



DETAILED IEE REPORT

CONSTRUCTION OF 400kV GIS POOLING STATION AT DURUNGRI UNDER PEMAGATSEL DZONGKHAG

NOVEMBER, 2025
BHUTAN POWER CORPORATION LIMITED
EGSS, CD, C&PD, BPC

Initial Environmental Examination (IEE) Form for Transmission and Distribution Projects -2017

Note 1:	In accordance with section 47 of the Regulation for Environmental Clearance of Projects 2016, consent must be obtained from individual or juristic person if activity has direct impact on a property.
Note 2:	The completed IEE form shall be submitted to the relevant Competent Authority.
Note 3:	The completed IEE form shall be the basis to determine the requirement of Environmental Impact Assessment (EIA). If EIA is required, applicant will be notified to submit Terms of Reference for the project.
Note 4:	The application shall be subjected to Fee Schedules to cover the cost of administering the Environmental Assessment Act, 2000.

1. General Information:

- a) Name of the project: **Durungri Pooling Station (PS) Project**
 - I. Voltage level in kV: **400 kV**
- b) Project Type (Tick as appropriate): ☒ New ☐ Expansion/modification
- c) Applicant Details:
 - I. Name of the applicant: **Bhutan Power Corporation Limited**
 - II. Address: **Chubachu (BPC Corporate Office), Thimphu, Bhutan**
 - III. Post Box No.: **580**
 - IV. Contact No.: **+975 02 325095/325096**
 - V. Fax No.: **+975 02 322279**
 - VI. Email: hrad@bpc.bt
 - VII. Name and contact details of Environmental Focal Person: **Susmita Subba, Assistant Environment Officer, EGSS, BPC**
Contact Number: 17950563; Email ID: susmita@bpc.bt

2. Project Location:

- I. Dzongkhag/Thromde: **Pemagatsel**
- II. Gewog: **Dungmin**
- III. Village: **Zabala**
- IV. Name of the project site: **Durungri**

3. Project Cost (Nu.):
4. Project area, tick as appropriate:
 - a) ☒ State Reserve Forest: **8.03 acres**
 - b) ☒ Private: **50.06 acres (List enclosed)**
 - c) ☐ Others.....acres
 - d) Total area required: **50.09 acres**
6. Presence of any of the following within and 50 meters buffer of the project area. If yes tick and mention name, wherever applicable:
 - a) ☐ River/spring/stream.....
 - b) ☐ Protected Area.....
 - c) ☐ Catchment area.....
 - d) ☐ Wetland.....
 - e) ☐ Community Forest.....
 - f) ☐ Private Forest.....
 - g) ☐ Tsamdro.....
 - h) ☐ Sokshing.....
 - i) ☒ Agriculture land: **Fruit trees and crops of PAPs**
 - j) ☐ Heritage site.....
 - k) ☐ Hospital.....
 - l) ☐ School/institution.....
 - m) ☒ Roads: **Farm road to Zabala village**
 - n) ☐ Industries.....
 - o) ☒ Settlements: **03 Households**
 - p) ☐ Presence of religious site.....
 - q) ☐ Archaeological site.....
 - r) ☐ Others
6. Project Details (attached in a separate sheet):
 - a) Project objectives:
 - **To transmit the generated power;**
 - **To stabilize the grid through damping capability resource sharing via interconnections; and**
 - **PS development under the East – West Transmission Link Project.**

- b) Length of transmission /distribution line in km: **NA**
- I. Starting point: **NA**
- II. Termination point: **NA**
- c) Right of Way in meters: **NA**
- d) Tower types and numbers: **NA**
- e) Methods of storing materials: **The construction materials shall be stored at outdoor storage yard within the project area along with the storage sheds.**
- f) Does the proposed transmission/distribution line pass through: **NA**
- a) Avi-fauna migratory routes ☐Yes ☐No
- b) Heritage or religious site ☐Yes ☐No
- c) Wetland and catchment area ☐Yes ☐No
- d) If yes for any of the above, provide alternatives
7. Ancillary activities, tick as appropriate: **NA**
- a) ☐ Substation
- b) ☐ Approach Road
- c) ☐ Ropeway
- d) ☐ Others

Note: For ancillary activities, fill up relevant IEE forms and submit along with these IEE forms.

8. List type of solid wastes and its quantity:

Types of Solid Waste Materials	Expected Quantity to be generated per day (Kg)	Remarks	Management Method
Food waste, plastics/ packaging material, cardboard & common trash (HOUSEHOLD WASTES)	25.3 Kg/day from the approx. 100 nos. of workers for the SS Project.	As per the National Waste Management Strategy 2019, an average of 0.253 kg/ capita/ day for approximately solid waste will be generated.	Disposed-off to Municipal Solid Waste landfill sites. The waste that can be recycled will be sent to Recycling Facility, if such facility is available in the locality
Wood (timber, slash, stumps, etc.) *	Approximately 200 trees and 700 pole size trees.	Approximate estimates as per the Forestry enumeration report.	The tress from the project clearing will be handed over to the respective community forest management and NRDCCL for

			extraction and disposal as per the rule.
Metals (Ferrous and Non-Ferrous) including junk and cut-out conductors, optical fibers, and metal structures	2% of all metal-based materials		Transport to scrap/ Metal recycling company and manage as per SOP for waste Management in DHI & DHI Companies 2020, BPC's Waste Management Plan 2021, BPC's Guidelines for disposal of optical Fiber Waste/ e-waste, and all other relevant Waste Management policies of the country.
Concrete Debris	2% concrete debris from the proposed project	Waste from the construction sites	Use as road sub-base material or used for concrete pavement foundation for Tower Foundations. Existing concrete pads and foundations will be managed on a case-specific basis depending on the type of waste and the location of the waste within the locality.
Excavated Spoils	Excavated spoils from the project area		Loose excavated soil shall be covered and more than 90% of the excavated soil shall be reused for backfilling and landscaping.

