APPENDIX

E NOTIFICATION LETTER AND SUPPLEMENTAL INFORMATION

Village of New Maryland

23 April 2019

Chief Tim Paul
Woodstock First Nation
3 Wulastook Court
Woodstock First Nation, NB
E7M 4K6

RE: Project Introduction - Request for Feedback
Village of New Maryland - Critical Water Supply and Distribution Infrastructure Project

Dear Chief Paul,

The Village of New Maryland would like to share information with you and seek your input regarding a project that we have initiated.

The Village has been searching for a new wellfield for over ten (10) years and has spent significant resources in support of those efforts. We have finally located a viable wellfield and have started the process to develop, commission and connect that source to our existing municipal water distribution system. The Village's current wellfield is being stressed and we urgently need an additional water resource. Financially, the Village is not able to undertake such a major infrastructure project on our own and our intent is to apply for provincial and federal funding when that application process becomes available, hopefully in the near future.

Please find attached a Project Overview as well as a map indicating the location of the proposed wellfield. The overview provides information on the proposed expansion of the municipal water systems, background information on the Village's ongoing efforts to develop additional water sources, explains the major components of the system, outlines associated project costs, and suggests a preliminary timeline for the project.

If you have any questions or require additional information, please don't hesitate to contact me at judy.wilson-shee@vonm.ca or our Chief Administrative Officer, Cynthia Geldart at cynthia.geldart@vonm.ca. We appreciate any comments or input that you would like to share and are available to meet at your convenience to discuss the project in greater detail.

Sincerely,

Judy Wilson-Shee

Judy Wilson-Shee
Mayor

Cc: Amanda McIntosh, Consultation Coordinator, Woodstock First Nation

(506) 451-8508
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584 New Maryland Highway
New Maryland, NB E3C 1K1

Project Overview of New Water System

Introduction:

Provided herein is a project overview of the proposed new water system for the Village of New Maryland (VONM). The goal of this project is to secure and develop a new, efficient, sustainable, reliable, affordable and safe water supply source (wellfield) and municipal drinking water system. The project objective is to utilize the new water system as the VONM's primary water supply, with continued and supplemental use of the existing water source. The proposed new wellfield and associated water system components will satisfy the primary goal and objective for this project.

Background:

The VONM's search for additional water supply has been ongoing for approximately 10-years. In more recent years the VONM wellfield has experienced increasing potential impacts, notably from the Trans-Canada Hwy. No. 2 (cuts through wellfield), a rural community industrial park (located immediately east and adjacent to the existing wellfield), and lowering of well operating levels and through-put capacities (all 3 wells now operate below their rated capacities). Climatic change predictions suggest more frequent weather variation extremes, including periods of extended drought, which will potentially place additional burden on the existing wellfield to maintain an adequate supply of water. These events have put the VONM in a vulnerable and higher-risk situation with respect to maintaining a reliable communal water supply to 1 900 of the Village's total population of 4 400.

New Water System Components:

The proposed project is comprised of the following three (3) primary water system components:

A – Water Supply Wells and Transmission Pipeline
B – Water Treatment Process (WTP)
C – Water Transmission/Distribution Pipelines

Essential equipment will also include booster pumping stations, pressure reducing valve stations, emergency power supply, and supervisory control and data acquisition (SCADA). Each water system component will be fully incorporated into the Village's existing asset management plan and geographic information system (GIS).

Wells/Transmission *(Part A)* – Development of two (2) water supply wells, each with a safe yield capacity of 15.8 L/s (250 USgpm), these wells will convey raw water to treatment via a 200 mm raw water transmission pipeline (distance of 1 km). Both well sites will include well houses and controls.

Water Treatment Process *(Part B)* - Treatment processing equipment will reduce raw water manganese and sulphide to accepted Canadian Drinking Water Guideline concentrations. A backwash reclaim system will be considered to minimize spent process backwash discharges. The WTP will be housed within a building that will also include associated process/control equipment.

Water Transmission/Distribution *(Part C)* - Following treatment, water will be boosted into an interconnecting transmission/distribution pipeline and conveyed to an existing storage reservoir and water distribution network. The total length of new water transmission/distribution pipeline is nearly 4.9 km.

Booster Stations *(Parts B, C)* – Two (2) variable-speed controlled booster stations will be strategically located to provide sufficient water flow/pressure from the WTP to the VONM existing elevated storage reservoir, an elevation rise of 100 m. One booster station will be positioned within the WTP building; the other will be positioned in a standalone building structure.

Pressure Reducing Valve (PRV) Stations *(Part C)* – PRVs will be strategically positioned along the transmission pipeline to control line pressures during reversal of water flow from the storage reservoir through to the WTP. The PRV station will be positioned within a standalone building.

Emergency Power *(Parts A, B, C)* – Essential water delivery and treatment components (i.e., wells, treatment process, booster and PRV stations), will be connected to permanent emergency power generators positioned at each site. These generators will permit continued and uninterrupted water supply during both short and prolonged power outages.

SCADA *(Parts A, B, C)* – Systematic control of all water system components, and including data collection, will be commanded by a fully integrated SCADA system. It will incorporate licenced radio communication devices and proprietary SCADA software.

