

**Erosion and Sediment Control Plan  
West Carleton Environmental Centre**

**August 2015**



**Prepared for:  
Waste Management of Canada Corporation  
2301 Carp Road  
Ottawa, Ontario K0A 1L0**



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**Project No. 131-19416-00**

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# 1. Introduction

This report has been prepared in support of the Waste Management of Canada Corporation (WM) Site Plan Control application for a site expansion at the West Carleton Environmental Centre (WCEC). The Site Plan Control approval is required by the City of Ottawa before the proposed site development, in addition to the Environmental Compliance Approval (ECA) by Ontario Ministry of the Environment and Climate Change (MOECC). WM applied for an ECA approval in September 2014 and their application is under review.

Details of the proposed landfill expansion are outlined in the Development and Operations Report dated July 2014, by WSP Canada Inc.

## 1.1 Location

The WCEC is located adjacent to Carp Road and Highway 417, locally known as 2301 Carp Road, at the west end of the urban limit of the City of Ottawa. The landfill site expansion is an extension of the existing Waste Management Facility, owned and operated by WM.

The WCEC is located on Parts of Lots 2, 3 and 4, Concession 2 and parts of Lots 3, 4 and 5, Concession 3, in the former Township of Huntley, formerly in the Township of West Carleton, now the City of Ottawa, near Carp Road and Highway 417. The existing landfill footprint occupies approximately 34 hectares (ha), bordered by the City of Ottawa Road 5 (Carp Road) on the east, Highway 417 on the south, William Mooney Road to the west and private lands south of Richardson Side Road. Those lands between Richardson Side Road and 300 m southerly, between William Mooney Road and Carp Road, are owned by WM, but are not designated as part of the site. The Contaminant Attenuation Zone (CAZ) part of the site consists of two (2) land parcels, one large parcel north of Highway 417 and the second small parcel south of Highway 417. **Figure 1-1** shows these lands and various facilities within the existing and proposed landfill site.

## 2. Purpose

This report was prepared to outline the erosion and sediment control measures to be employed for protection of surface water at the West Carleton Environmental Centre (WCEC) in order to manage and minimize on-site hazards and potential environmental effects. The intent of surface water control is also to protect adjacent properties and watercourses from any drainage related impacts originating from the landfill site.

The stormwater management system is designed to meet objectives and goals outlined in Ontario Regulation 232/98 and other applicable regulations and guidelines.

The objectives include the following:

- Control surface water coming onto site and discharging from the site
- Flooding control
- Surface water quality control
- Surface water quantity control
- Erosion and sediment control

In order to achieve these objectives, the proposed stormwater management system was designed to include several features as follows:

- Stormwater ponds (wet ponds)
- Infiltration basins
- Special treatment system (oil/grit separator-Stormceptor)
- Adequately sized conveyance system

Maintenance activities related to the stormwater management system are presented in Section 6.

### 3. Responsibilities

WM will be responsible for ensuring the requirements of this plan. To accomplish this, employees will be properly trained to be familiar with the plan requirements.

The Site Manager will be responsible for:

- Providing training to staff
- Providing guidance on surface water control measures
- Maintaining this plan

### 4. Training

The Site Manager is responsible to provide training to staff in surface water and erosion control; these individuals will have the responsibility to evaluate drainage system conditions and implement control actions on an on-going basis. The control actions will include upkeep of the stormwater conveyance system including:

- Vegetation cover
- Sediment removal
- Maintenance of stormwater storage facilities
- Grade control
- Other pertinent activities.

The list of individuals identified, as well as the date when they were trained, will be listed in the Surface Water Control Training Log. The list will be updated every 5 years or upon employee turnover.

WM employees will be trained in the procedure determining the precipitation forecast for the site. At a minimum, the Environment Canada Weather Office under the current website of [www.weatheroffice.gc.ca](http://www.weatheroffice.gc.ca) or other similar website will be checked. On-site meteorological station will be also used and compared for this purpose. If a heavy or severe storm event is forecasted, landfilling operations shall be planned accordingly to account for anticipated weather conditions.

WM representatives will also be trained in the recordkeeping and reporting procedures as required. Refer to Section 7 for more details.

