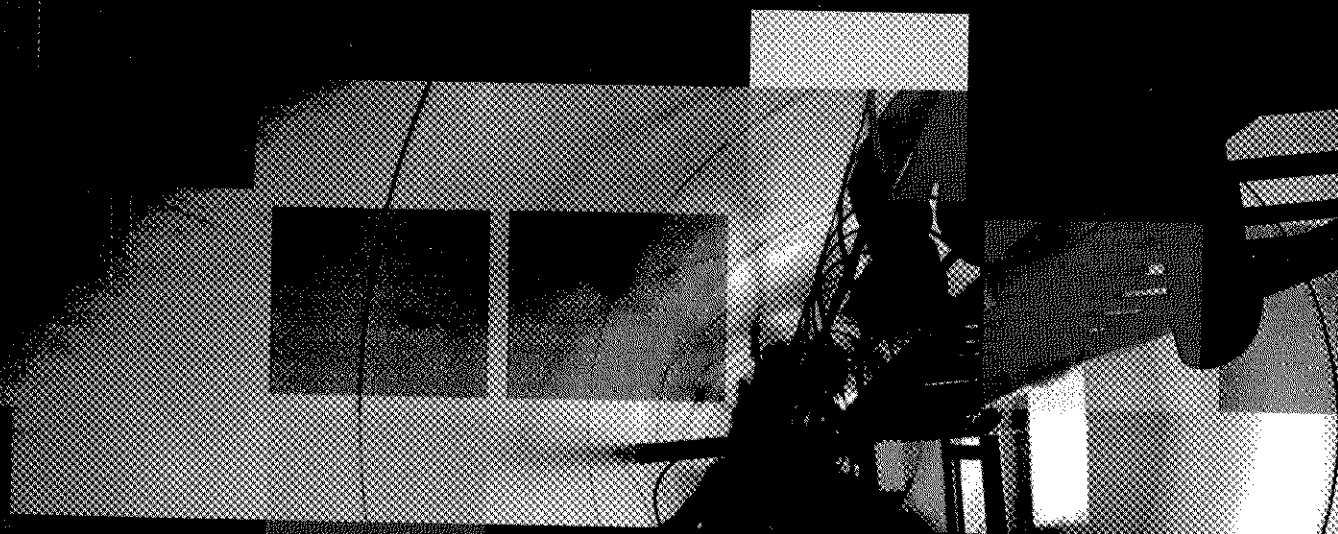


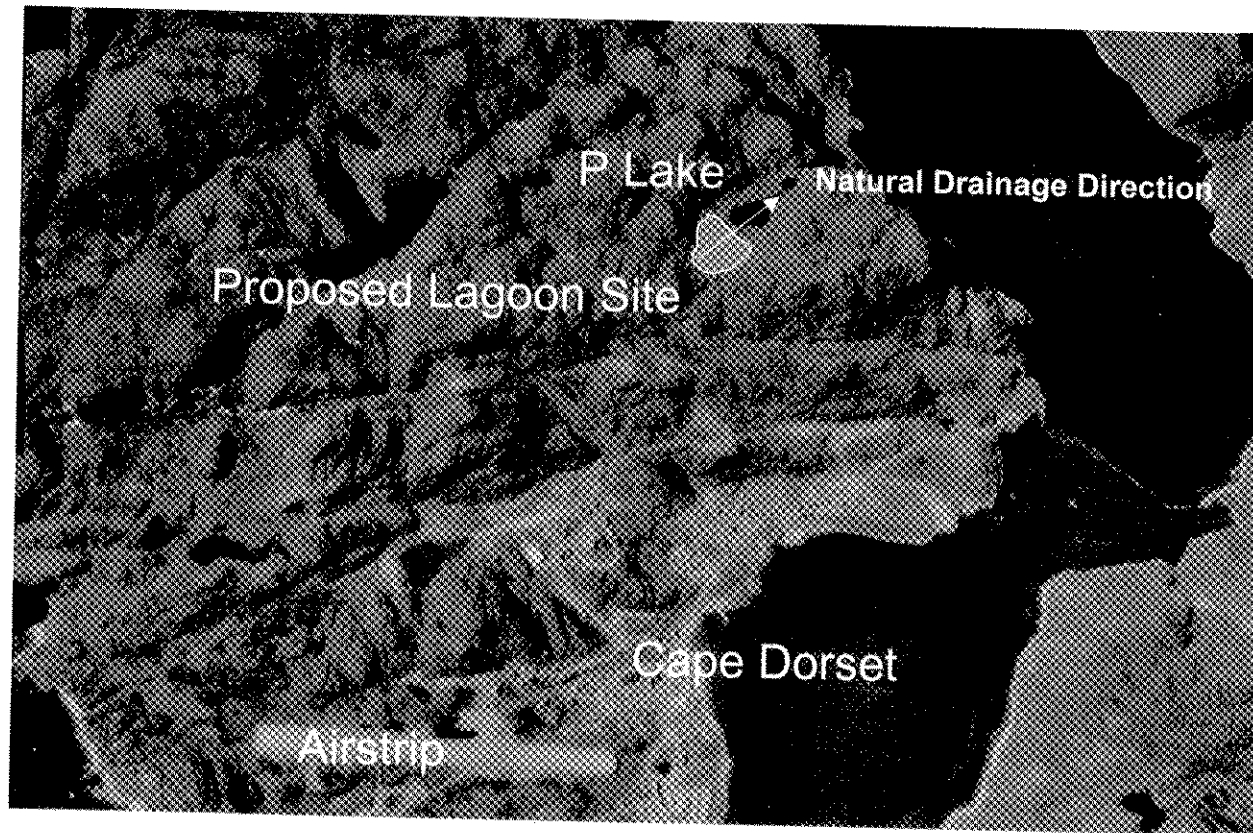
EXHIBIT	3
EXAMINATION OF	
DATE	JAN 23/08
Karoline Schumann	
COURT REPORTER	
H.	