9. Environmental Management Plan (attached in a separate sheet):

Briefly describe mitigation measures to address impacts including section 8

10. List of documents to be attached with this IEE form:

1	Public consultation records verified by the concerned local authority
2	Layout plan and KMZ file depicting entire layout plan

Name and signature of the project proponent: **Susmita Subba, Assistant Environment Officer**

Address: **Environment, GIS, and Survey Section, Construction Division, C&PD, BPC, Thimphu**

Date:



ENVIRONMENTAL MANAGEMENT PLAN (EMP)

CONSTRUCTION OF 400 kV GIS POOLING STATION AT DURUNGRI UNDER PEMAGATSEL DZONGKHAG

November 2025

Bhutan Power Corporation Limited

EGSS

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Acronyms and Abbreviations

AIS	Air Insulated Switchgear
BPC	Bhutan Power Corporation Limited
DECC	Department of Environment and Climate Change
EC	Environmental Clearance
EGSS	Environment, GIS and Survey Section
EMP	Environmental Management Plan
EPRP	Emergency Preparedness and Response Plan
GIS	Gas Insulated Switchgear
HDPE	High Density Polyethylene
IMS	Integrated Management System
ISO	International Organization for Standardization
NIA	Noise Impact Assessment
PNH	Primary National Highway
PPE	Personal Protective Equipment
PS	Pooling Station
SDS	Safety Data Sheet
SRF	State Reserved Forest
TIA	Traffic Impact Assessment
TMT	Thermo-Mechanical Treatment
UNDP	United Nations Development Programme

1. Introduction

This EMP has been prepared to meet the requirements set out in Chapter II – Application for Environmental Clearance – Preparation of an Application (Clause 7) of the Regulation for Environmental Clearance of Projects 2016.

This Plan has been developed to identify and provide the strategic framework for environmental Management for expected environmental impacts arising from the construction of the Pooling Station (PS) at Durungri, Dungmin Gewog, Pemagatsel Dzongkhag.

The purpose of this EMP is to provide the framework for environmental management of the construction phase of the Project. It is the responsibility of the Contractor (project staff, contractors and subcontractors) to comply with the objectives and requirements of this EMP and related documents where required by their respective scope of works.

1.1 BPC Overview

BPC has been entrusted to carry out the construction of 400 kV GIS PS at Durungri, Pemagatsel. BPC with its registered office in Thimphu, has experienced management team of energy infrastructure, engineering, procurement and construction professionals with specific experience in the construction of AIS/GIS Substations.

BPC as an ISO certified company (ISO 9001:2015, ISO 14001:2015, ISO 45001:2018) recognizes the importance of conducting business operations in an environmentally responsible and sustainable manner. BPC is committed to health and safety of its staff, business partners and contractors, innovation and service excellence, and supporting the communities in which we work.

1.2 Project Overview

This station is an essential component of the East-West (E-W) Transmission Link project, designed to significantly strengthen the nation's power infrastructure. The overarching goal of this project is to enhance the reliability of the national power grid, effectively minimize transmission losses, and contribute to local socio-economic development.

