Table 9: Impact assessment summary table for the Decommissioning Phase

Impact pathway	Nature of potential impact/risk	Status[5]	Extent[6]	Duration[7]	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/ resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated ?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
VISUAL															
DECOMMISSIONING PHASE															
Direct Impacts															
Decommissioning Activities	Visual intrusion, and dust emissions	Negative	Local	Short-Term	Substantial	Very likely	High	Low	Moderate	No	Yes	▪ Carefully plan to reduce the decommissioning. ▪ Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. ▪ Maintain a neat construction site by removing rubble and waste materials regularly. ▪ Make use of existing gravel access roads where possible. ▪ Dust suppression techniques must be implemented on all gravel access roads.	Low	4	Medium

[5] Status: Positive (+) ; Negative (-)
[6] Site; Local (<10 km); Regional (<100); National; International
[7] Very short-term (instantaneous); Short-term (<1yr); Medium-term (1-10 years); Long-term (project duration); Permanent (beyond project decommissioning)

Table 10: Cumulative impact assessment summary table

Impact pathway	Nature of potential impact/risk	Status	Extent	Duration	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/ resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
VISUAL															
CUMULATIVE IMPACTS															
Construction Activities	Visual intrusion and dust emissions	Negative	Regional	Short Term	Substantial	Very likely	Moderate	Moderate	Moderate	No	Yes	▪ Carefully plan to minimise the construction period and avoid construction delays. ▪ Position laydown areas and related storage/stockpile areas in unobtrusive positions in the landscape, where possible. ▪ Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. ▪ Vegetation clearing should take place in a phased manner. ▪ Access roads must be kept as narrow as possible and existing gravel access roads must be used where possible. ▪ Limit the number of	Moderate	3	Medium

Impact pathway	Nature of potential impact/risk	Status	Extent	Duration	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/ resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
												vehicles and trucks travelling to and from the proposed sites, where possible. ▪ Ensure that dust suppression techniques are implemented: o on all access roads; o in all areas where vegetation clearing has taken place; o on all soil stockpiles. ▪ Maintain a neat construction site by removing litter, rubble and waste materials regularly. ▪ Formulation and adherence to an Environmental Management Programme (EMPr), monitored by an Environmental Control Officer (ECO). ▪ In areas of 'Very			

Impact pathway	Nature of potential impact/risk	Status	Extent	Duration	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/ resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
												High' and 'High Sensitivity', the number of turbines should be limited, where possible. ▪ Steep slopes (>1:5 gradient) should be avoided.			
Operational Activities	Visual intrusion, dust emission and light pollution and glare	Negative	Regional	Long Term	Substantial	Very likely	Moderate	Moderate	Moderate	No	Yes	▪ Development on steep slopes (>1:5 gradient) should be avoided. ▪ No turbines should be placed within 500 m of the dwellings or farmsteads which are situated within the proposed application (i.e. 500m exclusion buffers – see Section 1.6.2) ▪ Where possible, fewer but larger turbines with a greater output should be utilised rather than a larger number of smaller turbines with a lower capacity.	Moderate	3	Medium

Impact pathway	Nature of potential impact/risk	Status	Extent	Duration	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/ resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
												▪ Turbine colours should adhere to CAA requirements. ▪ Where possible, fewer but larger turbines with a greater output should be utilised rather than a larger number of smaller turbines with a lower capacity. ▪ If possible, turbines should be painted plain white, as this is a less industrial colour. Bright colours and logos on the turbines should be kept to a minimum. ▪ Inoperative turbines should be repaired promptly, as they are considered more visually appealing when the blades are rotating (or at work) (Vissering, 2011). ▪ If turbines need to be replaced for any			

Impact pathway	Nature of potential impact/risk	Status	Extent	Duration	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/ resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
												reason, they should be replaced with the same model, or one of equal height and scale. Repeating elements of the same height, scale and form can give the impression of unity which will lessen the visual impact that would typically be experienced in a chaotic landscapes made up of diverse colours, textures and patterns (Vissering, 2011) ▪ Light fittings for security at night should reflect the light toward the ground and prevent light spill. ▪ Where practically possible, the operation and maintenance buildings should not be illuminated at night.			

Impact pathway	Nature of potential impact/risk	Status	Extent	Duration	Consequence	Probability	Reversibility of impact	Irreplaceability of receiving environment/ resource	Significance of impact/risk = consequence x probability (before mitigation)	Can impact be avoided ?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/ impact (after mitigation)	Ranking of impact/ risk	Confidence level
												▪ Cables should be buried underground where feasible. ▪ The operation and maintenance buildings should be painted with natural tones that fit with the surrounding environment. Non-reflective surfaces should be utilised where possible. ▪ Unless there are water shortages, dust suppression techniques must be implemented on all access roads.			

1.8. INPUT TO THE ENVIRONMENTAL MANAGEMENT PROGRAMME

Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Methodology	*Frequency*	*Responsibility*
A. DESIGN PHASE					
A.1. VISUAL IMPACTS					
Potential impact on visual resources as a result of the proposed Komas WEF and associated infrastructure.	Avoid or minimize impacts on existing dwellings and potentially sensitive receptor locations in the WEF development area.	▪ Ensure that that the design of the WEF takes the sensitivity mapping of the visual specialist into account. ▪ Ensure that no turbines are placed within 500m of the existing dwellings and potentially sensitive receptor locations. ▪ Where possible, fewer but larger turbines with a greater output should be utilised rather than a larger number of smaller turbines with a lower capacity. ▪ Turbine colours should adhere to CAA requirements. ▪ Where possible, the operation and maintenance buildings must be consolidated to reduce visual clutter. ▪ The operation and maintenance buildings must be painted with natural tones that	▪ Ensure that visual management measures are monitored by an ECO. This will include monitoring activities associated with visual impacts such as the siting of construction camp, management of soil stockpiles, screening and dust suppression. Regular reporting to an environmental management team must also take place during the construction phase.	▪ During design cycle and before construction commences.	▪ Project Developer

Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Methodology	***Frequency***	***Responsibility***
		fit with the surrounding environment. Non-reflective surfaces must be utilised where possible.			
B. CONSTRUCTION PHASE					
B.1. VISUAL IMPACTS					
Potential impact on visual resources as a result of the construction and development of the proposed Komas WEF and associated infrastructure.	Avoid or minimize construction impacts on existing visual resources and potentially sensitive receptor locations in the proposed Komas WEF development.	▪ Position laydown areas and related storage/stockpile areas in unobtrusive positions in the landscape, where possible. ▪ Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. ▪ Vegetation clearing should take place in a phased manner. ▪ Make use of existing gravel access roads where possible. ▪ Limit the number of vehicles and trucks travelling to and from the proposed sites, where possible. ▪ Ensure that dust suppression techniques are implemented: o on all access roads; o in all areas where vegetation clearing has	Ensure that visual management measures are monitored by an ECO. This will include monitoring activities associated with visual impacts such as the siting of construction camp, management of soil stockpiles, screening and dust suppression. Regular reporting to an environmental management team must also take place during the construction phase.	Ongoing during construction.	▪ MC, EO and ECO

Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Methodology	***Frequency***	***Responsibility***
		taken place; o on all soil stockpiles. ▪ Maintain a neat construction site by removing litter, rubble and waste materials regularly.			
C. OPERATION PHASE					
C.1. VISUAL IMPACTS					
Potential impact on visual resources as a result of the operation of the proposed Komas WEF and associated infrastructure.	Avoid or minimize operational impacts on existing visual resources and potentially sensitive receptor locations in the proposed Komas WEF development area.	▪ Inoperative turbines must be repaired promptly. ▪ If turbines need to be replaced for any reason, they must be replaced with the same model, or one of equal height and scale. ▪ Light fittings for security at night must reflect the light toward the ground and prevent light spill. ▪ Where possible, operation and maintenance buildings must not be illuminated at night. ▪ Cables must be buried underground where feasible. ▪ O&M buildings must be painted with natural tones that fit with the surrounding environment and non-reflective	Ensure that visual mitigation measures are monitored by the management team on an on-going basis. This will include monitoring activities associated with visual impacts such as the control of signage, lighting and dust on the site.	Ongoing during operation.	▪ MC, EO and ECO

Impact	Mitigation / Management Objectives	Mitigation / Management Actions	Monitoring		
			Methodology	*Frequency*	*Responsibility*
		surfaces must be utilized where possible. ▪ Dust suppression techniques must be implemented on all access roads.			
D. DECOMISSIONING PHASE					
D.1. VISUAL IMPACTS					
Potential impact on visual resources as a result of the decommissioning of the proposed Komas WEF and associated infrastructure.	Avoid or minimize impacts of decommissioning activities on existing visual resources and potentially sensitive receptor locations in the WEF development area.	▪ Carefully plan to reduce the decommissioning period. ▪ Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. ▪ Maintain a neat decommissioning site by removing rubble and waste materials regularly. ▪ Make use of existing gravel access roads where possible. ▪ Dust suppression techniques must be implemented on all gravel access roads.	Ensure that procedures for the removal of structures and stockpiles during decommissioning are implemented, including recycling of materials. In addition, it must be ensured that rehabilitation of the site to a visually acceptable standard is undertaken.	During decommissioning.	▪ MC, EO and ECO

1.9. COMPARATIVE ASSESSMENT OF ALTERNATIVES

Two (2) battery and substation complex site alternatives (Option 1 and Option 2) have been identified for assessment during the BA process. The different alternatives are shown on ***Map 10*** in ***Appendix D***.

A comparative assessment of these alternatives has been undertaken in order to determine which of the above-mentioned alternatives would be preferred from a visual perspective. The preference rating for each alternative is provided in ***Table 11*** below. The alternatives are rated as preferred, favourable, least preferred, or no-preference.

The degree of visual impact and rating has been determined based on the following factors:

- The location of the BESS or on-site substation site in relation to areas of high elevation, especially ridges, koppies or hills;
- The location of the associated infrastructure in relation to sensitive receptor locations; and
- The location of the BESS or on-site substation site in relation to areas of natural bushveld vegetation (clearing site for the development worsens the visibility).

Key

PREFERRED	The alternative will result in a low impact / reduce the impact
FAVOURABLE	The impact will be relatively insignificant
LEASTPREFERRED	The alternative will result in a high impact / increase the impact
NO PREFERENCE	The alternative will result in equal impacts

Table 11: Comparative Assessment of Alternatives

Alternative	Preference	Reasons (incl. potential issues)
SUBSTATION ALTERNATIVES		
Battery and Substation Complex Option 1	Preferred	▪ Battery and Substation Complex Option 1 is situated within a highly natural / scenic part of the study area and as such the BESS and substation development is expected to alter the character to some degree. ▪ Option 1 is located on relatively flat terrain and as such would only be moderately exposed on the skyline. ▪ The closest potentially sensitive receptor to this alternative is approximately 2.6 kms away, this being R02. The significance of the visual impacts from Option 1 affecting this receptor are therefore rated as moderate. The remaining receptors are all more than 2kms away and thus would only be subjected to moderate or low levels of impact.

Alternative	Preference	Reasons (incl. potential issues)
		▪ In addition, the proposed battery and substation complex would form part of the proposed Komas WEF and would be dwarfed by the large number of wind turbines that would be visible. ▪ Accordingly, no fatal flaws were identified in respect of Battery and Substation Complex Option 1. ▪ In light of the fact that Option 2 is closer to the nearest receptor, Option 1 is considered to be preferred from a visual perspective.
Battery and Substation Complex Option 2	Favourable	▪ Battery and Substation Complex Option 2 is situated within a highly natural / scenic part of the study area and as such the BESS and substation development is expected to alter the character to some degree. ▪ Option 2 is located on relatively flat terrain and as such would only be moderately exposed on the skyline. ▪ The closest potentially sensitive receptor to this alternative is approximately 1.7kms away, this being R03. The significance of the visual impacts from Option 2 affecting this receptor are therefore rated as moderate. The remaining receptors are all more than 2kms away and thus would only be subjected to moderate or low levels of impact. ▪ Accordingly, no fatal flaws were identified in respect of Battery and Substation Complex Option 2 and as such this site is considered to be favourable from a visual perspective.

1.10. REVISED LAYOUT

Subsequent to the completion of all specialist studies, the developer has refined the proposed WEF layout in line with the recommendations of the various specialists. The refined, preferred layout (received on 21 January 2021) incorporated some minor amendments to the turbine locations and internal road network and included the construction laydown area. The preferred layout has been assessed from a visual perspective and it has been concluded that these amendments do not change the findings of this VIA.

The preferred layout on ***Map 12*** in ***Appendix D***.

1.11. CONCLUSION AND RECOMMENDATIONS

A VIA (including flicker) has been conducted to assess the magnitude and significance of the visual impacts associated with the development of the proposed Komas WEF near Kleinsee in the Northern Cape Province. Overall, the sparse human habitation and the predominance of natural vegetation cover across much of the study area would give the viewer the general impression of a largely natural rural setting. As such, WEF development would alter the visual character and contrast significantly with the typical land use and/or pattern and form of human elements present across the broader in the study area.

The area is not however typically valued or utilised for its tourism significance and there is limited human habitation resulting in relatively few potentially sensitive receptors in the area. The proposed development will have a high level of impact on three (3) of these receptors, a medium level of impact on seven (7) identified receptors and negligible impact on the remaining three (3) receptors.

The assessment revealed that the proposed WEF will have a negative low visual impact during construction and a negative moderate visual impact during operation, with relatively few mitigation measures available to reduce the visual impact.

Although several proposed renewable energy developments and infrastructure projects were identified within a 50 km radius of the proposed Komas WEF development site, it was determined that only five of these would have any significant impact on the landscape within the visual assessment zone. These are the proposed Gromis WEF which is currently being undertaken in parallel to this BA process and the proposed Kap Vley, Kleinzee, Namas and Zonnequa WEFs. All of these projects are in close proximity to one another and to the proposed Komas WEF development area. It is anticipated that this concentration of facilities will alter the inherent sense of place and introduce an increasingly industrial character into a largely rural area. This will result in significant cumulative impacts, rated as negative moderate during both construction and operation phases of the project. It is however anticipated that these impacts could be mitigated to acceptable levels with the implementation of the recommendations and mitigation measures stipulated for each of these developments by the visual specialists. It should also be emphasised that the proposed Komas WEF will be located in the Springbok REDZ 8, i.e. an area which is earmarked for the development of WEFs.

No fatal flaws were identified for either of the battery and substation complex site alternatives and Option 1 was identified as the preferred Option, while Option 2 was found to be favourable.

1.11.1. Visual Impact Statement

It is SiVEST's opinion that the potential visual impacts associated with the proposed Komas WEF development and associated infrastructure are of moderate significance. Given the low level of human habitation and the absence of sensitive receptors however, the project is deemed acceptable from a visual and flicker perspective and the EA should be granted. SiVEST is of the opinion that the impacts associated with the construction, operation and decommissioning phases can be mitigated to acceptable levels provided the recommended mitigation measures are implemented.

