

VOLUME IV
CHAPTERS 1 to 6

WHITES POINT QUARRY & MARINE TERMINAL

**ENVIRONMENTAL
IMPACT
STATEMENT**



Master Table of Contents

Volume #

PLAIN LANGUAGE SUMMARY

**EIS
Vol. I**

EIS GUIDELINES REFERENCED TO THE EIS DOCUMENT

**EIS
Vol. II**

MAPS

**EIS
Vol. III**

MASTER TABLE OF CONTENTS

**EIS
Vol. IV**

Glossary of Terms

Accronyms

Units of Measure

EXECUTIVE SUMMARY

**EIS
Vol. IV**

List of Tables

Table ECM - 1	Mitigation Table
Table ECM - 2	Monitoring Table
Table 2	Impact Summary Table
Table CEM - 1	Cumulative Environmental Component Monitoring
Table CEM - 2	Cumulative Impact Summary Table
Table CI-1	Committments Table

1.0 ENVIRONMENTAL ASSESSMENT OF THE PROJECT

**EIS
Vol. IV**

1.1	Background
1.2	The Joint Review Panel Mandate
1.3	Cost Recovery
1.4	Participant Funding

Master Table of Contents

	<u>Volume #</u>
2.0 THE REVIEW PROCESS	EIS Vol. IV
2.1 Scope of the Assessment	
2.2 Environmental Impact Statement	
2.3 Purpose of the EIS Guidelines	
2.4 Timing	
3.0 PRINCIPLES	EIS Vol. IV
3.1 Use and Respect for Traditional and Community Environmental Knowledge	
3.2 Public Involvement	
3.3 Sustainable Development	
3.4 The Ecosystem Approach	
3.5 The Precautionary Approach	
4.0 THE PREPARATION OF THE EIS	EIS Vol. IV
4.1 Approach	
4.2 Format	
5.0 CONCORDANCE TABLE	EIS Vol. IV
5.1 Cross Reference of Issues and Concerns Raised and Where they are Dealt with in the EIS	

Master Table of Contents

Volume

6.0 INTRODUCTION TO THE EIS

**EIS
Vol. IV**

- 6.1 The Proponent
- 6.2 Project Overview and Purpose
- 6.3 The Project Setting
- 6.4 The Environmental Impact Assessment
Process and Approvals
- 6.5 Regulatory Environment
- 6.6 International Agreements
- 6.7 Study Strategy and Methodology

7.0 PROJECT DESCRIPTION

**EIS
Vol. V**

- 7.1 Need for, Purpose of, and Alternatives to the Project
- 7.2 Alternative Means of Carrying out the Project
- 7.3 The Project
- 7.4 Land Requirements
- 7.5 Schedule and Boundaries
- 7.6 Cost and Workforce
- 7.7 Construction Phase
- 7.8 Operation and Maintenance Phase
- 7.9 Modification
- 7.10 Decommissioning and Reclamation Phase

8.0 IMPACT ASSESSMENT METHODOLOGY

**EIS
Vol. V**

- 8.1 Methods
- 8.2 Public Participation
- 8.3 Selection of Valued Environmental Components
- 8.4 Boundaries
- 8.5 Application of the Precautionary Principle

Master Table of Contents

Volume #

9.0 ENVIRONMENTS AND IMPACT ANALYSIS

9.1 Physical Environmental and Impact Analysis

**EIS
Vol.VI**

- 9.1.1 Climate
- 9.1.2 Geology
- 9.1.3 Hydrogeology
- 9.1.4 Surficial Geology and Soils
- 9.1.5 Little River Watershed
- 9.1.6 On-site Surface Water Drainage
- 9.1.7 Physical Oceanography
- 9.1.8 Air Quality
- 9.1.9 Noise and Vibration - Blasting
- 9.1.10 Noise and Vibration - Plant
- 9.1.11 Noise and Vibration - Shiploading
- 9.1.12 Light

9.2 Biological Environment and Impact Analysis

**EIS
Vol.VI**

- 9.2.0 Introduction
- 9.2.1 Terrestrial Ecology
- 9.2.2 Aquatic Ecology - On-site Freshwater
- 9.2.3 Aquatic Ecology - Marine Intertidal Zone
- 9.2.4 Aquatic Ecology - Coastal- Nearshore Marine
- 9.2.5 Fish - Endangered
- 9.2.6 Fish - Threatened and Special Concern
- 9.2.7 Waterfowl - Special Concern
- 9.2.8 Marine Reptiles - Endangered (leatherback turtle)
- 9.2.9 Blasting - Fish Habitat
- 9.2.10 Blasting - American Lobster
- 9.2.11 Blasting - Marine Mammals
- 9.2.12 Blasting - Waterbirds
- 9.2.13 Ship Interactions - North Atlantic Right Whale
- 9.2.14 Ballast Water
- 9.2.15 Noise and Vibration - Marine

