DETAILED WORKS PROGRAM
AND
SITE SPECIFIC ENVIRONMENTAL & SOCIAL MANAGEMENT & MONITORING PLAN
FOR
INSTALLATION, OPERATION, AND DISMANTLING OF TOWER CRANE AT MAIN DAM AREA
FOR
NAM NGIEP 1 HYDROPOWER PROJECT

Document No. : NNP1-MS-MD-014-A1

OBAYASHI Corporation

Submitted By:

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<th>Description</th>
<th>Issue Date</th>
<th>Remarks</th>
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<tr>
<td>A1</td>
<td>1st Submission for Owner’s review</td>
<td>21-Dec-2015</td>
<td></td>
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</tbody>
</table>
PART 1

DETAILED WORKS PROGRAM

(DWP)
1. GENERAL

This detailed works program focuses on installation, operation, and dismantling of tower crane for construction works of main dam body. The working drawing with detailed arrangement for reinforcement concrete of these tower cranes will be submitted separately.

Four (04) tower cranes will be installed at main dam area. Particularly, they consist of one at elevation 195.00m, one at 197.90m, one at 221.57m, and one at 251.40m.

Fig.1 – Layout of arrangement
1.1. Design concept

**Fig.2 – Flow chart for erection and dismantlement of 04 tower cranes**

- **EL.+195.00 (MD900B)**
  - MD900B shall be erected and dismantled by tower crane 55t

- **EL.+197.90 (MC310K12)**
  - MC310K12 shall be erected and dismantled by tower crane 55t

- **EL.+221.57 (MD2200#2)**
  - MD2200#2 shall be dismantled by MD900B
  - MD2200#2 shall be erected by MD2200#1

- **EL.+251.40 (MD2200#1)**
  - MD2200#1 shall be erected by MD2200#2
  - MD2200#1 shall be dismantled by MD2200#2
1.2. Major Quantities

Table 1 – Major Quantities

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Capacity</th>
<th>Quantity</th>
<th>Unit</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MD900B</td>
<td>50 ton</td>
<td>01</td>
<td>set</td>
<td>At EL.+195.00</td>
</tr>
<tr>
<td>2</td>
<td>MD2200</td>
<td>32 ton</td>
<td>02</td>
<td>set</td>
<td>1 at EL.+221.57, 1 at EL.+251.40</td>
</tr>
<tr>
<td>3</td>
<td>MC310K12</td>
<td>12 ton</td>
<td>01</td>
<td>set</td>
<td>At EL.+197.90</td>
</tr>
</tbody>
</table>

Fig.3 – Longitudinal section of tower crane arrangement

2. REFERENCE

Referenced Specifications:

- Earthwork: TS 2.8
- Ordinary Concrete (CVC) and re-bar: TS 6.
3. MATERIAL

Table 2 – Estimated material to be used

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Re-bar D25, grade SD345</td>
<td>38</td>
<td>ton</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ready-mixed concrete, class 21Mpa</td>
<td>392</td>
<td>m³</td>
<td>Estimated only</td>
</tr>
</tbody>
</table>

4. EQUIPMENT AND MANPOWER

4.1. Equipment and Tool

Table 3 – Major Equipment List

<table>
<thead>
<tr>
<th>No.</th>
<th>Equipment / Tool</th>
<th>Capacity</th>
<th>Nos</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Crawler crane</td>
<td>55 ton</td>
<td>1</td>
<td>Lifting, casting concrete</td>
</tr>
<tr>
<td>2</td>
<td>Crawler backhoe</td>
<td>1.6 m³</td>
<td>1</td>
<td>Excavation, loading material</td>
</tr>
<tr>
<td>3</td>
<td>Stationary Concrete Pump</td>
<td>90 m³/h</td>
<td>1</td>
<td>Provide concrete</td>
</tr>
<tr>
<td>4</td>
<td>Total Station</td>
<td>Nikon</td>
<td>1</td>
<td>Surveying</td>
</tr>
<tr>
<td>5</td>
<td>Trailer</td>
<td>12m</td>
<td>1</td>
<td>Transportation of material</td>
</tr>
<tr>
<td>6</td>
<td>Dump truck</td>
<td>22 ton</td>
<td>1</td>
<td>Transportation of material</td>
</tr>
<tr>
<td>7</td>
<td>Welding machine</td>
<td>10kVA</td>
<td>3</td>
<td>Welding steel</td>
</tr>
<tr>
<td>8</td>
<td>Generator</td>
<td>400kVA</td>
<td>1</td>
<td>Provide power when need</td>
</tr>
<tr>
<td>9</td>
<td>Needle vibrator</td>
<td>1.5 kW</td>
<td>12</td>
<td>Compaction</td>
</tr>
<tr>
<td>10</td>
<td>Chipping machine</td>
<td>02 kW</td>
<td>04</td>
<td>Chipping rock surface</td>
</tr>
<tr>
<td>11</td>
<td>Air compressor</td>
<td>1,404 m³/h</td>
<td>1</td>
<td>Provide air pressure</td>
</tr>
</tbody>
</table>
4.2. Nominated Subcontractor and Manpower distribution

Nominated Subcontractor: **SONG DA 5 JOINT STOCK COMPANY.**

In general, the subcontractor will be nominated, concerning not only price/rate but also following items, fully described below.

1) Technical competence
2) Financially stable
3) Administrative competence
4) Past project experience and reference
5) Ability to meet schedule
6) Quality and skill of work
7) Capacity(equipment, staff, worker) and organization
8) Ability to meet safety and environment requirements

And then, the evaluation for subcontractor will be done and recorded.

Manpower distribution for this work is planned as below.

*Table 4 – Manpower Distribution*

<table>
<thead>
<tr>
<th>No.</th>
<th>Manpower</th>
<th>Planned Number</th>
<th>Duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Engineer</td>
<td>1</td>
<td>Site management</td>
</tr>
<tr>
<td>2</td>
<td>Safety staff</td>
<td>1</td>
<td>Safety supervision</td>
</tr>
<tr>
<td>3</td>
<td>Foreman</td>
<td>4</td>
<td>Work management</td>
</tr>
<tr>
<td>4</td>
<td>Equipment operator</td>
<td>3</td>
<td>Backhoe, chipping machine, etc.</td>
</tr>
<tr>
<td>5</td>
<td>Dump truck driver</td>
<td>2</td>
<td>Transportation of material</td>
</tr>
<tr>
<td>6</td>
<td>Skill worker</td>
<td>20</td>
<td>Formwork, concreting</td>
</tr>
<tr>
<td>7</td>
<td>Common worker</td>
<td>15</td>
<td>Common work</td>
</tr>
<tr>
<td>8</td>
<td>Mechanic</td>
<td>4</td>
<td>Maintenance of equipment</td>
</tr>
<tr>
<td>9</td>
<td>Welder</td>
<td>3</td>
<td>Welding</td>
</tr>
<tr>
<td>10</td>
<td>Surveyor</td>
<td>3</td>
<td>Survey work</td>
</tr>
<tr>
<td>11</td>
<td>Electrician</td>
<td>2</td>
<td>Maintenance of electric line</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>58</strong></td>
<td></td>
</tr>
</tbody>
</table>
4.3. Temporary Facilities

Table 5 – Major Temporary Facilities

<table>
<thead>
<tr>
<th>No.</th>
<th>Facilities</th>
<th>Location</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Contractor’s Camp</td>
<td>STA.4+900 (P1)</td>
<td>OC management board</td>
</tr>
<tr>
<td>2</td>
<td>Worker’s Camp No.2</td>
<td>STA.6+120 (P1)</td>
<td>Sub-contractor management board</td>
</tr>
<tr>
<td>3</td>
<td>CVC plant</td>
<td>Left bank</td>
<td>Provide CVC</td>
</tr>
<tr>
<td>4</td>
<td>Disposal No.2</td>
<td>Left bank</td>
<td>Dispose unsuitable material</td>
</tr>
<tr>
<td>5</td>
<td>Disposal No.6</td>
<td>Right bank</td>
<td>Dispose unsuitable material</td>
</tr>
</tbody>
</table>

Fig. 4 – Major Temporary Facilities Map
5. CONSTRUCTION PROCEDURE

![Flowchart of construction procedure]

Fig. 5 – Flowchart of construction procedure

5.1. Survey Work

The Main Dam axis coordinates to be established based from local coordinates.

