

ENVIRONMENT AND SOCIAL MANAGEMENT PLAN
*(LAYING, PVC PIPE LINE (4”) IN YALA FOR SUPPLYING
WATER TO MINOR TANKS FOR THE USE OF WILDLIFE, STAFF
AND PARK VISITORS)*

PHASE II

URANIYA TO PALATUPANA – YALA BLOCK 1

DEPARTMENT OF WILDLIFE CONSERVATION
**ECOSYSTEM CONSERVATION AND MANAGEMENT
PROJECT**
(ESCAMP)

Contact details of responsible officers:

Position	Name	Contact numbers
Contractor		
Assistant Director (Uva)	Mr. W.A.D.U. Indrajith	0718213611
Park Warden (Yala)	Mr. P.K. Manoj Vidyarathna	0718014908
Technical Officer (ESCAMP/DWC)	Mr. E.W.A. Dharmawansa	0718040048
Technical Officer (ESCAMP/DWC)	Mr. S.D. Madusanka Payagala	0777066699
Environment Officer (ESCAMP)	Mr. Sameera Pamarathne	0719938138
Social Safeguard Officer (ESCAMP)	Mrs. G.D.S. Srimathi Somathunge	0718072558
Environmental and Social Safeguard Consultant / Specialist (ESCAMP)	Dr. Dunstan Fernando	0773021095

Abbreviations Used

DWC	Department of Wildlife Conservation	PMU	Project Management Unit
ESCAMP	Ecosystem Conservation and Management Project	ESSS	Environment and Social Safeguard Specialist / Consultant
AD	Assistant Director	EO	Environment Officer
PW	Park Warden	SDO	Social Development Officer
PA	Protected area	NA	Not Applicable
ESMP	Environment & Social Management Plan	OHS	Occupational Health and Safety
MCM	Million Cubic Meters	EIA	Environmental Impact Assessment

Project Details:

Project	Extension of water pipeline (Phase II), Uraniya to Palatupana
Location	Ruhunu National Park (Yala)
Length	09 km
Starting point	Uraniya
End point	Palatupana
Total cost of the project	LKR 71.10 million
Implementing agency	Department of Wildlife Conservation (Under the Ministry of Environment and Wildlife Resources)
Contract number	LK-ESCAMP-DWC-124033-CW-RFB

Introduction:

Ruhunu national park is the second largest national park in Sri Lanka and situated in the lowest penneplain of Sri Lanka. Also, most visited park in the country. It is the home to many larger mammals, reptiles, amphibians, birds and aquatic fauna. The Yala NP consist of 5 different blocks (figure 01) with strict nature reserve.

The block 1 is the most popular area among visitors as greater number of animals inhabited in this area (Especially leopards, elephants, deer and birds). The Yala is really a dry area in most of the year and it is essential for animals to access to various water bodies like minor tanks, streams, rock pools and lagoons. Many tanks contain water in the wet season and it is an important source of water for wild. Yala Block 1 features good wildlife habitats with open grasslands and man-made tanks / lakes. However, lack of water in tanks / lakes the dry season is an issue for animals. There should be a way to feed these tanks / lakes with water in the dry season. Therefore, obtaining an uninterrupted water supply is equally important for both human and animals.