1.12. REFERENCES

- Breedlove, G., 2002. A systematic for the South African Cultural Landscapes with a view to implementation. Thesis – University of Pretoria.
- Devine-Wright, P., 2005. Beyond NIMBYism: towards an integrated framework for understanding public perceptions of wind energy. Volume 8, Issue 2, pages 125-139. John Wiley & Sons, Ltd.
- Ecotricity Website: http://www.ecotricity.co.uk.
- Moseley, S., and Naude-Moseley, B., 2008. Getaway Guide to the Karoo, Namaqualand and Kalahari, Sunbird.
- Mucina L., and Rutherford M.C., (eds) 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.
- Oberholzer, B. 2005. Guideline for involving visual & aesthetic specialists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town.
- South African Protected Areas Database (SAPAD), 2017.
- Stop Bickerton Wind Turbines Website: http://www.stopbickertonwindturbines.co.uk/.
- UNESCO, 2005. Operational Guidelines for the Implementation of the World Heritage Convention. UNESCO World Heritage Centre. Paris.
- Vissering, J., Sinclair, M., Margolis, A. 2011. State Clean Energy Program Guide: A Visual Impact Assessment Process for Wind Energy Projects. Clean Energy State Alliance.

1.13. APPENDICES

APPENDIX A: SPECIALIST EXPERTISE

Name	Kerry Lianne Schwartz
Profession	GIS Specialist
Name of Firm	SiVEST SA (Pty) Ltd
Present Appointment	Senior GIS Consultant: Environmental Division
Years with Firm	32 Years
Date of Birth	21 October 1960
ID No.	6010210231083
Nationality	South African

Professional Qualifications

BA (Geography), University of Leeds 1982

Membership to Professional Societies

South African Geomatics Council – GTc GISc 1187

Employment Record

1994 – Present	SiVEST SA (Pty) Ltd - Environmental Division: GIS/Database Specialist.
1988 - 1994	SiVEST (formerly Scott Wilson Kirkpatrick): Town Planning Technician.
1984 – 1988	Development and Services Board, Pietermaritzburg: Town Planning Technician.

Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Fluent	Fluent	Fluent

Key Experience

Kerry is a GIS specialist with more than 20 years' experience in the application of GIS technology in various environmental, regional planning and infrastructural projects undertaken by SiVEST.

Kerry's GIS skills have been extensively utilised in projects throughout South Africa in other Southern African Countries. These projects have involved a range of GIS work, including:

- Design, compilation and management of spatial databases in support of projects.
- Collection, collation and integration of data from a variety of sources for use on specific projects.
- Manipulation and interpretation of both spatial and alphanumeric data to provide meaningful inputs for a variety of projects.
- Production of thematic maps and graphics.

- Spatial analysis and 3D modelling.

Kerry further specialises in visual impact assessments (VIAs) and landscape assessments.

Projects Experience

STRATEGIC PLANNING PROJECTS

Provision of database, analysis and GIS mapping support for the following:

- Database development for socio-economic and health indicators arising from Social Impact Assessments conducted for the Lesotho Highlands Development Association – Lesotho.
- Development Plan for the adjacent towns of Kasane and Kazungula - Ministry of Local Government, Land and Housing (Botswana).
- Development Plan for the rural village of Hukuntsi - Ministry of Local Government, Land and Housing (Botswana).
- Integrated Development Plans for various District and Local Municipalities including:
  - Nquthu Local Municipality (KwaZulu-Natal)
  - Newcastle Local Municipality (KwaZulu-Natal)
  - Amajuba District Municipality (KwaZulu-Natal)
  - Jozini Local Municipality (KwaZulu-Natal)
  - Umhlabuyalingana Local Municipality (KwaZulu-Natal)
- uMhlathuze Rural Development Initiative – uMhlathuze Local Municipality (KwaZulu-Natal).
- Rural roads identification – uMhlathuze Local Municipality (KwaZulu-Natal).
- Mapungubwe Tourism Initiative – Development Bank (Limpopo Province).
- Northern Cape Tourism Master Plan – Department of Economic Affairs and Tourism (Northern Cape Province).
- Spatial Development Framework for Gert Sibande District Municipality (Mpumalanga) in conjunction with more detailed spatial development frameworks for the 7 Local Municipalities in the District, namely:
  - Albert Luthuli Local Municipality
  - Msukaligwa Local Municipality
  - Mkhondo Local Municpality
  - Pixley Ka Seme Local Municipality
  - Dipaleseng Local Municipality
  - Govan Mbeki Local Municipality
  - Lekwa Local Municipality
- Land Use Management Plans/Systems (LUMS) for various Local Municipalities including:
  - Nkandla Local Municipality (KwaZulu-Natal)
  - Hlabisa Local Municipality (KwaZulu-Natal)
  - uPhongolo Local Municipality (KwaZulu-Natal)
  - uMshwathi Local Municipality
- Spatial Development Framework for uMhlathuze Local Municipality (KwaZulu-Natal).
- Spatial Development Framework for Greater Clarens – Maloti-Drakensberg Transfrontier Park (Free State).
- Land use study for the Johannesburg Inner City Summit and Charter – City of Johannesburg (Gauteng).
- Port of Richards Bay Due Diligence Investigation – Transnet
- Jozini Sustainable Development Plan – Jozini Local Municipality (KwaZulu-Natal)
- Spatial Development Framework for Umhlabuyalingana Local Municipality (KwaZulu-Natal)

BUILT INFRASTRUCTURE

- EIA and EMP for a 9km railway line and water pipeline for manganese mine – Kalagadi Manganese (Northern Cape Province).
- EIA and EMP for 5x 440kV Transmission Lines between Thyspunt (proposed nuclear power station site) and several substations in the Port Elizabeth area – Eskom (Eastern Cape Province).
- Initial Scoping for the proposed 750km multi petroleum products pipeline from Durban to Gauteng/Mpumalanga – Transnet Pipelines.
- Detailed EIA for multi petroleum products pipeline from Kendall Waltloo, and from Jameson Park to Langlaagte Tanks farms –Transnet Pipelines.
- Environmental Management Plan for copper and cobalt mine (Democratic Republic of Congo).
- EIA and Agricultural Feasibility study for Miwani Sugar Mill (Kenya).
- EIAs for Concentrated Solar and Photovoltaic power plants and associated infrastructure (Northern Cape, Free State, Limpopo and North West Province).
- EIAs for Wind Farms and associated infrastructure (Northern Cape and Western Cape).
- Basic Assessments for 132kV Distribution Lines (Free State, KwaZulu-Natal, Mpumalanga and North West Province).
- Environmental Assessment for the proposed Moloto Development Corridor (Limpopo).
- Environmental Advisory Services for the Gauteng Rapid Rail Extensions Feasibility Project.
- Environmental Screening for the Strategic Logistics and Industrial Corridor Plan for Strategic Infrastructure Project 2, Durban-Free State-Gauteng Development Region.

STATE OF THE ENVIRONMENT REPORTING

- 2008 State of the Environment Report for City of Johannesburg.
- Biodiversity Assessment – City of Johannesburg.

STRATEGIC ENVIRONMENTAL ASSESSMENTS AND ENVIRONMENTAL MANAGEMENT FRAMEWORKS

- SEA for Greater Clarens – Maloti-Drakensberg Transfrontier Park (Free State).
- SEA for the Marula Region of the Kruger National Park, SANParks.
- SEA for Thanda Private Game Reserve (KwaZulu-Natal).
- SEA for KwaDukuza Local Municipality (KwaZulu-Natal).
- EMF for proposed Renishaw Estate (KwaZulu-Natal).
- EMF for Mogale City Local Municipality, Mogale City Local Municipality (Gauteng).
- SEA for Molemole Local Municipality, Capricorn District Municipality (Limpopo).
- SEA for Blouberg Local Municipality, Capricorn District Municipality (Limpopo).
- SEA for the Bishopstowe study area in the Msunduzi Local Municipality (KwaZulu-Natal).