amec



Geotechnical Design and Construction
Cape Dorset Sewage Lagoon
Nunavut Water Board Public Hearing
January 23 and 24 2008, Cape Dorset, Nunavut

Proposed Sewage Lagoon Location



AMEC Completed the Following

■ **Before construction**

- ✧ Review and analysis of climate data, available reports, and expected permafrost conditions for Cape Dorset
- ✧ Aerial photograph interpretation
- ✧ Field reconnaissance of site suggested thin overburden over shallow bedrock
- ✧ Preliminary geothermal modeling, seepage, and slope stability reviews and assessments
- ✧ Preparation of geotechnical and geothermal design reports

■ **During construction**

- ✧ Construction inspections and reviews
- ✧ Additional geotechnical investigation and review

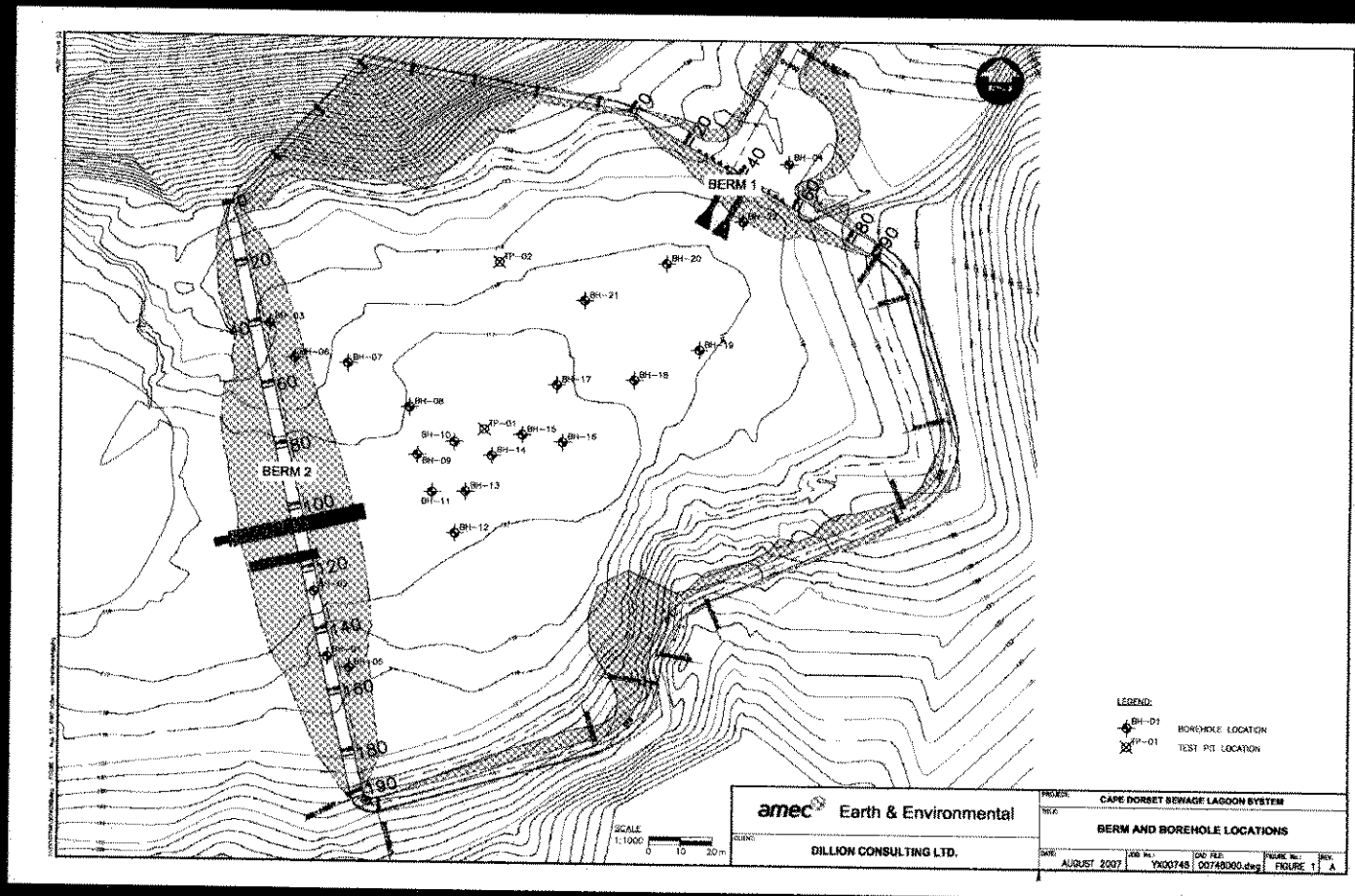
■ **Post-construction**

- ✧ Additional, detailed, and updated geothermal modeling, slope stability, and seepage assessments and reviews
- ✧ Confirmation of design and construction assumptions and site conditions
- ✧ Preparation of final geotechnical report

