

**ENVIRONMENTAL ASSESSMENT
REGISTRATION DOCUMENT**

**Town of Lark Harbour
P.O. Box 40
Lark Harbour, NL A0L 1H0**

PREPARED BY:

ANDERSON ENGINEERING CONSULTANTS LTD.

APRIL, 2011



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1.0 NAME OF UNDERTAKING

Lark Harbour Potable Water Supply/Distribution System and Sewage Disposal System

2.0 PROPONENT

2.1 Name of Corporate Body

Town of Lark Harbour

2.2 Address

P.O. Box 40
Lark Harbour, NL A0L 1H0

2.3 Chief Executive Officer

Name: Mayor John Parsons
Official Title: Mayor
Telephone: (709) 681-2270

2.4 Principal Contact Person for Purposes of Environmental Assessment

Name: Mr. Walter Anderson, P.Eng.
Official Title: President, Anderson Engineering Consultants Ltd.
Telephone: (709) 634-9944

3.0 THE UNDERTAKING

3.1 Nature of the Undertaking

The focus of this undertaking is to provide the Town of Lark Harbour with a dependable potable water supply and distribution system as well as a sanitary sewer collection and primary treatment system.

3.2 Purpose/Rationale/Need for the Undertaking

Residents and businesses in the Town of Lark Harbour currently receive their drinking water from sources such as both dug and drilled wells, springs and small brooks. As these systems are privately owned with limited capacity, the provision of those systems capable of providing potable water to all residents is not possible nor practical. As well, due to the congested nature of the private

water supply systems and the reliability of existing private septic systems make the quality of the water supplied by those unregulated sources an issue. The construction of a municipal potable water supply and distribution system will provide a reliable safe source of treated potable water to all residents of the community.

A large number of residents in the Town of Lark Harbour currently dispose of their untreated sewage wastes through raw sewage outfalls into the waters of Lark Harbour Bay. Residents not disposing sewage wastes in this manner have septic systems which may be sub-standard (ie. many aging systems installed prior to stricter regulations and enforcement) which could potentially contaminate their existing private water supplies. The construction of a municipal sewage collection complete with communal sewage treatment will rectify these issues and allow for safe and efficient disposal. At the same time, this would be better for the environment and allow the town to authorize smaller size building lots if requested.

4.0 DESCRIPTION OF THE UNDERTAKING

4.1 Geographical Location

The Town of Lark Harbour is located on the west coast of Newfoundland, on the south side of the Bay of Islands and west of the City of Corner Brook, accessible via Route 450. Its coordinates are 49°06'N 58°22'W.

The water supply for the proposed system will be provided from a reservoir created by a dam to be constructed on Fairfax Brook, approximately 2.8 km south west from the town's main road. From the reservoir, a 250 mm diameter water transmission line will extend 2.8 km back toward the town along a newly developed access road to a water disinfection facility. The water distribution system consisting of 250mm, 200mm and 150 mm diameter water transmission mains will deliver water to all of the communities residents and businesses.

The sanitary sewage disposal system will consist of a sewer collection system consisting of 200 mm diameter pipe, associated manholes and approximately eight (8) communal septic tanks strategically placed throughout the community to service all residents in addition to five sewer outfalls.

A copy of the National Topographic Survey can be found in "Appendix A".

4.2 Physical Features

Major Physical Features of the Undertaking

This undertaking will consist of both a water supply and distribution system in addition to a sanitary sewage collection and disposal system. The major physical features of both of these systems are identified below. Please note that the dimensions of the major physical features listed are approximations only, based on preliminary design calculations.

a) Water Supply and Distribution System

- Rock-fill concrete core dam, approximately 40 meters long x 4.2 meters high having an average width of 4.8 meters
- Concrete spillway, water intake screen and valve chamber
- 18,500 m³ water storage reservoir
- 2.8 km long by 5m wide gravel access from main road to the water reservoir dam
- 250 mm diameter P.V.C., polyethylene, or ductile iron water transmission line
- 3.6m x 6m concrete slab on grade wood frame water disinfection facility
- 250 mm, 200 mm and 150 mm diameter water distribution lines, and 312 house services

b) Sanitary Sewage Collection, Treatment and Disposal System

- eight concrete communal septic tanks complete with five ocean outfalls
- 200 mm diameter sewer lines, manholes and 312 house services

Areas to be Affected by the Undertaking

The access road, dam and reservoir will be developed in an area where there is minimal human activity. The development area is seldom used, with the exception of all terrain vehicle use. There are no cottages or cabins near the proposed access road or any of the project works. There is an existing mini dam, water intake complete with an in ground storage tank and water supply line for the Search and Rescue Station in Lark Harbour. The mini dam is located downstream of the proposed new dam which will have to be maintained until the new municipal water supply system has been commissioned and is fully functional. As part of the water supply reservoir development, the surrounding drainage area will be designated as a protected water supply, restricting any human activity within that area.