WETLAND STUDIES

- Rehabilitation Planning for the Upper Klip River and Klipspruit Catchments, City of Johannesburg (Gauteng).
- Wetland assessments for various Concentrated Solar and Photovoltaic power plants and associated infrastructure (Limpopo, Northern Cape, North West Province and Western Cape).
- Wetland assessments for Wind Farms and associated infrastructure (Northern Cape and Western Cape).
- Wetland assessments for various 132kV Distribution Lines (Free State, KwaZulu-Natal, Mpumalanga and North West Province).

VISUAL IMPACT ASSESSMENTS

- VIA for the Thyspunt Transmission Lines Integration Project (Eatern Cape).

- VIA s for various Solar Power Plants and associated grid connection infrastructure (Northern Cape, Free State, Limpopo and North West Province) the most recent project being:
  - Mooi Plaats, Wonderheuvel and Paarde Valley Solar PV facilities near Nouport (Northern Cape).
- VIAs for various Wind Farms and associated grid connection infrastructure (Northern Cape and Western Cape), the most recent projects including:
  - Graskoppies, Hartebeest Leegte, Ithemba and !Xha Boom Wind Farms near Loeriesfontein (Northern Cape);
  - Kuruman 1 and 2 WEFs near Kuruman (Northern Cape);
  - San Kraal and Phezukomoya WEFs near Noupoort (Northern Cape);
  - Paulputs WEF near Pofadder (Northern Cape)
  - Kudusberg WEF near Matjiesfontein (Western Cape);
  - Tooverberg WEF, near Touws River (Western Cape);
  - Rondekop WEF, near Sutherland (Northern Cape).
- VIAs for various 132kV Distribution Lines (Free State, KwaZulu-Natal, Mpumalanga and North West Province).
- VIA for the proposed Rorqual Estate Development near Park Rynie on the South-Coast of KwaZulu-Natal Province.
- VIA for the proposed Assagay Valley Mixed Use Development (KwaZulu-Natal).
- VIA for the proposed Kassier Road North Mixed Use Development (KwaZulu-Natal).
- VIA for the proposed Tinley Manor South Banks Development (KwaZulu-Natal).
- VIA for the proposed Tinley Manor South Banks Beach Enhancement Solution, (KwaZulu-Natal).
- VIAs for the proposed Mlonzi Hotel and Golf Estate Development (Eastern Cape Province).
- Visual sensitivity mapping exercise for the proposed Mogale's Gate Lodge Expansion (Gauteng).
- Analysis phase visual assessment for the proposed Renishaw Estate Environmental Management Framework in the Scottburgh Area (KwaZulu-Natal).
- Landscape Character Assessment for Mogale City Environmental Management Framework (Gauteng).

APPENDIX B: SPECIALIST DECLARATION

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

Basic Assessment for the proposed Komas Wind Energy Facility and associated infrastructure near Kleinsee in the Northern Cape Province

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)	2	Percentage Procurement recognition	110
Specialist name:	Kerry Schwartz			
Specialist Qualifications:	BA			
Professional affiliation/registration:	SAGC (GISc Technician)			
Physical address:	12 Autumn Road			
Postal address:	PO Box 2921, Rivonia			
Postal code:	2128	Cell:	082 469 5850	
Telephone:	011 798 0632	Fax:	011 7272	
E-mail:	kerrys@sivest.co.za			

2. DECLARATION BY THE SPECIALIST

I, Kerry Schwartz, 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.

Kschwarh

Signature of the Specialist

SiVEST

Name of Company:

20 October 2020

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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

KSchwartz

Signature of the Specialist

SiVEST

Name of Company

20 October 2020

Date

Jacqueline Chantel Jackson
COMMISSIONER OF OATHS

Signature of the Commissioner of Oaths

Signature: JCJacks

Divisional Controller

Date Ref. 9/1/8/2 (R/O) KZN PMB - 08/02/2019

Date: 20/10/2020 Place: PMB

Business Address: VCC Estate, 170 Peter Brown Drive, PMB

APPENDIX C: IMPACT RATING METHODOLOGY

Specialist Impact Assessment Criteria

The identification of potential impacts and risks should include impacts that may occur during the construction, operational and decommissioning phases of the activity. The assessment of impacts is to include direct, indirect, as well as cumulative impacts.

In order to identify potential impacts (both positive and negative) it is important that the nature of the proposed activity is well understood so that the impacts associated with the activity can be understood. The process of identification and assessment of impacts will include:

- Determine the current environmental conditions in sufficient detail so that there is a baseline against which impacts can be identified and measured;
- Determine future changes to the environment that will occur if the activity does not proceed;
- An understanding of the activity in sufficient detail to understand its consequences; and
- The identification of significant impacts which are likely to occur if the activity is undertaken.

As per DEA *Guideline 5: Assessment of Alternatives and Impacts* the following methodology is to be applied to the prediction and assessment of impacts. Potential impacts should be rated in terms of the direct, indirect and cumulative:

- **Direct impacts** are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

- **Indirect impacts** of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

- **Cumulative impacts** are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

- **Nature of impact** - this reviews the type of effect that a proposed activity will have on the environment and should include "what will be affected and how?"

- **Status** - Whether the impact on the overall environment (social, biophysical and economic) will be:
  - Positive - environment overall will benefit from the impact;
  - Negative - environment overall will be adversely affected by the impact; or
  - Neutral - environment overall will not be affected.

- **Spatial extent** – The size of the area that will be affected by the risk/impact:
  - Site;
  - Local (<10 km from site);
  - Regional (<100 km of site);

- National; or
- International (e.g. Greenhouse Gas emissions or migrant birds).

- **Duration** – The timeframe during which the risk/impact will be experienced:
  - Very short term (instantaneous);
  - Short term (less than 1 year);
  - Medium term (1 to 10 years);
  - Long term (the impact will occur for the project duration); or
  - Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient (i.e. the impact will occur beyond the project decommissioning)).

- **Reversibility of impacts -**
  - High reversibility of impacts (impact is highly reversible at end of project life, i.e. this is the most favourable assessment for the environment. For example, the nuisance factor caused by noise impacts associated with the operational phase of an exporting terminal can be considered to be highly reversible at the end of the project life);
  - Moderate reversibility of impacts;
  - Low reversibility of impacts; or
  - Impacts are non-reversible (impact is permanent, i.e. this is the least favourable assessment for the environment. The impact is permanent. For example, the loss of a palaeontological resource on the site caused by building foundations could be non-reversible).

- **Irreplaceability of resource loss caused by impacts –**
  - High irreplaceability of resources (project will destroy unique resources that cannot be replaced, i.e. this is the least favourable assessment for the environment. For example, if the project will destroy unique wetland systems, these may be irreplaceable);
  - Moderate irreplaceability of resources;
  - Low irreplaceability of resources; or
  - Resources are replaceable (the affected resource is easy to replace/rehabilitate, i.e. this is the most favourable assessment for the environment).

Using the criteria above, the impacts will further be assessed in terms of the following:

- **Probability** – The probability of the impact occurring:
  - Extremely unlikely (little to no chance of occurring);
  - Very unlikely (<30% chance of occurring);
  - Unlikely (30-50% chance of occurring)
  - Likely (51 – 90% chance of occurring); or
  - Very Likely (>90% chance of occurring regardless of prevention measures).

