

SiVEST SA (PTY) LTD

PROPOSED CONSTRUCTION AND OPERATION OF THE BATTERY ENERGY STORAGE SYSTEM (BESS) AND ASSOCIATED INFRASTRUCTURE FOR THE AUTHORISED MIERDAM SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY, LOCATED NEAR THE TOWN OF PRIESKA, IN THE SIYATHEMBA LOCAL MUNICIPALITY, PIXLEY KA SEME DISTRICT IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA.

Site Sensitivity Verification and Transportation Compliance Statement

DEA Reference:	2020-09-0030
Report Prepared by:	Merchandt Le Maitre
Issue Date:	5 th November 2020
Version No.:	0

Date:	5 th November 2020	
Document Title:	Proposed Construction and Operation of the Battery Energy Storage System (BESS) and associated infrastructure for the authorised Mierdam Solar Photovoltaic (PV) Energy Facility, located near the town of Prieska, in the Siyathemba Local Municipality, Pixley Ka Seme District in the Northern Cape Province of South Africa Site Sensitivity Verification and Transportation Compliance Statement	
Revision Number:	0	
Author:	Merchandt Le Maitre (Pr Tech Eng.)	
Signature:	 Pr N°: 2018300094	Date: 5 th November 2020
Reviewed:	Richard Hirst (Pr Tech Eng.)	
Signature:	 Pr N°: 2018300110	Date: 5 th November 2020
For:	SiVEST SA (PTY) LTD	
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SITE SENSITIVITY VERIFICATION AND TRANSPORTATION COMPLIANCE STATEMENT

EXECUTIVE SUMMARY

Objective

The development is located ±43km south west of Prieska in a rural part of the Northern Cape. Access to the proposed development will be via the existing farm access located on the R357 Provincial Road. The provincial road is a surfaced road from the N10 National Road running past Prieska which eventually becomes a gravel road up to the access road of the development.

The objective is to assess the impacts associated with the installation of a BESS on the Mierdam Photovoltaic (PV) Energy Facility (12/12/20/2320/2/AM3).

Key Findings

The additional Traffic generated as a result of the development of BESS, will be added to the already completed Traffic Impact Assessment and the approved Environmental Authorization (EA).

Assessment Results

The addition of the BESS to the existing traffic generated from the proposed development will have a minimal impact on the already approved development traffic. Furthermore, the area is not classified by the Site Environmental Sensitivity screening tool for having a major impact on Traffic and hence has not been indicated as a sensitive area for the BESS development.

Recommendation

With reference to this report, the previously approved 'Transportation Impact Assessment' and the subsequent EA, SiVEST Civil Engineering Division is of the opinion that the impacts of the BESS would be minimal and acceptable and hence the EA should be granted for this EIA process.

NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT REGULATIONS, 2014 (AS AMENDED) - REQUIREMENTS FOR SPECIALIST REPORTS (APPENDIX 6)

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of Report
1. (1) A specialist report prepared in terms of these Regulations must contain- a) details of- i. the specialist who prepared the report; and ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	Section 1.3 and Appendix 1
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Page 4
c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 1
(cA) an indication of the quality and age of base data used for the specialist report;	Section 2
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 6
d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 6
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 6
f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 3, 6 & 7
g) an identification of any areas to be avoided, including buffers;	N/A
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 3
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 2
j) a description of the findings and potential implications of such findings on the impact of the proposed activity, (including identified alternatives on the environment) or activities;	Section 6, 7 & 8

k) any mitigation measures for inclusion in the EMPr;	Section 9
l) any conditions for inclusion in the environmental authorisation;	None
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	None
n) a reasoned opinion- <ul style="list-style-type: none"> i. (as to) whether the proposed activity, activities or portions thereof should be authorised; <ul style="list-style-type: none"> (iA) regarding the acceptability of the proposed activity or activities; and ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan; 	Section 9
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	No feedback has yet been received from the public participation process.
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	No feedback has yet been received from the public participation process.
q) any other information requested by the competent authority.	N/A
2) Where a government notice <i>gazetted</i> by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	N/A



