

PERMIT TO CONSTRUCT

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 37

Date: **SEPTEMBER 30, 2015**

File No: **844.163.3**
Permit No: **WS8270-2015**

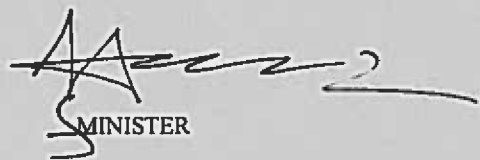
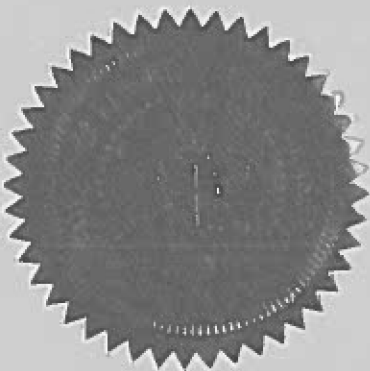
Permit Holder: **Town of Long Harbour & Mount Arlington Heights
P.O. Box 40
Long Harbour NL A0B 2J0**

Attention: 

Re: **Long Harbour-Mount Arlington Heights - Potable Water Treatment Plant**

Permission is hereby given for: the installation of a 572 m³/day conventional water treatment plant using a dissolved air flotation system, gravity fed rapid sand filter, hypo-chlorination disinfection system, pH adjustment, a 184 m³ water storage tank, 75 m³ DAF waste/backwash water settling tank, instrumentation and SCADA system and related works and appurtenances as described in the drawings titled, "Town of Lang Harbour - DAF" as received from Cahill Technical Services on August 26, 2015.

- This Permit does not release the Permit Holder from the obligation to obtain appropriate approvals from other concerned municipal, provincial and federal agencies.
- The Permit Holder must obtain the approval of the Crown Lands Administration Division if the project is being carried out on Crown Land.
- This Permit is subject to the terms and conditions indicated in Appendices A and B (attached).
- It should be noted that prior to any significant changes in the design or installation of the proposed works, or in event of changes in ownership or management of the project, an amendment to this Permit must be obtained from the Department of Environment and Conservation under Section 49 of the *Water Resources Act*.
- Failure to comply with the terms and conditions will render this Permit null and void, place the Permit Holder and their agent(s) in violation of the *Water Resources Act* and make the Permit Holder responsible for taking any remedial measures as may be prescribed by this Department.



MINISTER

APPENDIX A
Terms and Conditions for Permit

Water & Sewer General

1. Water pumped from excavations or work areas, or any runoff or effluent directed out of work sites, must have silt and turbidity removed by settling ponds, filtration, or other suitable treatment before discharging to a body of water. Effluent discharged into receiving waters must comply with the *Environmental Control Water and Sewage Regulations, 2003*.
2. All operations must be carried out in a manner that prevents damage to land, vegetation, and watercourses, and which prevents pollution of bodies of water.
3. Any areas adversely affected by this project must be restored to a state that resembles local natural conditions. Further remedial measures to mitigate environmental impacts on water resources can and will be specified, if considered necessary in the opinion of the Department.
4. All waste materials resulting from this project must be disposed of at a site approved by the Department of Service NL.
5. The works proposed must satisfy the requirements of the latest applicable codes and standards, and be consistent with or otherwise address the design criteria set out in the Department of Environment and Conservation publication *Guidelines for The Design, Construction, and Operation of Water and Sewerage Systems, 2005*, and as amended from time to time.
6. The work must be undertaken in strict compliance with the submitted documents and the latest version of the *Municipal Water, Sewer and Roads Master Construction Specifications*. A copy of all documents, including the *Municipal Water, Sewer and Roads Master Construction Specifications* must be available for viewing at the construction site office at all times.
7. Liaison is to be maintained with the Design Approval Specialist representing the Community Water and Wastewater Section of this Department, during the construction and operation of the project. The Specialist shall be notified of the pre-construction and post-construction meetings so that she may attend, if deemed necessary. She can be reached at telephone (709)729-2558.
8. Officials of this Department may visit the project from time to time to ensure that work is carried out within the provisions of this Permit, and is not creating any environmental hazard.
9. Any changes in the approved works, or works other than those specified in the application, must be submitted, in writing, to this Department, and approved, in the form of an Amendment to this Permit, prior to any work.
10. Copies of this Permit, as well as any subsequent Amendments, must be provided to the contractor(s) who will be carrying out these works, and to the engineer's site representative.
11. The attached Completion Report (Appendix C) for Permit No. 8270 must be completed and returned to this Department upon completion of the approved works. Pictures must be submitted along with the completion report, showing the project site prior to and after development.
12. This Permit is valid for two years from the date of issue. Work must be completed by that date or the application and approval procedure must be repeated.
13. The drinking water system shall be operated and maintained in accordance with the Permit to Operate issued by this Department.
14. Management of stormwater is the responsibility of the municipality or LSD. Stormwater management should focus on ensuring that the post-development stormwater runoff rate will be equal to or less than the pre-development runoff rate. Any stormwater runoff has the potential to contribute to flooding downstream which may have liability issues for the municipality or LSD if not managed properly.
15. The Owner must update any drawings maintained of the drinking water system to reflect the modification or replacement of the works, where applicable.