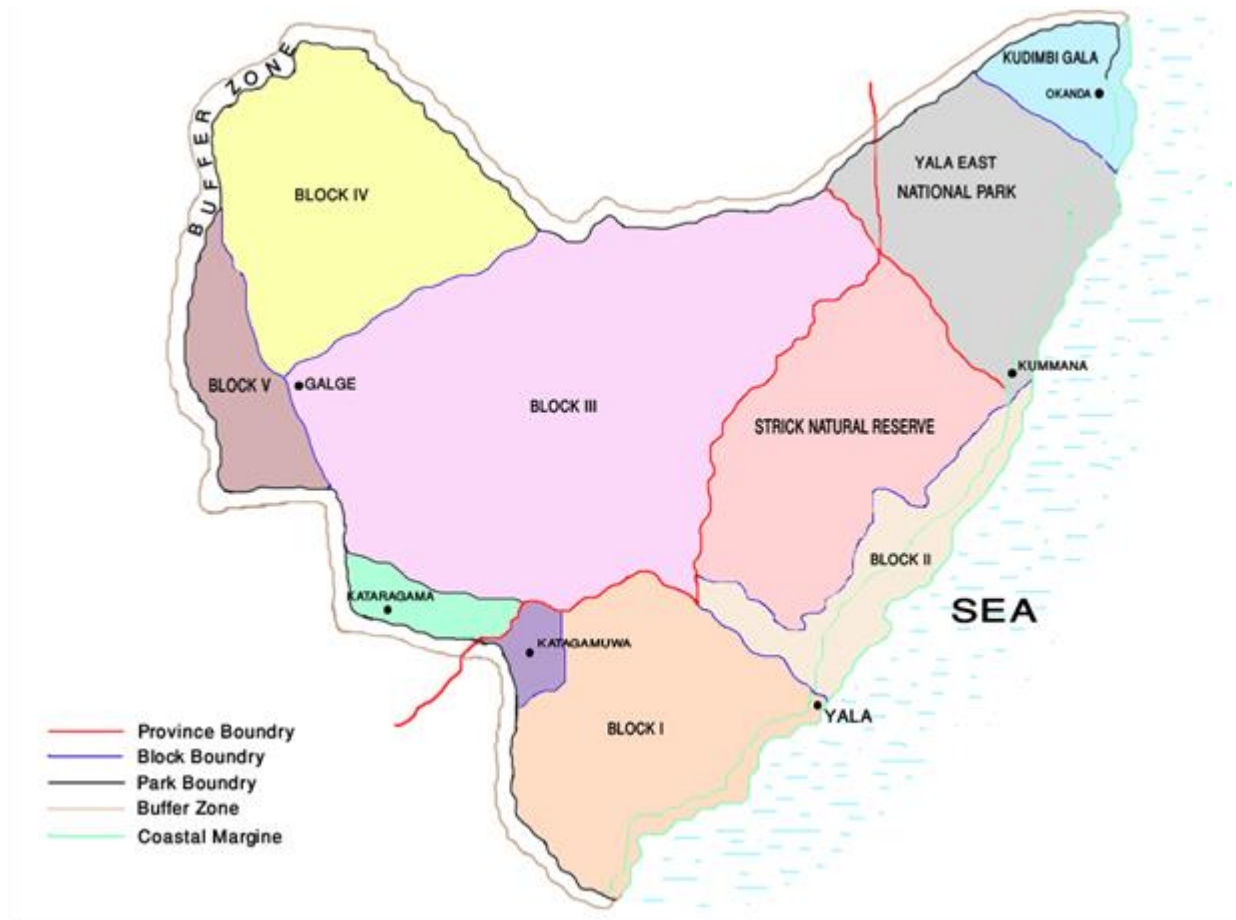


Figure 01: Ruhunu National Park with blocks

Description of the project

It has been proposed to establish pipelines (Two PVC pipelines - 4 inches each) to obtain water from Yala (Manik river) to Palatupana (total length is 18 km). The phase 1 of this activity constructed a 09 km length water pipeline from Yala (Manaik river) to Uraniya tank and Phase II will be from Uraniya to Platupana (balance 09 km) (refer to figure 02 & 03). This is an extension to the phase I of the pipeline. The project has been developed to cater to the requirements of wildlife, visitors and officials. Water line is proposed to be laid along the road at a depth of approximately 01m ensuring no damage to the pipes due to vehicular movement. There will be minimal impact to the vegetation and trees will not be removed. Impacts due to cutting of trenches to lay the pipes will be temporary but appropriate mitigation measures will be implemented as indicated in the ESMP.

Since the construction activities are carried out within the PA, the possible OHS risk due to wild animals will be looked into. OHS guidance is attached to the ESMP and close monitoring of implementation of ESMP will be the responsibility of PMU/PIU and officials of the Department of Wildlife Conservation.

