

Breakwater Construction

Carbonear, NL

Environmental Registration Document

Submitted to the Government of Newfoundland and Labrador

Department of Environment and Conservation

Environmental Assessment Division

Prepared For:	Fisheries and Oceans Canada Small Craft Harbours Branch - Eastern Area
Prepared By:	Public Works and Government Services Canada
Date:	November 12, 2015

TABLE OF CONTENTS

1.0	NAME OF UNDERTAKING:	3
2.0	PROPONENT:	3
3.0	THE UNDERTAKING:	3
3.1	Nature of the Undertaking:	3
3.2	Purpose/Rationale/Need for the Undertaking:	3
4.0	DESCRIPTION OF THE UNDERTAKING:	4
4.1	Geographical Location:	4
4.2	Physical Features:	4
4.3	Construction:	5
4.4	Operation:	5
4.5	Occupations:	6
5.0	APPROVAL OF THE UNDERTAKING:	7
6.0	SCHEDULE:	7
7.0	FUNDING:	7

LIST OF APPENDICES

Appendix A	Site Photos
Appendix B	Site Plan
Appendix C	Topo Map

1.0 NAME OF UNDERTAKING:

Breakwater Construction, Carbonear, NL

2.0 PROPONENT:

- (i) Fisheries and Oceans Canada
Small Craft Harbours Branch
- (ii) John Cabot Building, 10 Barters Hill
St. John's, NL
A1C 5X1
- (iii) Paul Curran
DFO, Small Craft Harbours
Regional Engineer
John Cabot Building, 10 Barters Hill
St. John's, NL
A1C 5X1
Phone: (709) 772-6660
E-mail: paul.curran@dfo-mpo.gc.ca
- (iv) Cathy Martin
Environmental Services
Public Works & Government Services Canada
P.O. Box 4600, 10 Barter's Hill
St. John's, NL
A1C 5T2
Phone: (709) 772-5852
E-mail: cathy.martin@pwgsc-tpsgc.gc.ca

3.0 THE UNDERTAKING:

3.1 Nature of the Undertaking:

The proposed undertaking represents the construction of a 151-meter rubblemound breakwater in Carbonear, Newfoundland and Labrador.

3.2 Purpose/Rationale/Need for the Undertaking:

The proposed breakwater construction will provide necessary protection to the existing wharf and infrastructure located at the DFO-SCH Carbonear site.

4.0 DESCRIPTION OF THE UNDERTAKING:

4.1 Geographical Location:

The proposed project site is located along the western shoreline of Conception Bay, on the Avalon Peninsula, Newfoundland. Project coordinates are approximately 47° 44' 17" N, 53° 13' 22" W. Access to the site is provided by municipal roads through the community of Carbonear, which may be assessed via provincial route 70.

4.2 Physical Features:

The proposed project is for the construction of a rubblemound breakwater. The breakwater will measure approximately 151m in length along the crest of the structure, while the structure will have a footprint of 6500m² along the ocean bottom. Construction will consist of importing and installing core material, filter stone, and armour stone. The rubble mound breakwater construction materials will be obtained from a licensed quarry and trucked in dump trucks to the project site where excavators will place the materials along the ocean floor.

In order to construct the breakwater in its proposed location, an existing 18m long creosote timber marginal wharf will be removed, and a portion of the existing shoreline will be excavated. The breakwater is required in this location to dissipate wave action in the harbour before it reaches the existing harbour infrastructure; therefore alternative locations were not considered.

Physical and Biological Environment

Carbonear is located on the Avalon Peninsula, on the western side of Conception Bay, approximately one hundred and nine (109) kilometres northwest of the City of St. John's.

The immediate project site consists of a finger pier wharf, marginal wharf, office/storage and stage. A boat storage area, paved service/parking area and wooden boat launch are also present. The surrounding shoreline is characterized primarily by pebble-cobble material. The uplands is characterized by exposed bedrock, grass cover and residential housing.

The project site is located within the Maritimes Barrens, Northeastern Barrens ecoregion. The Maritime Barrens Ecoregion extends from the east coast of Newfoundland to the the west coast through the south central portion of the island. This ecoregion has the coldest summers with frequent fog and strong winds. Winters are relatively mild with

intermittent snow cover particularly near the coastline. Annual precipitation exceeds 1250 mm.

According to Fisheries and Oceans' Traditional Ecological Knowledge Maps of the area a mixture of groundfish (cod, lumpfish, flounder and skate), marine mammals (dolphin/porpoise, whale, seal and other mammals), pelagic fish (capelin, herring, mackerel, salmon) and shellfish (lobster, squid and snow crab) may be found within the general project area.