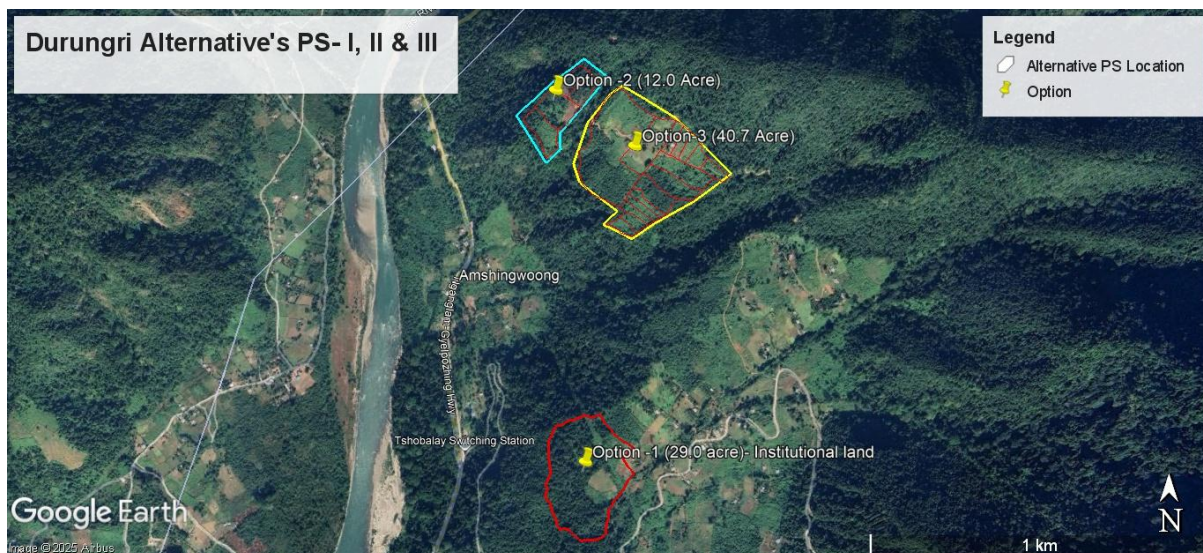
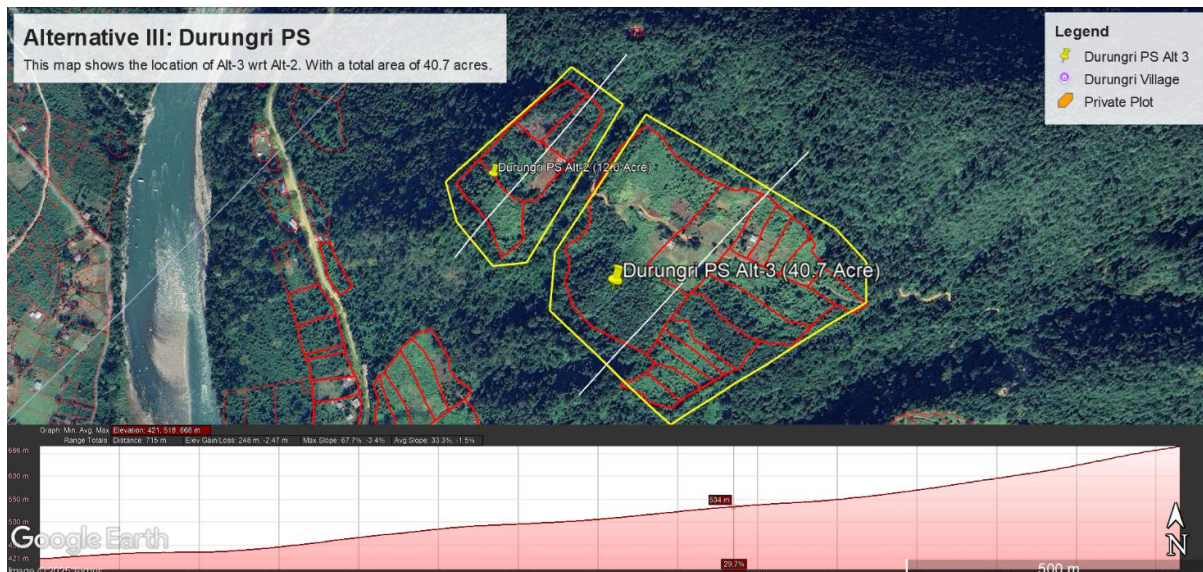
The proposed location for the Durungri PS is situated in Dungmin Gewog, Pema Gatsel Dzongkhag. The site selection process adhered to a disciplined procedure, including a joint technical and environmental assessment conducted on October 9–10, 2025.

Parameter	Specification
Project Name:	Durungri Pooling Station (PS)
Associated Project:	East-West (E-W) Transmission Link Project
Location (Gewog/Dzongkhag):	Dungmin Gewog, Pema Gatshel Dzongkhag
Desing Footprint (Maximum Land Requirement):	35 acres
Proposed Total Land Acquisition:	58.09 acres (48.5 acres for the main site + 9.59 acres for dead end tower spotting)
Land Ownership Category:	Private Land Parcels and SRF

1.3 Site Description

The current location was selected as it meets all requisite engineering requirements, offers a favorable gentle slope that reduces complex and costly earthworks, and presents a manageably moderate social impact compared to the other options.

Alternative	Description	Key Determining Factors	Conclusion
I	State Reserved Forest (SRF), 29 acres, near settlements.	Technically suitable but presents a Significant Social Impact (potential effect on 50% of village population due to proximity and future RoW).	Rejected due to unacceptable social risk and future expansion constraints.
II	12 acres (Private & SRF), North of Alt-I.	Unsuitable due to insufficient area (below 20-acre minimum) and required extensive, high-cost earthworks on steep slopes.	Rejected due to technical infeasibility and construction difficulty.
III (SELECTED)	Private land, 40.7 acres, adjacent to Alt-II (15 parcels).	Meets technical footprint, has a gentle slope, and presents a Manageably Moderate Impact, allowing better long-term development.	Selected as the optimal site, balancing engineering practicality and social acceptability.



2. Contractual Obligations

The Contractor will ensure that the following requirements are adhered to in accordance with the Contract:

- Compliance with all conditions of approval relevant to the Project;
- Suitably qualified environmental resources will be provided to undertake environmental duties relevant to the Project, including the implementation of the EMP as required;
- Mechanisms will be established and implemented to ensure continual improvement; and;

- Compliance with any reasonable direction given by a competent Authority or BPC representative to improve or rectify the Project's environmental practices is adhered to.

3. Scope of Work

The work includes the construction of PS under Pemagatsel Dzongkhag, Dungmin Gewog.

4. Environmental Policies

4.1 BPC Environmental Policy

BPC is committed to the practice of sound environmental stewardship; and strive to protect and conserve our natural environment, and prevent all forms of ecological degradation for the benefit of the present and the future generations as enshrined in the Constitution of the Kingdom of Bhutan. These values resonate with our company's vision and Core Values accentuating through all levels of responsibility within the organization.

5. Legal and Other Requirements

The Project shall be delivered in compliance with all applicable Acts and Regulations relevant to the scope of works. A General Register of legal and other requirements for this Project is contained in the table below.

Regulatory and Other Requirements	Description and Relevance
Environmental Assessment Act 2000	This Act establishes procedures for the assessment of potential effect of strategic plans, policies, programs and projects on the environment and all projects in Bhutan are assessed as per the provisions of this Act.
National Environment Protection Act 2007.	This Act provide for the establishment of an effective system to conserve and protect environment through the National Environment Commission, competent authorities and advisory committees, so as to independently regulate and promote sustainable development in an equitable manner.
Land Act 2007	The umbrella act pertaining to all land in the country.