Water Source

Water will be extracted from (Yala) Manik River and the approximate extraction by two pipelines per day (08 hours) is estimated as 100,000 liters¹. Based on the DWC experience in the past, there will be sufficient water even during dry season in order to balance the need for

¹ As per DWC estimates

human consumption and the wildlife. There is an agreement between Irrigation Department and DWC for continuous supply of water for wildlife as well. The Weheragala Reservoir was constructed to store water from Manik River for the benefit of both human and wildlife. The Manik River discharges 347 MCM (347,000,000 CM or 347,000,000,000 liters) of water annually to the sea. It was estimated that only 10% (34.7 MCM or 34700,000,000 liters) of the available water is being used for this and balance 90% (302.3 MCM or 302,300,000,000 liters) flows to the sea at Yala. The DWC plan is to tap 100,000 liters (100 CM or 0.0001 MCM) per day. Accordingly, annual absorption will be around 36,500,000 litres or 36.5 MCM (out of 302.3 MCM). These calculations were done in EIA of Weheragala Reservoir and all parties including Irrigation Department agreed for this arrangement.²

Proposed construction method

The pipelaying will be done along the road in a sufficient depth ensuring gravity flow of water. Water extraction is done at the source using a solar pump with sufficient capacity. Based on the experience of Department of Wildlife Conservation the excavations of trenches will be carried out using machinery and the pipes will be laid in 2 km at a time and the trench will be closed as soon as the pipe laying is completed. The road section where the width is sufficient, one lane will be allowed for vehicular movement and alternative route will be identified where the road is narrow. The maximum depth of the trench will be approximately 1 to 1.5m. All the trenches will be barricaded sufficiently ensuring safety of workers, vehicles of public entering to the park.

Occupational Health and Safety requirement and procedures

OHS aspects are vital for a project which has been implemented inside a PA and a guidance note is prepared and attached to ESMP enabling to implement during the construction period. It is also a part of the ESMP and close monitoring of the same is the responsibility of PMU and Department of Wildlife Conservation.

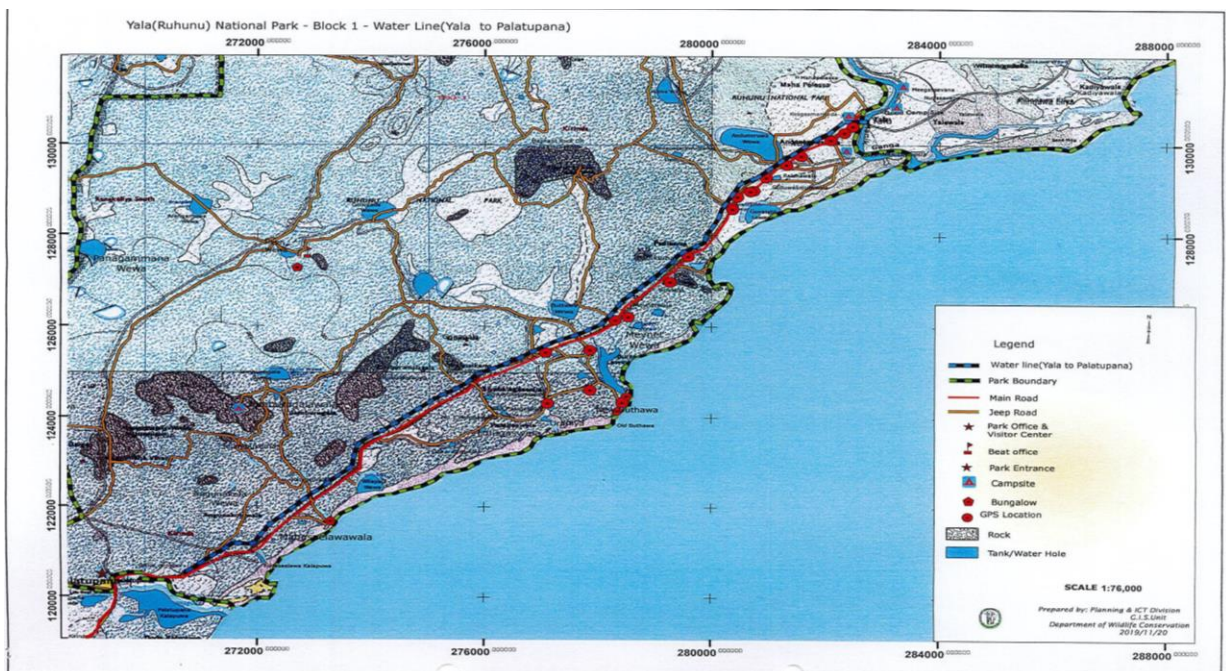


Figure 02: Water line from Yala to Palatupana

² EIA Studies of Weheragala Reservoir, 2004, Main Report, Vol 1. ECOSYSTEM CONSERVATION AND MANAGEMENT PROJECT

