Environment
Management
Plan

2016/6/11
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1. Background

The current Leone Bridge was constructed in 1997. It comprises two 8m spans and a 13m central span. Its abutments, piers and foundations are constructed of concrete. The bridge is 9.15m wide and serves two lanes of traffic and has two pedestrian walkways. The approach embankments are raised 1.5m above the surrounding terrain sloping gradually to the east and west. These banks are protected by concrete abutments at each end. This bridge was damaged during Tropical Cyclone Evan (TCE) in 2012. During this cyclone, floodwater travelling down the Vaisigano River scoured the riverbed around the western pier which caused the bridge to settle at this point damaging the bridge deck. Fortunately, utilities services utilizing this crossing (water, telecommunication, and power) have not been affected. The bridge is closed to vehicles but remains open for pedestrians only. Photo below show the extent of the collapse on Leone Bridge through subsidence of the western pier. Leone Bridge is one of the three main bridges that facilitate east-west connections over the Vaisigano River. The Government of Samoa received a grant from the World Bank to provide support as part of ERAP which is being used by the LTA to replace the Leone Bridge. Leone Bridge is located to the southeast of downtown Apia.

Figure 1: Location of Leone Bridge
Figure 2: Leone Bridge showing slumped pile with flood debris

Figure 3: Leone Bridge looking upstream
2. Summary of Works Proposed – New Leone Bridge

The replacement bridge will be a single span bridge with precast bridge beams placed on abutments on either side of the river. This will be of similar dimensions as the existing bridge with the main noticeable difference being the absence of piles in the riverbed on the new bridge. The design life of the proposed bridge is 100 years. The proposed bridge will be constructed out of hollow-core beams which will minimize the requirement for temporary construction works within the Vaisigano River which given the history of the river flooding is a significant advantage to the project. The general layout for Leone Bridge is shown in Figure 4 below.

Site access will be restricted by safety fencing to ensure access by members of the public to the active construction site is restricted. Hazard boards during construction will be maintained at the access gates(s) and the contractor will be expected to maintain a strict sign in and sign out procedure throughout construction period.

Figure 4: General Layout of New Leone Bridge
3.0 Legislative Requirements

This PEAR, the basis of the CEMP, was prepared in accordance with the Planning and Urban Management Act 2004 (the Act) and the associated Environmental Impact Assessment Regulations 2007 (the Regulations). Other applicable legislation includes the Waste Management Act 2010, PUMA Noise Policy 2011, Codes of Environmental Practice (2007).

3.1 Codes of Environmental Practice

The current Codes of Environmental Practice (COEP’s) were prepared in 2007 to define key methods and procedures to avoid or mitigate adverse environmental impacts associated with infrastructure development or maintenance projects. The relevant COEPs for the Leone Bridge project are:

- COEP 1 – works
  All works shall be undertaken in accordance with the relevant COEPs as outlined in the EMP and this CEMP.

As per COEP 2 - Road Design and Construction, the Design Consultant has prepared an EMP to accompany the PEAR, and an indicative CEMP which is to be completed by China Railway First Group.

The EMP sets out the management, mitigation measures, and monitoring requirements that will be put into place during the project. The final CEMP shall:

- Identify the personnel who will have clearly defined roles and responsibilities in the implementation of the CEMP and the chain of command. These roles are described in Section 4.1.
- Establish the chain of responsibility for managing the environmental aspects of the demolition and construction works.
- Identify the records to be maintained which demonstrate compliance with the CEMP.
- Establish the mitigation and contingency measures for at least the following construction activities:
  - Noise control
  - Air quality control
  - Erosion control
  - Spills and leakages (i.e. fuel, oil)
  - Dust control
  - Water quality control
  - Health and safety
  - Spoil control
  - Traffic management
- Maintain and monitor all treatment devices.
- Undertake any training programmes for personnel in order to ensure the CEMP is implemented.

4. Principal Staff members with defined roles & responsibilities of the CEMP

The site organization chart and positions for the CRFG is shown below for 1.2.1 EPAP/ICP_ WORKS_ 02 ENHANCED ROAD ACCESS PROJECT (ERAP) Reconstruction of the Leone bridge tender package. The site office is to be located at Faatoia Road, Apia, Samoa.
This section describes the organizational structures and responsibilities of individuals involved with the implementation of the EMP. The line of responsibility for environmental management during the construction phase is shown in the organization chart below-figure 5.0).