A search of the Atlantic Canada Conservation Data Centre (ACCDC) database was conducted which produced a list of rare/unique species (i.e. plants and animals) within a 5 km buffer zone (standard ACCDC procedure) of the site of the proposed work. All species were cross-referenced with Schedule 1 of the Species At Risk Act (SARA) and none were found to be listed as extirpated, endangered, threatened or of special concern.

4.3 Construction:

Commencement of this project is subject to DFO SCH operational priorities and funding.

Construction of the breakwater is expected to require 4.5 - 5 months to complete. Commencement of the proposed project is tentatively scheduled for the 2016/2017 fiscal year.

The most probable sources of potential pollutants are related to the use of heavy equipment. Accidental spills of cement, heavy equipment fuel, engine oil, and hydraulic fluids are a possibility. Short-term sedimentation as a result of the placement of rock material into the marine environment can also be anticipated.

An active seasonal fishery is executed from the project area. The duration of the construction phase of the proposed project is likely to extend into the fishing season. As a result, minor disruptions to the harbour and nearby fish plant operations can be anticipated.

4.4 Operation:

Routine maintenance and repair projects will be carried out on an as-required basis over the estimated seventy-five (75) year life of the structure.

The proposed undertaking represents an enhancement of the existing DFO SCH facilities in Carbonear, Newfoundland and Labrador. The proposed

improvements will provide protection to the existing wharf and infrastructure and allow for safer harbour operations.

Reasonably foreseeable pollutants occurring during the operational phase of the proposed project are limited to accidental discharges of vessel fuels, engine oils, and fishing industry related refuse.

The operation and maintenance of the facility will be under the control of the Harbour Authority of Carbonear with the support of Fisheries and Oceans Canada, Small Craft Harbours Branch. Potential resource conflicts are not anticipated as a result of the operation of the proposed project.

4.5 Occupations:

Construction of the harbour improvements are expected to require 4.5 – 5 months to complete. Commencement of the proposed project is tentatively scheduled for the 2016/2017 fiscal year.

The following list outlines occupations which may be employed during the design and construction period. Please note that this list represents only an approximation of the number and type of occupations that may be produced as a result of the proposed project. Actual occupations created as a result of the proposed project will ultimately be determined by the successful contractor. Occupations are expected to be comparable to those created for similar construction projects throughout the Province.

- 2 – Professional Engineers - 0211 - entire project
- 2 – Engineering Techs - 2231 - entire project
- 1 – Surveyors - (1)-2113 and (1)-2154 - construction only
- 1 – Rod and Chainmen - 7612 - construction only
- 1 – Construction Inspector - 2264 - construction only
- 1 – Draftsperson - 2253 - 2 months work
- 1 – Secretary - 1241 - entire project
- 6 – Labourers - 7217 - construction only
- 2 – Heavy Equipment Operators - 7217 - construction only
- 5 – Truck Drivers - 7217 - construction only
- 1 – Flag Person - 7611 - construction only
- 2 – Office Clerk - 1211 - 1 for construction and 1 for engineering
- 1 – Construction Foremen/Superintendents - 7217 - construction only

5.0 **APPROVAL OF THE UNDERTAKING:**

The following is a list of the likely permits, licences and approvals required for this project.

Approvals/Certificate/Permits	Regulatory Authority
NL Environmental Assessment Registration	NL Department of Environment and Conservation, Environmental Assessment Division
Fish Habitat Approval	Fisheries and Oceans Canada, Fisheries Protection Program
Permit to Alter a Body of Water	NL Department of Environment and Conservation, Water Resources Division
Navigation Protection Act Approval	Transport Canada
Quarry Permit	NL Department of Mines and Energy
Lease / Permit to Occupy Crown Lands	NL Department of Government Services

6.0 **SCHEDULE:**

The proposed project could commence at the earliest, April 1, 2016. This timeline would allow for completion of a federal environmental assessment and regulatory permitting prior to award for tender. Depending on the responses provided by the abovenoted regulators, commencement of the project could be delayed by up to 6 months to a year.

7.0 **FUNDING:**

The total cost estimate for all phases of the proposed project, as provided by the proponent, is approximately \$2 million. Funds will be provided by Small Craft Harbours Branch, Fisheries and Oceans Canada.