■ **Operations**

- ✧ Proposed general operational guidelines and activities and contingency plans

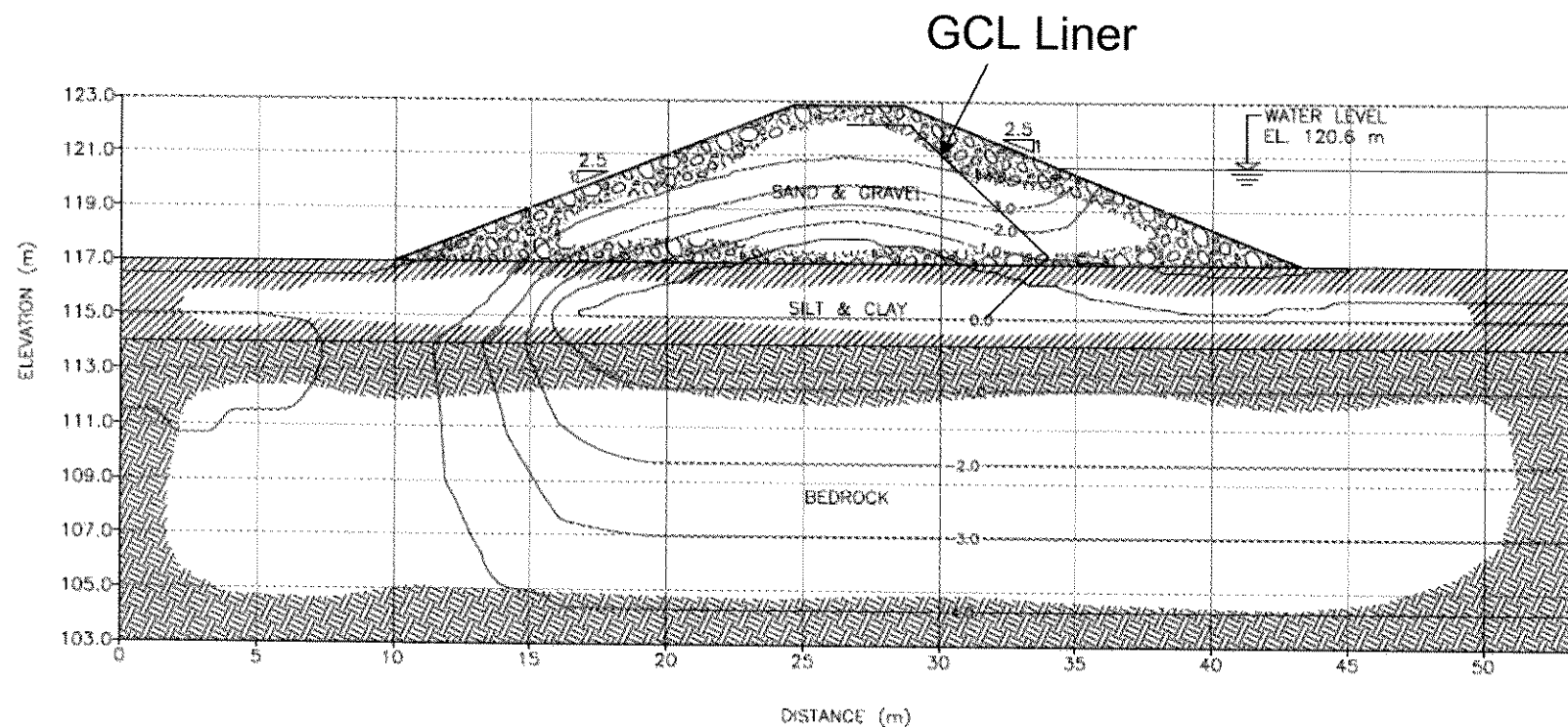
Site Layout and Borehole Locations



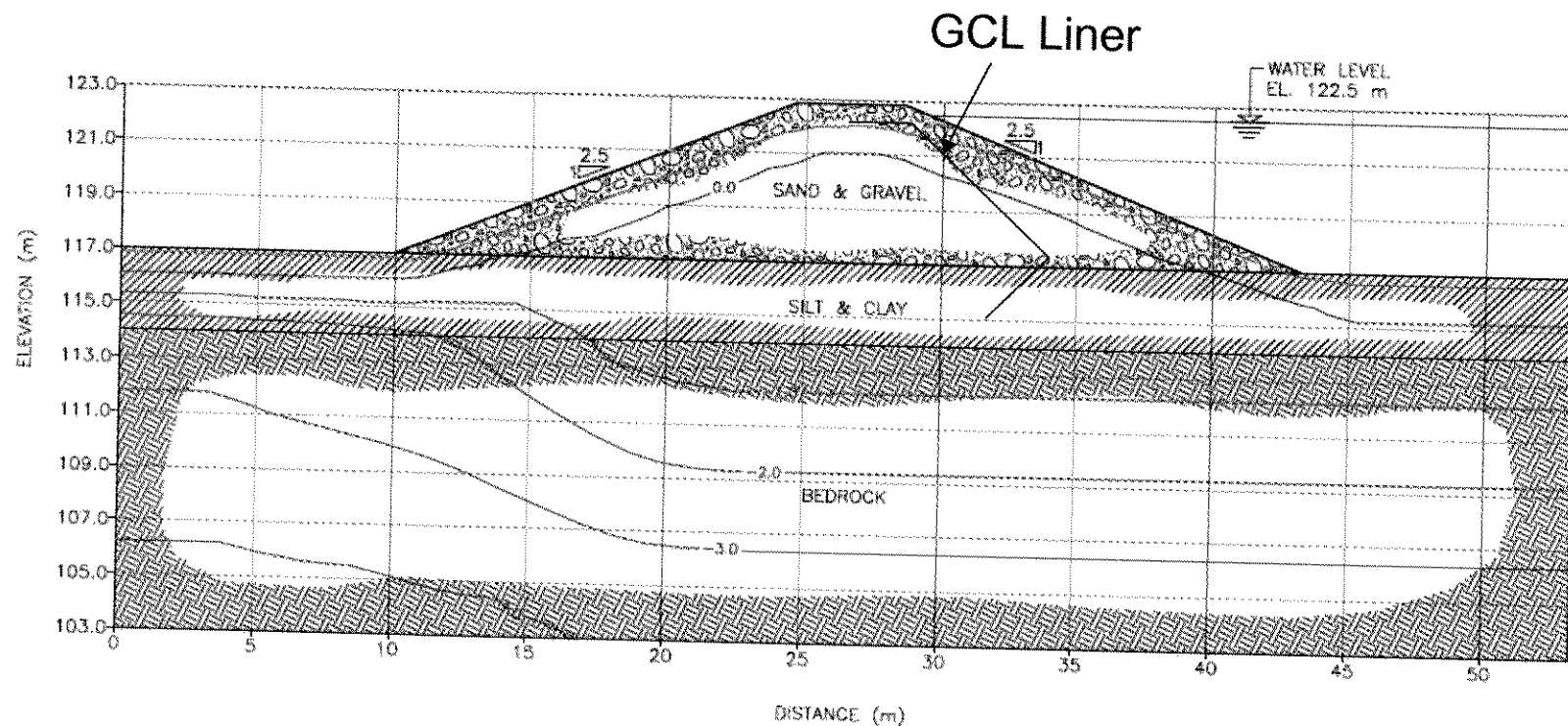
Summary of Geothermal Analysis

- ❖ **Conservative assumptions were used in analyses**
