











**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
SURFACE WATER ASSESSMENT:
GROUND TRUTHED FIELDWORK
DELINEATIONS**

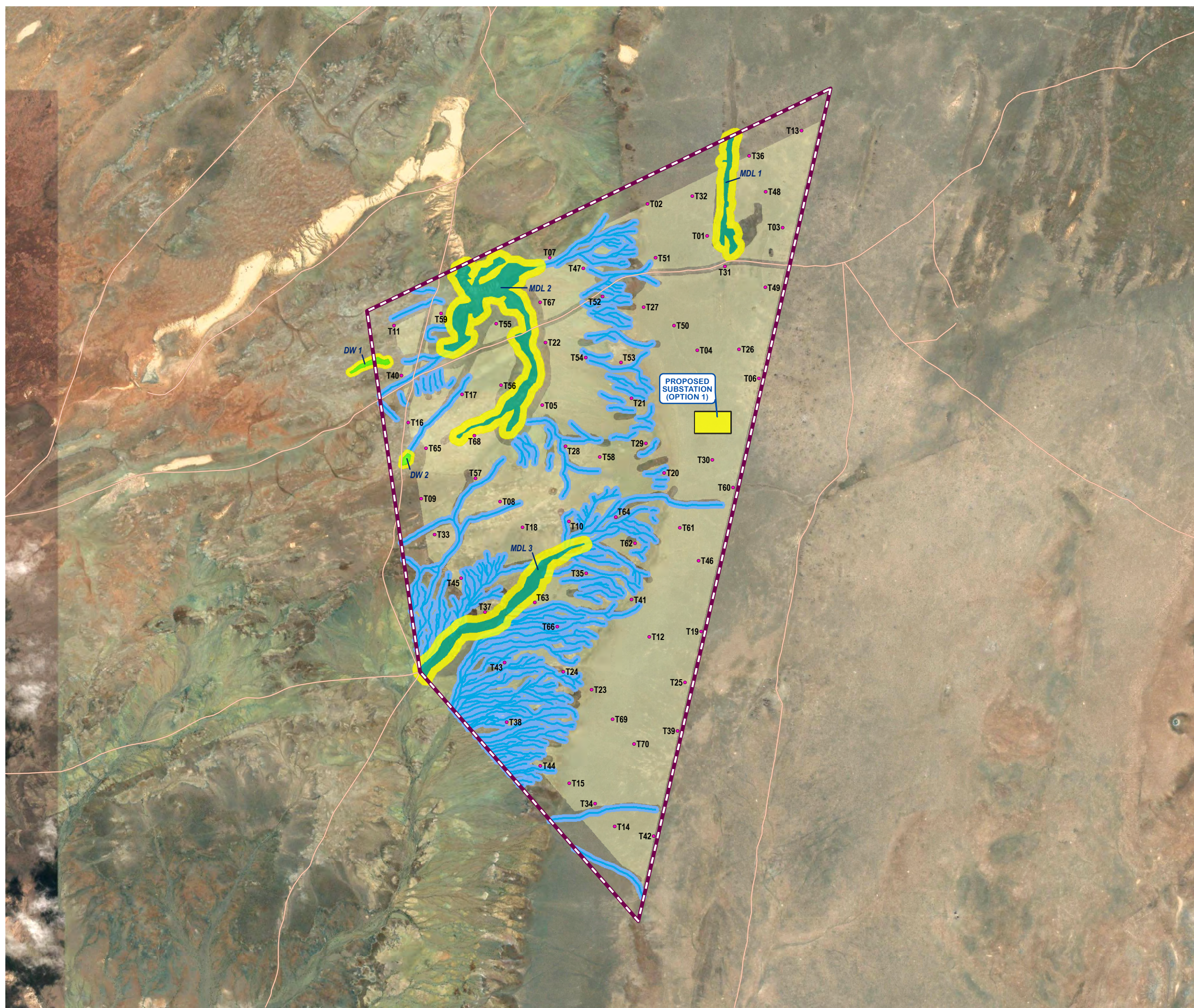
Legend

-  Local Access Roads
-  Xha! Boom Wind Farm Application Site
-  Buildable Area
-  Preferred Xha! Boom Substation Site Alternative
-  Proposed Turbine Positions

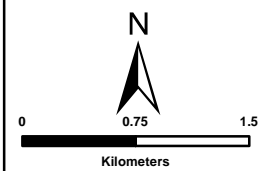
Surface Water Features

-  Major Drainage Line
-  Depression Wetland
-  Major Drainage Line/Wetland Buffers*
-  Drainage Lines
-  Drainage Line Buffers (50m)

*Major Drainage Line Buffer: 100m
Wetland Buffer: 50m



SOURCE:
GOOGLE EARTH, 2016



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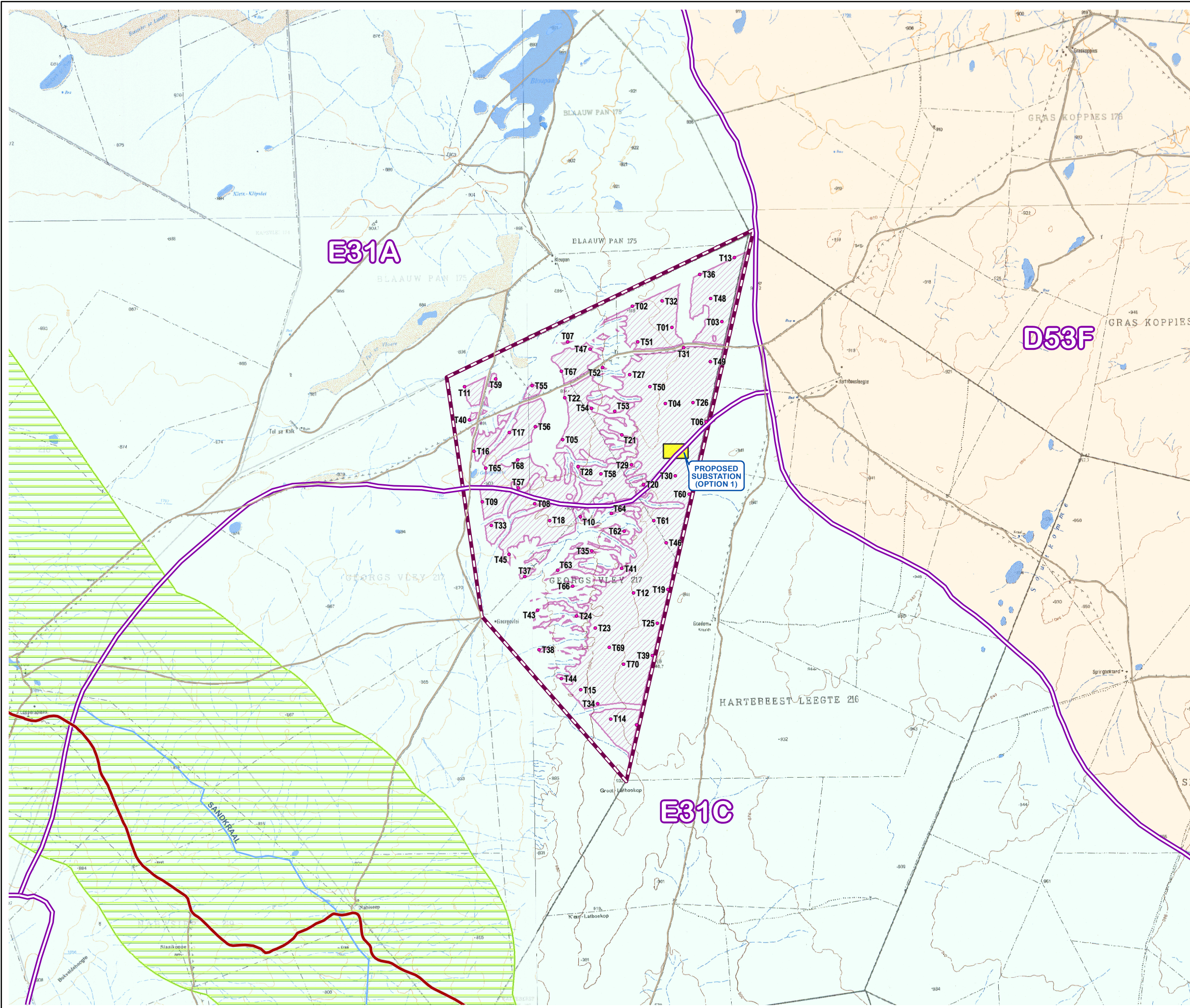
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**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE**
**SURFACE WATER ASSESSMENT:
DATABASE SURFACE WATER
OCCURRENCE**





Legend

-  Secondary Roads
-  Local Access Roads
-  Xha! Boom Wind Farm Application Site
-  Buildable Area
-  Preferred Xha! Boom Substation Site Alternative
-  Proposed Turbine Positions


Surface Water Features

-  Quaternary Catchment Boundaries
-  Rivers
-  Wetlands

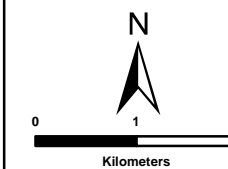
Water Management Areas (2004)

-  14 - Lower Orange
-  17 - Olifants/Doorn

Critical Biodiversity Areas (Terrestrial)

-  Ecological Support Area

SOURCE:
DWS, 2004
NFEPA, 2011
NAMAKWA DISTRICT BIODIVERSITY SECTOR PLAN, 2008



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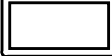


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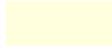
**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE**

