

PREPARED FOR:

# Motuoane Energy (Pty) Ltd

PREPARED BY:



## Pre-disturbance Environmental Site Assessment and Site Specific EMP

Site ID:	Motuoane Henneman	Contractor:	EIMS
Location:	Henneman, Free State Province	Inspector:	Matshego Keikelame
Client representative:	FJ Marx	Inspection Date:	05 April 2024

### 1. Background

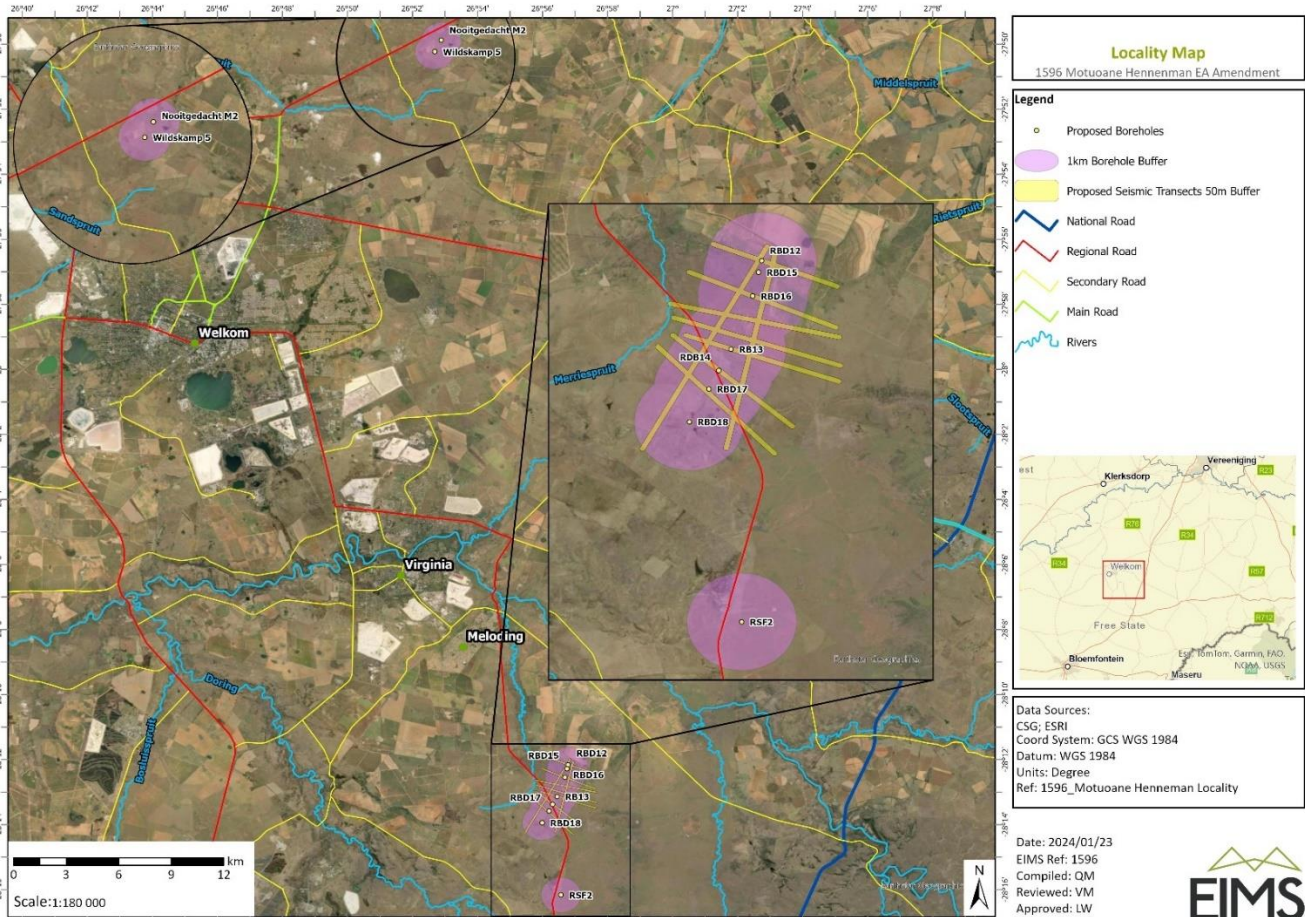
Background of the project: Motuoane Energy (Pty) Ltd (The Applicant) compiled and submitted an application for an exploration right for hydrocarbons, in terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 – MPRDA, as amended) to the Petroleum Agency South Africa (PASA) in 2016. The approved exploration area is located over an area of approximately 149 377 hectares (ha), covering various farms near the town of Henneman, within the Free State Province, extending north from approximately Theunissen, northeast towards Kroonstad, and east of Virginia and Henneman. In accordance with the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) an application for Environmental Authorisation (EA) through a Scoping and EIA was submitted to PASA in 2017 in support of the application for the exploration right. The EA was issued in July 2017 (ref: 12/3/315). However, the EA was only for three (3) drilling wells, and it did not include the seismic aspects. As the applicant proposes to undertake an addition of ten (10) new exploration boreholes (13 drilling wells in total including the initial 3 which were approved) and ~25km of new seismic transects, an EA Amendment process has been initiated. The seismic surveys and additional drilling well all fall within the approved exploration right footprint. The amendment application will be for seismic surveys at within the known ~25km area and drilling authorization within the 1km radius.

