

APPROVAL

PROVINCE OF ALBERTA

ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT
R.S.A. 2000, c.E-12, as amended.

APPROVAL NO.: 639-03-00

APPLICATION NO.: 095-639

EFFECTIVE DATE: May 29, 2015

EXPIRY DATE: MAY 1, 2025

APPROVAL HOLDER: CITY OF EDMONTON

ACTIVITY: Construction, operation and reclamation of a wastewater system including a combined sewer system for the City of Edmonton

is subject to the attached terms and conditions.

Designated Director under the Act [Signature]

Date Signed May 29, 2015

## TERMS AND CONDITIONS ATTACHED TO APPROVAL

### PART 1: DEFINITIONS

#### SECTION 1.1: DEFINITIONS

- 1.1.1 All definitions from the Act and the regulations apply except where expressly defined in this approval.
- 1.1.2 In all PARTS of this approval:
- (a) "Act" means the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c.E-12, as amended;
  - (b) "application" means the written submissions to the Director in respect of application number 095-639 and any subsequent applications for amendments of approval number 639-03-00;
  - (c) "arithmetic mean" means the sum of all the sample analysis results divided by the total number of samples per reporting period;
  - (d) "BOD<sub>5</sub>" means the Biochemical Oxygen Demand in milligrams per litre measured at 20°C over a 5 day period;
  - (e) "chemical" means any substance that is added or used as part of the treatment process;
  - (f) "combined sewer overflows (CSO)" means when the capacity of the combined sewer system is exceeded from heavy rainfall or snow melt, the excess is discharged to the environment through the overflow structures.
  - (g) "combined sewer system" means the older sewer system designed to convey both sewage and storm water in one pipe to a wastewater treatment plant, and the combined sewer system will overflow to the environment when the sewage/storm flow exceeds the combined sewer system's capacity during wet weather conditions;
  - (h) "composite sample" means a sample of the stream collected every 30 minutes in a refrigerated bottle sampler and then mixed in a quantity proportional to the flow rate of the stream over the CSO event after CSO event is concluded;
  - (i) "continuous monitoring" means sampling or flow measurement through equipment that creates an uninterrupted output of the analysis or flow measurement;
  - (j) "day" means calendar day;

**TERMS AND CONDITIONS ATTACHED TO APPROVAL**

- (k) "Director" means an employee of the Government of Alberta designated as a Director under the Act;
- (l) "dry weather condition" means a condition where wastewater flow is not impacted by the run off from snow melt or rainfall;
- (m) "*E. Coli*" means *Escherichia coli* bacteria;
- (n) "geometric mean" means the calculated  $n^{\text{th}}$  root of the product of all the sample analyses within the reporting period, where  $n$  equals the total number of samples within the reporting period, as follows;
- Geometric Mean =  $\sqrt[n]{S_1 \times S_2 \times S_3 \times \dots \times S_n}$
- where,  
 $n$  = the total number of samples within the reporting period  
 $S_1$  = the 1<sup>st</sup> sample analysis value  
 $S_n$  = the  $n^{\text{th}}$  sample analysis value
- (o) "grab sample" means an individual sample collected in less than 30 minutes and which is representative of the substance sampled;
- (p) "interconnection" means a location within the drainage system downstream of the lot service connections of wastewater and stormwater where flows may pass between systems;
- (q) "ISO 17025" means the international standard, developed and published by International Organization for Standardization (ISO), specifying management and technical requirements for laboratories;
- (r) "NSR" means North Saskatchewan River;
- (s) "regulations" means the regulations issued pursuant to the Act and as amended;
- (t) "total ammonia-nitrogen" means the total of ionized ammonia-nitrogen ( $\text{NH}_4^+$ -N) and un-ionized ammonia-nitrogen ( $\text{NH}_3$ -N), measured in milligram per litre;
- (u) "total loading" means the annual mass of a substance released to flowing water bodies from all sources under the control of the approval holder;
- (v) "TP" means total phosphorus measured in milligram per litre;
- (w) "TSS" means the total suspended solids or non-filterable residue (NFR) measured in milligrams per litre;
- (x) "VOCs" means volatile organic compounds;

