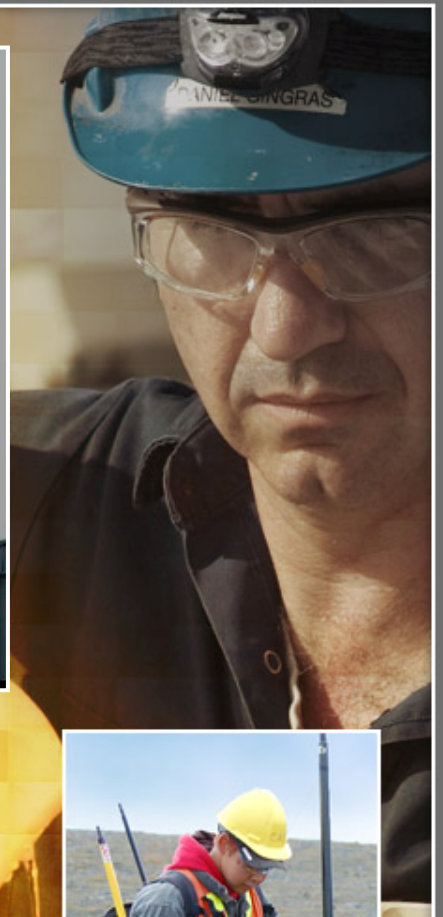


AEM

Agnico-Eagle Mines Limited

Meadowbank Gold Mine Project

Nunavut Water Board Public Hearing

Type A Water License Application

April 2008

Agnico – Eagle Mines Limited
Who are we?

AEM

- Head office in Toronto
- Have been in the gold mining business for 35 years
- Main operations located in Northwestern Quebec
- We are mine builders and Operators
  - **Purchased Cumberland Resources in 2007 & amalgamated into Agnico-Eagle Mines Ltd. Meadowbank is now a 100% owned division**
  - **Established a new Project office in Baker Lake in 2008**

AEM's ENVIRONMENTAL PERFORMANCE & RECORD

- Highest standards used in all jurisdictions and significant in-house expertise
- Excellent relationships with all regulatory agencies – transparent open door policy
- Partner with Quebec Gov't for rehabilitation of Manitou abandoned tailings
- Member of consortium to clean-up abandoned exploration sites in Nunavik
- AEM awarded the 2008 Sustainability Development Prize for Western Quebec from the Desjardin Group
- Received certification from Government in Mexico as a "Socially Responsible Company"

Where is The Meadowbank Project

Meadowbank Project is located 70 km north of Baker Lake

Connected to Baker Lake by a 110 Km all weather access road that was completed in March of 2008

Project is on Inuit Owned Land

IIBA & Water Compensation Status

- **Inuit Impact and Benefits Agreement is in place and is now being implemented – First payments have been made – Construction Decision under the IIBA given in December 2007**

- **Water Compensation Agreement with the KIA under Article 20 of the Nunavut Land Claims Agreement reached and signed.**

- **Specific terms are confidential but agreement addresses compensation for water used by the project, water flows altered by the project and provides for monitoring by the KIA through the construction, operation, closure and post closure phases of the Meadowbank Project**

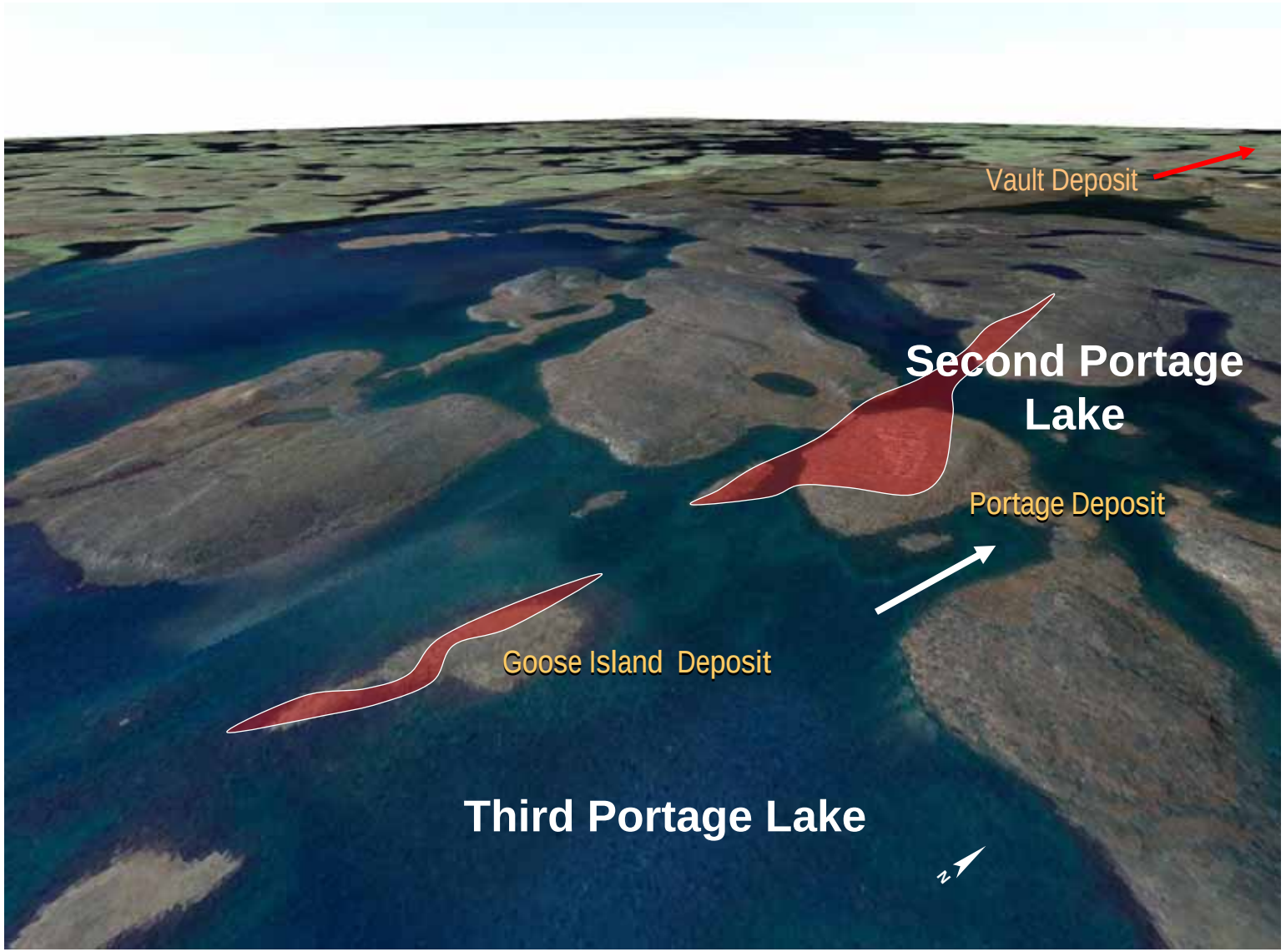
- **Development Partnership Agreement with GN in place**

Quick Facts About The Meadowbank Project

AEM

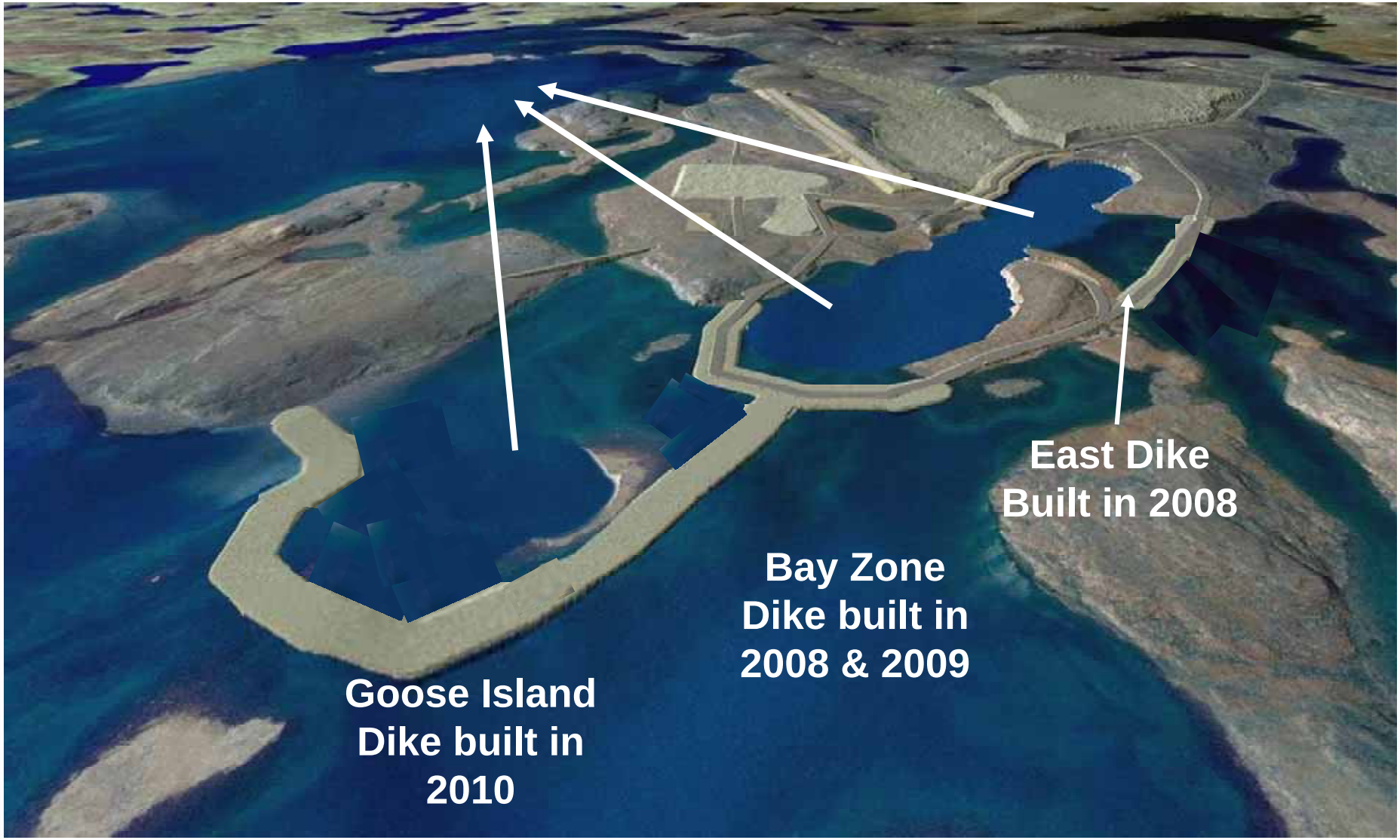
Mine Life: Construction	2 Years
Mine Operations	10 Years
Mine Throughput:	8,500 tpd
Metallurgical Recovery:	93%
Mining Method:	Three Open Pits
Initial Capital Cost:	C$414 million
Sustaining (life of mine):	C$65 million
Mine is on IOL Land – Mineral rights to NTI and Canada	390 permanent jobs
Average annual production:	
Years 1 to 4:	400,000 oz Au
Life of Mine:	350,000 oz Au
Est. Total Cash Cost per oz:	
Years 1 to 4:	$230
Life of Mine:	$250
Open Pit Mineral Reserve:	3.5 million oz Au