Project Aspects:	Yes	No	Details (provide specifications)	Location (DD MM SS)	
				Latitude	Longitude
❖ Mining	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
❖ Energy	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
❖ Prospecting / Exploration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>The applicant proposes EA Amendment process to undertake an addition of ten (10) new exploration boreholes (13 drilling wells in total including the initial 3 which were approved) and ~25km of new seismic transects.</p> <p>The amendment application will be for seismic surveys at within the known ~25km area and drilling authorization within the 1km radius</p>	<p><b>North:</b> 27°50'5.74"S <b>Centre:</b> 28°13'15.57"S <b>South:</b> 28°16'24.62"S</p>	<p><b>North:</b> 26°52'46.59"E <b>Centre:</b> 26°56'21.07"E <b>South:</b> 26°56'36.12"E</p>



❖ Transportation	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
❖ Chemicals	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
❖ Other:	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

## 2. Site Layout Plan



## 2. DEA Screening Tool Assessment

Aspect	Very High	High	Medium	Low
Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme		X		
Defence Theme	X			
Palaeontology Theme	X			
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			



### 3. Site Assessment

#### 3.1 Gradient (indicate the general gradient characteristics of site)



Aspect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Is the site located on or in the immediate vicinity of any of the following:

	Yes	No	Comment
Erosion Channels or areas of severe erosion/ destabilized soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Within the southern section of the were erosion gullies observed with steep, carved and eroded banks. Moreover, within the central areas the existing gravel roads are minimally eroded.
Wetlands (within 32m)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There are watercourses within the boreholes 1km buffer area and seismic transects area within the exploration footprint.
Unstable slopes or geological features (rocky outcrops)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	There are no unstable slopes or geological features or evidence of rocky outcrops within the exploration right area. However, rocky riverbed areas were noted within the watercourse within the proposed area.
Bare areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Several bare areas around site were noticed were there are existing boreholes (wells), gravel roads, disturbed areas due to agricultural activities and fire break zones around farms located towards the south of the proposed exploration right area.
Other Sensitive or risk areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is a heritage feature (grave) observed within the Wildskamp 5 and Nooitgedacht M2 (north) section of the proposed site. There are also potential sensitive fauna and avifauna (amphibian and birds) species which were observed in the area.
Are any existing servitudes and structures directly or indirectly affected by the proposed sites and routes (e.g., Eskom, public road servitudes and restrictions 60m from National Road, farmer's water/irrigation supplies, etc.)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There are Eskom powerlines, regional roads and gravel roads in the northern, central and southern section of the proposed area.

#### 3.2 Vegetation

Which of the listed descriptions best describes the general groundcover on and around the site?







Natural veld - good condition <input type="checkbox"/>	Natural veld with scattered aliens <input checked="" type="checkbox"/>	Natural veld with heavy alien infestation <input type="checkbox"/>	Veld dominated by alien species <input type="checkbox"/>	Gardens <input type="checkbox"/>
Sport field <input type="checkbox"/>	Cultivated land <input checked="" type="checkbox"/>	Paved surface <input type="checkbox"/>	Building or other structure <input checked="" type="checkbox"/>	Bare soil <input checked="" type="checkbox"/>