Development of the access road will require clearing of any trees and excavation of unusable material. During construction, every effort will be made to conserve the natural environment and promote vegetative growth along any disturbed areas of the access road after construction. The new access road will run adjacent to an existing all-terrain trail constructed to provide access to the water intake and supply line for the local Search and Rescue Station. This will result in

less clearing required since the route is already partially cleared. A gate will be placed across the start of the access road to restrict vehicle traffic from the reservoir area. (See Appendix B – Search and Rescue Station Easement Documents)

Fairfax Brook will need to be temporarily diverted to allow for excavation and construction of the dam and reservoir. There are no negative long-term impacts associated with this undertaking. Any negative impacts due to construction will be minimal and short term. Every effort will be made to mitigate any negative impacts during the construction process, such as the placement of silt fences.

Positive impacts from this undertaking will include generating employment opportunities during construction and long-term maintenance, in addition to creating potential for future developments, and providing a self-supporting and sustainable community. As well, provision of a properly designed, constructed and maintained communal potable water system and sanitary sewer system will provide health benefits to the community residents. Lastly, a communal sanitary sewer system will be better for the environment in that primary treatment of the sanitary sewage will be provided prior to discharge into the ocean.

Description of Physical and Biological Environments

There are several large hills rising approximately 450 meters above sea level which border both sides of the community. Glacial till is the predominant underlying soil with gravel outcrops in several areas. The area of the proposed undertaking is situated within the North American Iapetus Margin, more commonly known as the "Humber Zone". This zone consists primarily of transported silts and rock.

The Town of Lark Harbour is surrounded by low growth forested areas as well as areas of low alder growth and marshland.

Harsh winters and cool summers characterize the climate of Lark Harbour. The mean daily temperature for February is -6.3 degrees Celsius and the mean daily temperature during July is 17.0 degrees Celsius. The average annual precipitation for this area is 1134 mm.

The area is known to have some wildlife including waterfowl/raptors, big game and furbearers, however, it is not known to have large concentrations of these animals. Larger concentrations of these animals can be expected to be further inland and away from populated areas. There may be some small fish in Fairfax Brook but this could not be confirmed. Fairfax Brook is not a scheduled angling river but rather more of a small meandering brook. The substrate of the brook is mostly rock and cobble but its course also runs through marshy bog areas. The width of the brook ranges from 1 to 2 m while its depth averages 0.4 meters and rarely exceeds 1 m.

4.3 Construction

Construction Period

The construction of phase 1 of the undertaking is tentatively scheduled for the summer of 2011.

Potential Sources of Pollutants and Mitigation Measures

The potential sources of pollutants during the construction phases of the undertaking are:

a) Silt and sediment

Since excavation must occur near Fairfax Brook, silt fences will be utilized during construction to ensure that silt does not enter into the brook.

b) Construction debris

Solid waste and garbage from construction activities will be minimal. Materials will be collected on a regular basis and disposed at an approved disposal site. Construction debris will not be permitted to be disposed of on site. However, it may be contained on site for short periods of time prior to disposal.

c) Sewage

Construction workers will use port-o-potties during phase 1 of construction which will be cleaned on a regular basis by licensed companies. During the construction of phases 2, 3, and 4, workers will be in the immediate vicinity of local gas stations and restaurants which could be made available for use or, if this is unsatisfactory to business owners, contractors may choose or can use port-o-potties as outlined above.

d) Airborne emissions

Airborne emissions as a result of heavy machinery, portable air compressors and possibly a small portable electric generator may be produced during construction. These emissions are anticipated to be minimal and would be addressed in a site specific Health and Safety Risk Assessment Management Plan (HASRAMP).

e) Noise pollution

Noise will result from construction activity but this will be in accordance with local noise ordinances. Every effort will be made to minimize the risk of construction activity disturbing wildlife.

f) Additional Mitigative Measures

During construction of the various phases, general contractors will be required to submit a detailed Health and Safety Risk Assessment Management Plan (HASRAMP) which must also identify potential environmental impacts and mitigative measures.

Resource Conflicts

Every effort will be made to maintain the integrity of the site as a natural setting. Only areas that are required for placement of infrastructure will be disturbed.

There is a possibility that some furbearers may be displaced from their habitat or disturbed during the construction of the access road and dam. However, if there are any encounters, the Wildlife Division of the Department of Environment and Conservation will be consulted immediately and their direction followed completely without exception. No long-term effect is anticipated on the disruption or movement of big game animals or furbearers as the larger concentrations of these animals can be expected further inland away from the populated areas.