Where is the Ore?



Meadowbank Project
Construction of Dewatering Dikes

AEM



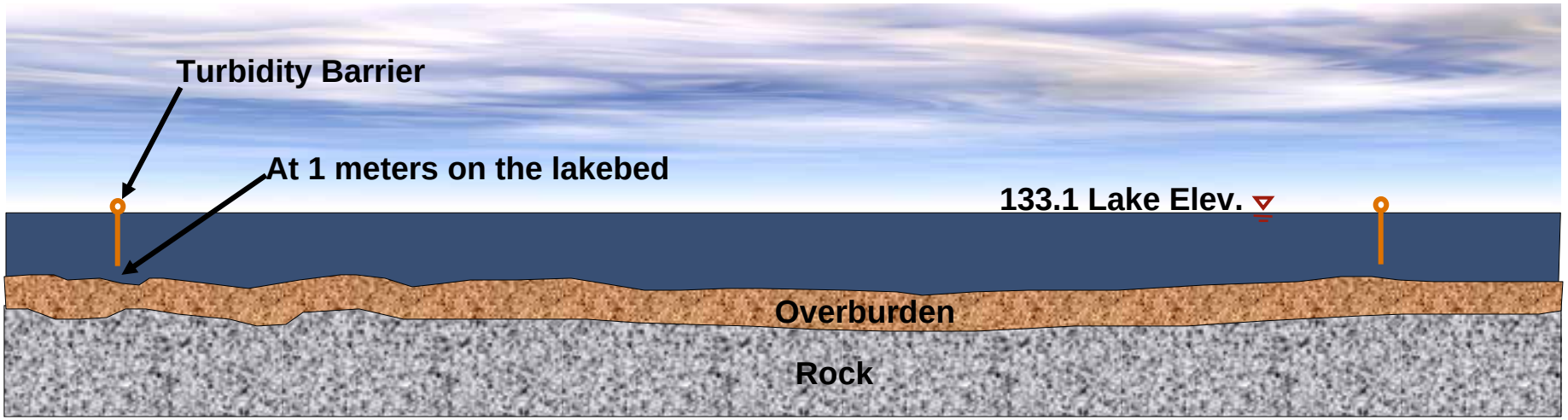
Project Schedule

- Construct East Dike and Western Channel Dike in 2008
- Partially dewater Northeast arm of Second Portage Lake in late Fall of 2008
- Construct Stormwater dike in late 2008 and in 2009
- Start pit development on South Portage Pit in 2008 and North Portage Pit in 2009
- Construct mill and shops in 2008 – 2009
- Commence production late 2009 early 2010
- First tailings deposition at mill start up

East Dike - Construction stage
Stage #1 – Install Turbidity Barrier

AEM

Turbidity barrier will be required to minimize the release of suspended solids into the lake during fill placement.

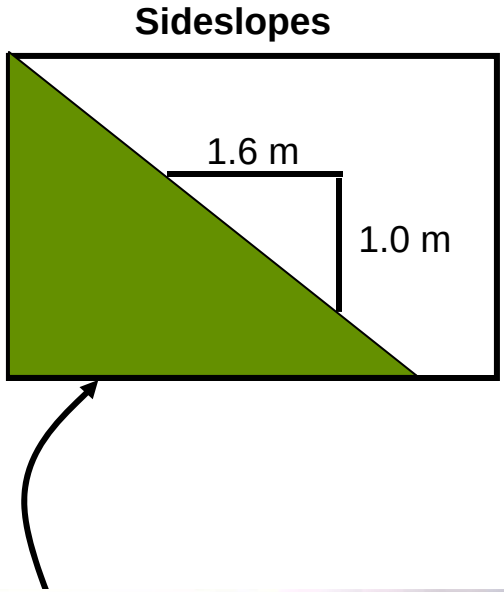


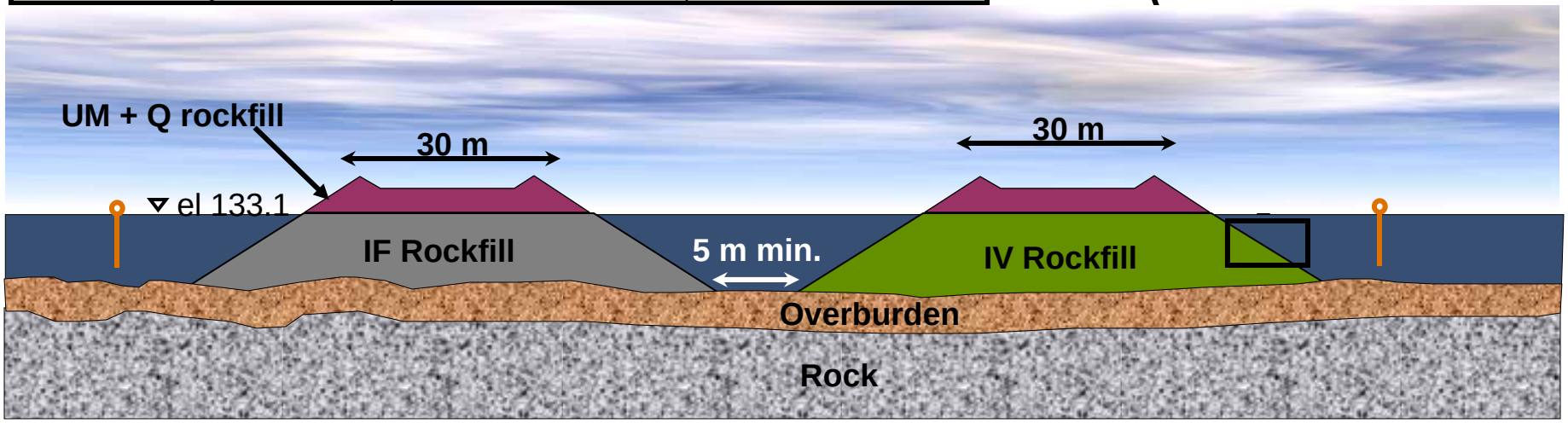
East Dike - Construction stage

Stage #2 – Placement rockfill

AEM

Material Type	Potential for ARD	Potential for Metal Leaching	Restriction for storage or use in construction
Ultramafic (UM)	Very Low	Low	May require collection & treatment of drainage
Intermediate volcanics	Variable (65% low; 35 % uncertain to high)	Moderate	Requires measures to control ARD
Iron formation	High	-High under ARD condition -low under neutral condition	Requires measures to control ARD
Quartzite	High	low	Co-disposal with ultramafic or cap/water cover