Descriptions of the key individuals with environmental responsibilities are summarized in the table 1 below. The names of the personnel are listed above on Chart 1.0.
<table>
<thead>
<tr>
<th>PARTY/POSITION</th>
<th>RESPONSIBILITIES/TASKS</th>
</tr>
</thead>
</table>
| **Project Management** | • Implementation, monitoring and compliance of the CEMP including the activities of the workers and Site Engineer or supervisor  
• Reviewing performance of operations and adjustments to improve efficiency and application  
• Compliance of constructional activities with EMP guidelines and approval conditions |
| **Contractor Manager** (Deputy Manager)  
(Monitoring the performance of the project against statutory requirements and the agreed objective and targets) | • review and approve the CEMP prepared and specialist procedures and identify any areas for improvement  
• identify the environmental competence of all sub-contractors working on the project  
• review method statements for environmental aspects and advise of any suggested improvements prior to work starting  
• monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the CEMP  
• act as a main point of contact between the contractor and the client’s project team on environmental issues |
| **Quality manager/Site Engineer**  
(Coordinating and managing all the activities during the road construction phases) | • develop and review the CEMP, CMSs, work instructions (WIs) and other specialist procedures  
• identify environmental competence requirements for all staff working on the project and ensure delivery of environmental training to personnel within the project team  
• review and improve method statements for environmental aspects prior to work start  
• monitor construction activities performance to ensure that identified and appropriate control measures are effective and ensure compliance with the CEMP  
• act as main point of contact between the regulatory authorities and the project on environmental issues  
• in conjunction with the site environmental representatives, overall monitoring of the program for the environmental works, and provision of status reports as necessary  
• provision of advice and liaison with the construction teams to ensure that environmental risks are identified and appropriate controls are developed and included within method statements  
• assistance in the development and delivery of environmental training for site personnel and sub-contractors  
• liaison with the clients environmental manager/consultant  
• liaison with the project’s public liaison officer  
• management of the environmental monitoring program, including noise, vibration and dust and review of the routine reports |
**QHSE Manager**
(Managing and coordinating environmental activities on-site)

- Assist environmental manager in developing and maintaining the EMP, CMS, WIs and various registers and checklists
- Monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the CEMP
- Undertake weekly site inspections, initiate actions, complete a weekly environmental inspection report
- Maintain training register, identify training needs and provide required training
- Provide advice and assistance to site personnel on environmental matters
- Assist site foreman in maintaining environmental records
- Assist in investigating and resolving complaints
- Undertake monitoring when required
- Ensure correct procedures are followed in the event of an environmental incident
- Dissemination of waste reduction and waste management procedures to all relevant personnel on site

**Site Engineers and Foreman**
(Report on environmental activities to the site environment officer)

- Implement and maintain environmental controls on site
- Attend to any spills or environmental incident that may occur on site
- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the site environmental representative and QHSE manager
- Complete daily environmental log
- Maintain waste register and ensure correct waste management procedures are being implemented

**All workers or any Sub-Contractors**

- Working in accordance with the CEMP
- Make recommendations to the contractor’s headman for improvements on the Environmental management of site activities

### 4.2 Training

All personnel will be required to be appropriately qualified and/or trained for their particular role. The following systems will be implemented to manage environmental matters on site:

- Inductions;
- Project briefing;
- Job Safety and Environmental Analysis (JSEA);
- On the job training;
- Tool box talks; and
- Posters and information leaflets.

Environmental training records will be maintained and made accessible and will be documented in an Environmental Report. The Environmental Report will document all matters required for environmental reporting. The records will include:

- Who was trained;
- When the person was trained; and
4.3 Training Register

ENHANCED ROAD ACCESS PROJECT (ERAP) Reconstruction of the Leone bridge

Training Register

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Qualifications</th>
<th>Training Received</th>
<th>Date</th>
<th>Inducted By</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g.</td>
<td>John Doe</td>
<td>Excavation operator</td>
<td>Diploma (Mechanical Engineering)</td>
<td>Fueling tanks</td>
<td>7/14/2013</td>
<td>Peter Shaw</td>
</tr>
</tbody>
</table>

Once this sheet is full please issue this document to the Site Manager.