The undertaking should not adversely affect waterfowl or raptor populations. If a nesting raptor or waterfowl is encountered, construction work will avoid the area until the chicks have left the nest. Again, the Wildlife Division will be consulted and their direction followed completely without exception to ensure the protection of the waterfowl and/or raptors.

During the construction of the project, there may be a small demand increase on services in the local area. The undertaking will not negatively impact these resources, but rather will provide positive economic benefits.

Due to the nature of the construction, there will be an increased use of the local transportation network. Since the Town of Lark Harbour is relatively small, there should be no significant impacts or delays regarding ease of transportation as access will be maintained and safety preserved using proper signage and flagpersons.

4.4 Operation

Description of Operation

The operation of the undertaking will include daily monitoring and disinfection of the water in the distribution system. Periodic maintenance of the communal septic systems will also be required. Maintenance of the communal systems will primarily involve sludge removal and disposal into an approved treatment operation by licensed companies.

Period of Operation

The undertaking will be a year-round operation.

Potential Sources of Pollutants

Potential sources of pollutants during the year-round operation of the undertaking are:

a) Concentrated sludge

Removal of sludge from the communal septic tanks will be conducted by trained and experienced workers of a licensed company. The sludge will then be transported to an approved disposal site. The concentrated sludge poses very little potential for pollution.

b) Sodium hypochloride

The use of sodium hypochloride is a necessary component involved in quality water disinfection. Sodium hypochloride will provide a chlorine residual in the water distribution system which will neutralize any harmful contaminants which may enter the system. Sodium hypochloride treatment will be conducted by trained experienced workers inside the water disinfection facility and as such poses very little potential for pollution.

Resource Conflicts

There shall be no resource conflicts in the wilderness area once phase one of the undertaking has been completed. Once completed, the habitat of all species shall be returned to its original state without compromise in consultation with applicable government departments.

4.5 Occupations

Construction

During construction of the proposed undertaking, it is expected that 19 people will be employed as a direct result of the project. The number of positions anticipated during the construction phase of the project, using the National Occupational Classification System are listed below.

National Occupational Classifications Applicable Classifications for the Proposed Undertaking Based on NOC 2001		
NOC Occupational Title Code	Title	Number of Anticipated Positions
0015	Senior Managers	1
0711	Construction Manager	1
2131	Civil Engineers	1
2231	Civil Engineering Technologists and Technicians	2
2253	Drafting Technologists and Technicians	2
7215	Contractors and Supervisors, Carpentry Trades	4
7421	Heavy Equipment Operators	3
7612	Other Trades Helpers	5
	Total	19

Operation

The operation of the undertaking is expected to create employment for one (1) person. The number of positions anticipated for the operation of the undertaking using the National Occupational Classification System are indicated below.

National Occupational Classifications Applicable Classifications for the Proposed Undertaking Based on NOC 2001		
NOC Occupational Title Code	Title	Number of Anticipated Positions
9424	Water and Waste Plant Operator	1
	Total	1

4.6 Project Related Documents

"Appendix A" contains a National Topographic Survey illustrating the topography and primary geological features of the area.

"Appendix B" contains documentation to register the easement for the current water supply system for the Search and Rescue Station in Lark Harbour.

"Appendix C" illustrates the different construction phases required for the undertaking.

"Appendix D" outlines the preliminary estimates for each phase of the undertaking.

5.0 APPROVALS REQUIRED FOR THE UNDERTAKING

The following permits, approvals and authorizations may be required.

APPROVAL REQUIRED	APPROVAL AUTHORITY
Approval of the Undertaking	Minister, Environment and Conservation
Authorization for work or undertaking affecting fish habitat	Department of Fisheries and Oceans Canada
Permit to Cut	Newfoundland Forest Services
Facility Inspection	Government Service Center
Public Safety	Government Service Center

6.0 SCHEDULE

The Town of Lark Harbour plans to start the project in the summer of 2011. It is preferable that this project receive a release from the Environmental Assessment Process prior to that time.

7.0 FUNDING

Funding for this undertaking has been acquired from:

- BCF Funding
- Funds raised by the Town of Lark Harbour

Appendix D contains preliminary construction estimates for the various phases of the undertaking.

Date:

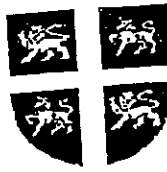
Signature of Chief Executive Officer:

Appendix A
- National Topographic Survey



Appendix B

- Lark Harbour Search and Rescue Station Water System Easement Documents



GOVERNMENT OF
NEWFOUNDLAND AND LABRADOR

Department of
Environment and Conservation
Lands Branch
Western Regional Lands Office

In Reply Please Quote
File Reference No.