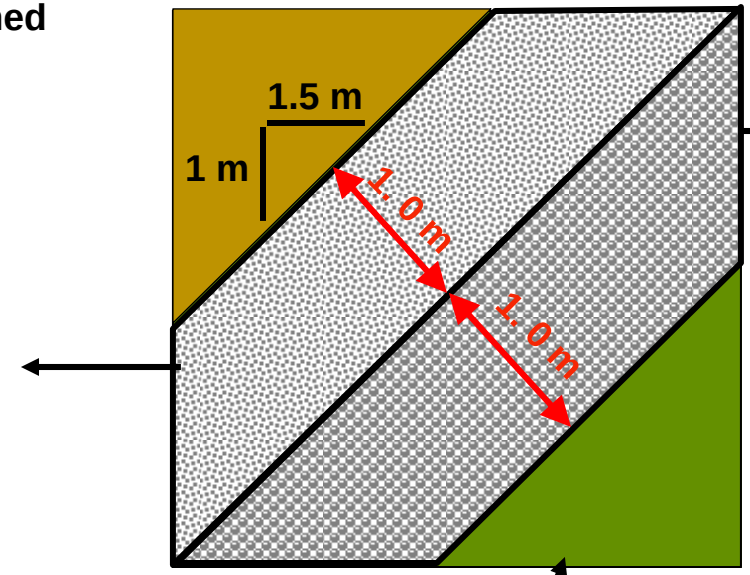




East Dike - Construction stage
Stage #3 – Placement Filter & Core

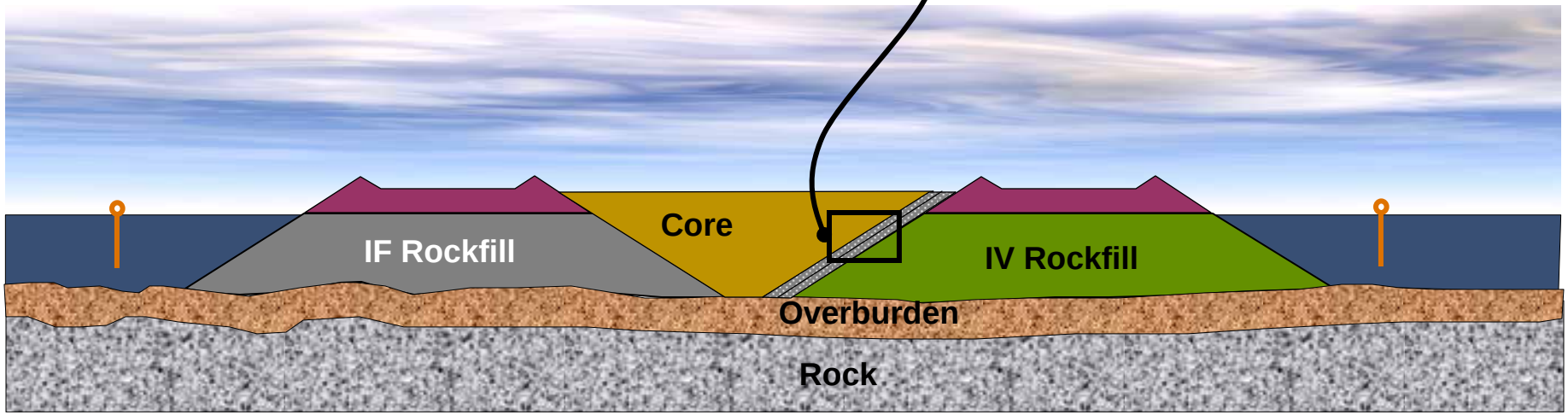
AEM

Core material will be obtained from open pit pre-stripping operation



Coarse Filter will be produced from screening mine rock

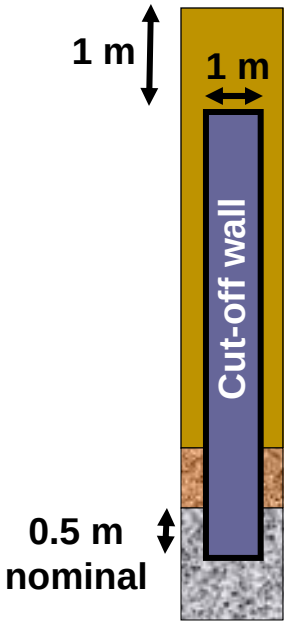
Fine Filter will be produced by crushing and screening mine rock to achieve the design gradation



East Dike - Construction stage

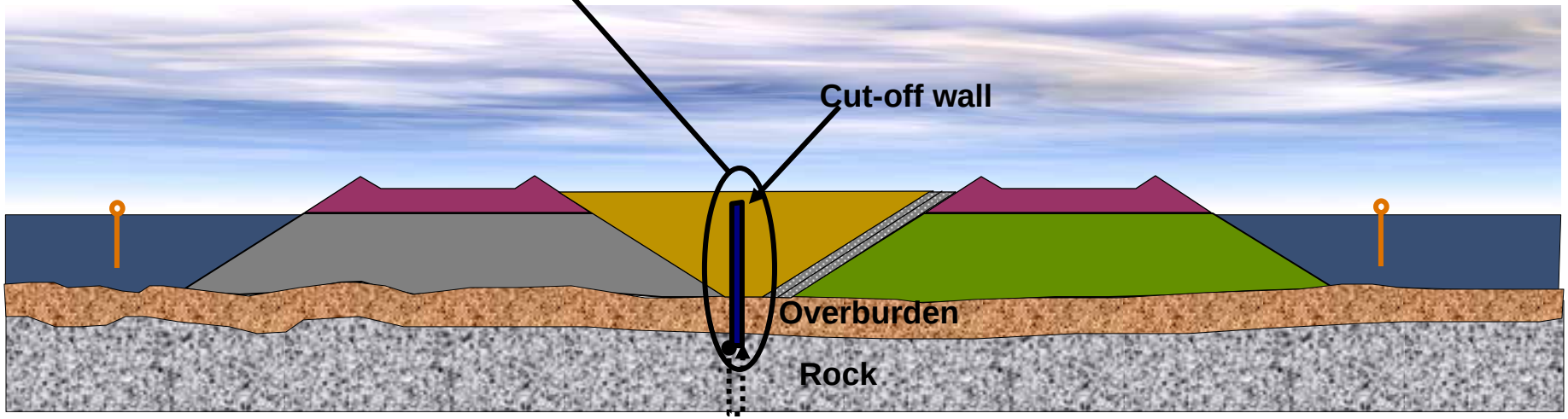
Stage #4 – Construction of the cut-off wall & bedrock grouting

AEM



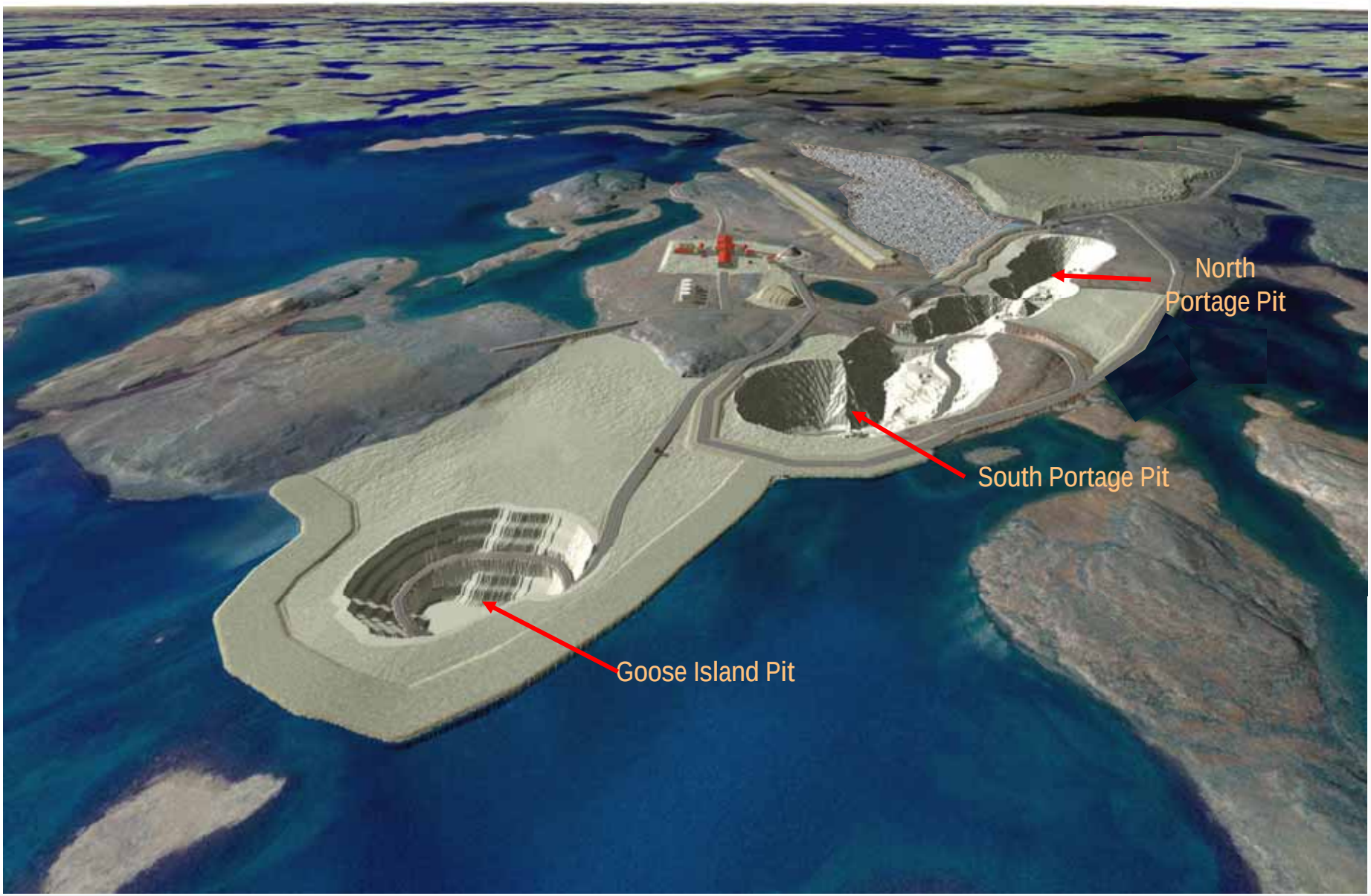
Type of cut-off wall used will depend on water depth

- 0 to 8 m depth: Soil-bentonite slurry trench
- 8m to 14 m depth: Soil-cement-bentonite slurry trench
- Depths greater than 14 m: Jet grout cut-off



Meadowbank Project
Mine Production

AEM



Meadowbank Plant Site – Conceptual View

AEM

What Type of Waste will the Project Produce?

AEM

Solid Waste:

- **Organic Wastes**
- **Garbage**
- **Oil Contaminated Snow and Soil**
- **Sewage**
- **Hazardous Wastes**
- **Waste Rock**
- **Tailings**

How will Waste Rock be Sorted and Stored?