Project Costs:

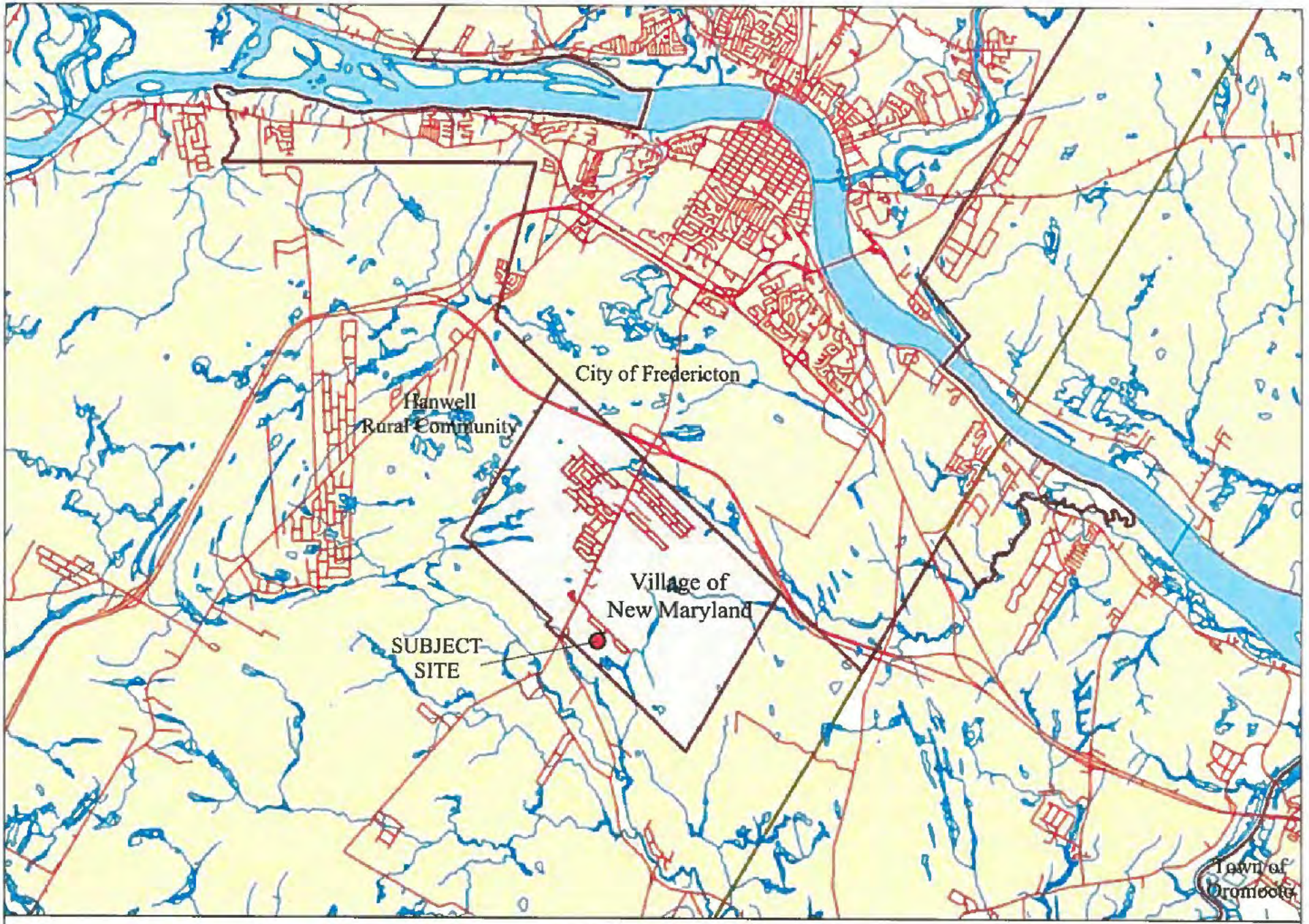
Preliminary opinion of future probable project costs, indicate a total project cost of $ 10 425 000, including EIA, construction, engineering and wellfield protection plan, and HST (at 4.286%).

The Village's funding assistance request is anticipated to be for **$ 10 060 000**, incl. HST, as property acquisition is not considered eligible for funding assistance.

Project Timeline:

Assuming the Village is able to secure provincial and federal funding in the short-term, the project schedule is anticipated as follows:

- *2019* – Commence EIA; conceptual engineering design; water treatment process proposal request; wellfield development; property acquisition.
- *2020* – Complete EIA; on-site water treatment process pilot plant; preliminary and detailed engineering design; tendering/construction of water supply wells and transmission pipeline, incl. well houses, well access roadway construction.
- *2020* - Detailed engineering design; tendering/construction of water treatment process building and associated process equipment; tendering/construction of the water transmission/distribution pipelines; system start-up, operator training and commissioning.
- *2021* – Project completion and close-out.



Site Location Plan

Subject Site - PID 75062174, New Maryland, NB

VILLAGE OF NEW MARYLAND

SUNRISE WELLFIELD DEVELOPMENT

PROJECT OVERVIEW AND SUPPLEMENTARY INFORMATION

IN SUPPORT OF: INVESTING IN CANADA INFRASTRUCTURE PROGRAM (ICIP)- EXPRESSION OF INTEREST FORM

JUNE 17, 2019

CONFIDENTIAL

TABLE OF CONTENTS

1 PROJECT RATIONALE, SCOPE 1

1.1 Rationale 1

1.2 Scope 2

2 PROJECT DESCRIPTION 3

2.1 Overview 3

2.2 Raw Water Supply and Transmission 3

2.3 Water Treatment Process 4

2.4 Water Distribution 5

2.5 System Operation and Controls 6

3 BENEFITS 7

3.1 Economic Benefits 7

3.2 Environmental Benefits 8

3.3 Social Benefits 9

3.4 Benefits to Aboriginal Communities 10

APPENDICES

APPENDIX A PROJECT OVERVIEW- CONCEPT DRAWING

APPENDIX B PROJECT PHASING AND OPINIONS OF PROBABLE COST

1 PROJECT RATIONALE, SCOPE

1.1 RATIONALE

The Village of New Maryland (Village) wishes to undertake this project to provide for a secure water supply in the immediate future for its communal municipal water system users.

Currently, the Village's municipal drinking water needs are supplied from three (3) groundwater wells with generally acceptable water quality and quantity. However, the Village has the following ongoing concerns regarding the long-term security of its current water supply:

- 2 of 3 wells consistently exceed (up to 7 times) the Guidelines for Canadian Drinking Water aesthetic objective (AO) for manganese.
- Well drawdown levels suggest declining aquifer levels, which are resulting in reduced well production capacities.
- Efforts to restore well production with super-chlorination techniques have been only partially successful.
- Available well production capacities result in continuous well pump run times exceeding several days to meet diurnal water demands and maintain water storage reservoir levels.
- The loss of the Village's largest production well will put the ability to meet water demands, especially during peak demand periods, under significant stress.
- Water quality security of existing wellfield is compromised by the presence of a major highway crossing through the wellfield catchment area, the wellfield protection zones and within 120 m of one production well. The wellfield is also potentially impacted by an industrial park located up-gradient from and immediately adjacent to the wellfield protection area.