 - ❖ Material properties
 - ❖ Air and ground temperatures
 - ❖ Operational guidelines
- ❖ **Core of berm will freeze with annual active layer forming on the surface**
 - ❖ At least one winter of freezing is required to form frozen core
 - ❖ Active layer expected to typically be 1 to 1.5m thick in long term
 - ❖ Confirmatory monitoring recommended early in design process
- ❖ **Base of lagoon will remain frozen**
 - ❖ Conclusion reached prior to construction
 - ❖ Confirmed post-construction using more rigorous analysis

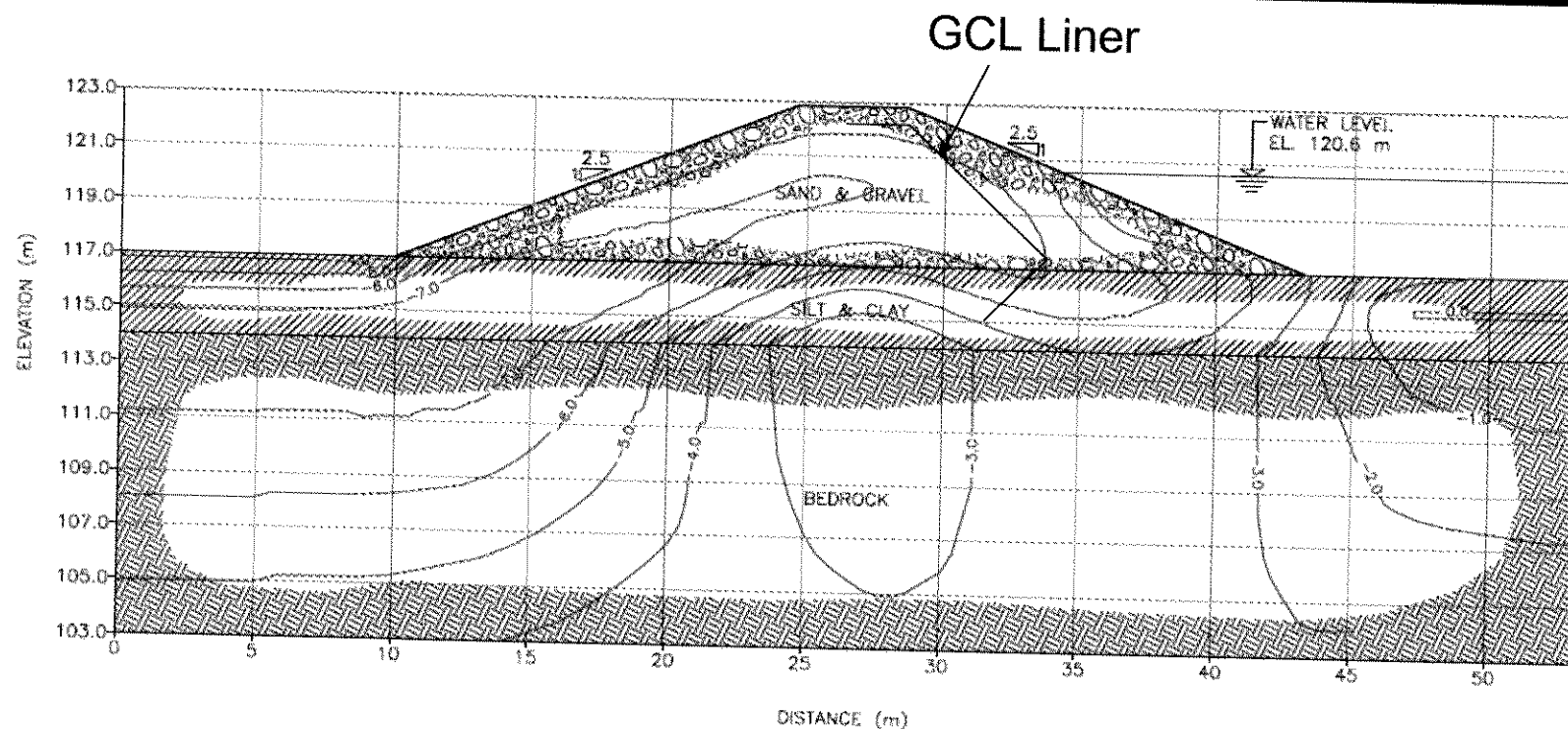
End of First Winter (8 months after end of construction)