AEM

- **Open Pit Mine will generate ~ 60,000 tonnes of waste rock every day**
- **Waste rock is the rock mined that contains no ore that must be removed to get to the ore**
- **All rock mined will be tested on site in a lab to determine whether it is ore or waste and to allow the PAG rock to be segregated from the non-PAG rock**
- **The PAG rock is buried under the UM non-PAG rock to neutralize oxidation products**

Waste Rock Storage

- Portage Pit Waste Rock Storage Pile (completed by 2012)
- Remains after mine is closed
- Drainage monitored and directed to attenuation pond for treatment if needed
- Goose Island pit waste will also go to the south end of the Portage Pit
- Vault waste rock pile – mostly UM non-PAG rock

Mill Tailings

- Tailings are placed in the dewatered rock lined former NW Arm of Second Portage Lake
- Permanently isolated by dams
- At end of mine life all remaining water is removed and placed into mined out pits
- Tailings are allowed to freeze and will be covered by UM non-PAG waste rock

How will Organic Waste Be Handled? – Waste that will smell and attract wildlife

AEM

- **Organic Wastes**
  - **Kitchen Waste – garbage from the kitchen and dining hall including packaging in contact with food**
  - **Waste from Dorm rooms, lunchrooms and offices**
- **Need to keep these wastes out of the landfill – smells will attract wildlife**
- **These types of wastes will be collected at source and burned in an incinerator at the mine site preferably on a daily basis**
- **New incinerator coming in 2008 to meet new CWS Standards**

How will Other Types of Garbage be Disposed?

AEM

Garbage

- **Non hazardous, non organic garbage such as plastics, wood waste, scrap steel, clean broken machine parts and broken equipment**
- **Landfill will be built on site within the waste rock dump**
- **Segregate garbage into separate piles (plastics, wood, and steel, etc.) to allow for some recycle or reuse. Material not reused will be moved to the landfill dump and then buried under waste rock**

Landfill in Waste Rock Dump

AEM

Waste Rock Dump – Location of Landfill

- Garbage placed in a designed specially built area of the waste rock pile
- Only non-hazardous waste goes to landfill
- Drainage from landfill will be monitored and water sent to attenuation or reclaim water pond
- Garbage covered over with rock to prevent it blowing around

How will Hazardous Waste be Handled?

AEM

Waste Oil

- Waste oil will be collected and placed in a tank incinerated

Waste antifreeze, waste solvents, waste chemicals, old batteries

- Hazardous waste materials will be sorted, handled accordingly and shipped south each year for recycling and/or disposal at a licensed disposal site.
- This will be done under proper hazardous manifests authorized by the GN DoE.

Treatment of Snow and Soil Contaminated by Diesel Fuel and Oil from Accidental Spills at Meadowbank

AEM

Contaminated Snow &Soils

- Snow & soil contaminated by diesel or engine oil will be treated in a landfarm facility
- Runoff from the facility will be collected and treated

Landfarm

Sewage Treatment Plant (STP) at Meadowbank

AEM

- All toilet, sink and shower water will be collected and sent to a sewage treatment plant
- Treated sewage is then sent to tailings during mine life (no water released to environment)
- During construction treated sewage water sent to stormwater pond, sludge filtered and incinerated

How will water be Used at the Meadowbank Project?

AEM

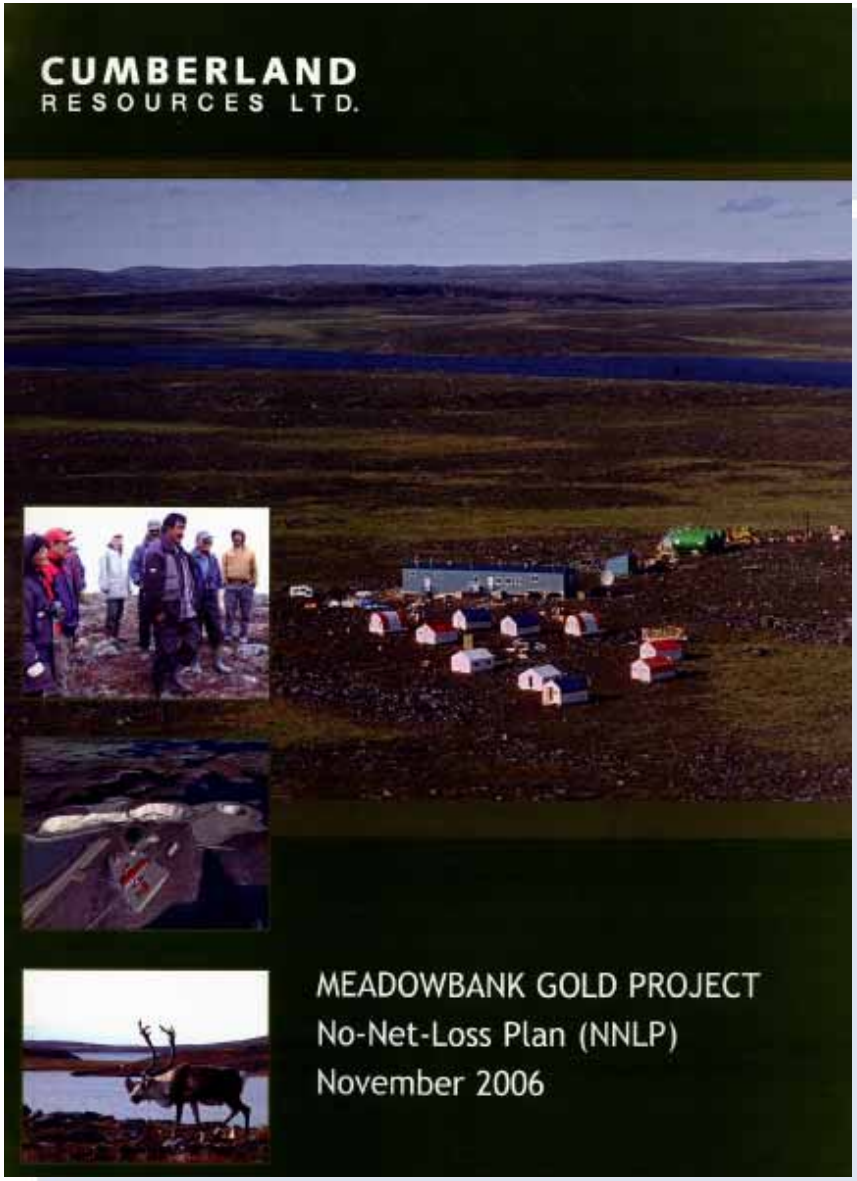
- Storm water & Snow melt
- Water diversions
- Drinking Water
- Process Water

Stormwater & Snow Melt

- All site runoff and snow melt water that comes in contact with the plant site will be collected and directed to the Stormwater management pond
- Stormwater pond water will be used in the mill or pumped to the attenuation or reclaim pond
- Stormwater will be monitored

Attenuation Pond

- The attenuation pond will receive water from the open pits, waste rock storage facility and storm water pond
- Water quality will be tested
- Attenuation pond water will be pumped through a diffuser into Third Portage Lake in the spring and early summer
- Water will meet EOP standards designed to protect aquatic life within 30 m of the diffuser



AGNICO-EAGLE

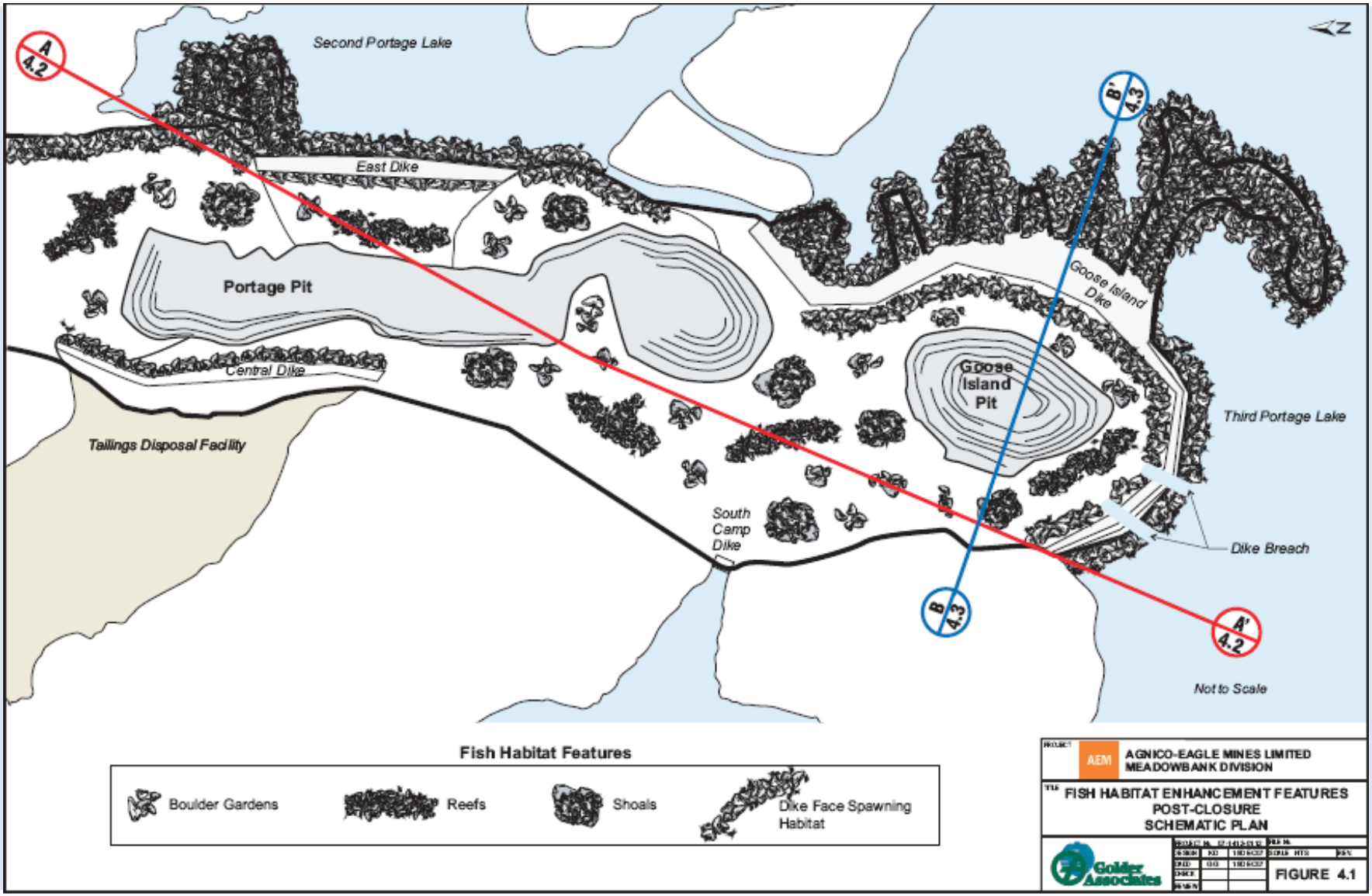
Total # of Habitat Units (HU's) for the Project Area Lakes is 17,570 HU

