

2024



PLAN FOR CONSTRUCTION WORKS AT NIGHT – ACCESS ROAD

REVISION 6 – 01 MARCH 2024
HYUNDAI ENGINEERING CO.LTD.

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1. ABSTRACT

This night works plan presents a proposal to facilitate night-time operations by the Access Road Subcontractor, Sino Hydro Corporation, within the framework of the Tina River Hydropower Development Project.

In light of the need to expedite the ongoing access road construction and meet critical project milestones, it has become imperative for the Contractor and Subcontractor to extend working hours.

The staged approach articulated in Chapter 9 was proposed to recover the lost days due to bad weather and achieve the rate of progress to hit the project milestones.

This plan comprehensively evaluates scenarios for implementing night works to enhance productivity while ensuring full compliance with the project's safeguard requirements outlined in the Environmental and Social Management Plans (ESMPs) including the updated ESMP's plans for the purpose of this night works for access road construction.

Given that the scope of proposed night work is limited to bulk excavation and the removal of excavated material to designated disposal sites, it is anticipated that there wouldn't be significant deviations from baseline conditions. Additionally, considering the same construction methodology to be adopted, the existing ESMPs shall cover and guide the proposed night works. However, the various aspects that may increase the extent or severity of health and safety, environmental and social impacts were identified. This may include but is not limited to:

- Inadequate Lighting/Poor Visibility
- Traffic Control
- Health and Safety of Workers
- Construction Works Supervision
- Bad Weather/Frequent Rainfall

Pursuant to the P1 CESMP, the Contractor shall be responsible for communicating any changes which may lead to unanticipated impacts and risks that were not envisaged during the CESMP process to Project stakeholders. Therefore, The Contractor intends to submit this plan to the Employer and their Representatives and other relevant approving stakeholder for their consideration, focusing on the P4 Human Resources and Labour Management Plan, P8 Workers Health and Safety Plan and P11 Traffic Management Plan. To summarize, the following updates have been made to these Management Plan and being requested for approval under Management of Change Procedure:

ID	Management Plan	Change due to
P4	Human Resources and Labour Management Plan	<ul style="list-style-type: none">• Increase in Working Hours• Approval of CoL that allows an exemption to the restrictions of Labour Act.• Rotational Shifts
P8	Workers Health and Safety	<ul style="list-style-type: none">• Upgradation to the PPE requirements during Night Works.• Requirement of checks and filing of Night Work Certificate by the contractor in addition to PTW + JHA.
P11	Traffic Management Plan	<ul style="list-style-type: none">• Night Driving Procedure (appended)• Safety during Haulage operations

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		• Barricades and use of Traffic baton lights used.
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Recognizing that existing ESMPs already govern night work for dam and powerhouse construction, this document focuses on additional site-specific mitigation measures applicable to the areas where night work will occur, that is small sections of Access Road Lot 2-2 and Lot 3-1. Hence, the risk management approach has been tailored to the specific context within the Night Works Plan.

As illustrated in Chapter 6 of this plan, a thorough risk assessment has been conducted, identifying all potential Health, Safety, and Environmental (HSE) risks and outlining corresponding mitigation measures. These additional measures will be taken during night shifts to ensure the workforce's safety, uphold work's quality and minimize potential disruptions to the local community and environment. In addition, the Contractor is to ensure compliance with all measures and requirements set forth in the existing ESMPs or HEC HSE procedures and the national regulations.

2. BACKGROUND

2.1 P4 HUMAN RESOURCE AND LABOUR MANAGEMENT PLAN (HRLMP)

The current version of P4, HRLMP, allows HEC Employees and Subcontractors to work 88hours a fortnight for the Access Road construction works with the following timings:

- Monday to Friday: 8 am to 5 pm, with a 1-hour break between 12-1 pm (total of 8 hours worked on each working weekday).
- Saturday: 8 am to 12 pm.

However, there is a provision for 24-hour work with two-shift operation are applicable to main works only. Therefore, the THRDP Management of Change process shall be followed for a Category 2 change in accordance with the P-1 Construction Environmental and Social Management Plan, including review and approval by OE and PO.

3. WORKING HOURS

The proposed work schedule entails organizing our workforce to operate six days a week, with a maximum of 10 hours worked per day. This schedule comprises 8 regular working hours and an additional 2 hours of overtime each day, resulting in a total of 60 hours per week or 260 hours per month. Please note the following:

- **Day shift:** 7 am to 6 pm, with a 1-hour break between 12 pm and 1 pm, resulting in 10 hours worked daily.
- **Night shift:** 7 pm to 6 am, with a 1-hour break between 12 midnight and 1 am, resulting in 10 hours worked daily.
- Workers will be provided with short breaks on a rotational schedule for tea and refreshments.

Considering the shift timing proposed by HEC, a worker is not working for more than 5 hours continuously. Additionally, there will be shift change times from 6 am to 7 am and from 6 pm to 7 pm, totaling 2 hours per day. Please note that these shifts change times are for transporting workers to and from the Project Site and will remain unpaid.

To address mental health concerns, there exists a plan to transition from dedicated night shifts to a rotational day and night shift schedule. This would involve alternating day and

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night shifts for workers, with a rest day between the day shift week and the night shift week to facilitate adjustment. Each worker will be compensated for overtime work in addition to their regular pay. However, workers engaged in night shift shall be consulted before assigning them for night shift duties. To demonstrate compliance, HEC shall continue to keep track of all working hours, including both regular and overtime hours.

4. LABOUR ACT REQUIREMENTS AND COMPLIANCE:

In compliance with Solomon Islands Labour Act 1996:

- Workers will not be required to work more than 45 hours per week.
- Workers will not be required to work more than 9 hours in any working day.
- Workers will take a mandatory 1-hour break during each 8-hour working day.
- Workers shall not be required to be at the place of work for more than 12 hours per day, accounting for hours of work and breaks.
- Workers will be allocated a weekly rest of at least twenty-four continuous hours (currently proposed to be Saturday or Sunday).
- Workers that are required to work on public holidays will be paid at a rate of not less than twice the regular hourly rate of pay.
- Workers shall be supplied with all personnel protective equipment needed to protect them from occupational and environmental hazards associated with their job.

If it is necessary for employees to work beyond their regular contracted hours, or on public holidays, any of these additional hours worked will be paid at overtime or public holiday rates as applicable. The overtime hours shall be managed to restrict weekly working hours to 57 including the normal working hours or 228 working hours in a calendar month in accordance with the Labour Act Cap. 12 unless approval from the Commissioner of Labour is granted.

Apart from the Solomon Islands Labour Act, no special permits or licenses are required to implement the night construction activities.

To meet the requirements mentioned above, the Contractor and the Subcontractor individually sought approval from the Commissioner of Labor for an exemption from these conditions. HEC and Sino Hydro separately obtained approval from the Commissioner of Labor within the Ministry of Commerce, Labor, and Immigration, SIG. This approval granted authorization to implement a 60-hour workweek and up to 260 monthly hours. The permissions were granted on October 9, 2023, and October 17, 2023, respectively. Refer to Annex 02 for the Letter of Approval.

5. RESTRICTIONS

To minimize the impact on the communities during night-time Access Road Construction, the following restrictions will be enforced:

- Night-time construction activities will be confined exclusively to the Project Core Boundary.
- Blasting operations are strictly prohibited during night-time hours.

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- Construction activities in close proximity to communities and residential areas are strictly forbidden.¹
- Haulage operations will be restricted to the project core boundary exclusively.
- Night-time construction activities will be limited to excavation work, carting to disposal sites and filling and compacting in disposal sites.
- Dangerous activities such as welding, working at height, confined spaces, trenches, use of hazardous chemicals will not be allowed at night without permission.
- A minimum of two weeks' notice shall be provided to communities along the Lot 1 access road, to allow for consultation and feedback to be heard.
HEC social team has initiated holding community consultations on 9th, 17th November and 08th December, 2023 with nearby communities to inform them about the risks and mitigation measures. The consultation activity received feedback from the communities and provided responses to the concerns raised by the community. HEC CLO shall ensure that potential grievances related to night works are captured and are addressed in a timely manner in accordance with GRM procedure.
- Minimise vehicle movements along the Lot 1 access road by using vans and buses to transport workers, and limiting the hours at which they can pass by villages to shift change times.
- The THRDP Management of Change process shall be followed for a Category 2 change in accordance with the P-1 Construction Environmental and Social Management Plan, including review and approval by OE and PO.

6. ANALYSIS OF RISKS AND MITIGATION MEASURES

Night-time construction presents several risks to a construction project. One notable set of examples includes driver and worker fatigue and reduced visibility. These factors can significantly heighten safety concerns.

Another key element contributing to the risks associated with night-time work are human factors, such as sleep patterns, stress levels, personal issues (both social and domestic), and psychological factors like appetite and overall alertness. Additionally, other factors are linked to the risks of night-time construction work zones, such as limited space for machinery and equipment movement, inadequate lighting, and extended working hours.