Master Table of Contents

Volume #

9.3 Human Environment and Impact Analysis

**EIS
Vol.VII**

- 9.3.1 Heritage Resources - Marine Archaeology
- 9.3.2 Heritage Resources - Land Archaeology
- 9.3.3 Aboriginal Land and Resource Use
- 9.3.4 Heritage Resources - History
- 9.3.5 Heritage Resources - Heritage Properties
- 9.3.6 Aesthetics
- 9.3.7 Community Profile
- 9.3.8 Transportation - Land and Marine
- 9.3.9 Economy - Whites Point Quarry
- 9.3.10 Economy - Fishery
- 9.3.11 Economy - Fishery/Aquaculture
- 9.3.12 Economy - Fishery/Intertidal
- 9.3.13 Economy - Fishery/Nearshore
- 9.3.14 Economy - Tourism
- 9.3.15 Economy - Land Value
- 9.3.16 Recreation
- 9.3.17 Human Health and Community Wellness
- 9.3.18 Human Health - Drinking Water Quality
- 9.3.19 Human Health - Marine Contaminants
- 9.3.20 Human Health - Land Contaminants
- 9.3.21 Human Health - Country Foods
- 9.3.22 Socio-cultural Patterns
- 9.3.23 Education, Training and Skills
- 9.3.24 Infrastructure and Institutional Capacity
- 9.3.25 Other Undertakings in the Area

9.4 Summary Table of Impacts

**EIS
Vol.VII**

Master Table of Contents

10.0 CUMULATIVE IMPACTS

Volume #

**EIS
Vol.VII**

11.0 ENVIRONMENTAL MANAGEMENT

**EIS
Vol.VII**

- 11.1 Management Criteria
- 11.2 Accidents and Malfunctions
- 11.3 Environmental Protection
- 11.4 Monitoring
- 11.5 Mitigation Measures
- 11.6 Follow-up Program
- 11.7 Residual Impacts
- 11.8 Compensation

12.0 Bibliography

13.0 EIS ATTACHMENTS

REFERENCE DOCUMENTS

**Reference
Vol. I**

- Faunal Analysis of the Proposed Whites Point Quarry Site
and 2004 Breeding Bird Surveys of Whites Point Quarry Site* **Tab 1**
Alliston, George, Ph.D.
- Wintering Harlequin Ducks in the Digby Neck/Long Island Area* **Tab 2**
Alliston, George, Ph.D.
- Wintering Waterbirds of Digby Neck and Adjacent Coastal
Waters of Southwestern Nova Scotia* **Tab 3**
Alliston, George, Ph.D.
- Odonata Survey 2005, Whites Point Property* **Tab 4**
Brunelle, Paul-Michael
- Adult Butterfly Habitat and Larval Host Plant Survey of Whites Point* **Tab 5**
Neil, Kenneth A., BSc., Ph.D, PDF.
- Plant Survey of Whites Cove Property and Addendum* **Tab 6**
Newell, Ruth E., M.Sc.
- A Report on a Botanical Survey* **Tab 7**
Proulx, Gini

Master Table of Contents

Volume #

REFERENCE DOCUMENTS - con't

<i>Interpretation of a Sublittoral Benthic Survey Along the Shoreline of Whites Point</i> Brylinsky, Michael, Ph.D.	Tab 8	Reference Vol. II
<i>Results of a Sediment Survey in the Near Offshore Waters of the Proposed Quarry Site in the Vicinity of Whites Cove</i> Brylinsky, Michael, Ph.D.	Tab 9	
<i>Results of a Survey of the Intertidal Marine Habitats and Communities at a Proposed Quarry Site Located in the Vicinity of Whites Cove</i> Brylinsky, Michael, Ph.D.	Tab 10	
<i>Results of a Survey of the Plankton Communities Located Offshore of a Proposed Quarry Site at Whites Cove</i> Brylinsky, Michael, Ph.D.	Tab 11	
<i>Results of a Suspended Solids Survey at the Whites Point Quarry</i> Brylinsky, Michael, Ph.D.	Tab 12	
<i>A Preliminary Assessment of the Risks of Introducing Non-Indigenous Phytoplankton, Zooplankton Species or Pathogens/Parasites from South Amboy, New Jersey (Raritan Bay) into Whites Point</i> Carver, E.E., M.Sc., and Mallet, A.L., M.Sc., Mallet Research Services Ltd	Tab 13	