<table>
<thead>
<tr>
<th>Location</th>
<th>Coordinates</th>
<th>Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNG1-2</td>
<td>N 2062622.962 E 344440.726</td>
<td>EL351.111</td>
</tr>
<tr>
<td>MDL-1</td>
<td>N 2062498.474 E 344655.722</td>
<td>EL324.215</td>
</tr>
<tr>
<td>MDL-5</td>
<td>N 2061979.291 E 344363.534</td>
<td>EL353.177</td>
</tr>
<tr>
<td>MDL-6A</td>
<td>N 2062005.745 E 344202.327</td>
<td>EL375.011</td>
</tr>
</tbody>
</table>

The elevations and coordinates of tower crane will be determined based on them as well. The details will be shown in the working drawing that will be submitted separately.
Initially, temporary benchmarks for elevations and coordinates are established around the work area. These benchmarks will be pegged, confirmed, and approved by the Owner.

Survey instruments shall be calibrated in accordance with the section 5.3.3 testing equipment and facilities of the latest Quality Assurance Program (Document No. NNP1-PRG-DrQAP-A3) enclosed with Contractor letter NNP1-PCL-00086, dated 16th January 2014.

5.2. Clearing of rock surface, and installation of re-bar anchor into rock foundation

- Before concrete works, the rock surface should be clean. Clearing shall consist of the removal and disposal of everything above foundation surfaces that includes broken stone, trees, stumps, logs, bush, undergrowth, grass, crops and loose vegetable objects.

- The foundation which tower crane will be installed on should be the rock. The excavation or dig may be required to reach the rock surface in case there is soil layer above.

- A hole will be drilled with diameter of 42mm into rock foundation for anchor. This anchor will be re-bar with diameter of 28mm and embedded approx. 4m in rock, 1.5m in concrete. These details will be shown in the working drawing that will be submitted separately.
Fig. 8 – Typical clearing of rock surface by manpower and scoop

5.3. Installation of Re-bar, Formwork, and Foot of Tower crane

5.3.1. Re-bar

- The reinforcement will be deformed bar in grade SD 345, as specified in the working drawing that will be submitted separately.
- The mill certificate must be accompanied for each the delivery.
- All reinforcement will be stock-piled according to kind and will be kept elevated from the ground with proper covering to ensure that the rebar will be free from getting wet to avoid surface corrosion.
- Rebar workshops and rebar storage yard will be established nearby the construction area. Rebar will be fabricated as approved working drawing at rebar workshops with the use of bending and cutting machines. After completion of fabrication for each piece, it will be carefully kept in the dry and stable condition at stockyard, which is more 20cm higher than ground surface and no water flooded areas and covered by plastic sheet to protect rain weather.
- Layout of rebar skeleton will be marked clearly at the surface of the lean concrete. Rebar should be set up to reach exact position considering the appropriate concrete covering.
- Mortar block spacers will be used for spacer of bottom and side in order to keep the appropriate concrete covering. The support bar will be installed on mortar block spacer. The purpose of this support bar is for fixing bottom reinforcement in tidy and ensuring the thickness of concrete covering will be as per specification. Rebar DB12 or DB16 will be used as the support bar.

Fig. 9 – Concrete Covering and Fixing Bottom Reinforcement Arrangement

- After installation of the bottom rebar, top rebar; side rebar and starter rebar/main rebar will then be placed on its exact location. Position of starter rebar/main rebar will be paid enough attention. Hoop rebar will be tied with diagonal temporary bars opposite to each other to make a case which will against a temporary support system to keep it in stable position.
5.2.2. **Formwork**

- Steel forms will be used for concrete casting. Forms will be cleaned and form release agent will be applied prior to installation. Excessive application of release agent which may contaminate the concrete will not be allowed. Materials which adhere to or discolor the concrete surface will not be used. Formworks will be installed using the line markings on the lean concrete. Forms will be set at exact position and held true to the dimension of the structure prior to and during placement of concrete. It will have adequate supports, stable and constructed in accordance with the working drawings. Access openings may be provided for cleaning out extraneous materials immediately before concrete placement.

- Metal ties or anchorages within the form will be constructed in order to install and remove the formwork without causing damage. Forms will not be removed until the concrete has attained sufficient strength to prevent damage to the concrete surface preferably after 24 hours. Prior to re-use, forms will be checked for damaged and if so must be repaired.

![Fig.10 – Typical photo of formwork setting](image)

5.2.3. **Foot of tower crane**

- The steel that is to be used for foot should be in grade SS400. It is required high accuracy for the position survey. This step will affect the assembly of tower crane later accordingly.

- The foot will be embedded approx. 1m in the concrete. Its details will be shown in the working drawing that will be submitted separately.
5.4. Concrete Work

- They will be casted in CVC that will be provided by mixer truck from CVC plant. The transportation time from batching plant to placement point should be within 90 minutes.
- Before concrete works, the surface should be cleaned. Clearing will consist of the removal and disposal of everything above foundation surface. That includes broken stone, trees, stumps, logs, bush, undergrowth, grass, crops and loose vegetable matter.
- Ready – mixed CVC will be supplied by 90m³/h stationary concrete pump, or 160m³/h mobile concrete pump truck, or hopper & crawler crane. The mix proportion will be provided and approved by the Owner as mentioned in Specification. The mix proportion below is reference only. The official design will be approved by the Owner according to the actual test result of trial mix at the plant. The preferable mix will be proposed and submitted separately considering facilities, placing method, and feasible workability.

<table>
<thead>
<tr>
<th>Mix Code</th>
<th>D&lt;sub&gt;max&lt;/sub&gt; (mm)</th>
<th>Strength at 28 days (Mpa)</th>
<th>W/C (kg/m³)</th>
<th>Slump (cm)</th>
<th>W/C (%)</th>
<th>S/A</th>
<th>Air content (%)</th>
<th>Aggregate (kg/m³)</th>
<th>Adm. (l/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C21</td>
<td>40</td>
<td>21</td>
<td>8±2.5</td>
<td>155</td>
<td>271</td>
<td>57.0</td>
<td>4.5</td>
<td>770</td>
<td>285</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sika 257</td>
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<td></td>
<td></td>
<td></td>
<td>Sika AER</td>
</tr>
</tbody>
</table>

- Dimensions, alignment and elevation of top concrete shall be checked and must be within the allowable tolerance described in working drawing.
- Concrete surface will be finished by trowel or plate compactor after placement. The curing measure will be applied for preservation of moisture after 24 hours and maintained minimum 7 days after placement.
- The casting should be carried out in the dry weather and in cool weather such as early morning time or end of afternoon time or night time in order to avoid the shrinkage cause the cracks in structure. In the raining case, placed concrete will be cover by canvas, water will flow from higher to lower position and not join into concrete.
• The re-bar will be covered by concrete with enough thickness as specified in the working drawing. Particularly, it is 100mm for the wall and bottom slab; and 70mm for the slab.

5.5. Operation and Dismantling

• The tower crane will be installed, operated, and dismantled according to the construction schedule of main dam body and main powerhouse. Their planned sequence is shown in Appendix 9.4.
• They will be operated in 2 shifts to support construction activities of main dam and powerhouse. The lifting will be strictly complied with the diagram loading that was issued by the manufacturer and will be shown in the working drawing.
• The 55 ton crawler crane will be used for erection of the first and for dismantling of the last tower crane.

Fig.12 – Typical diagram loading of tower crane MD900B
6. SAFETY CONTROL

Safety control for site works shall follow the latest Safety and Security Program (Document No. NNP1-PRG-SSP-A3) enclosed with Contractor’s letter NNP1- PCL- 00044, dated 10th December 2013. Before commencement of work, safety training shall be carried out to relevant staffs and workers. The emergency action plan is attached in Appendix 9.3.

6.1. Safety indoctrination

- Tool box meeting (TBM) shall be conducted by Safety Officer at the commencement of each shift, on a daily basis to remind the individual work crew on health and safety issues related to the work in progress throughout the construction period.
- Work and safety instruction shall be issued by Chief Engineer/ Construction Manager to subcontractors’ representative or workers during daily meeting, then it will be signed by the person receiving the instruction.

6.2. Health control for occupational health program

- Safety officer shall check and ensure that appropriate Personal Protective Equipment (PPE) are provided to the workers and that training is given to use and maintain their PPE effectively and appropriately for the jobs on the site.
- In-house Rules and Regulations shall be posted at prominent locations, e.g. bulletin boards, at project sites. All new workers, subcontractors and staff shall be briefed on the rules and regulations and it shall be abide by them.

6.3. Accident countermeasures

Countermeasures for prevention of occurrence of accident, especially during the installation, operation, and dismantling of tower crane; the following shall be concerned.

6.3.1. Accident by heavy equipment

- All machinery and equipment that are commonly deployed at the project site, shall be checked before the commencement of each work.
- Clear warning sign board will be arranged at risky location such as slope, unstable foundation.
- All workers and staffs are prohibited from approaching the working radius of heavy equipment.
- In case the worker needs to approach the equipment, they shall request the operator to stop operation and confirm the stopping.
- Stopper shall be set when equipment is parked on site.