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Proposed Construction and Operation of the Battery Energy Storage System (BESS) and associated infrastructure and inclusion of additional listed activities for the authorised Mierdam Solar Photovoltaic (PV) Energy Facility, located near the town of Prieska, in the Siyathemba Local Municipality, Pixley Ka Seme District in the Northern Cape Province of South Africa

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name:	SIVEST SA(PTY) LTD		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)		Percentage Procurement recognition
Specialist name:	MERCHANDT LE MAITRE		
Specialist Qualifications:	B TECH – CIVIL ENGINEER		
Professional affiliation/registration:	ECSA (PR TECH ENG N° 2018300094)		
Physical address:	51 WESSEL ROAD, RIVONIA		
Postal address:	PO BOX 2921, RIVONIA		
Postal code:	2128	Cell:	072 435 8497
Telephone:	011 798 0600	Fax:	011 803 7272
E-mail:	MERCHANDTM@SIVEST.CO.ZA		

2. DECLARATION BY THE SPECIALIST

I, MERCHANDT LE MAITRE, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

SIVEST SA (PTY) LTD

Name of Company:

5TH NOVEMBER 2020

Date:

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, MERCHANDT LE MAITRE, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Specialist

SIVEST SA (PTY) LTD

Name of Company

5TH NOVEMBER 2020

Date

Signature of the Commissioner of Oaths

Date

Date:	5 th November 2020	
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SITE SENSITIVITY VERIFICATION AND TRANSPORTATION COMPLIANCE STATEMENT

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Appendix 1: Specialist Curriculum Vitae

Date:	5 th November 2020	
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SITE SENSITIVITY VERIFICATION AND TRANSPORTATION COMPLIANCE STATEMENT

1. INTRODUCTION

The Civil Engineering Division of SiVEST SA (PTY) Ltd has been appointed by the Environmental Division of SiVEST SA (PTY) Ltd, on behalf of South Africa Mainstream Mierdam (Pty) Ltd to undertake the assessment of the development of a Battery Energy Storage System (BESS) and associated infrastructure for the authorised Mierdam (PV) Energy Facility (12/12/20/2320/2/AM3), located near the town of Prieska in the Siyathemba Local Municipality, Pixley Ka Seme District, in the Northern Cape Province of South Africa.

In terms of the Environmental Impact Assessment (EIA) Regulations, which were published on 04 December 2014 and amended on 07 April 2017 [promulgated in Government Gazette 40772 and Government Notice (GN) R326, R327, R325 and R324 on 7 April 2017], various aspects of the proposed development are considered listed activities under GNR 327 and GNR 324 which may have an impact on the environment and therefore require authorisation from the National Competent Authority (CA), namely the Department of Environment, Forestry and Fisheries (DEFF), prior to the commencement of such activities. Specialist studies have been commissioned to assess and verify the BESS under the new Gazetted specialist protocols.

In addition, a site sensitivity verification has also been undertaken in order to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (Screening Tool).

1.1 Scope and Objectives

Assess the impacts associated with the installation of a BESS on the Mierdam Photovoltaic (PV) Energy Facility (12/12/20/2320/2/AM3).

1.2 Terms of Reference

The terms of reference for the appointment have two elements (1) Site Verification Report and (2) a specialist study/compliance statement as per Government Notice 320 of 20 March 2020. The specialist report must include an explanation of the Terms of Reference (ToR) applicable to the specialist study. In addition, if the report is written as per Appendix 6 of the EIA Regulations, 2014 (as amended), a table must be provided at the beginning of the specialist report listing the requirements for specialist reports in accordance with and cross referencing these requirements with the relevant sections in the report

1.3 Specialist Credentials

The Transportation Assessment has been compiled by Mr. Merchandt Le Maitre from SiVEST Consulting Engineers. He has a B Tech (Baccalaureus Technologiae) in Civil Engineering with over 15 years of experience in this field. He is registered as a Pr. Tech Eng (Professional Engineering Technician) with the Engineering Council of South Africa (ECSA) and is a corporate member of the South African Institute of Civil Engineers (SAICE). A full Curriculum Vitae is included in 'Appendix 1'

Table 1.1 Specialist Qualifications and Experience

Environmental Practitioner	SiVEST SA (Pty) Ltd
Contact Details	merchandtm@sivest.co.za
Qualifications	B Tech (Baccalaureus Technologiae) in Civil Engineering
Expertise to carry out the Glint & Glare Assessment	Tooverberg WEF Assessment Umosbomvu WEF Assessment Developers have requested that Transportation Studies remain confidential and hence have not been included in the expertise above.