The lighting arrangements for night-time construction substantially impact various aspects of the project, including safety, quality, cost, and productivity. A primary reason for the profound influence of illumination levels on other night-time construction elements is that light significantly affects human performance and alertness.

¹ The baseline noise monitoring data indicated noise level of 42dB(A) at Habusi which is the closest village from Lot 3-1 during night-time hours in the absence of construction activities. When breaker operations at Access Road Lot 3-1 construction is started, a reassessment of noise levels can be conducted to confirm for any additional measures. Considering the continuous operations at the PH site, this scenario will result in minimal deviation from the Habusi baseline results.

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The table below presents various risks associated with construction at night-time and proposes multiple mitigation measures to minimize the level of impact.

Table 1 Risks and Mitigation Measures

#	Risks	Mitigation Measures
1	Inadequate Lighting/Poor Visibility	<ul style="list-style-type: none"> • Ensure adequate and uniform lighting in the work area to improve visibility. • Provide Emergency lightings such as head lamps and/or torches to all the night workers. • Ensure minimum 50 lux of light is available at night for excavation and embankment filling as per [HSE-AH-H04] HSE Management Plan. • Install rubber cones at least every 10 meters and warning lights in dangerous areas. The spacing can be adjusted as per site conditions. • Vehicles with restricted rear visibility will be fitted with audible back-up alarms. • Clear signage will be installed, and the use of signs, flagmen and signals will be set up where necessary. The signs will be fixed safely and securely to ensure they do not become detached or dislocated and will be visible and comprehensible by all.
2	Traffic Control	<ul style="list-style-type: none"> • Assign trained spotters to assist vehicle operators. • Strictly implement the speed limits and traffic rules provided in the P11 Traffic Management Plan. • Install clear and visible signage to indicate pedestrian crossings and caution zones. • Ensure dump trucks have reverse lamps and operating reverse warning beepers. • To prevent falls, one-meter bunds will be installed in areas where there is a risk of falling.
3	Noise	<ul style="list-style-type: none"> • Construction Noise monitoring during night at active construction sites to track noise levels and ensure compliance with IFC EHS Guidelines. The use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak • sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(A). • Enforce rules on equipment idling and engine shut-off when not in use. • Environmental Noise Monitoring at sensitive Receptor will be conducted once a month. Continuous 1-hour LAeq noise level monitoring for a minimum of 24 hours (7am to 7am) using a Type 1 or Type 2 sound level meter at each of the locations detailed in Annex M-7-II(11 locations). Noise impacts should not exceed the target levels or result in a maximum increase in background 1-hour LAeq levels of 3 dB(A) at the nearest receptor location off-site.
4	Health and Safety of Workers	<ul style="list-style-type: none"> • Provide on-site safety training for all workers, including the risks associated with night work and vehicle-pedestrian interaction.

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		<ul style="list-style-type: none"> • All personnel involved in night work will receive comprehensive safety training, including hazard identification, risk assessment, and emergency procedures. • Stick to the works included in PTW. • Conduct regular safety briefings to reinforce safe practices before the start of the night Shift. • Workers will be provided one complete rest day between night shifts. This extended break will allow them to recuperate and prepare for the next work cycle. • During one-hour break, workers will have access to the office buildings at the worksite for rest and relaxation. • Throughout the night shift, employees will be provided with additional short breaks to promote alertness and prevent fatigue. • During frequent rainfall, consecutive night shifts will not be scheduled. This will provide workers with adequate rest and recovery time. • If rain persists during night work operations, all activities will be immediately halted.
5	Construction Works Supervision	<ul style="list-style-type: none"> • Assign supervisors and safety personnel to monitor the work area for compliance with safety protocols continuously. • Conduct regular safety inspections to identify and address any shortcomings in safety measures. • At loading sites, spotters will assist operators in avoiding collisions, particularly between excavators and dump trucks. They will guide operators to ensure safe maneuvering and maintain adequate clearance between vehicles. • At unloading sites, spotters will help operators avoid unstable slopes and soft ground, thereby reducing the risk of tripping and falling accidents involving heavy equipment. They will also ensure that operators maintain a safe distance from hazardous areas. • Supervisors and safety personnel will oversee the work of spotters to prevent constriction accidents between heavy equipment and the spotters themselves. They will monitor the work area and intervene if necessary to maintain safe working distances.
6	Communication Barrier	<ul style="list-style-type: none"> • Use two-way radios or devices to facilitate communication between workers and vehicle operators. • Signal to be exchanged between operators and signalman will be trained. • Clear and consistent communication channels will be established between operators, spotters, supervisors, and safety personnel to ensure coordinated and timely actions. • Brief Workers of the plan before start of work. • Proper handover of site between Day and Night Shift
7	Bad Weather/Frequent Rainfall	<ul style="list-style-type: none"> • Night work operations will be weather-dependent, and all activities will be immediately halted in the event of heavy rain. • If the access does not permit for construction works, night works will be halted until repair works are completed during the day.
8	Wildlife interaction	<ul style="list-style-type: none"> • Workers will be provided refresher training on wildlife interaction.

	<ul style="list-style-type: none">• Operators will be reminded to be watchful of the animal crossing the road.• Directing artificial light downwards to reduce upward light spill and minimize skyglow.• Avoiding excessive light spillage beyond the intended illumination area.
9	Dust <ul style="list-style-type: none">• Workers will be provided with N95 dust masks for use at the construction sites.• Water will be sprayed at the end of the day shift to prevent dust generation at the night shift.• Water Truck shall be kept standby for deployment in case of excessive dust generation.• 1 hour Air Quality monitoring shall be conducted by HSE Officer once a week and shall be further increased to daily during peak hours as per P15 AQMDCP. In addition, monthly 24 Hours Air Quality Monitoring at sensitive receptors shall continue and will be increased to daily following complaints.

7. ROLES AND RESPONSIBILITIES

In order to ensure a seamless transition between day and night shifts, a comprehensive handover process will be conducted. The site supervisor, site engineer, and HSE officers will collectively transfer all pertinent information regarding ongoing operations to the night shift personnel. The Construction manager will oversee this handover process to ensure clarity and comprehensiveness. Upon completion of the handover, TBM operations and pre-start checks will commence.

The subjects of discussion during handover will be:

1. Fuel refill status of heavy equipment, Generators, lighting towers.
2. Status of lights
3. Status of construction works and to do actions.
4. Precautions to taken care during night works

The Project Manager, Construction Manager, and HSE Manager hold overall responsibility for night work, conducting random site visits with a minimum frequency of two visits per week, however, they will not be posted for the entire night shift.

The Site Supervisor, Site Engineer, and HSE Officer will be engaged for the entire duration of night shift, responsible for direct supervision of night work, ensuring adherence to safety protocols and operational efficiency. Additionally, one HEC Korean Civil Manager shall be present at the construction site until 11pm to supervise the work and provide oversight to the team.

Additionally, two dedicated HEC Korean employees will perform site inspections, each conducting two rounds during the night shift (7:00 PM to 10:00 PM and 1:00 AM to 3:00 AM). These HEC personnel will be granted half a day of compensated rest the following afternoon to recover from their night patrol duties. This multi-layered approach ensures comprehensive oversight and proactive risk mitigation throughout night work.

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OE will assist in conducting night monitoring of the proposed access road works. And THL will assign one personnel from the existing staff (refer to Table in Chapter 12- THL Roaster) to monitor and ensure that the proposed activities are in accordance with the requirements.

The assigned personnel will report to THL's E&S Manager, Civil Manager, Chief Technical Officer and the OE's representative on a daily basis on the progress or any incidents or improvements occurring on site requiring attention.

THL Chief Technical Officer will undertake random night spot checks as well to assist in monitoring activity and to provide that needed employer visibility on site.

The table below lists Roles and Responsibilities for Access Road Construction during night. While the responsibilities of the Project Manager and Construction Manager are focused on the position held by the Contractor, other roles and responsibilities are individually or jointly shared by the Contractor and Subcontractor only for night work.