The Land Rules and Regulations of the Kingdom of Bhutan 2007	This Regulation establish procedures to implement the purpose of the Land Act 2007.
Waste Prevention and Management Act of Bhutan 2009	This Act protect and sustain human health through protection of the environment by reducing generation of waste at source; promoting the segregation, reuse and recycling of wastes; disposal of waste in an environmentally sound manner and; effective functioning and coordination among implementing agencies.
The Water Act of Bhutan 2011	The purpose of this act is to ensure that the water resources are protected, conserved and/or managed in an economically efficient, socially equitable and environmentally sustainable manner and; To establish suitable institutions.
Waste Prevention and Management Regulation 2012 and its Amendment 2016	This Regulation establish procedures to implement the purpose of the Waste Prevention and Management Act 2009.
Water Regulation of Bhutan 2014	This Regulation is promulgated to enforce the objectives and purpose of the Water Act.
Regulation for Environmental Clearance of Projects 2016	This Regulation defines responsibilities and procedures for the implementation of the Environmental Assessment Act 2000 concerning environmental assessment process for projects.

6. Structure and Responsibilities

The project specific organisational structure is provided below. All BPC personnel (including the Contractor) have a general environmental right and duty as defined in the National Environment Protection Act 2007 and are responsible for their own environmental performance whilst on site.



Role	Responsibilities
Project Manager	○ Promote Environmental performance, at every opportunity as a core value of the organization. ○ Ensure there is adequate and efficient resources available ○ Be familiar with, understand, and enforce the legislative duties and project specific regulations and requirements, as well as other pertinent and accepted work practices; ○ Exercise stops work responsibility when Environmental Aspects present themselves ○ Work closely with and support the Project Engineers for the execution of this Strategy.
Environment Officer	○ Reporting of Environmental Issues as required to the General Manager and Manager, CMS ○ Development of this EMP and revisions. ○ Ensuring that all project personnel receive appropriate environmental inductions and additional training as required; ○ Ensure that relevant Audit tools and schedules are developed and adhered to. ○ Monitoring of performance of this EMP. ○ Maintenance of up-to-date EMP and relevant documents at the

	site.
Project Engineers and Junior Engineers	○ Support the Project Manager to ensure project environmental management and due diligence, ○ Assist in allocation of resources; Ensuring that all site personnel receive appropriate environmental inductions and additional training as required, ○ Reporting on this EMP, ○ Promote environmental incident avoidance, ○ Respond to environmental incidents, ○ Corrective and preventative action, ○ Emergency preparedness and response, ○ Approval of any chemicals entering the site, ○ Emergency response manager, ○ Compliance with permits, local council guidelines and regulatory Requirements, and ○ Monitoring of Contractor compliance with the EMP.
Contractor	○ Contractor shall be required to comply with the specific terms of the Contract, performance objectives of the contract, and EMP, ○ Submit an applicable Environmental Management Plan to BPC for review and approval before the commencement of any work on-site, ○ Participate in the implementation of this EMP and their own EMP, ○ Work with site supervisors to ensure their activities are undertaken in a manner which does not cause environmental harm, ○ Rectify environmental controls removed or damaged by their activities; and ○ Report situations that have, or may result in environmental harm.
All On-Site Personnel	○ Report any activity that has resulted in, or has the potential to result in an environmental incident immediately to the Project Engineer and Project Manager; ○ Where necessary, ensuring environmental inspections are undertaken and any environmental records are kept, ○ Carry out all activities in accordance with this EMP, ○ Identify and report non-conformances, ○ Implement corrective and preventative action, and ○ Work with the project team in planning and implementing environmental requirements.

6.1 Contractor Structure and Responsibilities

The Contractor must ensure that the following roles are established and the corresponding responsibilities are fulfilled;

Project manager

The Project manager will be responsible for:

- Ensuring all relevant requirements are in place,
- Establishing a rigid management and reporting structure to implement and monitor these requirements,
- Ensuring compliance with this Management Plan.

Environmental Management representative

The Environmental Management representative will be responsible for:

- Aiding and giving advice to the Contractor in order for this EMP to be implemented properly,
- Carrying out inspections, monitoring each condition and reporting any findings,
- Providing project-wide advice to ensure consistent approach and outcomes are achieved, including communication between the Contractors where required by Environmental Management Plans and/or Development Consent conditions, and
- Liaising with the DECC and contacting the relevant Agencies where required by legislations as listed in this EMP.

7. Environmental Risk Assessment

Environmental aspects as referred to in this document are those activities associated with the project that have a potential to cause or result in environmental harm. An environmental risk management assessment has been utilized to identify and assess the environmental aspects associated with the Project, and to recommend appropriate mitigation measures to minimize the likelihood of environmental risks associated with each aspect to be included in an Environmental Management Plan where required. This process involves:

- Identifying the risk/aspect,
- Analyzing the risk/aspect (determining likelihood and consequence),
- Evaluating the risk/aspect, and

➤ Treating the risk.