## TERMS AND CONDITIONS ATTACHED TO APPROVAL

- (y) "wastewater collection system" means the sanitary sewage collection system including all sanitary and combined sewers, lift stations, storage facilities, flow monitoring sites, wastewater quality monitoring sites, and combined sewer overflow structures located within the City of Edmonton;
- (z) "wet weather condition" means a condition where wastewater flow is impacted by the run off from snow melt or rainfall;
- (aa) "week" means calendar week;
- (bb) "year" means calendar year.

### **PART 2: GENERAL**

#### **SECTION 2.1: GENERAL**

- 2.1.1 The approval holder shall immediately report by telephone any contravention of the terms and conditions of this approval to the Director at 1-780-422-4505.
- 2.1.2 In addition to reporting pursuant to 2.1.1, the approval holder shall submit, within 7 days from any contravention of the terms and conditions of this approval, a written report to the Director.
- 2.1.3 The terms and conditions of this approval are severable. If any term or condition of this approval or the application of any term or condition is held invalid, the application of such term or condition to other circumstances and the remainder of this approval shall not be affected thereby.
- 2.1.4 *Environmental Protection and Enhancement Act* Approval No. 639-02-00 is cancelled.

#### **SECTION 2.2: RECORD KEEPING**

- 2.2.1 The approval holder shall record and retain all the following information in respect of any sampling conducted or analyses performed for a minimum of three years:
  - (a) the place, date and time of sampling;
  - (b) the dates the analyses were performed;
  - (c) the analytical techniques, methods or procedures used in the analyses;
  - (d) the names of the persons who collected and analyzed each sample; and
  - (e) the results of the analyses.

## TERMS AND CONDITIONS ATTACHED TO APPROVAL

### **SECTION 2.3: ANALYTICAL REQUIREMENTS**

- 2.3.1 Collection, preservation, storage, handling and analysis of samples, and reporting shall be conducted in accordance with the following unless otherwise specified in writing by the Director:
- (a) the *Standard Methods for the Examination of Water and Wastewater* published jointly by the American Public Health Association, American Water Works Association, and the Water Environment Federation, as amended; and/or
  - (b) the *United States Environmental Protection Agency (USEPA) Water and Wastewater Methods* approved by USEPA from time to time in the *Code of Federal Regulations Title 40 Part 136*; and/or
  - (c) the *American Society for Testing and Materials (ASTM) water and wastewater methods* approved by the USEPA from time to time in the *Code of Federal Regulations Title 40 Part 136*.
- 2.3.2 The approval holder shall analyse all samples that are required to be obtained by this approval in a laboratory accredited pursuant to ISO 17025, as amended, and accredited for the specific parameter(s) to be analysed, unless otherwise authorized in writing by the Director.
- 2.3.3 The term sample as used in clause 2.3.2 does not include samples directed to continuous monitoring equipment, until specifically required in writing by the Director.
- 2.3.4 The approval holder shall comply with the terms and conditions of any written authorization issued by the Director under 2.3.2.

### **PART 3: CONSTRUCTION AND UPGRADING REQUIREMENTS**

- 3.1.1 The approval holder shall:
- (a) implement the *Combined Sewer Overflow Control Strategy* as outlined in the *Combined Sewer Discharge Strategy* (June 2013), unless otherwise authorized in writing by the Director; and
  - (b) coordinate with EPCOR Water Services Inc. to maximize treatment during wet weather conditions.

## TERMS AND CONDITIONS ATTACHED TO APPROVAL

### **PART 4: OPERATIONS**

#### **SECTION 4.1: GENERAL**

- 4.1.1 The approval holder shall coordinate with the EPCOR Water Services Inc. and Alberta Capital Region Wastewater Commission to implement *Total Loading Management Plan* as authorized in writing by the Director.
- 4.1.2 The approval holder shall conduct the CSO Effluent Characterization as requested in writing by the Director.
- 4.1.3 The approval holder Conduct the Pollution Minimization Study as requested in writing by the Director.

