

FINAL

**ENVIRONMENTAL
AND SOCIO-ECONOMIC
IMPACT ASSESSMENT**

KINGSTON REINFORCEMENT PIPELINE

Prepared for:



211 Counter St.
PO Box 790
Kingston, Ontario
K7L 4X7

Prepared by:



121 Granton Drive, Unit 12
Richmond Hill, Ontario
L4B 3N4

December 2004

Printed on Recycled Paper Containing Post-Consumer Fibre



TABLE OF CONTENTS

	<u>Page No.</u>
1.0 INTRODUCTION.....	1-1
1.1 General.....	1-1
1.2 Environmental and Socio-economic Impact Study.....	1-1
1.3 Need for New Facilities.....	1-2
1.4 Rationale for Selection of Study Area.....	1-2
1.5 Regulatory Framework.....	1-2
2.0 STUDY PROCESS.....	2-1
2.1 General.....	2-1
2.2 Study Methodology.....	2-1
2.3 Public Involvement.....	2-9
2.4 Regulatory Agency Involvement.....	2-9
3.0 PHYSICAL, NATURAL AND SOCIO-ECONOMIC ENVIRONMENT.....	3-1
3.1 Bedrock Geology.....	3-1
3.2 Physiography and Surficial Geology.....	3-1
3.3 Hydrology.....	3-1
3.4 Wetlands.....	3-2
3.5 Areas Of Natural And Scientific Interest (ANSIs) and Environmentally Significant Areas (ESAs).....	3-3
3.6 Vegetation.....	3-3
3.7 Wildlife.....	3-4
3.8 Fish.....	3-5
3.9 Socio-Economic Environment.....	3-8
3.10 Heritage Resources.....	3-8
3.11 Population.....	3-9
3.12 Institutional Characteristics.....	3-10
3.13 Employment and the Economy.....	3-13
3.14 Planning Policies.....	3-13
3.15 Soils and Agricultural Land Use.....	3-15
3.15.1 Farmington.....	3-15
3.15.2 Gananoque.....	3-15
3.15.3 Napanee.....	3-16
3.15.4 Lansdowne.....	3-16
3.15.5 Agricultural Production.....	3-17
3.15.6 Tile Drainage and Soil Capability.....	3-17
3.16 Existing Corridors.....	3-19
3.17 Waste Disposal and Potentially Contaminated Sites.....	3-19
3.18 Recreation.....	3-20
3.19 Planned Development.....	3-21

4.0	ROUTE SELECTION PROCESS.....	4-1
4.1	General.....	4-1
4.2	Preliminary Screening of Potential Routes.....	4-2
4.3	Sub-Route Evaluation	4-5
	4.3.1 Sub-Route Evaluation.....	4-5
	4.3.2 Evaluation of Sub-Route Alternatives from the Industrial Park to Queens' CHP	4-8
4.4	Public and Agency Involvement	4-13
	4.4.1 Objectives.....	4-13
	4.4.2 Website.....	4-13
	4.4.3 Agency and Interest Group Contacts.....	4-14
	4.4.4 Public Notice.....	4-15
	4.4.5 Public Open House Meeting.....	4-15
	4.4.6 Results from the Open House Meetings.....	4-16
	4.4.7 Route Refinements Resulting from Public Input.....	4-17
4.5	Description of the Preferred Route.....	4-18
5.0	POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES ALONG THE PREFERRED ROUTE	5-1
5.1	Physical Environment.....	5-2
	5.1.1 Physiography, Topography and Surficial Geology.....	5-2
	5.1.2 Soils	5-3
	5.1.3 Groundwater Resources.....	5-3
5.2	Natural Environment Features	5-4
	5.2.1 Watercourse Crossings	5-4
	5.2.2 Vegetation	5-9
	5.2.3 Wildlife	5-10
5.3	Socio-Economic Environment	5-10
	5.3.1 Construction Activities	5-11
	5.3.1.1 Noise.....	5-11
	5.3.1.2 Air Emissions and Dust.....	5-12
	5.3.1.3 Vibration.....	5-13
	5.3.1.4 Traffic Congestion.....	5-13
	5.3.1.5 Construction Waste.....	5-14
	5.3.2 Population and Labour Force	5-15
	5.3.3 Planning Policies and Existing Land Uses.....	5-16
	5.3.4 Agricultural Soils, Capability and Land Uses	5-16
	5.3.5 Waste Disposal Sites and Potentially Contaminated Properties	5-16
	5.3.6 Economic Base.....	5-17
	5.3.7 Cultural Environment	5-17