November 12, 2015
Date



Environmental Assessment Representative

APPENDIX A
PHOTOS



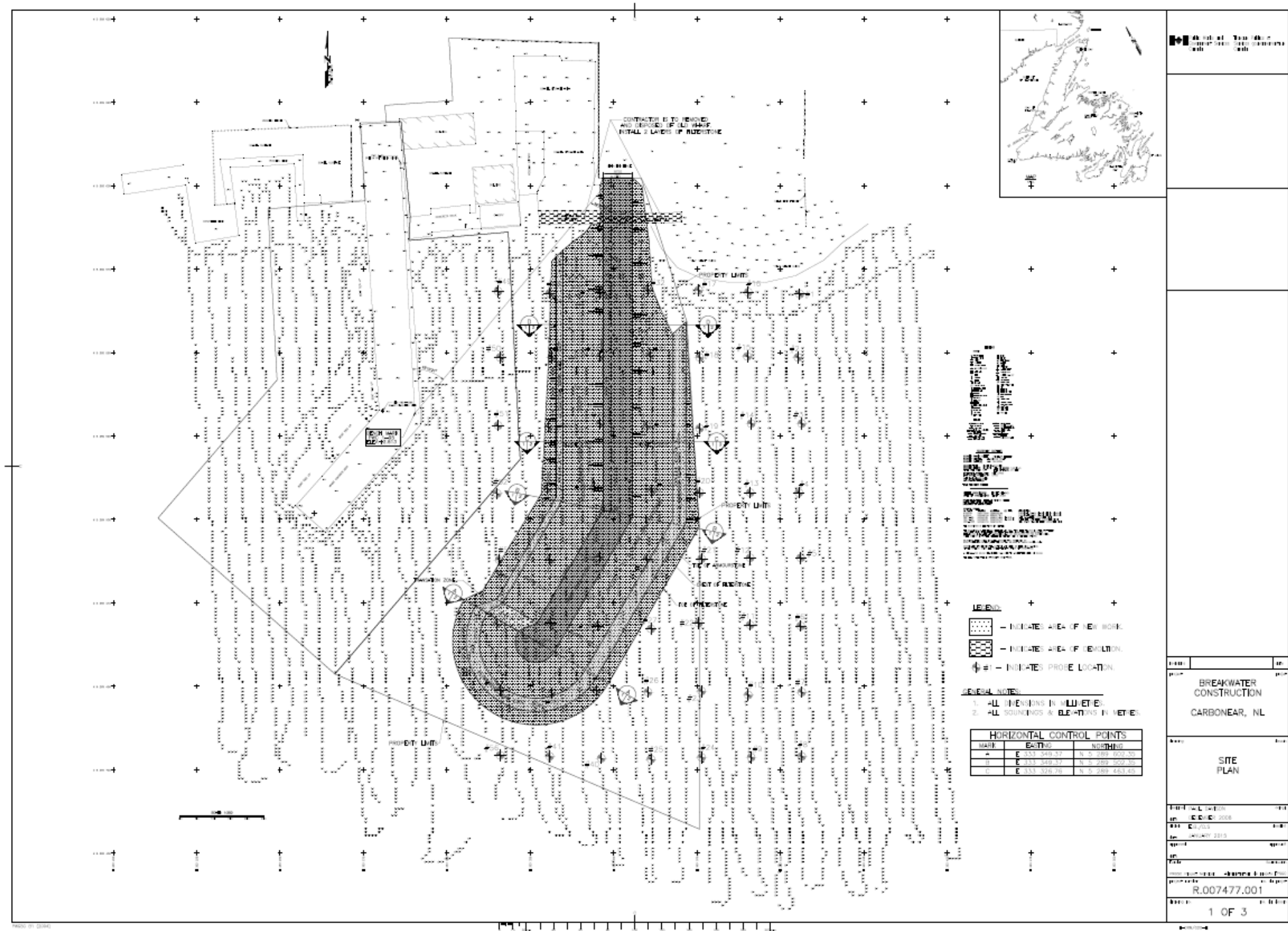
Appendix A-1. Location of proposed project in Carbonear, NL (photo courtesy of DFO, 2010).



Appendix A-2. Approximate location of breakwater structure. Illustration is not to scale (photo courtesy of DFO, 2010).