6.3.2. Safety measure for rainy season

- Equipment should always park at the parking area after the work
- Engineer or safety officer should always check water level at inlet and outlet of diversion tunnel when raining.
- Clear warning sign shall be arranged around the boundary between river and land and to inform all worker “Mind Your Step” and “Slippery Rock Surface”.
- When thunderstorm will come, all worker shall evacuate.
- The discontinuance criteria for the climate condition is as follows,
  (i) over 30mm per day of expected rainfall amount.
  (ii) over 10mm per hour of rainfall amount
  (iii) the gap of wildfire and thunder is short
- Re-starting of work will be after checking of site condition.
In case of heavy rain, engineer or safety officer shall monitor the river water level at inlet and outlet of diversion tunnel carefully when it reaches at the alert level, all equipment and workers shall be evacuated to a higher ground level or shall be parked at Camp Yard.

6.3.3. Safety Hauling

- Adequate barricades and suitable warning signs are put up at conspicuous area where person are most likely to fall to open side of the slope and around heavy equipment.
- No unauthorized person shall be allowed to enter the working area.
- The limit of dump truck speed is less than 30km/h in site
- Dumping material and other superimposed load are place apart from the edge to avoid collapse.

6.3.4. Safety measures to prevent from slope sliding

- Visual check of slope condition before commencement of construction work.
- Training of a sign of land sliding for labor.
- No vehicle, equipment, and machinery park at the edge of embankment or on unstable ground.

6.4. Safety control plan against flood and evacuation procedure

6.4.1. General

Monitoring for safety control plan against flood shall be based on the following measures described below.

- Weather and tide forecast from the Local Bureau of meteorology
- Analysis of water level based on survey monitoring data.
- Visual monitoring of water level gage by engineer or safety officer in the inlet and outlet of diversion tunnel daily.
- Actual river discharge and rainfall intensity.

6.4.2. Procedure

- The procedure shall be complied with Management System for the Flood in Rainy Season (Document No. NNP1-OTH-MSF-A4) enclosed with Contractor’s letter NNP1-PCL-01484, dated 2nd September 2015.
- Main dam area shall use monitoring point at inlet of River Diversion Tunnel. Please refer to clause 4.1 Monitoring Point at Inlet for Diversion Tunnel of Document No. NNP1-OTH-MSF-A4 for details.

7. QUALITY ASSURANCE

Quality Assurance shall be followed to the Quality Assurance Program (Document No. NNP1-PRG-DrQAP-A3) enclosed with Contractor’s letter NNP1-PCL-00086, dated 16th January 2014.

Quality control works will be conducted by the Contractor whereby effective implementation and inspection of this work shall be made to ensure that the quality is maintained. The inspection and test on site shall be informed of the Owner before the implementation.

Material testing during construction will be performed by on-site laboratory as specified in specifications. And the proposed Inspection and Test Plans (ITP) are as shown in the Appendix 9.5. The raw materials consist of fine aggregate, coarse aggregate, cement, and admixture for CVC will be controlled and confirmed by CVC Plant in accordance with Appendix 9.7 – Inspection Test Plan (ITP) that was submitted through our letter No.NNP1-PCL-00388 of 20-Aug-2014.
PART 2
SITE SPECIFIC ENVIRONMENTAL AND
SOCIAL MANAGEMENT AND
MONITORING PLAN
(SS-ESMMP)
8. ENVIRONMENTAL & SOCIAL MANAGEMENT & MONITORING PLAN

8.1. Introduction

This Site Specific Plan has been prepared to highlight environmental and social conditions prior to the beginning of each construction activity and will be used as a tool to ensure the particular activity follows the correct management and mitigation procedures. Sub-Plans will be used to detail mitigation methods for each of the activities associated with the construction or embankment works.

This plan details the installation, operation, and dismantling of tower crane at main dam area. Four (04) tower cranes will be installed, 1 at EL.+195.00m, 1 at EL.+197.90m, 1 at EL.+221.57m, and 1 at EL.+251.40m. They consist of 3 kinds; MC310K12 in capacity of 12 ton, MD900B of 50 ton, and MD2200 of 64 ton.

Table 8.1 below shows the referential linkages of documents regarding environmental matters in the NNP1 Project. The Owners (NNP1) documents use references and information from the Concession Agreement. This SS ESMMP (Contractor) uses references and information from Owners EIA/ESMMP and Owners ESMMP-CP.

<table>
<thead>
<tr>
<th>Item</th>
<th>Hierarchy of Documents</th>
<th>Approving Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Concession Agreement</td>
<td>GOL</td>
</tr>
<tr>
<td>2</td>
<td>NNP1 EIA/EMMP</td>
<td>GOL</td>
</tr>
<tr>
<td>3</td>
<td>ESMMP-CP</td>
<td>GOL</td>
</tr>
<tr>
<td>4</td>
<td>Contractors EMP</td>
<td>NNP1</td>
</tr>
<tr>
<td>5</td>
<td>SS ESMMP</td>
<td>NNP1</td>
</tr>
</tbody>
</table>

The Contractor documents are; Contractors EMP (Item 4) and SS ESMMP (Item 5) which have used applicable information extracted from the Owners documents which are Concession Agreement (Item 1), NNP1 EIA/ESMMP (Item 2) and ESMMP-CP (Item 3).

All obligations of the contractor are stated in the Civil Works Contract (CWC) which includes Schedule 9 (Concession Agreement Pass Through Obligations) and is the only governing document for the Contractor.
8.2. Environmental and Social Pre-Construction Description

8.2.1. Land use in the area

Four (04) tower cranes will be installed at the main dam area. It located within the construction area which has already been compensated for the villager. This construction area was prepared while main dam excavation was deploying. Their foundation will be constructed and be anchor on the rocky surface.

8.2.2. Proximity to villages, cultural sites

The closest village to the installation area is Ban Hatsaykham, over 3km downstream of the site. There will be no impacts to cultural sites.

Table 8.2 below is a pre-construction checklist to identify any major environmental impacts that may occur during construction works. After completion of the checklist the Sub-Plans can be selected accordingly.
### Table 8.2 – Environmental Assessment Checklist – For Pre Construction

<table>
<thead>
<tr>
<th>Site Location</th>
<th>Main dam and main powerhouse area</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS Coordination</td>
<td>Refer to 5.1, Part 1 of this DWP</td>
</tr>
<tr>
<td>Photo</td>
<td>See attached photos below</td>
</tr>
<tr>
<td>Date</td>
<td>Nov 23, 2015</td>
</tr>
<tr>
<td>Estimated Area</td>
<td>0.16 ha</td>
</tr>
<tr>
<td>Prepared By</td>
<td>Santi Sayakoummane</td>
</tr>
<tr>
<td>Checked By</td>
<td>Mr Keiji Sasaki</td>
</tr>
<tr>
<td>Site Description</td>
<td>Four (04) tower cranes will be installed at 04 locations, at 04 elevations to support the construction activities of main dam body and main powerhouse. Their foundation will be casted in CVC.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Setting</th>
<th>Yes</th>
<th>No</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will the site require UXO clearance?</td>
<td>✓</td>
<td></td>
<td>UXO clearance in the construction area has already been completed prior to main dam excavation deployed.</td>
</tr>
<tr>
<td>Is there surface water located in close proximity to the site?</td>
<td>✓</td>
<td></td>
<td>The river flow was diverted through diversion tunnel. Therefore, the installation area will be kept dry enough for construction.</td>
</tr>
<tr>
<td>Is there a village or community located in close proximity to the site?</td>
<td>✓</td>
<td></td>
<td>Closest Village is Ban Hatsaykham, approx. 3km downstream.</td>
</tr>
<tr>
<td>Is the site located in a vegetated area?</td>
<td>✓</td>
<td></td>
<td>It was cleared and excavated while main dam excavation was deploying.</td>
</tr>
<tr>
<td>Is the site located in agricultural land?</td>
<td>✓</td>
<td></td>
<td>Located within construction area of main dam body and main powerhouse</td>
</tr>
<tr>
<td>Are there any PCR in the area?</td>
<td>✓</td>
<td></td>
<td>No confirmed PCR on site</td>
</tr>
<tr>
<td>Is there an existing access road to the site?</td>
<td>✓</td>
<td></td>
<td>Road T1, T2 at Left Bank (EL.+230 &amp; 250) Road T10, T11 at Right Bank (EL.+200 &amp; 230)</td>
</tr>
<tr>
<td>Can the site be viewed from public viewpoints?</td>
<td>✓</td>
<td></td>
<td>Area is closed off to the public</td>
</tr>
<tr>
<td>Is the site located within an existing Construction Area?</td>
<td>✓</td>
<td></td>
<td>Main dam body and main powerhouse</td>
</tr>
<tr>
<td>Will the site development require the construction of a sub-camp, office and storage? (if yes, provide a list)</td>
<td>✓</td>
<td></td>
<td>Worker Camp No.2 will be used for the Sub-Contractors worker camp.</td>
</tr>
</tbody>
</table>