## 5. General Information

Good landfilling practices are important in protection of surface water resources and include the following:

- Adequate compaction and covering of the daily disposal cell
- Minimize extent of open, disturbed areas
- Maximize extent of permanent and interim vegetation cover including natural vegetation buffers
- Divert surface water away from active waste disposal areas to the extent possible
- Avoid construction of steep slopes
- Adequate horizontal and vertical grade control

Other general principles/tasks, which are important in management and protection of surface water at the waste disposal site include:

- Prompt and proactive control of leachate seeps
- Good litter control
- Spill prevention/control and fuel handling practices
- Prevent mud tracking
- Regular road sweeping and snowploughing
- Equipment washing at designated location(s)

All the above noted practices are intended to minimize adverse surface water impacts and may be complemented by other general practices as follows:

- Preservation of natural habitat features as much as possible
- Construction design, review, inspection and enforcement
- Education and training of WM staff and contractors working on site

## 6. Inspection and Maintenance Activities

The site superintendent and properly trained WM staff will be responsible for all these activities. All maintenance activities will be recorded.

## 6.1 Stormwater Control Facilities

Inspection and maintenance activities of select stormwater system components are presented in the following table.

**Table 6.1 – Inspection and Maintenance Activities**

Factor	Inspection	Maintenance/Action
<b>Stormwater Ponds</b>		
Locations	Pond 1 and 2	
Frequency	Monthly or after every severe storm (>25 mm) or after any on-site spills or upsets unless frozen or covered with snow	
<b>Items to Observe &amp; Record</b>		
Erosion of banks, liner exposure	Record location	Repair as required
Rip-rap, drainage gravel	Record repair required and location	Repair as required
Stains, sheens	Determine source (inspect weekly)	Close effluent valve and investigate
Floating foam or scum	Determine source (inspect weekly)	Close effluent valve and investigate
Sediment depth in forebay - 200 to 300 mm deep	Inspect annually	Clean forebay. Repair, replace any displaced gravel/rip rap
Sediment depth in main pond area >200 mm	Inspect annually	Clean out main pond area. Repair, replace any displaced gravel/rip rap
<b>Infiltration Basins</b>		
Locations	Infiltration Basin 1 and 2	
Frequency	Monthly or after severe storm (>25 mm) unless frozen and covered with snow	
<b>Items to observe &amp; record</b>		
Water level	Record weekly	Use data for scheduling of base rejuvenation activities and monitoring of basin performance
Erosion of banks and inflow points	Record location	Repair as required
Unwanted vegetation growth/debris, etc.	Record location	Remove as required
Sediment accumulation and clogging	Record location	Clean as required. Rake or till the base. Replace surficial 50-100 mm layer of permeable soil
<b>Oil/Grit Separator (Stormceptor)</b>		
Location	Mini Transfer Area	
Frequency	Semi-annually and after each spill event or as required based on measurement results	
<b>Items to observe &amp; record</b>		
Sediment and oil depth measurement	Record monthly	Use data for scheduling of cleaning
Sediment and oil removal	As required	Use vacuum truck for sediment and oil removal
<b>Ditches/Culverts/Storm Sewers</b>		
Locations	All. Where required	
Frequency	Monthly or after severe storm	
<b>Items to observe &amp; record</b>		
Erosion (rills, gullies, washouts, etc.)	Record where	Repair as required
Pipe physical damage/blockage	Record where	Repair/replace as required
Increased vegetation required	Record where	Repair as required in spring/fall
Rip-rap damage	Record where	Repair as required
Stains or leachate seep	Record where	Investigate source & repair
Floating foam	Record where	Investigate source & repair
Sheen or water stain	Record where	Investigate source and repair
Overtopping/flood out	Record where	Clean culverts downstream or other appropriate action
Sediment deposit excessive	Record where	Clean out. Reinstate vegetation.
Grass/vegetation height		Cut as required

All stormwater control facilities will be accessible to maintenance vehicles.

Maintenance of the drainage system will be customized and tailored for inclement and/or winter weather conditions to ensure that the system is operational at all times and there are no blockages. This is

particularly important early in the spring when ditches, inlets and outlets may be blocked with snow or ice at priority locations. Snow and ice cleanup/removal practices will be developed over time.

