



November 26, 2015

File No. 15-0321-01

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Conservation and Water Stewardship
Environmental Approvals Branch
Box 80, 123 Main Street
Winnipeg, Manitoba
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ATTENTION: Ms. Tracey Braun
Director

RE: St. Laurent Lagoon Assessment
Notice of Alteration - Sandy Bar Road Wastewater Treatment Facility

Dear Ms. Braun:

This Notice of Alteration letter and enclosed \$500 application fee are being submitted to Manitoba Conservation and Water Stewardship (MCWS) to request an amendment to the Clean Environment Commission Order 744 (CEC744) for the Manitoba Housing Authority Sandy Bar Road Wastewater Treatment Facility (commonly referred to as the St. Laurent Lagoon, See Figure 1 Site Plan). This Notice of Alteration is being submitted to request an amendment respecting the discharge practices and procedures in response to the MCWS letter, dated February 26, 2015. Details of how the discharge operations vary from the license requirements and associated effects are given in the following sections, to obtain formal authorization from MCWS and for inclusion in the Client File No. 318.15.

1.0 EFFLUENT DISCHARGE PATH

The CEC744 requires Manitoba Housing Authority to:

- Ensure that effluent is discharged to Lake Manitoba by means of an enclosed pipe.

The February 26, 2015 letter from MCWS indicates that the current effluent discharge practice is to pump effluent over the berm from the Secondary Cell in to the surrounding marshy area encircled by the flood protection dike. This practice is inconsistent with the requirements of CEC744. It is understood that there is a 2 inch buried pipe extending from the Secondary Cell to Lake Manitoba to facilitate discharge; however, mechanical failure of this system resulted in the above noted deviation from licensed discharge practices many years ago.

Also, the beachfront in the Village of St. Laurent has undergone significant development since the facility began operation. As discussed with local Environment Officer Kurt Dorward, discharge from the Secondary Cell directly to Lake Manitoba is no longer considered to be the best practice or most practical option for the facility with many cabins along the shoreline. The current practice of discharging to the adjacent wetland has not raised concerns from the local

residents even with a regular summer/warm weather discharge over the past several years. Surface release of treated lagoon effluent is a commonly accepted practice, when in a suitable operational setting. The following factors have been considered when evaluating the application at this facility:

- Lagoon loading from the senior's residence, the local school, and eight homes operated by Manitoba Housing Authority;
- Lagoon capacity including use of the flood protection dike as a Tertiary Cell; and
- Discharge schedule.

1.1 LAGOON LOADING ESTIMATES

It is understood that the Sandy Bar Road Wastewater Treatment Facility once serviced the local school, a senior's residence, and thirty-four houses along Sandy Bar Road and Louis Riel Drive. The loading on this facility has recently been reduced by the closure of many of the homes. Eight homes, each with an average of four residents, continue to use this facility for wastewater treatment. An estimated total daily flow is detailed below.

WASTEWATER CONTRIBUTION CATEGORIES	ESTIMATED NUMBER OF INDIVIDUALS	HYDRAULIC LOADING RATE (L/PERSON/DAY)	ESTIMATED TOTAL DAILY FLOW (L/DAY)	ESTIMATED TOTAL YEARLY FLOW, M ³
Senior Residents	22	350	8,750	3,200
Students and Faculty	150	200	30,000 (210 days/year)	6,300
Manitoba Housing Authority Homes	8 houses, 32 persons (formerly 34 houses, 136 persons)	350	11,200 (formerly 47,600)	4,100 (formerly 17,400)
TOTAL			49,950 (formerly 86,350)	13,600 (formerly 26,900)

The reduction in overall loading due to the closure of approximately 26 homes in the area represents a decrease in total yearly flow of approximately 50%.

1.2 LAGOON CAPACITY AND RETENTION TIMES

It is proposed that the area between the flood protection dike and the existing cells be used as a Tertiary Cell for further polishing of effluent before surface release occurs. This can be accomplished by installing a new interconnecting valve on the Secondary Cell of the lagoon and converting the culvert through the flood protection dike to a valve. The location of the new valves will be documented and marked within the facility. By introducing a Tertiary Cell, the capacity of the facility will be doubled for an approximate total capacity of 43,000 m³.