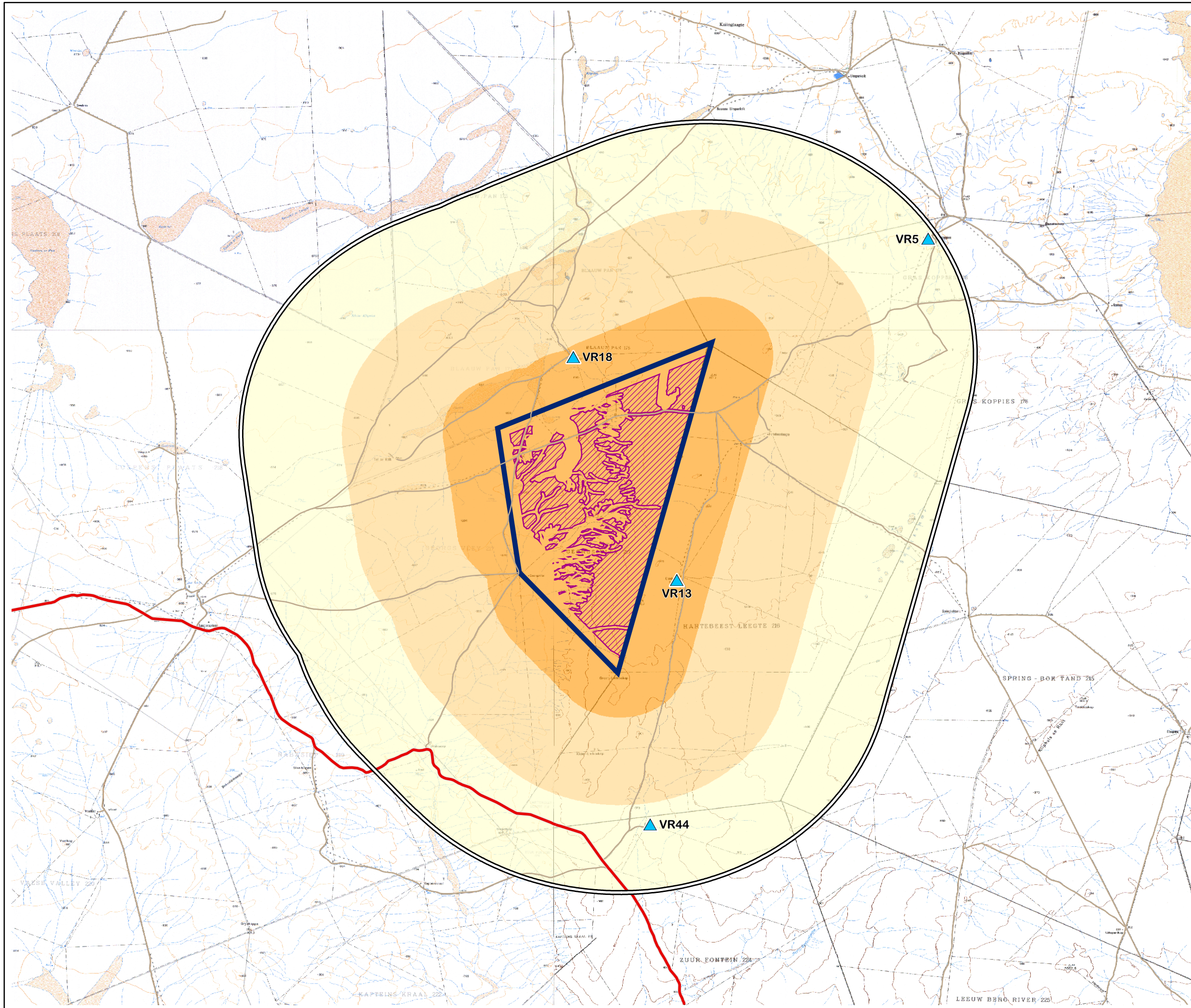
**VISUAL ASSESSMENT:
POTENTIALLY SENSITIVE
VISUAL RECEPTOR LOCATIONS**

Legend

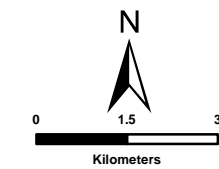
-  Secondary Roads
-  Local Access Roads
-  Xha! Boom Wind Farm Application Site
-  8km Visual Assessment Zone
-  Buildable Area
-  Potentially Sensitive Receptor Locations

Zones of Potential Visual Impact

-  High Impact (<=2kms)
-  Moderate Impact (2.1 - 5kms)
-  Low Impact (>5kms)



SOURCE:
NGI, 2014

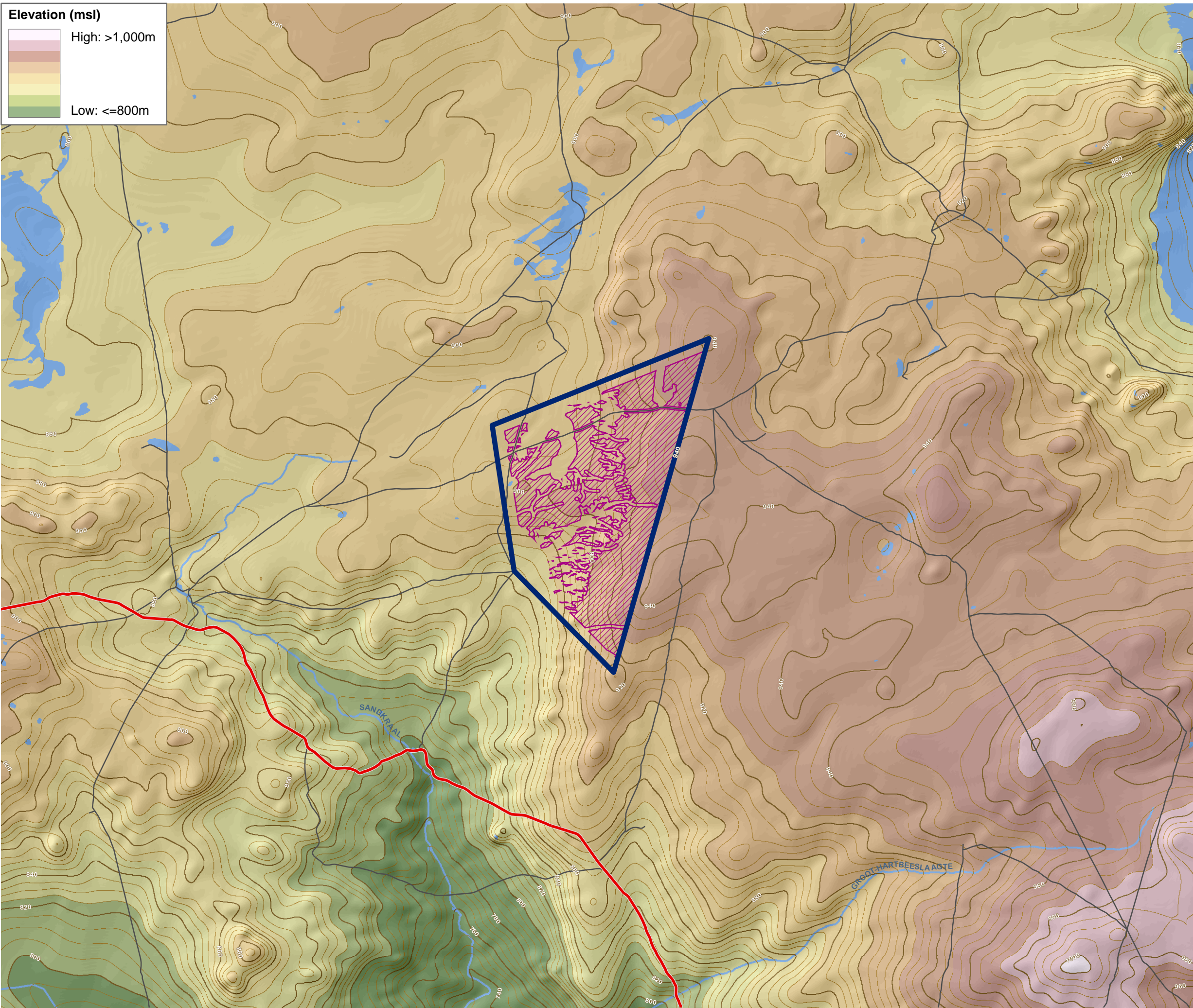
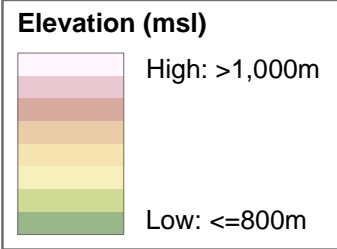


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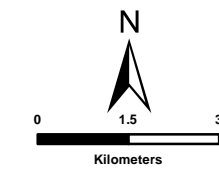


**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
TOPOGRAPHY**

Legend

- Secondary Roads
- Local Access Roads
- Main Watercourses
- Contours (20m Interval)
- Contours (5m Interval)
- Pans/Wetlands/Waterbodies
- Xha! Boom Wind Farm Application Site
- Buildable Area