Fish Habitat Units Lost due to Project is 1,761 HU

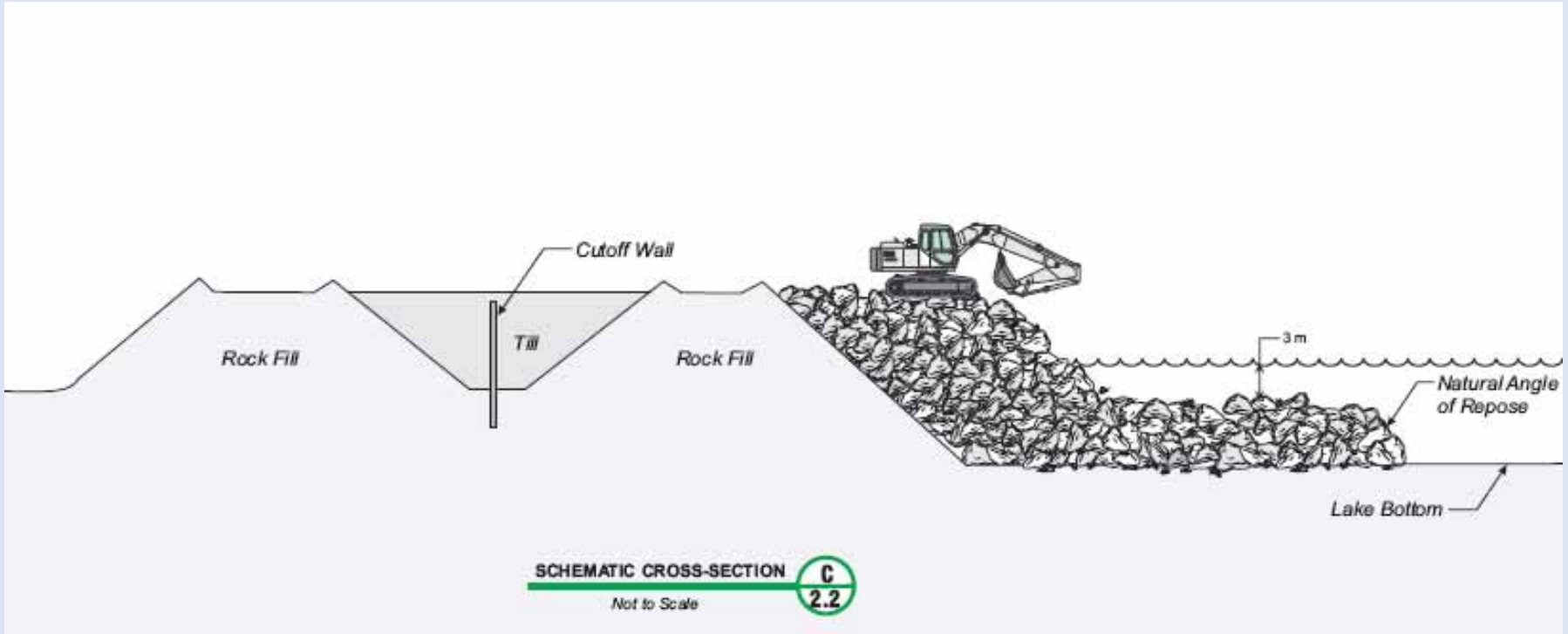
Fish Habitat Units Created due to Project Compensation is 2,152 HU

Project Component	HUs Lost	HUs Gained	Net HUs	NNL Ratio
Mine Site	1,390	1,402	+12	1:1
TIA	*370*	*749*	*+379*	*2:1*
AWPAR	0.5	1.32	+0.8	2.5:1

Habitat Compensation – Finger Dike Extensions (5)



Construction of Finger Dikes



AEM

AEM PREPOSED LICENSE CONDITIONS

Meadowbank Type A Water License Application
Requested License Term

AEM

- AEM is requesting a seven year license term for the Meadowbank Type A Water License
  - July 01, 2008 thru June 30 2015
- First Two Years to cover the construction Phase
  - 2008 and 2009
- Five Year Operational Phase
  - 2010 thru June 2015
- AEM would come back to the NWB in early 2014 to apply for its second license term

Meadowbank Type A Water License Application
Part A: Scope of License

AEM

- Construction & Operation of Open Pit Mines (Portage, Goose Island and Vault Deposits)
- Construction of Dewatering Dikes
- Dewatering of Northeast Arm of Second Portage Lake, Pit Areas and Vault Lake
- Mill Construction & Operation
- Construction and operation of site support facilities (shops, offices, lab, warehouse, camp, airstrip, explosives plant, etc) at the Meadowbank site
- Deposition of Tailings into TSF within the Northeast Arm of Second Portage Lake
- Construction of Attenuation Pond
- Discharge of water (site runoff + Pit Water) from Attenuation Pond thru diffuser into Third Portage Lake

Meadowbank Type A Water License Application
Part A: Scope of License (continued)

AEM

- Discharge of water from the Vault Attenuation Pond into Wally Lake thru a diffuser
- Construction of fish habitat compensation measures in Second & Third Portage Lakes
- Withdrawal and use of potable water from Third Portage Lake
- Withdrawal and use of process water from Northwest Arm of Second Portage Lake
- Construction and operation of the sewage treatment plant for the Meadowbank site (including discharge of treated effluent both during construction & operational phases)
- Construction and operation of storm water management systems for the Meadowbank site and Portage waste rock pile drainage (Tear Drop Lake and runoff control systems)

Meadowbank Type A Water License Application
Part A: Scope of License (continued)

AEM

- Construction and operation of an on-site landfarm facility to treat hydrocarbon contaminated soil
- Construction and operation of a non-hazardous landfill facility in the Portage waste rock pile
- Withdrawal and use of water from unnamed lake for use in mixing ANFO
- Construction and operation of the all weather private access road from Baker Lake (incorporation of Type B Water License TEH-0708)
- Construction and operation of barge off loading and fuel storage facilities in Baker Lake (incorporation of Type Water License 8BC-MEA0709)
- Reclamation and Post Closure Monitoring of all of the above facilities and activities

Meadowbank Type A Water License Application
Part B: Conditions Applying to Water Use

AEM

- **AEM is asking the NWB to authorize an annual fresh water use of 0.7 Million cubic meters per year**
  - **72.2 cubic meters per hour as process water (1,733 cu m per day)**
  - **3.3 cubic meters per hour as potable water (79.2 cu m per day)**
    (Based on 230 Liters per day per person x 344 persons)
- **This water would be drawn from Third Portage Lake and represents 0.2% of the lake's volume**

Meadowbank Type A Water License Application
Part B: Conditions Applying to Water Use

AEM

- **AEM is asking the NWB to authorize the dewatering of a section of Second & Third Portage Lakes and Vault Lake to allow for mining & tailings disposal**
  - **From East Dike – 13.8 million cubic meters (a 28 m draw down over 2008 and 2009)**
  - **From Bay Zone Dike – 07 million cubic meters (2009 and 2010)**
  - **From Goose Island Dike – 2.2 million cubic meters (2010 and 2011)**
  - **From Vault Lake – 2.2 million cubic meters (2014)**

Meadowbank Type A Water License Application
Part C: Conditions Applying to Security

AEM

- AEM asks the Board to set financial security for this first license term at $26.1 Million, ramping up over the license term as follows:
  - Upon Issue of license (mid 2008): $12,093,487
  - January 01st, 2009: $14,998,344
  - January 01st, 2011: $18,088,694
  - January 01st, 2012: $20,040,694
  - January 01st, 2013: $26,104,951
- This schedule fully secures all reclamation liability before the disturbance takes place
- This schedule ensures that all mine disturbance to occur during the first license term is fully bonded
- This schedule assumes that no progressive reclamation occurs during this license term; however, AEM has built such reclamation into its mine plan
- All parties can address future security at end of the first license term with better data and with progressive reclamation that has been completed receiving recognition

Comparison of Reclamation Security Estimates at End of Mine Life (12 Years Out)