APPENDIX B

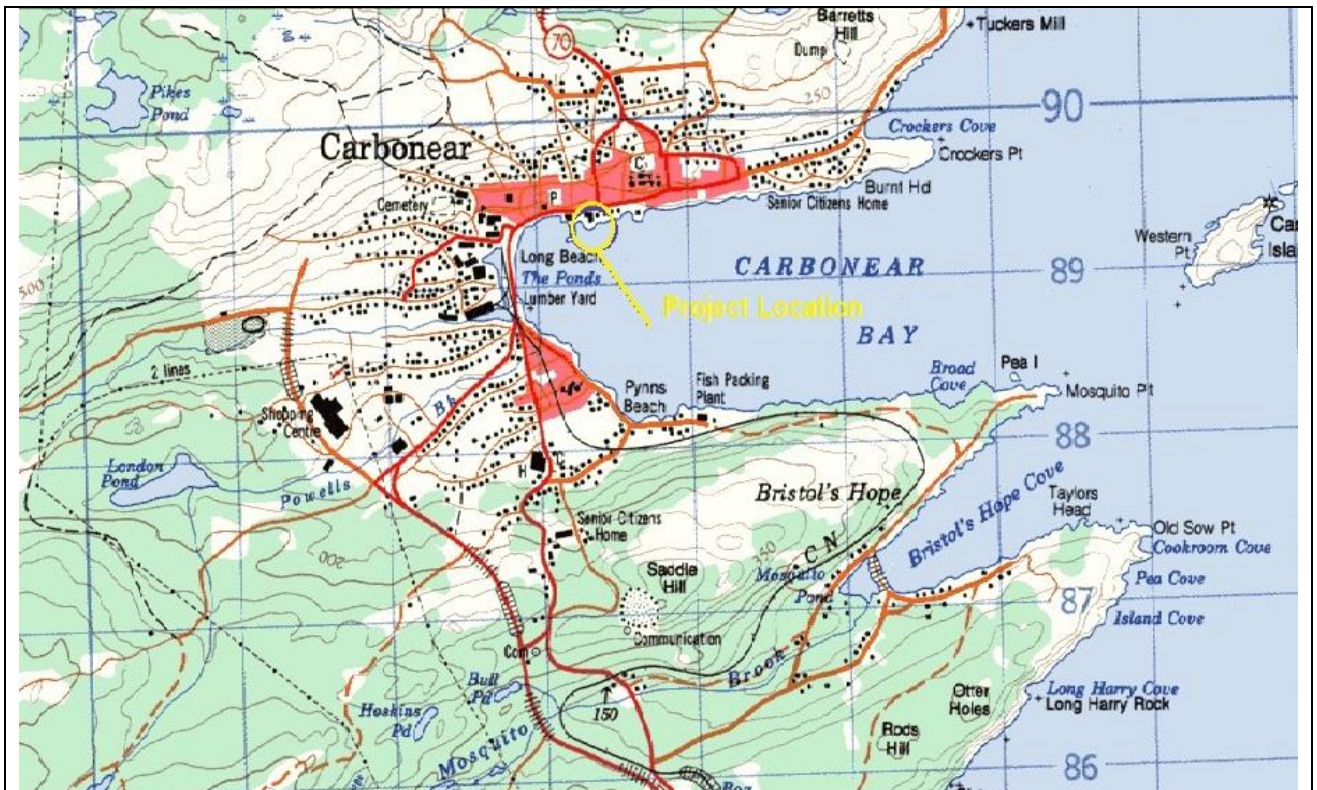
SITE PLAN



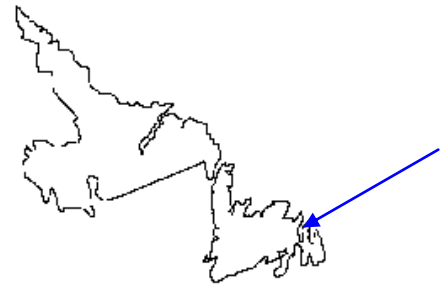
Appendix B-1. Site plan of proposed breakwater construction

