

**Knight Piésold Ltd.**  
CONSULTING ENGINEERS

COPY

Mr. Bill Ruffo  
Imperial Metals Corporation  
Mt. Polley Mine Project  
Suite 700 - 815 West Hastings Street  
Vancouver, BC  
V6C 1B4

Dear Bill,

Re: Mt. Polley Tailings Impoundment  
Site Inspection - Observations and Recommendations

A site inspection of the tailings area was conducted by Mr. Ken Embree of Knight Piesold and Mr. George Headley of MEMPR on September 20, 1995. The following items were evaluated:

#### **Bootjack - Morehead Connector Road Relocation**

The road relocation proposed to George Headley on September 14, 1995 was accepted in principal. The road will be relocated adjacent to the downstream edge of the seepage collection pond. Because of the proximity to the pond, it will be best if the road is a few metres downstream, leaving enough room to build a small safety berm (because the pond is designed to be entirely in cut) and to install a security fence. The road relocation will likely require sub-excavation and backfill with coarse, durable fill in the lower, wet area.

#### **Sediment Control Measures**

With the relocation of the Bootjack - Morehead Connector, the sediment control pond and berm previously designed will not be constructed. Instead, a temporary sediment control structure will be built downstream of the southeast corner of the seepage collection pond. This structure will serve as temporary sediment control measures for the clearing and grubbing of the embankment foundation and basin

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YOUR REFERENCE  
OUR REFERENCE  
NUMBER

1625.01

5/2207

September 25, 1995

MINISTRY OF ENERGY, MINES  
AND PETROLEUM RESOURCES

REC'D SEP 26 1995

MINE REVIEW AND PERMITTING  
BRANCH



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liner area (as described above) and the seepage collection pond. The structure will comprise a small stilling basin, with logs, hay bales and filter cloth used to trap any sediment originating from runoff over the cleared areas.

### **Embankment Foundation Runoff Control**

The existing line cleared with the bulldozer is up to 20 metres off of the centreline. However, the entire footprint will be cleared and grubbed in the lower, wet areas. Drainage trenches will be excavated in the footprint along the centreline to enhance runoff next spring. The clearing and trenching will extend to a point on the abutments where the existing ground slope is great enough that natural runoff will be sufficient. The limits of the basin liner will be similarly cleared this year and a trench will be excavated to convey runoff to the temporary sediment control structure.

George Headley would like to return for an inspection of the drainage control structures near the end of the work, which is anticipated to be approximately two weeks.

### **Seepage Collection Pond Test Pits**

On September 21, 1995 three test pits were excavated near the three corners of the proposed seepage collection pond to verify data from an existing test pit (TPB-14) which showed that the pond would be excavated in dense silty sediments. Two test pits excavated on the east side of the pond (near setting out points S19 and S22) confirmed previous observations. However, at the southwest corner (setting out point S21) loose, wet sandy sediments were found to be present below 1.5m of glacial till. This material will cause great difficulty with the pond excavation and as a result, the pond location and shape will need to be adjusted. We plan to make the pond rectangular in shape and move it to the east, out of the influence of the wet sand. The final configuration of the seepage collection pond will be determined in the field during construction by the supervising Engineer. The three test pit logs from the new excavations are included with this letter, along with the log of the other test pit excavated in the seepage collection pond area.

The sandy sediments observed at the proposed seepage collection pond are known to exist below a till blanket at the embankment foundation. However, the ultimate



extent and thickness is not known. Based on the observations at the seepage collection pond and in previously excavated test pits, it is recommended that this material be extensively investigated so that suitable design consideration can be made now and difficulties during construction can be minimized or avoided. We would like to tie this work in with the embankment foundation runoff control measures, which are soon to be implemented. We propose that deeper test pits be excavated along the embankment centreline drainage trench to accurately define the extent of the sandy sediments. These test pits should be excavated at approximately 15m intervals. Ken Embree is available to go to site to conduct the investigations at any time. This work would take approximately two days. Please let us know when you would like us to go ahead with this.

Yours very truly,  
**KNIGHT PIESOLD LTD.**



K.J. Brouwer, P.Eng.  
Director

kde  
Encl.

cc: Mr. George Headley, MEMPR

Mr. Henry Ewanchuk, IMC

Mr. Malcolm Swallow, IMC



PROJECT Mt. Polley

PROJECT NO. 1625

LOCATION OF TEST PIT Seepage Pond, NE corner

GROUND EL. \_\_\_\_\_

DATE Sept 21/95 (S.O.P. 519)

LOGGED BY KDE

NOTES  
Groundwater level  
difficulty in digging,  
equipment used, etc.