It has been the Village's goal to obtain a second, more secure and plentiful water supply source within its boundaries to augment (or replace) the existing wellfield. The Village has committed itself over the past 10+ years to search for a wellfield that can be proven not to be compromised by the above noted concerns. Except for the need for treatment (to remove manganese and hydrogen sulphide), the Village is very confident that the proposed project will provide the necessary water supply security for its long-term future needs.

The proposed new wellfield has a proven safe-yield capacity of 250 USgpm (15.8 L/s), with 100% stand-by capacity. With the largest well out of service, the wellfield is capable of a safe-yield capacity of 250 USgpm (15.8 L/s). In comparison, the Village's existing wellfield has a rated safe-yield capacity of 220 USgpm (13.9 L/s). However, it is only capable of 114 USgpm (7.2 L/s) with the largest well out of service, or 46% of the capacity available from the new wellfield. Well capacities are summarized in the following table. Therefore, the new proposed wellfield is a much more capable source for the Village's long-term future water supply needs.

WELLFIELD	NO. OF WELLS	TOTAL AVAILABLE SAFE-YIELD CAPACITY		AVAILABLE SAFE-YIELD CAPACITY WITH LARGEST WELL OUT OF SERVICE	
		USgpm	*L/s*	*USgpm*	*L/s*
Existing	3	220	13.9	114	7.2
Proposed New	2	500	31.6	250	15.8

1.2 SCOPE

The scope-of-work for this project is generally summarized as follows:

- Development and testing of one (TW05-02) of the two water supply wells to provide for a safe-yield capacity. Note: The other well (TW17-01) has been developed, tested and has obtained a safe-yield capacity rating.
- Property and property easement acquisition from private property owners for establishing access within the wellfield to the water supply well locations, and for obtaining lands for locating a water booster pump building.
- Preparation of an EIA submission document for review and approval by the NB Dept. of Environment and Local Government and subsequent Ministerial determination.
- On-site piloting of a selected manganese and hydrogen sulphide treatment technology.
- Detailed engineering design involving water supply, transmission, treatment and distribution, and incl. overall system control.
- Tendering of the overall project in specific phases that generally align with the primary project components - water supply/transmission, treatment, distribution and overall control.
- Construction of the project components in phases that align with the above noted project tendering phases. Project construction to include contract administration, on-site observation, equipment start-up and system commissioning, operator training and project close out.

2 PROJECT DESCRIPTION

2.1 OVERVIEW

This description covers the new municipal water supply, treatment and distribution project proposed for the Village.

This project represents an entirely new water supply system for the Village. As such, it involves the development of a new water supply field, construction of new water supply wells, construction of a new water treatment facility and the construction of a new water transmission mains. These components will enable conveyance of untreated water from a groundwater source to treatment and then onward to distribution within the Village's existing water infrastructure. It is intended that this new infrastructure will replace the Village's existing well field and water well infrastructure as its primary water supply system.

Conceptually, the proposed project is separated into the following three primary components:

- Raw Water Supply and Transmission.
- Water Treatment Process.
- Water Distribution.

Further primary component details are provided in the following sections. A project overview drawing is provided in Appendix A.

2.2 RAW WATER SUPPLY AND TRANSMISSION

The raw water supply and transmission component of this project involves the extraction of groundwater using well pumps and its conveyance (under pressure) from the wellhead through a water transmission line to a downstream water treatment system. Components of the water supply and transmission system include the following:

- Two (2) drilled water supply wells - TW05-02 and TW17-01, each with a safe-yield capacity of 250 USgpm (16 L/s).
- Two (2) well control buildings - one each at well location.
- Submersible well pumps, well drop piping and controls.
- Site access and service vehicle roadway.
- 3-phase power to the well control buildings.
- Water transmission pipeline (incl. valving, chambers, etc.) interconnecting the well control buildings to the downstream water treatment system.

The water supply well sites (TW05-02, TW17-01) are located along the Village's southern property boundary (see overview drawing - Appendix A). Each well will be sized to supply 250 USgpm (16 L/s) of raw groundwater from its respective control building, through the transmission pipeline and along the access roadway to the water treatment plant.

The access roadway will be constructed with a 6 m wide gravel surface. A three-phase power supply line will be installed on poles (i.e., overhead) along the access roadway, to service each well control building and the associated well pump equipment and controls. An additional access road will be provided to the existing Well TW05-1, which will be retained and re-purposed as a groundwater observation well.

The property on which all wells, well control buildings, access roadway and water transmission pipeline are to be located is to be acquired from private property owners.

2.3 WATER TREATMENT PROCESS

To meet drinking water quality under the Guidelines for Canadian Drinking Water Quality (GCDWQ), the proposed raw groundwater supply must undergo treatment to reduce manganese and hydrogen sulphide, as well as, provide residual chlorine within the distribution pipe network. This treatment will be undertaken using water treatment process equipment specifically designed for manganese and hydrogen sulphide removal.

Water treatment process equipment will be positioned within a Water Treatment Plant (WTP) building located in the Village's Sunrise Estates Subdivision on property owned by the Village. This location is shown on the project overview drawing provided in Appendix A. The WTP building (approx. outside dimensions – 21 m L x 16 m W) will house the following components:

- Manganese and hydrogen sulfide water treatment process.
- Temporary backwash storage tankage and associated pumps.
- Booster pumping station.
- Interconnecting process piping, isolation valves and specialized process valves (i.e., pressure reducing/sustaining valves).
- Workshop and general equipment storage area.
- Chlorine addition and storage room, incl. dosing pumps.
- Control room, incl. operator office area and Supervisory Control and Data Acquisition (SCADA) system.
- Water testing lab area.
- Electrical room.
- Washroom/shower/locker area.
- Emergency stand-by power system (exterior to building).