4.4 Training Records

In order to demonstrate that all site personnel have received appropriate training, records will be made available. These records will be regularly reviewed to identify further training requirements.

Finally, a CEMP review report will be generated and submitted to inform relevant parties of environmental performance on the Project. This report shall be completed by the Environmental Manager, who will produce a monthly Management Review Report, based on the findings of the CEMP Audit, to be submitted to the Project Manager. This report will contribute to a regular management review.
of the effectiveness of the CEMP.

5. Operating Procedures inclusive of mitigation measures

5.1. Spills and leakages

BASIC SPILL RESPONSE PROCEDURE

If the spill is small use cloth material to absorb spill and dispose of cloth appropriately.

If the spill is large, halt the spread of the spilled liquid using sand and booms

Cover the entire spill with absorbent from the spill kits.
Do not remove the sand dam until all free liquid has been removed.
Using a hard bristled broom sweep absorbent material downwards into the spill, then brush material into the spill in short movements. Collect the loose material with dust pan & brush. Make sure to pick up all loose material. Place in a sealable plastic bag and dispose of according to Site Manager’s instructions.

### SPILL TYPES

**MINOR**
- Classification: <20 Litres
- Key Actions:
  - Identify the material
  - Follow Spill Response Procedures

**MODERATE**
- Classification: <200 Litres
- Key Actions:
  - Identify the material
  - Move personnel away
  - Check for danger
  - Follow Spill Response Procedures
  - Protect nearby waterways
  - Notify Authorities if required, confirm with Project Engineer
  - File Incident Report with Project Engineer

**MAJOR**
- Classification: >200 Litres
- Key Actions:
  - Identify the material
  - Move personnel away and secure site
  - Check for danger
  - Follow Spill Response Procedures
  - Protect nearby waterways
  - Notify Authorities
  - File Incident Report with Project Engineer

5.2 Construction Site Management

5.2.1 Construction Traffic
To minimise the extent of heavy traffic and construction impacts on adjacent properties and other residential areas, the following shall apply, where applicable, to the use of public, private and purpose-built roads by machinery and vehicles used in the completion of this contract. Use of vehicles and machinery on roads shall be in accordance with any road traffic regulations in effect at the time. The Contractor shall ensure the following:

Vehicles and machinery using public and private roads shall be clean and loads secured to ensure accidental
deposition of material on the road is kept to a minimum. Haul trucks shall use secure tailgates and truck and controlled machinery wash-down areas shall be provided where necessary. Where installed, any runoff from truck and machinery wash down areas shall pass through storm water treatment devices prior to discharge and be regularly inspected and maintained.

The use of private roads shall minimise the extent of traffic and construction impacts on adjacent residential areas and community facilities.

General noise control measures set out in the CEMP shall apply to access roads and the operation of vehicles and machinery.

Access roads, wash-down areas and associated temporary construction site related structures shall be removed upon completion of the work and the area reinstated.

The areas affected by access roads and wash-down areas shall be reinstated and revegetated as soon as it possible.

5.2.2 Construction Camps and Site Facilities

Site facilities include offices, ablutions and areas designated for workers, and as such are activities which have the potential to generate litter and other waste material. These facilities shall not be located within 30 metres of Vaisigano River.

Site facilities include:

- Site offices, building and facilities as necessary;
- Covered rubbish bins and skips; and
- Regular disposal of rubbish off-site at an appropriate location.

The site shall be completely fenced with a security fence at least 2m high, the design of which shall be entirely suitable for its purpose. The fence shall be constructed from galvanized posts and wire.

- Areas for the storage of fuel or lubricants or where machinery or equipment is to be serviced shall be bunded to prevent the escape of spillages of fuel or lubricants from the site. Drainage of such bunded areas shall be through purpose-designed and constructed oil traps.

- A minimum of one water closet toilet and one urinal shall be provided per 10 personnel employed either permanently or temporarily on the contract project. Separate toilet and wash facilities shall be provided for male and female employees.

- All discharge from toilets, washrooms, showers, kitchens, laundry facilities shall be collected by a licensed operator or appropriately treated before discharge.