1.4 Assessment Methodology

The main objective of the 'Transportation Assessment' is to determine the impact/s of the proposed development on the area with respect to transportation. This assessment will only include the BESS with the already approved environmental authorization.

The assessment will take into account the transportation of normal and abnormal vehicles, which are made up of *inter alia*; - PV components, construction materials, equipment, construction workers and employees.

2. ASSUMPTIONS AND LIMITATIONS

This study is based on the fact that the original Transportation Assessment was completed in April 2012 and the respective authorization of the facility received in September 2012.

Authorization includes;

- Approval from the South African National Roads Agency Ltd. SANRAL on the 12th March 2013
- Approval from the Northern Cape Province – Department Roads & Public Works

Furthermore, the limitation of this report deals with the addition of BESS to the existing approved authorization and hence does not include the re-evaluation of the existing Transportation study.

3. TECHNICAL DESCRIPTION

3.1 Project Location

The BESS is located on the authorised Mierdam Photovoltaic (PV) Energy Facility (12/12/20/2320/2/AM3), located near located the town of Prieska, in the Siyathemba Local Municipality, Pixley ka Seme District in the Northern Cape Province of South Africa.

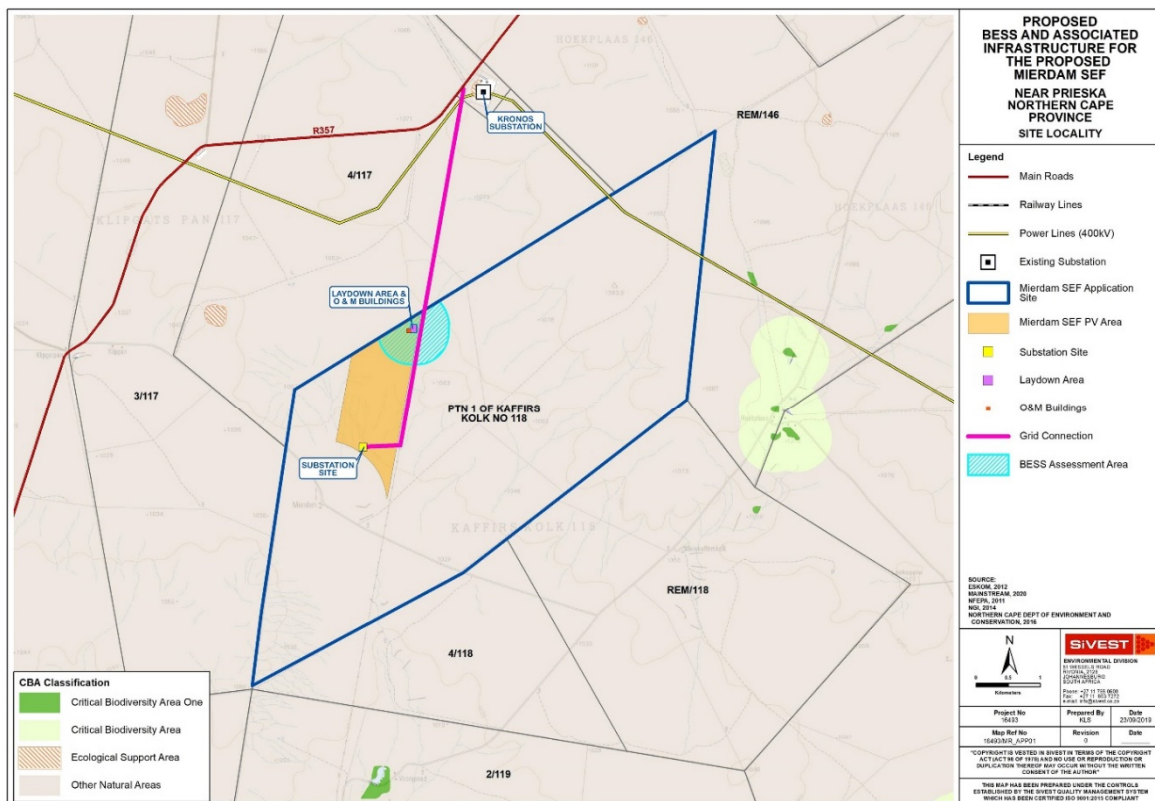


Figure 1: BESS is located on the authorised Mierdam Photovoltaic (PV) Energy Facility