Other Comments:
<table>
<thead>
<tr>
<th>Environmental Impacts</th>
<th>Likelihood (Yes/No)</th>
<th>Mitigation measure to be Implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will the site development result in increased dust generation at near-by villages?</td>
<td>No</td>
<td>No Villages within vicinity of site</td>
</tr>
<tr>
<td>Will the site development result in increased noise generation at near-by villages?</td>
<td>No</td>
<td>No Villages within vicinity of site</td>
</tr>
<tr>
<td>Will the site development result in surface water turbidity?</td>
<td>No</td>
<td>River water was diverted through diversion tunnel. The waste water treatment plant will be provided to treat the turbidity prior to discharge to the watercourse.</td>
</tr>
<tr>
<td>Will the site development result in changes to drainage patterns?</td>
<td>Yes</td>
<td>Nam Ngiep River will be flow through the Diversion Tunnel.</td>
</tr>
<tr>
<td>Will the site result in erosion?</td>
<td>No</td>
<td>It will be kept dry enough for construction. Furthermore, its foundation is bedrock and the slope is protected by shotcrete.</td>
</tr>
<tr>
<td>Will vegetation clearing be required?</td>
<td>No</td>
<td>The clearance and excavation were deployed while main dam excavation is conducting.</td>
</tr>
<tr>
<td>Will the site be setting up hazardous components? (storage, workshop)</td>
<td>No</td>
<td>All fuels and oils will be stored at workshops at camps.</td>
</tr>
<tr>
<td>Will the site generate waste?</td>
<td>Yes</td>
<td>Rubbish, garbage will be collected and transported to the approved disposal. All hazardous materials such used oils and containers will be transported back to workshop.</td>
</tr>
</tbody>
</table>
Picture 1 – Expected location at main powerhouse from upstream view
Table 8.3 identifies the relevant list of Sub Plans required for the installation, operation, and dismantling of tower crane at main dam area. The Sub Plans were selected after a review of the following:

- Detailed Works Program (DWP)
- Pre-Construction assessment (as per attached Environmental Checklist)
- NNP1 EIA and ESMMPs

Table 8.3 Sub Plans for Main Powerhouse works

<table>
<thead>
<tr>
<th>Sub-Plan</th>
<th>Item</th>
<th>Environmental</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP01</td>
<td>Erosion and Sediment Control</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SP02</td>
<td>Water Availability and Pollution Control</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SP03</td>
<td>Emission and Dust Control</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SP04</td>
<td>Noise and Vibration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SP05</td>
<td>Waste Management</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SP06</td>
<td>Hazardous Material Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP07</td>
<td>Vegetation Clearing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP08</td>
<td>Landscaping and Re-vegetation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP09</td>
<td>Biodiversity Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP10</td>
<td>Spoil Disposal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP11</td>
<td>Quarry and Construction Layout</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP12</td>
<td>Unexploded Ordinance (UXO) Survey and Disposal</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SP13</td>
<td>Construction of Work Camps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP14</td>
<td>Traffic and Access</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SP15</td>
<td>Training Awareness</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SP16</td>
<td>Project Personal Health Program</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>SP17</td>
<td>Emergency Preparedness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP18</td>
<td>Cultural Resource</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Detailed descriptions are found in the relevant sections relating to Environmental or Social Management and Monitoring Plans. See Contractors EMMP-CP Appendix 2.1 “Sub-Plan for Civil Works”

A detailed Environmental Management Activity Table for the installation, operation, and dismantling of tower crane can be referred to in Appendix 9.7 of this report.
8.3. Sub-Plan Detail for the Tower Crane Works – Environment

SP01 Erosion and Sediment Control

- Almost excavation works were done while main dam excavation was deploying.
- All of slope was protected by shotcrete with wire mesh.
- Only minor chipping work will be required.
- The construction area will be kept in the dry condition.

SP02 Water Availability and Pollution Control

- The water river from Nam Ngiep will be utilized for the construction.
- The turbidity water will be treated at Waste Water Treatment Plant what will be provided at downstream of main dam body before discharge to the river. The details of this plant including calculation for sediment pond will be submitted separately.
- No concrete will be disposed on site, any leftover concrete must be transported to the batching plant or disposal areas No. 2 and No. 6.
- Washing of mixer trucks must also be carried out at designated wash bays.
- No concrete waste is to be left behind or disposed into any water course.

SP03 Emission and Dust Control

- All workers must wear the appropriate PPE when on site.
- Water spraying will be conducted daily on existing access roads.
- The dust is minor due to there is no earth work. The main activities are re-bar and concrete work.

SP04 Noise and Vibration

- The distance from the construction areas to the nearest village, Ban Hatsaykam, more than 3km downstream from the site. There is no influence of noise and vibration.
- All workers must wear the appropriate PPE at all times, including hard hat, ear plugs when working with loud cutting equipment and vibratory roller, correct gloves for working with welding machines and safety harnesses when working at the heights.

SP05 Waste Management

- General waste or recycled waste from workers must be collected and later transported back to worker camps or main construction site for correct disposal.
- Construction waste, such a steel reinforcements, steel plate, H – beam will be stockpiled on site and then transferred to main construction site.
- The waste bin and toilet will be provided at workshop nearby the construction area. All workers will be instructed to use properly.
- Dumping any type waste into watercourses is highly prohibited

SP06 Hazardous Material Management

- All fuels for heavy machinery are stored at worker camp sites in specially designed areas, with mobile fuel trucks used for refueling of machinery.
- Any used containers will be stored appropriately on site in a designated area and removed straight away when empty.
- Hazardous materials such as oils, paints and gas tanks will be kept securely to prevent spilling, e.g., gas tanks will be kept in a storage cage above any potential flood level.
- Any hazardous containers will be labeled accordingly and kept in appropriate storage facilities, with all Material Safety Data Sheets (MSDS) when required.
• Storage should have adequate roofing and concrete flooring to reduce the risk of any spillage.
• Any *hazardous waste* materials will be maintained within these storage facilities and disposed of by approved companies.
• Spill response kits will be provided where any such hazardous materials are stored.
• Correct PPE must be used at all times.
• **Discharge of any hazardous materials into watercourses is highly prohibited.**
8.4. Sub-Plan Detail for the Tower Crane Works – Social

SP12 Unexploded Ordinance (UXO) Survey and Disposal
- UXO clearance has been carried out at main dam excavation including powerhouse area by NNP1 before the beginning of any construction activities.
- If any UXO’s or suspicious objects are found, work must stop immediately and NNP1 notified.

SP14 Traffic and Access
- Traffic speed regulation devices as signage will be installed at sensitive locations in the vicinity and approaching construction site.
- Barriers will be installed around high risk areas, such as along access roads around main construction sites.
- The construction area will only be for Project workers and staff. No unauthorized entry will be permitted.
- The installation of a security gate along road P1 (STA. 3+945km) will require an ID card for both persons and vehicles to be shown to security staff. Anyone without an ID card will not be allowed access into the construction site.
- All construction vehicles will be restricted to 30km/h within the construction site.
- Regularly monitoring of traffic conditions will be conducted as part of the weekly Environmental, Health and Safety inspection, with main focus being driving speeds around the Project site.

SP15 Training and Awareness
- All new employees will be required to complete Induction Training from OC/NNP1 prior to commencing any work on site.
- In this training, the Contractor will highlight site regulation/rule, and safety & environmental issue.
- A register of induction training will be maintained and can be provided to NNP1 on request.
- Monthly safety meetings and joint inspections will be conducted with all top management and safety staff, and will cover all relevant health and safety issues on site.
- Weekly meetings are also conducted to bring further awareness to environmental health and safety issues.
- Weekly and monthly environmental monitoring will also be carried out, items include visual monitoring of air quality, soil erosion, effluent discharge and waste disposal.
- Daily toolbox meetings are also conducted to raise worker awareness regarding daily work schedules, safety issues and environmental issues.
- Toolbox meetings are also conducted to raise worker awareness regarding safety and environmental issues such as attention in work with heavy truck, careful in narrow hauling road, work on the height as well as in the depth, regularly check and maintenance machinery, not disturb natural resource like watercourse; flora; fauna, etc. For these works training will emphasize prohibition of hunting and fishing within or around the construction area.