RISK MATRIX					
Severity	Exposure				
	E - Remote	D - Unlikely	C - Possible	B - Likely	A - Certain
1 - Slight	1	1	1	2	3
2 - Minor	1	2	2	3	3
3 - Moderate	1	2	3	4	4
4 - Major	2	3	4	5	5
5 - Extreme	3	3	4	5	5
EXPOSURE – How likely is this event to happen?					
CODE	DESCRIPTION	DEFINITION			
A	Certain	Is expected to occur in most circumstances			
B	Likely	Will probably occur in most circumstances			
C	Possible	Might possibly occur some times			
D	Unlikely	Could occur at some time but doubtful			
E	Remote	May occur but only in exceptional circumstances			
SEVERITY- if this does happen, how severe would the outcome be?					
CODE	DESCRIPTION	DEFINITION			
5	Extreme	Fatality/ multiple serious injuries, environmental disaster, huge cost			
4	Major	Serious/life threatening injury, severe environmental damage, major cost			
3	Moderate	Injury requiring medical treatment, contained environmental impact, moderate cost			
2	Minor	First aid treatment, some environmental/financial impact			
1	Slight	No injury, low environmental/financial impact			
Risk Level Code	DESCRIPTION	ACTIONS			
5	EXTREME	Do not undertake task. Modify process / design.			
4	VERY HIGH	Do not undertake task. Modify process / design, Action plan required including controls to manage risk. Requires senior management attention.			
3	HIGH	Action plan required including controls to manage risk. Requires senior management attention			
2	MEDIUM	Specify management responsibility			
1	LOW	Manage by routine procedures			

8. Significant Environmental and Social Impacts

Using the above Risk Assessment, the significant environmental impacts have been listed below, with a summary of control/mitigation measures to be implemented and monitored. All environmental mitigation shall be communicated through Site Induction. Relevant Audit Tools in relevance to the IMS Manual of BPC will also be developed in accordance with the performance objectives below and the mitigation measures outlined in the relevant EMP.

i. Air Quality

Issues

The most common pollution generating sources in the area include vehicle emissions. Emissions to the atmosphere from the Project during construction will be temporary, and restricted to dust caused by land disturbance, and vehicle, plant and equipment exhaust emissions. Dust emissions during operation are not expected to be significant.

Environmental Performance Objectives

- Minimal dust moving off-site and minimum dust on-site,
- No complaints from neighboring properties,
- Construction equipment operating according to manufacturer's specifications, and
- Compliance with the relevant regulation.
- Compliance with Condition 1-3 of the Environmental Clearance.

Mitigation Measures

Action	Responsibility	Timing
Water Trucks to be used during construction for dust suppression as required for: 1. Disturbed areas 2. At least twice in a day (F/N and A/N)	Contractor	When required
Dust suppression requirements during construction will take into consideration weather conditions and the likelihood of extended dry periods.	Contractor	When required

Ensure all construction related stockpiles are covered or regularly watered to prevent dust emissions.	Contractor	When required
Minimize surface disturbance and maintain surface cover where possible.	Contractor	Always
Confine traffic to defined roads and tracks on-site where possible.	Contractor	Always
Confine traffic to defined roads and tracks on-site where possible.	All Personnel	Always
Dust generating activities shall be limited during periods of high velocity wind, as determined by the Project Engineer in consultation with the Environment, Quality & Safety Officers and Contractor Representatives.	Project Manager	When required
Visual monitoring for dust resulting from construction activities shall be undertaken by all personnel. Excessive dust generation shall be reported to the Contractor Supervisor or Project Manager.	All Personnel	When required
All dust complaints from construction activities shall be recorded and reported to the Project Manager or Environment/Quality & Safety Officers immediately after receipt of the complaint. All actions taken are to be recorded.	Environment Officer	When required
All trucks transporting spoil and fill material to and from the site shall have covered loads if travelling on public roads.	Contractor	Always
All trucks, plant and temporary equipment used on site shall be regularly serviced such that they operate efficiently and do not emit excessive exhaust.	Contractor	Always

Visual monitoring shall be conducted and maintenance records of all trucks, plant and machinery are to be kept.	Contractor	Always
All vehicles, plant and equipment will be cleaned on a regular basis.	Contractor	When required
All vehicles, plant and equipment will be switched off when not in continuous use.	Contractor	Always
Burning of vegetation or other waste materials is not permitted.	All Personnel	At all times

ii. Noise and Vibration

Environmental Performance Objectives

- Construction activities will only occur between site specified hours,
- Construction noise from the project is minimized,
- Maintain compliance with the conditions of the project approval and legislation relating to noise,
- Provide a protocol for monitoring and assessing construction noise impacts on surrounding private receptors,
- Effective communication with the local community and regulators regarding construction of the proposed project, and
- Compliance with Section II and III of the Environmental Clearance.

Mitigation Measures

Action	Responsibility	Timing
Contact details provided to all surrounding residences so as they can directly contact a Contractor Representative (Liaison Person) on- site if they have any issues with noise generated during the project. All Complaints will also be reported through to BPC.	Contractor	Project Duration

Construction activities will only occur between site specified hours: - Monday - Sunday: 6am-7pm If noise limits are exceeded or a complaint is received, BPC will implement appropriate control measures to resolve the complaint or ensure compliance with the limits.	Project Manager and Contractor	Project Duration
Construction site personnel shall be made aware of all community attitudes and noise complaints through toolbox talks and awareness training sessions.	Project Manager	When required
All vehicles and equipment shall be turned off when not in use.	Contractor	Always

All construction equipment shall be fitted with noise suppression devices and be kept in good working condition.	Contractor	Project Duration
Regular maintenance of plant and construction equipment shall be conducted to ensure items are kept in good working order.	Contractor	Project Duration
All noise complaints from construction activities shall be recorded and reported to the Project Manager, immediately after receipt of the complaint. All actions taken are to be recorded and will be developed on a case-by-case basis.	Environment, Quality & Safety Officer	When required

iii. Traffic and Transport

Environmental Performance Objectives

- Prepare a traffic management plan including routes, haulage limits and vehicle types and ensure effective implementation.

