

## **SCHEDULE “E” ENVIRONMENTAL PROGRAMME**

### **Brun-Way Highways Operations Inc.**

#### **1.0 Environmental Management and Reporting**

- 1.1 Prior to onset of work, the Contractor shall ensure that all of the personnel working on the Facility have reviewed the Brun-Way Highways Operations Inc. Environmental Sensitivity Presentation. The Contractor shall ensure that each employee who has viewed the presentation signs the associated Course Sign-Up sheets.
- 1.2 The Contractor must complete all works in compliance with environmental laws regulations, permits, and best management practices including, but not limited to:
  - i) Brun-Way’s Watercourse and Wetland Alteration Permit;
  - ii) The attached Standard Operating Procedures (SOP); and
  - iii) The New Brunswick Department of Transportation and Infrastructure Environmental Management Manual
- 1.3 The Contractor shall provide Brun-Way with details of the Contractor’s environmental management systems as it relates to the Services.
- 1.4 The Contractor shall provide to Brun-Way written environmental reports relating to environmental incidents discovered by the Contractor or communicated to the Contractor, with respect to the Services.
- 1.5 The Contractor shall ensure that effective emergency procedures are implemented in connection with spills and leakage containment and all other events having an adverse environmental impact or presenting a health or safety hazard. The Contractor shall also ensure that all operating records and reports including environmental monitoring and reporting records relating to the provision of the Services are maintained in accordance with the Laws.
- 1.6 The Contractor shall immediately notify Brun-Way in writing of any communication, written or otherwise, from or to any environmental authorities in connection with the Services. All incident reporting or other communication with environmental authorities relating to the Services shall be accomplished in full consultation with Brun-Way. The Contractor shall follow any Brun-Way or Client directions or procedures in respect of any communication, inspections or investigations where the environmental incident has occurred on Client properties.

#### **2.0 Environmental Compliance**

- 2.1 The Contractor shall ensure that the Services are provided in compliance with all Laws relating to environmental protection, in connection with the provision of the Services, more particularly but without limiting the generality of the foregoing:
  - i) any operations taking place within the 30 metre buffer zone of watercourses and wetlands;
  - ii) any operations taking place within the designated Wellfield or Watershed Protection Zones,
  - iii) the use, storage or disposal of hazardous substances or materials and transportation thereof;
  - iv) gaseous or liquid discharges or emissions, including from any underground storage facilities;
  - v) waste management and transportation of waste; and

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- vi) incident reporting. (The Contractor shall report any incident to the Brun-Way designee immediately.)

**3.0 Indemnification**

- 3.1** The Contractor releases and indemnifies Brun-Way from and against any claims, actions and demands arising out of non-compliance by the Contractor or the Contractor's Personnel with the Laws ("Claims"), including but not limited to Claims from any contaminants, hazardous or toxic materials and wastes arising, due, or contributed to, by the failure of the Contractor to perform its obligations under this Agreement. The Contractor shall not be responsible for the costs of cleaning up or remedying an environmental situation, which has not resulted from the non-compliance of the Contractor or the Contractor's Personnel.

# Environmental Considerations SOP

## Revision History

Revision	Date	Description	Prepared By	Approved By
0	January 1 <sup>st</sup> , 2018	Original Issue	GHSE	T. Van Wieren
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## 1.0 Purpose

The purpose of this standard is to present mitigation measures to be implemented on controlled sites where activities involving earthworks, flora, fauna, social interaction, archeological finds, lighting, radioactive devices and laydown areas are conducted.

## 2.0 Scope

This standard applies to all employees and contractors at SNC-Lavalin controlled sites and activities.

Typical environmental impacts associated with the topics presented in this standard are:

- › Nuisance.
- › Soil contamination.
- › Water contamination.
- › Flora and fauna destruction.
- › Loss of cultural heritage.

## 3.0 Responsibilities

- › The SVP, GHSE is responsible for the content, administration and maintenance of this standard. It shall be subject to the annual review process.
- › It is the responsibility of the Sector HSE VP to ensure that this standard is implemented fully within their respective Business Units.
- › The SNC-Lavalin Office / Facility General Manager is responsible for implementation and compliance with this procedure.
- › The Project Manager / Site Construction Manager is responsible for ensuring implementation and compliance with this procedure.