Chlorination

16. The upgrading of the existing chlorination facility must be carried out in such a way as there will be minimal interruption of the water supply and chlorination system. In this regard, water consumers and the Regional Office of Service NL shall be kept informed and appropriate action taken to address any potential or encountered problems.
17. The sodium hypochlorite shall be stored in a dark cool area to minimize loss of strength of the solution. In this regard a storage cabinet should be provided and shall be located away from any direct heat and light sources.

18. Personal protective equipment such as goggles and rubber gloves suitable for handling sodium hypochlorite must be provided.
19. Portable equipment must be provided for measuring chlorine residuals. The equipment shall have digital display readout, enable measurement of chlorine residuals to the nearest 0.02 mg/L, and shall be of a type approved by the Department of Environment and Conservation.

Water Treatment

20. There shall be adequate storage handling facilities for 30 days of dry chemical supply.
21. All drains and vents shall be equipped with screens to prevent the entry of insects, birds and rodents.
22. The ends of drains and overflows shall be located so as to prevent erosion. Where necessary, concrete or similar splash plates shall be located below the end of the overflow, and the immediate surrounding area shall be filled to a depth of 10 cm with 19 mm minus stone to prevent ponding.
23. A backflow prevention device, in this case a hose connection vacuum breaker, non removable, meeting or exceeding CSA 64.2, shall be attached to any hose bibb connection, to prevent the possibility of contaminants entering the potable water distribution system due to back-siphonage.
24. A minimum of 2 feed/metering pumps shall be provided for all chemical feed systems.
25. Chemical mixing tanks shall be located as near as possible to the point of application to minimize the length of feed lines.
26. All components, lubricants and chemicals provided shall be compatible for use with drinking water and shall meet the requirements of ANSI/NSF 60 Drinking Water Treatment Chemical Standard and ANSI/NSF 61 Drinking Water and System Component Standard and any other standard applicable to potable water.
27. Storage tank and pressure tank drain lines and overflows shall not be directly connected to the building floor drain, but shall be separated from the floor drain by an appropriately sized air gap. Drain lines from the storage tank and pressure tanks shall be protected from back-siphonage or back-pressure by an appropriate backflow prevention device.
28. A sample tap shall be provided so that water samples can be obtained from the raw water source and from an appropriate location after chlorination. Taps used shall be of the smooth-nosed type without interior or exterior threads and shall not have a screen, aerator or other such appurtenance.
29. An emergency shower and eye wash station that is in compliance with ANSI Z358.1-2014 and meets the requirements of the appropriate Materials Safety Data Sheet (MSDS) shall be installed in a convenient location(s) within each facility.
30. The owner shall ensure that all chemicals used in the treatment process and all materials contacting the water are of Food Grade quality and meet both the American Water Works Association (AWWA) quality criteria as set out in AWWA standards and the American National Standards Institute (ANSI) and the National Sanitation Foundation (NSF) safety criteria as set out in ANSI/NSF 60 or ANSI/NSF 61 standards and any other applicable standards.
31. The water treatment plant including all interior and exterior water piping systems, all storage tanks including the finished water clear wells, filter media and other receptacles and appurtenances must be disinfected by approved methods such as described in the American Water Works Association Standards, Disinfection of Watermains, C651-99, Disinfection of Water Storage Facilities, C652-92 and Disinfection of Water Treatment Plants C653-87. It should be noted that the filter chambers must be disinfected prior to the placement of filter media and subsequently, the media disinfected as per the above quoted Standards. After final flushing, samples shall be collected and tested for bacteriological quality. The sampling locations shall be determined by the engineer. A copy of the test results shall be submitted to the Regional Environment Office (Water Resources Management Division) before the treatment plant is placed in service.
32. Residuals discharged from the water treatment plant must meet the requirements of the *Environmental Control Water and Sewage Regulations, 2003*.
33. Appropriate backflow prevention devices meeting or exceeding the CSA 64 Standard shall be installed on all potable water lines where a cross connection may exist or be created, to prevent the possibility of contaminants entering the potable water distribution system due to back-siphonage or back-pressure.
34. All chemical tanks shall have liquid level indicators and overflows connected to a drain line.
35. Continuous on-line monitoring of disinfectant residual is required with a maximum 5 minute interval for measurements as water enters the distribution system or at some point prior to the first consumer.
36. Continuous on-line monitoring of turbidity is required for individual filters with a maximum of 5 minute intervals for measurements.