Table 2 HEC/Subcontractors Roles and Responsibilities

Organization	Position	Responsibilities
HEC	Project Manager	<ul style="list-style-type: none"> • Ensure the works conducted at night comply with project specifications and standards. • Liaise with Project stakeholders, Employer, and Owner's Engineer to address concerns and provide updates. • Analyzing the site conditions with the excavation volumes/progress, resources like heavy equipment and manpower can be adjusted to ensure efficiency. • Manage project risks and implement mitigation strategies. • Ensure that all construction activities are conducted safely and efficiently. • Conduct random site visits with a minimum frequency of two visits per week. <p><i>Note: The approach will be the same as day work but at night regular site inspections, feedback from Night Crew will enable the PM to improve night operations.</i></p>
	Construction Manager	<ul style="list-style-type: none"> • Coordinate on-site construction activities during night shifts. • Manage and direct construction staff, subcontractors, and laborers. • Monitor project progress and maintain accurate records of construction progress and activities. • Implement safety measures and protocols during night construction. <p><i>Note: CM will oversee the handover process, ensure that resources required for Night work are adequate, monitor progress of works at night and adjust sequence or procedure, if required.</i></p>

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	<p>HSE (Health, Safety, and Environment) Manager</p> <ul style="list-style-type: none"> • Develop, amend, and enforce safety policies and procedures to support night construction. • Conduct safety inspections and risk assessments to feed into JHA² and PTW. • Provide safety training and awareness programs to the construction team. • Investigate and report accidents or safety incidents. • Implement emergency response plans. • Monitor environmental impacts and compliance. <p><i>Note: HSE manager shall conduct risk assessment for night operations and will develop any specific training or improvements required to minimize the risks identified during night operations. He will receive feedback from the HSE officer on his observations, non-compliances during night shift.</i></p> <p><i>If any incident is reported, he will make himself available for investigation and in case of emergency he will be responsible for overseeing that emergency response is activated.</i></p> <p><i>MSS Security Guards will be active throughout the night at WAC and end of Lot 1 Guard house and will be approached over call during emergency. The ERT will be on standby at the WAC.</i></p>
<p><i>HEC and Sinohydro</i></p>	<p>Site Supervisor</p> <ul style="list-style-type: none"> • Supervise and lead the night construction crew. • Ensure night work is executed according to plans and specifications to meet the project requirements. • Coordinate equipment and material availability. • Monitor progress and address any issues or delays. • Enforce safety rules and regulations on the construction site. • Report any safety or quality concerns to the Construction Manager and HSE Manager. • Maintain daily records of work performed. • Communicate with the Project Manager and Construction Manager on the project status. <p>Report the progress of works on a shift basis to the Construction Manager.</p> <p><i>Note: It's the same as the activities conducted by them in the day. He/She will be leading the night works with enhanced cooperation.</i></p> <p>Site Engineer</p> <ul style="list-style-type: none"> • Implementing safe work methods and directing the construction work. • Checking for non-conformity and compliance with design specifications. • Oversee and manage night-time construction activities on the site.

² Approach will be the same as day works given that the Night works proposal is more focused on excavation works and very small scale operation targeted to bulk excavation work, carting to disposal sites and filling and compacting in disposal sites. Actual JHA will be reviewed on site by THL/OE and additional hazards for JHA is attached as an appendix to the main document. Please refer to the attachment #7.

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- Supervise and guide the construction team, including laborers, heavy equipment, and subcontractors.
- Maintain accurate records and documentation of construction activities, including changes and as-built drawings.

Note: It's the same as the activities conducted by them in the day. He/She will be supporting the Site Supervisor during the night work with enhanced cooperation.

HSE Officer

- To monitor the wearing of Personal Protective Equipment such as safety belts and helmets during work and shall deliver Night Driving Training to all the Workers including operators.
- Eliminate Engine Idling and racing. Prevent honking and monitor equipment operation to ensure noise level is in control.
- Monitor speed of the vehicle in operations to ensure dust is within control.
- Making workers aware of safety education and emergency evacuation procedures in accordance with the work contents before work
- Checking lighting facilities and work platforms before work
- Look for workers showing drowsiness, fatigue or unwilling to drive and support them with rest. If the worker suggests to adjust or improve the lighting or face difficulty in viewing reversing spots or bends which may risk their driving, the HSE officer discuss with the Construction Supervisor to resolve these issues.

Signalmen

- Signalmen will facilitate safe and efficient operations during night work.
- Assist dump truck operators in maneuvering safely while reversing, particularly in areas with limited visibility or tight spaces.
- To ensure the smooth and safe flow of traffic at the worksite, clear light signals will be employed using traffic light batons. A blinking red light will indicate "Go," while a constant red light will signal "Stop." When passing two trucks, the unloaded vehicle will be directed to wait while the loaded truck is given priority to pass freely.

8. LIGHTING ARRANGEMENT

Tower lights and other lighting devices like floodlights will be employed for the construction work. The quantity and placement of these lights will be determined based on on-site conditions. However, adequate lighting will be ensured to prevent shadows, with lighting originating from at least two directions during all night work.

Biodiversity impacts can be minimized by implementing the following measures:

- Directing artificial light downwards to reduce upward light spill and minimize skyglow.
- Avoiding excessive light spillage beyond the intended illumination area.
- Maintaining lighting levels to the minimum necessary for safety and security.

As indicated in the ESIA, fruit-eating bats have demonstrated adaptability to disturbances and degraded areas, provided artificial light levels are kept to a minimum. Therefore, carefully managing artificial lighting will help mitigate potential impacts on fruit-eating bats and other wildlife.



In addition, at the Site Office, smoke shelters, rest shelters, and toilets will be operational during night-time activities. A generator will be utilized to power these facilities for night operations.

The specification of the lighting tower is as follows:

- Working voltage: 220V
- Lamp head power: 4x500W
- Dimensions: 800x500x2000mm
- Maximum height: 4.5m
- Light coverage radius: 35-55 m
- Weight: 61Kg



Prior to the procurement of Lighting towers, floodlights will be used in sufficient numbers for the entire duration of the night works powered by portable generator.

In case of use of floodlights, ELCBs shall be used for protection against electric shocks. Lights shall be inspected regularly for safety and working condition shall be verified daily during the day shift.

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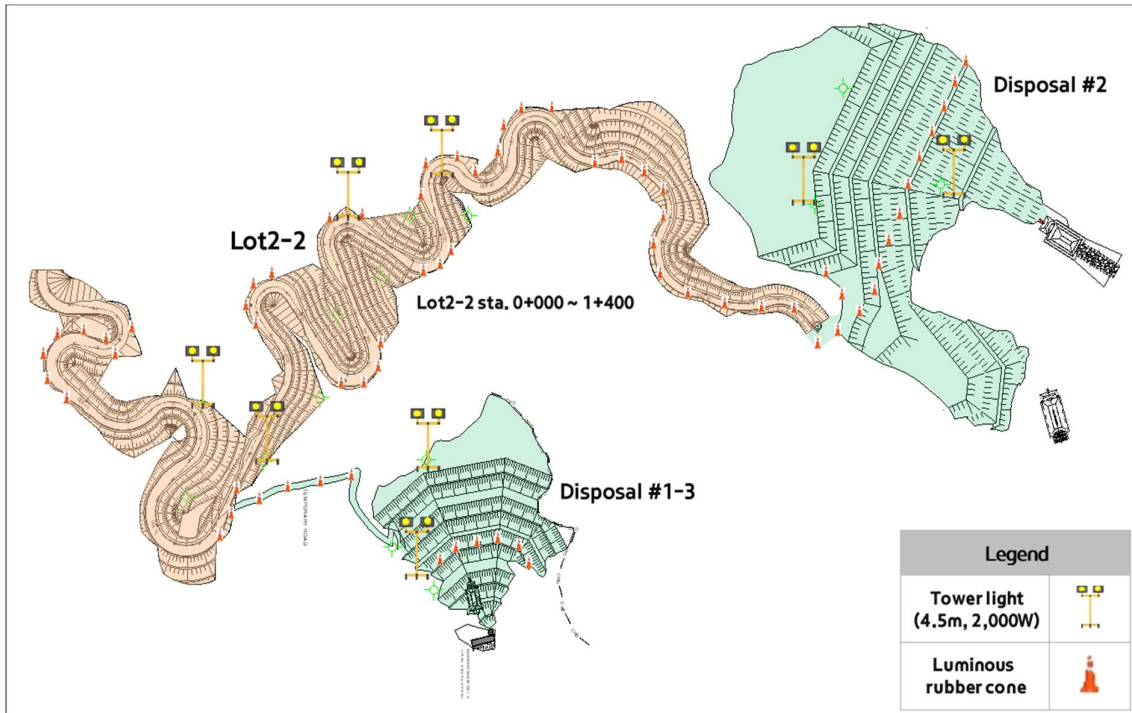


Figure 1 Location of Tower Lights and Luminous Rubber Cone at Lot 2-2 and Disposal #2(Stage 1) and #1-3(Stage 1)³