## 4.0 References

6801 Global Health, Safety and Environment Management System

6845.2.12.1 Ground Disturbance SOP

## 5.0 Earthworks

### 5.1 Excavations

All activities involving soil stripping, clearing, and excavation shall be limited to current work areas to avoid unnecessary soil surface exposure.

Whenever possible, the topsoil (anticipate at least 30 cm, 1') should be set aside and preserved during excavation work so that it can be reused for resurfacing the soil surface at the end of the project.

## 5.2 Contaminated Soil

In cases where previous soil characterization studies exist and available for review, these studies shall be consulted prior to any soil excavation. The content and the results of the soil characterization studies shall be taken into account for soil management, especially if there are specific areas where contaminated soil or fill material were identified.

Regular visual inspection shall be performed on the site in order to identify any abnormal odors or stains on the soil surface and excavation walls. When contamination signs are identified, work shall be stopped immediately so that contaminated soils are properly managed.

All contaminated soils shall be stored in covered containers or stockpiled on an impervious surface and covered with plastic sheeting anchored in place to avoid any further contamination of soil and water of the storage area and the vicinities.

Contaminated soil stockpiles shall be:

- › Clearly marked with signs.
- › Subjected to an in-situ treatment or be disposed of at an authorized site.
- › Be stored in covered containers or stockpiled on an impervious surface and covered with plastic sheeting anchored in place to avoid any further contamination of soil and water of the storage area and the vicinities.

Once contaminated soil has been transported and disposed of off-site, documents shall be kept to confirm that these materials were disposed of in an authorized site.

A log identifying the information related to contaminated soil management such as origin, volume, storage area, contamination level, final disposal, dates, etc. are kept up-to-date.

## 6.0 Flora and Fauna

Flora and fauna shall be managed according to the applicable legislation and any other site specific requirements. Dealing with legally protected species can have major effects on the programming of works as well as significant financial implications.

Authorized disturbance of the natural environment shall be kept to a minimum and efforts shall be made to avoid permanent damage. The boundary of the site shall be clearly defined prior to the project start in order to avoid damage to the vegetation adjacent to the site.

Should specific requirements related to the protection of flora and fauna have been identified, these shall be communicated to site personnel and mitigation measures shall be implemented on the site. Awareness programs related to flora and fauna protection shall be provided to all employees.

Breeding areas for birds or other wild animals must be identified, delimited and mitigation measures must be taken to limit negative impacts to the environment.

It shall be prohibited to:

- › Hunt, fish, trap or engage in the trade of wild animals on the site, in campgrounds and in neighboring areas, unless such activities are specifically authorized.

- › Cut plant life (trees), harvest or engage in the trade in exotic or medicinal plants on the site, in the campgrounds or in neighboring areas, unless such activities are specifically authorized.

Where possible, steel piles shall be capped to prevent the entry of wildlife.

Only non-invasive species shall be used and all vehicles, watercraft and equipment shall be free of soil and debris capable of transporting noxious weed seeds or roots onto the site.

When possible, pesticides shall be avoided. For cases where pesticides cannot be avoided, low toxicity, persistence and bioavailability pesticides shall be used.

## 7.0 Social Interaction

According to the project context, all groups, communities and neighborhoods that might be impacted by the site activities should have been identified by SNC-Lavalin or by the client prior to commencement of work.

Specific social program requirements may have been identified for the project. If this is the case, information pertaining to these requirements shall be communicated to relevant project personnel, and the social programs shall be implemented by the site management team or by the client. In all cases there should be clarity as to whether this is an SNC-Lavalin responsibility, a client responsibility or the responsibility of another project partner. The project team shall determine if a communication plan with the local population is required and develop such a plan if need be. The decision on this matter shall be documented.

In all cases, mitigation measures shall be implemented on site in order to protect the public and third party properties neighboring the site or located in the vicinity of the site area.