SOURCE:
NGI, 2014



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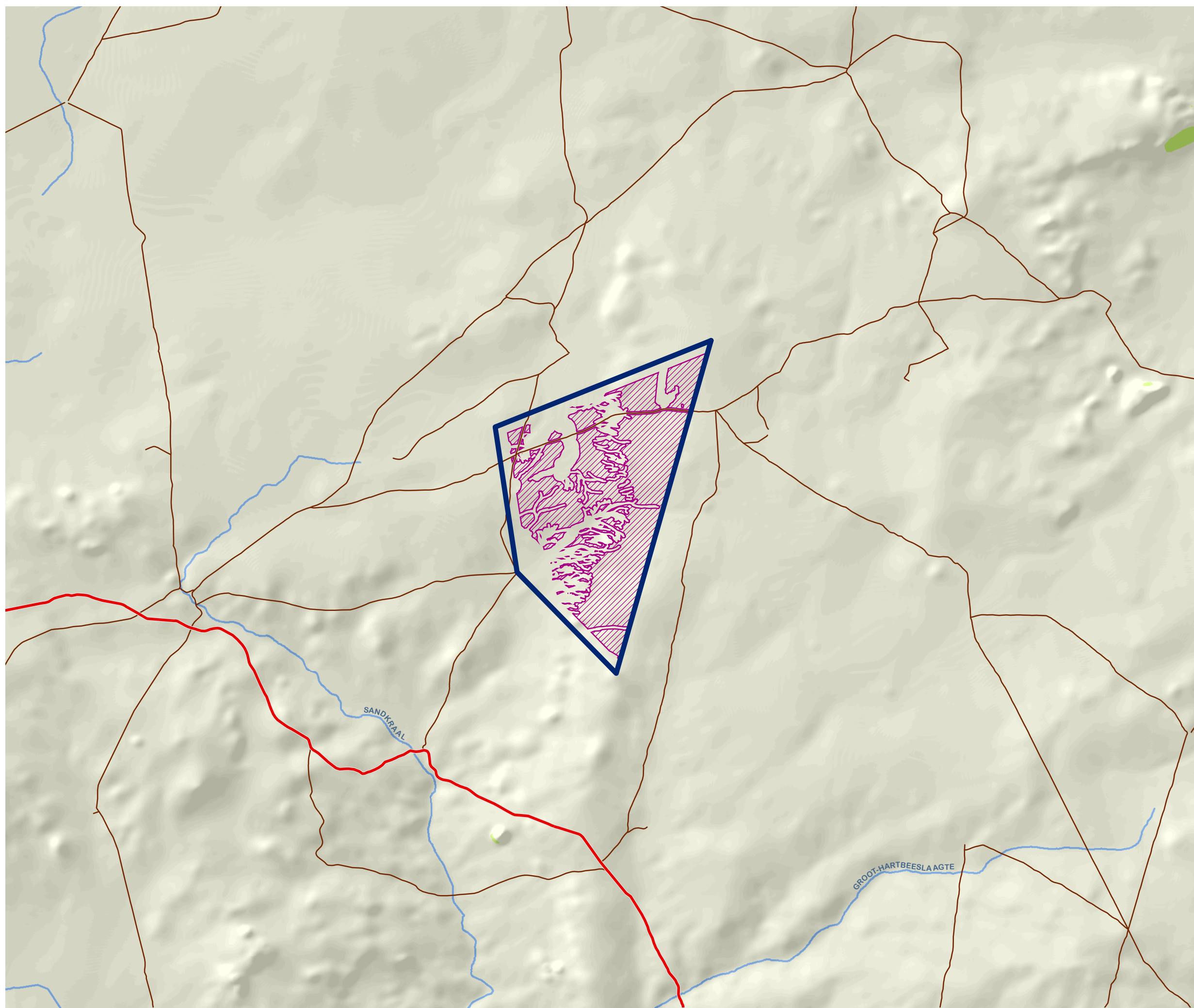
**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
SLOPE CLASSIFICATION**

Legend

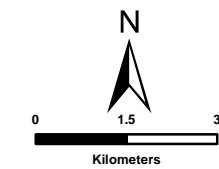
-  Secondary Roads
-  Local Access Roads
-  Main Watercourses
-  Xha! Boom Wind Farm Application Site
-  Buildable Area

**Slope Classification
(Percent Rice)**

-  <= 8%
-  8.01 - 12%



SOURCE:
NGI, 2014



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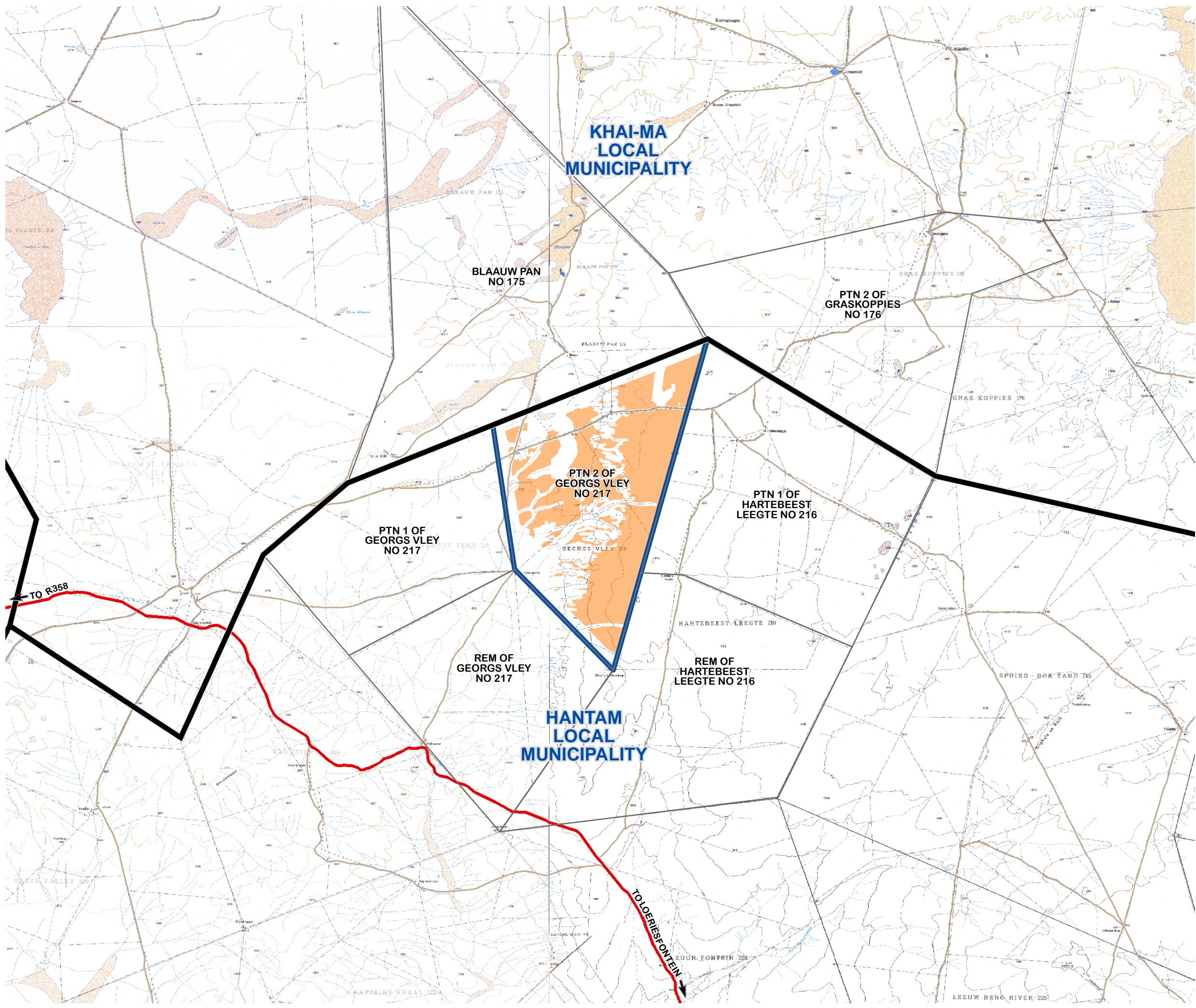
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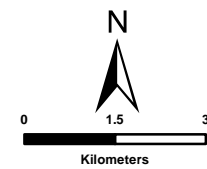
**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
SITE LOCALITY**



Legend

-  Local Municipal Boundaries
-  Secondary Roads
-  Local Access Roads
-  Adjoining Farm Boundaries
-  Xha! Boom Wind Farm Application Site
-  Buildable Area