3013585

OCTOBER 18, 2006

PUBLIC WORKS & GOV'T SERVICES CANADA
P.O. BOX 4600, THE JOHN CABOT BLDG.
10 BARTERS HILL
ST. JOHN'S NL A1C 5T2

Dear Sir:

RE: APPLICATION NO.: 129873
TYPE: Federal Transfer
PURPOSE: Well to service SAR site
LOCATION: Lark Harbour

Your application for a Federal Transfer has been approved as per the location on the attached map and subject to the attached conditions.

You must have the property surveyed by a registered member of the Association of Newfoundland Land Surveyors. A list of registered surveyors is available from the Regional Lands Office.

The area surveyed must not exceed 0.36 hectare(s) and the frontage must not exceed 60 metre(s). This survey must be received on or before October 18, 2007, or your application will be considered cancelled by you in accordance with Section 10 of the Lands Act 1991, as amended and Departmental Policy.

Should you require any further information concerning this approval, please contact the Regional Lands Office at the address listed below.

Yours truly,


REGIONAL LANDS MANAGER

Attachment(s)

cc Council ✓

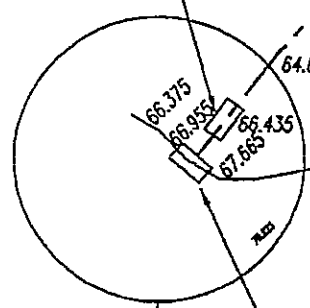
3' GRID
C.M.

BROOK CROSSING
(SEE DETAILS THIS DWG)

LEGEND

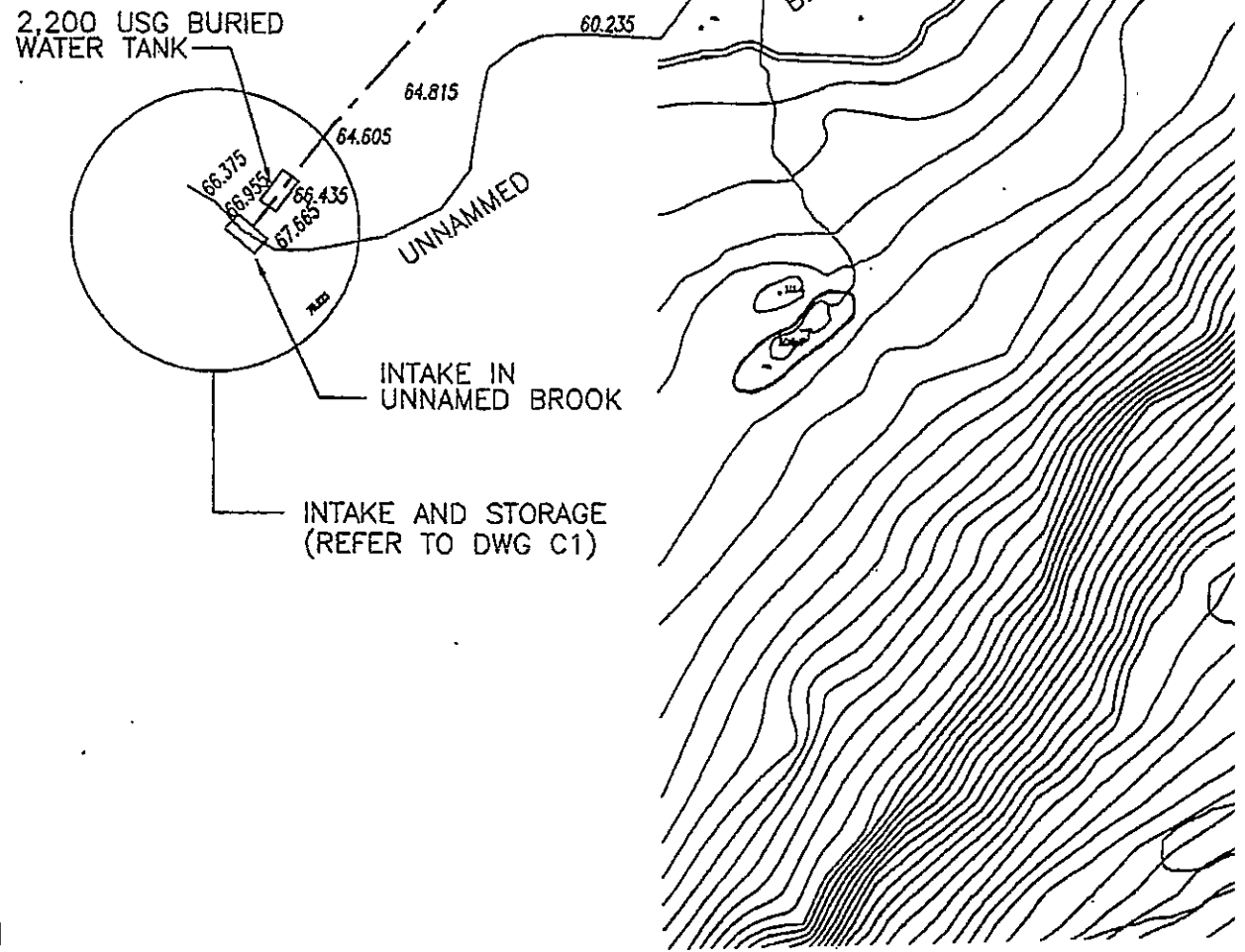
- APPROX. BOUNDARY LINE
- NEW PROPOSED PIPE ROUTE
- 59.825 FIELD SURVEY ELEVATION