3.2 Project Description

South Africa Mainstream Renewable Power Mierdam (Pty) Ltd is proposing the construction and operation of Battery Energy Storage System (BESS) and associated infrastructure for the authorised Mierdam PV (12/12/20/2320/2/AM3). The need for a BESS stems from the fact that electricity is only produced by the Renewable Energy Facility while the sun is shining, while the peak demand may not necessarily occur during the day-time. Therefore, the storage of electricity and supply thereof during peak-demand will mean that the facility is more efficient, reliable and electricity supply more constant.

The BESS will:

- Store and Integrate a greater amount of renewable energy from the Renewable Energy Facility into the electricity grid;
- This will assist with the objective to generate electricity by means of renewable energy to feed into the National Grid which will be procured under either the Renewable Energy Independent Power Producer Procurement Program (REIPPPP), other government run procurement programmes or for sale to private entities if required

The Mierdam PV BESS will be located adjacent to the approved Mierdam PV substation associated with the approved Mierdam PV. To reduce electrical losses the BESS must be in close proximity to the on-site 33/132kV substation. A ~5ha study site has been established around the approved substation (500m zone) to allow for the micro siting / specialist guidance regarding placement can be made.

3.2.1 Alternatives

No site alternatives for this proposed development were considered as the placement of the proposed BESS is dependent on the location of the Mierdam Photovoltaic (PV) Energy Facility (12/12/20/2320/2/AM3).

Technology alternatives are limited to battery types, namely Redox flow batteries and Solid State Batteries. No other activity alternatives are being considered.

The BESS alternatives:

BESS Specifications	
BESS Footprint	Up to 2Ha
BESS Capacity	200MWh
BESS Technology	Lithium Ion
BESS Alternative- Solid State Batteries	Containerised systems assembled within shipping containers and delivered to the project site. Dimensions are approximately 17 m long x 3.5 m wide x 4 m high. Containers will be placed on a raised concrete plinth (30 cm) and may be stacked on top of each other to a maximum height of approximately 15 m. Additional instrumentation, including inverters and temperature control equipment, may be positioned between the battery containers.

The 'no-go' alternative is the option of not constructing and operating a BESS in support of the authorised Renewable Energy (RE) facility. This alternative would result in no additional environmental impact other than that assessed during the EIA for the RE facility

The 'no-go' option is an option; however, this would prevent the Mierdam PV Facility from contributing to the environmental, social and economic benefits associated with the development of the renewables sector.

The above-mentioned alternatives (including 'no-go' alternative) will all be assessed by the appointed specialists as part of the BA process. All the above-mentioned location alternatives will be informed by the identified environmental sensitive and/or 'no-go' areas (i.e. status quo). The respective alternatives being considered as part of the BA process for the proposed development will also be comparatively assessed.

4. LEGAL REQUIREMENT AND GUIDELINES

Vehicles used in the transportation of goods, materials and staff for the construction, Operation and Maintenance of the development and the additional BESS are to be in terms of the National Road Traffic Management Act, 1996 (Act 93 of 1996).

5. DESCRIPTION OF THE RECEIVING ENVIRONMENT

The development is located ±43km south west of Prieska in a rural part of the Northern Cape. Access to the proposed development will be via the existing farm access located on the R357 Provincial Road. The provincial road is a surfaced road from the N10 National Road running past Prieska which eventually becomes a gravel road up to the access road of the development.

6. SPECIALIST FINDINGS / IDENTIFICATION AND ASSESSMENT OF IMPACTS

This assessment will comprise of a desktop assessment and will include preliminary transportation related matters arising during the construction phase, through the Operation & Maintenance Phase, up to and including the decommissioning phase of the development.