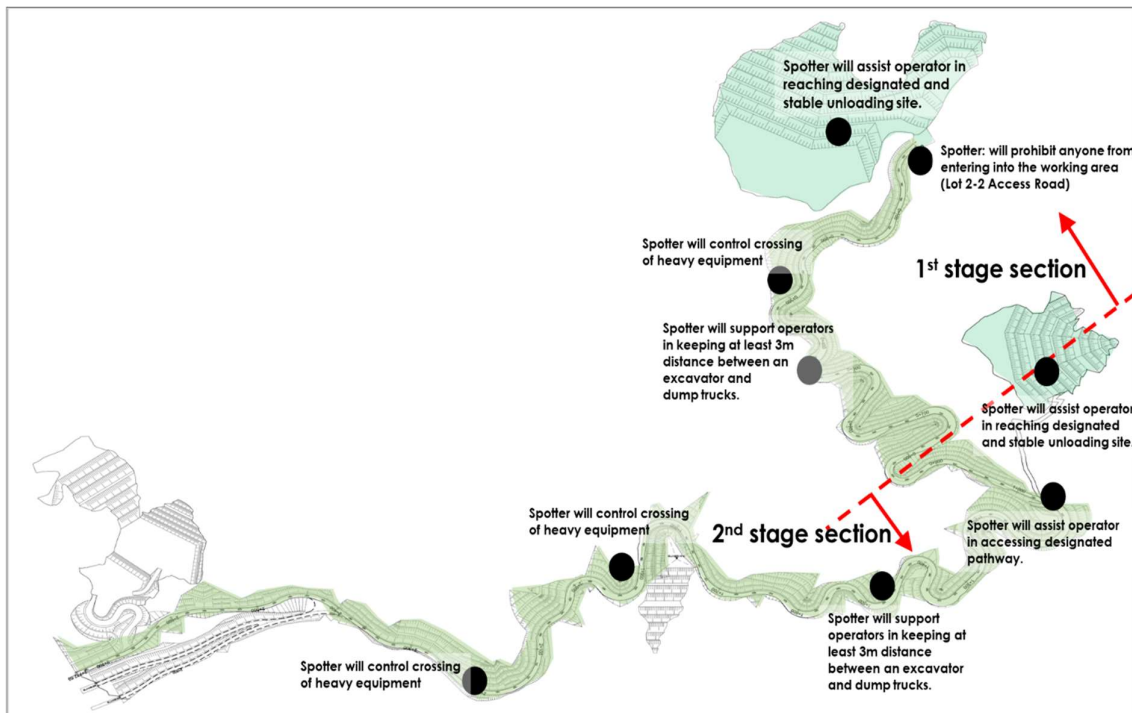


Figure 2 Spotter Roles and Responsibilities⁴

³ This plan is conceptual and it will be updated through PTW

⁴ This figure is conceptual and it will be updated through PTW.

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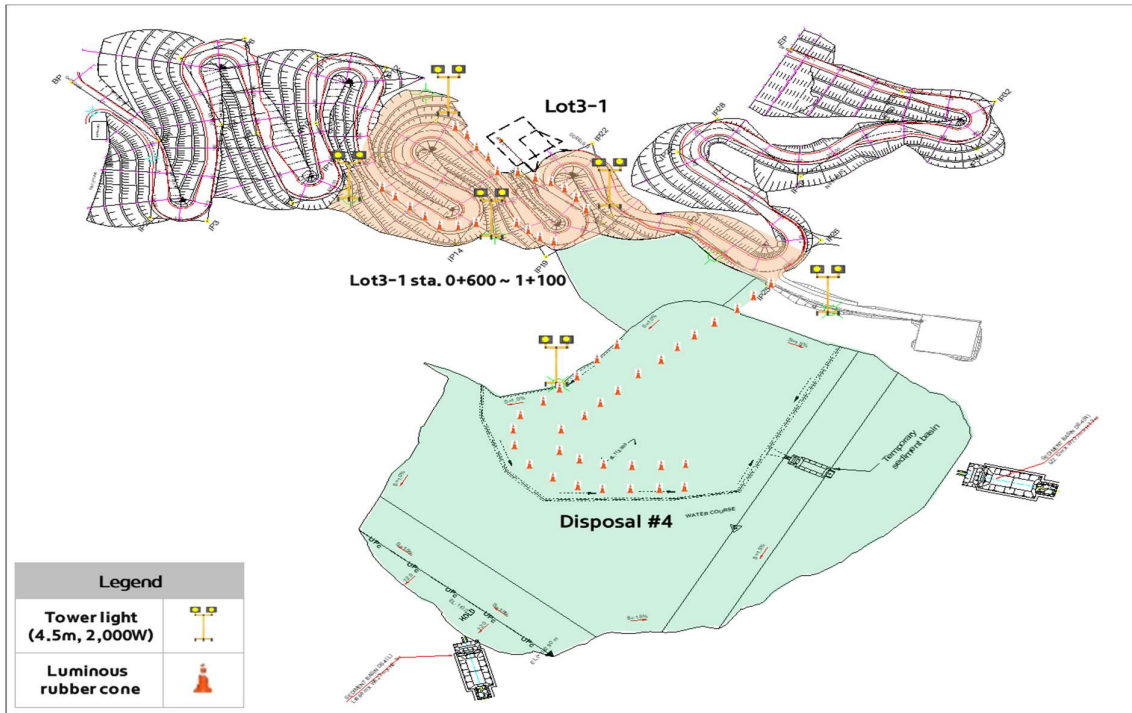


Figure 3 Location of Luminous Rubber Cone and Tower Light at Lot 3-1 and Disposal #4(Stage 3)⁵

⁵ This figure is conceptual and it will be updated through PTW.

9. PROPOSED WORK APPROACH

HEC will confine work activities to the Project Core Boundary to efficiently manage the tasks and enhance night-time productivity. The primary focus will be executing earthworks for Lot 2-2, aiming to accelerate construction progress to meet the scheduled commencement of the Main Works.

Subsequently, as the construction progresses and workers are adapted to night work, Works will be extended to additional sections of Lot 2-2 and Lot 3-1. The proposed lighting plan is adaptable, allowing for adjustments to the placement of cones, lighting towers, and spotters as construction progresses and site conditions change. This flexibility ensures that the lighting arrangement remains effective and suitable throughout the project.

The initial focus will be on implementing stage 1 of the lighting plan, while the stage 2 lighting towers will be available for use by December 2023, which is currently under procurement.

Spotters will be stationed near lighting towers to assist operators at loading and unloading sites, further enhancing safety during these critical operations. Additionally, spotters will be provided with enhanced personal protective equipment (PPE) and traffic light batons to guide the operation of heavy equipment.

In line with the ESIA recommendations, lighting levels will be kept to a minimum throughout the construction site. For the General Construction area, a minimum illumination level of 50 lux will be maintained to provide adequate visibility while minimizing unnecessary light spills.

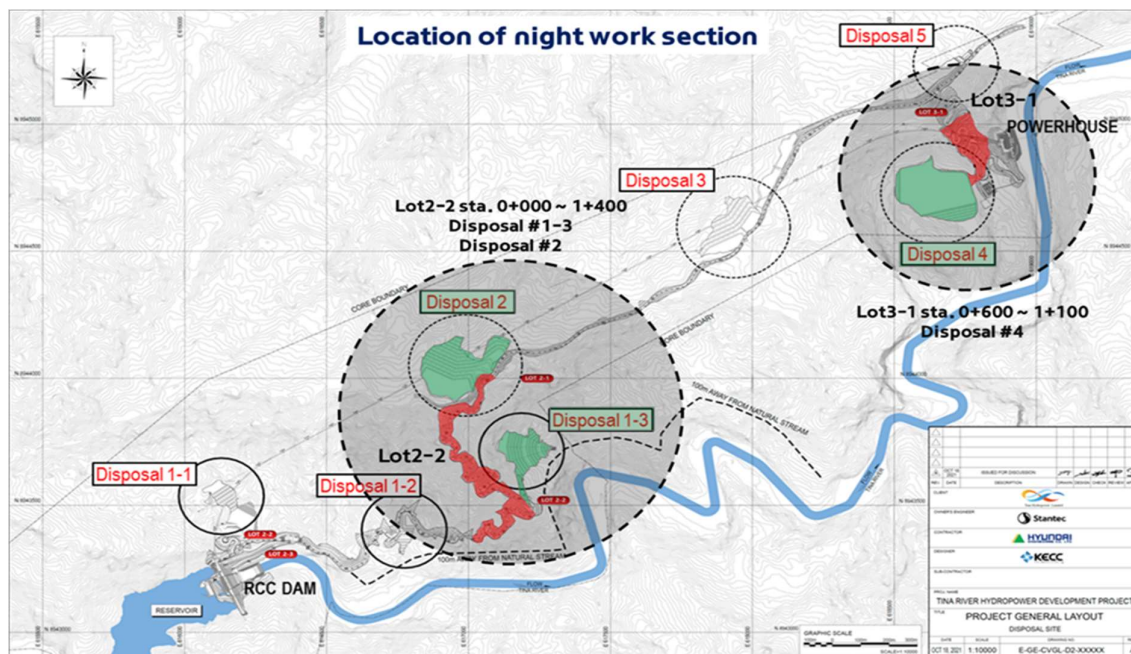


Figure 4 Location of Nightworks

In the initial phase or First Stage, earthworks for Lot 2-2, from station 0+000 to station 0+800, will be carried out. Upon mobilizing additional resources, the first stage section will be extended to cover Lot 2-2 sta—1+400 km, referred to as the Second Stage. The Third Stage involves potential construction work on Lot 3-1 from station 0+600 to station 1+100 km and will be divided into suitable sections. Topsoil removal will be scheduled for daytime and shall not be

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undertaken during the night shift. The night works proposal emphasizes excavation targeted to rippable rocks.

HEC proposes the start of night works in the first week of November.