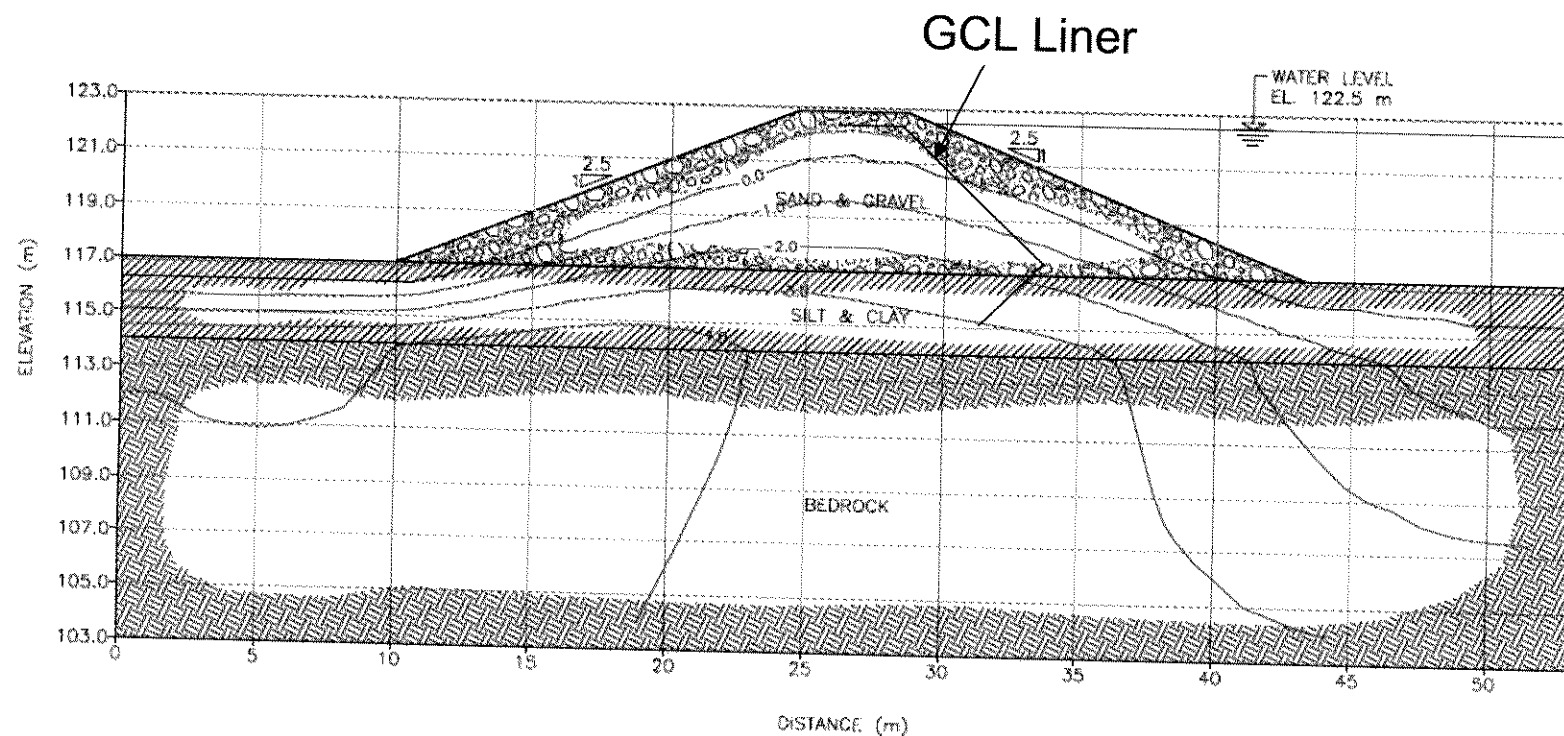
End of First Summer (12 months after end of construction)



End of Third Winter (32 months after end of construction)