SOURCE:
MUNICIPAL DEMARCATION BOARD, 2011
NGI, 2014



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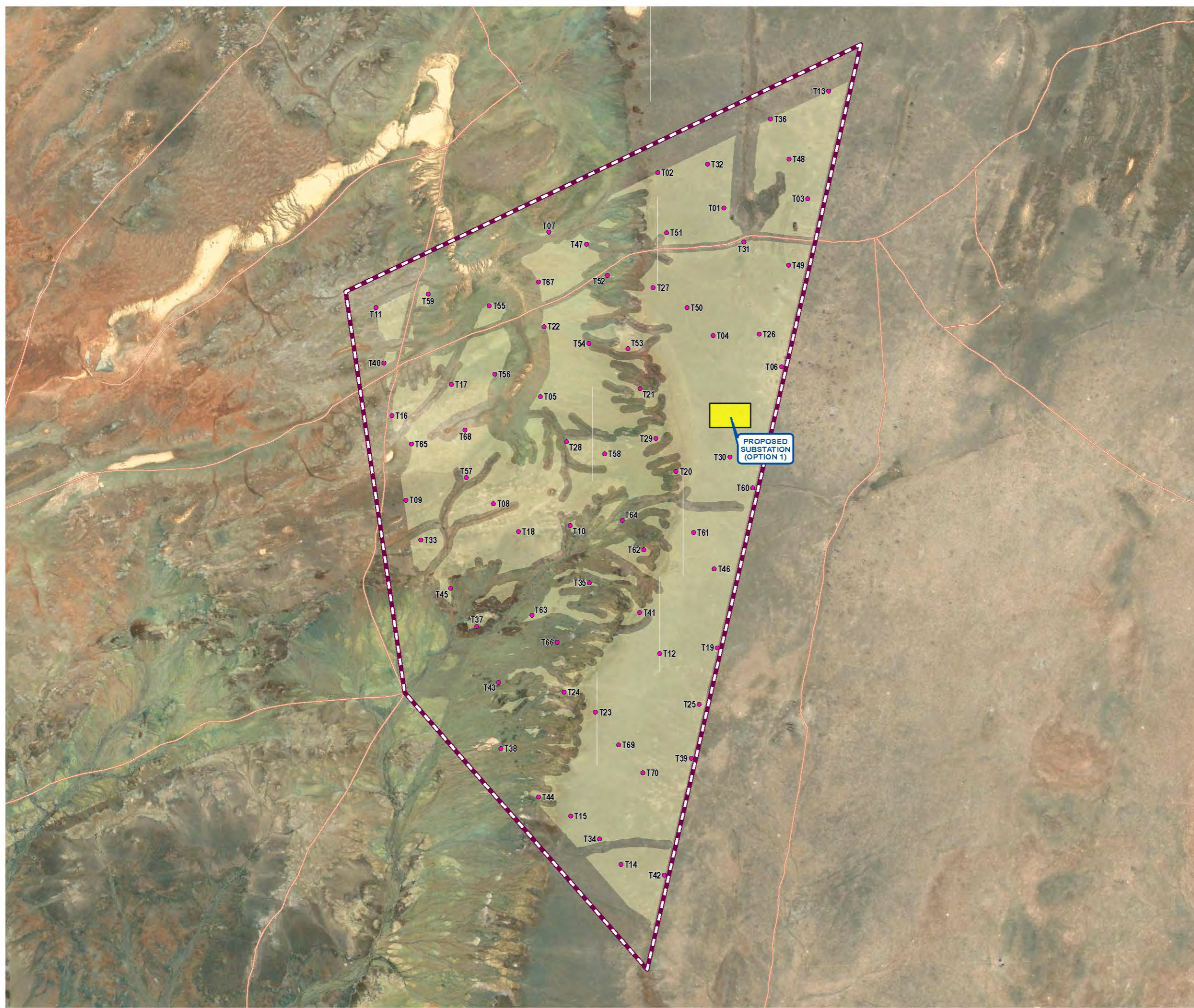
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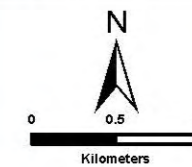
**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
PROPOSED SITE LAYOUT**

Legend

-  Local Access Roads
-  Xha! Boom Wind Farm Application Site
-  Buildable Area
-  Preferred Xha! Boom Substation Site Alternative
-  Proposed Turbine Positions



SOURCE:
GOOGLE EARTH, 2016
NGI, 2014



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

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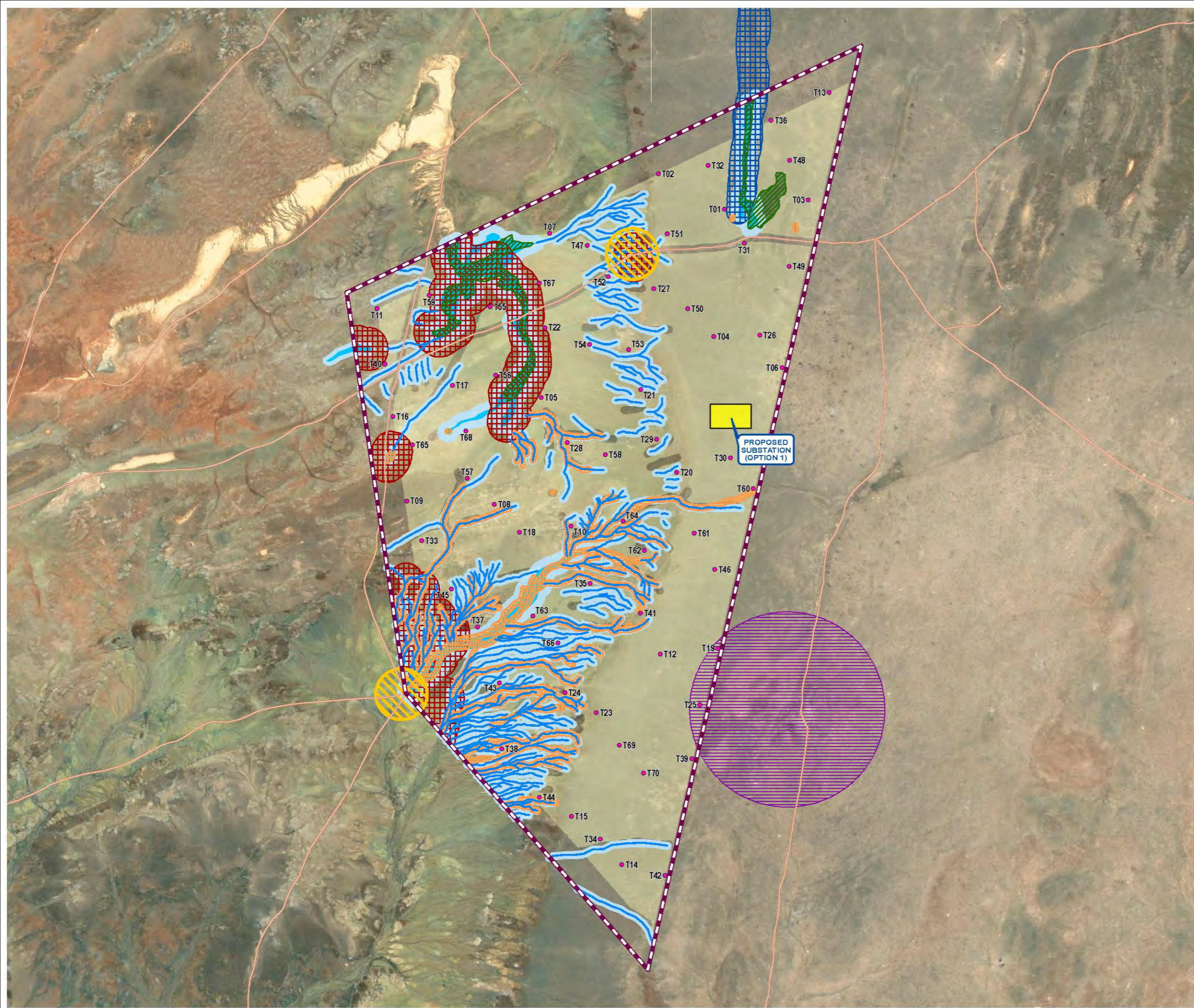
**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
ENVIRONMENTAL SENSITIVITY**

Legend

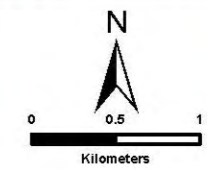
-  Local Access Roads
-  Xha! Boom Wind Farm Application Site
-  Buildable Area
-  Preferred Xha! Boom Substation Site Alternative
-  Proposed Turbine Positions

Environmental Sensitivity

-  Avifaunal Sensitivity
-  Bat Sensitivity: High
-  Bat Sensitivity: Moderate
-  Ecological Sensitivity: High
-  Ecological Sensitivity: Medium-High
-  Noise Sensitivity
-  Wetlands
-  Water Courses
-  Surface Water Buffers



SOURCE:
GOOGLE EARTH, 2016
NGI, 2014



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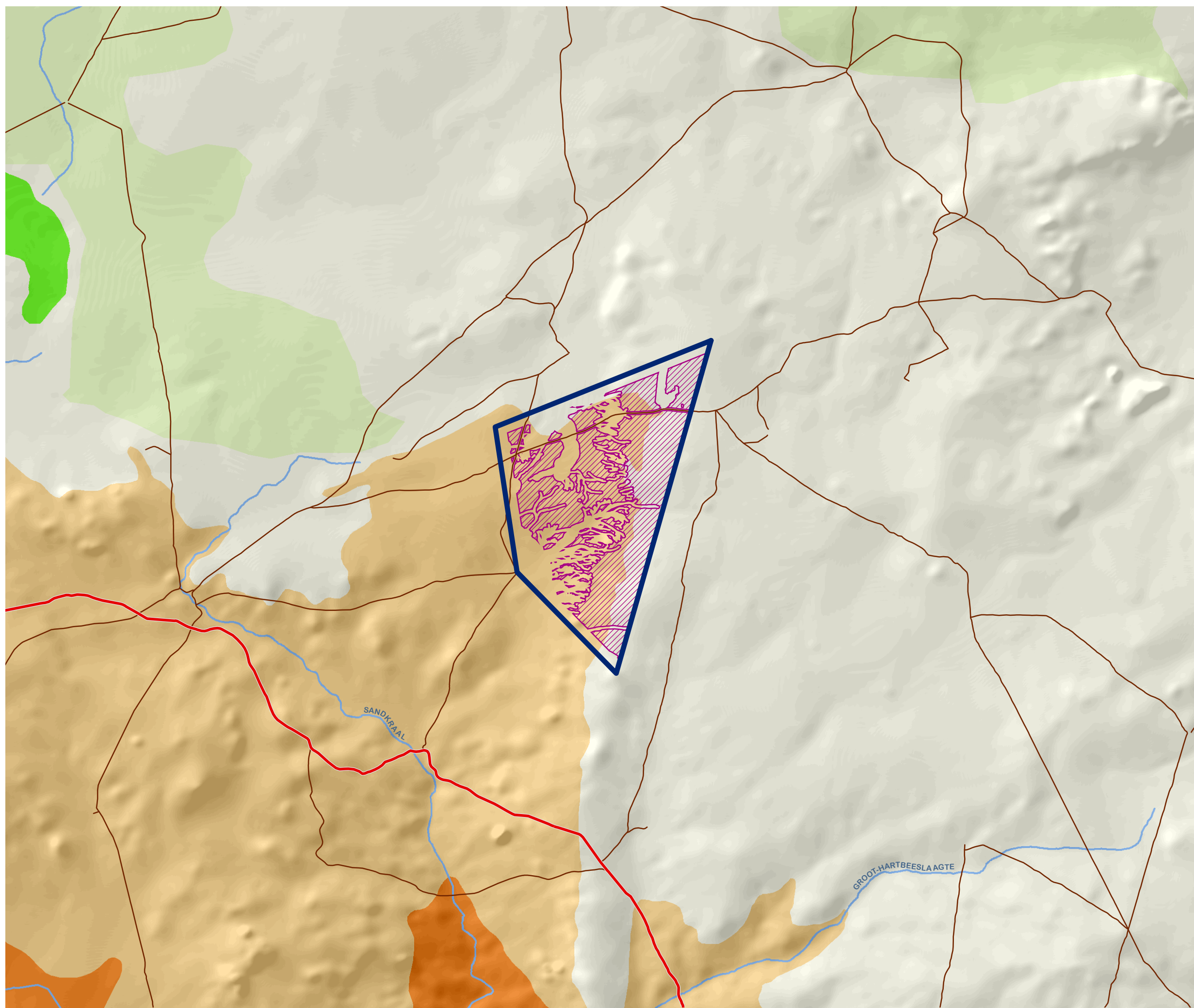
**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
VEGETATION CLASSIFICATION**

