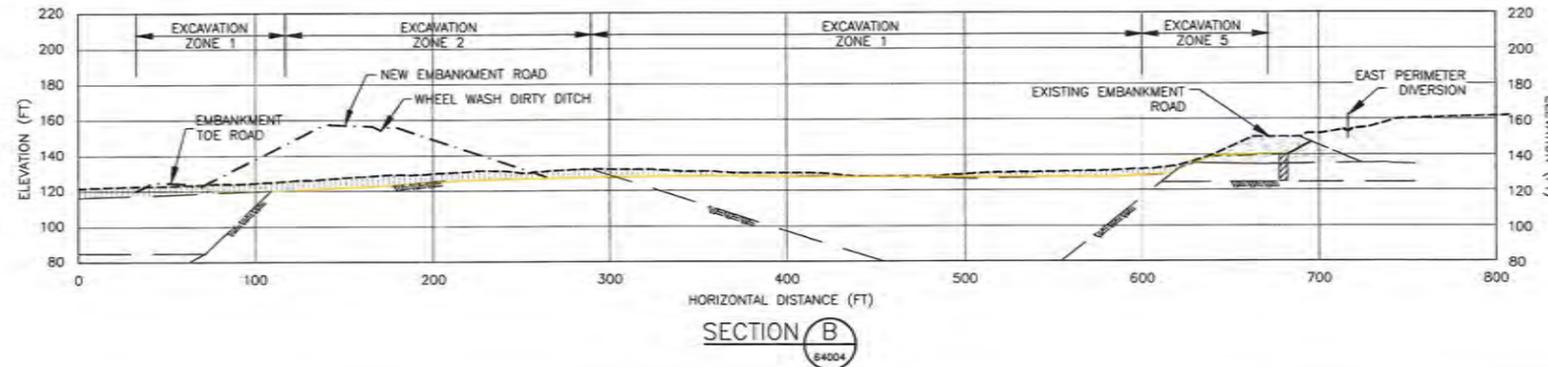
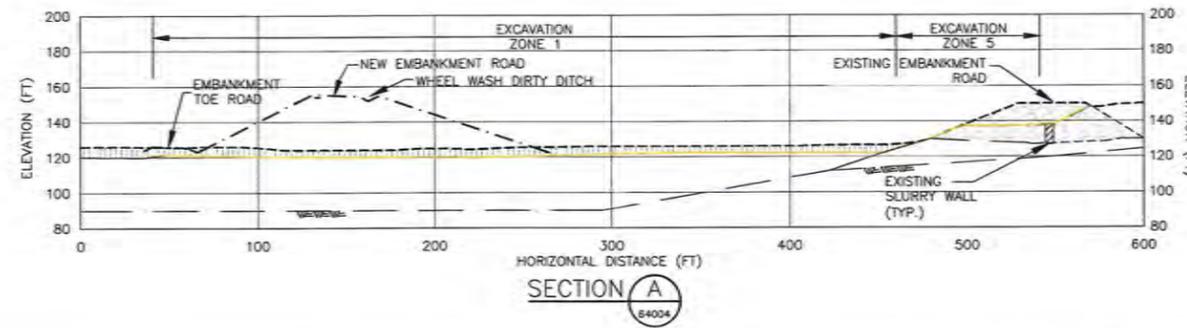
**TAILINGS STORAGE AREA DETAIL**

Latitude: 58.1172° N  
 Longitude: -1134.7466° W

**HECLA GREENS CREEK MINING COMPANY**

POA-1988-269-M6, Hawk Inlet  
 Sheet 8 of 10  
 February 2015

PROJECT	TAILINGS STORAGE FACILITY STAGE 3 - PHASE 1 EXPANSION	
TITLE	TAILINGS STORAGE AREA EXCAVATION AND EXISTING INSTRUMENTATION PLAN	
SCALE	AS SHOWN	DWG. NO. D-64004