- Any staff facilities shall be ventilated and illuminated to ensure the health and safety of the Contractor’s workforce.

- All storm water drainage from the site shall be channeled or piped to a silt retention pond prior to discharge. The retention pond shall be sized to provide a minimum of 20 minutes retention for storm water flow from the whole site that will be generated by a 20 year return period rainfall having a duration of at least 15 minutes. The run-off coefficient to be used in the calculation of retention pond volume shall be 0.9.

- All discharge from silt retention ponds shall be channeled to discharge to natural water via grassed swale at least 20 metres in length with suitable longitudinal gradient where possible.

All camp facilities shall be maintained in a safe, clean and appropriate condition throughout the construction period. The silt retention pond shall be maintained in efficient condition throughout the construction period. Trapped silt and soil shall be periodically removed and disposed of inappropriate waste material disposal areas.

The Contractor shall comply with the government medical or labour requirements and provide, equip and maintain adequate first aid stations and erect notices directing where these are located.

The Contractor shall also have experienced first aid personnel available throughout the construction period for
attending injuries.

5.2.3 Private Land
Details of compensation to be paid;
- Agreed period of tenure;
- Any specific requirements of the land owner;
- Photographs of the site in its original condition prior to the site being modified or any facilities being established; and details of the proposed and agreed site restoration after completion of the contract work.

5.2.4 Construction Camp Site Restoration
At the completion of the construction work, the Contractor shall dismantle and remove from the site all facilities established within the construction camp including the perimeter fence and lockable gates. The whole of the construction camp site shall be grassed and vegetation replaced with appropriate native species. At the completion of restoration, the site shall be in no way inferior to the condition that pertained prior to commencement of the construction work. However, if the camp is located on private land any site restoration after completion of the contract work shall be carried out.

Any soil contaminated by hydrocarbons (i.e. oil or fuel) or any other hazardous substance shall be carefully removed from the site and disposed of in appropriate waste soil disposal areas as approved by the MNRE.

5.2.5 Refueling and Maintenance Areas
Refueling and maintenance facilities shall not be located, or refueling and maintenance activities shall not take place, within 30m of Vaisigano River or in ecologically sensitive areas. If a 30m limit is impracticable then a lesser limit may be adopted provided approval from the PUMA is obtained. On no account shall the limit be less than 10 meters.

Vehicles and plant shall not be stored within 30 metres of Vaisigano River or in ecologically sensitive areas, overnight or when not in use.

Figure 5: The site camp and spoil pit layout

5.2.6 Waste Management
Waste is to be controlled on site, with appropriate bins supplied.
- Waste is to be collected regularly and disposed of to a registered/licensed waste landfill.
- Where possible, waste should be separated into waste stream for recycling and reuse.
• All waste that can be reused or recycled shall be done so.
• Incineration of waste on site is prohibited.
• Materials shall be ordered with a view to minimise waste generation.
• Bins shall be secured to stop material being blown about or accessed and scattered by birds and vermin.
• The site shall be cleaned at the end of each working day and all wastes collected and disposed of appropriately.

It is not possible to reuse any portion of the existing bridge structure due to the absence of as-built drawings and evidence of further settlement observed at the bridge. This will therefore require full demolition of the bridge and abutments. Where possible, reusable or recyclable items will be salvaged and kept for reuse by the LTA. This will include, but may not be limited to, bridge beams, deck and fence which will be removed off-site and stored at LTA’s Vaitele yard.

5.2.7 Work times
The normal work times is between Monday-Saturday 7:00am-4:00pm). Any other time to be executed the site work need get the approval from project manager.

5.3. Noise Generating Impacts

To control noise and vibration impacts the contractor must at all times comply with PUMA noise standards, (PUMA's Noise Policy 2006). Noise generated shall not exceed an average of 75DB at the boundary of adjacent residential land use between 0700 and 1800hrs. There shall be no demolition work outside these times or on Saturdays and Sundays.

<table>
<thead>
<tr>
<th>Noise Source</th>
<th>&quot;Receiving Property&quot; (L_{Aeq,10 minutes})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Residential Use</td>
</tr>
<tr>
<td>Day</td>
<td>Even</td>
</tr>
<tr>
<td>Construction Work</td>
<td>75</td>
</tr>
</tbody>
</table>

Note: Day period is defined as 0700 to 1800, evening period is defined as 1800 to 2200 and night period is defined as 2200 to 0700. Construction activities conducted at times not specified in the table above will require special approval from relevant authorities. These may include the Night period, Sundays and all other times within Residential and Tertiary Educational compounds.