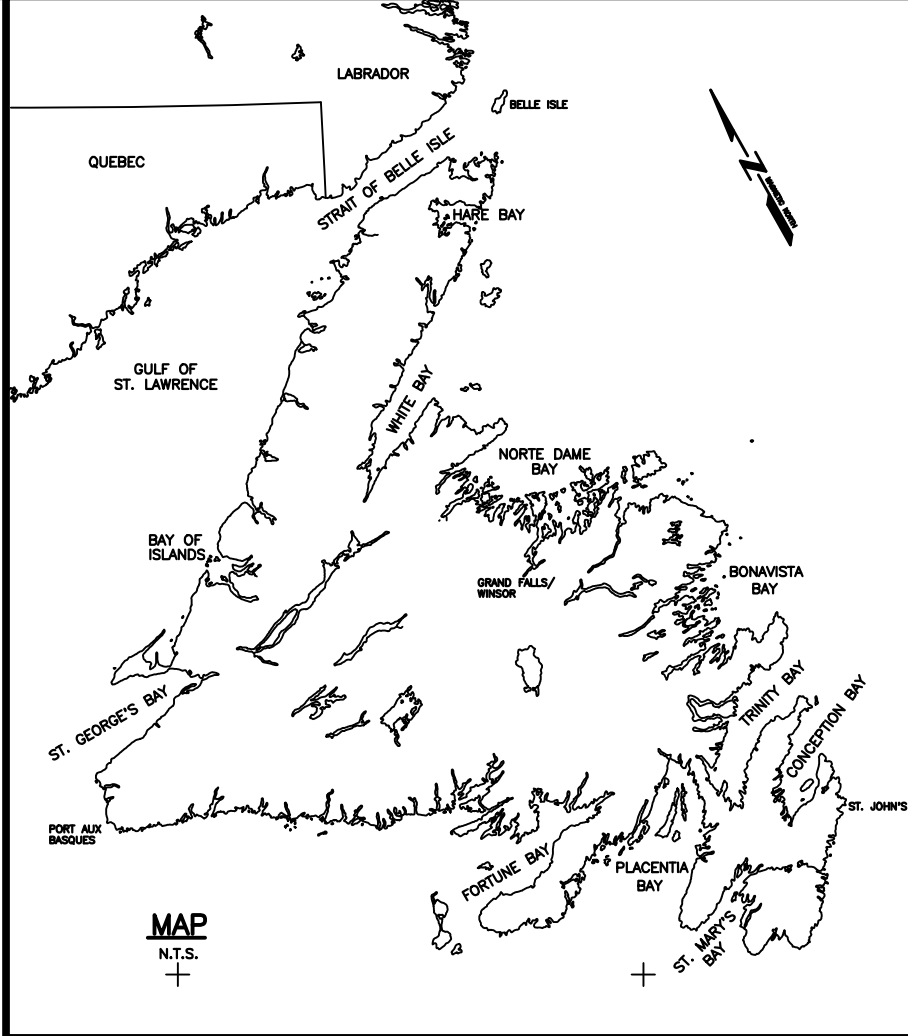
APPENDIX C

TOPO MAP



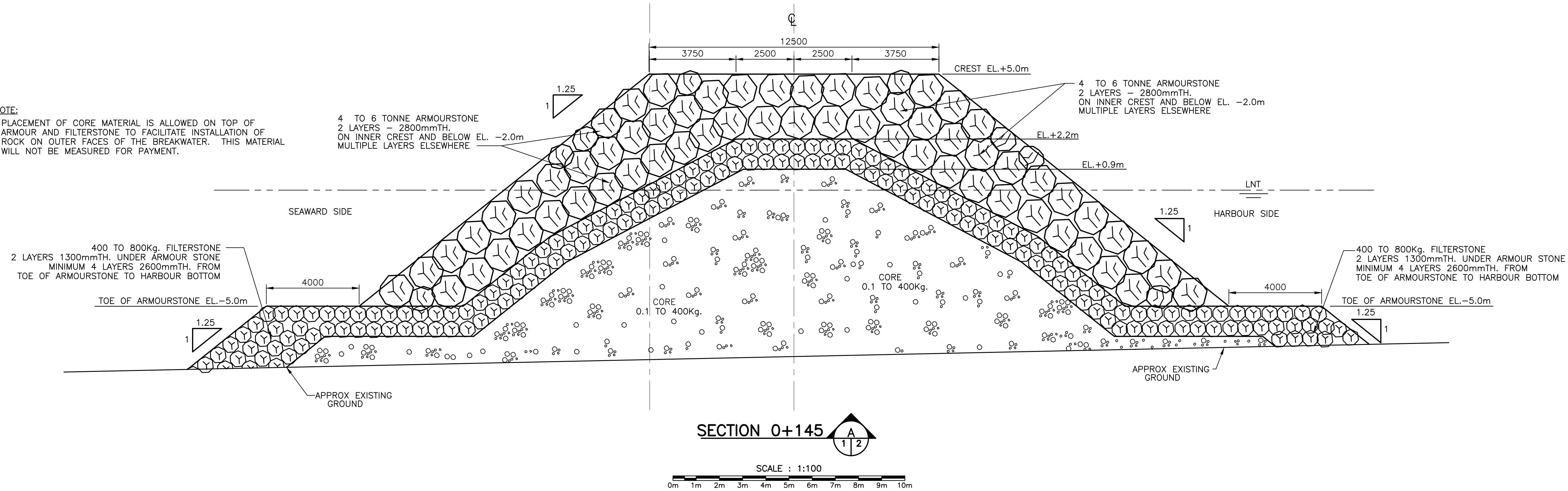
Appendix C-1: Topographic Map of
Proposed Site
Location: Carbonear
Scale 1:50,000
NTS Mapsheet 01-N-11 – Harbour
Grace