**LEGEND**

- EXISTING SURFACE
- - - PROPOSED STAGE 3 PHASE 1 SURFACE
- INFERRED UNIT BOUNDARY
- EXCAVATION SURFACE (APPROXIMATE)
- [Pattern] TAILINGS
- [Pattern] EXISTING FILL
- [Pattern] PEAT
- [Pattern] CLAY OR SILT
- [Pattern] SILTY SAND & GRAVEL
- [Pattern] BEDROCK

**NOTES:**

1. FOR GENERAL NOTES (SEE DRAWING D-64002).
2. SUBSURFACE CONDITIONS ESTIMATED FROM DRILL HOLES (SEE DRAWING D-64003).
3. WATER TABLE IS EXPECTED TO BE AT THE TOP OF PEAT OR AT TOP OF SILTY SAND & GRAVEL LAYER.
4. UNIT BOUNDARY IS INFERRED FROM LIMITED GEOLOGICAL DATA EXTRAPOLATED OVER CONSTRUCTION AREA. ACTUAL CONDITIONS MAY VARY.

POA-1988-269-M6, Hawk Inlet  
 Sheet 9 of 10  
 February 2015

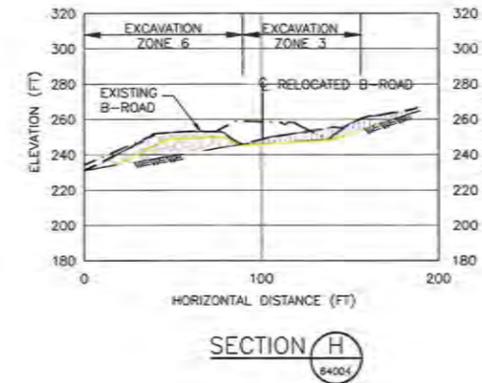
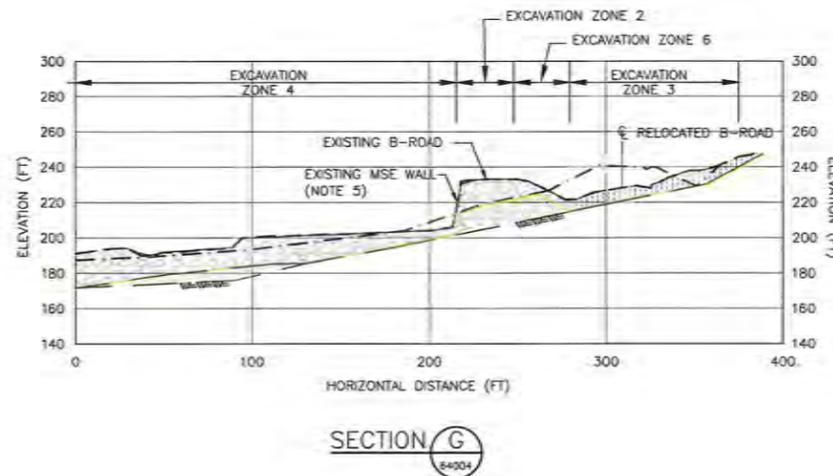
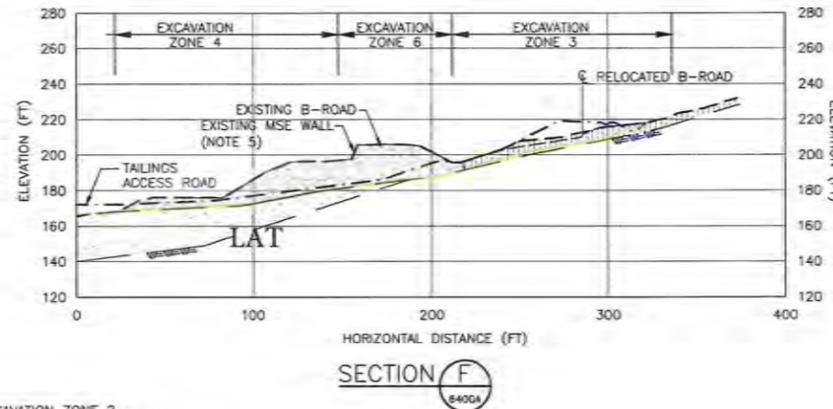
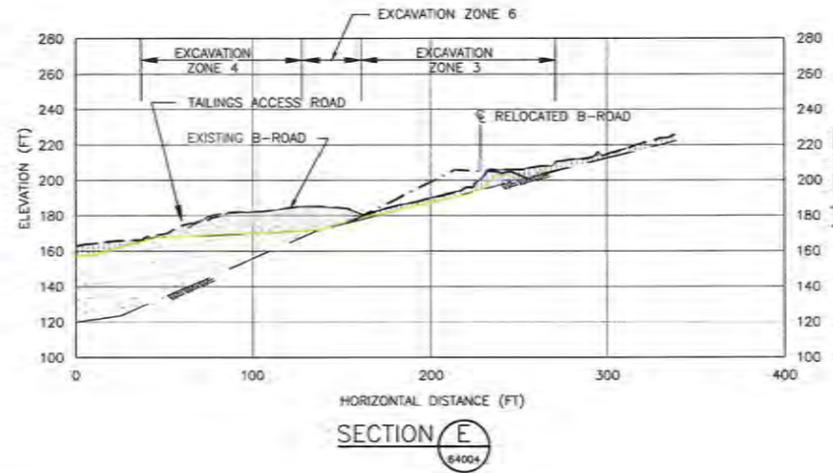