Mitigation Measures

Action	Responsibility	Timing
Notification to local personnel (community and Neighbors) regarding traffic and transport would be undertaken if any of the following were to change:	Project Manager/Contractor	Prior to commencement of Construction and as required

1. Road closures, 2. Parking, and 3. speed limit change		throughout construction.
Prepare an on-site traffic management plan outlining; ➤ Traffic Flow ➤ Speed Limits ➤ Access and Egress ➤ Parking ➤ Emergency Access	Contractor	Project Duration

iv. *Visual Amenity*

Environmental Performance Objectives

The design principles of the development seek to avoid, reduce and where possible, remedy adverse effects on the environment through the implementation of mitigation measures, which propose a combination of primary mitigation measures such as boundary tree planting and landscaping and temporary screening of construction activities.

Mitigation Measures

Action	Responsibility	Timing
Avoid un-necessary loss or damage to vegetation adjacent to the site and within the site by protecting trees prior to construction and/or trimming vegetation to avoid total removal.	Project Manager	Prior to commencement of Construction
Minimize light spill from development by ensuring the site is not over-lit and by properly directing construction lighting	Contractor	Project Duration
The construction site is to be kept tidy and well maintained, including removal of all rubbish at regular intervals. There shall be no storage of material beyond the construction boundaries.	Contractor	At all times
Worksite compound and site sheds are positioned away from visually sensitive areas and appropriate screening will be installed as required.	Contractor	Prior to commencement of Construction

v. *Biodiversity*

Issues

The proposed construction of PS may result in both direct and indirect impacts on biodiversity. The direct impacts of the project are expected to comprise:

- The removal of native vegetation within the development site
- Permanent land use change

The indirect impacts of the project potentially may include;

- Erosion of the disturbed area leading to sedimentation affecting any downgradient habitat or habitat within drainage channels.
- Water quality impacts (e.g. increased turbidity and suspended solids) affecting any downgradient habitat or habitat within drainage channels,
- Disturbance of fauna during construction due to noise generated by vehicles, equipment and construction activities.

Environmental Performance Objectives

- Minimize clearing and avoid unnecessary disturbance of vegetation that is associated with the construction and operation of the development
- Minimize the impacts to fauna on site (including fauna interaction with perimeter fencing)
- Rehabilitate and revegetate temporary disturbance areas
- Protect vegetation and fauna habitat outside the approved disturbance areas
- Maximize the salvage of vegetative and soil resources within the approved disturbance area for beneficial reuse in the enhancement or the rehabilitation of the site,
- Control weeds and feral pests.

Mitigation Measures

Action	Responsibility	Timing
To minimize vegetation removal, site access for construction and operation will be from the farm road only	All Personnel	Project Duration
Where appropriate native vegetation cleared from the project site will be mulched for re-use on the site to stabilize bare ground or used in landscaping areas.	Contractor	During Clearing
Any injured animals are to receive veterinary attention immediately.	Forestry Officials	Prior to clearing

Vegetation to be cleared shall be restricted to that required for the construction of the Project including access roads. No vegetation outside the disturbance approval area shall be cleared.	Project Manager	Project Duration
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vi. *Cultural Heritage*

Issues

No cultural sites were identified during the visual inspection of the Project area and it has been concluded that it is unlikely that unidentified cultural objects are present in the Project area.

Environmental Performance Objectives

- In case of any unanticipated or unforeseen chance-find of any precious metals or minerals or articles that have economic, cultural, religious, archaeological, and/or ecological importance, cease work and inform DECC.
- Compliance with Section I, Clause no. 5 of the Environmental Clearance.

Mitigation Measures

Action	Responsibility	Timing
In the event of suspected cultural heritage items or precious metals being identified on site, all works within the immediate area of the find will cease and the area made secure to enable inspection and sampling of the site. Any unexpected finds are to be reported immediately to BPC.	All Personnel	When required
If suspected cultural heritage items are identified the DECC must be notified.	Environment Officer	When required
In the unlikely event that skeletal remains are identified, work must cease immediately in the vicinity of the remains and the areas made secure. BPC must then contact the local Police who will make the initial assessment as to whether the remains are a part of crime scene or not.	Project Manager	When required
If suspected archaeological resources are identified, work within the affected area must cease and the area secured. The DECC must be informed.	Environment Officer	When required

vii. *Soil and Water Quality*

Issues

The development is anticipated to have minimal impacts on the surrounding surface water environment, flow regimes (flooding), quality, quantity, features, or local or regional hydrology. Although some of the possible impacts will include: -

- Contamination from sediment and unintended spillages of fuel, lubricants, herbicides, sewage and other chemicals
- Increased soil compaction through additional access tracks and other hardstand areas changing runoff characteristics and potential for concentrated flows
- Increased imperviousness of the site through installation of solar panels

Environmental Performance Objectives

To ensure that impacts are minimized an Erosion, Sediment and Storm water Control Plan will be implemented, along with various site management protocols not limited to the below mitigation measures: -

- Compliance with section IV of the Environmental Clearance.