The scope of works consists of the following:

- A site investigation which was completed on the 21st October 2020
- Consultations with the relevant authorities and / or stakeholders
- Desktop analysis of traffic data and information from the various authorities and / or stakeholders
- Evaluate the impact of the proposed development on the existing road network / traffic volumes and populating of a suitable 'Impact Rating System'
- Determine specific traffic needs during the different phases of implementation
- Conclude & propose possible mitigation measures
- Seasonal impacts do not affect the assessment

The identification and assessment of impacts must be described in this section. Direct and indirect impacts for the various project phases has been assessed and rated according to the methodology developed by SiVEST.

Project stages are as follows:

- Planning or pre-construction;
- Construction;
- Operation; and
- Decommissioning

6.1 Planning / Pre construction

No Planning / Pre construction impacts are foreseen for the inclusion of the BESS to the original environmental authorizations.

6.2 Construction

The construction phase will typically generate the highest number of trips for the proposed development. Construction will typically involve access roads, foundations, PV modules, electrical cables / transformers / switch gears / substation installations and the delivery of these materials / equipment on the public road network. The construction phase and the impact on the surrounding road network has already been approved by the respective authorities and therefore the addition of the BESS to the existing traffic generated from the proposed development will have a minimal impact on the already approved development traffic.

The specific traffic needs this phase of the development will have on the environment includes, *inter alia*; the following: -

- Upgrades of existing intersections
- Reduction in vehicle speed
- Adequate law enforcement
- Implementation of pedestrian safety initiatives
- Regular maintenance of farm fence, access cattle grids.
- Adequate road signage as per the South African Road Traffic Sign Manual (SARTSM) latest edition.
- Continuous engagement with SANRAL, Northern Cape Department of Roads and Public Works.

6.3 Operation

No additional traffic generation onto the existing road network is expected during this phase of the development.

6.4 Decommissioning

As mentioned in Section 6.2 above, the construction phase will generate the highest number of trips for the proposed development and therefore the decommissioning phase will ultimately generate a minimal impact on the surrounding road network. The impact of the BESS has already been taken into account and hence been approved by the respective authorities.

The specific traffic needs this phase of the development will have on the environment includes, *inter alia*; the following: -

- Upgrades of existing intersections
- Reduction in vehicle speed
- Adequate law enforcement
- Implementation of pedestrian safety initiatives

- Regular maintenance of farm fence, access cattle grids.
- Adequate road signage as per the South African Road Traffic Sign Manual (SARTSM) latest edition.
- Continuous engagement with SANRAL, Northern Cape Department of Roads and Public Works.

6.5 No go Impact

Consideration must be given to the 'no-go' option in the BA process. The 'no-go' option assumes that the site remains in its current state, i.e. there is no construction of a substation in the proposed project area and the status quo would proceed.

6.6 Cumulative Impacts

The construction phase and the impact on the surrounding road network has already been approved by the respective authorities and therefore the addition of the BESS to the existing traffic generated from the proposed development will have a minimal impact on the already approved development traffic.

6.7 Overall Impact Rating

The 'Impact Rating System' takes into account the nature, scale and duration of the effects on the environment whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the project stages:

- Planning
- Construction
- Operation
- Decommissioning

A rating points-based system is applied to the potential impacts on the environment and includes objective evaluations of the mitigation of the impact. These impacts can be found in **Table 6.1** below. In summary, all impacts were classified as 'Low' impacts and remain 'Low' after the implementation of suitable mitigation measures. This rating is applicable to all alternatives considered.

Table 6.1: Impact Ratings Table

MIERDAM BESS																				
ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION											
		E	P	R	L	D	I / M		TOTAL	STATUS (+ OR -)	S	E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S
Construction Phase																				
Additional Traffic Generation	Increase in Traffic	2	3	1	2	1	2	18	-	Low	<ul style="list-style-type: none"> Ensure a large portion of vehicles traveling to and from the proposed development travels in the 'off peak' periods or by bus. 	2	3	1	2	1	2	18	-	Low
	Increase of Incidents with pedestrians and livestock	2	4	2	4	1	2	26	-	Medium	<ul style="list-style-type: none"> Reduction in speed of vehicles Adequate enforcement of the law Implementation of pedestrian safety initiatives Regular maintenance of farm fences, access cattle grids 	2	3	2	4	1	1	12	-	Low