**TAILINGS STORAGE AREA CROSS SECTIONS A-D**

Latitude: 58.1172° N  
 Longitude: -1134.7466° W

**HECLA GREENS CREEK  
 MINING COMPANY**

PROJECT	TAILINGS STORAGE FACILITY STAGE 3 - PHASE 1 EXPANSION
TITLE	TAILINGS STORAGE AREA GEOLOGICAL SECTIONS 1 OF 2
SCALE	AS SHOWN
DWG. NO.	D-64005



**LEGEND**

- EXISTING SURFACE
- - - PROPOSED STAGE 3 PHASE 1 SURFACE
- - - INFERRED UNIT BOUNDARY
- EXCAVATION SURFACE (APPROXIMATE)
- [Pattern] TAILINGS
- [Pattern] EXISTING FILL
- [Pattern] PEAT
- [Pattern] CLAY OR SILT
- [Pattern] SILTY SAND & GRAVEL
- [Pattern] BEDROCK

**NOTES:**

1. FOR GENERAL NOTES SEE DRAWING (D-64002).
2. SUBSURFACE CONDITIONS ESTIMATED FROM DRILL HOLES (SEE DRAWING D-64003).
3. WATER TABLE IS EXPECTED TO BE AT THE TOP OF PEAT, OR TOP OF SILTY SAND AND GRAVEL UNIT.
4. UNIT BOUNDARY IS INFERRED FROM LIMITED GEOLOGICAL DATA EXTRAPOLATED OVER CONSTRUCTION AREA. ACTUAL CONDITIONS MAY VARY.
5. TOP 4 FT OF ZONE 6 EXCAVATED MATERIAL TO BE STORED IN CONTAINMENT. REMAINING MATERIAL MAY BE USABLE AS GENERAL FILL WITH APPROVAL OF ENGINEER.
6. ALL MANUFACTURED MATERIALS FROM EXISTING MSE WALL TO BE DISPOSED OF PER TECHNICAL SPECIFICATIONS.

POA-1988-269-M6, Hawk Inlet  
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February 2015



**TAILINGS STORAGE AREA CROSS SECTIONS E-H**

Latitude: 58.1172° N  
Longitude: -1134.7466° W

**HECLA GREENS CREEK  
MINING COMPANY**

PROJECT	TAILINGS STORAGE FACILITY STAGE 3 - PHASE 1 EXPANSION
TITLE	TAILINGS STORAGE AREA GEOLOGICAL SECTIONS 2 OF 2
SCALE	AS SHOWN
DWS. NO.	D-64006