


Remediation of the Gowrie Wash Plant, Port Morien, NS

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REMEDICATION OF THE GOWRIE WASH PLANT

- CHALLENGE
- REMEDIAL OPTIONS
- RESOLUTION
- IMPLEMENTATION
- SUMMARY







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LOCATION IN THE SYDNEY COAL FIELD






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CHALLENGE


- 19TH Century coal industry left a legacy, not all positive, e.g. Gowrie Wash Plant a former central coal washing plant
- Operations were abandoned in 1897
- Left behind over 130,000 cubic metres of waste rock pile
- Slowly eroded and weathered over the years:
 - silting drainage courses
 - producing numerous seeps of acid rock drainage
 - with deep erosion channels
 - And coal fines accumulations around toe and
 - In a large natural wetland area located downstream
- AECOM scope: gap analysis, investigation, RAP, design




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CHALLENGE







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CHALLENGE





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REMEDIAL OPTIONS

REMEDIAL ACTION PLAN :

- **OPTIONS:**
 - i. **DO NOTHING**
 - ii. **INSTITUTIONAL CONTROLS (Signage & Fencing)**
 - iii. **EXCAVATION & OFFSITE DISPOSAL**
 - iv. **CAPPING IN PLACE**
 - a. **Gowrie material alone**
 - b. **Central repository**
- **Each option was evaluated against qualitative, financial and loadings criteria**

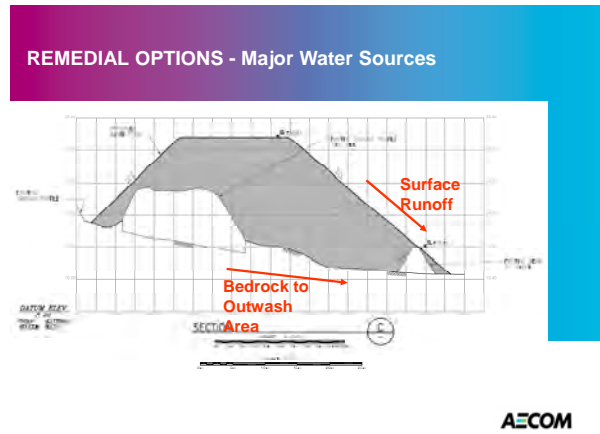
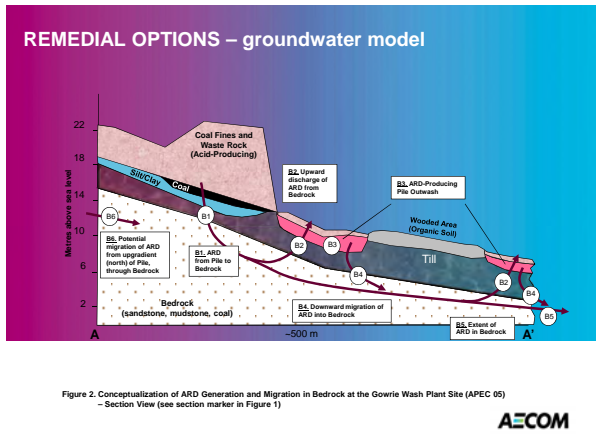
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REMEDIAL OPTIONS

FEASIBILITY :

- **OBJECTIVES**
 - minimize the site footprint
 - provide for an engineered cover that would isolate the waste materials and
 - minimize the formation of acid rock drainage
- **VALUE ENGINEERING**
 - feasibility and cost effectiveness of sub-options
 - based on performance and applicability, installation /maintenance costs and local economic benefits.

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REMEDIAL OPTIONS

PREFERRED OPTION :

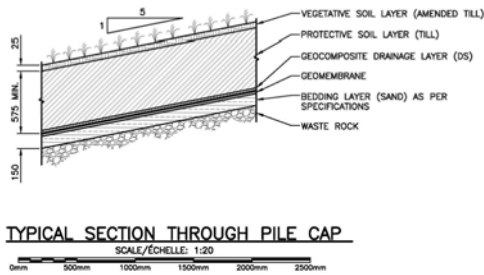
- **Central repository for 8 local sites,**
- **An engineered cap consisting of layers, btm up:**
 - a rough graded surface,
 - a 150 mm sand bedding layer,
 - a HDPE liner,
 - a geocomposite geonet drainage layer,
 - a 600 mm compacted till layer, top 25 mm soil
 - hydraulic seeding,
- **Surface water diversion channels,**
- **Settling ponds**

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DESIGN

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DESIGN



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IMPLEMENTATION

- **Two contracts dovetailed for efficiencies**
 - **Consolidation contract**
 - late 2008 to mid 2009
 - import of approximately 170,000m³ of similar waste rock and coal fines materials
 - from several local sites within 20km radius
 - Mainly off highway trucking
 - **Capping contract**
 - fall 2009 to spring 2010
- **Working with others under PWGSC coordination.**



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IMPLEMENTATION



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IMPLEMENTATION



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IMPLEMENTATION



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SUMMARY

- **ABANDONED MINES LEAVE HAZARDS TO PUBLIC**
- **IMPACTS MANY ECBC PROPERTIES inc. GWP**
- **ECBC IMPLEMENTING MINE SITE CLOSURE PROGRAM**
- **SUCCESSFUL REMEDIATION**
 - remediation of the Gowrie Wash Plant Site from Phase I to VI,
 - RAP assessed the remedial response options for the site and selected capping in place as a preferred remedial option due to:
 - provide a protective barrier from contaminants,
 - reduce ARD generation and
 - allow the site to be used as a central repository for waste rock
 - implemented an impermeable cap with HDPE liner
 - drainage from the geosynthetic layer and groundwater from upward seeps are controlled and directed to new settlement ponds for treatment on a monitor and develop basis.
- **ONGOING LONG-TERM MONITORING & MAINTENANCE**



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SUMMARY



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SUMMARY



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References

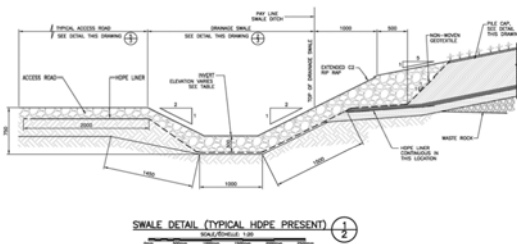
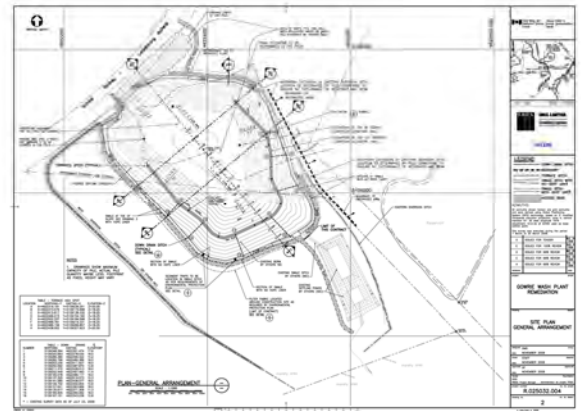
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General Arrangement



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