- **Consequence**–The anticipated severity of the impact:
  - Extreme (extreme alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they permanently cease);
  - Severe (severe alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);

- Substantial (substantial alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);
- Moderate (notable alteration of natural systems, patterns or processes, i.e. where the environment continues to function but in a modified manner); or
- Slight (negligible alteration of natural systems, patterns or processes, i.e. where no natural systems/environmental functions, patterns, or processes are affected).

- **Significance** – To determine the significance of an identified impact/risk, the consequence is multiplied by probability (qualitatively as shown in Figure 1 below). The approach incorporates internationally recognised methods from the Intergovernmental Panel on Climate Change (IPCC) (2014) assessment of the effects of climate change and is based on an interpretation of existing information in relation to the proposed activity, to generate an integrated picture of the risks related to a specified activity in a given location, with and without mitigation. Risk is assessed for each significant stressor (e.g. physical disturbance), on each different type of receiving entity (e.g. the municipal capacity, a sensitive wetland), qualitatively (very low, low, moderate, high, very high) against a predefined set of criteria (as shown in Figure 1 below).

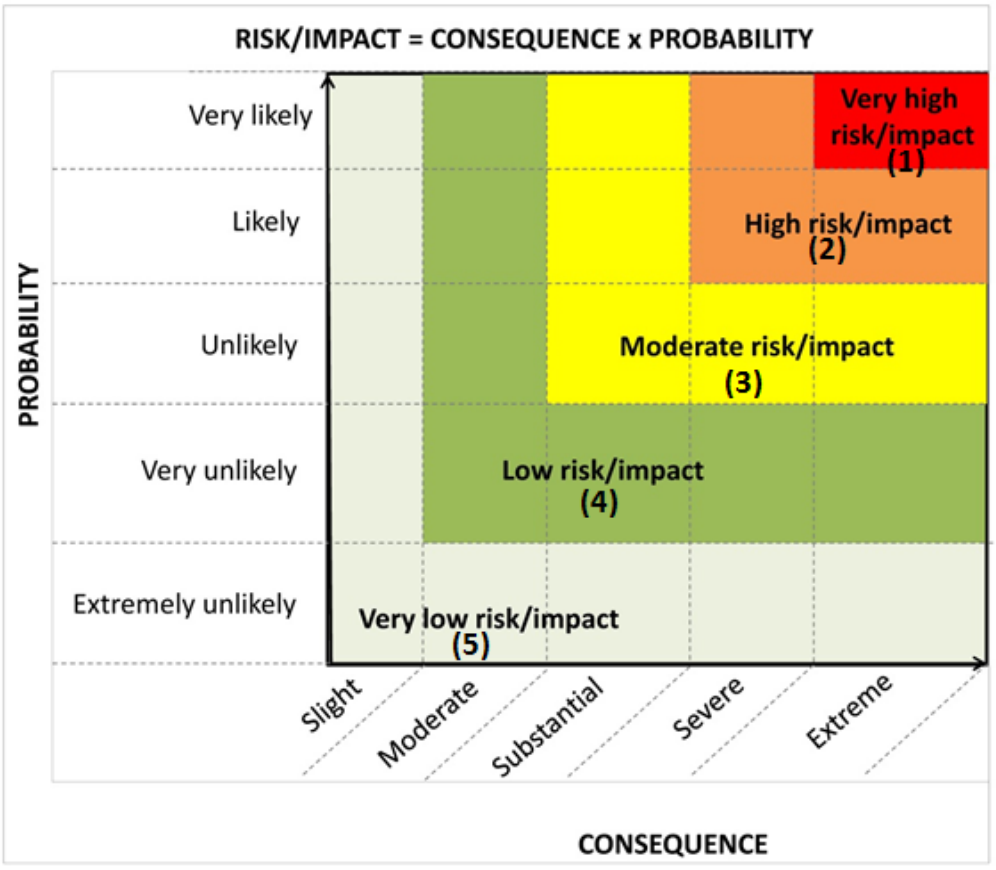


Figure 1: Guide to assessing risk/impact significance as a result of consequence and probability.

- **Significance** – Will the impact cause a notable alteration of the environment?
    - Very low (the risk/impact may result in very minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);
    - Low (the risk/impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);
    - Moderate (the risk/impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated); or
    - High (the risk/impacts will result in a considerable alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making).
    - Very high (the risk/impacts will result in major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making (i.e. the project cannot be authorised unless major changes to the engineering design are carried out to reduce the significance rating)).

The above assessment must be described in the text (with clear explanation provided on the rationale for the allocation of significance ratings) and summarised in an impact assessment Table in a similar manner as shown in the example below (Table 1).

- **Ranking -** With the implementation of mitigation measures, the residual impacts/risks must be ranked as follow in terms of significance:

    - Very low = 5;
    - Low = 4;
    - Moderate = 3;
    - High = 2; and
    - Very high = 1.

- **Confidence** – The degree of confidence in predictions based on available information and specialist knowledge:
    - Low;
    - Medium; or
    - High.

Impacts will then be collated into an EMPr and these will include the following:

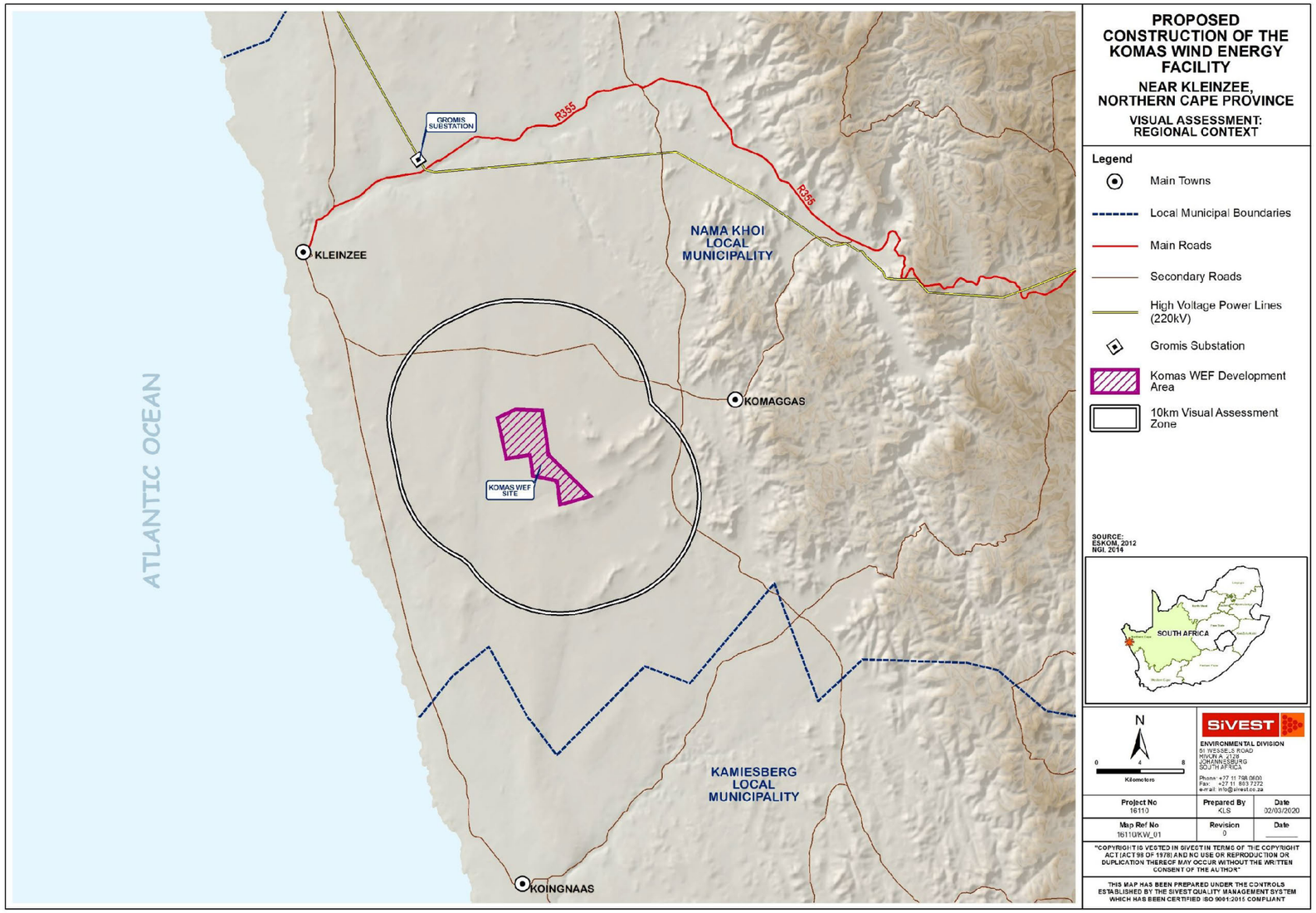
- Management actions and monitoring of the impacts;
- Identifying negative impacts and prescribing mitigation measures to avoid or reduce negative impacts; and
- Positive impacts will be identified and enhanced where possible.