Legend

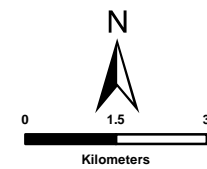
-  Secondary Roads
-  Local Access Roads
-  Main Watercourses
-  Xha! Boom Wind Farm Application Site
-  Buildable Area

Vegetation Classification

-  Bushmanland Arid Grassland
-  Bushmanland Basin Shrubland
-  Bushmanland Vloere
-  Western Bushmanland Klipveld
-  Namaqualand Blomveld



SOURCE:
NGI, 2014
SANBI, 2012



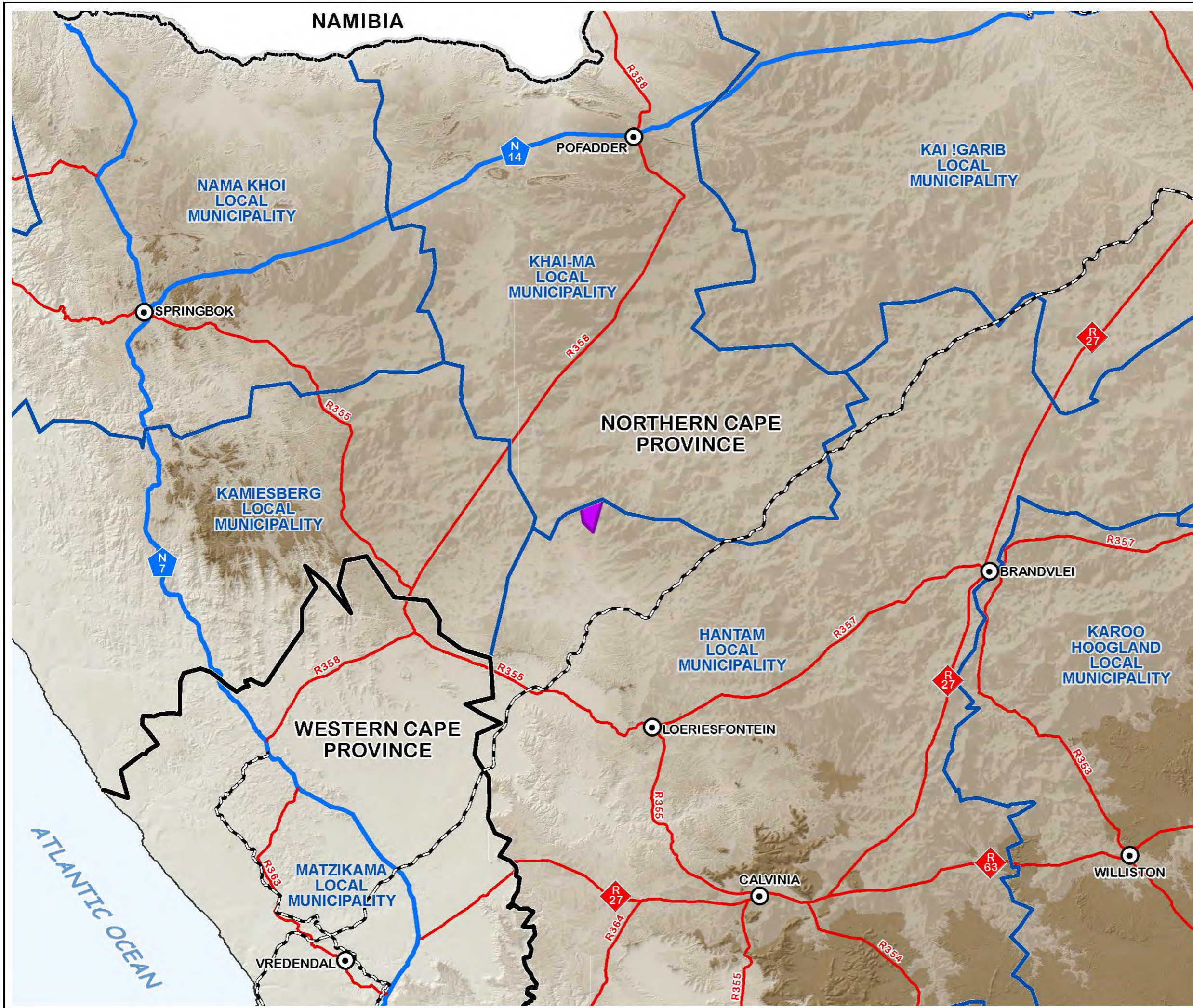
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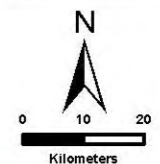


**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
REGIONAL CONTEXT**

Legend

-  National Boundary
-  Provincial Boundaries
-  Local Municipal Boundaries
-  National Routes
-  Main Arterial Routes
-  Railways
-  Main Towns
-  Xha! Boom Wind Farm Application Site

SOURCE: MUNICIPAL DEMARCATION BOARD, 2011
NGI, 2014



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**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
'NO-GO' AREAS**


Legend

-  Local Access Roads
-  Xha! Boom Wind Farm Application Site
-  Buildable Area
-  Preferred Xha! Boom Substation Site Alternative
-  Proposed Turbine Positions