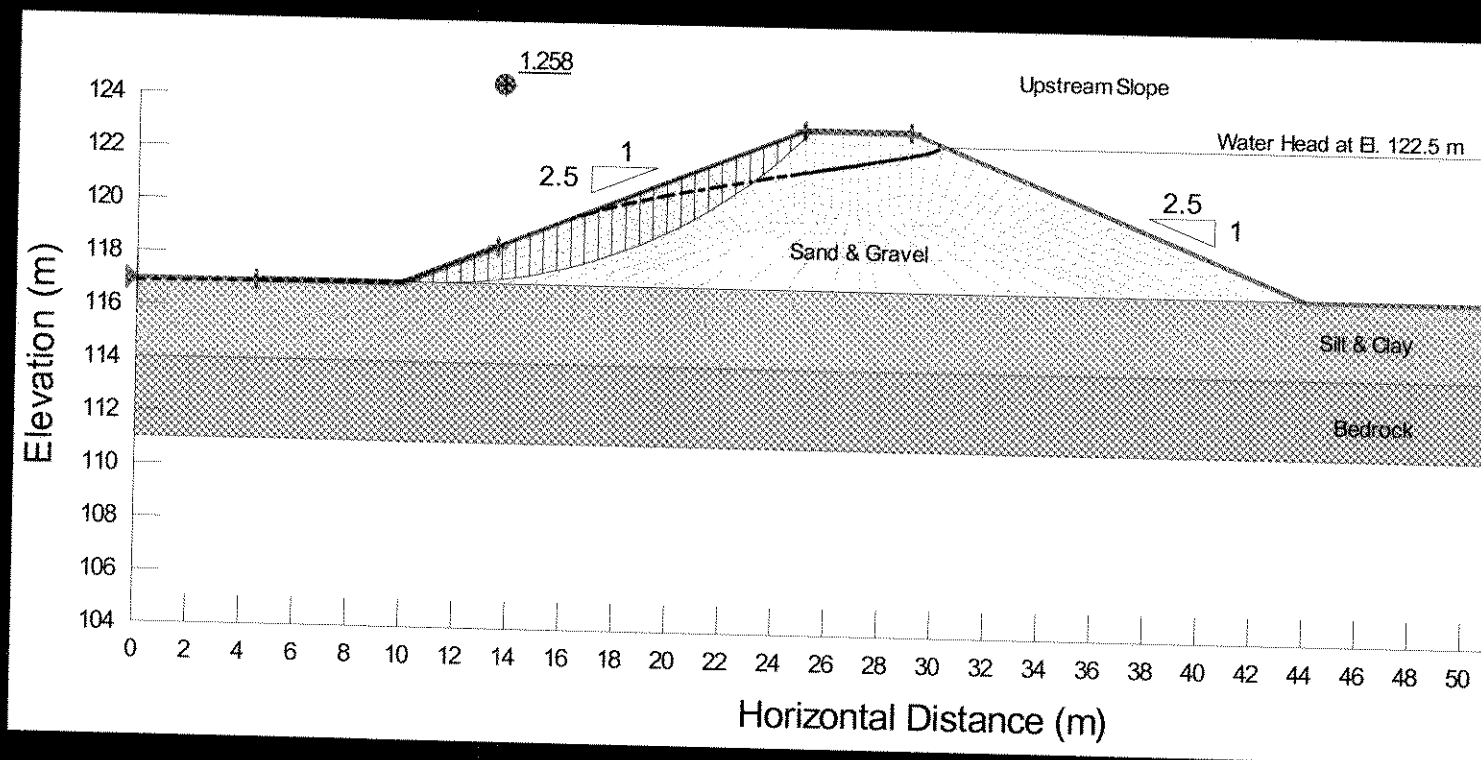
End of Third Summer (36 months after end of construction)