37. The water treatment plant shall be provided with an automated SCADA system for control of all treatment processes including RTUs/PLCs, MTUs, HMIs, data historian, trend applications and communication systems as required.

38. Continuous on-line monitoring of pH is required.

SCADA- PtC

39. The SCADA system shall not be on the same network as other business or municipal computing systems.

40. The SCADA system shall not be located below the level of any water storage basin used in the treatment process or any large diameter pipes.

41. SCADA systems which have network connectivity must have anti-virus applications installed.

42. The computer/master terminal unit containing the SCADA system master database and interface must be kept in a separate server room that can be locked.

43. Multiple firewalls must be installed on the SCADA system if remote access/login is allowed.

44. A spare computer must be provided that contains a backup copy of the SCADA system master database and interface.

Water Storage Tanks

45. The water storage tank must be disinfected by an approved method as described in the latest edition of the **AWWA C652 Standard For Disinfection of Water Storage Facilities Standard**. The solution used for disinfecting the water storage reservoir may not be discharged to a water course. After final flushing, samples shall be collected and tested for bacteriological quality. A copy of the test results shall be submitted to the Regional Environment Office (Water Resources Management Division) before the storage reservoir is placed in service.

46. The water storage tank, all appurtenances and coatings must meet the latest ANSI/NSF 61 Drinking Water and System Component Standard, the latest AWWA Standards, and any other standards and codes that may be applicable.

47. Water storage tank capacity shall meet the requirements of Peak Balance Storage and Emergency Storage as set out in the *Guidelines for The Design, Construction, and Operation of Water and Sewerage Systems, 2005*.

48. The water storage tank must be equipped with a mixing system.

49. The water storage tank must be integrated into the SCADA system, including instrumentation to control and monitor the water level in the tank.