6.0	ENVIRONMENTAL INSPECTION AND MONITORING RECOMMENDATIONS	6-1
6.1	Preconstruction	6-1
6.2	Environmental Inspection and Monitoring During Pipeline Construction.....	6-1
6.2.1	General	6-1
6.2.2	Incident Probability	6-1
6.3	Environmental Monitoring After Construction	6-2
6.3.1	Monitoring Reports	6-2
6.3.2	Incident Probability	6-2
7.0	PERMIT REQUIREMENTS.....	7-1
8.0	SUMMARY AND CONCLUSIONS.....	8-1
9.0	REFERENCES.....	9-1
APPENDICES:	Appendix A:	Contact List
	Appendix B:	Contact Documentation and Letters
	Appendix C:	MNR Natural Heritage Reports
	Appendix D:	Stage 1 Archaeological Assessment
	Appendix E:	Agency and Landowner Letters
	Appendix F:	Panel Information Presented at Public Meeting
	Appendix G:	Detailed Environmental Mitigation Maps
	Appendix H:	Photo Inventory of Environmental Conditions Along the Preferred Route
	Appendix I	Pipeline Design Document

LIST OF TABLES

	<u>Page No.</u>
3.1 2001 Population: City of Kingston, Greater Kingston, and Kingston C.A.	3-9
4.1 From Glenburnie Station to Industrial Park Preliminary Screening of Route Sections...	4-2
4.2 From Industrial Park to Queen’s University Central Heating Plant Preliminary Screening of Route Sections.....	4-4
4.3 Sub-Route Evaluation Glenburnie Gate Station to Industrial Park Tie In.....	4-6
4.4 Sub-Route Evaluation Industrial Park to Queen’s University Central Heating Plant....	4-10
6.1 Design Specifications for NPS 12 and 8 Pipeline	6-4
7.1 Notifications, Permits and Approvals	7-1

LIST OF FIGURES

	<u>Page No.</u>
1 Environmental Study Process	2-2
2 Study Area	2-3
3 Route Alternatives-Glenburnie Gate Station to Industrial Park	2-5
4 Route Alternatives-Industrial Park to Queen’s University Central Heating Plant	2-6
5 Preliminary Preferred Route and Sub-Route Alternatives.....	2-8
6 Natural Constraints Map	3-7
7 Socio-Economic Features	3-12
8 Soils Encountered in Study Area	3-18
9 Results of Public Information Centre and Additional Route Alternatives.....	4-9
10 Preferred Route and Sub-Route Evaluation from Tie-In to Central Heating Plant	4-12
11 Website Home Page	4-14
12 Public Notice	4-15
13 Construction Technique – Typical Horizontal Directional Drill.....	5-6
14 Construction Technique – Demand Pump	5-7
15 Construction Technique: Bare or Pond	5-8
16 Model of Proposed New Natural Gas Main, Kingston.....	6-6

LIST OF PHOTOS

	<u>Page No.</u>
1 Typical Hoe Ram.....	5-2
2 Crossing of the Little Cataraqui Creek South of the 401	5-5
3 Culvert Crossing (Small Tributary of Little Cataraqui Creek) on Perth Rd.	5-5
4 Small Tributary Crossing of Sunnyside Rd.	5-5