It is recommended to use local businesses, as much as possible, for purchasing goods and for providing services as long as such businesses provide the desired degrees of quality and reliability on a competitive basis, in compliance with financial and contractual terms.

A process shall be implemented by the site management team to address all inquiries and complaints formulated by local population in regard to the site activities.

## 8.0 Archeological Finds

According to the project context, an archaeological protection program may have been identified for the site. If this is the case, the requirements of the archaeological protection program shall be communicated to all employees and the protection measures identified in the program must be implemented on the site.

When an unexpected archeological discovery such as traces of human occupancy of the land (ancient foundations, etc.) or of any artifacts (ancient vessels, etc.) is found during excavation, the excavation work shall stop and the site management team must be notified immediately. The archaeological discovery shall be documented (nature of findings, location, date, time, name of the person who made the discovery, pictures and actions) and managed according to local legislation.

## 9.0 Lighting Management

Lighting shall be managed according to the applicable legislation and any other site specific requirements.

When working in sensitive areas, lighting shall be controlled using a combination of the following control measures when considered safe for the workers:

- › Direct lighting to illuminate only the required area;
- › Use directional light devices;
- › Use dimmers to control light intensity;
- › Use high barriers;
- › Turn off the lights when there is no work in progress.

## 10.0 Radioactive Devices

All equipment containing radioactive sources shall be managed according to the applicable legislation and any other site specific requirements.

All applicable permits and approvals shall be obtained from official authorities for the use of any equipment containing radioactive sources.

All work areas where X-ray activities are carried out shall be well defined, properly identified and shall have a restricted access for workers.

Storage areas used for equipment containing radioactive sources shall be appropriate and adequately identified by appropriate warning signs.

All workers using equipment containing radioactive sources shall be adequately trained and shall possess a valid certificate.

## 11.0 Laydown Areas

When work activities are completed, the Site shall, at a minimum, be cleared of equipment, unused materials, waste, oil or grease staining so as to present a satisfactory clean and neat appearance.

## 12.0 Training

- › Best management practices shall be presented as part of the induction given to all workers.
- › If necessary, specific training can be provided depending on the task to be performed.



# Water Management SOP

## Revision History

Revision	Date	Description	Prepared By	Approved By
0	January 1 <sup>st</sup> , 2018	Original Issue	GHSE	T. Van Wieren
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## 1.0 Purpose

To promote water conservation and to prevent water contamination through best management practices.

## 2.0 Scope

This standard applies to all employees and contractors at SNC-Lavalin controlled sites and activities. Typical environmental impacts associated with water management are:

- › Natural resource depletion.
- › Water contamination.

## 3.0 Responsibilities

- › The SVP GHSE is responsible for the content, administration and maintenance of this program. It shall be subject to the annual review process.
- › It is the responsibility of the Sector HSE VP to ensure that this program is implemented fully within their respective BUs.
- › Each Project Manager is responsible to make sure that this program is implemented and complied with on their project(s).

## 4.0 References

6801 Global Health, Safety and Environment Management System

6845.2.8.1 Camp Safety SOP

## 5.0 Procedure

Water and wastewater shall be managed according to the applicable legislation and any other site specific requirements.

### 5.1 Water Conservation Practices (office)

- › Install water saving devices for toilets, urinals, showers, sinks, etc.
- › Purchase water-saving dishwashers.
- › Fix leaking faucets.

Equip exterior sprinkler systems with a moisture sensor or an automatic switch so that they do not operate when it rains.

### 5.2 Water Conservation Practices (Construction Site)

- › Fix any leak on water equipment (water truck, water tanks, valves, hoses, etc.).
- › Limit vehicles and equipment washing at the site as much as possible.

- › Whenever possible, reuse non-contaminated rain water accumulated on site or treated wastewater as dust suppressant.
- › Use buckets to wash tools instead of running water.
- › Use trigger guns on water hoses.

### 5.3 Drinking Water (All Sites)

Refer to Section 5.4 of the Camp Safety SOP (6845.2.8.1).

### 5.4 Domestic Wastewater (All Sites)

All domestic wastewater shall be routed either to a sanitary sewer, a wastewater treatment system, a septic system or a portable toilet.