Other aspects to be taken into consideration in the assessment of impact significance are:

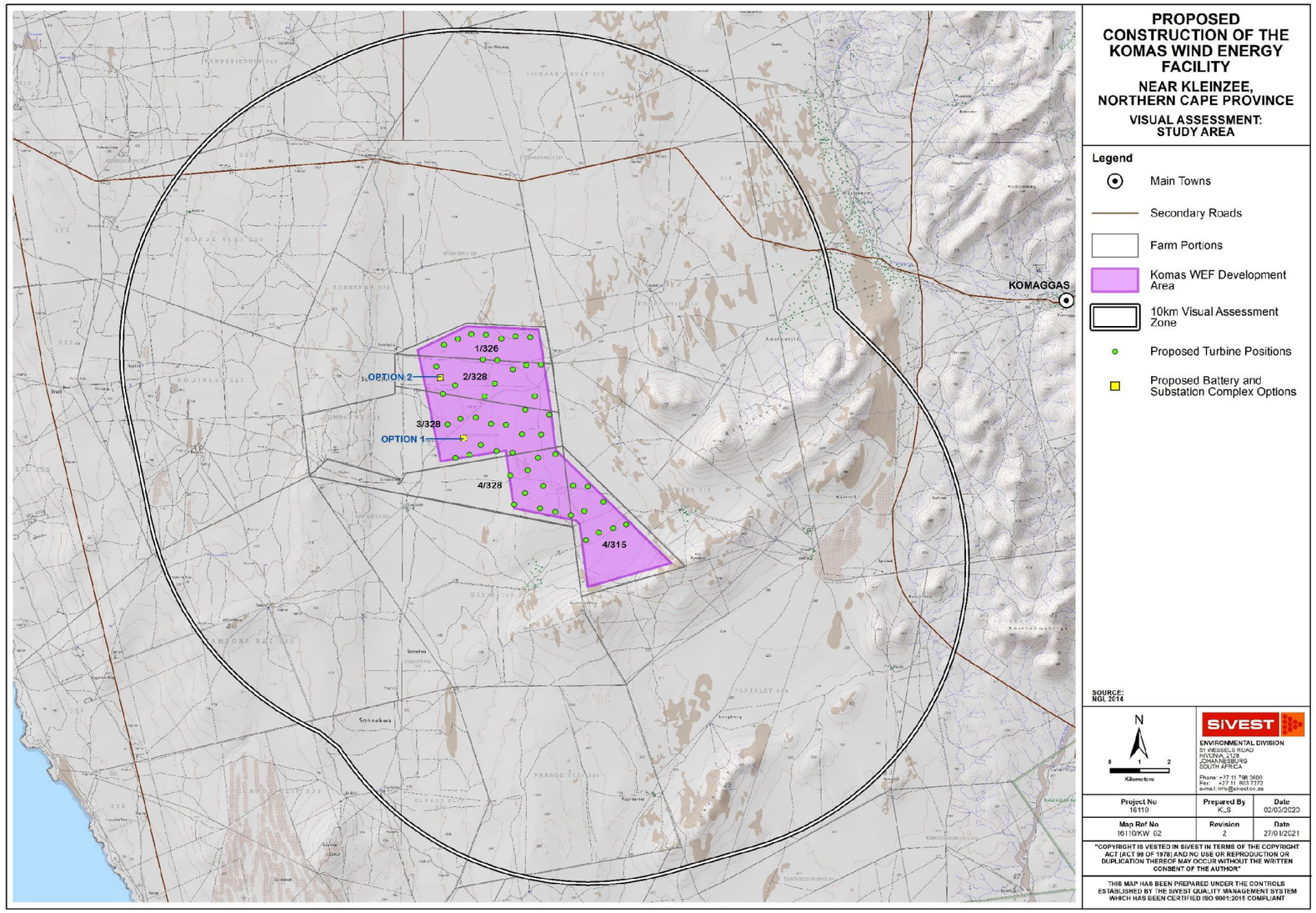
- Impacts will be evaluated for the construction, operational and decommissioning phases of the development. The assessment of impacts for the decommissioning phase will be brief, as there is limited understanding at this stage of what this might entail. The relevant rehabilitation guidelines and legal requirements applicable at the time will need to be applied;
- The impact evaluation will, where possible, take into consideration the cumulative effects associated with this and other facilities/projects which are either developed or in the process of being developed in the local area; and
- The impact assessment will attempt to quantify the magnitude of potential impacts (direct and cumulative effects) and outline the rationale used. Where appropriate, national standards are to be used as a measure of the level of impact.
- Impacts should be assessed for all layouts and project components.
- **IMPORTANT NOTE FROM THE CSIR: IMPACTS SHOULD BE DESCRIBED BOTH BEFORE AND AFTER THE PROPOSED MITIGATION AND MANAGEMENT MEASURES HAVE BEEN IMPLEMENTED. THE ASSESSMENT OF THE POTENTIAL IMPACT "BEFORE MITIGATION" SHOULD TAKE INTO CONSIDERATION ALL MANAGEMENT ACTIONS THAT ARE ALREADY PART OF THE PROJECT DESIGN (WHICH ARE A GIVEN). THE ASSESSMENT OF THE POTENTIAL IMPACT "AFTER MITIGATION" SHOULD TAKE INTO CONSIDERATION ANY ADDITIONAL MANAGEMENT ACTIONS PROPOSED BY THE SPECIALIST, TO MINIMISE NEGATIVE OR ENHANCE POSITIVE IMPACTS.**