Internal Access Roads	Increase in Dust from gravel roads	2	3	2	2	1	2	20	-	Low	<ul style="list-style-type: none"> • Reduction in speed of the vehicles • Use of dust suppressant techniques • Implement a road maintenance program under the auspices of the respective transport department 	2	3	2	2	1	2	20	-	Low
	Increase in Road Maintenance	2	3	2	2	2	2	22	-	Low	<ul style="list-style-type: none"> • Implement a road maintenance program under the auspices of the respective transport department. 	2	3	2	2	2	22	-	Low	
	Increase in Dust from gravel roads	1	4	1	1	1	2	16	-	Low	<ul style="list-style-type: none"> • Enforce a maximum speed limit on the development • Use of dust suppressant techniques • Adequate watering by means of water bowser 	1	3	1	1	2	14	-	Low	
	New / Larger Access points	1	4	1	2	1	1	9	-	Low	<ul style="list-style-type: none"> • Adequate road signage according to the SARTSM • Approval from the respective roads department 	1	4	1	2	1	9	-	Low	
Operational Phase																				
Additional Traffic Generation	Increase in Traffic	2	3	1	2	3	1	11	-	Low	<ul style="list-style-type: none"> • Ensure a large portion of vehicles traveling to and from the proposed development travels in the 'off peak' periods or by bus. 	2	3	1	2	3	1	11	-	Low
	Increase of Incidents with pedestrians and livestock	2	4	2	4	3	1	15	-	Low	<ul style="list-style-type: none"> • Reduction in speed of vehicles • Adequate enforcement of the law • Implementation of pedestrian safety initiatives • Regular maintenance of farm fences, access cattle grids 	2	3	2	4	3	1	14	-	Low

	Increase in Dust from gravel roads	2	3	2	2	3	1	12	-	Low	<ul style="list-style-type: none"> • Reduction in speed of the vehicles • Use of dust suppressant techniques • Implement a road maintenance program under the auspices of the respective transport department. 	2	3	2	2	3	1	12	-	Low		
	Increase in Road Maintenance	2	3	2	2	3	1	12	-	Low	<ul style="list-style-type: none"> • Reduction in speed of the vehicles • Use of dust suppressant techniques • Implement a road maintenance program under the auspices of the respective transport department. 	2	3	2	2	3	1	12	-	Low		
Internal Access Roads	New / Larger Access points	2	3	1	2	3	1	11	-	Low	• Adequate road signage according to the SARTSM	2	3	1	2	3	1	11	-	Low		
Decommissioning Phase																						
Additional Traffic Generation	Increase in Traffic	2	3	1	2	1	2	1	2	18	-	Low	<ul style="list-style-type: none"> • Ensure a large portion of vehicles traveling to and from the proposed development travels in the 'off peak' periods or by bus. 	2	3	1	2	1	2	18	-	Low
	Increase of Incidents with pedestrians and livestock	2	4	2	4	1	2	26	-	Medium	<ul style="list-style-type: none"> • Reduction in speed of vehicles • Adequate enforcement of the law • Implementation of pedestrian safety initiatives • Regular maintenance of farm fences, access cattle grids 	2	4	2	4	1	2	26	-	Low		
	Increase in Dust from gravel roads	2	3	2	2	1	2	20	-	Low	<ul style="list-style-type: none"> • Reduction in speed of the vehicles • Use of dust suppressant techniques • Implement a road maintenance program under the auspices of the respective transport department. 	2	3	2	2	1	2	20	-	Low		

	Increase in Road Maintenance	2	3	2	2	2	2	2	2	2	2	2	2	2	2	20	-	Low	<ul style="list-style-type: none"> Implement a road maintenance program under the auspices of the respective transport department. 	
Internal Access Roads	Increase in Dust from gravel roads	1	3	1	1	1	1	1	1	1	1	1	1	1	1	14	-	Low	<ul style="list-style-type: none"> Enforce a maximum speed limit on the development• Use of dust suppressant techniques• Adequate watering by means of water bowser 	
		1	4	1	2	1	1	1	1	1	1	1	1	1	1	9	-	Low	<ul style="list-style-type: none"> Adequate road signage according to the SARTSM Approval from the respective roads department 	
Cumulative Phase																				
Additional Traffic Generation	Increase in Traffic	2	3	1	2	1	4	36	-	Low	<ul style="list-style-type: none"> Ensure a large portion of vehicles traveling to and from the proposed development travels in the 'off peak' periods or by bus. Coordination between all developers in the area 	2	3	1	2	1	2	18	-	Low
		2	4	2	4	1	4	52	-	High	<ul style="list-style-type: none"> Reduction in speed of vehicles Adequate enforcement of the law Implementation of pedestrian safety initiatives Regular maintenance of farm fences, access cattle grids Coordination between all developers in the area 	2	3	2	4	1	2	24	-	Medium