- Entrance vestibule.
- Various single/double entrance and overhead doorways.

The treatment process will include redundant process equipment and controls at strategic points in the process train and process control network. For example, chlorine dosing and treated water boosting will include stand-by pumping capacity that is automatically engaged should the duty pump fail.

2.4 WATER DISTRIBUTION

The water distribution piping and booster pumping system will interconnect the WTP with the Village's existing water distribution piping network, including the water storage reservoir. This distribution system will also permit reverse gravity flow from the water storage reservoir through to the WTP to provide necessary backwash water quantities during cleaning (backwashing) of the manganese treatment process filter. The piping system will be designed to provide an operating pressure range of 40 to 85 psi.

The water distribution piping will be positioned within an existing sanitary sewer system right-of-way (from the WTP to Highway 101) and along the west side of Highway 101 to interconnections with the Village's existing water distribution piping network. The water distribution piping route is identified in the overview drawing provided in Appendix A.

The primary components of the proposed water distribution piping system are:

- 1st water booster station, incl. a triplex booster pump package, located within the WTP building.
- Water distribution piping routed from the WTP westward to Highway 101, and then northward along Highway 101 to piping network interconnection points at Daniel Drive and at Sandcherry Lane.
- Pressure reducing valve (PRV) building located on Highway 101 at the Village's Victoria Hall property. This building will also incorporate a chlorine dosing station and an emergency stand-by power supply system.
- 2nd water booster station, incl. a quadplex booster pump package, located on Highway 101 near the existing Centennial Gardens storm water retention pond complex. An emergency stand-by power supply system will be provided at this booster station facility. Note: The Village will acquire this property from existing property owners.
- Strategically located hydrants along Highway 101, as well as, stubbed-off piping laterals positioned at subdivision entrances on Highway 101 (i.e., Sunrise Estates, Petersen Park, Phillips Drive North/South, Timothy and Cedar Acres) for potential future water service connections.
- Stubbed-off water service lateral connections to individual residences and commercial establishments along Highway 101.

2.5 SYSTEM OPERATION AND CONTROLS

The entire water supply, transmission, treatment and distribution system components will be designed to operate as a single and cohesive process train. All system components must operate in unison with one another each time the system is placed in full operating mode. Failure of any one system component will create an incomplete process train. Unless a full redundant stand-by component is immediately (and automatically) available, this condition will result in stoppage of all remaining system components and thus failure of the system to operate.

Operation of the water system is predicated on satisfying fluctuating diurnal water demands by maintaining adequate water levels within the Village's existing water storage reservoir. When the reservoir's water level is lowered to a pre-determined low-level condition, a *system cycle* commences with automatic start-up of the water supply system. System start-up will begin with initiating operation of a water supply well and the transmission line, followed by initiating operation of the water treatment process, and subsequently followed by initiating operation of the water distribution system.

Assuming all components are successfully started, treated water will eventually be conveyed to the water storage reservoir to raise the reservoir operating level to a pre-determined full level, thus ending the *system cycle* and initiating a coordinated system shutdown. The *system cycle* is repeated upon detection of a low water reservoir level condition. The system will be designed to accommodate process interruptions resulting from filter backwashing requirements, power loss and individual process component failures.

A specialized control system will be utilized to coordinate, control and frequently confirm operating status to ensure proper system cycling is achieved. This control system, known as Supervisory Control and Data Acquisition (SCADA), is comprised of a network of sensors, programmable logic controllers (PLC), servers, computers and control terminals. Uninterrupted communication is essential among the various system components. Secured communication will be achieved using a licenced radio frequency and specialized radio communication equipment, such as radio towers at the well control buildings, WTP building, water booster station buildings and water reservoir.

3 BENEFITS

3.1 ECONOMIC BENEFITS

The following economic benefits are identified for this project:

1. Upfront investment is often less costly:

   The Village is investing in the long-term future of their community, rather than waiting until the existing infrastructure is no longer functional. Should one current water supply well prove unusable and be removed from long-term service, the remaining available capacity could seriously threaten the Village's ability to meet its water demand. Mitigating possible issues before they arise is often the less costly and more economically sustainable option.

2. Circular and local economic benefits:

   Direct investment in new infrastructure in New Maryland will stimulate economic activity in the Village and in the Fredericton area at large, by employing local contractors and consultants. The proposed project is anticipated to occur over a 3 to 5-year period with a total budget over $10M. This project is being divided into several design and construction phases over the proposed project timeline. Portions of the project will be tendered at a size to enhance the opportunity for smaller local contractors to remain on a more equal and competitive footing compared to larger outside contractors.

   As such, tax dollars invested in local infrastructure improvements spur job opportunities and quality of life improvements. This can foster increasingly attractive conditions for business investment, which can create a more resilient local economy and meaningful livelihoods for Village and surrounding area residents.

3. Investing in capacity to account for population growth:

   Increases the Village's long-term viability, allowing it to grow as market-driven need dictates without being hindered by water capacity challenges. Currently, not all local ratepayers are connected to the Village's communal water supply system. This project will permit the Village the ability to extend its communal water supply to existing private well users and to future developments.

4. Reduction of unnecessary investment for tax payers:

   A portion of this project utilizes an existing sanitary sewer easement right-of-way on which to locate a portion of new water distribution piping. This will assist with reducing project costs compared to the extra cost of creating new easements and accessibility for new infrastructure components.

5. Maintenance reduction:

   By investing in new infrastructure, the required maintenance cost on the distribution system will be reduced over the long-term.

3.2 ENVIRONMENTAL BENEFITS

The following environmental benefits are identified for this project:

1. Accounting for increased rainfall and flooding:

   Project considers changing climate, in terms of current and expanding threats to the existing groundwater wells, i.e. major highway and industrial park within or up-gradient from the wellfield production area. Considering that rainfall and flooding are expected to worsen due to climate change effects, the Village is taking steps to 'future proof' its water supply by introducing a second, more secure wellfield that is located to mitigate the threat of rainfall and flooding contamination.