APPENDIX D: MAPS

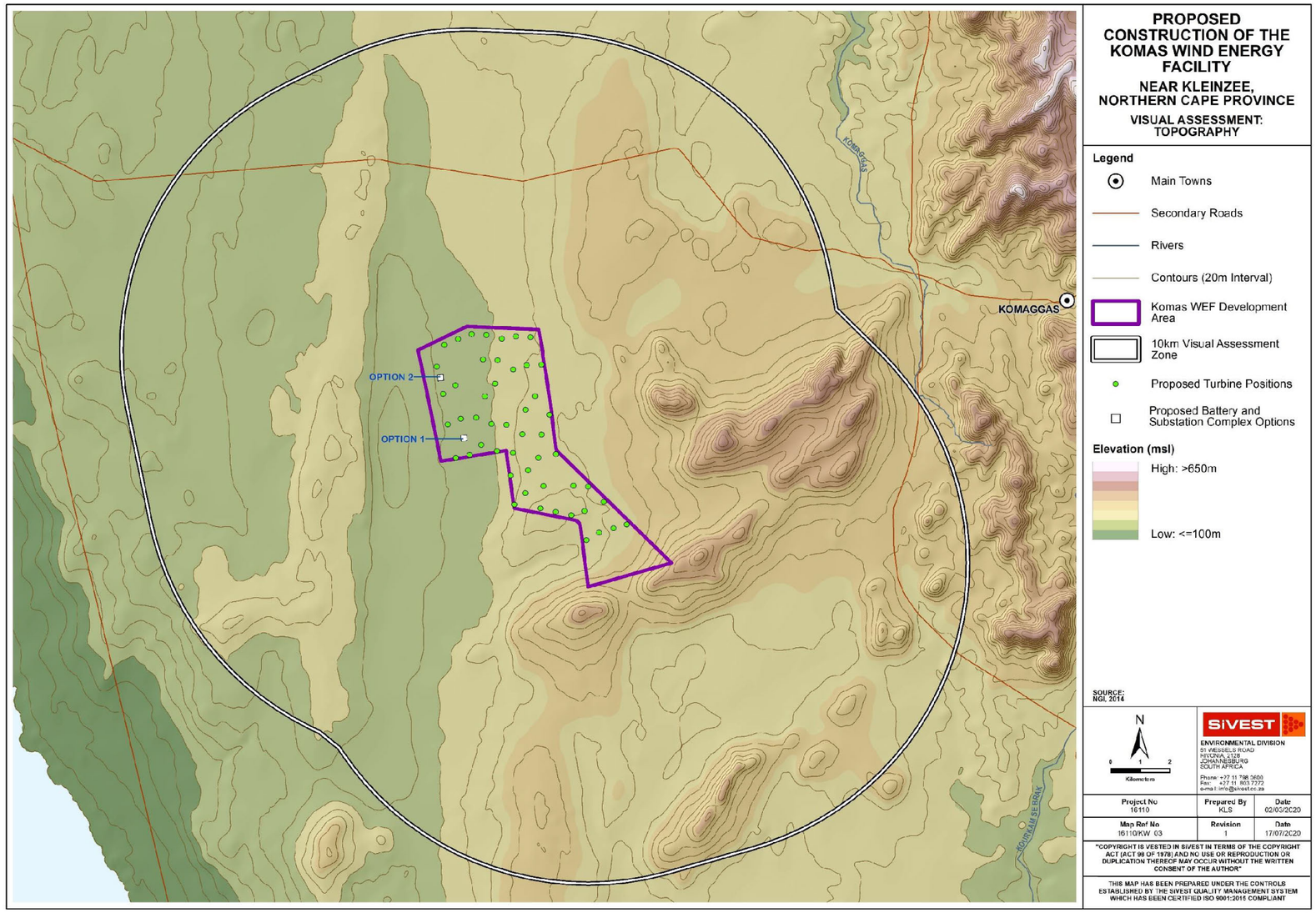
MAP 1: Regional Context



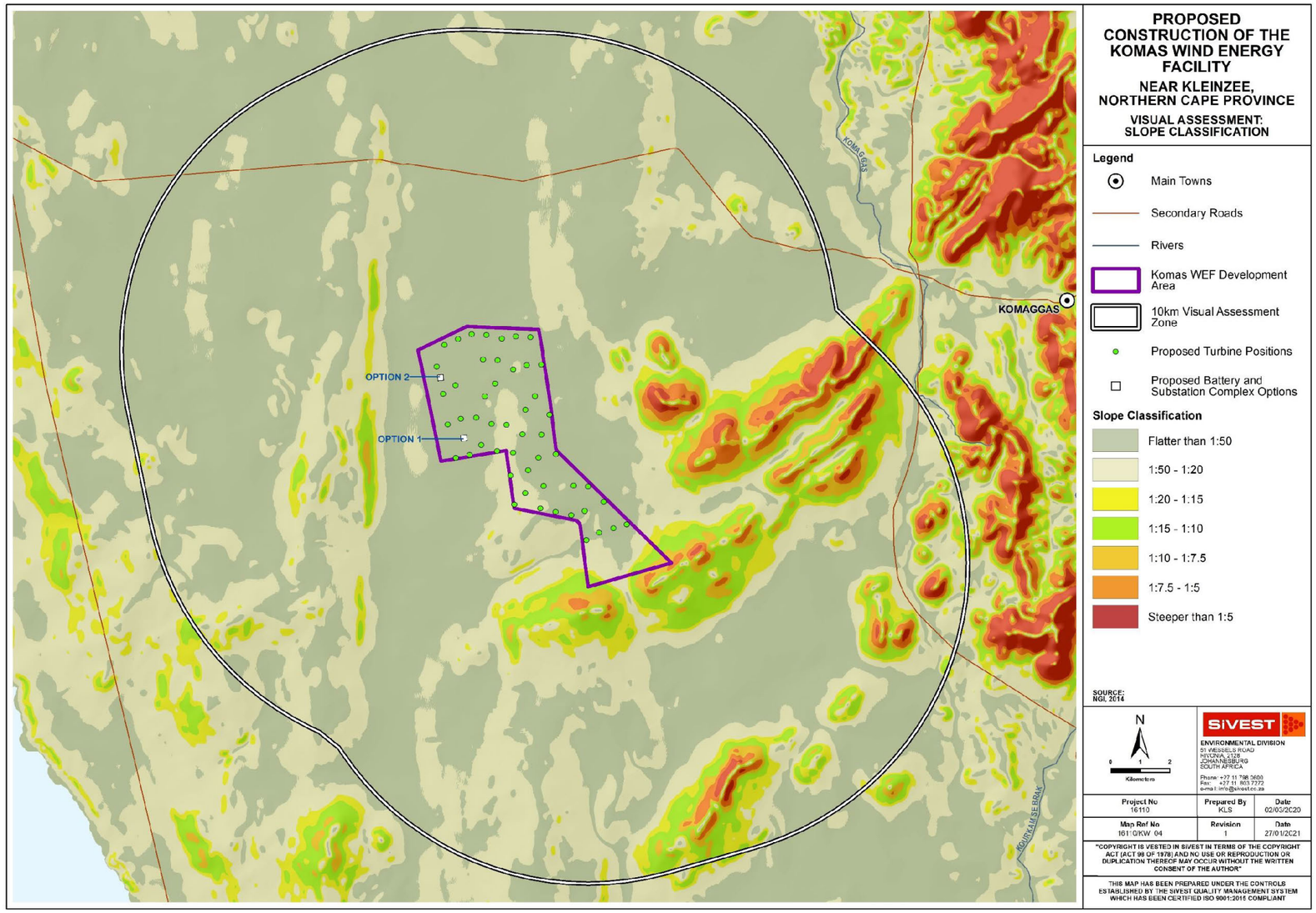
MAP 2: Study Area



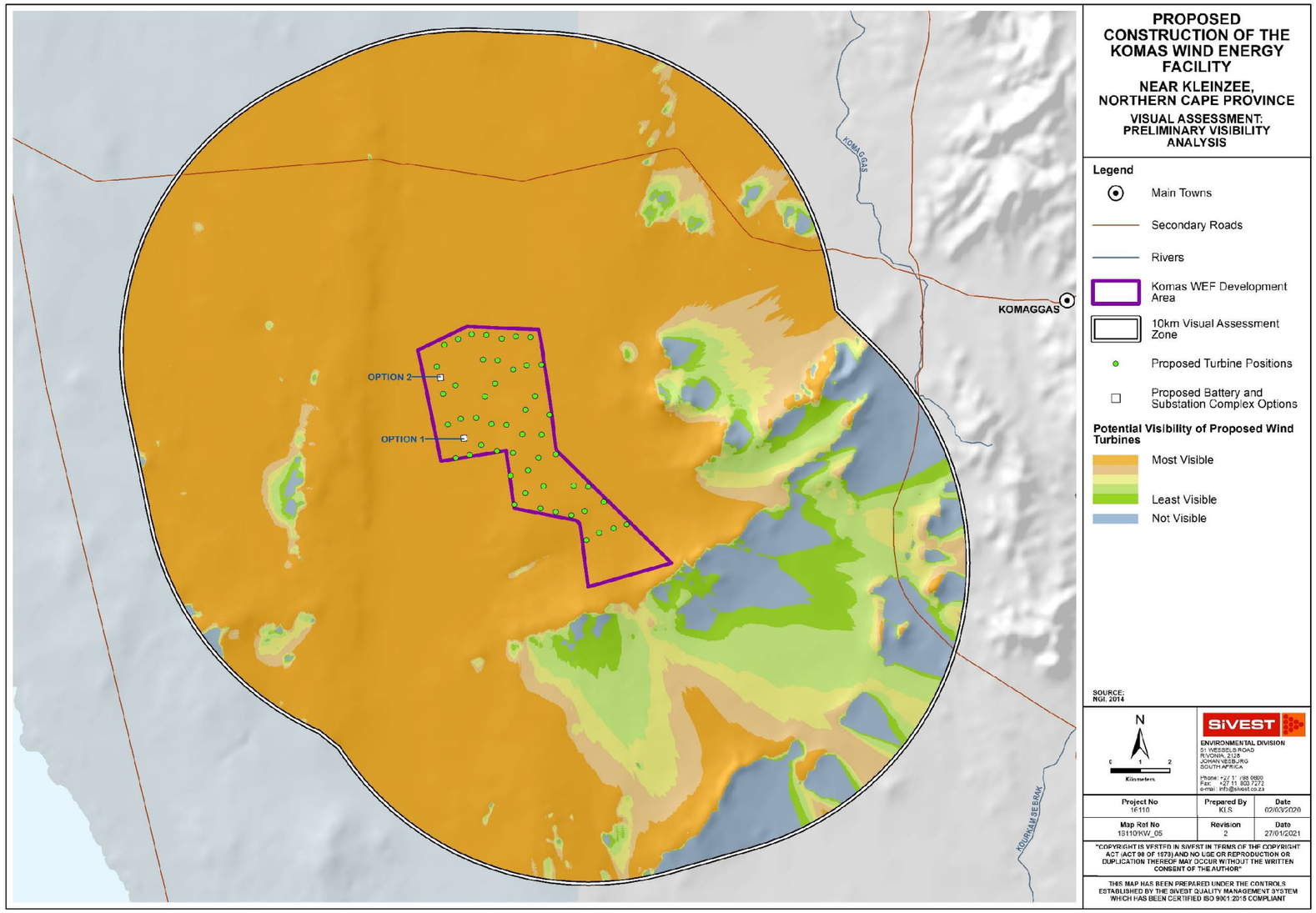