Internal Access Roads	Increase in Dust from gravel roads	2	3	2	2	1	4	40	-	Medium	<ul style="list-style-type: none"> Reduction in speed of the vehicles Use of dust suppressant techniques Implement a road maintenance program under the auspices of the respective transport department. Construction of an on-site batching Coordination between all developers in the area 	2	3	2	2	1	2	20	-	Low
	Increase in Road Maintenance	2	3	2	2	2	2	22	-	Low	<ul style="list-style-type: none"> Implement a road maintenance program under the auspices of the respective transport department. Coordination between all developers in the area 	2	3	2	2	2	22	-	Low	
Internal Access Roads	Increase in Dust from gravel roads	1	4	1	1	1	3	24	-	Medium	<ul style="list-style-type: none"> Enforce a maximum speed limit on the development Use of dust suppressant techniques Adequate watering by means of water bowser 	1	3	1	1	1	2	14	-	Low
	New / Larger Access points	1	4	1	2	1	2	18	-	Low	<ul style="list-style-type: none"> Adequate road signage according to the SARTSM Approval from the respective roads department 	1	4	1	2	1	9	-	Low	

7. SITE SENSITIVITY VERIFICATION

A site sensitivity verification was completed on the 21st October 2020 subsequent to the authorization of the facility in September 2012. Verification include but was not limited too;

- A formal site investigation on the 21st October 2020
- Review of the original Transportation Assessment completed in April 2012
- Review comments received from SANRAL on the 12th March 2013
- Review comments received from the Northern Cape Province – Department Roads & Public Works

7.1 Outcome of Site Sensitivity Verification

The area is not classified by the Site Environmental Sensitivity screening tool for having a major impact on Traffic and hence has not been indicated as a sensitive area for the BESS development.

7.2 National Environmental Screening Tool

The screening tool does not classify the BESS area in terms of sensitivity and hence the sensitivity is classified as low.

7.3 Site Sensitivity Verification Conclusion

The EAP and specialist have confirmed that a Traffic Assessment verification will be completed in order to ensure compliance with Appendix 6 of NEMA EIA Regulations as amended.

8. COMPARATIVE ASSESSMENT OF ALTERNATIVES

As mentioned, layout alternatives, which subsequently informed the area for the potential construction of the proposed substation, were identified and comparatively assessed as part of the BA process undertaken in 2016. In addition, and despite that fact that the position of the proposed substation has already been determined taking the identified environmental sensitive and/or 'no-go' areas into consideration, two (2) different location alternatives for the substation site were identified and assessed by the respective specialists as part of this BA process. As such, the specialist is to undertake a comparative assessment of substation site alternatives as per the latest table provided by SiVEST.

8.1 No-Go Alternative

The no-go alternative considers impacts that will occur to the traffic in the absence of the proposed development. There is no traffic impact of the no-go option, therefore, the extent to which the development and the no-go alternative will impact the additional traffic generation are more or less equal, which results in there being, from a traffic impact perspective only, no preferred alternative between the development and the no-go.

The no-go option is a feasible option, however, it would prevent the proposed development plus the dependent renewable energy developments from contributing to the environmental, social and economic benefits associated with the development of renewable energy.

9. CONCLUSION AND SUMMARY

9.1 Summary of Findings

The construction phase will typically generate the highest number of trips for the proposed development. Construction will typically will typically involve access roads, foundations, PV modules, electrical cables / transformers / switch gears / substation installations and the delivery of these materials / equipment on the public road network. The construction phase and the impact on the surrounding road network has already been approved by the respective authorities and therefore the addition of the BESS to the existing traffic generated from the proposed development will have a minimal impact on the already approved development traffic.