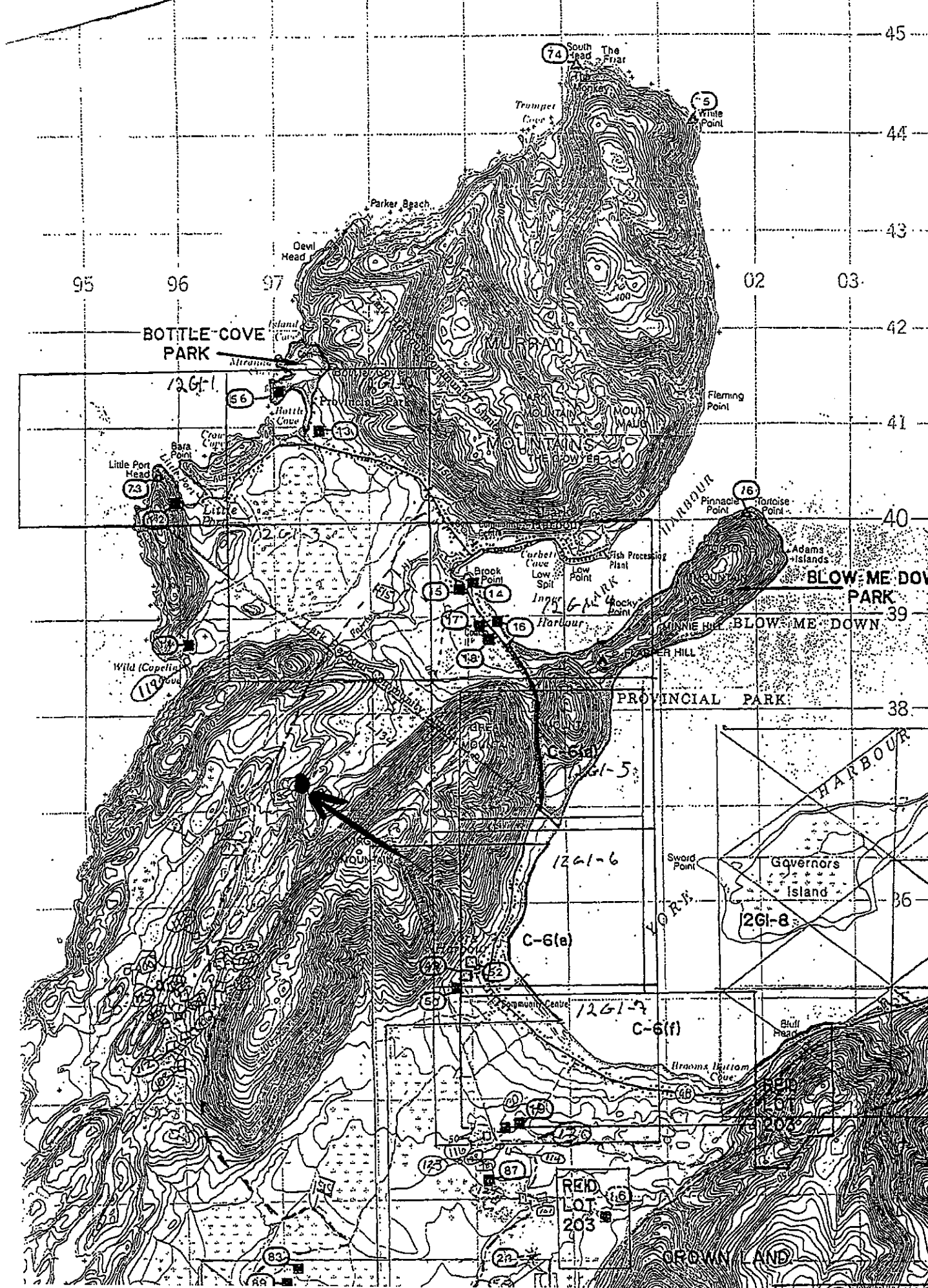
2,200 USG BURIED WATER TANK



INTAKE IN UNNAMED BROOK

INTAKE AND STORAGE (REFER TO DWG C1)







GOVERNMENT OF
NEWFOUNDLAND AND LABRADOR

Department of
Environment and Conservation
Lands Branch
Western Regional Lands Office

In Reply Please Quote
File Reference No.