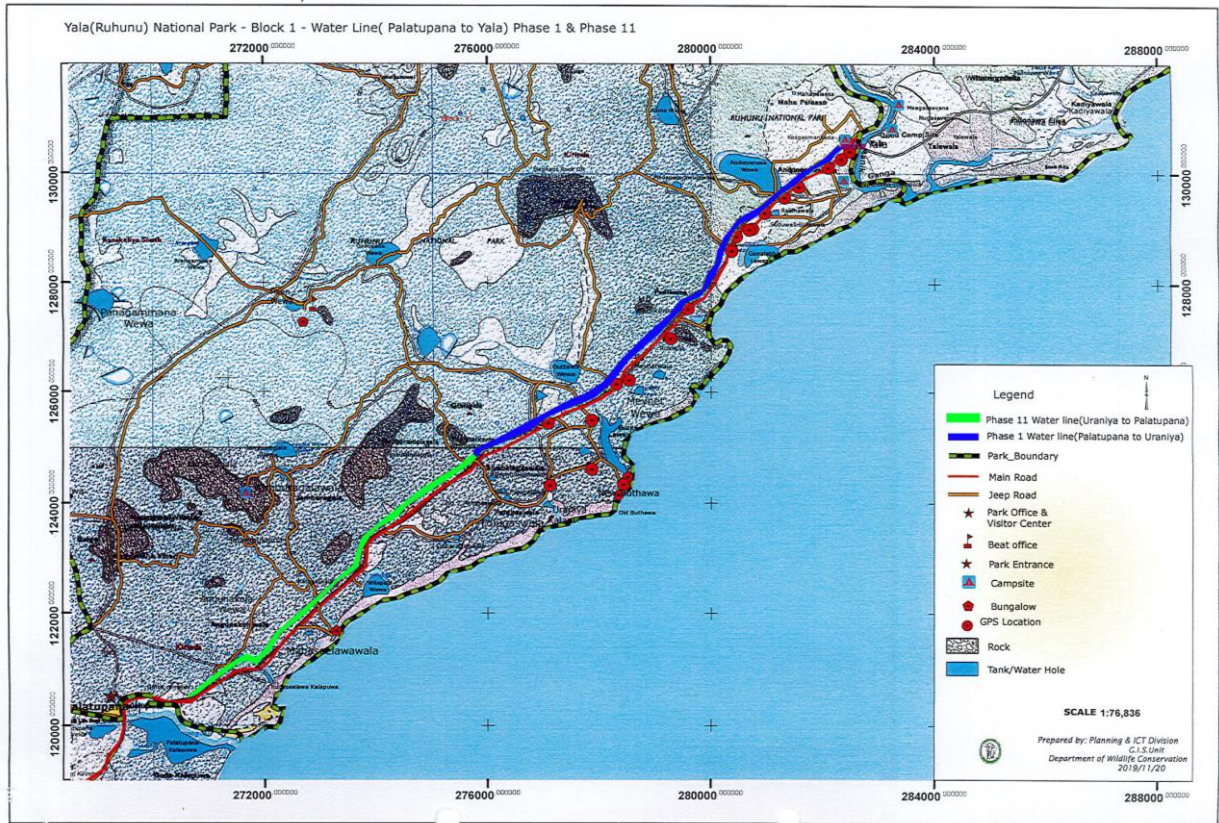


Figure 03: Water line Phase 1 & Phase 2

Recommendations:

- DWC should calculate the capacity of solar systems needed and if necessary, arrangements should be made to install new solar panels as in the original proposal. However, justification of this requirement should be conveyed to PMU prior to implementation of the activity.
- Excavation to lay pipes to be done carefully without harming flora and fauna. As proposed by DWC, pipe line could be laid parallel to the main road in order to reduce the damage to the vegetation.
- However, it should not be a barrier for animal movements as well. After the pipe laying, stabilisation of the ground should be done as quickly as possible. Ground should be developed to the similar standard of the original conditions.
- The water quality should be checked often to ensure the safe use by animals and target communities.
- An effective Operational & Maintenance (O&M) system should be in place for continues supply.
- The pumping of water should not be a threat to aquatic resources in the source. Safety arrangements should be forwarded to PMU prior to the commencement of the construction works.
- Estimated cost for mitigation of environment and social issues could be included in the BOQ to implement mitigation plans.

No	Mitigation Measures	Project Phase	Mitigation Cost	Implementation Responsibility	Supervision
CONCERN 1: PROTECTION OF FAUNA / WILDLIFE					
1.1	Vehicles travelling inside the PA/Park area should maintain low speeds (>20 kmh ⁻¹), in order to avoid disturbing the wildlife and avoid the risk of accidents. In the event the road within the PA/Park area is blocked by wildlife, the contractor shall not disturb the wildlife until they move away from the path, with noise or other means.	Site preparation & Entire Construction Period	-	Contractor	PW - Yala
1.2	All works should be carried out in such a manner that destruction or disruption to the fauna and their habitats is minimised.	Entire construction period	-	Contractor	PW - Yala
1.3	Tooting of vehicle horns shall not be permitted.	Entire construction period	-	Contractor	PW - Yala
1.4	Limit activities to day light working hours from 8.00 am to 5.00 pm.	Entire construction period	-	Contractor	PW - Yala
1.5	Equipment which may produce noise and vibration, used for earthmoving shall be limited, as much as possible within the PA/Park area.	Entire construction period	-	Contractor	PW - Yala
1.6	Construction workers shall be instructed to protect fauna including wild animals and aquatic life as well as their habitats. Hunting, poaching and unauthorized fishing by project workers shall not be allowed.	Entire construction period and construction sites.	Eg: - Awareness under the monitoring & supervision cost...	PW - Yala	PW - Yala
1.7	Special engineering measures have to be taken to protect / prevent damages to the small bunt.	Designing phase & construction	-	Engineer & Contractor	PW - Yala
CONCERN 2. PROTECTION OF FLORA / PLANTS					
2.1	Trees and any type of vegetation shall be felled /removed /pruned only if that impinges directly on the permanent works or necessary temporary works. In all such cases contractor shall take prior approval from the PW – Yala and need to document with tree species with locations.	Entire construction period, construction sites & immediate surroundings.	-	Contractor	PW - Yala
2.2	Material (PVC pipes & other material) transport vehicles, machinery and equipment shall be used and stationed only in the areas of work under the recommendation of the PW – Yala.	Entire construction period.	-	Contractor	PW - Yala

2.3	Wheel washing of vehicles are not allowed inside the PA/park area.	Entire construction period	-	Contractor	PW - Yala
2.4	Off road transportation is strictly prohibited with in the PA. Material transportation should be carried out in established tracks and roads only.	Entire construction period/material transportation	-	Contractor	PW - Yala
2.5	Ensure no activities outside the works zone that demarcated by the Engineer and/or PW - Yala	Entire construction period.	-	Contractor	PW - Yala
2.6	Entry and exit of construction vehicles and machinery should be restricted to particular points/areas as directed by the PW - Yala	Entire construction period, including material transport.	-	Contractor	PW - Yala
2.7	Tractors, small Excavator or other construction vehicles should be cleaned and washed periodically to prevent carrying any invasive species. This should not be done within the work site/PA.	Entire construction period and construction sites.	-	Contractor	PW - Yala
CONCERN 3: PROTECTION OF SOIL					
	Contractor shall decide on the manageable length for excavation at a time ensuring closing of trenches as soon as pipe laying is completed.			contractor	PW-Yala
3.1	When draining pipes line, the surface soil that is removed should be used to replenish the drainage system. For this prossess, it is essential to take written permission from PW - Yala. such an activity must be carried out under the supervision of the respective officer.	Entire construction period where topsoil has to be removed	-	Engineer & Contractor	PW - Yala
3.2	Ensure effective sediment and erosion control measures to be established to reduce potential impacts during the site clearing, where ever necessary. (specially during the raining period)	construction sites.	-	Contractor	PW - Yala
3.3	Areas where top soil has to be removed for the purpose of these works, contractor shall obtain the instruction/directions from the Engineer – DWC / PMU and the PW - Yala and the removed top soil should not bring outside of the PA/Park area.	Entire construction period where topsoil has to be removed	-	Contractor & Engineer	PW - Yala
	Soil conservation measures should be implemented in the soil erosion sensitive areas along with the construction works. <ul style="list-style-type: none"> • Places where runoff from the 	Site preparation period and sites identified as	-	Contractor & Engineer	PW - Yala