AEM

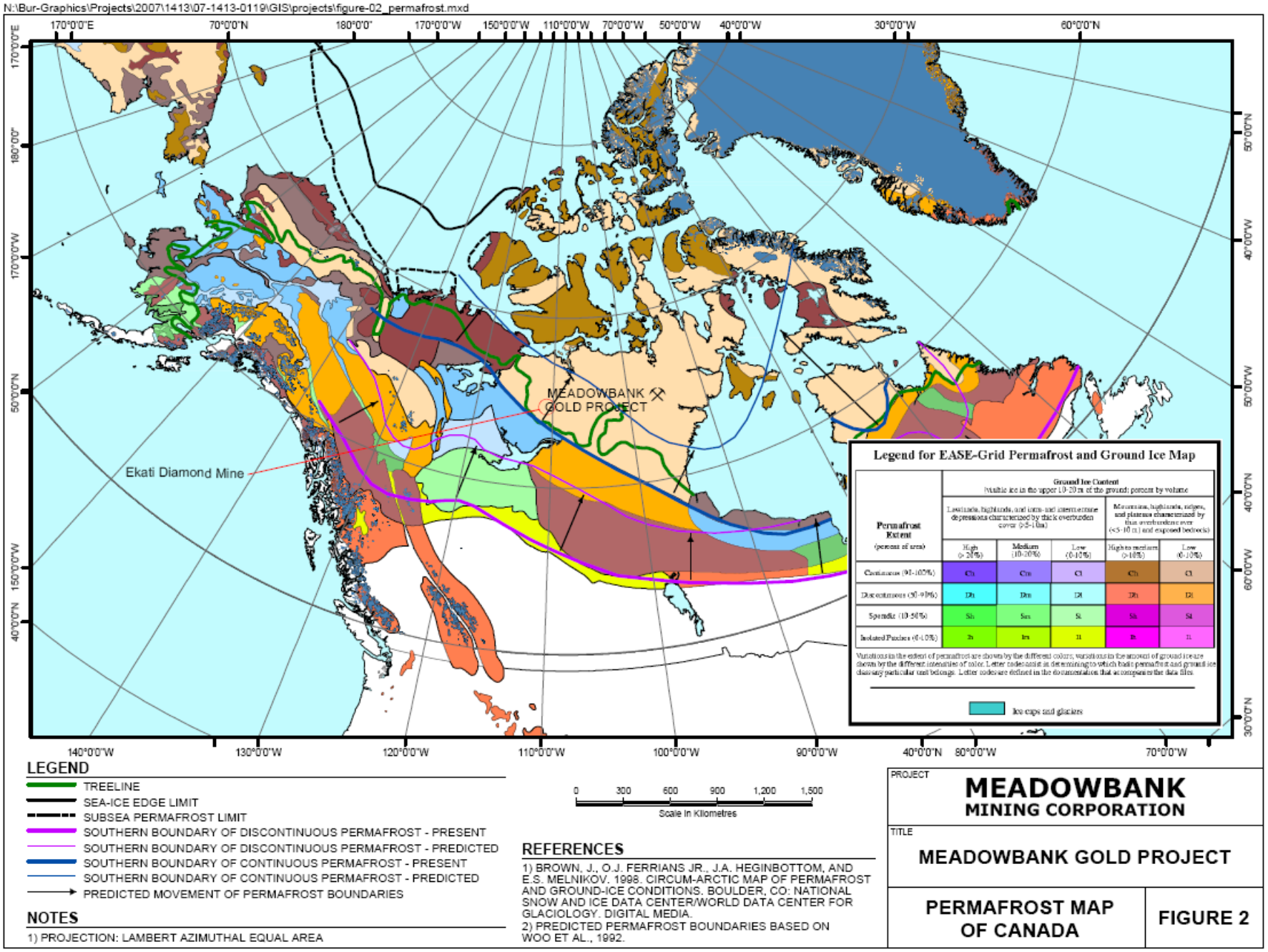
Mine Component	AEM	INAC	KIA
Open Pit	$1,771,391	$2,441,495	$1,610,591
Tailings	$5,490,990	$20,573,794	$19,560,990
Rock Pile	$3,521,990	$4,174,265	$9,072,290
Buildings & Equipment	$2,354,055	$6,057,562	$2,418,009
Chemicals & Soil Management	$461,765	$583,754	$461,765
Water Management	$283,055	$0	$283,056
Post Closure Site Maintenance	$743,874	$0	$0
Sub Total	$14,657,150	$33,785,869	$33,406,700
Mobilization/DeMobilization	$506,873	$802,207	$863,180
Monitoring & Maintenance	$550,000	$840,000	$840,000
Project Management	$439,715	$1,689,293	$1,670,335
Engineering	$439,715	$1,689,293	$1,670,335
Contingency	$1,455,715	$5,067,880	$5,011,006
Grand Total	$18,059,168	$43,874,543	$43,461,555

Reclamation Security Estimates – Why the big difference?

AEM

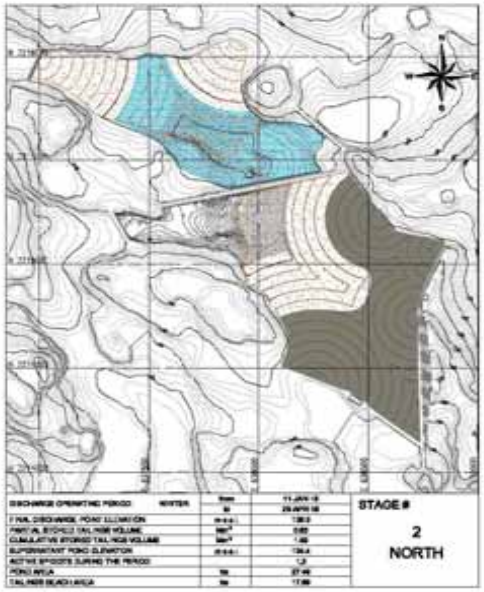
- **No allowance by INAC and KIA for planned progressive reclamation**
  - **AEM has incorporated ongoing progressive reclamation into its mine plan**
  - **INAC has assumed that this reclamation work will not take place as planned**

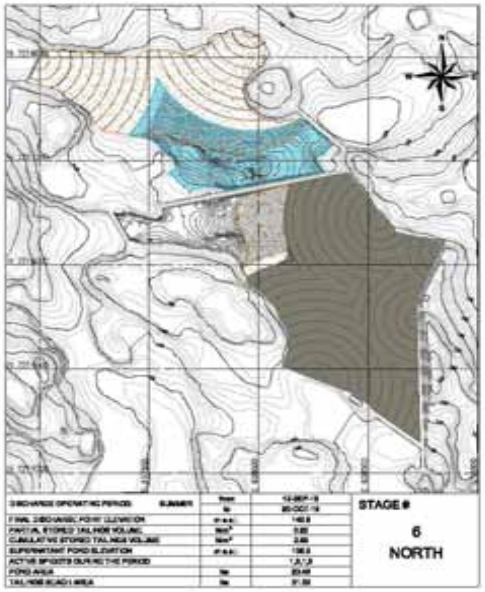
- **Required depth of Ultramafic rock capping layer over the PAG waste rock and tailings**
  - **AEM used a 2.5 m depth. The NIRB Process approved a 2.0 m capping depth with adaptive management**
  - **INAC used a 4.0 m depth thus dramatically increasing this cost**
  - **INAC based their choice on preliminary experience from the Ekati Mine**
  - **AEM suggests that this comparison is not valid as Meadowbank is in a different climate setting as evidenced by deeper permafrost and shallower active layers. Ekati is predicted to slip out of the continuous permafrost zone while Meadowbank remains within the zone under most aggressive global warming predictions**

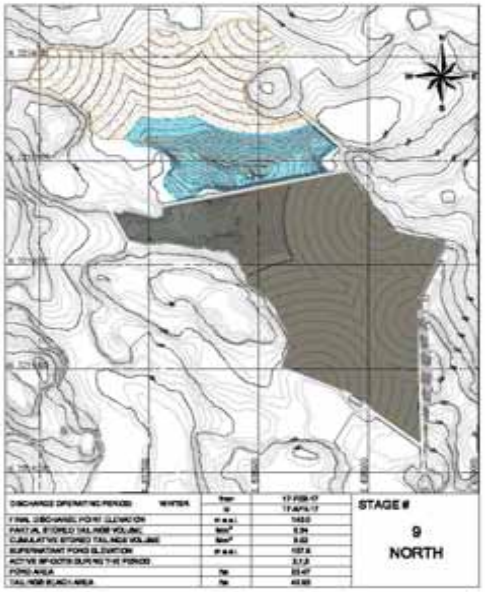

N:\Bur-Graphics\Projects\2007\1413\07-1413-0119\GIS\projects\figure-02_permafrost.mxd
MEADOWBANK GOLD PROJECT
Ekati Diamond Mine
Legend for EASE-Grid Permafrost and Ground Ice Map
Permafrost Extent (percent of area)
Ground Ice Content
Visible ice in the upper 10-20 m of the ground; percent by volume
Lowlands, highlands, and intra- and intermontane depressions characterized by thick overburden cover (>5-10 m)
Mountains, highlands, ridges, and plateaus characterized by thin overburden over (<5-10 m) and exposed bedrock)
High (>20%)
Medium (10-20%)
Low (0-10%)
High to moderate (>10%)
Low (0-10%)
Continuous (90-100%)
Discontinuous (50-90%)
Sporadic (10-50%)
Isolated Patches (0-10%)
Variations in the extent of permafrost are shown by the different colors; variations in the amount of ground ice are shown by the different intensities of color. Letter codes assist in determining to which basic permafrost and ground ice class any particular unit belongs. Letter codes are defined in the documentation that accompanies the data files.
Ice caps and glaciers
LEGEND
TREELINE
SEA-ICE EDGE LIMIT
SUBSEA PERMAFROST LIMIT
SOUTHERN BOUNDARY OF DISCONTINUOUS PERMAFROST - PRESENT
SOUTHERN BOUNDARY OF DISCONTINUOUS PERMAFROST - PREDICTED
SOUTHERN BOUNDARY OF CONTINUOUS PERMAFROST - PRESENT
SOUTHERN BOUNDARY OF CONTINUOUS PERMAFROST - PREDICTED
PREDICTED MOVEMENT OF PERMAFROST BOUNDARIES
NOTES
1) PROJECTION: LAMBERT AZIMUTHAL EQUAL AREA
0 300 600 900 1,200 1,500
Scale in Kilometres
REFERENCES
1) BROWN, J., O.J. FERRIANS JR., J.A. HEGINBOTTOM, AND E.S. MELNIKOV. 1998. CIRCUM-ARCTIC MAP OF PERMAFROST AND GROUND-ICE CONDITIONS. BOULDER, CO: NATIONAL SNOW AND ICE DATA CENTER/WORLD DATA CENTER FOR GLACIOLOGY. DIGITAL MEDIA.
2) PREDICTED PERMAFROST BOUNDARIES BASED ON WOO ET AL., 1992.
PROJECT
MEADOWBANK
MINING CORPORATION
TITLE
MEADOWBANK GOLD PROJECT
PERMAFROST MAP OF CANADA
FIGURE 2

Progressive Reclamation of Tailings – What do we mean?