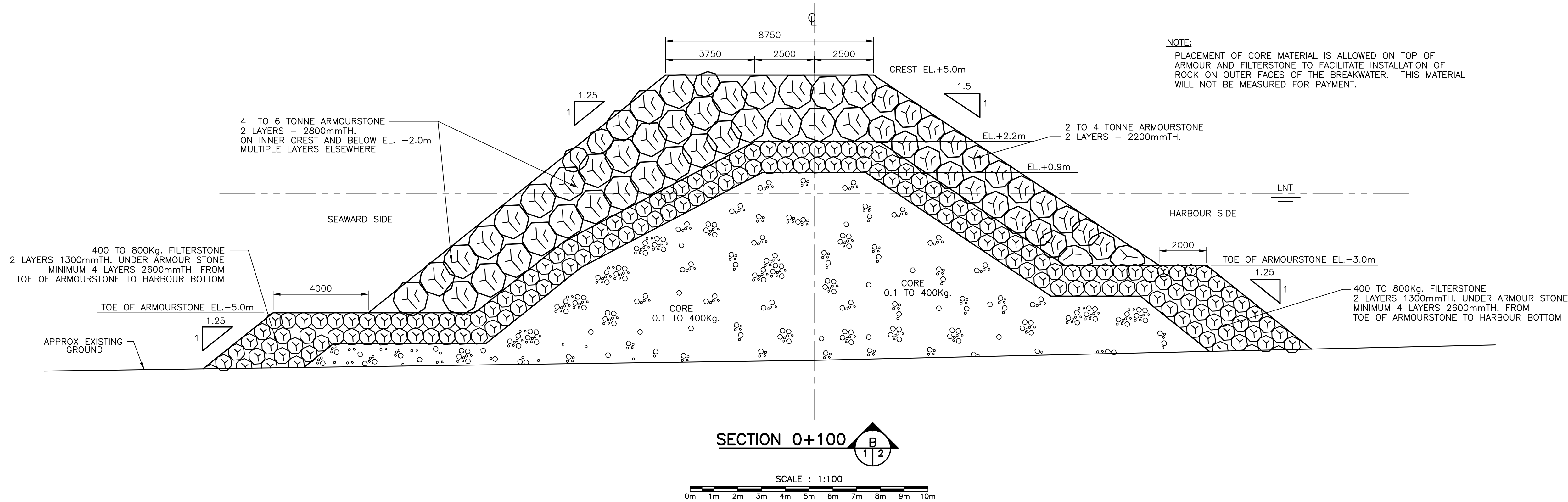
NOTE:

PLACEMENT OF CORE MATERIAL IS ALLOWED ON TOP OF ARMOUR AND FILTERSTONE TO FACILITATE INSTALLATION OF ROCK ON OUTER FACES OF THE BREAKWATER. THIS MATERIAL WILL NOT BE MEASURED FOR PAYMENT.



SECTION 0+145

SCALE : 1:100



SECTION 0+100

SCALE : 1:100

NOTE:

PLACEMENT OF CORE MATERIAL IS ALLOWED ON TOP OF ARMOUR AND FILTERSTONE TO FACILITATE INSTALLATION OF ROCK ON OUTER FACES OF THE BREAKWATER. THIS MATERIAL WILL NOT BE MEASURED FOR PAYMENT.

revisions

date

A detail no. no. du detail
B location drawing no. sur dessin no.
C drawing no. dessin no.

project

BREAKWATER CONSTRUCTION

CARBONEAR NFLD & LAB.