Comments on vegetation composition:	Site is mostly grassland with scattered areas that are disturbed and degraded due to anthropogenic activities, such as clearing of vegetation, presence of alien and invasive plant species, and fragmentation due to the presence of the infrastructure such as the existing boreholes.
Comments on weed species/type	It appears that an amount of scattered alien and invasive plant species is present on site. The exact type and species will be confirmed during the amendment application by the relevant specialist study.
<b>Land cover/ use description: Describe the land uses on the site</b>	
<b>Site area</b>	Significantly transformed land used for the gas exploration and agricultural activities.
<b>4. General Comments and Recommendations</b>	
<p>The area can be best separated into three different areas which all have defined boundaries, the southern section (RSF2 area), the central area (RBD18 - RBD12 and transects), and the northern section (Wildskamp 5 and Nooitgedacht M2 area). It must be noted that the proposed amendment activities are limited to the southern, central and northern sections. In general, the southern section appears to be of low-medium ecological sensitivity due to anthropogenic activities which are mainly agricultural activities which caused degradation to the site areas to certain site areas. The central area has been minimally disturbed through the related previously approved exploration activities and clearance for and existing activities. The northern section is generally a agricultural grazing area, has farmhouses and houses and the area largely consists of low laying grassland. Several flora and fauna species were noted in the area, especially in central and northern area along the unknown watercourses these included a variety of bird species and mammals such as game animals noted in the northern area. Heritage feature (grave) was noted within close proximity of one of the farmhouses in the northern section of the proposed area near the existing boreholes. It can be concluded that overall, the study area has medium - high ecological sensitivity and can have a good site ecological importance due to the near natural areas within the proposed area. An ecologist has been appointed to undertake Terrestrial and Aquatic Biodiversity Assessment to identify the habitats, confirm the sensitive species that may occur on the site footprint as well as provide mitigation measures / recommendations. Agricultural Impact study will be undertaken to identify potential impacts and mitigation measures on agricultural potential. Heritage Impact Assessment has also been commissioned due to confirm and identify heritage features, their importance and applicable protective measures.</p>	









Site Photos

Aspect: General Exploration area			
Describe area and adjacent land use:	<b>Southern view of the general exploration area and 1km borehole buffer area of the far southern section.</b>	<b>Northeastern view of the general exploration area and 1km borehole buffer area of the central RBD18 - RBD12 and transects central section.</b>	<b>View of the general exploration area and 1km borehole buffer area of the Northern Wildskamp 5 and Nooitgedacht M2 North area.</b>
Aspect: RSF2 South Boreholes Section			
Describe area and adjacent land use:	<b>View north-west from the southern portion of the borehole area. A watercourse and construction infrastructure can be noted.</b>	<b>View from the South section borehole area looking towards the northeast. A dam and windmill can be seen center of the image, the firebreak zone on the top right center and disturbed vegetation.</b>	<b>View of the area with comparatively partially dense vegetation due to agricultural activity, as seen from the South Section Borehole area. Evidence of previously cultivated land is noted on the left side of the image.</b>











Aspect: RSF2 South Boreholes Section			
Describe area and adjacent land use:	<b>Northern view from the center of the southern section. The R73 road can be noticed on the left of the image. Evidence of relatively disturbed vegetation in strategic patches serving as firebreaks.</b>	<b>The general features of the southern section's vegetation are patches of low-lying grassland with alien species in the middle and partially dense vegetation around the whole area.</b>	<b>The general characteristics of the vegetation in the southern section consisting of areas of low laying grassland with alien vegetation in certain areas and areas of intact vegetation towards the center of the image.</b>
Aspect: General RBD18 - RBD12 and transects central area			
Describe area and adjacent land use:	<b>Northern view from the center of the central section. The view shows the disturbed vegetation within the proposed footprint, disturbed areas due to grazing and a dam for storing water.</b>	<b>Erosion from the exposed soil within the southern section on the gravel roads.</b>	<b>View from the center of the proposed transects footprint. The view shows a watercourse and gully erosion running along the right-hand side, an Eskom powerline visible overhead and a gravel road leading towards an existing borehole.</b>








Aspect: General RBD18 – RBD12 and transects central area			
Describe area and adjacent land use:	Isolated shrubs of various flora species noted in the central area along with water throughs for grazing cattle.	Frog species noted in the central section of the proposed boreholes and transects central area.	View of the area depicting cleared vegetation for the existing borehole within the proposed borehole and transects central area.
Aspect: General Wildskamp 5 and Nooitgedac ht M2 North area.			
Describe area and adjacent land use:	The northern section generally consists of farmhouses (left image – northern view), a grazing area for sheep and cattle (centre image – Northern view), and the area largely consists of low laying grassland with vegetation confined to the edges of the footprint (right image – southern view).		





