Exhibition Place

Construction Waste Management Plan (CWMP)

Index:

1. Introduction

This document describes the Construction Waste Management Plan (CWMP) for Exhibition Place in Toronto, Ontario.

The purpose of the CWMP is to establish a systematic approach that will achieve the following waste management objectives during the course of construction:

1. **Reduce** the generation of solid waste through careful planning, proper material handling, and efficient construction practices.
2. **Reuse** waste materials on-site or salvage waste materials for use in other construction projects.
3. **Recycle** waste materials back into manufacturing processes.

Consistent with this strategy, the following policy statement has been developed:

Waste Management Policy Statement

The construction activities associated with this stage of the project shall generate the least amount of waste possible. Of the inevitable waste that is generated, a minimum of 75% (by mass or volume) shall be diverted from landfill by using, salvaging or recycling waste materials. A comprehensive waste management plan shall be followed to analyze, implement, document and evaluate the measures used to achieve this goal.

Related objectives of the Waste Management Plan include:

1. Determining types and quantities of waste materials generated by the project.
2. Identifying new opportunities to reduce, reuse, and recycle waste materials.
3. Improving methods of measuring progress in achieving waste management goals.
4. Complying with the applicable Ontario Ministry of the Environment (MOE) regulations (O.Reg. 102/94 and O.Reg. 103/94).

2. Program Overview

The CWMP is a systematic approach used to achieve the waste management objectives discussed above. This approach includes:

- Maximizing the amount of waste reused, salvaged and/or recycled
- Establishing procedures to separate waste that can be diverted from waste that cannot; and
- Documenting the movement of waste from the construction site to salvage/recycling facilities and the landfill.

In short, these steps involve three main components:

1. Schedule W1 Propose Receiving Facilities
2. Schedule W2 Waste Tracking Worksheet
3. Distribution of Waybills and/or letters from receiving facilities.

These components, as well as other procedures necessary to ensure successful waste management, are discussed in the sections that follow. This plan has been developed prior to construction to serve as a guide for the General Contractor.

Note: All construction activities shall also adhere to the requirements of Ontario Regulations 102/94 and 103/94.

a. LEED© Project Coordinator (LPC)

The General Contractor is responsible for appointing an individual from their staff as the LEED© Project Coordinator (LPC). This individual is responsible for all aspects of LEED© related activities including construction waste management. Construction Waste Management includes the collection and distribution of LEED© schedules "W1 Receiving Facilities Schedule", "W2 Waste Tracking Worksheet", and any supporting waybills or letters documenting quantities of waste removed from the site to the Consultant. The LPC is expected to be onsite regularly during construction in order to supervise LEED© aspects of the project on a regular basis.

In addition, each sub trade shall also appoint an individual responsible for waste management activities related to their trade. These individuals shall coordinate their activities with the LPC.

b. Proposed Receiving Facilities – Schedule W1

The W1 Schedule is used to document the final resting place of waste removed from site and ensure maximum diversion rates from landfill. It also assists contractors in maximizing recycling of materials and minimizing tipping fees associated with the disposal of various material. The W1 schedule shall be distributed to the Consultant prior to mobilization on

site to ensure that the maximum amount of materials removed from the site are re-used or recycled rather than sent to landfill.

c. Waste Tracking Worksheet – Schedule W2

The Waste Tracking Worksheet (WTW) is used to record each waste shipment. These reports contain the material categories shown on the most recent W1 Schedules provided by the sub trades. The W2 schedule summarizes the amounts of waste generated, salvaged, recycled, or sent to the landfill. In addition, these reports keep track of the facilities accepting the waste and the tipping fees or credits associated with the shipments. The WTW shall be updated regularly (14 day maximum revision delay) and submitted quarterly in order to keep track of the success of the waste management program. After project completion, the WTW will be used to measure the overall success of the CWMP.

Note: Separate Blue, Green and Black Box containers shall also be provided for the collection of mixed waste generated by the site workers. The waste deposited into these bins would include:

- Aluminum food or beverage cans
- Glass bottles and jars for food or beverages
- PET bottles for food or beverages
- Steel food or beverage cans
- Cardboard and paper products
- Food waste
- Non-Recycled waste

Signs shall be provided on each container indicating which materials are accepted.

d. Final Package

The final package is a compilation of the final W1 and W2 schedules (including waybills, invoices, and other accompanying documentation). This will be used by the Consultant for LEED© Canada documentation. The final package shall be submitted to the Consultant after substantial project completion and prior to General Contractor demobilization.