DEPTH  
(m)

GRAPHIC  
LOG

DESCRIPTION AND CLASSIFICATION  
OF MATERIAL

JD-690D LC  
Excavator

▽

▽ + + +  
+ + +

Dark brown, wet, loose SILT and fine SAND with ORGANICS. (TOPSOIL).

1

+ + + + +  
+ + + + +  
+ + + + +  
+ + + + +

Bluish grey to brown, moist to wet, dense to very dense SILTY SAND with some GRAVEL, occ. COBBLE. Over-consolidated. (GLACIAL TILL)

Occ. seep, >> 1 gpm.

▽

2

+ + + + +  
+ + + + +  
+ + + + +

Grey-green to green brown, moist, very stiff SILT with trace fine SAND. Uniform, glacioluvial / glaciolacustrine sediments. Occasional seep.

3

+ + + + +  
+ + + + +  
+ + + + +

Over consolidated

4

+ + + + +

5

PROJECT Mt. Polley

PROJECT NO. 1625

LOCATION OF TEST PIT Seepage Pond, SW corner

GROUND EL. \_\_\_\_\_

DATE Sept 21/95 (S.O.P. 521)

LOGGED BY KDE

NOTES Groundwater level difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
<p>JD 690D-LC excavator</p> <p>Water seeping in sandy sediments.</p> <p>Entire trench collapsed. No samples, no photos.</p>	1		<p>Dark brown, moist, loose SILT and fine SAND with ORGANICS. (TOPSOIL)</p>
	2		<p>Brownish grey, moist and dense SILTY SAND / SILT with trace to some GRAVEL, trace COBBLES, occ. BOULDER. (GLACIAL TILL)</p>
	3		<p>Brown, loose, very wet medium grained SAND with trace SILT (Birds together). Unstable, sides of trench collapsing. Water seeping in. (Glacio fluvial / Glaciolacustrine sediments.)</p>
	4		<p>Brown, medium dense, moist to wet layered SILT and fine SAND, trace CLAY. Over-consolidated. (Glacio fluvial / Glaciolacustrine sediments).</p>
5			

CAD FILE: [C:\01\06142 Plot scale 1=1 STD.1

PROJECT Mt. Polley


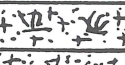
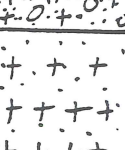


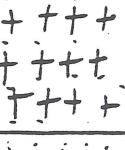
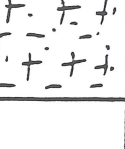
PROJECT NO. 1625

LOCATION OF TEST PIT Seepage Pond, SE corner

GROUND EL. \_\_\_\_\_

DATE Sept 21/95 (S.O.P. 522)

LOGGED BY KDE

NOTES Groundwater level difficulty in digging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
JD 690D-LC Excavator  Occ. small seep in bluish layer » 1gpm.			Dark brown, wet, loose SILT and fine SAND with ORGANICS (TOPSOIL).
	1		Greenish-grey to brown, moist, medium dense SILT/SILTY SAND with trace to some GRAVEL. (GLACIAL TILL).
	2		Mottled green grey to brown SILT and SILTY fine SAND. Very stiff, moist. mottled appearance due to the presence of randomly oriented grey-blue layers of fine SILT and CLAY with trace SAND and GRAVEL. Layers seep a small amount of water. Dense, over-consolidated GLACIOFLUVIAL / GLACIO-LACUSTRINE SEDIMENTS.
	3		Greyish Blue, moist, very stiff SILT and CLAY with trace SAND. Over-consolidated. Minor seep. Similar to above glaciofluvial / glaciolacustrine sediments.
	4		(Empty description box)
5		(Empty description box)	