- › Septic tanks and portable toilets must be emptied on a regular basis by a licensed firm and their content shall be disposed of in an authorized site.
- › Grease traps shall be installed in kitchens or canteens.

### 5.5 Process Wastewater (All Sites)

Process wastewater (hydro-testing, purge, wash water, industrial process, etc.) shall be treated prior to being discharge to the sewer or a water body to meet applicable legislation or permit conditions.

### 5.6 Surface Water Protection (Construction Site)

Authorizations shall be obtained for any work involving watercourse, water body, flood plain or wetland.

- › All activities involving soil stripping, clearing, and excavation shall be limited to current work areas to avoid unnecessary soil surface exposure.
- › Stockpiles areas shall be located as far away as possible from water bodies as is practical (or as prescribed in the legislation) and outside of areas susceptible to flooding. Slopes shall be stabilized and silt fences shall be used to prevent sediments from reaching surface water.
- › Silt/turbidity curtains shall be used for sediment control during marine construction and dredging.
- › Storm water shall be protected using geotextile filter media.
- › Whenever possible, a natural vegetated buffer shall be maintained on the shorelines of a water body.
- › Surface water bodies shall be protected from erosion and suspended sediment either by silt fences, ditch checks constructed out of stones, a double row of straw bales, other authorized engineered products or any combination of thereof.
- › Erosion controls shall be kept in good conditions.
- › Construction materials and equipment shall not be placed against silt fences.
- › Refueling of vehicles and equipment shall be conducted as far as possible from a water body.
- › Regular vehicle maintenance shall not be conducted in the vicinity of a water body.

### 5.7 Dewatering (Construction Site)

Whenever necessary, water that accumulates on site shall be analyzed and treated prior to being discharged to the storm sewer or a water body to meet applicable legislation or permit conditions.

- › Storm water, runoff water and excavation water shall be directed to either or a combination of onsite sediment basins, sediment traps, sediment barriers, dewatering tanks, filter bags or other filtering media to reduce turbidity.
- › If necessary, alkalinity of the water (pH) shall be lowered pH by injecting either CO<sub>2</sub>, sulphuric or citric acid to a neutralization tank once the suspended sediments has settled.

## 5.8 Concrete Washout Areas (Construction Site)

- › Concrete wash or rinse water from ready-mix truck and concrete mixing equipment and tool shall be collected in designated leak proof containers or washout pits.
- › Be clearly signposted as the “Concrete Washout Area”.
- › Concrete washout areas shall be sited at a safe or legally required distance from a watercourse, a well, a sewer or any other sensitive areas.
- › Before heavy rain, washout containers or pits shall be covered to avoid an overflow.
- › Collected wash water shall be either evaporated, reused, treated on site or vacuumed by a licensed firm. If wash water is to be reused a risk assessment shall be conducted to identify and address environmental and safety issues associated with alkaline water reused.

## 5.9 Groundwater Protection (All Sites)

- › For groundwater protection, the following minimal requirements shall be respected:
- › Fuel or hazardous materials shall not be stored in the vicinity of a well.
- › Regular equipment or vehicle maintenance and refueling activities shall not be conducted in the vicinity of a well.
- › Monitoring wells and water wells are protected adequately.

## 5.10 Suspected Contaminated Water (All Sites)

If the presence of contaminated water is suspected, this water must be analyzed as required by applicable legislation to determine the treatment and disposal mode.

## 6.0 Training

Best water management practices shall be presented as part of the orientation session given to all workers.

- › If necessary, specific training such as dewatering, use of concrete washout areas, use of sediment control systems, etc. can be provided depending on the task to be performed.

## 7.0 Records

All water and wastewater monitoring results shall be kept in HSE files.

# Waste Management SOP

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## 1.0 Purpose

To promote the 4Rs principle (reduce, reuse, recycle and recover) and to ensure proper storage and disposal of non-hazardous and hazardous waste generated by SNC-Lavalin's controlled sites.

## 2.0 Scope

This standard applies to all employees and contractors at SNC-Lavalin controlled sites and activities. Typical environmental impacts associated with waste management are:

- › Soil contamination.
- › Water contamination.