3. Waste Diversion Opportunities

The key to a successful Construction Waste Management Plan is the development of a strong Waste Diversion Workplan based on the 3R strategy. In addition to reducing environmental impact, the 3R strategy often provides opportunities for financial benefit. Reusing materials onsite will decrease construction costs by reducing the amount of new materials purchased. Salvaging materials for use on other sites can often generate new revenues. Further, diverting waste from landfills can reduce the costs associated with transportation and tipping fees.

a. Reduce

Reducing the amount of waste that is generated is usually given the highest priority. There are several areas for reduction available to the general contractor that can be used to make the most of this opportunity.

b. Packaging

The first, and perhaps the most effective, area for waste reduction is packaging. Contractors (including subcontractors) may consider a "take back policy" clause in purchase contracts requesting that product packaging be eliminated or at the very least returned to the supplier. Similarly, products can be purchased in bulk to eliminate the increased waste associated with individual packaging. This approach may also reduce the overall material cost.

c. Damaged Goods

Waste generated from damaged goods is the second area for waste reduction. Immediately upon receipt from suppliers, contactors shall inspect material shipments. All damaged goods discovered shall be immediately returned to the supplier. This will encourage suppliers to handle materials with greater care, resulting in reduced waste from damaged materials.

d. Onsite Storage

Onsite material storage is of similar importance. Storing materials on a level surface elevated above the ground and protected from the elements and daily traffic can go a long way in reducing the amount of materials that are damaged onsite. From a contractor's point of view, these approaches will also reduce additional costs spent on replacing damaged materials.

e. Supplier Selection

Another option for waste reduction is to give preference to suppliers that offer return credits for unused materials. Using prefabricated elements will also reduce the amount of waste generated onsite. Areas where this can be applied include millwork, cabinetry, and others. In addition, opportunities to incorporate existing building components into the new design may arise. The LPC shall be receptive to these situations to ensure that the amount of waste generated is kept at a minimum.

f. Reuse/Salvage

Reuse and salvage practices re-introduce materials, normally sent to the landfill, back into construction either on-site or in other construction projects. The reuse and salvage of materials on a new construction site should be, and to some degree is, common practice. Some examples include:

- Bridging, blocking and forming stacks that are often made from off-cuts
- Formwork used on one project can be cleaned, dismantled, and used on another

- Excess exterior insulation can be used in interior walls as soundproofing

These are just a few examples of reuse and savage used typically in construction. The LPC shall view reuse and salvage as a means of saving money and as such shall fully explore their potential.

g. <u>Recycle</u>

When waste diversion is not possible through reuse or salvage, the general contractor shall explore recycling opportunities. A wide range of waste materials generated during the course of construction have the potential to be recycled. In Ontario, markets exist for steel, aluminum, corrugated cardboard, carpets, wood, concrete, asphalt, drywall, ceiling tiles, etc. The costs associated with recycling will vary with location and material but will often result in reduced disposal costs. Steel and aluminum may generate revenues, carpet and ceiling tiles may have no associated costs, and others such as gypsum may simply result in reduced tipping fees.

Recycling has a large potential to minimize the overall amount of waste sent to the landfill. As such, recycling shall be maximized by the General contractor in order to successfully meet the project waste management objectives, and specifically, the diversion of 75% of waste from landfills. The Waste Diversion Worksheet should be used to identify materials with recycling potential. The General Contractor shall review these materials and explore options for each.

4. Conclusion

With proper planning, coordination and implementation, a minimum of 75% of the waste materials generated during construction activities can be diverted from the landfill. This goal can be attained with minimum increase in the overall cost of the project.

Schedule W1 – Proposed Receiving Facility
(Submit to the Consultant within 14 days after site mobilization)

Project Name:		**Completed by:**	
Project Location:		**Company:**	
Project No.			

At a minimum, the proposed facilities must recycle/reuse the waste materials identified in paragraph 2b.

Material Type	**Proposed Receiving Facility**		
	Name	**Material End Use**	**Phone Number**
		o Recycled/Reused o Sent to Landfill	
		o Recycled/Reused o Sent to Landfill	
		o Recycled/Reused o Sent to Landfill	
		o Recycled/Reused o Sent to Landfill	
		o Recycled/Reused o Sent to Landfill	
		o Recycled/Reused o Sent to Landfill	
		o Recycled/Reused o Sent to Landfill	
		o Recycled/Reused o Sent to Landfill	
		o Recycled/Reused o Sent to Landfill	
		o Recycled/Reused o Sent to Landfill	

_____ _____ _____

Signature of Authorized Official **Position** **Date**

_____

Name of LEED© Project Coordinator

Schedule W2 – Waste Tracking Worksheet
(Submit most recent copy to the Consultant on a monthly basis)

Project Name:		**Completed by:**	
Project Location:		**Company:**	
Project No.			