At a combined total yearly flow of approximately 13,600 m³/year, the combined maximum hydraulic retention time for the Primary Cell and Secondary cell is approximately 18 months. By introducing the Tertiary Cell, this retention time doubles to 36 months.

1.3 DISCHARGE SCHEDULE

The CEC744 requires Manitoba Housing Authority to:

- Ensure that no discharge of effluent takes place between the 1st day of November in any one year and the 15th day of May in the following year; and,
- Ensure that no discharge of effluent takes place between the 15th day of June and the 15th day of September in any one year.

Based on the increased retention time provided by the Tertiary Cell, it is recommended that effluent discharge from the Tertiary Cell to the marshy area immediately west of the dike be conducted once annually within the month of October and prior to freezing conditions, which is consistent with the requirements of CEC744. In the recent past, discussions with Kurt Darward indicated that this lagoon system has been discharged twice per year and has had some difficulty meeting the effluent discharge standards, especially in the fall. The proposed alteration will mitigate these concerns.

The sections above indicate that the Sandy Bar Road Wastewater Treatment Facility is in a position of reduced loading, while also being able to increase capacity and retention times with minor alterations to the facility. These conditions will combine to produce a more polished final effluent with 50% smaller volume that is suitable for surface discharge to the marshy land immediately west of the flood protection dike. This area is within the Manitoba Housing Authority right of way and has been the practice for the past decade or more. Manitoba Housing Authority requests that the use of the Tertiary Cell and annual discharge to the marshy area be considered an acceptable treatment and discharge process for the effluent at the facility.

2.0 INTERCONNECTING VALVES

The February 26, 2015 letter from MCWS indicated that the interconnecting valve between the Primary Cell and Secondary Cell needed to be checked for functionality. It has been confirmed that this valve is not currently operational and the other valve could not be located. Both of these valves will be replaced, and the locations will be documented and marked within the facility. A third valve will be adapted into the current culvert to allow discharge from the Tertiary Cell to the marsh area.

3.0 CLOSURE

We trust the above information is adequate for an alteration notification and inclusion in the Client File. Should you have any questions or wish to discuss this letter further, please do not hesitate to contact the undersigned.

Prepared By:



Alex Beveridge, P.Eng.
Senior Environmental Engineer

Approved By:

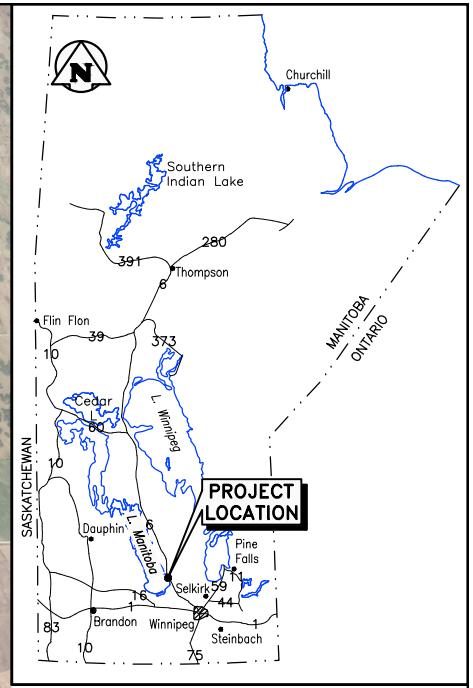
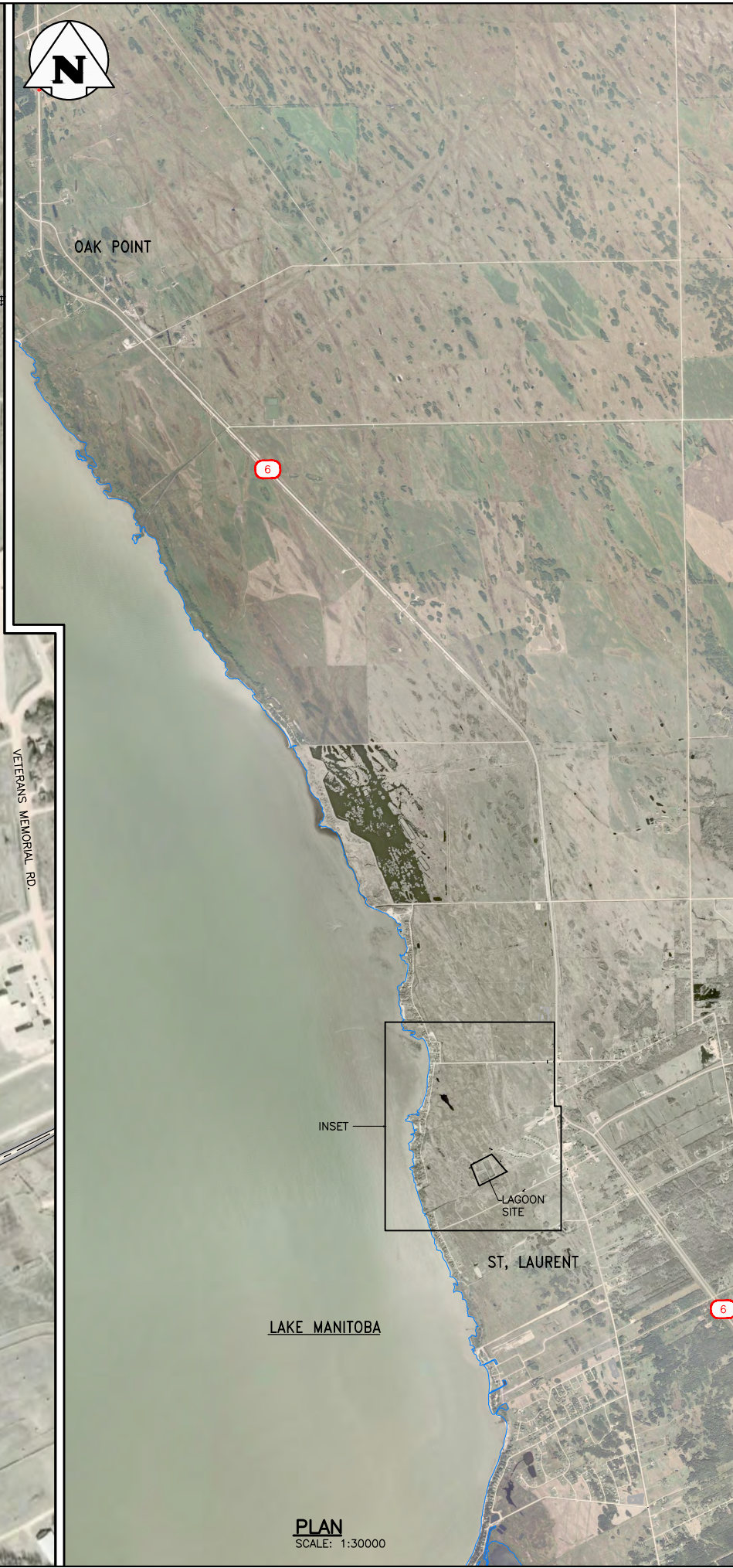
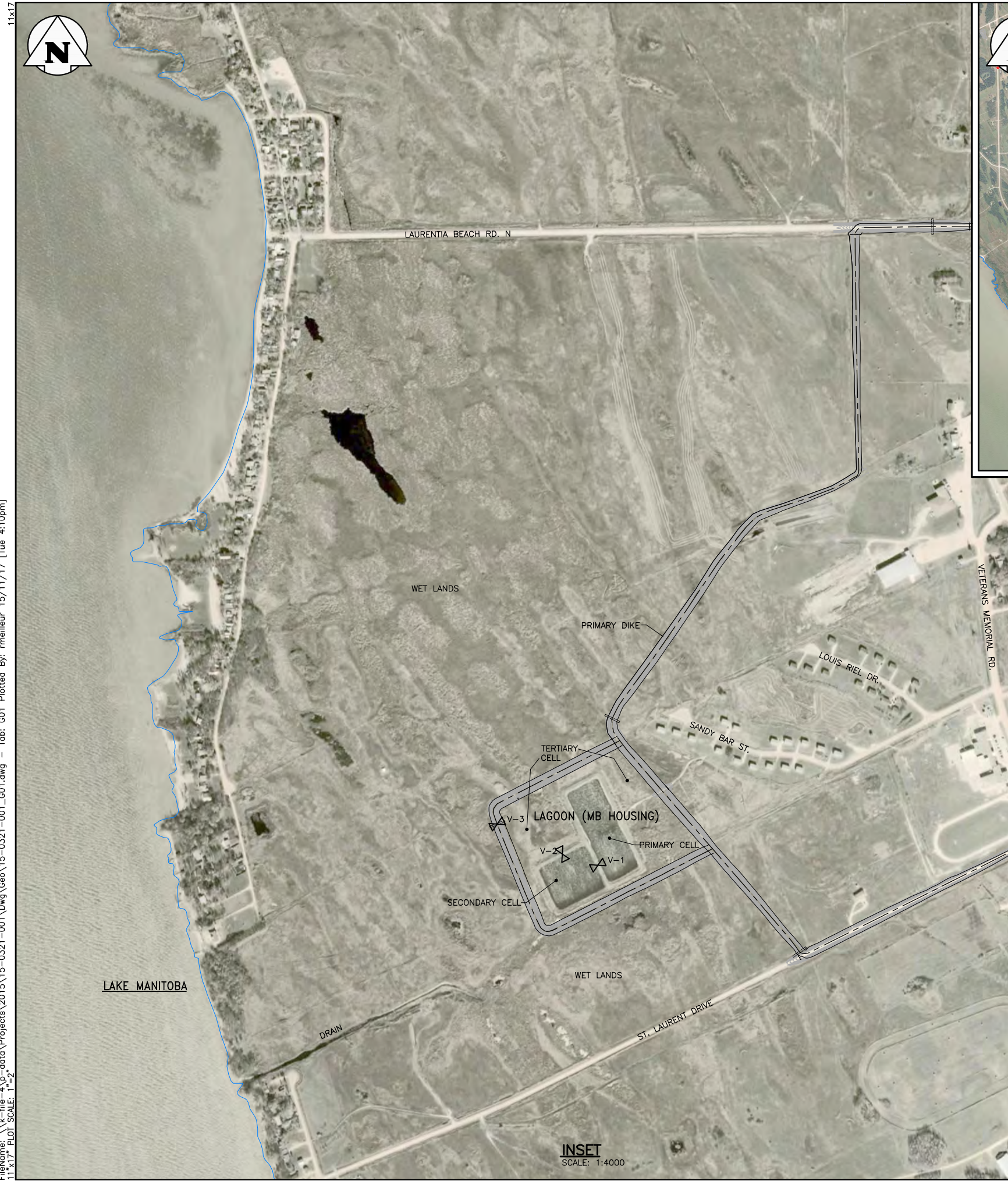


Rob Sinclair, P.Eng.
Manager, Environmental Services

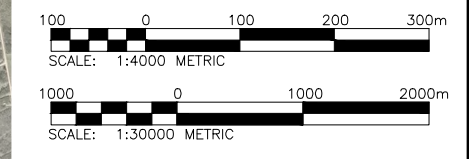
AB/mp

Figure 01

File Name: \\k-file-4\p-data\Projects\2015\15-0321-001\DWG\Geo\15-0321-001_G01.dwg - Tab: G01 Plotted By: rmeilleur 15/11/17 [Tue 4:10pm]
 11x17" PLOT SCALE: 1"=2'



- LEGEND:**
- V-1 REPLACEMENT VALVE
 - V-2 NEW VALVE
 - V-3 NEW VALVE IN PLACE OF CULVERT



A	15/11/07	ISSUED WITH DRAFT REPORT	ASB	RDS
NO.	YY/MM/DD	DESCRIPTION	ISSUED BY	CHECK BY

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LAGOON ASSESSMENT
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SITE PLAN		REV: A
NOVEMBER 2015	FIGURE 01	