Provide advance warning of work to nearby resident and other sensitive activities at least 5days prior to work beginning.

Noise generated from any Power Generator must not exceed an average of 75dB in the Day period, 60dB in the Evening periods.

No works to be undertaken between 2200 and 0700 hrs.

All vehicles and machinery shall be operated in a safe manner including the use of effective noise suppressors or silencing systems installed in accordance with the manufacturers recommendations.

We will use a portable color steel board make it as a noise barrier. This temporary barrier will set up beside the resident during the original bridge demolition, Hpileduring, Concrete vibration, concrete cutting, and beam erection.

Loading materials into trucks is to be controlled. To reduce Heavy Vehicle movements on site, materials are to be loaded directly into trucks for removal off site and not stock piled.

we shall use an excavator mounted hydraulic hammer to break concrete which will minimise the time required to break concrete and therefore the duration of high noise generating activities.
Vehicles shall not be left idling on site. When not in use, all engines shall be switched off.

5.4. Water Quality

5.4.1 Working within a Watercourse
Disturbance of the Vaisigano River shall be minimised wherever possible.
Exposed surfaces in close proximity to the Vaisigano River (within 10 metres) shall be minimised and vegetated or otherwise sealed as soon as practicable.
Weather conditions should be taken into account in programming earthworks. Earthworks or works within the Vaisigano River shall be avoided during storm events or periods of heavy rain.

5.4.2 Erosion and Sediment Control Plan
A sediment control plan shall be developed by the Contractor and included in their CEMP. In the event of any unforeseen discharge, the sediment control plan and the CEMP shall be reviewed and, where necessary, amended to improve the management of silt generating and control activities.

5.4.2.1 Earthworks
Weill employ such temporary measures as are necessary to prevent or mitigate impacts caused by erosion or siltation of any natural watercourse or receiving environment.
All works shall be undertaken with a conscious approach to the need for preventing or minimizing erosion of any exposed earth surface. In addition to permanent drainage or erosion control systems that are required to be constructed, temporary measures to prevent erosion are to be implemented whenever these are clearly necessary to mitigate impacts of the erosion of exposed surfaces.

5.4.2.2 Stockpiles
Stockpiles shall be sited such that storm water run-off can be collected, controlled and discharged through devices to remove suspended solids prior to discharge to natural watercourses.

- No stockpiles shall be established within 10 metres of Vaisigano River or in ecologically sensitive areas (though none have been currently identified at this site).
- No stockpiles shall be established on the road such that they will adversely impact the sightlines or safe movement of vehicles.
- Any stockpile shall be equipped with cut off drains or similar.
- Runoff from stockpiles to be directed through a storm water treatment device.
- All storm water treatment devices are adequately maintained.

5.4.2.3 Temporary Silt Control
Throughout construction works, the Contractor shall install silt traps in all temporary and permanent drains where work is occurring in or within 30 meters of such drains or any watercourses.
Silt traps shall be maintained in sufficient operating condition throughout the construction work.
Material periodically cleaned from such silt traps and drains shall be transported and disposed of in waste disposal areas established as detailed.

- Temporary storm water devices and associated cut off drains/bunds shall be installed prior to any earthworks commencing on site.
- Construction of temporary treatment devices shall minimize environmental disturbance.
- A sediment trap will be placed downstream of the site where construction work is due to take place, prior to the work commencing to intercept flow from disturbed surfaces, particularly the bed of the watercourse during silt excavation or rubbish removal.
- The Contractor shall install silt fences.
• The disposal of material that is periodically cleaned from silt traps shall be specified to ensure that it does not re-enter Vaisigano River.

• Throughout the construction period and, if necessary, during maintenance activities, the discharge of silt laden water shall be avoided or where necessary minimized.

• At the completion of construction work, silt traps shall be cleaned out and removed.

• Where silt traps are required, details of these shall be provided by the Site Manager to the Project Engineer.