Material Type Legend		
Land Clearing Debris Steel and Other Metals Cardboard Mixed Waste	Asphalt Wood Plastic Other (specify)	Concrete/Masonry/Stone Gymsum "Blue Box" Waste

#	Material Type	Amount of Material (metric tonnes)		Receiving Facility Name	Waybill Number
		Reused or Recycled	Landfill		

I hereby certify that the information provided is complete and correct:

_____	_____	_____
Signature of Authorized Official	**Position**	**Date**

_____

Name of LEED© Project Coordinator

5. Direct Energy Centre Solid Waste Management Policy

a. Introduction

Due to the variety of activities at Direct Energy Centre, a wide variety of waste products are produced and collected, ranging from general wastes and recyclable materials, through to special and hazardous wastes.

This policy sets down the framework for all waste management at Direct Energy Centre.

b. Objectives

Direct Energy Centre has established that all events, tenants and staff shall generate the least amount of waste possible and at least 90% of the waste shall be diverted from landfills or incinerations through re-use or recycling.

Direct Energy Centre will also identify any waste materials that cannot be recycled or reused and must be disposed of via landfill. At a minimum the following products must be recycled:

- Paper (newspaper, cardboard, magazines, office paper, etc)
- Hazardous Waste (fluorescent lights and ballasts, paints, inks, batteries, waste oils, solvents, etc)
- Electronic Devices (monitors, cell phones, phones, computers, electronic items, etc)
- Glass (beverage bottles, windows, etc)
- Metal (scrap metal, beverage cans, appliances, etc)
- Organic Material (food, compostable tableware, yard trimmings, etc)
- Plastic (beverage bottles, bags, trays, plastic wrap, etc)
- Wood (skids, crates, etc)
- Grease (cooking oils, etc)
- Construction and Demolition Waste (asphalt, brick, concrete, dirt, etc)
- Special Materials (tires, manure, Styrofoam, etc)

c. Application

This policy applies to all activities undertaken at Direct Energy Centre including staff, contractors, vendors, tenants and event management, in order to:

- Ensure that waste management is performed in accordance with the Ontario Waste Diversion Act
- Minimize waste generation and promote reuse and recycling over disposal
- Promote waste management
- Provide appropriate training for staff
- Ensure the safe handling and storage of wastes

- Promote environmental awareness in order to increase and encourage waste minimization, reuse and recycling
- Provide clearly defined roles and responsibilities to identify and coordinate each activity within the waste management chain
- Appoint competent person(s) to the Green Team to provide waste management advice

d. Management

The responsibility for waste management lies with a variety of personnel within Direct Energy Centre from the CEO, to the cleaning staff to oversee the day to day delivery of general waste and recycling services.

Facility Services is responsible of disposing of waste through the appropriate waste stream and tracking of all receipts items and their tonnage information. Facility services shall:

- Keep records on how much waste and recycling is generated
- Ensure that a registered carriers collects waste and recycling
- Ensure that all waste and recycling is dealt with in accordance to the Ontario Waste Diversion Act
- Oversee waste and recycling is removed from Direct Energy Centre

We have made considerable adjustments with Cerise Fine Catering, our catering partner, to help implement a compostable program at Direct Energy Centre during events and meetings. This goal involves focusing ahead to implement compostable cutlery & food container compostable products and PLA alternatives in to replace non-recyclable food containers.

Implementing a compost program with Cerise helped in the success of the compostable program at Direct Energy Centre. In 2010 our composting program proved to be successful by increasing our waste diversion percentage by more than five times the amount achieved in 2009.

e. Best Practice

Direct Energy Centre's list of the different ways we deal with waste in order of preference:

1. ***Reduce***
   To reduce the amount of waste materials being produced (known as waste minimization).
2. ***Re-use***
   To continually re-use an item in order to eliminate the use of resources in making new items.
3. ***Recovery***

- ***Recycling*** **–** The collection and reprocessing of wastes either into the same product of a different one.
- ***Composting*** – biological decomposition of organic material to create a soil conditioner.

4. ***Disposal***
   Waste is sent, untreated, to landfill.

If you have feedback or general comments, require further information/clarification, or would like tips on Waste Management, the following individual can be contacted regarding our Waste Management Policy program:

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