3013585

OCTOBER 18, 2006

PUBLIC WORKS & GOV'T SERVICES CANADA
P.O. BOX 4600, THE JOHN CABOT BLDG.
10 BARTERS HILL
ST. JOHN'S NL A1C 5T2

Dear Sir:

RE: APPLICATION NO.: 129521
TYPE: Federal Transfer
PURPOSE: Waterline
LOCATION: Lark Harbour

Your application for a Federal Transfer has been approved as per the location on the attached map and subject to the attached conditions.

You must have the property surveyed by a registered member of the Association of Newfoundland Land Surveyors. A list of registered surveyors is available from the Regional Lands Office.

The area surveyed must not exceed 2.5 hectare(s) and the frontage must not exceed 10 metre(s). This survey must be received on or before October 18, 2007, or your application will be considered cancelled by you in accordance with Section 10 of the Lands Act 1991, as amended and Departmental Policy.

Should you require any further information concerning this approval, please contact the Regional Lands Office at the address listed below.

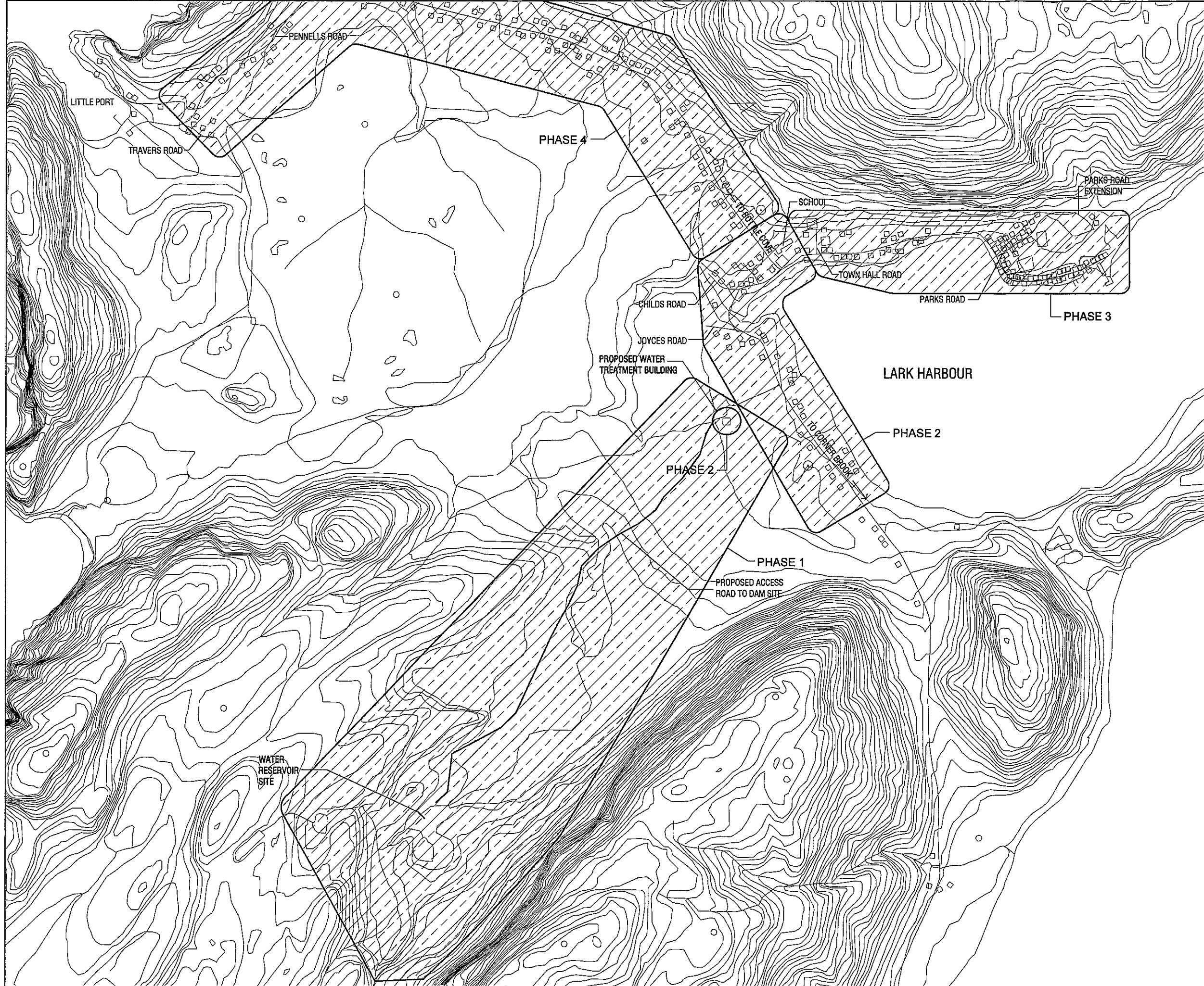
Yours truly,


REGIONAL LANDS MANAGER

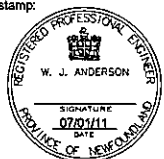
Attachment(s)