3.4	<p>site is required, it will be via the longest flow path possible to ensure maximize sediment retention. Flows to undisturbed areas (where no construction is happening) will be prioritized.</p> <ul style="list-style-type: none"> • Where required, sediment controls will be put in place. These will include, but not be limited to, rock check dams, sediment basins, sediment fences and silt socks. • Sediment controls will be reviewed during site inspections and/or after rainfall. • Review flow path and determine most appropriate controls are in place, additional controls which can be place in-stream and/or changes that can be made to flow path 	soil conservation measures are needed.			
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CONCERN 4: PROTECTION OF GROUND COVER AND VEGETATION

4.1	Contractor should provide necessary instructions to drivers, operators and other construction workers not to destroy ground vegetation cover unnecessarily.	Entire construction period and construction sites.	-	Contractor	PW - Yala
4.2	Only access approved by the park warden should be used when digging through the area beyond the main road.	Entire construction period and construction sites.	-	Contractor	PW - Yala

CONCERN 5: PROTECTION OF WATER SOURCES AND QUALITY

5.1	The contractor is responsible for arranging adequate supply of water for the project purpose throughout the construction period. Contractor shall not obtain water from the PA for any purposes without receiving written permission from the PW – Yala.	Entire construction period	-	Contractor	PW - Yala
5.2	Contractor shall not divert, close or block existing canals/streams within the PA for any purpose during the construction work.	Entire construction period	-	Contractor	PW - Yala
5.3	Contractor should make employees aware on water conservation and waste minimization during the construction process.	Entire construction period	-	Contractor PW - Yala	PW - Yala

CONCERN 6: FIRE PROTECTION					
6.1	<p>No storage facilities will be established inside the PA for any lubricant, fuel or any chemical substance, any other solvent should not be brought to the site for any purpose without receiving written permission from the and under supervision of PW – Yala.</p> <p>Waste oil, other petroleum products and untreated wastewater shall not be discharged on ground/within the PA.</p> <p>Collect all waste/spoils and taken away from the PA/Park area, under supervision of respective PW - Yala.</p>	Entire construction period and construction sites	-	PW - Yala	PW - Yala
6.2	No one will be allowed for cooking, smoking during working hours or bringing cigarettes, lighters, matchboxes or any other smoking material/apparatus etc. into the sites of PA/Park area.	Entire construction period.	-	Contractor	PW - Yala
CONCERN 7. ARCHEOLOGICAL CHANCE FINDS AND PROTECTION					
7.1	<p>In case of chance finds of Archaeological remains, the contractor is obliged to stop the works immediately and inform the PW - Yala and / or Engineer – DWC / ESCAMP or any other officers of Office - Yala available at the immediate vicinity at that moment.</p> <p>All fossils, coins, artifacts of value of antiquity and structures and other remains or things of Geological, Paleontological or Archaeological interest etc. discovered on the site and/or during construction/rehabilitation work shall be returned to the PW - Yala or Engineer – DWC / ESCAMP.</p>	Applicable throughout the construction areas	-	Contractor	PW - Yala
CONCERN 8: LABOUR CAMPS					
8.1	If labour camps are required to house migrant workers, they should be placed well away from Protected Area (PA) boundaries and buffer zones whenever possible or such can be established under the approval of PW - Yala.	Entire construction period and construction sites.	-	Contractor	PW - Yala