AEM







Tailings Deposition Stage (1% beach slopes)	Cumulative Tailings Area Covered (m^2)	UM + Q Rockfill (m^3)	Days of Cover Construction	Average Rockfill Placement Rate (m^3/day)
2 North	430,000	980,000	231	3,720
6 North	631,500	1,363,000	365	2,615
9 North	812,800	1,825,400	542	2,307

NOTES

FIGURES ARE ADAPTED FROM THE TAILINGS DEPOSITION PLAN PRESENTED IN MINE WASTE AND WATER MANAGEMENT, AUGUST 2007. DOCUMENT 500. FIGURES SHOW CONCURRENT TAILINGS DEPOSITION IN NORTH CELL WITH ROCKFILL PLACEMENT IN SOUTH CELL.

SYMBOLS

- SUPERNATANT POND
- TAILINGS
- UM + Q ROCKFILL COVER

0 200 400 600 800 1000

Scale in Metres

AEM

AGNICO-EAGLE MINES LIMITED
MEADOWBANK GOLD PROJECT

SAMPLE PROGRESSIVE CLOSURE SCENARIO FOR TSF

Golder Associates

FIGURE 1

Progressive Growth of Portage Waste Rock Pile Footprint over First License Term (2 + 5 Years)

AEM

Year	Area (Ha)
2008	62.0
2009	344.0
2010	734.0
2011	750,0
2012	822.3
2013	822.3
2014	822.3

- In 2012 no more waste rock is going to the Portage Waste Rock pile
- Starting in 2012 waste rock from Goose Island Pit is placed in the south end of Portage Pit
- The Portage waste rock pile is fully capped with UM rock by the end of 2013

Proposed Solution on Amount of Security

AEM

- Propose NWB focus on the reclamation liability at the end of the license term (i.e. 7 years out)
- That means AEM would post reclamation security of $26.1 million based on INAC's analysis so that all liability incurred by the end of the first license term is secured
- In this period AEM will do progressive reclamation and collect field data to verify minimum required cover depth over tailings and waste rock
- All parties would recalculate reclamation liability for the second license term.
- AEM is confident that at this point reclamation liability will be lower than that projected by INAC

Reclamation Cost Estimate as Prepared by INAC – End of First License Term (7 Years Out)

AEM

	INAC Estimate at end of 2010 (Year 1)		INAC Estimate at end of 2014 (Year 5)	
Component Type	%	Total Cost	%	Total Cost
Open Pit		$1,265,095		$2,351,435
Underground Mine		$0		$0
Tailings		$1,175,645		$6,613,005
Rock Pile		$3,145,553		$4,169,930
Buildings and Equipment		$6,057,562		$6,057,562
Chemicals and Soil Management		$337,682		$538,754
Water Management		$0		$0
Post-Closure Site Maintenance		$0		$0
Sub Total		$11,981,537		$19,730,685
Mobilization/Demobilization		$400,980		$601,594
Monitoring and Maintenance		$840,000		$840,000
Market Factor Price Adjustment	0%	$0	0%	$0
Project Management	5%	$599,077	5%	$986,534
Engineering	5%	$599,077	5%	$986,534
Contingency	15%	$1,797,231	15%	$2,959,603
Grand Total - Capital Costs		$16,217,901		$26,104,951

Reclamation Security – AEM Proposed Schedule for Required Posting of Security

AEM

Calendar Year	Project Year	Reclamation Security to be Posted at Start of Year
2008	-1	$12,093,487
2009	0	$14,998,344
2010	1	$14,998,344
2011	2	$18,088,694
2012	3	$20,040,694
2013	4	$26,104,951
2014	5	$26,104,951

2008	Construction starts mid year, no tailings deposition yet, Start placing rock on Portage waste rock pile
2009	Construction essentially complete, no tailings deposition yet, Portage waste rock pile continues to grow
2010	Mill operations start, tailing deposition starts but no beach development above original lake level yet, Portage waste rock pile continues to grow
2011	Mill operations continue, tailing deposition continues but no beach development above original lake level yet, Portage waste rock pile continues to grow. Begin capping with UM
2012	Mill operations continue, tailing deposition continues, 120,000 sq m of beach above original lake level to be capped, Portage waste rock continues to grow and is fully capped by year end
2013	Mill operations continue, tailing deposition continues, 469,000 sq m of beach above original lake level to be capped, No additional waste rock going to Portage rock pile, Portage waste rock pile capped with UM. Waste rock now going to the South Portage Pit
2014	Mill operations continue, tailing deposition continues, 612,000 sq m of beach above original lake level to be capped, No additional waste rock going to Portage rock pile. Waste rock now going to the South Portage Pit

Reclamation Liability – Water vs Land

- **INAC has recommended that the split between Land-Related Reclamation Liability and Water-Related Reclamation Liability at the end of the mine life is 2/3 to 1/3:**
  - **Land Component: 66.3%**
  - **Water Component: 33.7%**

- **AEM has not tried to determine a split as we believe that this is an inefficient approach. Reclamation cannot be realistically split.**
- **As an example INAC estimates that reclamation of the land based waste rock pile ($4.1 M) should be divided as follows:**
  - **Land Component: 3.5%**
  - **Water Component: 96.5%**
- **A waste rock dump only becomes a water issue if the land reclamation is not successfully completed. Cannot the same be said for all reclamation? If land reclamation is not done then the resulting liability have a 100% effect on water.**

Double Bonding for Reclamation Liability

AEM

- **To date INAC and the KIA have been unable to reach an agreement on how security held against reclamation at the Meadowbank Project could be jointly administered to reclaim the site if AEM did not meet its obligations. KIA have tried to reach agreement with no success.**
- **Hence INAC have recommended that the NWB seek $29.1 Million in security against water only related reclamation**
- **This leaves the KIA having to decide what security they should ask for: the difference of $14.9 Million or the whole liability of $43.9 Million or something in between**
- **This could result in AEM having to post total security bonds of $58.8 Million against an acknowledged reclamation liability of $43.0 Million (an excess of $14.9 Million)**

Double Bonding for Reclamation Liability

AEM

- The Nunavut Water Board has ruled that reclamation activities cannot be separated between land and water. They are interrelated.
- Trying to isolate water related reclamation from land related reclamation activities will lead to inefficient reclamation completed at much higher cost (potentially doubles project management, administration, mobilization costs, etc.)
- On a larger scale project this double bonding could add tens of millions of $ to the reclamation bonding requirements
- This makes development of mining projects on IOL unattractive and potentially penalizes Inuit beneficiaries without providing any improvement in protection
- This double bonding issue is unfair to industry and to Inuit and needs to be resolved by the Federal Government. AEM recognizes that both parties have been trying to reach some form of agreement but have been unsuccessful

Options for Resolving this Double Bonding Issue

AEM

- **Option 1:**

  INAC would hold the full reclamation security. INAC and KIA would have an agreement covering how they could jointly manage reclamation activity if the proponent fails to meet its reclamation obligation

- **Option 2:**

  INAC and KIA spilt security. INAC holds water, KIA holds land (i.e., with no overlap). KIA and INAC have an agreement that sets out how they will jointly manage reclamation

- **Option 3:**

  KIA could hold the full reclamation security. INAC and KIA would have an agreement covering how they could jointly manage reclamation activity if the proponent fails to meet its reclamation obligation.