cc Council ✓

Appendix C
- Construction Phasing Map

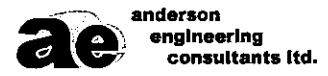


permit:
 PROVINCE OF NEWFOUNDLAND
 PERMIT HOLDER
 This Permit Allows
ANDERSON ENGINEERING CONSULTANTS LTD.
 To practice Professional Engineering
 in Newfoundland and Labrador.
 Permit No. as issued by APEGL 85092...
 which is valid for the year ...2011...

stamp:

 designed by: W.J.ANDERSON
 checked by: W.J.ANDERSON
 approved by: W.J.ANDERSON
 date: 07/01/11

NOTES:

NO.	REVISION	DATE
A	A - DETAIL / SECTION NO.	
B	B - DWG. NO. WHERE DETAILED	


**anderson
engineering
consultants ltd.**
 civil, structural, municipal, environmental, engineers and project managers
 SUITE 103, 3 UNION STREET
 CORNER BROOK
 NEWFOUNDLAND, CANADA, A2H-5M7
 TEL: (709) 634-9944, FAX: (709) 634-9945

CLIENT:
 GOVERNMENT OF
 NEWFOUNDLAND AND LABRADOR
 DEPT. OF MUNICIPAL AFFAIRS

PROJECT:
 TOWN OF LARK HARBOUR
 PROPOSED WATER SYSTEM
 M.A_PROJECT # 09071

DRAWING TITLE:
 WATER AND SEWER
 PHASING PLAN

DRAWN BY: R.S.H	DATE: 07/01/11
DEVELOPED BY: W.J.ANDERSON	SCALE: 1:7500

PROJECT NO:
090579

DRAWING NO: SP-01	REV NO:
-----------------------------	---------

Appendix D

- Preliminary Construction Estimates

**TOWN OF LARK HARBOUR
PROPOSED WATER SYSTEM – PHASE 1
PRELIMINARY COST ESTIMATE**

Phase I will include construction of an access road to the proposed dam site, development of a surface water storage reservoir including a rock fill dam complete with concrete spillway and cut off wall, in addition to a screened intake. Phase I will also include for the supply and placement of 2800 metes of 250mm diameter water transmission line from the dam site to the intersection with Route 450.

ITEM	DESCRIPTION	PRICE
1.	Access road construction including culverts and road topping 2800 meters	\$168,000.00
2.	Reservoir site development	\$26,800.00
3.	Construction of a rock filled dam, concrete cut off wall and spillway, in addition to a screened intake	\$187,800.00
4.	Construction of a chlorination building c/w chlorinator and internal piping	\$43,400.00
5.	Supply and placement of 2800 meters of 250mm diameter water transmission line	\$438,000.00
6.	Excavation, backfill and bedding for the 250mm diameter water transmission line	\$274,230.00
SUBTOTAL		\$1,138,230.00
ENGINEERING		\$170,734.50
HST		\$170,165.38
TOTAL		1,479,129.88

**TOWN OF LARK HARBOUR
PROPOSED WATER AND SEWER SYSTEM – PHASE 2
PRELIMINARY COST ESTIMATE**

Phase 2 will include the construction of both a water and sewer system. The water system will include a chlorination building, 400 meters of 250mm diameter water transmission line, 1240 meters of 200mm water main, 520 meters of 150mm diameter water line and 62 house services from the intersection of Little Port Road and Route 450 heading south. The sewer system will include 1650 meters of 200mm diameter sewer line, 11 manholes, 2 communal septic tanks and two sanitary sewer outfalls.