8.2	The contractor should give priority to hiring labour from the surrounding areas to avoid the need for labour camps.	Entire construction period and construction sites.	-	Contractor	PW - Yala
8.3	Biological waste materials from the camping sites shall not be dispose/ decompose within the PA/park area and they should be taken away from the PA/park area to dispose /decompose. Labour camp sites after use should be cleared and the site should be reinstated to previous condition at the close of the construction work. No any plastic or polythene materials shall be brought into the project sites in PA/park area. Cooking will not be allowed within the camps.	Entire construction period and construction sites.	-	Contractor	PW - Yala
8.4	Sewage from the camping sites shall be properly disposed and they should not be leaking to the ground water systems.	Entire construction period & camp sites.	-	Contractor	PW - Yala
CONCERN 9. WORKER SAFETY					
9.1	The Contractor shall comply with requirements for the safety of the workmen and all reasonable precautions shall be taken to prevent danger of the workers from accidents causes due to falling, heavy loads, snake bites, insect bites, elephants, leopards & wild buffalos attacks, stuck by objects, contact with unsafe energy sources etc.	Construction areas	-	Contractor	PW - Yala
9.2	All workers employed in construction activities shall be provided with necessary protective gear such as hand gloves, boots, helmets. These activities include cement, lime mortars, concrete etc.	Construction	-	Contractor	PW - Yala
9.3	On the same line with OHS, precautionary measures (Please refer OHS guidelines in Annex 1) to protect from attacks by the wild animals (elephant, leopard and bear) during working times inside the park shall be taken as mentioned below. <ul style="list-style-type: none"> • Contractor has to make sure to dispose organic waste properly. None of the solid waste is discarded into the park area. • Keep a sentinel person to monitoring marauding elephant/s, approaching the construction areas. 	Throughout the construction period & material transporting	-	Contractor & PW - Yala	PW - Yala

	<ul style="list-style-type: none"> Always have thunder flashes at the construction sites with a trained personal to use, whenever necessary. The contractor may coordinate with PW on this matter. 				
9.4	<p>Contractor shall keep all places of work clean, devoid of garbage to prevent attracting of wild animals/elephants and some other vectors.</p> <p>No garbage is disposed within the construction site.</p>	Construction areas, Camping areas (if any)	-	Contractor	PW - Yala
CONCERN 10: PUBLIC SAFETY					
10.1	The contractor should avoid over loaded vehicles to transport material to construction sites in and out of the PA/park area. DWC and the contractor could consider alternative routes for transportation in order to avoid risks of accidents. During transportation, materials should be covered with tarpaulin.	Entire Construction Period	-	Contractor	PW - Yala
	Sufficient measures on barricading trenches is required where the road section is shared for construction and vehicle movement. If the width is not sufficient an alternatives route shall be selected for vehicle movement.	Throughout Construction period		contractor	PW - Yala
	Direction signage shall be used ensuring public convenience				
10.2	<p>Measures to avoid/minimize the airborne dust have to be taken as;</p> <ul style="list-style-type: none"> Covering the vehicles carrying dusty materials (If necessary). Wetting down/spraying of excavation areas if necessary. 	Material Transport and Entire construction period	-	Contractor	PW - Yala
10.3	Any noise pollutions should be controlled.	Construction areas	-	Contractor	PW - Yala
10.4	No child labors are used for any purpose of the contract.	Entire Construction Period	-	Contractor	PW - Yala
CONCERN 11: FIRST AID					
11.1	At every workplace, first aid kit and treatment facilities shall be provided.	Entire construction period and Construction sites	-	Contractor & PW - Yala	PW - Yala
CONCERN 12: OTHER SOCIAL CONSERNS					
12.1	Local people shall be employed in the project activities where possible and no gender discrimination is expected.	Throughout the project period	-	Contractor	PW - Yala