SP16 Project Personnel Health Program
- Referring to Section 6 in Part 1 of the DWP, a tool box meeting will also be carried out weekly and before commencement of any new works.
- Health Awareness Training will be carried out for all personnel in the monthly mass meeting.
- The register for each item above can be provided to NNP1 on request.
- First aid kits will be prepared on site accordingly, these include; Individually wrapped sterile adhesive dressing, Crepe bandage (5.0 cm), Crepe bandage (7.5 cm), Absorbent Gauze (packet of 10 pcs), Adhesive plaster roll (1.25 cm width), Triangular bandages, Scissors, Safety Pins, Disposable gloves (pairs) One-way valve transparent mask or 2-way mouthpiece, Sterile water or saline in 100 ml disposable container (only where tap water is not available).
- First aid kits will be located at the temporary office or within excavators and subcontractor vehicles.
- Section 6 Safety Control of the DWP, highlights main issues during construction.

**SP17 Emergency Preparedness**

- Referring to the emergency action plan in Appendix 9.3, the emergency response procedures, emergency contact numbers and communication and reporting procedures will be clearly displayed and each staff shall always carry it.
- First aid kits will be prepared at each site accordingly.
- Hazardous materials will be stored in the permitted area or the area instructed by the authorities.
- The safety control plan against flood and evacuation procedure is as follows. Please refer to Management System for the Flood in Rainy Season (Document No. NNP1-OTH-MSF-A4) enclosed with Contractor’s letter NNP1-PCL-01484, dated 2nd September 2015 for details.

1) Monitoring for safety control plan against flood shall be based on the following measures described below:
   - Weather forecast from the Local Bureau of meteorology
   - Analysis of water discharge based on survey monitoring data.
   - Visual monitoring of water level gauge by watchman along main dam site.
2) When there is a forecast of heavy rain, watchman shall monitor elevation of water level carefully.
3) Warning shall be given when the water level rises rapidly (increase of 1.5m per hour)
4) Watchman shall follow the reporting procedure of the Emergency Action Plan in Appendix 9.3. Evacuation procedure for safety control plan is described as follows:
   (i) After confirmation alert, the safety officer shall provide signal voice (whistle and/or siren) as commencement for immediate evacuation of all construction, equipment and tools, and workers to higher ground.
   (ii) After the removal of equipment and tools, attendance of workers shall be checked and confirmed after the evacuation.
   (iii) The Safety officer will do a final check of whole area to ensure the evacuation process is completed.

- In the case of oil spillage/leakage accidents, the emergency response kits such as absorbent sheets or similar will be provided.
- In case of the hazardous accident including oil spillage/leakage, ESD will be notified of the situation immediately, as per agreed procedures. NNP1 will coordinate a response with the contractor.
- In case of accidental happening, the Contractor will prepare the Accident Report to NNP1PC within 24 hours, including the immediate remedial action and preventive action for future re-occurrence. Site rehabilitation plans are also required in the event of serious contamination/accident.
SP18  Cultural Resource

According to the EIA document, a preliminary survey of the Project Area was conducted by the Lao PDR Department of Museums and Archaeology (DMA) in October of 2007. In September 2013 local villagers informed NNP1 of Buddha images located in caves near the NNP1 Temporary Bridge site (adjacent to T7 area). On the 30th November 2013 the images were successfully relocated to the local Temple at Ban Hat Gniun. The relocation was complemented by traditional Buddhist ceremonies, which involved Lao department and authorities including; Head of Hat Gniun Village, Representative from NNP1, Representative from Bolikhamxay Province, Representative from Bolikhan District and RMU.

If the Contractor is to find any new physical or cultural resources during construction, the Contractor shall stop the works and inform the Owner immediately and follow the Chance Find Procedures outlined below.

8.5.  Chance Find Procedures

Objectives of Chance Find Procedures are to; (a) minimize impacts to resources from all NNP1 related activities and (b) to ensure that any artifacts uncovered are appropriately recorded, documented and reported to the appropriate line agencies.

If any fossil or cultural item of significance is found the Contractor will promptly give notice to the Owner. This follows the guidelines stated in the Civil Works Contract “CWC” Clause 4.25 regarding Fossil and Artifacts.

Chance find procedures as described in Contractors EMMP-CP Sub-plan Appendix 2.1 Sub-Plan for Civil Works, “21:Cultural Resources” The following steps will be implemented in the event that previously unidentified artifacts are identified:

i. The Contractor shall immediately cease operations in areas where artifacts/archaeological finds are unearthed and immediately inform NNP1 Site Manager.

ii. The Owner will consult the Head of Village and Culture and Tourism Administration Office to obtain advice regarding the next steps.

iii. The Contractor to recommence work only after the Culture and Tourism Office has provided official notification accordingly.
9. **APPENDIX**

9.1. Plan Drawing and Catalogue
9.2. Organization Chart
9.3. Emergency Plan
9.4. Construction Schedule
9.5. Inspection and Test Plan (ITP)
9.6. Risk Register
9.7. Environmental Management Active Table
Appendix 9.1

Plan Drawing and Catalogue
Climbing crane

Reactions in service
Reactions out of service
Without load, ballast (or transport axles), with maximum jib and maximum height.
Consult us
See climbing crane
### Mechanisms

<table>
<thead>
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<th>hp</th>
<th>kW</th>
<th>m/min</th>
<th>0 → 40</th>
<th>0 → 80</th>
<th>0 → 20</th>
<th>0 → 40</th>
<th>0 → 44</th>
<th>0 → 80</th>
<th>0 → 22</th>
<th>0 → 40</th>
<th>0 → 57</th>
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</thead>
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<tr>
<td>70</td>
<td>51</td>
<td>1 3 6</td>
<td>12 6</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>70 RCS 30</td>
<td>75 LVF 30 Optima</td>
<td>70 RCS Optima 30</td>
<td>75 LVF Optima 30</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Reactions in service

- Without load, ballast (or transport axles), with maximum jib and maximum height.

Consult us for any technical information.

---

**CEI 38 / IEC 38**

- 400 V (+6% -10%) 50 Hz
- 70 RCS : 100 kVA
- 75 LVF : 100 kVA

---

### GB

- Hoisting
- Trolleying
- Slewing
- Travelling

---

This commercial document is not legally binding. For any technical information, please refer to the corresponding instructions.
Réactions en service
Reactions in service
Reacciones en servicio
Reazioni in servizio
Reacções em serviço

Réactions hors service
Reaktionskräfte außer Betrieb
Reactions out of service
Reactions fuera de servicio
Reazioni fuori servizio
Reacções fora de serviço

A vide sans lest (ni train de transport) avec flèche et hauteur maximum.
Ohne Last, Ballast (und Transportachse), mit Maximalausleger und Maximalthöhe.
Without load, ballast (or transport axles), with maximum jib and maximum height.
Sin carga, sin lastre, (ni tren de transporte), flecha y altura máxima.
A vuoto, senza zavorra (ne assali di trasporto) con braccio massimo e altezza massima.
Sem carga (nem trem de transporte)-sem lastro com lança e altura máximas.

Nous consulter
Auf Anfrage
Consult us
Consultamos
Consultateci
Consultar-nos

MD 900 B
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Potain MD 2200
Mât - Réactions / Mast - Reaktionskräfte / Mast - Reactions / Mástil - Reacciones / Torre - Reazioni
Tramo - Reacções / Реакция опор мачты

5.5 m

H (m)

PA 1052
F2 = 431 t
F3 = 126 t
F4 = 94 t

H (m)

JC 1050
F1 = 381 t
F2 = 257 t

H (m)

KA 1051
F1 = 341 t
F2 = 287 t

MD 2200
Courbes de charges / Lastkurven / Load curves / Curvas de cargas / Curve di carico
Curvas de carga / Кривые нагрузок

40 m/50 m/60 m/70 m/80 m

6,5 60 65 70 75 80 m 32 29,2 26,8 24,7 22,8 t

60 m/70 m/80 m

6,5 38,7 40 45 50 55 60 65 68,6 70 75 80 m 33 29,6 26,8 25 25 23,3 21,5 t

40 m/50 m

6,5 44,4 45 50 50 m 30 49,3 43,6 t

60 m/70 m/80 m

6,5 30,3 35 40 45 50 54,2 55,7 60 65 70 75 80 m 32 29,2 26,4 24 22,8 20 t

40 m/50 m

6,5 34,9 35 40 45 50 m 32 63,7 54,7 47,6 42 t

70 m/80 m

6,5 31,1 35 40 45 50 55,1 61,7 65 70 75 80 m 32 30,3 27,6 25,4 23,5 t

40 m/50 m/60 m

6,5 31,2 35 40 45 50 55 60 m 32 65,9 57,7 47,3 36,2 t
### 400 V - 50 Hz
#### 480 V - 60 Hz