PROJECT MOUNT POLLEY

PROJECT No. 1621

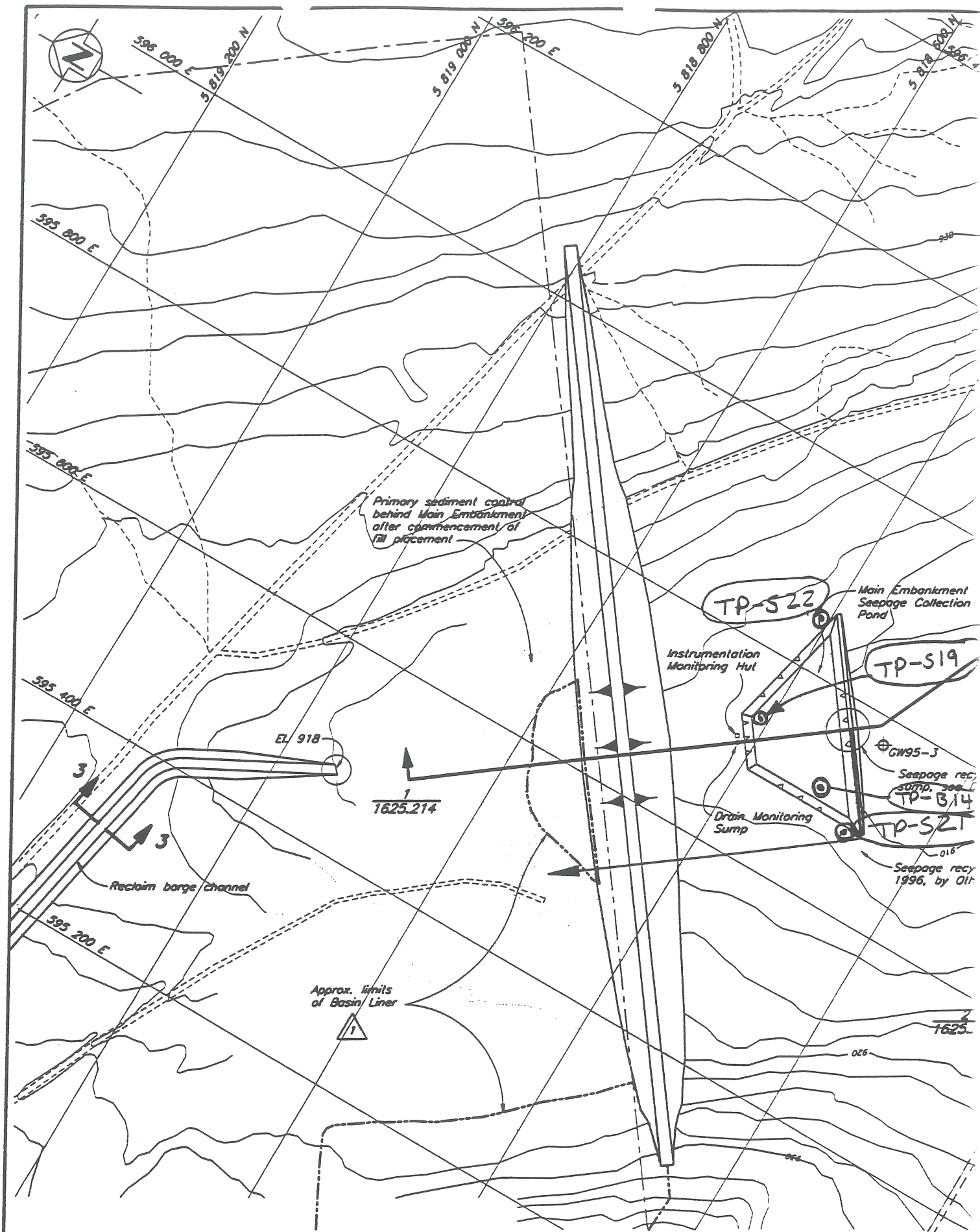
LOCATION OF TEST PIT AREA B, downstream of main embankment

GROUND ELEVATION \_\_\_\_\_

DATE Aug 28, 1989

LOGGED BY KJB

NOTES Groundwater level, difficulty in dig- ging, equipment used, etc.	DEPTH (m)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION OF MATERIAL
<p>CAT 225</p> <p><u>GSTPB 14</u></p>	1	<p>* *</p> <p>+ -</p> <p>- +</p> <p>+ -</p> <p>- +</p>	<p>PEAT, and organics, dark reddish-brown to black.</p>
	2	<p>+ .</p> <p>. +</p> <p>+ .</p> <p>. +</p>	<p>CLAYEY SILT, pale green brown, firm, fissured, wet for top 60 cm.</p>
	3	<p>+ .</p> <p>. +</p> <p>+ .</p> <p>. +</p>	<p>SILT, some sand to Sandy, fine dense, fissured, fine sand lamination moist</p>
	4	<p>+ .</p> <p>. +</p> <p>+ .</p> <p>. +</p>	
	5	<p>+ .</p> <p>. +</p>	
			<p>ponded water on surface</p>



1625.214 SEDIMENT CONTROL AND SEEPAGE COLLECTION - SECTIONS AND DETAILS		REV.	DATE	DESCRIPTION	APPROVED	REV
DRG. NO.	DESCRIPTION					1 0
REFERENCE DRAWINGS				REVISIONS		