CONCERN 13: GRIEVANCE REDRESS					
13.1	Maintaining records of all environment, social related grievances raised, if any, and the actions taken to address them throughout the construction period.	Throughout the project period	-	Contractor	PW - Yala
CONCERN 14. APPROVALS, LICENCES AND PERMITS					
14.1	All necessary approvals, permits and licenses required by the state and local legislation will be obtained prior to construction commencing. All approvals, permits and licenses shall be maintained and complied with during the construction period. Should there be any changes to the project which would require additional permits or licenses, these shall be obtained.	Entire construction period and construction sites.	-	Contractor	PW - Yala
CONCERN 15: SOLID & LIQUID WASTE MANAGEMENT					
15.1	Demolished materials from the building sites/construction sites should be reuse or taken away from the PA/forest areas under the approval of Engineer of PMU and the PW. Any other organic or inorganic solid waste material should be collected in covered bins and arrangements should be made for removal of solid waste from the sites.	Entire construction period and construction sites.	-	Contractor	PW - Yala

Total cost for implementing the ESMP (has to be filled by the bidder): Rs.

Please include the above total cost into the BOQ too.

Annexure 1 – OHS Guidelines

Annexure 1

Safe Operating Procedures for Working Wildlife Protected Areas

Purpose

To define the safe operating procedures in a manner that informs and instructs employees of implementing authorities and contractors/work force of the key health and safety points and controls to remember when working in areas where wildlife can be found.

Background

People and wildlife live side by side in a PA, therefore, encounters with wild animals are common. Most small animals are not aggressive; however, conflict may occur when they are trying to meet their basic needs of finding food, water and shelter. It is important to understand and recognize basic animal behaviors, in order to prevent injuries to both animals and humans.

The following hazards may occur when working in close proximity to wildlife creatures:

- Infectious disease transmission from mosquito or small animal bites Swelling, mild or severe allergic reactions from stinging insects.
- Serious injury or death from contact with other wild animals such as snakes, elephants, leopards and bears etc.

Personal Protective Equipment (PPE)

- Insect repellent Long-sleeved shirts and pants,
- safety boots (no sandals) Insect spray designed for bees/wasps/hornets
- any other appropriate PPEs

Safe Operating Procedure

General

- Always carry a cellular phone, or other two-way communication device, in case emergency medical help is required.
- Be aware of your surroundings and note any wild or suspicious acting animals in your work area. If necessary, seek safe shelter from these animals and contact the appropriate authorities.
- Avoid reaching or stepping into or over hidden areas that may contain wildlife.
- Be aware of signs that indicate above or below ground animal nests and take appropriate action to prevent contamination.
- Avoid direct contact with bird, bat or other animal droppings.
- Avoid direct contact with animal blood. If contact cannot be prevented, wear rubber gloves, and dispose properly.

Biting and Stinging Insects

- Know what kind of biting and/or stinging insects to expect in the area or work location.
- Ensure there is a ready supply of insect spray in work area.
- If you are allergic to bee or wasp stings, ALWAYS notify the work supervisor. Understand and know how to administer the medication yourself.
- Do not wear perfumes, colognes, scented soaps or powders.
- Tuck pants into your socks or work boots. Wear light-colored clothes, if possible.
- Look out for stinging-insect nests – any visible signs of activity around a particular hole or place.
- Destroy standing water for mosquitoes

- Do not swat at or make fast movements around stinging insects – most bees and wasps will not sting unless they are provoked or startled.
- If a bee or wasp nest must be removed from your immediate work area, notify the relevant people immediately.

Small Wild Animals

- Never touch or handle wild animals – healthy, sick or deceased. Parasites and other infectious diseases may be present.
- If bitten by a wild animal, clean the wound with soap and water, and obtain medical assistance immediately, advising medical staff of the potential for infectious diseases, such as rabies.

Bears

Bears are naturally shy, but extremely curious animals. If that curiosity is rewarded with food, they become conditioned to be increasingly forward, even aggressive. They can cause injury or death. Confirm with the wildlife staff if there have been any recent bear sightings or incidents in the respective work area. If working in an area with known bear activity, always be prepared.

Elephants:

Instructions of the Department of Wildlife is always necessary for the protection from Wild elephants.