Aspect: General Wildskamp 5 and Nooitgedac ht M2 North area			
Describe area and adjacent land use:	<b>Northwestern view from the center of the northern section. The view shows the cultivated land consisting largely of low laying grasslands previously cultivated within the proposed footprint.</b>	<b>View from towards the center edge of the northern section. The view shows a watercourse, bird species and animal game species on the top of the image.</b>	<b>View of the burial grave within the within the proposed Northern area footprint within close proximity to the farmhouses.</b>





## 7. Verification findings and motivation:

Assessment for specialist studies and motivation:					
Screening Tool Specialist Study Required:	Level of Sensitivity:	Suggested Sensitivity:	Required Assessment	level of	Motivation
Aquatic Biodiversity	Very High	Moderate	None.	<input type="checkbox"/>	Based on potential impacts on surface and groundwater through the establishment of ten (10) new exploration boreholes (13 drilling wells in total including the initial 3 which were approved) and ~25km of new seismic transects, the EAP recommends that an Aquatic Biodiversity Assessment be undertaken.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other		
Archaeological and Cultural Heritage	Very High	High	None.	<input type="checkbox"/>	There are burial graves with potential HIGH local heritage significance based on the Relative Archaeological and Cultural Heritage sensitivity of the area and previous heritage studies. Therefore, a Heritage Impact Assessment (HIA) is recommended by the EAP to identify the heritage features and provide mitigation measures (if any).
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other		
Paleontology	Very High	Moderate	None.	<input type="checkbox"/>	Although no fossiliferous outcrop was detected in the proposed development, due to the extent of the development footprint and the very high palaeo-sensitivity rating, it is consequently the EAPs recommendation that a Palaeontological Impact Assessment be undertaken for the project
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other		
Agriculture Theme	High	High	None.	<input checked="" type="checkbox"/>	The Soil and Agricultural study will not be undertaken as the proposed new 10 exploration boreholes will approximately have a 30x30m footprint each and the ~25km of new seismic transects will have minimal impact on the soils and agriculture.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other	<input type="checkbox"/>	
Terrestrial Biodiversity	Very High	High	None.	<input type="checkbox"/>	Full assessment will be undertaken as part of the EIA due to the pre-identified very high sensitivity and clearance of vegetation which will be required within NEMBA listed sensitive ecosystem.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other		



Animal Species	High	Medium	None.	<input type="checkbox"/>	Sections of intact vegetation, potential habitats of fauna species were noted in the area. Several fauna species were also noted during the site assessment. Therefore. animal species assessment is required. This will be covered by the terrestrial biodiversity assessment.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other	<input type="checkbox"/>	
Plant Species	Low	Moderate	None.	<input type="checkbox"/>	Sections of intact vegetation were noted in the area. Plant species assessment is therefore required. This will be covered by the terrestrial biodiversity assessment.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input checked="" type="checkbox"/>	
			Other	<input type="checkbox"/>	
Civil Aviation	High	Low	None.	<input checked="" type="checkbox"/>	The proposed project entails the establishment of ten (10) new exploration boreholes (13 drilling wells in total including the initial 3 which were approved) and ~25km of new seismic transects do reflect light which may have an impact on civil aviation and the overall seismic activities will not be in close proximity of infrastructure and disrupting air traffic control systems. Therefore, the proposed activities was assessed to have a low impact on Civil Aviation.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other	<input type="checkbox"/>	
Defence	Medium	low	None.	<input checked="" type="checkbox"/>	Defense Impact Assessment will not be undertaken. There are no military bases / facilities present within the vicinity of the project site. The nearest military base is the Army Support Base, located approximately 100 km southeast of the project site.
			Compliance Statement	<input type="checkbox"/>	
			Full Assessment	<input type="checkbox"/>	
			Other	<input type="checkbox"/>	

**Guidance notes:**

- An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “very high” or “high” sensitivity for terrestrial animal species must submit a Terrestrial Animal Species Specialist Assessment Report.
- An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of “medium sensitivity” for terrestrial animal species must submit either a Terrestrial Animal Species Specialist Assessment Report or a Terrestrial Animal Species Compliance Statement, depending on the outcome of a site inspection undertaken in accordance with paragraph 4.
- An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of “low” sensitivity for terrestrial animal species must submit a Terrestrial Animal Species Compliance Statement.
- Where the information gathered from the site sensitivity verification differs from the screening tool designation of “very high” or “high”, for terrestrial animal species sensitivity and it is found to be of a “low” sensitivity, then a Terrestrial Animal Species Compliance Statement must be submitted.
- Where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” terrestrial animal species sensitivity and it is found to be of a “very high” or “high” terrestrial animal species sensitivity, a Terrestrial Animal Species Specialist Assessment must be conducted.
- If any part of the development falls within an area of confirmed “very high” or “high” sensitivity, the assessment and reporting requirements prescribed for the “very high” or “high” sensitivity, apply to the entire development footprint. Development footprint in the context of this protocol means, the area on which the proposed development will take place and includes the area that will be disturbed or impacted.