drawing

SECTIONS

designed PAUL DAVISON

date FEBRUARY 2009

drawn EB/DS

date MARCH 2009

approved

date

Tender

PWSC Project Manager Administrateur de projet TPSCG

project number

R.007477.001

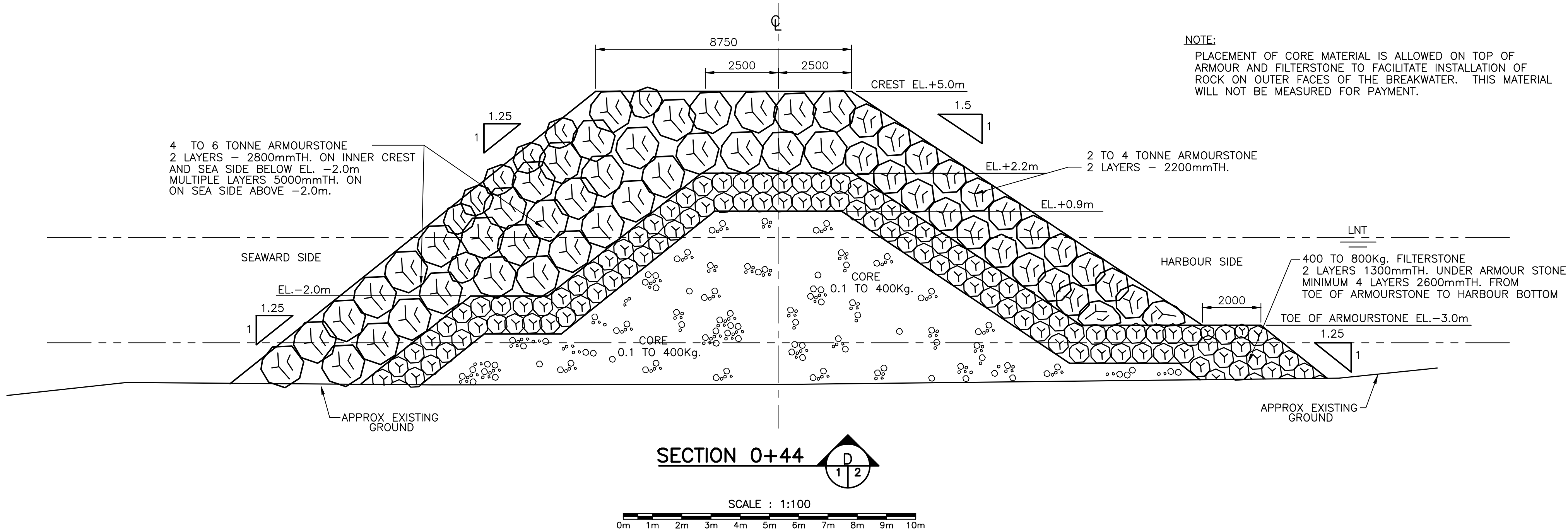
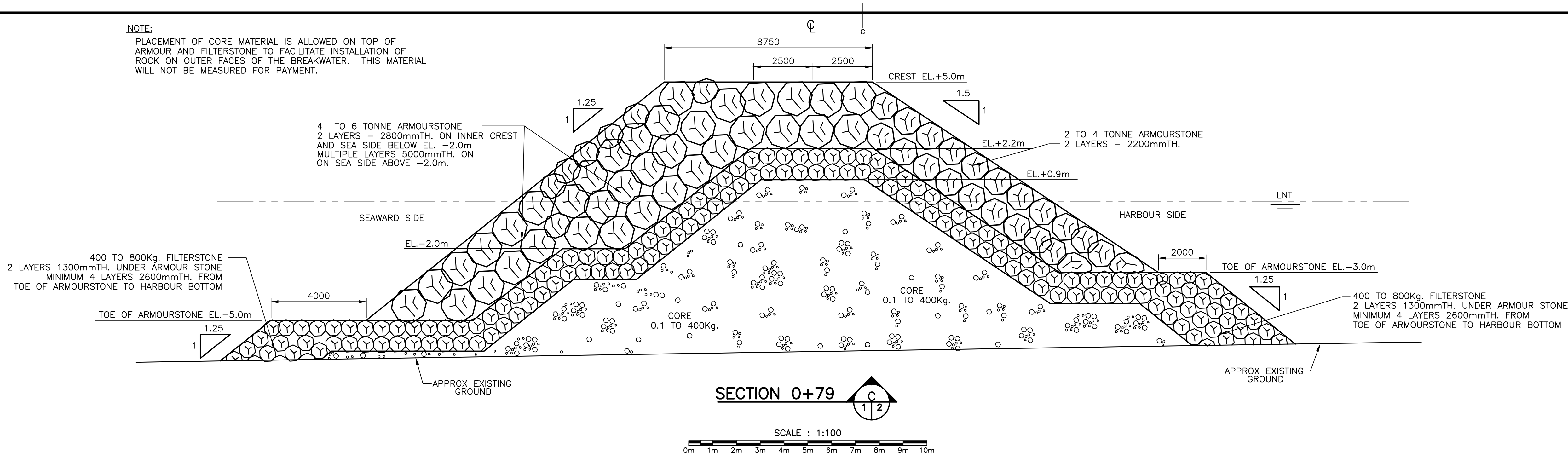
drawing no.

2 OF 3

GENERAL NOTES:

- ALL DIMENSIONS IN MILLIMETRES.
- ALL SOUNDINGS & ELEVATIONS IN METRES.

NOTE:
PLACEMENT OF CORE MATERIAL IS ALLOWED ON TOP OF
ARMOUR AND FILTERSTONE TO FACILITATE INSTALLATION OF
ROCK ON OUTER FACES OF THE BREAKWATER. THIS MATERIAL
WILL NOT BE MEASURED FOR PAYMENT.