## 6.2 Erosion and Sediment Control Measures

Erosion and sediment resulting from land disturbance may degrade surface water quality. Effective erosion control practices can reduce soil loss and minimize maintenance requirements of the stormwater system facilities. WCEC landfill design/development minimizes the extent of disturbed areas and duration of bare soil exposure. Mitigation measures will be used for erosion and sediment control to prevent sediment from entering adjacent water bodies and leaving the site. The primary principles associated with erosion and sediment control are as follows:

- Minimize soil mobilization and duration of bare soil exposure by stabilizing and protecting disturbed areas
- Keep runoff velocities low
- Protect disturbed areas from runoff
- Trap sediment as close to the source as possible
- Implement a maintenance and follow-up program

Various erosion/sediment control measures associated with the above noted principles will be utilized as follows:

**Table 6.2 – Erosion and Sediment Control Measures**

Design and Construction Management	<ul style="list-style-type: none"> <li>• Preserve natural vegetation</li> <li>• Establish or keep vegetated buffer zones</li> <li>• Dust control</li> </ul>
Ground Surface Stabilization	<ul style="list-style-type: none"> <li>• Temporary or permanent seeding</li> <li>• Mulching and matting</li> <li>• Rip-rap on geotextile or other ground reinforcement</li> <li>• Stabilization of roadways &amp; maintenance</li> <li>• Inlet/outlet protection</li> </ul>
Flow Diversion	<ul style="list-style-type: none"> <li>• Diversion channels</li> <li>• Runoff diversion berms</li> <li>• Subsurface drains</li> </ul>
Sediment Trapping	<ul style="list-style-type: none"> <li>• Silt fences</li> <li>• Straw bales</li> <li>• Check dams</li> <li>• Temporary sediment traps</li> <li>• Stormwater/sediment ponds</li> </ul>



Erosion and sediment control measures for ground stabilization and sediment trapping will be positioned to be close to the source of soil erosion so they are most effective in sediment capture/control. All the above noted controls must be inspected and maintained regularly to ensure effectiveness.

Selection of erosion/sediment control measures is influenced by the land topography. The primary topographic considerations are slope steepness and slope length. Slope gradients can be grouped into three (3) general ranges of soil erodibility:

- 0 -7% - low erosion hazard
- 7 – 15% - moderate erosion hazard
- Over 15% - high erosion hazard

Within these slope gradient ranges, the greater the slope length, the greater erosion potential. The erosion hazard will become significant if slope lengths exceed the following values:

- 0 -7% - 100 m
- 7 – 15% - 50 m
- Over 15% - 25 m

These distances may be shorter in areas of highly erodible soils.

It is recommended that concentrated flow over cut or fill slopes be prevented as much as possible unless adequate surface reinforcement/lining is provided. In order to reduce flow velocity and dissipate water energy, rock check dams and rip-rap aprons will be used at critical locations.

Native on site soils belong to soil group A (sand, loamy sand or sandy loam) and B (loam or silt loam) and are considered erodible. Soil to be used for waste covering may be imported and may vary in texture and erodibility. Final cap is specified as clayey silt, which is cohesive, relatively tight soil of moderate to low erodibility. Rough surface finish with horizontal depressions is preferred to smooth surface because it provides instant erosion protection.

Final selection and exact location of ground stabilization and sediment trapping devices will be completed under final design and during construction.

Various mulches may be used such as hay, straw, wood fibre, wood chips and hydroseeding hydraulic mulches. Erosion blankets (mats or nets) may be used over critical steep slopes where erosion protection is critical. Erosion blankets must be properly anchored and applied in good contact with the underlying soil. Mats can be used to assist in protection while awaiting vegetation growth.

## 7. Record Keeping/Complaints

Throughout this document, there is reference to a surface water control log that will be maintained on site. This log will include notation of the items listed previously as well as any other notes relevant to stormwater management at the site. The log will be kept in a three-ringed binder that will contain portioned sections for training, inspection, dispatch of site crews for clean-up/repair, general notes and complaints. Notes may be prepared/maintained in the field and inserted to the binder on a monthly basis. The log will contain all training, inspection, dispatch and complaint records for at least one (1) year or until included in annual monitoring report.

From time to time, there may be complaints regarding stormwater management system and surface water conditions on or off site. The following information will be recorded about each complaint:

- Name of complainant
- Time of complaint
- Time that the incident occurred
- Nature of complaint
- Operational details at the time of the complaint
- Weather conditions at the time of the complaint
- Details of investigation

All complaints will be included in the surface water control log. On an annual basis, the log will be reviewed and any unfavourable trends will be further examined to identify corrective actions. A summary of the complaints received and the corrective actions will be presented in the site annual report.