9.2 Conclusion

The addition of the BESS to the existing traffic generated from the proposed development will have a minimal impact on the already approved development traffic. Furthermore, the area is not classified by the Site Environmental Sensitivity screening tool for having a major impact on Traffic and hence has not been indicated as a sensitive area for the BESS development.

The specific traffic needs this phase of the development will have on the environment includes, *inter alia*; the following: -

- Upgrades of existing intersections
- Reduction in vehicle speed
- Adequate law enforcement
- Implementation of pedestrian safety initiatives
- Regular maintenance of farm fence, access cattle grids.
- Adequate road signage as per the South African Road Traffic Sign Manual (SARTSM) latest edition.
- Continuous engagement with SANRAL, Northern Cape Department of Roads and Public Works.

9.3 Impact Statement

With reference to this report, the previously approved 'Transportation Impact Assessment' and the subsequent EA. SiVEST Civil Engineering Division is of the opinion that the impacts of the BESS would be minimal and acceptable and hence the EA should be granted for this EIA process.

10. REFERENCES

Northern Cape Department of Roads and Public Works – *Road Network Information System*

South African National Roads Agency Ltd - *Drainage Manual* (5th Edition)

South African National Roads Agency Ltd – *Traffic Highlights for Vehicle Counting Stations*

Department Water & Sanitation

South African Development Community – *South African Road Traffic Signs Manual* Volume 1-4 (May 2012 Edition)

Committee of Transportation Officials – *TMH 16-South African Traffic Impact and Site Assessment Manual Volume 1 & 2* (August 2012)

Department of Transport – *TRH 11 – Dimensional and Mass Limitations and other Requirements for Abnormal Load Vehicles* (August 2009 - 8th Edition)

APPENDIX 1: SPECIALIST CURRICULUM VITAE

Name Merchandt Le Maitre
Profession Civil Engineer
Name of Firm SiVEST SA (Pty) Ltd
Civil Engineering Division
Present Appointment Senior Civil Engineering Technician
Years with Firm 15 Years

Education

- University of Johannesburg (2006)
- University of South Africa (2016)

Professional Qualifications

- N Dip: Civil Engineering
- B Tech: Civil Engineering (Water)
- Pr.Tech.Eng. (Reg. No. 2018300094)

Membership in Professional Societies

- Engineering Council of South Africa (ECSA) – Pr Tech Eng; (Reg N° 2018300094)
- South African Institute of Civil Engineers (SAICE)

Employment Record

May 2004 – to date SiVEST SA (PTY) LTD: Senior Civil Engineering Technician
Jan 2004 – April 2004 Con Roux Zambia - Junior Foreman
Dec 2002 – Dec 2003 Neda Engineering - Vacation Work

Key Experience

Merchandts joined SiVEST as a student Civil Engineering Technician in 2004 to which he received a company bursary to complete his studies and join the company permanently thereafter. Since joining permanently he has been actively involved in numerous township projects and associated infrastructure projects.

Experience covers: -

- Bulk Services Studies
- Feasibility Studies
- Service Reports
- Infrastructure Design
- Contract Documentation & Procurement
- Contract Administration
- Procurement and Construction Monitoring

A summary of the experience in each field is indicated below:

Roads & Stormwater

- Design, Implement & Contract Administration of Provincial Road Intersections (Class 2 Roads)
- Design, Implement & Contract Administration of Municipal Roads (Class 3-5 Roads)
- Design, Implement & Contract Administration of Residential & Industrial Township services
- Design, Implement & Contract Administration of Bulk Stormwater Infrastructure
- Floodline determination & Stormwater assessments

Hydrology

- Draughting and compiling of Attenuation Reports
- Flood Inundation Assessments / Floodline Reports
- Stormwater Management Reports
- Stormwater Assessments / Investigations
- Roof Gutter & Down Pipe Design / Assessments / Reports

Water & Sanitation

- Design, Implement & Contract Administration of Water supply lines including Bulk Water
- Design, Implement & Contract Administration of Water pump stations
- Design, Implement & Contract Administration of Sanitation networks including Outfall Sewers
- Design, Implement & Contract Administration of Sewer pump stations
- Design of Farm Irrigation Network

Renewable Energy

- Transportation Impact Assessments
- Water Demand Assessments
- Glint & Glare Assessments
- Stormwater Management Reports