<table>
<thead>
<tr>
<th>270 LVF 80 Optima</th>
<th>320 LVF 80 Optima</th>
<th>250 LCC 125</th>
<th>250 LCC 160</th>
<th>500 LCC 160</th>
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<tbody>
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<td>120</td>
<td>5,4</td>
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<td>33 (32 t)</td>
<td>0 = 50 (56 t)</td>
<td>0 = 67 (8 t)</td>
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<td>33 t</td>
<td>0 = 25 (64 t)</td>
<td>0 = 50 (32 t)</td>
<td>25</td>
</tr>
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**FR**
- **Appareil de prélèvement**
- **Equipements standards**
- **Equipements optionnels**
- **Récupérateurs en service**
- **Récupérateurs hors service**
- **Lavage**
- **Orientation**
- **Transmission**
- **Poussance requise**
- **Nouveau consommateur**

**DE**
- **Auslegierzurichtung**
- **Standardausrüstungen**
- **Optionale Ausrüstung**
- **Reaktions in Service**
- **Reaktions nicht in Service**
- **Befeuern**
- **Schweifführung**
- **Trainings**
- **Leistung erforderlich**
- **Nicht erfordert**
- **Neuanschluss**

**ES**
- **Equipamiento estándar**
- **Equipamiento opcional**
- **Reactivos en servicio**
- **Reactivos fuera de servicio**
- **Lavado**
- **Orientación**
- **Transmisión**
- **Potencia necesaria**
- **No es necesario**
- **NUEVO CONSUMIDOR**

**IT**
- **Equipamento standard**
- **Equipamento opzionale**
- **Reattivi in servizio**
- **Reattivi fuori servizio**
- **Pulizia**
- **Orientazione**
- **Trasmissione**
- **Potenza necessaria**
- **Non necessaria**
- **NUOVO CONSUMATORE**

**PT**
- **Equipamento estándar**
- **Equipamento opcional**
- **Reactivos em serviço**
- **Reactivos out of service**
- **Lavagem**
- **Orientação**
- **Transmissão**
- **Potência necessária**
- **Não é necessária**
- **NOVO CONSUMIDOR**

**RU**
- **Устройство для отбора**
- **Стандартное оборудование**
- **Дополнительное оборудование**
- **Реагенты в работе**
- **Реагенты не в работе**
- **Уборка**
- **Ориентация**
- **Трансмиссия**
- **Требуется мощность**
- **Не требуется мощность**
- **НОВЫЙ ПОТРЕБИТЕЛЬ**

**ECA**
- **Pour toute demande spécifique merci de nous consulter.**
- **Pour toute question spécifique, merci de nous consulter.**
- **Pour toute question spécifique, merci de nous consulter.**
- **Pour toute question spécifique, merci de nous consulter.**
- **Pour toute question spécifique, merci de nous consulter.**

**VA**
- **AV**

**Europe, Middle East, Africa**
- **Manitowoc, Wisconsin, USA**
- **Tel.: +1 920 684 6621**
- **Fax: +1 920 683 6277**
- **Shady Grove, Pennsylvania, USA**
- **Tel.: +1 717 597 8201**
- **Fax: +1 717 597 4062**

**China**
- **Shanghai, China**
- **Tel.: +86 21 6457 0066**
- **Fax: +86 21 6457 4955**

**Greater Asia-Pacific**
- **Singapore**
- **Tel.: +65 6264 7188**
- **Fax: +65 6862 4040**
Appendix 9.2

Organizational Chart
Appendix 9.3

Emergency Plan
Emergency Plan for Nam Ngiep 1 Hydropower Project

**ACCIDENT INCIDENT**

Not Only Accident, Also Environmental Incident/Hazard

**TAKE ACTION**
- Send injured person to hospital
- Urgent countermeasure
- Inform and explain to authorities
- Record
- etc.

**Managing Director**
Mr. Yamabayashi

**Deputy Managing Director**
Mr. Tsutsui

**Construction Manager**
Mr. Nagasaka

**Project Manager**
Mr. Chabayashi

**Site Engineer**

**Discoverer**

**Safety Chief Engineer**
Mr. Vanhxay

**Administration Manager**
Mr. Harada

**OBAYASHI Corporation Overseas Division (Tokyo)**
+81-3-5769-1254

**ESL**
054-280-308

**Pakxan POLICE**
054-280-190
054-212-256

**Dept. of Environment**
054-790-836

**RMU Resettlement Management Unit**
Mr. Khamsing Sayphouvong
020-2233-5546

**Embassy of Japan**
021-414-400

**Hospital (Lao)**
Bolikhamxay Provincial Hospital
054-212-154 (8:00 - 16:00)
Emergency 24Hrs. Tel.: 054-212-099

**Ambulance**
Bolikhamxay Provincial Hospital
054-212-149 (8:00 - 16:00)
Emergency 24Hrs. Tel.: 020-5508-4966

**Hospital (Thailand)**
Bangkok Hospital Udon Thani
+66-42-491-161~3 (ext. 295) (24hrs)
Emergency: Ms. Sunan Nokthong (Chief Nurse)
Mobile: +66-85-837-8279

**Hospital (Thailand)**
Bueng Kan Hospital
+66-42-343-111
Emergency: Mr. Praoon Thavon (John) (International Marketing Executive)
Mobile: +66-85-030-6338

**Immigration (Lao)**
Mr. Sykhamsay
Mobile: 020-2343-4666

**Immigration (Thailand)**
Pol. Lt. Col. Wallop Khunmuan
Mobile: +66-81-616-1100

**Hospital / Immigration / Embassy / Others**

**Embassy of Japan**
Urgent Case
Mobile: +66-81-616-1100

**Head of Villagers of Relevant Villages**

<table>
<thead>
<tr>
<th>Name of Village</th>
<th>Name of Head</th>
<th>Contact No.</th>
</tr>
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<tbody>
<tr>
<td>Nonsomboun</td>
<td>Mr. Touy Inthavong</td>
<td>020-5614-9468</td>
</tr>
<tr>
<td>Thaheua</td>
<td>Mr. Boonhieng</td>
<td>020-5549-1810</td>
</tr>
<tr>
<td>Hat Ginun</td>
<td>Mr. Phouvieng</td>
<td>020-5977-4434</td>
</tr>
<tr>
<td>Hatsaykham</td>
<td>Mr. Phonsysong</td>
<td>030-5738-860</td>
</tr>
</tbody>
</table>

**Report**

- Report (if necessary)

**Instruction**

- Person to Take Action

**Person to Take Action**

- Head of Villagers of Relevant Villages

**Revised As of 23th September 2014**

**VTE Office**
021-265-185
Mr. Yamabayashi
020-59-565-888
Mr. Tsutsui
020-55-566-959

**Obayashi Corporation Pakxan Office 054-790-686**
Mr. Chabayashi
020-59-888-201
Mr. Harada
020-59-888-208
Mr. Nagasaka
020-59-888-205
Mr. Sasaki
020-59-888-218
Mr. Tsuchihashi
020-59-888-204
Mr. Ishiguro
020-59-888-217
Mr. Dodo
020-22-422-582
Mr. Nagasaka
020-59-888-205
Mr. Sasaki
020-59-888-218
Mr. Tsuchihashi
020-59-888-204
Mr. Ishiguro
020-59-888-217
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Mr. Sasaki
020-59-888-218
Mr. Tsuchihashi
020-59-888-204
Mr. Ishiguro
020-59-888-217
Mr. Dodo
020-22-422-582
Mr. Tsuchihashi
020-59-888-206
Appendix 9.4

Construction Schedule
Schedule for Tower Crane at MD:

**SCHEDULE FOR INSTALLATION, OPERATION, AND DISMANTLING OF TOWER CRANE AT MAIN DAM**

### INSTALLATION

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### OPERATION

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<th>2017</th>
<th>2018</th>
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### DISMANTLING

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Appendix 9.5

Inspection and Test Plan (ITP)
### 9.5 INSPECTION AND TEST PLAN (ITP)

<table>
<thead>
<tr>
<th>Item</th>
<th>Testing / Inspection Items</th>
<th>Description (Properties to be tested)</th>
<th>Specification</th>
<th>Inspection and Test Method</th>
<th>Acceptable Criteria</th>
<th>Inspection by</th>
<th>Testing Location</th>
<th>Frequency</th>
<th>Verifying Document</th>
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<td>S/C</td>
<td>OC</td>
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<td>1</td>
<td>CVC</td>
<td>During concreting</td>
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<td>I</td>
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<td>Slump</td>
<td>TS 6.6 &amp; 6.18</td>
<td>ASTM C143</td>
<td>Mix design</td>
<td>I</td>
<td>I</td>
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<td>Site</td>
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<tr>
<td></td>
<td></td>
<td>Temperature, (°C)</td>
<td>TS 6.6 &amp; 6.18</td>
<td>ASTM C1064</td>
<td>≤ 32°C (ASTM C94)</td>
<td>I</td>
<td>I</td>
<td>N/A</td>
<td>Site</td>
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<tr>
<td></td>
<td></td>
<td>After concreting</td>
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<td></td>
<td></td>
<td>Compressive Strength (Normal Curing) at 7, 28, and 91 days (if use fly ash)</td>
<td>TS 6.6 &amp; 6.18</td>
<td>ASTM C39 (AASHTO T22)</td>
<td>Specified strength in Mix design</td>
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<td>I</td>
<td>N/A</td>
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<td>Re-bar</td>
<td>Quality Test:</td>
<td>TS 6.15.1</td>
<td>Visual inspection</td>
<td>ASTM A615/ JIS G3112, grade SD345</td>
<td>I</td>
<td>I</td>
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</table>