9.1 FIRST STAGE

In the initial phase, earthworks for the section of Lot 2-2 between station 0+000 and station 0+800km will be conducted. Initially, three excavators are planned for deployment. One of the excavators will be dedicated to loading the excavated soil, while the remaining two will be equipped with breakers to facilitate the breaking of rippable rock.

The soil excavated from the mentioned section will be transported to Disposal Site #2 through five dump trucks. At Disposal 2, an excavator will spread the transported soil until a thickness of 30 cm is achieved, and a roller will then compact it.

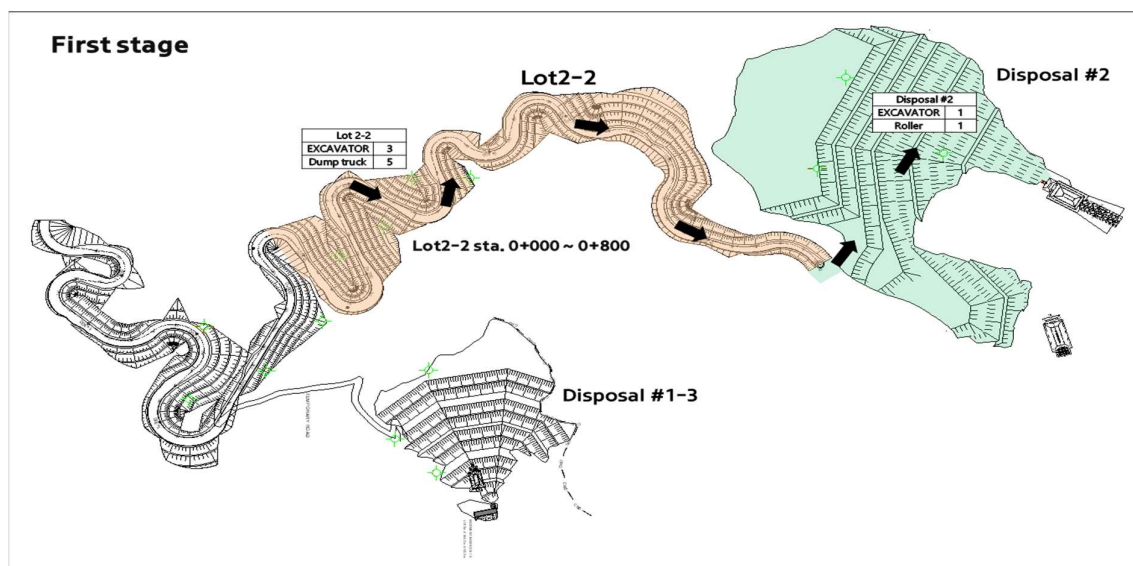


Figure 5 First Stage Night works

For the supervision and management of this section, both the construction Supervisor and HSE (Health, Safety, and Environment) Officer from HEC and its subcontractor will be on-site for the entire night shift (with other staff to be employed in these roles during day shifts). From HEC, 1 site supervisor will be on the site by 11 p.m and another supervisor will be full-time night shift. In addition, 1 HSE officer of HEC will be on the site. In addition, HEC Korean Management will conduct regular patrol for inspections at least twice during the night shift operations (7:00 to 10:00 pm, 01:00 to 03:00 am). Ten (10) employees will be assigned to five (5) night patrol groups, one of which will monitor the site during the night shift. The patrol team consists of the Planning, Administration and QA/QC Team and they will conduct spot checks for light arrangement, blind area, heavy equipment operation (speed, reversing location), haulage route (ground condition), etc. Additionally, they will have the authority to instruct suspension of construction at their discretion in accordance with subcontract agreement. Upon receipt of such instruction, subcontractor shall immediately halt their work. Unless the instruction is made due to bad weather, subcontractor promptly make every reasonable efforts to rectify their non-compliance where there is failure to implement required health, safety, environmental and social measures. And THL/OE also has the above-

PLAN FOR CONSTRUCTION WORKS AT NIGHT – ACCESS ROAD

mentioned rights under the EPC contract. The human resources and heavy equipment required for this operation are outlined below.

Table 3 Equipment and Workforce at First Stage

Location	Items	Company	Unit	Quantity	Remark	
Lot 2-2 and Disposal #2	Equipment (Operator included)	Excavator	Sinohydro	ea	4	
		Bulldozer		ea	-	
		Dump truck		ea	5	
		Roller		ea	1	
		Floodlight		ea	8	
		Generator		ea	2	
	Total				20	
	Personnel	Site Supervisor	Sinohydro	person	1	
			HEC	person	1	
		Site Engineer	Sinohydro	person	2	
		HSE Officer	Sinohydro	person	1	
			HEC	person	1	
		Operator	Sinohydro	person	10	Foreigner
		Signalman	Sinohydro	person	4	Local ⁶
	Patrol	HEC	person	2		
Total				20		

9.2 SECOND STAGE

As discussed earlier, a planned approach shall be adopted to advance the stages of construction. Once the subcontractor mobilizes additional human resources and heavy equipment, tentatively towards December 2023, the first stage section will be expanded until Lot 2-2 sta—2+732 km, which is referred to as second stage. The contractor shall verify the access conditions and seek consent from THL/OE to proceed to this stage.

⁶ Signalman shall be employed from the local Benefit Share Community (Bahomea and Malango Wards) and transportation will be provided via the free company shuttle in accordance with P4 Human Resources and Labour Management Plan. In the event of a work stoppage due to weather conditions, such as raining during night work, workers will be released to return to their respective homes via company shuttle.

PLAN FOR CONSTRUCTION WORKS AT NIGHT – ACCESS ROAD

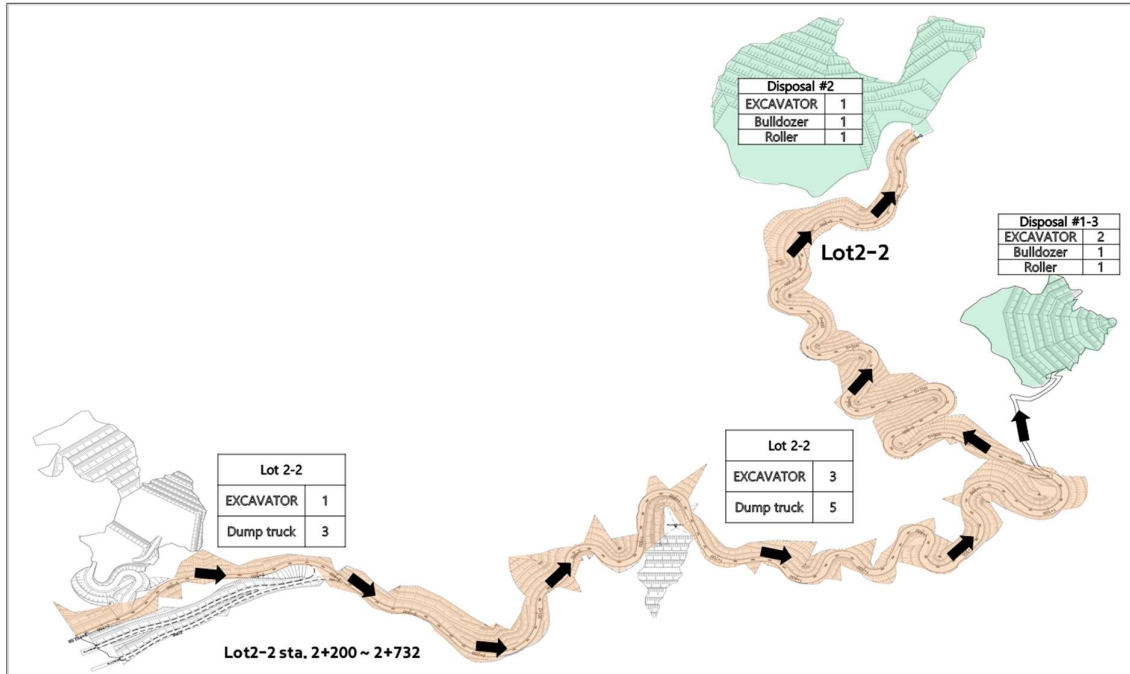


Figure 6 Second Stage Night works

Excavated soil from the section between sta. 0+800 and 2+732 will be transported to the Disposal Site # 1-3. One excavator for loading and 3 Dump Trucks for transporting will be used.

The excavated soil will be spread downward from a platform established at the Disposal Site # 1-3 by bulldozers. Subsequently, excavators will prepare the ground to 30cm thickness and compact it with rollers.

As with the first stage, human resources will be put to supervise the specific area.