#### **SECTION 4.2: WASTEWATER SYSTEM**

- 4.2.1 The approval holder shall not release any substances from the wastewater system to the surrounding watershed except as authorized under this approval.
- 4.2.2 The approval holder shall not release any water from the CSO outfalls to the North Saskatchewan River or its tributaries during the dry weather conditions.
- 4.2.3 The approval holder shall operate the Wastewater System which includes all of the following:
  - (a) the wastewater collection system within the City of Edmonton, and delivers the collected wastewater to:
    - (i) Gold Bar Wastewater Treatment Plant located at SW 12-53-24-W4M (10977-50 Street, Edmonton),
    - (ii) Alberta Capital Region Wastewater Treatment Plant located at SW 3-54-23-W4M, and
    - (iii) North Saskatchewan River or its tributaries through the CSO outfalls during wet weather conditions;
  - (b) Clover Bar Biosolids Lagoons located at NE 21-53-23-W4M; and
  - (c) Bremner Lagoons located at E 3-54-23-W4M.

#### **SECTION 4.3: OPERATIONS PLAN**

- 4.3.1 On or before May 1, 2016 the approval holder shall submit a copy of the up-to-date Wastewater System Operations Plan as per this approval to the Director.

**TERMS AND CONDITIONS ATTACHED TO APPROVAL**

- 4.3.2 The approval holder shall update and maintain the *Wastewater System Operations Plan* as per this approval to include all of the following, at a minimum:
- (a) Wastewater Collection Certified Operator Requirements;
  - (b) Wastewater System Monitoring Protocol;
  - (c) Interconnection Identification and Control Strategy;
  - (d) Wastewater System Chemical Usage Protocol;
  - (e) River Water Quality Monitoring Protocol;
  - (f) River Load Calculation Protocol; and
  - (g) Biosolids Management Plan.
- 4.3.2 The approval holder shall submit a summary of the proposed changes to the *Wastewater System Operations Plan* to the Director by May 1 of each year after 2016.
- 4.3.3 If the *Wastewater System Operations Plan*, or any part of it, is found to be deficient by the Director, the approval holder shall correct all deficiencies as outlined by the Director within 120 days of the deficiency letter.
- 4.3.4 The approval holder shall implement the *Wastewater System Operations Plan*.

**SECTION 4.4: CERTIFIED OPERATOR REQUIREMENTS**

- 4.4.1 At all times the operation of the wastewater system shall be performed by, or under the direction of the following number of persons who hold valid certificates of qualification of the following types at the following minimum levels:
- (i) one operator with a Level IV Wastewater Collection (WWC) Certificate, and
  - (ii) two operators each with a Level III or higher WWC Certificate, and
  - (iii) one operator with a Level II or higher WWC Certificate in charge of each shift.

**SECTION 4.5: SLUDGE DISPOSAL**

- 4.5.1 The approval holder shall dispose of sludge as per the *Biosolids Management Plan*, unless otherwise authorized in writing by the Director.

## TERMS AND CONDITIONS ATTACHED TO APPROVAL

- 4.5.2 The approval holder shall provide the Director a minimum of 14 days written notice of the intention to apply sludge to agricultural lands.
- 4.5.3 The approval holder shall apply biosolids to agricultural lands in accordance with the *Guidelines for the Application of Municipal Wastewater Sludges to Agricultural Lands*, Alberta Environment, as amended.

### **SECTION 4.6: CHEMICALS USED**

- 4.6.1 The approval holder shall only use chemicals in the wastewater system as described in the *Wastewater System Chemical Usage Protocol*, or as authorized in writing by the Director.