Avifaunal 'No-Go' Areas

-  Turbines and Infrastructure

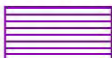
Bat 'No-Go' Areas

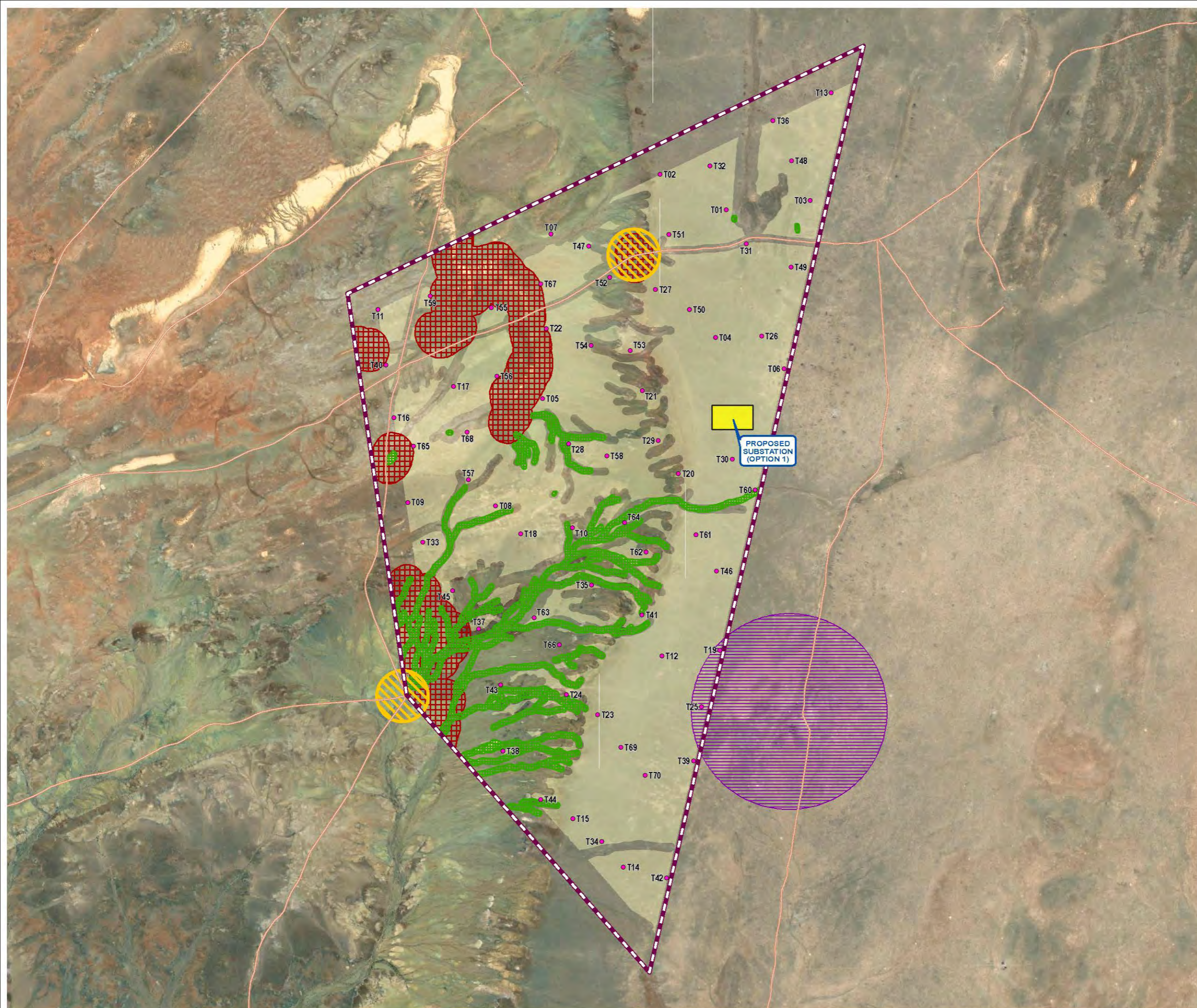
-  Turbines Only

Ecological 'No-Go' Areas

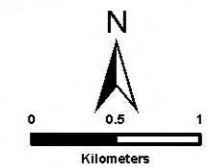
-  Turbines Only

Noise 'No-Go' Areas

-  Turbines Only



SOURCE:
GOOGLE EARTH, 2016
NGI, 2014



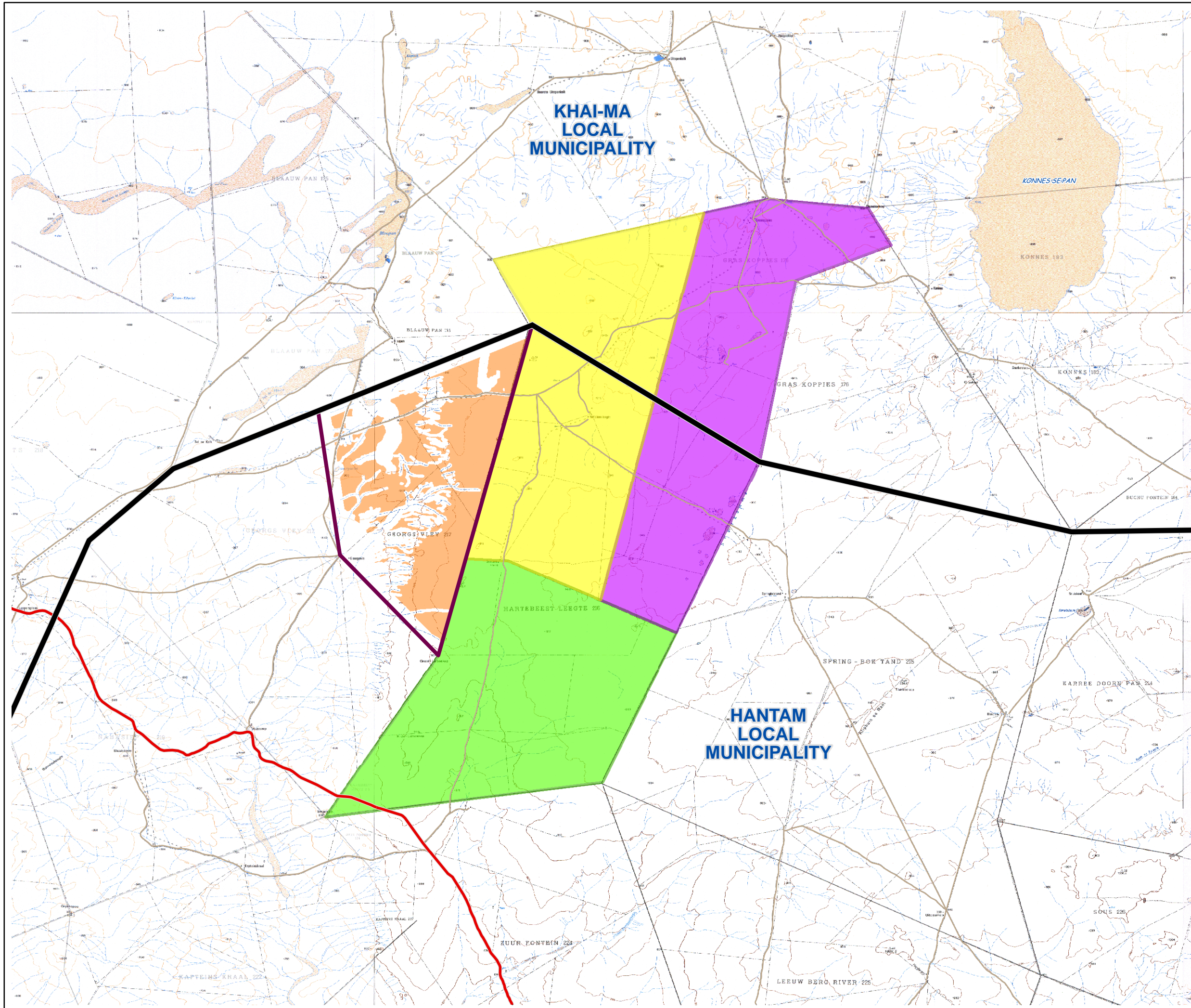
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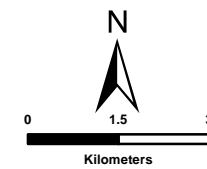
**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
ADJACENT MAINSTREAM
WIND FARM PROJECTS**



Legend

-  Local Municipal Boundaries
 -  Secondary Roads
 -  Local Access Roads
 -  Xha! Boom Wind Farm Application Site
 -  Buildable Area
- Adjacent Mainstream Wind Farm Projects**
-  Graskoppies Wind Farm Application Site
 -  Hartebeest Leegte Wind Farm Application Site
 -  Ithemba Wind Farm Application Site

SOURCE:
MUNICIPAL DEMARCATION BOARD, 2011
NGI, 2014



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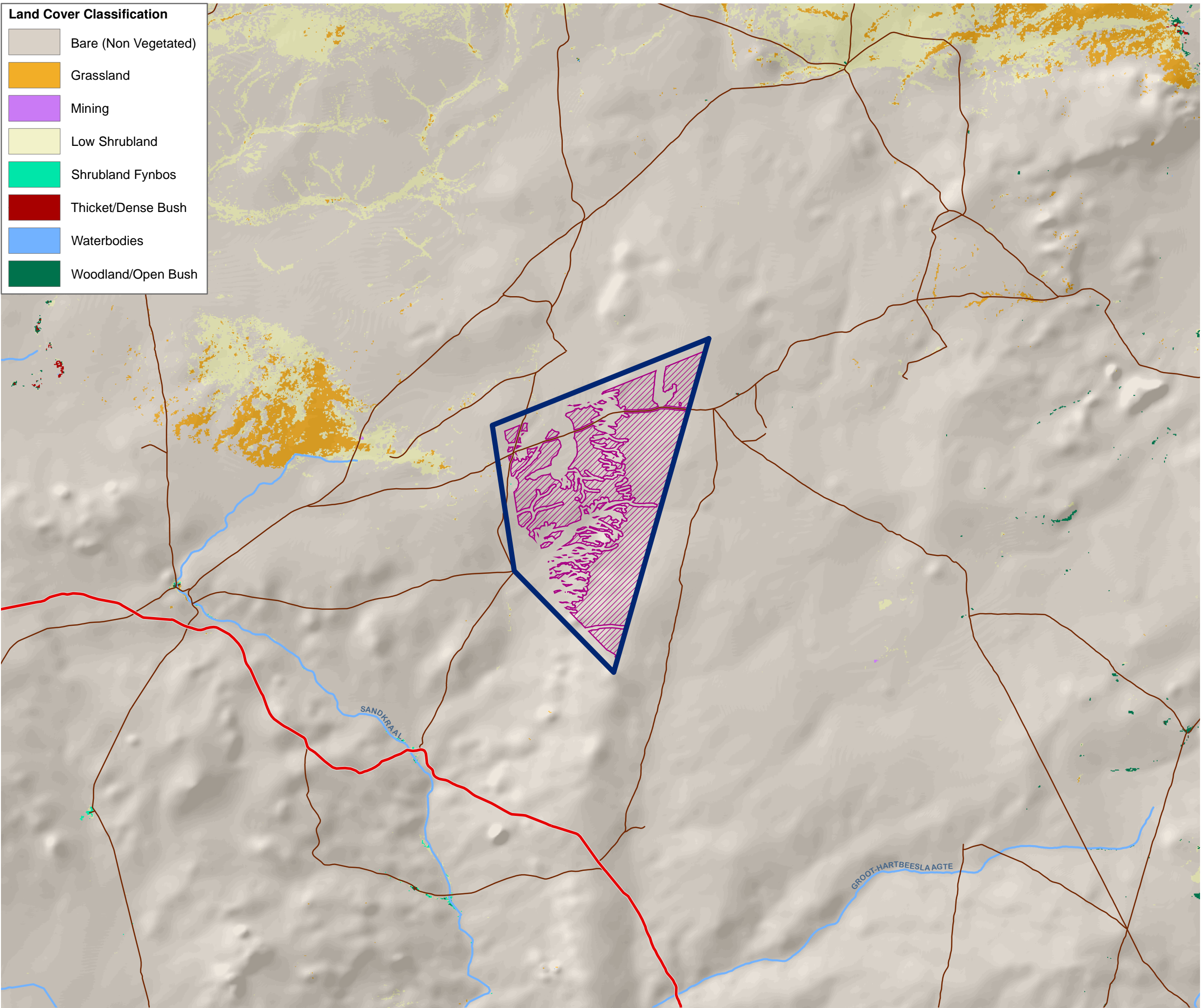
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Land Cover Classification