Table 4 Equipment and Workforce at Second Stage

Location	Items	Company	Unit	Quantity	Remark
Lot 2-2 and Disposal # 1-3, #2	Excavator	Sinohydro	ea	7	
	Bulldozer		ea	2	
	Dump truck		ea	8	
	Roller		ea	2	
	Lighting Tower		ea	10	
	Floodlight		ea	8	
	Generator		ea	5	
	Total				42
Personnel	Site Supervisor	Sinohydro	person	1	
		HEC	person	1	
	Site Engineer	Sinohydro	person	2	
	HSE Officer	Sinohydro	person	2	

PLAN FOR CONSTRUCTION WORKS AT NIGHT – ACCESS ROAD

		HEC	person	1	
	Operator	Sinohydro	person	19	Foreigner
	Signalman	Sinohydro	person	8	Local
	Patrol	HEC	person	2	
Total				36	

9.3 THIRD STAGE

The commencement of Stage Three will be contingent upon the successful completion of Stages One and Two, along with satisfactory overall construction progress. If unforeseen difficulties arise during Stages One and Two, HEC and Sino hydro will carefully evaluate the situation and determine the feasibility of proceeding with Stage Three. Only upon successful resolution of any challenges will further planning for Stage Three commence. In the third stage, the works area is divided into two sections as below.

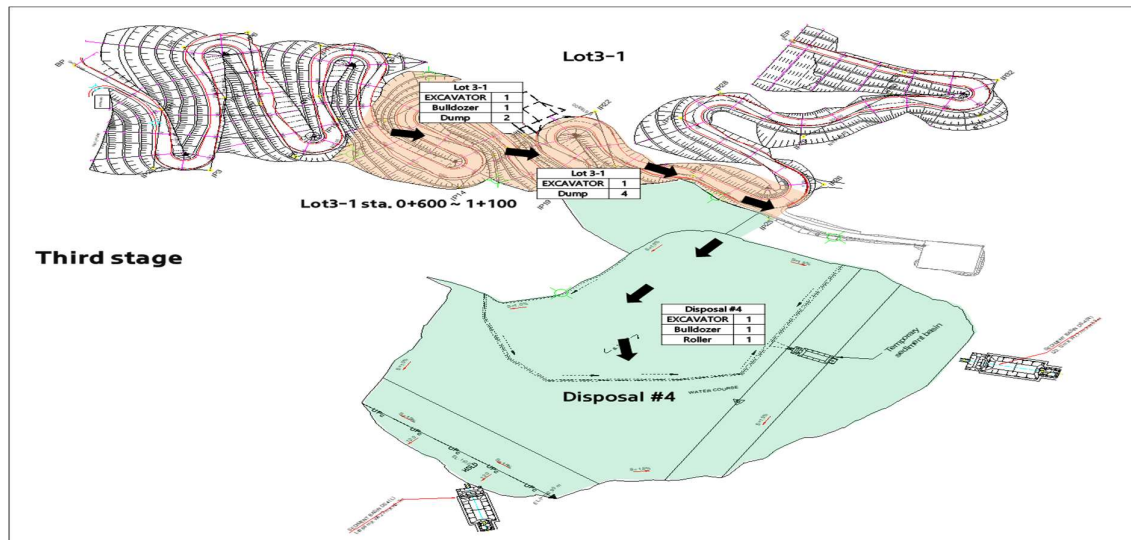


Figure 7 Third Stage Night works

1. Sta.0+600 ~ Sta. 0+800km

In this section, an excavator for loading, 2 Dump Trucks, and a bulldozer for transporting will be operated. The Dump Trucks and Bulldozer will transport the excavated soil to a platform at sta.0+900km.

2. Sta.0+900km to Disposal Site #4

The piled soil at the platform will be again transported to Disposal Site #4 by an excavator and 4 Dump Trucks. The transported soil will be spread to 30cm thickness by an excavator and bulldozer and compacted by a roller.

In the third stage, it is planned to put human resources and heavy equipment as below. The total number of floodlights and lighting towers will be the same as Stage 2.

PLAN FOR CONSTRUCTION WORKS AT NIGHT – ACCESS ROAD

Table 5 Equipment and Workforce at Third Stage

Location	Items	Company	Unit	Quantity	Remark	
Lot 3-1 and Disposal #4	Equipment (Operator included)	Excavator	Sinohydro	ea	3	
		Bulldozer		ea	2	
		Dump truck		ea	6	
		Roller		ea	1	
		Lighting Tower		ea	3	
		Floodlight		ea	3	
		Generator		ea	2	
	Total				18	
	Personnel	Site Supervisor	Sinohydro	person	1	
			HEC	person	1	
		Site Engineer	Sinohydro	person	1	
		HSE Officer	Sinohydro	person	1	
			HEC	person	1	
		Operator	Sinohydro	person	12	Foreigner
Signalman	Sinohydro	person	5	Local		
Total				22		

10. HEALTH AND SAFETY ARRANGEMENTS

During the night work, movable lighting towers and luminous rubber cones will be installed, and the figures below indicate the initial location of the facilities, which will be moved as construction progresses.

The HSE Officer assigned for night shifts will receive comprehensive training and guidance to effectively conduct weekly inspections and complete the IR005 checklist. In addition, regular checks will be conducted by HEC and its subcontractor during the daytime to ensure the following.

- Check lighting towers in advance during the day to prevent any malfunction.
- Arrange lighting towers to ensure the workplace is supplemented with sufficient artificial illumination (Minimum 50 lux) to promote workers' safety and health and enable safe equipment operation.
- Install lighting using temporary electricity in advance during the daytime.
- Electrical devices such as switches, electrical outlets, and electrical panels should be managed only by designated personnel, and operating instructions should be informed to workers before starting work.

During operations at night, the following aspects shall be monitored and implemented:

1. Workers' clothes and safety sign methods

- Workers must wear safety helmets, safety shoes, work clothes, and luminous reflective vests at night.
- For easy location identification of workers, safety helmets and working clothes (or vests) should be attached with reflectors with appropriate brightness.
- When working, a minimum of two or more people should work together.

2. Labeling of Equipment

- A warning light must be attached to mobile equipment for work, and a fluorescent belt must be installed so that workers can quickly identify the equipment.
- Rubber cones should be installed in the passageways where dump truck passes so that they can be easily identified.
- All heavy equipment deployed at night shall use reflective tapes at the front and rear.
- Electrical devices, especially tower lights and Floodlights, portable generators will be inspected fortnightly.
- To ensure safety, all electrical equipment utilized for lighting and power supply at the construction site must comply with an IP65 rating.

3. Health care for night shift workers

- The manager must give a break of at least 30 minutes for 4 hours of work and 1 hour or more for 8 hours.
- Before the start of work, workers' mental and physical condition must be checked to determine whether to use them.
- Emergency medicines should be kept on-site, and workers' health care should be supported.
- If there is a possibility that the temperature may be lower than during the daytime, workers should be supplied and wear clothes that can maintain their body temperature.

4. Fire Prevention

- Managers must conduct inspections of the lighting towers and generators for overcurrent and overheating due to rapid power consumption.
- When the temperature drops, control should be taken so that workers do not arbitrarily light a fire. Fires are not permitted on site.
- Position fire extinguishers in a sheltered location close to lighting towers and generators.

5. Signal method

- During operation, the number of signals must be designated and operated.
- The signal method is wired/wireless communication or a hand signal using a luminous body, but it can be signaled in parallel or selectively depending on work conditions.

6. Access control, etc.

- Access to the workplace for all persons other than designated workers shall be controlled. HSE Officers to take note of the workers and vehicles allocated to specific worksite.
- Access to the workplace for all vehicles other than the designated vehicles shall be controlled. The Site Supervisor will make sure he has the list of vehicles that will be working on his site during handover from day to night.

- The start and end of night work must be reported to the supervisor.

7. Emergency contact network.

- Overall Incident Management and Response Structure: Any incident that occurs during night-time shall be immediately reported to the site supervisor, and the procedure is further explained in Annexure 1: Emergency Response during Night will be followed.

11. MANAGEMENT APPROACH

- HEC will conduct daily site inspections to monitor the overall safety and progress of the construction activities during the night shift. These inspections will ensure that all safety measures are in place and that work is being carried out in accordance with this plan and ESMPs.
- HEC personnel will provide continuous supervision throughout the night shift to oversee operations, address any issues that arise, and ensure the well-being of workers.
- Prior to the start of each night shift, following the completion of the handover process, toolbox talks will be conducted to reinforce safety procedures and address specific hazards or concerns related to the day's work.
- Before the commencement of night shift operations, all workers will undergo an induction session to familiarize them with the specific safety requirements, emergency procedures, and risk mitigation measures applicable to night shift work. This induction will ensure that all workers are properly informed and prepared to work safely during the night shift.
- Project managers, Engineers, Safety Officers, Heavy Equipment Operators and Site Supervisors, and workers shall be allocated specific responsibility to ensure the highest priority level for safety and health issues.
- Check the safety equipment inventory before night works are carried out to ensure they are sufficiently available, appropriate, and in good working condition.
- Equipment such as retro-reflective signage, barriers, retro-reflective tapes, and lighting equipment shall be provided for night-time construction works.
- Material and machine movement will be well supervised at night to prevent potential injury and harm to workers.
- Hazards at construction sites are the same for both day and night shifts, while the risks of injury are much higher during night work because of the inherent poor illumination. Hence, the workplace must be kept clean and tidy to ensure safety and prevent accidents.
- Arrange noisy equipment or machinery at the farthest point from the communities or settlements or adopt engineering control to reduce the noise.
- Conduct safety inspections twice daily by HEC Patrol team at night to identify and rectify hazards promptly. Encourage workers to report safety concerns immediately.
- Implement shift schedules that minimize worker fatigue. Rotating shifts and providing ample rest breaks can help combat night-time fatigue.
- Operators will use radio communication for real-time coordination, task assignments, and safety-related updates. This method provides immediate and clear communication, ensuring efficient collaboration and timely response to any issues that arise.
- Mobile phones will serve as a complementary communication channel for progress updates, site-specific information, and emergency communications. This method

allows for more detailed discussions and the sharing of photos or videos, when necessary.