Options for Resolving this Double Bonding Issue

AEM

- No matter how you look at this it is an issue between INAC and the land owner
- Perhaps the Board could encourage these parties to address and resolve this issue as part of their interventions
- Perhaps the land owner could hold all of the security

Meadowbank Type A Water License Application
Part D: Conditions Applying to Construction

AEM

- AEM has proposed in its application a staged approach to NWB approval of the dewatering dikes and associated facilities

- Dike Construction
  - The application contains detailed design drawings for all of the dikes and dams required to mine the Portage Pit
  - AEM has recommended that the license require submission of the detailed design drawings of the Goose Island (2010) and Vault (2013) dikes for NWB approval a minimum of 6 months prior to planned start of construction
  - This allows for engineering lessons learned from construction of the first dikes to be incorporated in the designs for the latter dikes

Meadowbank Type A Water License Application
Part E: Conditions Applying to Water Management

AEM

- **Water discharges will occur as follows:**
  - **Non-contact diverted water**
  - **Lake dewatering discharges**
  - **Portage attenuation pond effluent**
  - **Vault attenuation pond effluent**
  - **Sewage treatment plant discharges (construction phase only)**
  - **Precipitation runoff and snowmelt from fuel containment berms at Baker Lake and Mine Site and from the Landfarm sump**

- **License discharge standards for each of these releases**

Proposed Criteria for Non-Contact (Diverted) Water

Project Period	Total Suspended Solids (TSS) Monthly Means
Construction Period	50 mg/L
Operational Period	15 mg/L

Second & Third Portage Lake & Vault Lake Dewatering Effluent Criteria – End of Pipe Discharge Standards Proposed

AEM

Parameter	Units	Aquatic Life Guidelines CCME	Drinking Water Guidelines	MMER	AEM Proposed Limit -EOP	EC Proposed Limit - EOP
pH		6.5-9.0	-	6.0-9.0	6.0-9.0	6.0-9.0
TSS	mg/L	-	-	15	15	15
Turbidity	ntu	-	-	-	Set as an objective not an enforceable standard	10
Al	mg/L	0.1	-	-	1.5	1.5

Monthly Means

Vault & Portage Attenuation Pond Discharges

AEM

Effluent	Discharge Period	Estimated Total Volume to be Discharged (Over Total Mine Life)
Vault Attenuation Pond	Year 5 to 8 during open water season only	2.3 Mm^3
Portage Attenuation Pond	Year 1 to 4 during open water season only	4.1 Mm^3

Diffuser Design Minimum Dilution Factors

Diffuser	Dilution Factor
Wally Lake Diffuser	24
Portage Lake Diffuser	64

Portage Attenuation Pond Discharge – End of Pipe Discharge Standards Proposed (Monthly Mean Concentrations)

AEM

Parameter	Units	Aquatic Life Guidelines CCME	Drinking Water Guidelines	MMER	AEM Proposed Limit -EOP	EC Proposed Limit - EOP
pH	-	6.0-9.5	-	6.0-9.5	6.0-9.0	6.0-9.0
TDS	mg/L	-	500	-	Monitor	Monitor
TSS	mg/L	-	-	15	15	15
Turbidity	ntu	-	-	-	Objective	10
Al	mg/L	0.1	-	2.0	2.0	1.5
Al-D	mg/L	-	-	-	-	1.0
As	mg/L	0.005	0.05	0.5	0.3	0.3
Cd	mg/L	0.000017	0.01	-	0.002	0.002
CN-T	mg/L	-	-	1.0	0.5	0.5
Cr	mg/L	0.001	0.05	-	Monitor	Monitor
Cu	mg/L	0.002	1.0	0.3	0.1	0.1
Hg	mg/L	0.000026	-	-	0.0004	0.0004
Mo	mg/L	0.073	-	-	Monitor	Monitor

Portage Attenuation Pond Discharge – End of Pipe Discharge Standards Proposed (Monthly Mean Concentrations)

AEM

Parameter	Units	Aquatic Life Guidelines CCME	Drinking Water Guidelines	MMER	AEM Proposed Limit -EOP	EC Proposed Limit - EOP
NH3-N	mg/L	2.04	-	-	16	16
Ni	mg/L	0.25	-	0.5	0.2	0.2
NO3-N	mg/L	13	45	-	20	20
Pb	mg/L	0.001	0.05	0.2	0.1	0.1
P	mg/L	-	-	-	1.0	1.0
Zn	mg/L	0.03	5.0	0.5	0.4	0.4
TPH	mg/L	-	-	-	3	3

Vault Attenuation Pond Discharge – End of Pipe Discharge Standards Proposed (Monthly Mean Concentrations)

AEM

Parameter	Units	Aquatic Life Guidelines CCME	Drinking Water Guidelines	MMER	AEM Proposed Limit -EOP	EC Proposed Limit - EOP
pH	-	6.0-9.5	-	6.0-9.5	6.0-9.0	6.0-9.0
TDS	mg/L	-	500	-	Monitor	Monitor
TSS	mg/L	-	-	15	15	15
Turbidity	ntu	-	-	-	Objective	10
Al	mg/L	0.1	-	2.0	2.0	1.5
Al-D	mg/L	-	-	-	-	1.0
As	mg/L	0.005	0.05	0.5	0.1	0.1
Cd	mg/L	0.000017	0.01	-	0.002	0.002
Cr	mg/L	0.001	0.05	-	Monitor	Monitor
Cu	mg/L	0.002	1.0	0.3	0.1	0.1
Hg	mg/L	0.000026	-	-	0.0004	0.0004
Mo	mg/L	0.073	-	-	Monitor	Monitor

Vault Attenuation Pond Discharge – End of Pipe Discharge Standards Proposed (Monthly Mean Concentrations)

AEM

Parameter	Units	Aquatic Life Guidelines CCME	Drinking Water Guidelines	MMER	AEM Proposed Limit -EOP	EC Proposed Limit - EOP
NH3-N	mg/L	2.04	-	-	26	20
Ni	mg/L	0.25	-	0.5	0.2	0.2
NO3-N	mg/L	13	45	-	50	28
Pb	mg/L	0.001	0.05	0.2	0.1	0.1
P	mg/L	-	-	-	1.5	1.5
Zn	mg/L	0.03	5.0	0.5	0.2	0.2

AEM Proposed Revisions to EC Criteria

AEM

- **Turbidity – AEM proposes that this be set as an objective only as we do not have sufficient data to be confident of the relationship at Meadowbank between TSS and Turbidity. Thus we do not know whether we can comply with EC's proposed standard.**
  - **AEM will collect this data during the license period.**
  - **TSS standard provides environmental protection to the environment**

- **TDS (Total Dissolved Solids) –AEM proposes the use of Chloride in place of TDS**

Proposed Chloride Criteria for Effluent instead of TDS

Vault Attenuation Pond	**1,000 mg/L Cl**
Portage Attenuation Pond	**2,000 mg/L Cl**

AEM does not believe it can achieve a TDS limit of 1,500 mg/L toward end of pit life at Portage Pit due to upwelling of deep connate water

AEM Proposed Revisions to EC Criteria

AEM

Nitrate – The proposed EC value for Vault effluent (28 mg/L) is at the predicted value thus not allowing any variation or short term upset. AEM has proposed a limit of 50 mg/L to allow for such variation.

Chromium –AEM proposes that Cr be monitored and not regulated.

Treated Sewage – Tear Drop Lake Proposed Discharge Standards only when discharging to the Environment

AEM

Parameter	Units	Aquatic Life Guidelines CCME	Drinking Water Guidelines	MMER	AEM Proposed Limit -EOP	EC Proposed Limit - EOP
BOD					25	25
TSS	mg/L				25	25
F. Coli	CFU/dl				1000	1000

Precipitation, Snowmelt runoff from fuel containment berms & Landfarm sump to the Environment – End of Pipe Discharge Standards Proposed

AEM

Parameter	Maximum Average Concentration (ug/L)
Benzene	370
Toluene	2
Ethylbenzene	90
Lead	1
Oil & Grease	15,000 and no visible sheen

Source: NWB License 2BE-MEA0813

Meadowbank Type A Water License Application
Part I: Conditions Applying to Contingency Planning

AEM

- **AEM has already prepared & implemented separate contingency plans for the following components of the Project:**
  - **Marine transportation of commodities to Baker Lake – NTCL**
  - **Baker Lake Marshalling and Fuel Storage Facilities – AEM**
  - **The All Weather Access Road from Baker Lake to the Mine – NUNA**
  - **The Regional Exploration Activities and the Meadowbank Camp – AEM**
- **AEM has committed to consolidate these plans into one over-arching contingency plan**
- **AEM asks the Board to give it 6 months from date of issue of the License to complete and submit this consolidated Contingency Plan**

Meadowbank Type A Water License Application
Part J: Conditions Applying to Water Quality Monitoring

AEM

- **AEM has previously submitted a Water Quality and Flow Monitoring Plan that was updated & re-submitted to the NWB following the Technical Meetings in late February 2008 (Document 626 – updated March 2008)**

- **The Plan sets out AEM's proposed monitoring program and includes:**
  - **Sampling locations**
  - **Sampling frequency and**
  - **Sampling parameters**

Meadowbank Type A Water License Application
Part K: Conditions Applying to Aquatic Effects Monitoring Plan

AEM

- **AEM has already submitted an Aquatic Effects Monitoring Plan for the Meadowbank Project.**
- **AEMP monitoring was conducted in 2006, 2007 and is planned again for 2008**
- **AEM acknowledges that the AEMP will evolve and need to be periodically updated**
- **AEM requests that the NWB set a condition that the first update be required by March 31, 2009 with further updates at 3 year intervals**

Meadowbank Type A Water License Application
Part L: Conditions Applying to Closure and Reclamation

AEM

- **AEM has already prepared & submitted Preliminary Closure & Reclamation Plans for the following components of the Project:**
  - **Baker Lake Marshalling and Fuel Storage Facilities – AEM**
  - **The All Weather Access Road from Baker Lake to the Mine – NUNA**
  - **Regional Exploration Activities and the Meadowbank Camp – AEM**
  - **The Meadowbank Gold Project as proposed under the Type A License - AEM**
- **These Preliminary CRP were prepared in accordance with the INAC Guidelines for Closure Planning in Nunavut**
- **AEM has committed to continue closure planning and complete a consolidated Interim CRP that incorporates this next level of planning detail and field study**
- **AEM asks the Board to give it 6 months from date of start of production mining and milling operations (~mid 2010) to complete and submit this consolidated Interim CRP**

Summary

- Pre-construction activities are underway
- There is excellent potential to find more gold – good results to date
- There is excellent support for the project
- The project is fully financed
- Agnico-Eagle intends to work with all the stakeholders in the region
- Will continue to build relationships with local communities & the KIA – respect IIBA
- Training local personnel a priority