• Cofferdams or banded areas shall be used for any works required within the wetted area of Vaisigano River. This will avoid the generation of silt within the river and provide a dry area for construction equipment. The work area shall be cleaned and all sediment, material and rubbish removed before the cofferdam is removed.

5.4.2.4 Use of Heavy Machinery in or close to Watercourses

• All earthworks shall be constructed in accordance with COEP 13 (Refer to EMP) and in such a way as to prevent or minimize accelerated erosion, accelerated sedimentation and disturbance. This applies to all work carried out on land, or in the water, where natural sediment will be disturbed.

• Use of construction machinery in watercourses shall occur in accordance with COEP 11 soaps to minimize the clearance of vegetation, minimize the release of sediment to the downstream environment and ensure cofferdams/ banded areas are in place prior to works in such areas commencing.

• Utilise equipment of an appropriate nature and scale relevant for the physical activity required and not utilise heavy machinery where a less intrusive approach is better suited.

5.4.2.5 Clearing Vegetation

The Contractor shall only clear vegetation, in accordance with COEP 5 and COEP 13, from within the areas agreed with the Project Engineer, for the construction camp, construction camp access or other site works described in the contract. On no account is the Contractor to damage vegetation outside the above areas. Should such damage occur, the Contractor shall forthwith take such steps as are necessary to prevent erosion and to re-establish vegetation lost through any damage that may have occurred. On no account is cleared vegetation to be burned. Such vegetation shall be removed from the site to an appropriate disposal site.

5.4.3 Drainage

• Prior to commencing site clearance or earthworks all temporary or permanent drainage channels are installed as appropriate together with silt fences or silt retention ponds minimize the discharge of surface water containing sediment particles to any natural watercourse or on the land adjacent to the construction site.

• Construction shall be undertaken utilizing methods that limit to practical levels the amount of water contaminated with sediment.

• The clearance of existing vegetation from the invert or banks at any bridge site shall be limited to just that area required for the construction of the works.

Any construction materials to be stored on site at any time; e.g. aggregates, cement, formwork and the like shall be stored in a location above likely flood levels. Any fuel storage, workshop or fabrication yards shall be contained within a banded area.

The use of plant or equipment within the river or stream channel is to be avoided. If it is unavoidable only plant or equipment free from fuel or oil leaks shall be used.

Construction debris shall not at any time be deposited in any stream or river. At completion of the works all surplus construction materials, debris of any sort and any temporary buildings shall be removed from the site of the works and the whole of the works area returned to a condition that is in no way inferior to that which existing prior to the commencement of the works.
5.5. Air quality Impacts

5.5.1 Vehicle Emissions and Air Pollutants
We will locate any vehicle park, maintenance, and stock pile areas away from residential properties. Vehicles shall not be left idling on site. When not in use, all engines shall be switched off. All construction vehicles shall have correctly functioning exhaust systems.

We will monitor dust generation and weather conditions. If concrete cutting is likely to generate dust at residential properties boundaries, the contractor is to stop work until mitigation measures can be installed or until wind direction changes. Mitigation measures include installing a partial enclosure of activity area.

Watering, spraying of water etc. shall not be permitted due to the potential for water run off to contaminate the river unless the Contractor can install measures to capture runoff and provide treatment prior to discharge.

All vehicles and machinery shall be well maintained and operated in a safe manner including the use of effective exhaust systems.

Waste materials are not to be burnt on site, but must be disposed of at an appropriate facility.

5.5.2 Dust Control
Any stockpiles shall be grassed where practicable or otherwise covered. Stockpiles of materials shall not be permitted to generate dust.

All surfaces shall be constructed to their final design requirements as quickly as practicable.

Covers shall be used where practicable on small areas that may generate dust.

Materials, such as gravel, that do not produce dust, can be used as cover where practicable.

Hydrocarbons shall not be used as a method of dust control.

5.5.3 Concrete Dust

Workers involved in the cutting of concrete or otherwise in close proximity to concrete cutting activities are to be issued with dust masks at all times while concrete cutting is being undertaken. The use of dust masks is to be monitored by the Site Engineer to ensure they are correctly used when required.