- Provide specialized training for night shift workers, focusing on safety precautions specific to night-time construction. Ensure all workers understand emergency procedures.
- Regularly maintain and inspect machinery and equipment to prevent breakdowns and reduce the risk of accidents due to equipment failure.
- Engage with the local community to inform them about night-time construction activities, potential disruptions, and safety precautions.
- Traffic control and management was identified as potential concerns during the community consultations. These concerns have been comprehensively addressed in this document and further mitigated in the Night Driving Procedure appended to the plan. Further, The Contractor and Subcontractor shall adhere to P11 Traffic Management Plan.
- At least, weekly speed monitoring using a speed gun will be carried out by HSE officer and MSS night shift personnel.
- Workers driving at night shall lower their speed at villages and schools (20 km/h), and at the site office and WAC (10km/h).

12. NIGHT WORKS MONITORING

The night works monitoring will be carried out by the employer (THL).

The THL will conduct the overall monitoring and guiding the safety and progress of night works at the access road works site, and will ensure that the construction, safety and environmental management plans outlined by HEC are strictly adhered to, focusing on the following points to ensure that the safety, efficiency and environmental management at the construction site are maintained.

1. Safety and compliance

- Fully complying with Solomon Islands local safety regulations and laws and ESMPs.
- Whether safety training is provided to workers and safety equipment is provided and worn correctly.

2. Construction scheduling and planning

- Whether we adhere to start and end times for night construction and implement construction according to the construction plan (PTW)

3. Team organization and co-operation

- Whether the supervisors and safety managers established by HEC for each phase of construction are correctly deployed and perform their duties appropriately

4. Reporting

- Whether effective means of communication are in place and information and decisions are shared and communicated accurately and promptly between construction teams. All training materials is converted into the appropriate languages for easy digestion by the employees.

PLAN FOR CONSTRUCTION WORKS AT NIGHT – ACCESS ROAD

- Regularly share the progress between the HEC and Employer on night work (before, during, and after work).

5. Resource and equipment management

- Whether resources and equipment (lighting, construction equipment, etc.) required for night work are secured, and whether equipment is regularly checked for safety and operation, and maintenance is carried out.

6. Emergency preparation plan

- Through monitoring of night work management, Emergency preparation plan will be supplemented or revised if there are any deficiencies.
- Whether night workers are trained on hazards and emergency situations and are familiar with response procedures.

7. Consideration of residents and the surrounding environment

- Following a plan to minimize the impact on residents and the surrounding environment
- Fully comply with measures to address environmental issues such as noise during construction.

As mentioned in the main body of this plan, night work is not required to be inspected as the main construction contents are only excavation and transportation, but if inspection is required, it will be rescheduled to daytime or performed by OE.

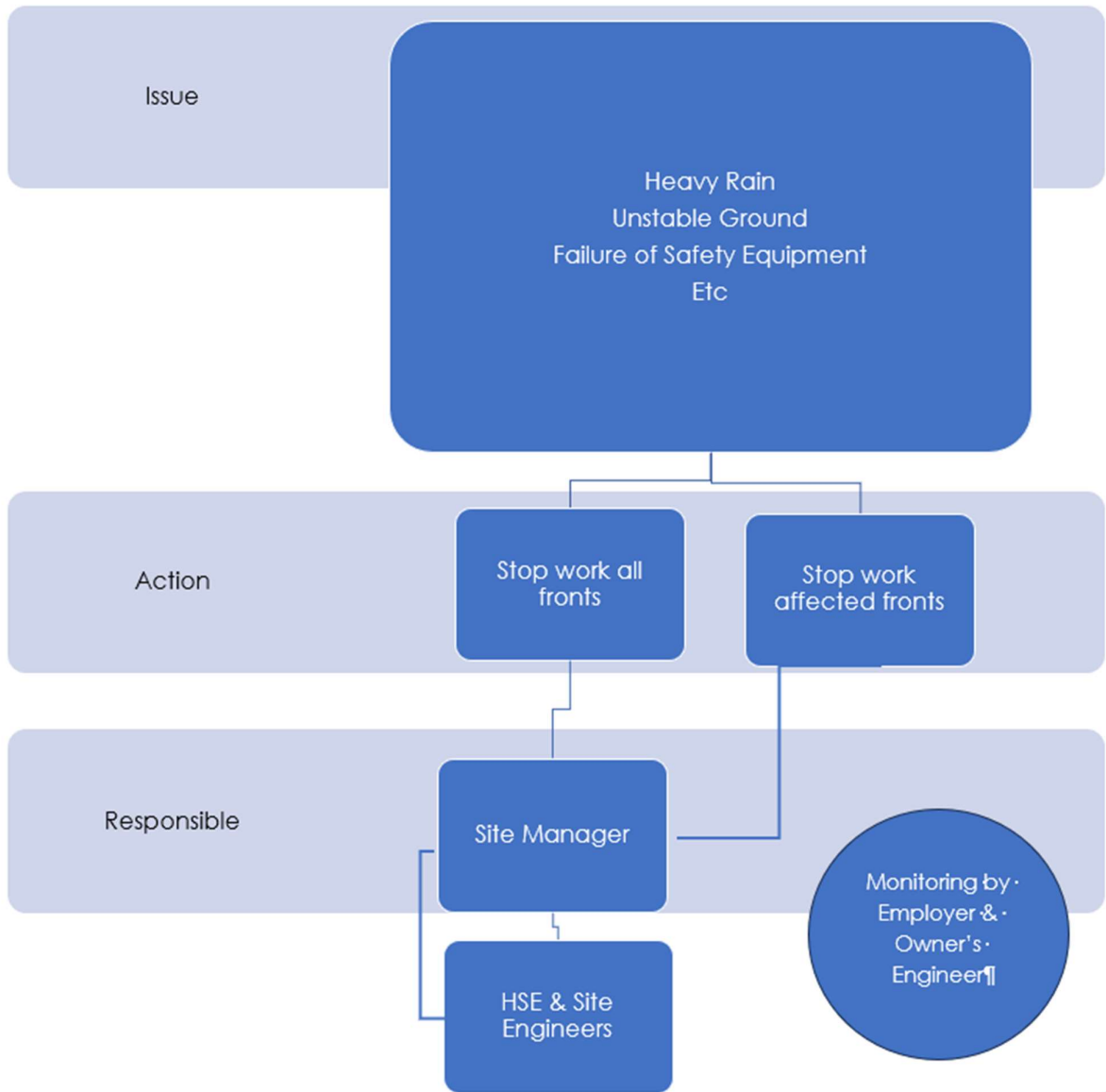
The THL night monitoring roster for the contractor is as shown in the table below and may be adjusted in consideration of construction conditions.

January- February Roster THL Shift Plan											
2024-01-29		2024-01-30		2024-01-31		2024-02-01		2024-02-02		2024-02-03	
Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
D	N	D	N	D	N	D	N	D	N	D	N
HSA	ESA	HS	ESA	HS	ESA	HS	ESA	HS	ESA	HS	ESM
Sunday/ Shift Rotate											
2024-02-05		2024-02-06		2024-02-07		2024-02-08		2024-02-09		2024-02-10	
Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
D	N	D	N	D	N	D	N	D	N	D	N
ESA	HS	ESA	HS	ESA	HS	ESA	HS	ESA	HS	ESA	CM

* Note: 1. This Plan assume that approval is given on 29/01/2024

2. HSA: Health and Safety Assistant
3. ESA: Environment and Social Assistant
4. ESM: Environment and Social Manager
5. CM: Civil Manager