ITEM	DESCRIPTION	PRICE
1.	7800 m ³ excavation, backfill, and bedding for main water line	\$218,400.00
2.	1842m ³ excavation, backfill, and bedding for service lines	\$71,838.00
3.	Supply and placement of 400 meters of 250mm diameter water line	\$51,200.00
4.	Supply and placement of 1240 meters of 200mm diameter water line	\$119,040.00
5.	Supply and Placement of 520 meters of 150mm diameter water line	\$39,000.00
6.	62 water and sewer services including 19mm diameter service piping, corp, curb stops, 100 mm diameter sewer line, and end cap	\$58,000.00
7.	Supply and placement of valves, bends, and tees	\$14,500.00
8.	Supply and placement of 9 fire hydrant assemblies	\$45,000.00
9.	Asphalt removal and replacement including shoulder dressing	\$201,196.00
10.	Construction of a chlorination building complete with chlorinator and internal piping	\$64,400.00
11.	11 3.0m to 4.0m - 1200mm diameter pre-cast manholes complete with covers and inflow protectors	\$43,600.00
12.	Supply and placement of 200 mm diameter main sewer line complete with tees, bends, and end-caps	\$60,800.00
13.	Sewer camera inspection services	\$3,700.00
14.	Two communal septic tanks	\$44,000.00
15.	Two sanitary outfalls	\$60,000.00
CONSTRUCTION TOTAL		\$1,094,674.00

ENGINEERING	\$164,201.00
SUBTOTAL	\$1,258,875.00
HST	\$163,653.75
TOTAL	\$1,422,528.75

**TOWN OF LARK HARBOUR
PROPOSED WATER AND SEWER SYSTEM – PHASE 3
PRELIMINARY COST ESTIMATE**

Phase 3 will include for the supply and installation of 920 meters of 200mm diameter and 1010 meters of 150mm diameter water lines, 1650 m of 200 mm diameter sewer line, and 94 house services heading east from the intersection of Little Port Road and Route 450.

ITEM	DESCRIPTION	PRICE
1.	9400m ³ of excavation, backfill and bedding for main water line	\$264,800.00
2.	1820m ³ of excavation, backfill and bedding for service lines	\$54,600.00
3.	Supply and placement of 920 meters of 200mm diameter water line	\$88,300.00
4.	Supply and placement of 1010 meters of 150mm diameter water line	\$72,700.00
5.	94 water services including 19mm diameter service, piping, corp, curb stops, tees, 100 mm diameter sewer line, and end caps	\$82,500.00
6.	Supply and placement of valves, bends and tees	\$14,500.00
7.	Supply and placement of 15 fire hydrant assemblies	\$81,000.00
8.	Asphalt removal and replacement including shoulder dressing 3660m ²	\$149,900.00
9.	16 3.0m to 4.0m - 1200mm diameter pre-cast manholes complete with covers and inflow protectors	\$62,400.00
10.	Supply and placement of 200 mm diameter main sewer line complete with tees, bends, and end-caps	\$95,000.00
11.	Sewer camera inspection services	\$5,700.00
12.	Two communal septic tanks	\$44,000.00
13.	Two outfalls	\$60,000.00
SUBTOTAL		\$1,075,400.00
ENGINEERING		\$161,310.00
SUBTOTAL		\$1,236,710.00
HST		\$160,772.30
TOTAL		\$1,397,482.30

**TOWN OF LARK HARBOUR
PROPOSED WATER AND SEWER SYSTEM – PHASE 4
PRELIMINARY COST ESTIMATE**

Phase 4 will include for the supply and installation of 2840 meters of 200mm diameter and 560 meters of 150mm diameter water line and 110 house services along Little Port Road. Also included in phase 4 is the supply and installation of 3200 meters of 200 mm main sewer line,

ITEM	DESCRIPTION	PRICE
1.	14,790m ³ excavation, backfill and bedding for main water and sewer line	\$384,600.00
2.	1590m ³ excavation, backfill and bedding for service lines	\$41,340.00
3.	Supply and placement of 2840 meters of 200mm diameter water line	\$238,100.00
4.	Supply and placement of 560 meters of 150mm diameter water line	\$40,320.00
5.	110 water and sewer services including 19mm diameter service, piping, corp and curb stops, and 100 mm diameter sewer and end caps	\$96,500.00
6.	Supply and placement of valves, bends and tees	\$12,400.00
7.	Supply and placement of 22 fire hydrant assemblies	\$118,000.00
8.	Asphalt removal and replacement including shoulder dressing	\$225,538.00
9.	24 3.0m to 4.0m - 1200mm diameter pre-cast manholes complete with covers and inflow protectors	\$92,600.00
10.	Supply and placement of 3200 meters of 200 mm diameter main sewer line complete with tees, bends, and end-caps	\$198,500.00
11.	Supply and placement of 100 mm diameter sewer service lines complete with end-caps	\$14,000.00
12.	Sewer camera inspection services	\$8,650.00
13.	Four communal septic tanks	\$132,000.00
14.	One outfall	\$30,000.00
SUBTOTAL		\$1,632,548.00
ENGINEERING		\$244,900.00
SUBTOTAL		\$1,868,448.00

HST	\$242,898.24
TOTAL	\$2,111,346.24