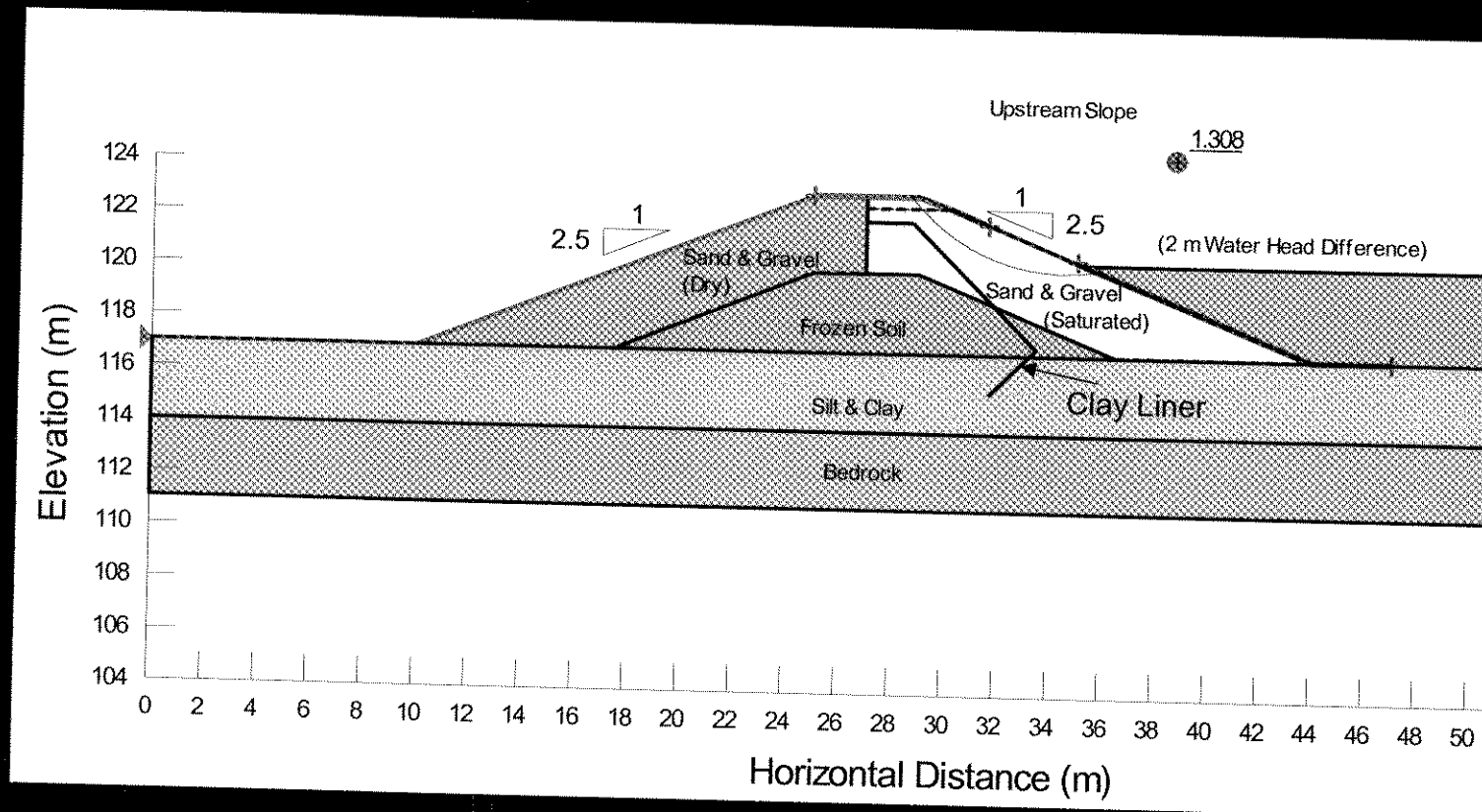
Summary of Stability and Seepage Analyses

- **Conservative assumptions were used in analyses**
 - ✦ Material parameters and conditions
 - ✦ Operational parameters
- **Berm slopes are stable under wide variety of operational scenarios**
 - ✦ Analyses cover short and long term scenarios and operating conditions
 - ✦ Analysis includes upstream and downstream slopes
 - ✦ Analysis of condition with unfrozen core and no liner produced stable result
- **Seepage is minimal once the berm core and base are frozen**
 - ✦ Initial seepage through base (original active layer during construction) should abate once berm is frozen
 - ✦ No filling during first winter is positive for seepage reduction
- **GCL is secondary containment in event of partial freezing**
 - ✦ Primary limit of potential seepage through active layer above frozen core
 - ✦ Contingency in event berm core thaws

Combined Seepage and Slope Stability Analysis



Slope Stability Under Rapid Drawdown Conditions



Proposed Confirmation During Operations

- **Installation of thermistor monitoring sites to confirm ground temperatures and frozen core of berm**
 - Allows for periodic data collection of temperature conditions within the berm and foundation soils
- **Periodic structure condition surveys**
 - Periodic visual assessment of berm condition and performance relative to seepage, erosion and slope stability
- **Periodic reporting of results of condition surveys and thermistor monitoring data**
 - Allows for periodic assessment of the need for implementation of contingency plans or remedial measures

Potential Contingency Measures

- **Themosiphon installations**
 - May be used in some instances to promote freezing of the berm
- **Additional drainage and/or erosion protection provisions**
 - May be used in some instances to control seepage and erosion
- **Support berms or slope flattening**
 - May be used to apply increased stability to berm slopes
- **Modified operational procedures**
 - May be used to limit potential for adverse condition to develop