Master Table of Contents

Volume #

REFERENCE DOCUMENTS - con't

<i>Marine Archaeology Offshore Digby Neck, Bay of Fundy</i> Fader, Gordon B., Atlantic Marine Geological Consulting Ltd.	Tab 14	Reference Vol. III
<i>Physiography, Geography and Bathymetry of Digby Neck Area</i> Fader, Gordon B., Atlantic Marine Geological Consulting Ltd.	Tab 15	
<i>Bedrock and Surficial Geology</i> Fader, Gordon B., Atlantic Marine Geological Consulting Ltd.	Tab 16	
<i>Glacial, Post Glacial, Present and Projected Sea Levels</i> Fader, Gordon B., Atlantic Marine Geological Consulting Ltd.	Tab 17	
<i>Seismic Hazard, Faults and Earthquakes</i> Fader, Gordon B., Atlantic Marine Geological Consulting Ltd.	Tab 18	
<i>Erosion, Suspended Sediment and Sediment Transport</i> Fader, Gordon B., Atlantic Marine Geological Consulting Ltd.	Tab 19	
<i>Sidescan Sonar Interpretation, Evaluation and Regional Integration: Offshore Digby Neck, Bay of Fundy Report</i> Fader, Gordon B., Atlantic Marine Geological Consulting Ltd.	Tab 20	
<hr/>		
<i>Digby Neck and Islands Community / Business Consultation Report</i> Herron, Kristy, BSc., M.Ed., Elgin Consulting and Research	Tab 21	Reference Vol. IV
<i>Digby Neck and Islands Individual Business Consultation Report</i> Herron, Kristy, BSc., M.Ed., Elgin Consulting and Research	Tab 22	
<i>Digby Neck and Islands Traditional Knowledge Consultation Report</i>	Tab 23	

Master Table of Contents

Volume #

REFERENCE DOCUMENTS - con't

<i>Whites Cove Quarry Blasting: Potential Impacts on American Lobster</i> Christian, John, M.Sc., LGL Limited	Tab 24	Reference Vol. V
<i>Migration of Inner Bay of Fundy Atlantic Salmon in Relation to the Proposed Quarry in the Digby Neck Region of Nova Scotia</i> Dadswell, M.J.	Tab 25	
<i>Whites Point Quarry Project GeoSpatial Data Comparison & Compilation</i> Gareau, Pierre L., XY GeoInformatics Services	Tab 26	
<i>Peak Pressure and Ground Vibration Study for Whites Cove Quarry Blasting Plan</i> Hannay, David E., M.Sc., JASCO Research Ltd.; and Thompson, Denis, M.Sc., LGL Limited	Tab 27	
<i>Preliminary Hydrogeological Assessment, Proposed Quarry, Whites Cove, Digby Neck</i> Hogg, Dwayne, M.Sc., P.Eng. and MacFarlane, David, M.Sc., P.Geo., Jacques Whitford Environment Ltd.	Tab 28	
<i>Geological Assessment of Whites Cove Site</i> Lizak, John, M.Sc., P.Geo., Mineral Valuation and Capital Inc.	Tab 29	
<i>Whites Point Hydrologic Budget Analysis, Whites Point Quarry</i> Strajt, David, Conestoga-Rovers & Associates	Tab 30	
<i>Noise and Air Quality Study at Whites Point Quarry</i> Walker, John, Jacques Whitford Environment Ltd.	Tab 31	

Master Table of Contents

Volume

REFERENCE DOCUMENTS - con't

<i>Digby Neck and Islands Economic Profile</i> Fraser, Robert, Gardner Pinfold	Tab 32	Reference Vol. VI
<i>Whites Point Quarry Property Historical Background</i> Moody, Barry, Ph.D.	Tab 33	
<i>Health and Community Wellness</i> Sherk, Susan, B. A., AMEC	Tab 34	
<i>Category C Archaeological Assessment, Whites Point / Whites Cove Quarry Project</i> Watrall, Charles R., Ph.D.	Tab 35	

APPENDICES

EIS Contributors' CV's	Tab 1	Appendix Vol. I
Community Liaison Committee Meeting Minutes	Tab 2	Appendix Vol. II
Attitude Survey (AMEC)	Tab 3	Appendix Vol. III
Basalt Bedrock Chemical Analysis (PSC Analytical Services)	Tab 4	
Berry Sample Analysis (Maxxam Analytics Inc.)	Tab 5	
Bilcon of Nova Scotia Communication Activities (AMEC)	Tab 6	
Bilcon of Nova Scotia Newsletters #1 January 2003, #2 February 2003, #3 April 2003, #4 October 2003, #5 November 2004, #6 April 2005-11-30	Tab 7	