MAP 3: Topography



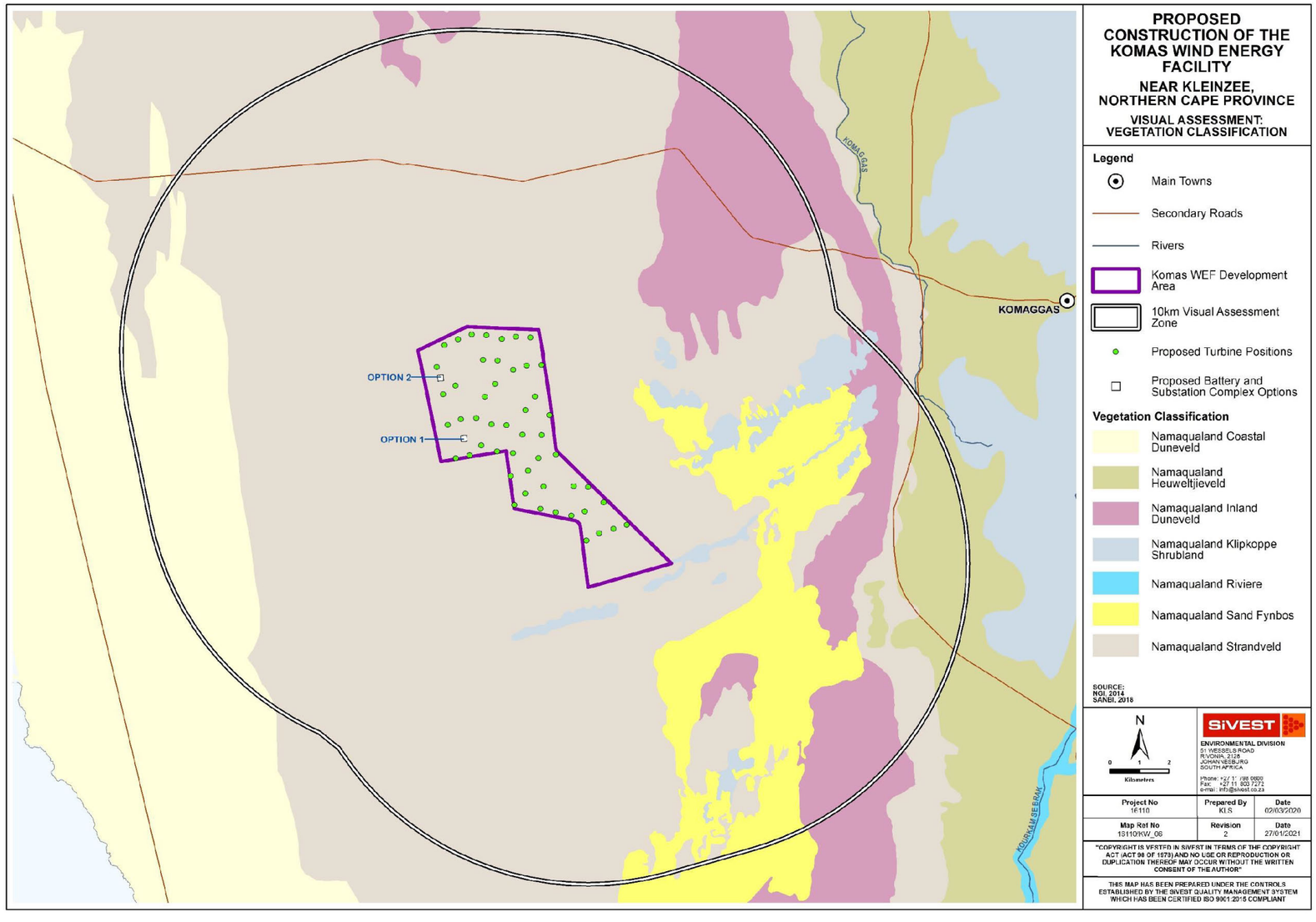
MAP 4: Slope Classification



MAP 5: Preliminary Visibility Analysis



MAP 6: Vegetation Classification



MAP 7: Land Cover Classification