-  Bare (Non Vegetated)
-  Grassland
-  Mining
-  Low Shrubland
-  Shrubland Fynbos
-  Thicket/Dense Bush
-  Waterbodies
-  Woodland/Open Bush

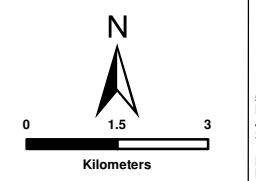


**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE**

**BROAD LAND COVER
CLASSIFICATION**

- Legend**
-  Secondary Roads
 -  Local Access Roads
 -  Main Watercourses
 -  Xha! Boom Wind Farm Application Site
 -  Buildable Area

SOURCE:
2013-2014 SA NATIONAL LAND COVER
(© GEOTERRAIMAGE - 2014)



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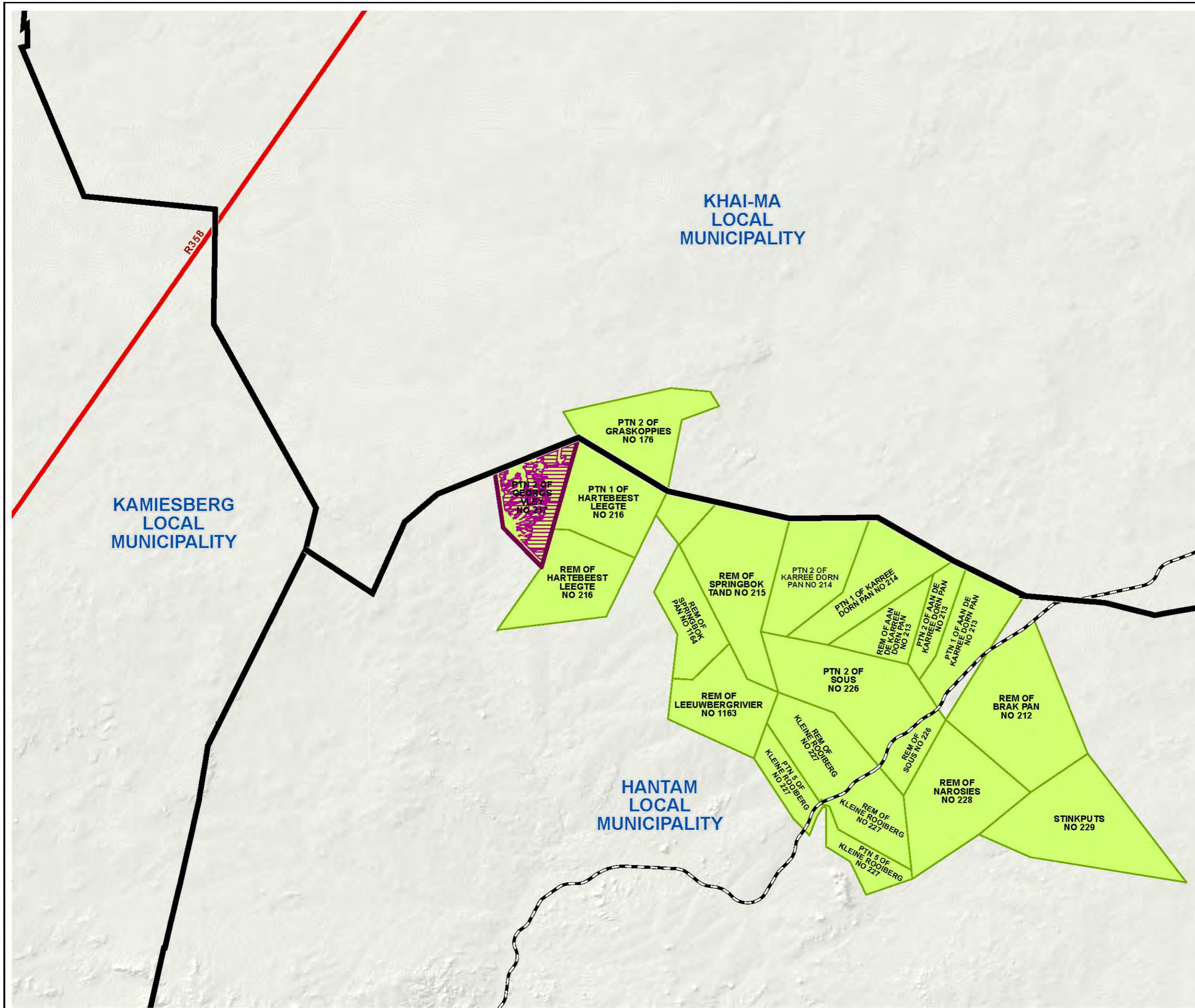
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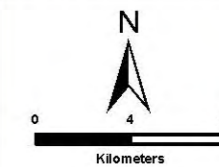
**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
OTHER PROPOSED RENEWABLE
ENERGY DEVELOPMENTS**

Legend

-  Local Municipal Boundaries
-  Main Arterial Routes
-  Railways
-  Xha! Boom Wind Farm Application Site
-  Buildable Area
-  Renewable Energy Application Sites



SOURCE: MUNICIPAL DEMARCATION BOARD, 2011
NGI, 2014



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Project No 13622	Prepared By KLS	Date 27/06/2017
Map Ref No 13622/EA_X08	Revision 0	Date

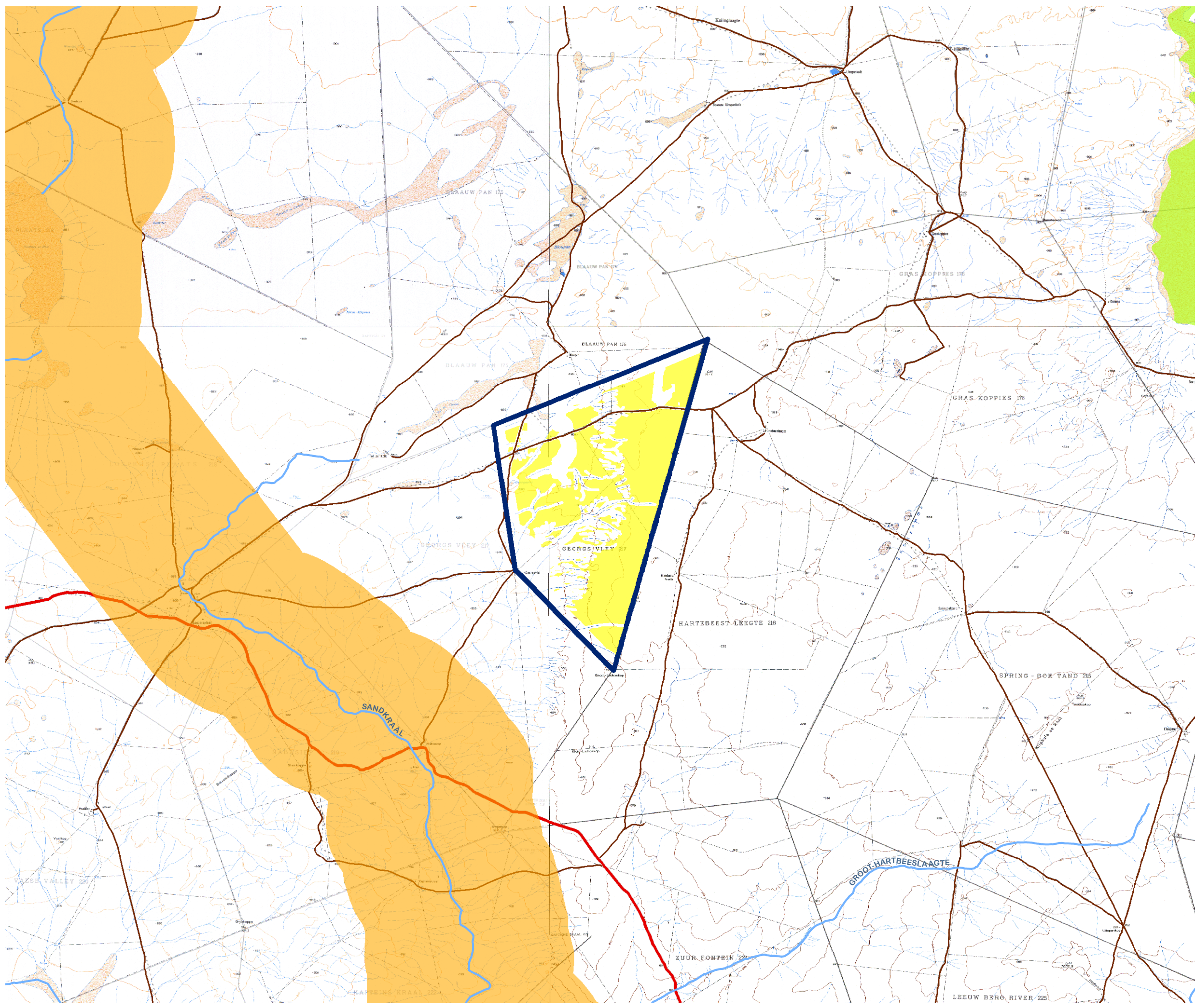
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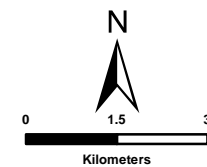
**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
CRITICAL BIODIVERSITY AREAS
(TERRESTRIAL)**