**Legend:**
- S/C: Subcontractor & The Contractor
- OC: The Owner
- Own: The Owner
- H: Hold Point
- I: Inspection
- W: Witness by Owner
- R: Document Review

**Accredited Laboratories:**

<table>
<thead>
<tr>
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<th>Address</th>
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<tbody>
<tr>
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<td></td>
</tr>
<tr>
<td>2. TBA</td>
<td></td>
</tr>
<tr>
<td>3. TBA</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 9.6

Risk Register
# TOWER CRANE AT MAIN DAM – REGISTER OF ASPECTS AND HAZARDS

Prepared by Name/Signature: ____________ Date: ____________

Approval by Name/Signature: ____________ Date: ____________

<table>
<thead>
<tr>
<th>Activity</th>
<th>Sub Activity</th>
<th>Hazards</th>
<th>Risks/Impacts</th>
<th>Risk Rating</th>
<th>Control Measure</th>
<th>Risk Rating After Control Measure</th>
<th>Acceptance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupational Health and Safety</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment and material transport</td>
<td></td>
<td>Potential of traffic accident with third party</td>
<td>Injury to third party</td>
<td>Low</td>
<td>Training to subcontractors and supplier prior to first delivery</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Hauling</td>
<td></td>
<td>Potential of collision with equipment</td>
<td>Injury/ Fatality</td>
<td>Low</td>
<td>Conduct toolbox meetings and periodical training</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Erection and dismantling of machinery</td>
<td></td>
<td>Potential of falling from heights</td>
<td>Injury/ Fatality</td>
<td>Medium</td>
<td>Training for wearing of safety harness when at heights prior to work</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Installing and wiring electricity</td>
<td></td>
<td>Potential of electrical faults</td>
<td>Injury/ Fatality from electrocution</td>
<td>High</td>
<td>Only use trained technicians</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Hand and power tools</td>
<td></td>
<td>Potential of electrical faults</td>
<td>Injury/ loss of limb/ fatality from misuse of tool</td>
<td>High</td>
<td>Adequate training and use experienced workers</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td><strong>Common Works</strong></td>
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<td></td>
</tr>
<tr>
<td>Lack of awareness for safe health</td>
<td></td>
<td>Unsafe action, inadequate health control</td>
<td>Injury/ disease</td>
<td>Low</td>
<td>Carry out induction training and toolbox meetings</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Using hand/power tools</td>
<td></td>
<td>Potential of electrical faults</td>
<td>Injury/ loss of limb/ fatality from misuse of tool</td>
<td>High</td>
<td>Adequate training and use experienced workers</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Loading and unloading of equipment off/on trailer</td>
<td></td>
<td>Falling from trailer</td>
<td>Injury/ Fatality</td>
<td>Medium</td>
<td>Conduct training and toolbox meetings</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Activity</td>
<td>Sub Activity</td>
<td>Hazards</td>
<td>Risks/Impacts</td>
<td>Risk Rating</td>
<td>Control Measure</td>
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</tr>
<tr>
<td>Common Works</td>
<td>Installing and dismantling of equipment and/or facilities</td>
<td>Getting caught in equipment</td>
<td>Injury/ fatality</td>
<td>Medium</td>
<td>Conduct toolbox meeting and periodical training</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Operating, maintenance, falling from equipment</td>
<td>Contact with or falling from equipment</td>
<td>Injury/ loss of limbs/fatality</td>
<td>High</td>
<td>Conduct training and toolbox</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Working at heights</td>
<td>Falling from scaffolding or equipment</td>
<td>Injury/ Fatality</td>
<td>High</td>
<td>Conduct training and toolbox meetings. Provide safety belts and guard rails around working area</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Working in confined spaces</td>
<td>Lack of oxygen, inhalation of toxic gas</td>
<td>Injury/ fatality</td>
<td>High</td>
<td>Provide adequate ventilation, such as blower or ducts.</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Concrete Works</td>
<td>Transportation of mixer truck</td>
<td>Potential of collision with other vehicle, stuck and sink of vehicle</td>
<td>Injury/ fatality</td>
<td>Medium</td>
<td>Conduct training, toolbox meetings and assign watchmen, check condition of access road daily</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Pump concrete</td>
<td>Potential of collision with trucks and or other equipment</td>
<td>Injury/ fatality</td>
<td>Medium</td>
<td>Conduct training, toolbox meetings and assign watchmen</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Casting of concrete by crane bucket</td>
<td>Stumbling over rebar, contact with bucket, compaction by vibrator</td>
<td>Sprain, fracture, injury, electrification</td>
<td>Medium</td>
<td>Conducting training prior to work commencement and toolbox meeting, assign watchman</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Re-bar work</td>
<td>Erection and dismantling of scaffold/support system</td>
<td>Falling from heights, Collapse of scaffold/support</td>
<td>Fatality, injury</td>
<td>High</td>
<td>Training on safety belt prior to work commencement and toolbox meeting</td>
<td>medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Activity</td>
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</tr>
<tr>
<td>Re-bar work</td>
<td>Lifting, setting, mishandling of materials, tools</td>
<td>Hitting, clashing, with falling materials/tools</td>
<td>Fatality, injury</td>
<td>High</td>
<td>Training on safety handling of materials prior to commencement of work and toolbox meeting, assign watchman</td>
<td>medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Re-bar work</td>
<td>Reinforcing bar Fabrication</td>
<td>Cutting, pinching by rebar cutter, bender</td>
<td>Injury, amputation</td>
<td>Medium</td>
<td>Training on safety operation of machine prior to commencement of work and toolbox meeting</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Re-bar work</td>
<td>Re-bar welding</td>
<td>Electric leakage</td>
<td>Electrification</td>
<td>High</td>
<td>Toolbox meeting: wear proper PPE, working area should be well-ventilated, proper earth grounding</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Environmental</td>
<td>Preparation of formwork</td>
<td>Mishandling electric saw, planer</td>
<td>Amputation, injury, bruise</td>
<td>Medium</td>
<td>Toolbox meeting; wear proper PPE, should have enough working area</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Environmental</td>
<td>Assembly of formwork, supporting system</td>
<td>hitting fingers with hammer, falling of form, supporting member</td>
<td>Bruise, fatality, injury</td>
<td>Medium</td>
<td>Training on safety handling of materials prior to commencement of work and toolbox meeting, assign watchman</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Environmental</td>
<td>Machinery Mobilization and Operation</td>
<td>Machine and material transportation</td>
<td>Dust caused by transportation vehicles</td>
<td>Air pollution</td>
<td>Conduct frequent water spraying of roads, especially along village locations.</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Activity</td>
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</tr>
<tr>
<td><strong>Common Works</strong></td>
<td>Installing and dismantling of temporary structure</td>
<td>Consumption of fuel and electricity</td>
<td>Air pollution from equipment</td>
<td>Low</td>
<td>Maintain vehicle condition</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Daily transportation</td>
<td>Consumption of fuel</td>
<td>Air pollution</td>
<td>Low</td>
<td>Regular maintenance of vehicles</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Lack of awareness for health and safety</td>
<td>Environmental Awareness</td>
<td>Workers disposing of chemicals and other waste into waterways and local vegetation</td>
<td>Medium</td>
<td>Provide correct training to all workers before starting work</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Loading and unloading of equipment off/on trailer</td>
<td>Consumption of fuel</td>
<td>Air pollution</td>
<td>Low</td>
<td>Regular maintenance of vehicles</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Installing and dismantling of temporary structure</td>
<td>Consumption of fuel, gas or electricity</td>
<td>Disposing of waste materials into the environment</td>
<td>Low</td>
<td>Training on how to treat waste materials after site closure</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Operating, maintaining and repairing of equipment</td>
<td>Consumption of fuel or electricity</td>
<td>Air pollution, oil leaks, cleaning of vehicles</td>
<td>Low</td>
<td>Regular maintenance of vehicles. Clean and wash vehicles in correct location e.g., wash bays.</td>
<td>Low</td>
<td>Acceptable</td>
</tr>
<tr>
<td><strong>Concreting</strong></td>
<td>CVC placement</td>
<td>Disposal of remaining concrete/washing water</td>
<td>Potential pollution of soil/river</td>
<td>High</td>
<td>Dispose at specified area. Daily monitoring of work site condition</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td><strong>Structure Works</strong></td>
<td>Spreading, compaction of concrete</td>
<td>Consumption of fuel, Disposal of surplus concrete</td>
<td>Noise/vibration/air pollution, Soil contamination</td>
<td>Medium</td>
<td>To train truck operators for disposal method and engine cut during waiting time</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td></td>
<td>Casting concrete, handling of heavy materials,</td>
<td>Consumption of fuel, Disposal of surplus concrete</td>
<td>Noise/vibration/air pollution, Soil contamination</td>
<td>Medium</td>
<td>To train truck and heavy equipment operators for disposal</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Activity</td>
<td>Sub Activity</td>
<td>Hazards</td>
<td>Risks/Impacts</td>
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<td>---------------------</td>
</tr>
<tr>
<td>Other</td>
<td>Natural Disasters</td>
<td>Flooding, Storms, Heavy Winds</td>
<td>Increased chance of injury or fatality, damage to vehicles, buildings and machinery</td>
<td>High</td>
<td>Emergency Procedures to be followed in the case of any natural disaster</td>
<td>Medium</td>
<td>Acceptable</td>
</tr>
</tbody>
</table>