APPENDIX B
Special Terms and Conditions for Permit

1. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall keep all systems and works in good condition and repair and in accordance with all laws, by-laws, directions, rules and regulations of any governmental authority. The Permit Holder or its agent(s), subcontractor(s), or consultant(s) shall immediately notify the Minister if any problem arises which may threaten the structural stability of the systems and works, endanger public safety and/or the environment or adversely affect others and/or any body of water either in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for all damages suffered by the Minister and Government resulting from any defect in the systems and works, operational deficiencies/inadequacies, or structural failure.
2. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall operate the said Project and its systems and works in a manner which does not cause any water related and/or environmental problems, including but not limited to problems of erosion, deposition, flooding, and deterioration of water quality and groundwater depletion, in or outside the said Project areas. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) shall be responsible for any and all damages associated with these problems caused as a result of changes, deficiencies, and inadequacies in the operational procedures by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).
3. If the Permit Holder or its agent(s), subcontractor(s), or consultant(s) fails to perform, fulfil, or observe any of the terms and conditions, or provisions of this Permit and/or Ministerial orders and guidelines, as determined by this Department, the Minister may, after providing ten (10) day notice to the Permit Holder, amend, modify, suspend or cancel this Permit in accordance with the *Water Resources Act*.
4. The Permit Holder and its agent(s), subcontractor(s), and consultant(s) indemnify and hold the Minister and Government harmless against any and all liabilities, losses, claims, demands, damages or expenses including legal expenses of any nature whatsoever whether arising in tort, contract, statute, trust or otherwise resulting directly or indirectly from granting this Permit, systems and works in or outside the said Project areas, or any act or omission of the Permit Holder or its agent(s), subcontractor(s), or consultant(s) in or outside the said Project areas, or arising out of a breach or non-performance of any of the terms and conditions, or provisions of this Permit by the Permit Holder or its agent(s), subcontractor(s), or consultant(s).
5. This Permit is subject to all provisions of the *Water Resources Act* and any regulations in effect either at the date of this Permit or hereafter made pursuant thereto or any other relevant legislation enacted by the Province of Newfoundland and Labrador in the future.
6. This Permit shall be construed and interpreted in accordance with the laws of the Province of Newfoundland and Labrador.

- cc: Ms. Annette Tobin, P. Eng.
Department of Environment and Conservation
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6
- cc: Ms. Deneen Spracklin, P.Eng.
Environmental Engineer, Community Water and Wastewater
Water Resources Management
Environment and Conservation
PO Box 8700
St. John's NL A1B 4J6
- cc: Mr. Inayat Rehman, P.Eng.
Department of Municipal and Intergovernmental Affairs
Main Floor, West Block, Confederation Bldg.
PO Box 8700
St. John's NL A1B 4J6
- cc: Mr. Calvin Adams, Regional Manager
Service NL
Regional Government Services Centre
PO Box 512
Harbour Grace NL A0A 2M0
- cc: [REDACTED]
Cahill Technical Services
2-4 Southern Cross Road
Mount Pearl NL A1N 5A2

Appendix C - Completion Report

Pursuant to the *Water Resources Act*, SNL 2002 cW-4.01, specifically Section(s) 37

Date: **SEPTEMBER 30, 2015**

File No: **844.163.3**
Permit No: **WS8270-2015**

Permit Holder: **Town of Long Harbour & Mount Arlington Heights
P.O. Box 40
Long Harbour NL A0B 2J0**

Attention: [REDACTED]

Re: **Long Harbour-Mount Arlington Heights - Potable Water Treatment Plant**

Permission was given for : the installation of a 572 m³/day conventional water treatment plant using a dissolved air flotation system, gravity fed rapid sand filter, hypo-chlorination disinfection system, pH adjustment, a 184 m³ water storage tank, 75 m³ DAF waste/backwash water settling tank, instrumentation and SCADA system and related works and appurtenances as described in the drawings titled, "Town of Lang Harbour - DAF" as received from Cahill Technical Services on August 26, 2015.

I (the Permit Holder named above or agent authorized to represent the Permit Holder) do hereby certify that the project described above was completed in accordance with the plans and specifications submitted to the Department of Environment and Conservation and that the work was carried out in strict compliance with the terms and conditions of the Permit issued for this project.

Date: _____

Signature: _____

This completion report must be completed and forwarded to the following address upon completion of the approved work.

Department of Environment and Conservation
Water Resources Management Division
PO Box 8700
St. John's NL A1B 4J6