2. Reducing energy consumption of the facility:

   The new groundwater supply wells are positioned where storm water run-off from adjacent hard surfaces is likely less, thus potentially resulting in a lesser toll on water treatment facilities, thus reducing the overall need for electricity to manage water treatment.

3. '**Smart' technology system to regulate extraction of groundwater** to sustain the groundwater source:

   System operation will be dependent on supervisory control and data acquisition (SCADA). SCADA will link via radio-wave technology to all programmable logic control (PLC) units. SCADA will continuously collect operating data for subsequent operator analysis and monitoring, as well as, for trending and historical data base purposes.

   The use of 'smart' technology will ensure critical operations data (i.e., aquifer water levels, turbidity concentrations, etc.) is continuously monitored and recorded. This is increasingly important due to the heightened risk of flood or drought, and the unpredictability of extreme climate change weather events. This data will enable the operator to better determine if water extraction is exceeding water recovery.

   The 'smart' system will ensure adequate water levels (i.e., for drinking, emergency use, fire-fighting) are maintained within the existing storage reservoir. In periods of drought, pre-drought, or flooding conditions, the typical water reservoir fill and draw operating cycle will commence and complete automatically. The result is that levels are maintained for fire-fighting safety and security of drinking water, but that no excess water or other resources are used. Also, ensuring an adequate water supply for fire fighting purposes is a priority for the Provincial Government as the Village of New Maryland provides fire service coverage for Local Service Districts in the area.

4. Sustainable water source = less chance of needing to truck in water.

   Providing a sustainable source of drinking water for the residents of New Maryland reduces the possibility that, in the case of increased drought or heat, the Village may need to resort to trucking in water from elsewhere (reduction of GHGs). If one water supply well pump is taken out-of-service, there is redundant 100% stand-by pumping capacity.

3.3 SOCIAL BENEFITS

The potential social benefits resulting from infrastructure that provides for basic community services, but remains relatively hidden from public view (i.e., that which is buried underground) can often be more abstract than other more obvious infrastructure, such as roadway networks. Buried infrastructure, such as water supply and distribution network piping, can often result in equal or even far more profound social benefits, even though the public maybe unaware of their contribution to the community social fabric.

1. Social Stability:

   Continued access to clean drinking water, particularly in Canada, is a basic human right. While clean and consistent drinking water will be increasingly threatened due to increased drought and heat because of climate change, consistent access to this resource can have an enormous impact on the social stability of a community. If residents of the community do not need to worry about whether they will have access to clean, adequate drinking water consistently, then they have the capacity to invest their time in the social and economic growth of their community.

2. Increased Home Equity:

   Adequate water supply infrastructure helps individuals to sustain the value of the personal investment they have made in their home, because being connected to central services which are reliable is an asset.

3. Economic Benefits Result in Social Benefits:

   The economic benefits reviewed in Section 3.1 result in a series of social benefits, such as job stability, the availability of meaningful work, and private and public-sector investment in a community. The result is that more workers can choose to work close to home, and civic pride increases.

4. Perception-based Benefits:

   A community is only as resilient as the perception that its residents (and visitors or possible residents) have of their government's ability to provide for their needs. The perception of investments made by the government in the community's needs helps to build resiliency and favour within a community, which can add to the overall satisfaction that residents feel.

3.4 BENEFITS TO ABORIGINAL COMMUNITIES

The Village is currently undertaking a Heritage Resource Impact Assessment for the proposed project. To date, this work has included documentary research and a preliminary field examination. The scope of this work was developed in consultation with NB Archaeological Services Branch.

Based on the work completed to date, this assessment has found that the project's assessment area does not have medium or high potential to contain unknown heritage resources. As a result, archaeological testing is not recommended. However, it is recognized that there is a possibility of uncovering artifacts during the project construction phase, and it is recommended that the appropriate protocol be followed in the unlikely event of accidental heritage resource discovery.

Therefore, there are no known benefits associated with this project to aboriginal communities or off-reserve groups.

APPENDIX

A

PROJECT OVERVIEW- CONCEPT DRAWING

N.B. STEREOGRAPHIC GRID NORTH
NAD83 (CSRS)

DANIEL DRIVE WATER DISTRIBUTION SYSTEM CONNECTION

SANDCHERRY LANE WATER DISTRIBUTION SYSTEM CONNECTION

WATER BOOSTER PUMPING STATION No. 2

PRV STATION # 1

WATER TREATMENT PLANT SITE AND WATER BOOSTER PUMPING STATION #1

LARK STREET SPUR

DISTRIBUTION WATER MAIN

WATER SUPPLY PIPELINE

WATER SUPPLY WELL TW17-01

WATER SUPPLY WELL TW05-02

PID 75064840

PID 75349068

PID 75062174

NB ROUTE 101

SPRINGWATER PLACE PHASE 2

CASTLE ACRES

CEDAR ACRES COURT

CENTENNIAL HEIGHTS

SUNRISE ESTATES PHASE 1 & 2

SUNRISE ESTATES PHASE 3

PETERSON PARK

PINE RIDGE ESTATES

HIGHLAND ACRES

FORBES

Shaw Lane
Diver Lane
Nicholson Crescent
Bradshaw Drive
Stonehurst Avenue
Birchwood Crescent
Woodland Lane
Wyzoland Lane
Daniel Drive
Kimberley Street
Cranberry Avenue
Crown Avenue
Oliver Crescent
Adam Street
Sprucewood Drive
Pineridge Avenue
Clover Street
Kirkland Drive
Sandcherry Lane
Phillips Drive
Hornedale Street
Confederation Avenue
Heritage Avenue
Timothy Drive
Cedar Acres Court
Mallurnie Avenue
Sunrise Estates Drive
Weston Street
Kingston Avenue
Lark Street