Other: operation of machineries  
Method and engine cut during waiting time

Revision: A1
Appendix 9.7

Environmental Management Activity Table
# 9.7 Environmental Management Activity Table for Tower Crane Works

<table>
<thead>
<tr>
<th>Sub-plan Item</th>
<th>Monitoring Method</th>
<th>Monitoring Frequency</th>
<th>On-Site Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP01 Erosion and Sediment Control</td>
<td>Visual</td>
<td>Weekly or Heavy rain</td>
<td>- Almost excavation works were done while main dam excavation was deploying.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- All of slope was protected by shotcrete with wire mesh.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Only minor chipping work will be required.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The construction area will be kept in the dry condition.</td>
</tr>
<tr>
<td>SP02 Water Availability and Pollution Control</td>
<td>Visual</td>
<td>Routine</td>
<td>- The water river from Nam Ngiep will be utilized for the construction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The turbidity water will be treated at Waste Water Treatment Plant what will be provided at downstream of main dam body before discharge to the river. The details of this plant including calculation for sediment pond will be submitted separately.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- No concrete will be disposed on site, any leftover concrete must be transported to the batching plant or disposal areas No. 2 and No. 6.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Washing of mixer trucks must also be carried out at designated wash bays.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- No concrete waste is to be left behind or disposed into any water course.</td>
</tr>
<tr>
<td>SP03 Emission and Dust Control</td>
<td>Visual</td>
<td>Daily</td>
<td>- All workers must wear the appropriate PPE when on site.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Water spraying will be conducted daily on existing access roads.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The dust is minor due to there is no earth work. The main activities are re-bar and concrete work.</td>
</tr>
<tr>
<td>SP04 Noise and Vibration</td>
<td>Visual</td>
<td>Each time</td>
<td>- The distance from the construction areas to the nearest village, Ban Hatsaykam, more than 3km downstream from the site. There is no influence of noise and vibration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- All workers must wear the appropriate PPE at all times, including hard hat, ear plugs when working with loud cutting equipment and vibratory roller, correct gloves for working with welding machines and safety harnesses when working at the heights.</td>
</tr>
<tr>
<td>SP05 Waste Management</td>
<td>Visual</td>
<td>Each time</td>
<td>- General waste or recycled waste from workers must be collected and later transported back to worker camps or main construction site for correct disposal.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Construction waste, such a steel reinforcements, steel plate, H – beam will be stockpiled on site and then transferred to main construction site.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- The waste bin and toilet will be provided at workshop nearby the construction area. All workers will be instructed to use properly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Dumping any type waste into watercourses is highly prohibited</td>
</tr>
<tr>
<td>SP06 Hazardous Material Management</td>
<td>Visual</td>
<td>Weekly</td>
<td>- All fuels for heavy machinery are stored at worker camp sites in specially designed areas, with mobile fuel trucks used for refueling of machinery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Any used containers will be stored appropriately on site in a designated area and removed straight away when empty.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Hazardous materials such as oils, paints and gas tanks will be kept securely to prevent spilling, e.g., gas tanks will be kept in a storage cage above any potential flood level.</td>
</tr>
<tr>
<td>Sub-plan Item</td>
<td>Monitoring Method</td>
<td>Monitoring Frequency</td>
<td>On-Site Implementation</td>
</tr>
<tr>
<td>---------------</td>
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</tr>
</tbody>
</table>
| SP12 Unexploded Ordinance (UXO) Survey and Disposal | Visual | Each Time | - UXO clearance has been carried out at main dam excavation including powerhouse area by NNP1 before the beginning of any construction activities.  
- If any UXO’s or suspicious objects are found, work must stop immediately and NNP1 notified. |
| SP14 Traffic and Access | Visual | Routine | - Traffic speed regulation devices as signage will be installed at sensitive locations in the vicinity and approaching construction site.  
- Barriers will be installed around high risk areas, such as along access roads around main construction sites.  
- The construction area will only be for Project workers and staff. No unauthorized entry will be permitted.  
- The installation of a security gate along road P1 (STA. 3+945km) will require an ID card for both persons and vehicles to be shown to security staff. Anyone without an ID card will not be allowed access into the construction site.  
- All construction vehicles will be restricted to 30km/h within the construction site.  
- Regularly monitoring of traffic conditions will be conducted as part of the weekly Environmental, Health and Safety inspection, with main focus being driving speeds around the Project site. |
| SP15 Training and Awareness | Visual / Verbal | Routine | - All new employees will be required to complete Induction Training from OC/NNP1 prior to commencing any work on site.  
- In this training, the Contractor will highlight site regulation/rule, and safety & environmental issue.  
- A register of induction training will be maintained and can be provided to NNP1 on request.  
- Monthly safety meetings and joint inspections will be conducted with all top management and safety staff, and will cover all relevant health and safety issues on site.  
- Weekly meetings are also conducted to bring further awareness to environmental health and safety issues.  
- Weekly and monthly environmental monitoring will also be carried out, items include visual monitoring of air quality, soil erosion, effluent discharge and waste disposal.  
- Daily toolbox meetings are also conducted to raise worker awareness regarding daily work schedules, safety issues and environmental issues.  
- Toolbox meetings are also conducted to raise worker awareness regarding safety and |
<table>
<thead>
<tr>
<th>Sub-plan Item</th>
<th>Monitoring Method</th>
<th>Monitoring Frequency</th>
<th>On-Site Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP16 Project Personnel Health Program</td>
<td>Visual / Verbal</td>
<td>Routine</td>
<td>• Environmental issues such as attention in work with heavy truck, careful in narrow hauling road, work on the height as well as in the depth, regularly check and maintenance machinery, not disturb natural resource like watercourse; flora; fauna, etc. For these works training will emphasize prohibition of hunting and fishing within or around the construction area.</td>
</tr>
<tr>
<td>SP17 Emergency Preparedness</td>
<td>Visual</td>
<td>Weekly</td>
<td>• Regarding the content of Section 6 in Part 1 of the DWP in this document a tool box meeting will also be carried out weekly and before commencement of any new works. • Health Awareness Training will be carried out for all personnel in the monthly mass meeting. • The register for each item above can be provided to NNP1 upon request • First aid kits will be prepared on site and in sub-contractor vehicles.</td>
</tr>
<tr>
<td>SP18 Cultural Resource</td>
<td>Visual</td>
<td>Each time</td>
<td>• Referring to the emergency action plan in Appendix 9.3, the emergency response procedures, emergency contact numbers and communication and reporting procedures will be clearly displayed and each staff always carry it. • First aid kits will be prepared at each site accordingly. • Hazardous materials will be stored in the permitted area or the area instructed by the authorities. • In the case of oil spillage/ leakage accidents, the emergency response kits such as absorbent sheets or similar will be provided. • In case of the hazardous accident, ESD will be notified of the situation immediately, as per agreed procedures. NNP1 will the coordinate a response with the contractor. • In case of accidental happening, the Contractor will prepare the Accident Report to NNP1PC within 24 hours, including the immediate remedial action and preventive action for future re-occurrence. Site rehabilitation plans are also required in the event of serious contamination/ accident.  • If the Contractor is to find any new physical or cultural resources during Cofferdam construction, the Contractor shall stop the works and inform the Owner immediately and follow the Chance Find Procedures.</td>
</tr>
</tbody>
</table>