Mitigation Measures

Action	Responsibility	Timing
Development and implementation of a Construction and Operational Erosion and Sediment Control Plan.	Environment Officer	Prior to commencement of Construction
Consultation with adjacent landholders shall be ongoing to manage interaction between the project and other properties.	Project Manager	Project Duration
Erosion and sediment controls shall be installed progressively during site works.	Contractor	Project Duration
Erosion and sediment controls will be visually inspected as part of the Environmental Audit schedule. During periods of rainfall causing runoff a compulsory inspection protocol will be implemented.	Environment, Quality & Safety Officers	Project Duration

Regular equipment cleaning of equipment shall be completed to minimize the tracking of sediment from vehicles, plant and equipment onto the farm road and the PNH.	Contractor	Project Duration
Stockpile topsoil appropriately to minimize weed infestation and maintain soil organic matter, soil structure and microbial activity.	Contractor	Project Duration
Minimize surface disturbance and maintain surface cover where possible.	Contractor	Project Duration

Where possible, construction works should be staged in a manner that minimizes the duration and extent of exposed soils and sub-soils.	Contractor	Project Duration
Refueling of plant and machinery to be done at least 50m away from water bodies and constructed drainage lines in an impervious bunded area.	Contractor	Project Duration
All fuels, chemicals and other potential contaminants to be storage at least 50m from water bodies and constructed drainage lines in an impervious bunded area.	Contractor	Project Duration
Grass cover to be established and/or maintained under all solar panel arrays to maximize water infiltration whilst balancing risk of fire from build-up of combustible vegetation.	Contractor	Project Duration
All solid and liquid waste to be appropriately stored in containers awaiting collection and disposal to approved facilities off site.	Contractor	Project Duration
All machinery and plant to be checked daily to ensure no leakage of fuels, lubricants or other liquids.	Contractor	Project Duration
All staff to be appropriately trained through toolbox talks for the minimization and management of unintended spills.	Environment, Quality & Safety Officers	Project Duration

viii. Waste Management

Issues

There will be various waste streams from the construction phase of the project including the following:

- Workforce general waste,
- Packaging materials (i.e. cardboard, plastic, timber pallets, metal strapping),
- Excess building materials,
- Scrap metal and cabling materials (i.e. steel, aluminum, copper),
- Plastic and masonry products,
- Waste concrete products,
- Excavation of top soils and scalping of vegetation and
- Temporary ablutions waste

Environmental Performance Objectives

Waste management for the development will be undertaken consistent with the waste management hierarchy in the following order of priority from most desirable to least desirable:

- **Avoid:** Waste avoidance by reducing the quantity of waste being generated. This is the simplest and most cost-effective way to minimize waste. It is the most preferred option in the waste management hierarchy.
- **Re-use:** Reuse occurs when a product is used again for the same or similar use with no reprocessing. Reusing a product more than once in its original form reduces the waste generated and the energy consumed, which would have been required to recycle.
- **Recycle:** Recycling involves processing waste into a similar non-waste product consuming less energy than production from raw materials. Recycling spares the environment from further degradation, saves landfill space and saves resources.
- **Dispose:** Removing waste from worksites and dumping on a landfill site, or other appropriately licensed collection centers.
- Waste generated from the construction and operation of the proposed facility will be managed efficiently to ensure that the diversion of waste from landfill is maximized
- Compliance with the Section V of the Environmental Clearance.

Mitigation Measures

Action	Responsibility	Timing
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Waste materials, including spoil and construction wastes, should be separated onsite into dedicated bins/areas where practicable, for either reuse onsite, to be recycled or disposed of in an appropriate manner at designated areas/facilities. Local commercial reuse opportunities will be investigated where reuse on-site is not practical.	Contractor	Project Duration
Waste storage facilities and spoil placement areas shall be located in easily accessible locations, away from existing drainage lines.	Project Manager	Project Duration

Watercourse, site drains and waterbodies shall not be polluted by waste.	All Personnel	Project Duration
Green waste shall be mulched and reused onsite for landscaping and rehabilitation if appropriate.	Contractor	When required during clearing
The waste storage area shall be of adequate capacity to handle the volumes of waste being stored without posing a risk to the environment.	Contractor	Project Duration
Ordering will be limited to only the required number of materials.	Contractor	Project Duration
No litter to be left onsite. All work areas to be tidied each day.	All Personnel	Project Duration
Lids and seals shall be maintained on all odor generating waste material; and all domestic and food scrap waste shall be secured to prevent wildlife access.	All Personnel	Project Duration
No waste is to be burned or buried on site.	All Personnel	Project Duration
All sewage waste generated on site shall be collected and pumped out as necessary for offsite disposal to an appropriately licensed facility.	Contractor	Project Duration

Inspections of the waste storage area and facilities shall be conducted, as part of the scheduled environmental inspection. Inspections shall include; ➤ Ensuring the waste material is being properly separated, stored and labelled, ➤ Checking the condition of the receptacles and secondary containment systems, ➤ Ensuring the spill kits are available and full, and PPE is available where required.	Environment Officer	Project Duration
The Site Induction & toolbox training shall include information on the following waste management issues: ➤ Reuse and recycling strategies, ➤ Waste handling, waste storage and disposal, and ➤ Management of waste spills, contamination and contaminated material.	Environment Officer	Project Duration

ix. Socio-economic

Issues

The key potential social and economic impacts that may result from construction of the proposed development include:

- Increased employment – there is the potential for employment to be generated during the construction phase through the use of local contractors and labour hire,
- Increased traffic on local roads and hazards associated with construction traffic,
- Influx of workers putting pressure on local accommodation and health services, and
- Short term air quality, noise and visual impacts.