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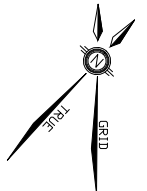
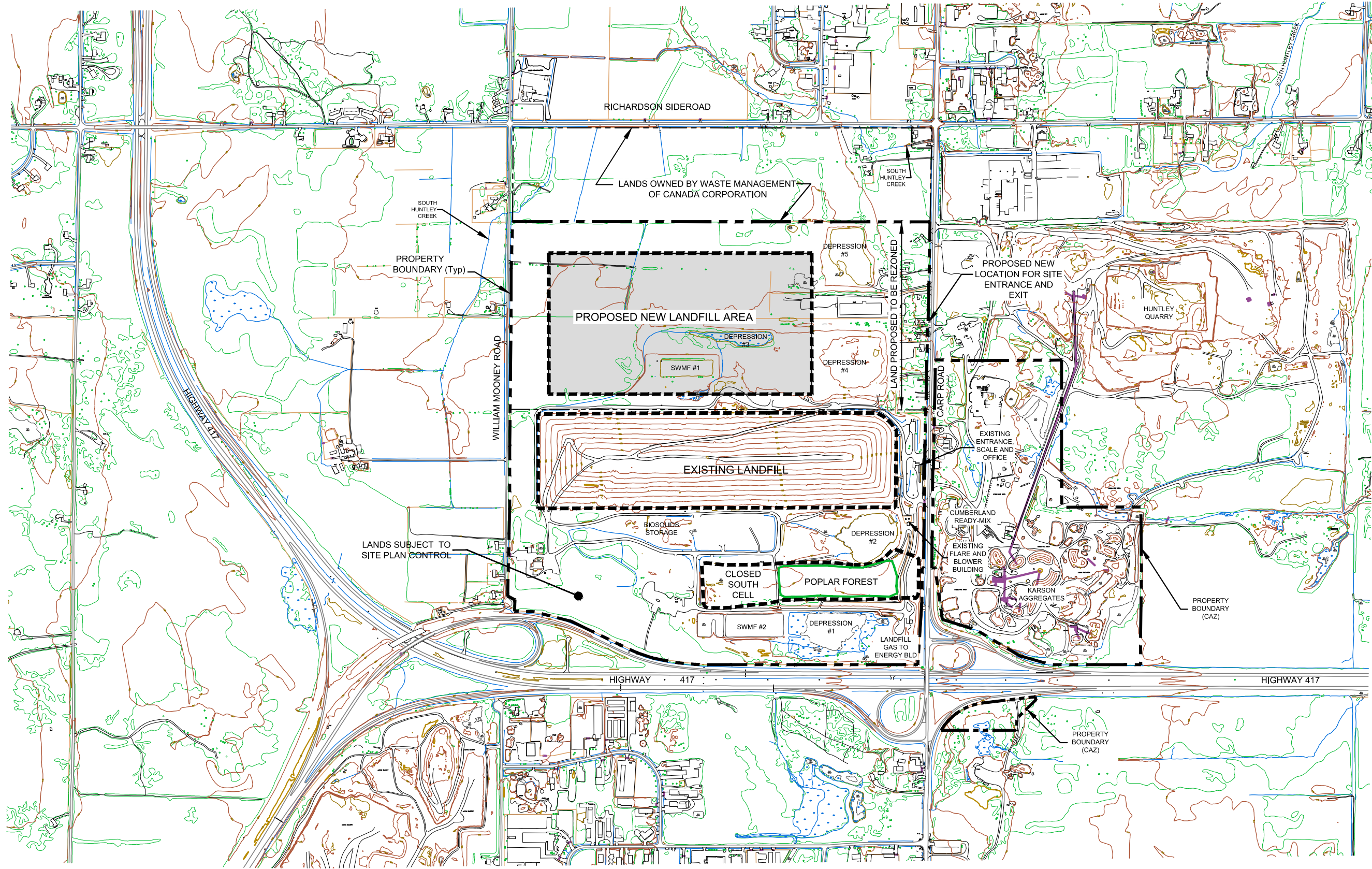
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## Figures

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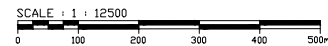
G:\2013\05\13-401 - Environmental\131-19416-00 - Ottawa Landfill Expansion\DRAWINGS FOR SITE PLAN APPROVAL APPLICATION\JULY 2015 RE\131-19416-00 FIG 1-1.dwg Jul 29, 2015 - 2:46pm

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**NOTE :**

1. TOPOGRAPHIC FEATURES SHOWN ON THIS PLAN ARE BASED ON AERIAL PHOTOGRAPHY BY BASE MAPPING LIMITED FROM JULY 2007



SITE PLAN  
SURROUNDING AREA  
WEST CARLETON  
ENVIRONMENTAL CENTRE

T C G  
DWN BY: F C F  
DATE: JULY 2014  
SCALE: SEE BAR SCALE  
WASTE MANAGEMENT OF CANADA CORP.  
DRAWING NO. 131-19416-00 - 1-1

FIGURE  
1-1