6. Emergency contacts response

In the event of a non-compliance with a development approval condition or other regulatory requirements, and if an incident occurs that results in a significant adverse environmental effect, the following shall occur:

1. Immediate action will be taken to stabilize the situation (i.e. cease work, turn off or move machinery, deploy spill equipment). All spills shall be contained, recovered and disposed of appropriately;

2. The Contractor shall contact the MNRE as soon as practical, but within 24 hours, of the situation (for example, a significant oil spill);

3. Any affected parties shall be contacted as soon as possible if an incident occurs that may affect any land outside of the Project area;

4. All steps necessary to mitigate the incident shall be taken. Other external agencies shall be contacted where appropriate; and

5. An incident report shall be prepared that shall include, as a minimum:
   a. A Description and location of the incident/ non-compliance;
   b. The likely cause of the incident/ non-compliance;
   c. Potential or actual effects of the incident/ non-compliance;
   d. Mitigation and remedial action taken;
e. Preventive action / changes to prevent a re-occurrence of the incident/ noncompliance; and
f. Monitoring results.

7. Compliance

The impacts of the Project, especially from construction, will be noticeable for the local communities. Open, two-way communication will be provided to keep the community informed about what is happening in their neighborhood.

A general communications strategy will be developed and will include the following mechanisms to communicate with the general public:

Mail/ Information Drops
During and prior to key stages of construction, targeted mail drops will outline and forewarn the public of construction activity and provide information on the progress of the Project. The contact details of the Stakeholder Relationship/Communications Manager’s will be included.

Billboards
There will also be billboards positioned around the site, which will include the name, telephone number, and address for service of the Site and Project Manager as well as the Stakeholder Relationship/Communications Manager.

Media Coverage
In addition to advertising in the local press, in selected publications and through other media, the Stakeholder Relationship/Communications Manager will provide regular updates to the media and encourage regular editorial updates through print, television and radio channels.

The Environmental Manager will undertake system audits on a monthly basis and will report back to the Project Manager on performance. In addition, the Supervision Consultant will undertake periodic audits of the management of the Project in order to assess compliance with the CEMP.

8. Monitoring

8.1 Routine walkovers

Routine walkovers will be undertaken by Environmental Manager and Project Engineers to assess environmental performance on site. During walkovers they will liaise with other team members and check that appropriate controls are in place and procedures implemented. Any non-conformances, non-compliances and opportunities for improvement identified during walkovers will be recorded and actioned. The LTA Project Director is to be notified.

8.2 Weekly Inspections

The Environmental Manager will initiate comprehensive weekly inspections of the site to assess ongoing environmental performance and compliance and identify enhancement opportunities.

These inspection checklists will be discussed at Environmental Team meetings. The LTA Project
Director is to be notified.

8.3 Audits

The Environmental Manager will undertake monthly audits of compliance with the CEMP. These will include a review of site documentation, records and an inspection of site activities. Based upon the findings of these audits the Environmental Manager will develop a report identifying non-compliances, improvements and opportunities for enhancements and specifying agreed corrective actions.

8.4 Review

The Environmental Manager will, as a minimum, undertake a monthly review of the CEMP in order to identify any required amendments. A review will also be undertaken in the event of significant changes to activities on site or in response to certain incidents. The findings of the review and proposals for amendments to the CEMP will be circulated to key team members (e.g. Project Manager, Construction Manager, and Environmental Manager). If appropriate, findings relating to compliance with development approval conditions will be communicated to MNRE.

8.5 Mechanism for Revision

The CEMP is a living document reflecting the obligation of the Contractors. There are two main reasons for changing the CEMP after it has been made final. These are:
- As a result of regular reviews made during the life cycle of the project which will ensure the CEMP remains fit for purpose and continues to meet social, environmental and regulatory requirements.
- If there has been a significant change in the construction methodology or activities undertaken on the site.
Any change made to the CEMP will need to comply with all of the necessary social and environmental requirements of the project, including development approval conditions granted in respect to this Project.

8.6 Reporting

8.6.1 Monitoring Data
Data collated from monitoring activities will be stored in a document management system for the Project and will be available online and in hard copy on the Project website.

8.6.2 Inspection Records
A number of activities will be regularly inspected. For each inspection a checklist or form will be completed to provide a written report of findings. These will be reviewed during site meetings and project audits.

8.7 Reviews

Audit activities will provide a review of overall CEMP performance.