0 10 mm 50 100 150 mm

1:5000 @ A1
1:10000 @ A3
0 50 100 150 200 250 300 350 400 450 500 m

LEGEND

PROPOSED WATER MAIN

Fredericton Office
+1 506 451 0055
80 Bishop Drive
Fredericton NB E3C 1B2
Canada

Designed	Approved	Approved Date
Drawn	Scales	
	1:5000	

Project
VILLAGE OF NEW MARYLAND
SUNRISE WELLFIELD DEVELOPMENT

Sheet
PROJECT OVERVIEW - CONCEPT DRAWING
INTEGRATED BILATERAL AGREEMENT FOR THE INVESTING IN CANADA INFRASTRUCTURE PROGRAM (ICIP)

Project No	Sheet. No	Revision
C-84510.70	001	0

Original Sheet Size ANSI B [11"x17"] Plot Date 2019-06-17 at 4:11:50 PM Path G:\JOBFILES\800\845_NewMaryland\C-84510.70 - Arsam Property - EIA For Wellfield Development (2018)\04_Project Working Files\CADD\C-84510.70 building footprint.dwg 11 x 17 for VONM update

APPENDIX

B

PROJECT PHASING AND OPINIONS OF PROBABLE COST

Village of New Maryland - Sunrise Wellfield Development - 2019 to 2023 (C-84510.70)
Phasing and Opinions of Probable Cost

Phase 1 (2019 and 2020)- Preparation of EIA and Initial Site Development (2019 and 2020)
Funding by Village's Gas Tax Monies

Rev. May 23, 2019

A	**Water Supply Wells and Transmission Pipeline**			**$ 929 600**
	From Well Sites on PID 75064840 to Water Treatment Bldg. at Sunrise Estates			
1	**Well Site Access Roadway** - *Road linking Sunrise Estates to well sites on Arsam Property.*	$	412,400.00	
2	**Raw Water Transmission Main** - *Pipeline linking Arsam Property wells to WTP at Sunrise Estates.*	$	357,200.00	
3	**Miscellaneous** - *3-Phase site power; Observation well installation and upgrading (TW05-01, and 4 new observation wells near Sunrise Estates)*	$	160,000.00	
B	**Engineering, Planning and Administration**			**$ 410 300**
	Engineering services provided throughout project, incl. EIA, detailed design, contract administration and construction observation services.			
4	**Contingencies**	$	93,000.00	
5	**Engineering**	$	167,300.00	
6	**Environmental Impact Assessment**	$	150,000.00	
	Sub-total No. 1 *(Items A to B)*			**$ 1,339,837.00**
	HST *(4.286% of Sub-total No. 1)*			**$ 57,425**
	GRAND TOTAL (Sub-total No. 1 + HST)			**$ 1,397,262**

Investing in Canada Infrastructure Program Funding Required for Phases 2, 3, and 4.

Phase 2 (2020/2021)- Full Development and Commissioning of Production Wells and
-Detailed Design and Preparation of Tender Ready Documents for Water Treatment Plant

A	**Water Supply Wells and Transmission Pipeline**		**$ 420 000**
	Develop Production Well Sites TW05-02 AND TW17-01 on PID 75064840		
1	**Water Supply Wells TW05-02 and TW17-01** - *Well equipment and well development at wellheads.*	220 000	
2	**Well House - TW05-02** - *Well house and associated internal bldg. equipment at TW05-02.*	100 000	
3	**Well House - TW17-01** - *Well house and associated internal bldg. equipment at TW17-01.*	100 000	
B	**Water Treatment Process (WTP)**		**$ 450 000**
	WTP, incl. bldg. and treatment process equipment at Sunrise Estates		
4	**Purchase Water Treatment Equipment** - *Incls. treatment process, booster stn., tankage, process piping/valves, dosing pumps.*	450 000	
C	**Transmission/Distribution Pipelines**		**$ 445 000**
	Initial Phase of Pipeline linking the WTP to the PRV Bldg. and Booster P. Stn. along Hwy. 101 and onward to exist. water reservoir.		
5	**WTP to Lark St. Spur and to Route 101 (Sunrise Estates)** - *Portion req d to provide chlorine contact time.*	320 000	
6	**Lark St. Spur** - *Portion within Sunrise Estates boundary.*	125 000	
D	**Engineering, Planning and Administration**		**$ 739 500**
	Engineering services provided throughout project, incl. detailed design, contract administration and construction observation services.		
7	**Miscellaneous** - *Water treatment process pilot plant.*	60 000	
8	**Contingencies**	129 500	
9	**Engineering** - *incl. design of water treatment plant*	550 000	
	Sub-total No. 2 *(Items A to D)*		**$ 2,054,500**
	HST *(4.286% of Sub-total No. 2)*		**$ 88,060**
	GRAND TOTAL (Sub-total No. 2 + HST)		**$ 2,142,560**

Phase 3 (2021/2022)- Construction and Commissioning of Water Treatment Plant, PRV Building and Booster Pumping Station

A	**Water Treatment Process (WTP)**		**$ 1 461 900**
	WTP, incl. bldg. and treatment process equipment at Sunrise Estates		
1	**Site Works** - *Site preparation, grading, paving and storm infrastructure at proposed WTP site.*	214 500	
2	**WTP Bldg.** - *Bldg. superstructure, foundation, mechanical, electrical and HVAC systems.*	730 400	
3	**Installation of Process Water Treatment Equipment** - *Incls. treatment process, booster stn., tankage, process piping/valves, dosing pumps.*	286 000	
4	**Instrumentation/Controls** - *Incls. monitoring (flow, pressure, etc.); control panels.*	124 300	
5	**Start-up/Commissioning** - *Incls. system disinfection, operator training.*	27 500	
6	**Miscellaneous** - *Bldg. contractor mobilization/demobilization, project management/supervision.*	79 200	
B	**Transmission/Distribution Pipelines**		**$ 370 700**
	Pipeline linking the WTP to the PRV Bldg. and Booster P. Stn. along Hwy. 101 and onward to exist. water distribution system.		
7	**PRV Bldg.** - *Pressure reduction and chlorine dosing within bldg. located on Victoria Hall property.*	165 000	
8	**Booster P. Stn. No. 2** - *Pressure boosting/reduction within bldg. at Phillips Dr. North stormwater retention pond.*	205 700	
C	**SCADA System/Control Panels**		**$ 195 800**
	Supervisory Control And Data Acquisition (SCADA) equipment positioned throughout new water system components.		
9	**SCADA, Control Panels** - *Incls. SCADA equipment, software, radio licensing, and exist. SCADA system upgrades.*	195 800	
D	**Emergency Power Supply**		**$ 313 500**
	Emergency power components needed to maintain primary water network operation during a power outage.		
10	**Emergency Generators** - *Propane fueled generators, incl. transfer switches, control panels, weather enclosures.*	313 500	
E	**Engineering, Planning and Administration**		**$ 585 500**
	Engineering services provided throughout project, incl. detailed design, contract administration and construction observation services.		
11	**Contingencies**	234 200	
12	**Engineering**	351 300	
	Sub-total No. 3 *(Items A to E)*		**$ 2,927,400**
	HST *(4.286% of Sub-total No. 3)*		**$ 125,470**
	GRAND TOTAL (Sub-total No. 3 + HST)		**$ 3,052,870**