Environmental Performance Objectives

- Providing regular Project updates to the community and businesses,
- Providing a schedule of activities when there may be heavy vehicles accessing the Project site or when noisy activities may occur,
- Establishment of a grievance redressal mechanism for complaints,

- Ongoing liaison with local community and business representatives to ensure the use of local contractors, labor, materials, and services during construction and operations,
- Liaison with local businesses and services to determine accommodation options and availability so as local tourism is not affected, particularly during the construction phase,

Mitigation Measures

Action	Responsibility	Timing
Ongoing liaison with local community and business representatives to ensure the use of local contractors, labour, materials, and services during construction and operations.	Contractor	Project Duration
Liaison with local businesses and services to determine accommodation options and availability so as local tourism is not affected, particularly during the construction phase.	Project Manager	Project Duration
Establishment of a grievance redressal mechanism for complaints.	Environment Officer	Project Duration

x. Dangerous goods and Hazardous Materials

Mitigation Measures

Action	Responsibility	Timing
A Safety Data Sheet (SDS) for each dangerous good and hazardous substance used on site shall be available on site and will be located near the place of use.	Contractor	As required
A register shall be kept on site of all hazardous materials and dangerous goods used on site.	Contractor	Project Duration

All personnel involved in the handling of hazardous materials shall be suitably qualified / experienced. Additional toolbox training on the properties, hazards, maintenance and PPE associated with	Environment Officer	When required
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hazardous substances shall be provided where required.		
Spill kits shall be provided in all dangerous goods and hazardous materials storage and handling areas. All key staff shall be trained in spills prevention and clean up.	Contractor	Project Duration
Storage and handling areas shall be located >50m from any waterways and be constructed in accordance with the relevant Standards, including secondary containment impervious to the materials being stored and appropriate signage at the entrance to the storage area.	Contractor	Project Duration
Secondary containment systems (e.g. bunding, drip trays, etc.) shall be: ➤ In place for all hazardous and dangerous goods storage, transfer and refueling areas. ➤ Constructed from material that is impervious to the material being stored or transferred ➤ Designed and constructed to minimize the risk of leakage, spillage or contaminated fire water from contaminating the surrounding soil.	Contractor	Project Duration
All vehicles and plant shall be sent offsite for major maintenance.	Contractor	Project Duration
Regular inspections shall be undertaken to ensure the structural integrity of storage facilities and secondary containment systems. These inspections shall occur as part of the scheduled site environmental inspections.	Environment, Quality & Safety Officer	Project Duration
All equipment and vehicle operators shall be trained in the safe operation of the equipment (including operating procedures for the refilling and maintenance of fuel storage tanks) and the relevant emergency response procedures.	Contractor	When required
In the event of any spill or leak to the environment, action shall be taken immediately to contain the spill, and the spill response procedures initiated.	Contractor	When required

Where any spill to the environment has occurred regardless of scale, BPC shall be notified immediately.	Contractor	When required
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9. Emergency Planning and Response

Environmental management will include planning for potential emergencies at the site. The organizational structure, responsibilities and on-site contact details for all emergencies is specified in the Emergency Management Plan.

Emergency response documents, and the contact details of all relevant stakeholders, will be housed at the Project site office and displayed on site. The procedure for environmental emergencies shall also form part of the project Safety and Health Management Plan.

All personnel will receive training in appropriate Emergency Response Procedures associated with the ERP as part of the site induction.

10. Reporting

10.1 Environmental harm

The DECC shall be notified immediately (without delay) of any incident causing or threatening material harm to the environment. The Contractor is responsible for immediately notifying BPC as required of the nature and circumstance in which the event happened and seek direction as to the appropriate communication pathway for notifying the appropriate agencies.

10.2 Release of contaminants

Any release of contaminants must be reported to the appropriate regulatory body in accordance with the above protocol for environmental harm. Where a release involves storm water and has not, or will not, result in material environmental harm the incident shall be reported to the relevant local authority. The release shall be reported as soon as practicable, after becoming aware of the release.

A written notice detailing the following information must be provided to the relevant authority of any spill or release of contaminants:

- The name of the operator, including their registration certificate number;
- The name and telephone number of a designated contact person;

- Quantity and substance released;
- Person(s) involved;
- The location and time of the release;
- The suspected cause of the release;
- A description of the effects of the release;
- The results of any monitoring performed in relation to the release;
- Actions taken to mitigate any environmental harm caused by the release; and
- Proposed actions to prevent a recurrence of the release.

11. Monitoring and Review

- Regular Monitoring: Scheduled inspections and audits to ensure compliance with the EMP
- Performance Indicators: Environmental performance to be assessed using specific indicators such as waste generation rates, compliance with noise and dust control measures, and effectiveness of training programs
- Review Meetings: Quarterly review meetings involving key stakeholders to evaluate the effectiveness of the EMP and make necessary adjustments
- Continuous Improvement: Adoption of best practices and lessons learned from ongoing monitoring and review processes to enhance future environmental management efforts.

12. Complaints and Complaints Response

Complaints shall be registered, tracked and responded to in accordance with the following timeframes:

- Complaint made to the Project Management Team (BPC and Contractor)
- Initial response provided to the complainant and Client within 24 hours indicating the matter is being addressed; and
- Detailed response including details of the complaint and the action taken / further action planned to alleviate the problem provided to the client within ten working days.

The following details will be recorded as a minimum:

- Date of complaint
- Nature of issue/complaint
- Affected neighbors (if any)
- Activity date related to the complaint
- Follow-up actions taken
- Date of follow-up action