Master Table of Contents

Volume #

APPENDICES - Con't

**Appendix
Vol. III**

Bird Species of Brier Island, Source: Lance Laviolette, November 4th, 2002	Tab 8
Blasting Plan by Bilcon of Nova Scotia Corporation, May 2005	Tab 9
CEAA News Releases	Tab 10
CEAA Registry Submissions (AMEC)	Tab 11
Clayton's Community Examples	Tab 12
Clayton's Reclamation – " <i>Restoring Disturbed Sites in the Pinelands</i> ", New Jersey Outdoors, Summer 1999	Tab 13
Climate - Precipitation & Temperature, Weymouth Falls, Digby Prim Point, and Meteghan River, Nova Scotia, Source: Meteorological Service of Canada	Tab 14
Confederacy of Mainland Mi'kmaq Letters re Study Proposal, December 14, 2004 and January 10, 2005	Tab 15
Confederacy of Mainland Mi'kmaq Use Report " <i>Mi'kmaq Use of Oositookum (Digby Neck), Its Surrounding Waters, and the Mainland Shore of St. Mary's Bay</i> "	Tab 16
Fish Habitat Compensation Plan Proposal, September 2005	Tab 17
Fisheries and Oceans Canada Letter re: Watercourse September 18th, 2002	Tab 18
Fisheries and Oceans Canada Letter re: Whites Point Project Proposal June 26 th , 2003	Tab 19
Fisheries and Oceans Canada Letter re: Blasting Activity	Tab 20
Fisheries and Oceans Canada Letter re: Proposed Habitat Compensation Plan Proposal	Tab 21

Master Table of Contents

Volume #

APPENDICES - Con't

**Appendix
Vol. III**

Fisheries and Oceans Canada Letter re: Review of Whites Point
Proposed Blasting Protocol **Tab 22**

Geophysical Survey - Canadian Seabed Research Ltd. **Tab 23**

Joint Review Panel Agreement and Terms of Reference **Tab 24**

Lease - 380 Acre - 90 Year Lease **Tab 25** **Appendix
Vol. IV**

Navigable Waters Protection Application **Tab 26**

MOU Concerning Cost-sharing re: Environmental Assessment **Tab 27**

Nova Scotia Museum/Tourism, Culture & Heritage Letters to
Dr. Charles Watrall re: Heritage Research Permit
May 14th, 2003 and April 20th, 2004 **Tab 28**

Nova Scotia Museum/Tourism, Culture & Heritage
Correspondence to Dr. George Alliston re: Environmental Screening
July 19th, 2005 **Tab 29**

Open House Exit Survey (AMEC) **Tab 30**

Periwinkle Analysis (Maxxam) **Tab 31**

Press Release - Joint Federal/Provincial, August 11th, 2003 **Tab 32**

Project Permit - April 30th, 2002 (Construction and Operation of a
Quarry at or near Little River, Digby County, Nova Scotia) by NSDEL **Tab 33**

Public Notifications (AMEC) **Tab 34**

Real Estate Statistics for Digby Neck and Area, 2002 - 2005) **Tab 35**

Sediment Analysis - Marine Sediments/Contaminates
Source: Dr. Brylinsky's Report on the Results of a Sediment
Survey in the Near Offshore Waters of the Proposed Quarry, September, 2005 **Tab 36**

Master Table of Contents

Volume #

APPENDICES - Con't

**Appendix
Vol. IV**

Service Level Agreement	Tab 37
Soils - Chemistry, Metals, Hydrocarbons, Inorganic Parameters	Tab 38
Species at Risk - Source: Committee on the Status of Endangered Wildlife in Canada (Cosewic) May 2004; Species at Risk Act (SARA); Wildlife Species Protected Under the Endangered Species Act in Nova Scotia (NSES), October 2003; General Status Ranks of Wild Species in Nova Scotia (NS GSR), November, 2002	Tab 39
Tidal Currents in the Bay of Fundy	Tab 40
Tilcon North Branford Quarry	Tab 41
Water - Ground Water Quality, Preliminary Hydrogeological Assessment for the Proposed Quarry, December, 2002 Source: Jacques Whitford, Stats from PSC Analytical Services	Tab 42
Water - Marine Water - Chemistry, Metals, Bacteria Source: PSC Analytical Services, June 2003	Tab 43
Water - Marine Water - Phytoplankton and Zooplankton Source: Dr. Brylinsky's Report on the Results of a Survey of the Plankton Communities Located Offshore of Proposed Quarry, April 2005	Tab 44
Water - Surface Water Quality - 2002, 2003 and 2004	Tab 45
Wave Statistics	Tab 46
Well Letter to Home Owner	Tab 47
Wind Speed Statistics	Tab 48