Phase 4 (2022/2023)- Installation and Commissioning of Water Distribution Mains
- Preparation of Wellfield Protection Plan

A	**Transmission/Distribution Pipelines**		**$ 2 684 600**
1	**Lark St. Spur to PRV Bldg. (Victoria Hall) to Booster P. Stn. No. 2 (Centennial Heights SD)**	751 500	
2	**Booster P. Stn. No. 2 to Daniel Dr.** - *To tie-in connection to exist. distribution system.*	289 000	
3	**Booster P. Stn. No. 2 to Sandcherry Lane** - *To tie-in connection to exist. distribution system.*	145 600	
4	**Subdivision Stubs** - *Petersen Park, Cedar Acres, Phillips Drive North/South and Timothy Drive*	58 200	
5	**General Items** - *Road reinstatement, hydrants and water service laterals.*	1 440 300	
B	**Engineering, Planning and Administration**		**$ 1 218 400**
	Engineering services provided throughout project, incl. detailed design, contract administration and construction observation services.		
6	**Contingencies**	355 900	
7	**Engineering**	662 500	
8	**Wellfield Protection Plan** - *by hydro-geotechnical sub-consultant.*	150 000	
9	**Springwater Place Water Reservoir Decommissioning**	50 000	
	Sub-total No. 4 *(Items A to E)*		**$ 3,903,000**
	HST *(4.286% of Sub-total No. 4)*		**$ 167,280**
	GRAND TOTAL (Sub-total No. 4 + HST)		**$ 4,070,280**

Summary

A	**PROJECT TOTAL for Phases 2-4**		**$ 9 265 710**
1	**Phase 2 (2020/2021)- Full Development and Commissioning of Production Wells and - Detailed Design and Preparation of Tender Ready Documents for Water Treatment Plant**	$ 2,142,560.00	
2	**Phase 3 (2021/2022)- Construction and Commissioning of Water Treatment Plant, PRV Building and Booster Pumping Station**	$ 3,052,870.00	
3	**Phase 4 (2022/2023)- Installation and Commissioning of Water Distribution Mains - Preparation of Wellfield Protection Plan**	$ 4,070,280.00	
B	**TOTAL Amount for Funding Application**		**$ 9 265 710**

***Property and easement acquisition costs are not included.**

Prepared: May 23, 2019

Integrated Bilateral Agreement for the Investing in Canada Infrastructure Program (ICIP)

Expression of Interest Form

SECTION I – APPLICANT INFORMATION		
Legal Name of Applicant: Village of New Maryland		
Applicant Type: ☑ Municipality ☐ Corporation ☐ Not-for-profit Organization ☐ Aboriginal Community or Group ☐ Other -		
For municipalities only: Is this project identified as a priority or included in your financial planning section of your municipal asset management plan? ☑ Yes ☐ No		
Contact Information		
Applicant Contact Name: Cynthia Geldart		
Contact's Position: Village's Chief Administrative Officer		
Street Address/P.O. Box No.: 584 New Maryland Highway		
Town: Village of New Maryland	Province: NB	Postal Code: E3C 1K1
Telephone No.: (506) 451-8508	Fax No.: (506) 450-1605	Email Address: Cynthia.Geldart@vonm.ca
SECTION II – PROJECT INFORMATION		
Project Title: Sunrise Wellfield Development- ICIP Funding Application		
Project Location: Village of New Maryland	Parcel Identification # (PID) SEE BELOW	
Does the applicant or will the applicant own the asset? ☑ Yes ☐ No		

Project Description: Please provide a detailed description of the project, rationale (need), and scope. Please include how the project will impact/benefit the community and/or region, and meet the immediate outcomes outlined in the Integrated Bilateral Agreement for each stream.
The following topics should also be addressed:

- Economic Benefits
- Environmental Benefits – Including climate change considerations (both greenhouse gases and adapting to future climate conditions)
- Social Benefits
- Benefits to Aboriginal Communities or groups off-reserve, if applicable

See attached Project Overview for additional information.

Parcel Identification # (PID):

Water Treatment Plant Site - PID# 75349068
Water Supply Wells and a portion of Water Supply Pipeline (from wells toward the water treatment plant site) - PID# 75062174
Portion of Water Supply Pipeline and Water Distribution Water Main Piping (from water treatment plant site to Hwy. 101) - PID# 75064840