Summary of Potential Issues, Actions and Responsibilities

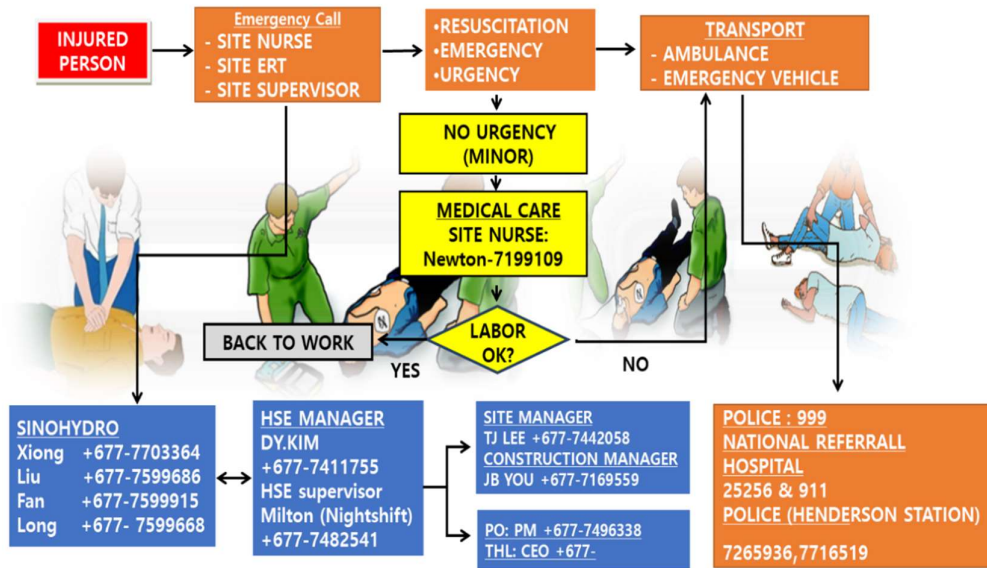


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13. REFERENCES

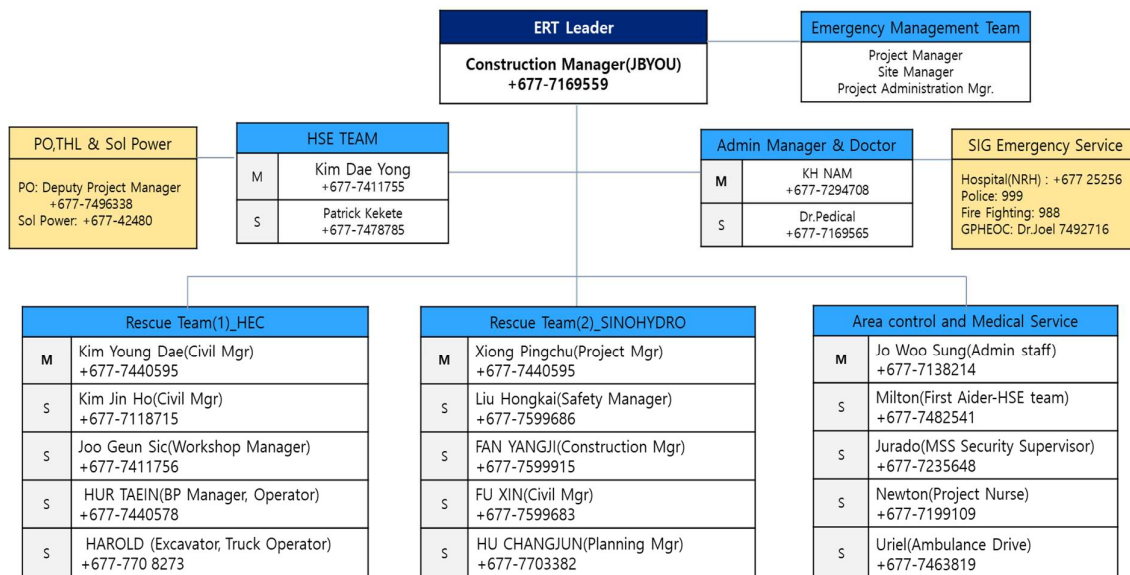
ANNEX 1: EMERGENCY RESPONSE DURING NIGHT SHIFT

Emergency Response during the Nightshift



Emergency response team

EMERGENCY RESPONSE TEAM



Annex 2: Request letter for approval of extension of working hours



GLOBAL PREMIER
ENGINEERING PARTNER

Solomon TINA, Site Manager, Mr. Taejae Lee, TEL: 677-7442058, taejae@hec.co.kr, PO BOX 1747, Hyundai Worker's Accommodation Camp, Grass Hill Area, Malango Ward, Guadalcanal Province, Solomon Islands

Ref. No. : HEC-OT-PL-47 09 October 2023

To : Commissioner of Labour/ Ministry of Commerce, Industry, Labour and Immigration,
Solomon Islands Government

Subject : Request for Approval of a 60 hours workweek and 260 hours of work per month for the construction of the Tina River Hydropower Development Project.

Dear Sir,

I am writing on behalf of Hyundai Engineering Company(HEC), the Engineering Procurement and Construction(EPC) Contractor responsible for the execution of the Tina River Hydropower Development Project (TRHDP). Through this letter, we formally request your approval for a deviation from the regulated maximum 57-hour workweek and 228 hours per month, as stipulated in Cap 12 of the Labour Act 1996 of the Solomon Islands.

The rationale behind this request is to seek your approval for an adjusted work schedule, wherein our Project team will engage in a 60-hour workweek and 260 hours of work per month. This modification is essential to expedite the construction of TRHDP, which requires two shifts to maintain continuous progress, working around the clock.

Our proposed work schedule entails organizing our workforce to operate six days a week, with a maximum of 10 hours worked per day. This schedule comprises 8 regular working hours and an additional 2 hours of overtime each day, resulting in a total of 60 hours per week or 260 hours per month. To provide you with comprehensive insight into the proposed shift operations, please note the following:

1. Day shift: 7 am to 6 pm, with a 1-hour break between 12 pm and 1 pm, resulting in 10 hours worked daily.
2. Night shift: 7 pm to 6 am, with a 1-hour break between 12 midnight and 1 am, resulting in 10 hours worked daily.

Additionally, there will be shift change times from 6 am to 7 am and from 6 pm to 7 pm, totaling 2 hours per day. Please note that these shift change times are for transporting workers to and from the Project Site and will remain unpaid.

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PLAN FOR CONSTRUCTION WORKS AT NIGHT – ACCESS ROAD



GLOBAL PREMIER
ENGINEERING PARTNER

Due to the nature of our construction project and the need to catch up with the timelines of our construction schedule, we kindly request your approval for this temporary deviation from the standard workweek regulations.

Please rest assured that HEC is committed to implementing stringent measures to ensure the safety, well-being, and equitable compensation of our workforce throughout this extended workweek. We will provide ample rest periods and strictly adhere to all pertinent health and safety guidelines to safeguard the welfare of our employees.

We kindly urge you to approve this proposed adjustment in the working hours for the Project's construction phase. Your support in this matter would significantly facilitate our efforts to meet Project deadlines and lead to the successful completion of the TRHDP, which holds national importance.

Sincerely,



Mr. Taejae Lee
Contractor's Representative (Site Manager)
Building Works Division
Hyundai Engineering Co., Ltd.



ANNEX 3: APPROVAL FOR COMMISSIONER OF LABOUR

HEC Approval Letter



LABOUR DIVISION
MINISTRY OF COMMERCE, INDUSTRIES, LABOUR & IMMIGRATION
P.O.BOX G26, HONIARA, SOLOMON ISLANDS
Phone: (677) 26811/26810 Fax: 25084

17th October 2023

Our Ref: L9/H/39.

Site Manager
Hyundai Engineering CO, LTD
P O Box 1747
Honiara.

Attn: Mr. Taejae Lee.

Dear Sir,

RE: Request for Approval of a 60 hours workweek and 260 hours of work per month for the construction of the Tina River Hydropower Development Project.

Acknowledge receipt of your letter dated 09th October 2023, in regards to the above-mentioned subject.

Pursuant to Labour Act, section 13 (6) the Commissioner of Labour hereby granted approval for the company to proceed with adjusting the work schedule to 60 hours workweek and 260 hours of work per month.

Thus, the commissioner of Labour advised the company that appropriate overtime be accorded and workers be strictly bound to time (60 hours) accorded.

Thank you for your understanding.

Sincerely,



Date: 17/10/2023
Florence Nihamae (Ms.)
For: Commissioner of Labour.

Sino Hydro Approval Letter For Access Road



LABOUR DIVISION
MINISTRY OF COMMERCE, INDUSTRIES, LABOUR & IMMIGRATION
P.O.BOX G26, HONIARA, SOLOMON ISLANDS
Phone: (677) 26811/26810 Fax: 25084

17th October 2023

Our Ref: L9/12.

General Manager
Sinohydro Corporation Limited
Honiara.

Dear Sir,

RE: Request for Approval of a 60 hours workweek and 260 hours of work per month for the construction of the Access Road works for Tina River Hydropower Development Project.

Acknowledge receipt of your letter dated 17th October 2023, in regards to the above-mentioned subject.

Pursuant to Labour Act, section 13 (6) the Commissioner of Labour hereby granted approval for the company to proceed with adjusting the work schedule to 60 hours workweek and 260 hours of work per month.

Thus, the commissioner of Labour advised the company that appropriate overtime be accorded and workers be strictly bound to time (60 hours) accorded.

Thank you for your understanding.

Sincerely,



Florence Nihamae (Ms.).
For: Commissioner of Labour.