### **PART 5: MONITORING, REPORTING AND RECORD KEEPING**

- 5.1.1 The approval holder shall monitor the water discharged to the North Saskatchewan River and its tributaries as required in TABLE 5-1.
- 5.1.2 Effective from January 1, 2016, the approval holder shall compile a Monthly Wastewater System Report which includes, at a minimum, the following information:
- (a) the results of the monitoring requirements of TABLE 5-1;
  - (b) the name and the monthly quantity of any chemical added to the wastewater system;
  - (c) the number of CSO events and total volume at each CSO site for the month;
  - (d) the name of the supervising operator responsible for the operation of the wastewater system; and
  - (e) a summary of any operational problems.
- 5.1.3 On or before the end of the month following the month in which the information on which the report is based was collected, the approval holder shall:
- (a) retain a copy of the Monthly Wastewater System Report; and
  - (b) submit one copy of the Monthly Wastewater System Report to the Director when requested in writing by the Director.
- 5.1.4 The approval holder shall compile an Annual Wastewater System Report which shall include the following:



**TERMS AND CONDITIONS ATTACHED TO APPROVAL**

- (a) the monthly arithmetic mean, including maximum and minimum values, of each parameter monitored, excluding coliform counts, as outlined in TABLE 5-1;
- (b) the monthly geometric mean of coliform counts;
- (c) the number of CSO events and total volume at each CSO site for the year;
- (e) the name of the supervising operator responsible for the operation of the wastewater collection system;
- (f) a summary of any incidents which required reporting in accordance with 2.1.1;
- (g) a summary of any operational problems.

**TABLE 5-1: MONITORING – WASTEWATER SYSTEM**

Parameter	Frequency (Minimum)	Sample Type	Sampling Location
CSO OUTFALLS AND UNAUTHORIZED RELEASE			
Release volume	Total Volume during each discharge event	Continuous during discharge event	Rat Creek CSO outfall Hardisty-Capilano CSO outfall Highlands CSO outfall Cromdale CSO outfall Strathearn CSO outfall Unauthorized release point
pH BOD <sub>5</sub> TSS Total Phosphorus Total Ammonia-nitrogen	Each discharge event	Composite	Rat Creek CSO outfall Unauthorized release point
<i>E. Coli</i>	Each discharge event	Grab or composite	Rat Creek CSO outfall Unauthorized release point
The amount of any substance other than wastewater or storm water that is spilled or discharged accidentally or intentionally into the wastewater collection system	Each event	Estimated Volume or Mass	Unauthorized release point
SLUDGE DISPOSAL			
Sludge Volume	Total Volume	Estimated	Amount of sludge being disposed of as per the Biosolids Management Plan

**TERMS AND CONDITIONS ATTACHED TO APPROVAL**

- 5.1.5 The approval holder shall submit one electronic copy of the Annual Wastewater System Report to the Director on or before February 28 of the year following the year in which the information on which the report is based was collected.
- 5.1.6 If the approval holder monitors for any substances or parameters as set out in this approval more frequently than is required and using procedures authorized in this approval, then the approval holder shall provide the results of such monitoring as an addendum to the Annual Wastewater System report required by this approval.
- 5.1.7 The approval holder shall maintain an operating record for the wastewater system, which contain, at a minimum, all of the following information:
  - (a) a copy of this approval;
  - (b) a copy of all monitoring results as required in 5.1.1;
  - (c) a copy of inspection reports prepared by Alberta Environment and Parks;
  - (d) a copy of each monthly report; and
  - (e) a copy of all annual reports.

**PART 6: RECLAMATION AND DECOMMISSIONING**

**SECTION 6.1: GENERAL**

- 6.1.1 Within six months of the wastewater system or a portion of the wastewater system permanently ceasing operation, the approval holder shall:
  - (a) submit a decommissioning and land reclamation plan to the Director, and
  - (b) not commence reclamation or decommissioning until the approval holder has received written authorization from the Director.

DATED May 29, 2015

  
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DESIGNATED DIRECTOR UNDER THE ACT