PROBE #	PENETRATION	TYPE OF MATERIAL
# 1	0.00m	- HARD BOTTOM
# 2	0.00m	- HARD BOTTOM
# 3	0.10m	- SAND, GRAVEL THEN HARD
# 4	0.10m	- SAND, GRAVEL THEN HARD
# 5	0.20m	- SAND, GRAVEL THEN HARD
# 6	0.20m	- SAND, GRAVEL THEN HARD
# 7	0.20m	- SAND, GRAVEL THEN HARD
# 8	0.25m	- SAND, GRAVEL THEN HARD
# 9	0.00m	- HARD BOTTOM
# 10	0.08m	- SAND, GRAVEL THEN HARD
# 11	0.08m	- SAND, GRAVEL THEN HARD
# 12	0.08m	- SAND, GRAVEL THEN HARD
# 13	0.00m	- HARD BOTTOM
# 14	0.00m	- HARD BOTTOM
# 15	0.00m	- HARD BOTTOM
# 16	0.00m	- HARD BOTTOM
# 17	0.00m	- HARD BOTTOM
# 18	0.00m	- HARD BOTTOM
# 19	0.00m	- HARD BOTTOM
# 20	0.05m	- SAND, GRAVEL THEN HARD
# 21	0.08m	- SAND, GRAVEL THEN HARD
# 22	0.08m	- SAND, GRAVEL THEN HARD
# 23	0.10m	- SAND, GRAVEL THEN HARD
# 24	0.25m	- SAND, GRAVEL THEN HARD
# 25	0.20m	- SAND, GRAVEL THEN HARD
# 26	0.08m	- SAND, GRAVEL THEN HARD
# 27	0.08m	- SAND, GRAVEL THEN HARD
# 28	0.00m	- HARD BOTTOM

PROBE RESULTS

PROBE #	PENETRATION	TYPE OF MATERIAL
# 29	0.05m	- SAND, GRAVEL THEN HARD
# 30	0.05m	- SAND, GRAVEL THEN HARD
# 31	0.05m	- SAND, GRAVEL THEN HARD
# 32	0.05m	- SAND, GRAVEL THEN HARD
# 33	0.08m	- SAND, GRAVEL THEN HARD
# 34	0.08m	- SAND, GRAVEL THEN HARD
# 35	0.08m	- SAND, GRAVEL THEN HARD
# 36	0.08m	- SAND, GRAVEL THEN HARD
# 37	0.08m	- SAND, GRAVEL THEN HARD
# 38	0.15m	- SAND, GRAVEL THEN HARD
# 39	0.15m	- SAND, GRAVEL THEN HARD
# 40	0.25m	- SAND, GRAVEL THEN HARD
# 41	0.25m	- SAND, GRAVEL THEN HARD
# 42	0.08m	- SAND, GRAVEL THEN HARD
# 43	0.15m	- SAND, GRAVEL THEN HARD
# 44	0.15m	- SAND, GRAVEL THEN HARD
# 45	0.08m	- SAND, GRAVEL THEN HARD
# 46	0.08m	- SAND, GRAVEL THEN HARD
# 47	0.08m	- SAND, GRAVEL THEN HARD
# 48	0.08m	- SAND, GRAVEL THEN HARD
# 49	0.08m	- SAND, GRAVEL THEN HARD
# 50	0.10m	- SAND, GRAVEL THEN HARD
# 51	0.10m	- SAND, GRAVEL THEN HARD
# 52	0.08m	- SAND, GRAVEL THEN HARD
# 53	0.10m	- SAND, GRAVEL THEN HARD
# 54	0.15m	- SAND, GRAVEL THEN HARD
# 55	0.10m	- SAND, GRAVEL THEN HARD
# 56	0.10m	- SAND, GRAVEL THEN HARD

PROBE RESULTS

DONE BY: SEA-FORCE DIVING
JUNE 2004

GENERAL NOTES:

- ALL DIMENSIONS IN MILLIMETRES.
- ALL SOUNDINGS & ELEVATIONS IN METRES.

revisions date

A detail no.
no. du détail
B location drawing no.
sur dessin no.
C drawing no.
dessin no.

project projet

BREAKWATER
CONSTRUCTION

CARBONEAR
NFLD & LAB.

drawing dessin

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&
PROBE TABLE

designed PAUL DAVISON conçu

date DECEMBER 2008

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Tender Soumission

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project number no. du projet

R.007477.001

drawing no. no. du dessin

3 OF 3

TIDS Document No. Not in System