Funding Stream			
Select all applicable funding stream(s) and outcome(s)			
Funding Stream		**Outcomes**	
Green Infrastructure – Climate Change Mitigation	☐	Increased capacity to manage more renewable energy	☐
		Increased access to clean energy transportation	☐
		Increased access to efficiency of buildings	☐
		Increased generation of clean energy	☐
Green Infrastructure – Adaptation, Resilience, and Disaster Mitigation	☐	Increased structural capacity and/or increased natural capacity to adapt to climate change impacts, natural disasters and/or extreme weather events	☐
Green Infrastructure – Environmental Quality	✓	Increased capacity to treat and/or manage wastewater and stormwater	☐
		Increased access to potable water	✓
		Increased capacity to reduce and/or remediate soil and/or air pollutants	☐
Community, Culture and Recreation Infrastructure	☐	Improved access to and/or increased quality of cultural, recreational and/or community infrastructure for Canadians, including Indigenous peoples and vulnerable populations	☐
Rural and Northern Communities Infrastructure	✓	Improved food security	☐
		Improved and/or more reliable road, air and/or marine infrastructure	☐
		Improved broadband connectivity	☐
		More efficient and/or reliable energy	☐
		Improved education and/or health facilities (Specific to the Truth and Reconciliation Commission's *Call to Action*)	☐

Project Screening		
Do you have a plan to fund, operate, and maintain the asset over its lifecycle?	✓ Yes	☐ No
Does the project involve federal or provincial owned assets or land?	☐ Yes	✓ No
Has the project design started yet?	✓ Yes	☐ No
Has any project tender been called?	☐ Yes	✓ No
Has any project contracts been awarded?	☐ Yes	✓ No
Has construction started?	☐ Yes	✓ No
Does your organization have experience managing a similar project?	✓ Yes	☐ No
Will the project be planned, constructed and operated in a manner that takes into account risks related to extreme natural events and/or climate change?	✓ Yes	☐ No

Is this project supported by your local government, organization, board, band council etc.?	☑ Yes	☐ No

SECTION III – PROJECT FUNDING

Has your organization applied for and/or received any other Provincial or Federal funding for this project?
If "Yes", please provide details below.

No, however, the Village has already invested hundreds of thousands of dollars of its own money over the last few years to validate the viability and capacity of the wellfield.

Does the funding that you are requesting include all costs? Are there any ineligible costs associated with this project?
Please provide details below.

This funding request includes all eligible costs and is being applied for under the "Rural and Northern Communities Infrastructure Funding Stream". Ineligible costs, such as field assessments, conceptual and preliminary design, planning and land acquisition is being paid for separately by the Village.

Has the funding for your contribution to the project been secured?
If "Yes", please provide details.
If "No", how do you plan on securing your share of the funding? Will the project require borrowing of funds?

Partially. The Village of New Maryland will utilize Gas Tax monies to fully fund Phase 1 of this project in 2019/2020. Subsequent Phases 2 (2020/2021), 3 (2021/22)and 4 (2022/2023) will require the Village to borrow funds for its portion of the project costs.

Estimated Project Finances

Provide sources of funds and amounts below

Source of Funds	Amount ($)
Total Project Costs	$ 9,265,710.00
Requested Federal ICIP Contribution	$ 5,559,426.00
Requested Provincial Contribution	$ 3,057,684.00
Ultimate Recipient (Project Applicant) Contribution	$ 648,600.00
Other Contribution (Specify)	$ 0.00

Cost Estimate Certification

Please indicate who has prepared these project cost estimates, as well as the date that the estimates were verified. Please attach detailed estimate.

Name: John McKinney, P.Eng.	Email: John.McKinney@wsp.com
Organization: WSP Canada Group Inc.	
Date: 05/23/2019	

Proposed Financing

Fiscal Year	Total Project Cost
2020/2021	$ 2,142,560.00
2021/2022	$ 3,052,870.00
2022/2023	$ 4,070,280.00
2023/2024	
2024/2025	
2025/2026	
2026/2027	
2027/2028	
Total	$ 9,265,710.00

SECTION IV – TIMELINES

Please provide the anticipated date for each of the following project milestones

Estimated Project Start Date: 10/01/2019 (The date at which the project's design was/will be started)	Estimated Project Completion Date: 03/31/2023 (The date at which you will have deemed the project completed)
Estimated Construction Start Date: 05/01/2020 (The date at which construction will start)	Estimated Construction End Date: 02/28/2023 (The date at which substantial completion will be achieved)

SECTION V – ENVIRONMENTAL IMPACT ASSESSMENTS / CONSULTATIONS

Has a provincial Environmental Impact Assessment (EIA) been carried out for this project? If "yes", please provide the EIA #: 928 (ongoing)	☑ Yes	☐ No
Was there a duty to consult requirement?	☑ Yes	☐ No
Does the project involve works or activities on, under, over, through or across a water body such as a wetland, stream, river or lake?	☑ Yes	☐ No
Does the project involve works or activities within 30 metres of a body of water?	☑ Yes	☐ No
Does the project involve physical works or activities involving the likely release of a polluting substance into a water body?	☐ Yes	☑ No

Environmental Impact Assessment Contact Information

Please indicate who should be contacted for questions regarding the environmental impact assessment requirements.

Name of EIA Contact:	Shawn Hamilton
Position:	Program Consultant, Environmental Impact Assessment Branch - NBDELG
Address:	Marysville Place, P.O. Box 6000, Fredericton, NB E3B 5H1.
Phone Number:	(506) 444-5382
E-Mail:	Shawn.Hamilton@gnb.ca

Aboriginal Considerations

Could the project have adverse effects on Aboriginal peoples' ability to hunt, fish, gather or continue their current use of the land and resources for traditional purposes?	☐ Yes	☑ No
Have Aboriginal groups or communities been consulted about the project?	☑ Yes	☐ No

Please describe any consultations with the Aboriginal groups, communities or other interested parties:
An initial contact letter identifying the project has been sent to all Wolastogey First Nations in NB.

SECTION VI – ADDITIONAL INFORMATION

Please include/attach any other relevant information related to this project (Business Case, proposals, etc.)

Signature

I, Cynthia Geldart, CAO, attest that the information contained in this form is true and complete.

Signature: Cynthia Geldart Date: 19 June 2019

*Must be signed by approved signing authority

Expression of Interest Forms can be submitted via email to: IBA-EBI@gnb.ca or by mail to: Regional Development Corporation, P.O. Box 6000, Fredericton NB E3B 1E9

The Regional Development Corporation may require additional information following the initial review of this Expression of Interest.