## 3.0 Responsibilities

- › The SVP GHSE is responsible for the content, administration and maintenance of this program. It shall be subject to the annual review process.
- › It is the responsibility of the Sector HSE VP to ensure that this program is implemented fully within their respective BUs.
- › Each Project Manager is responsible to make sure that this program is implemented and complied with on their project(s).

## 4.0 References

6801 Global Health, Safety and Environment Management System

6845.1.1 Critical Risk Control Protocols

6845.2.8.1 Camp Safety SOP

## 5.0 Procedure

### 5.1 General

The 4Rs principle (Reduce, Reuse, Recycle and replace) shall be implemented for all waste management activities. Elimination (landfilling, incineration) shall be used as a last resort.

- › Hazardous, non-hazardous and biomedical waste shall be segregated according to their types and compatibility.
- › If the nature of a waste is unknown or uncertain, the waste shall be characterized to determine whether it classifies as hazardous or non hazardous.
- › Management of wastes shall be carried out in a manner that reduces the possibility of releases to the environment or exposure to persons. Open burning of any waste is strictly prohibited.



- › Appropriate, sufficient and well identified containers shall be provided at all times. All work areas shall be kept clean and free of waste at all times.
- › No waste shall be permanently left on the site after work is completed.

## 5.2 Waste Storage

- › All hazardous and non-hazardous containers shall be properly labeled. All labels must be visible and in good condition.
- › The accumulation start date shall appear on all hazardous waste containers' labels.
- › Hazardous waste containers shall not be stored on site for more than 12 months unless a shorter period of time is prescribed in the local legislation.
- › Hazardous waste storage areas shall be protected from the elements, i.e., equipped with a roof, walls, impermeable floor and an adequate retention capacity (the secondary containment system must be able to hold a volume greater than or equal to 110% of the largest tank or storage container).
- › Hazardous waste shall be stored according to their compatibility.
- › When not in use, all hazardous waste containers shall remain closed and all bulk hazardous waste stored in roll-off containers shall be covered by an impervious tarp.
- › Hazardous waste storage tanks shall be protected using devices such as posts, jersey barriers, guardrails, etc. to avoid collisions with vehicles or heavy equipment.
- › Areas surrounding hazardous waste storage tanks shall be clutter free.
- › Hazardous waste storage areas shall be located at a safe or legally required distance from a watercourse, a well, a sewer or any other sensitive areas.
- › Spill kits with sufficient absorbing materials must be located in the vicinity of hazardous waste storage areas.
- › All waste storage areas must be kept clean.

## 5.3 Transportation and Disposal

- › Trucks and containers used to transport hazardous waste shall be properly labeled and identified according to local legislation.
- › Authorized hazardous waste carriers shall be used for the transportation of any hazardous waste. Shipping and disposal documents shall be completed according to local legislation and copies shall be kept on site.
- › All waste shall be disposed of in authorized sites (e.g. recycling facilities or authorized landfill facilities).

## 5.4 Waste Management Examples

Management and disposable methods for non-hazardous waste, hazardous waste and biomedical waste may vary from country to country, always verify with local legislation.

Examples of waste management and disposable methods for non-hazardous waste shall be in accordance to the table below:

Waste Classification	Waste Type	Storage	Disposal Method
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Non Hazardous Waste	Waste Food	Leak and vermin proof trash containers	Landfill or Composting
Non Hazardous Waste	Office Paper / Cardboard	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Plastic Materials	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Aluminium Cans	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Metal Containers (drums, box, cans, etc)	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Metal	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Wood	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Concrete	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Brick	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Tires / Rubber Inner Tubes	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Glass	Dedicated Labeled Container	Reusing or Recycling
Non Hazardous Waste	Asphalt and Pavements	Dedicated Labeled Container	Reusing or Recycling

## 6.0 Training

Best waste management practices shall be presented as part of the orientation session given to all workers.

If necessary, specific training such as Transportation of dangerous Goods, WHMIS shall be provided.

## 7.0 Records

All waste shipping and disposal documents shall be kept in HSE files.