Legend

-  Secondary Roads
 -  Local Access Roads
 -  Main Watercourses
 -  Xha! Boom Wind Farm Application Site
 -  Buildable Area
- Critical Biodiversity Areas**
-  CBA2
 -  ESA



SOURCE:
NGI, 2014
SANBI, 2012
NAMAKWA DISTRICT BIODIVERSITY SECTOR PLAN, 2008



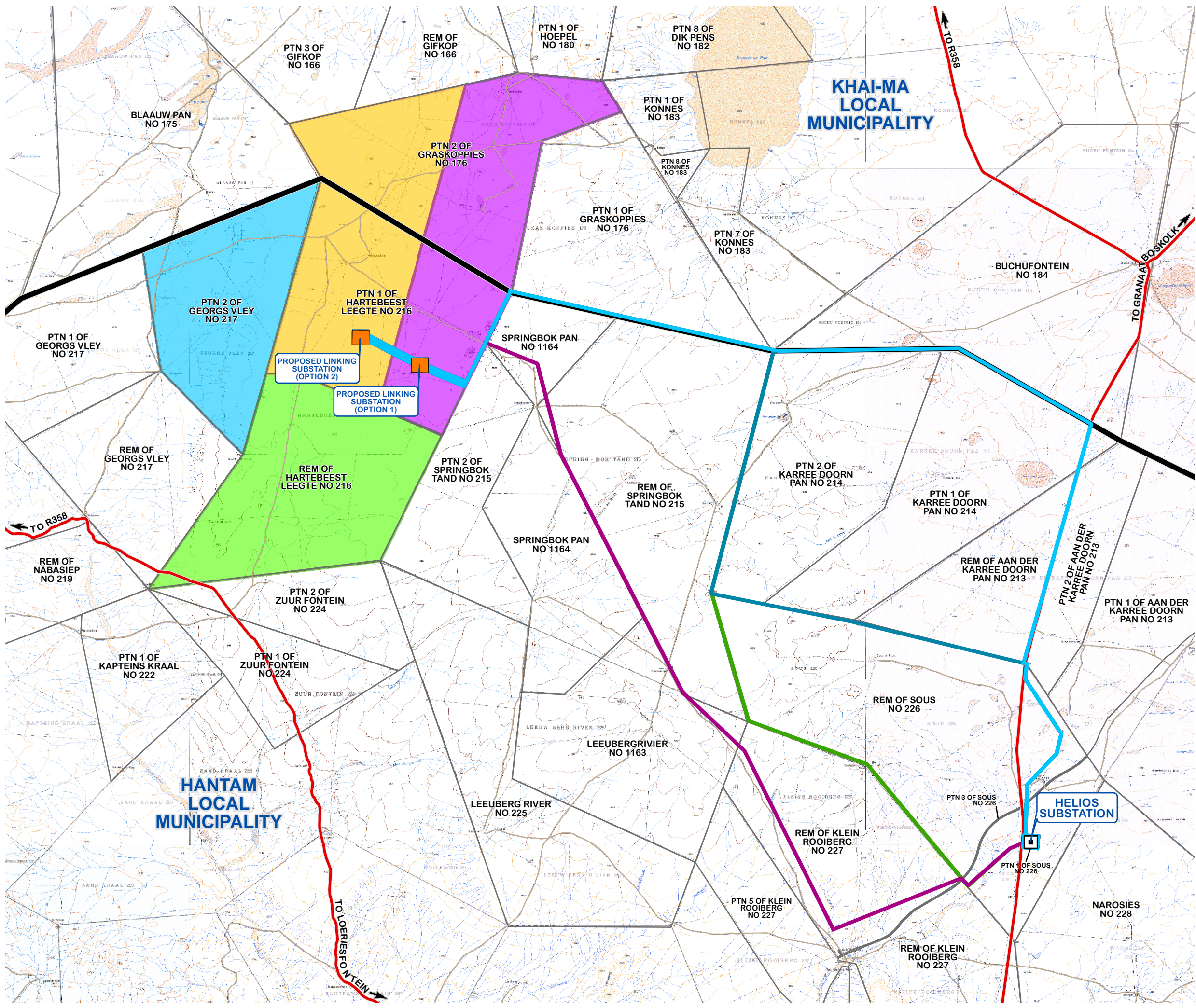
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Project No 13622	Prepared By KLS	Date 27/06/2017
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PROPOSED CONSTRUCTION OF FOUR WIND FARMS AND ASSOCIATED GRID CONNECTION
NEAR LOERIESFONTEIN, NORTHERN CAPE PROVINCE
PROJECT OVERVIEW



Legend

- Local Municipal Boundaries
- Secondary Roads
- Local Access Roads
- Adjoining Farm Boundaries
- Helios Substation
- Proposed Linking Substation Site Alternatives

Proposed Wind Farm Projects

- Graskoppies Wind Farm
- Hartebeestleegte Wind Farm
- Ithemba Wind Farm
- Xha! Boom Wind Farm

Proposed Corridor Alternatives

- Option 1
- Option 2
- Option 3
- Option 4

SOURCE: MUNICIPAL DEMARCATION BOARD, 2011
 NGI, 2014

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Avifaunal 'No-Go' Areas

 Turbines and Infrastructure


Bat 'No-Go' Areas

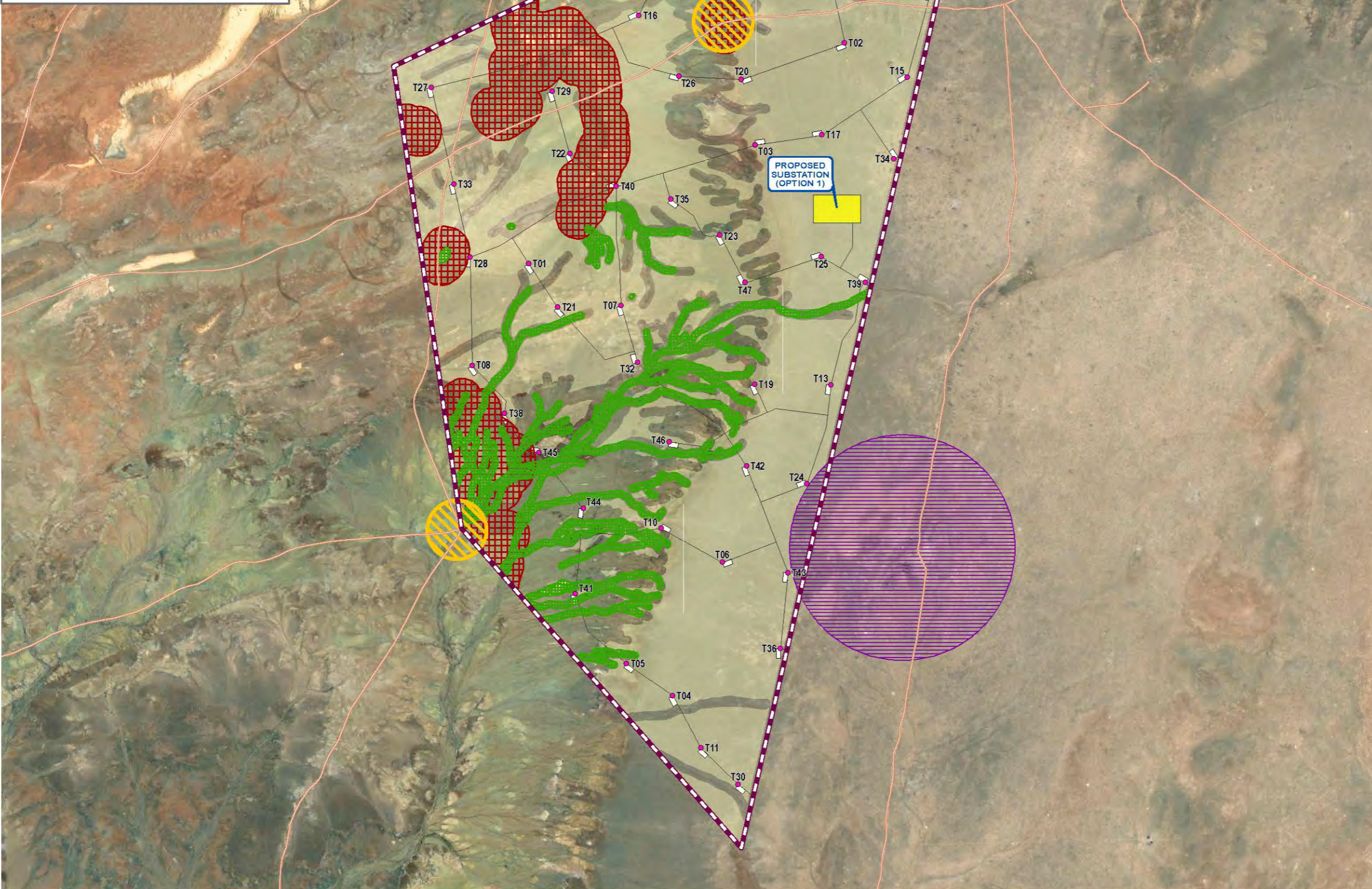
 Turbines Only

Ecological 'No-Go' Areas

 Turbines Only


Noise 'No-Go' Areas


 Turbines Only



PROPOSED CONSTRUCTION OF THE XHA! BOOM WIND FARM NEAR LOERIESFONTEIN, NORTHERN CAPE PROVINCE 'NO-GO' AREAS (PREFERRED LAYOUT)


Legend


 Local Access Roads


 Xha! Boom Wind Farm Application Site


Layout Components

 Buildable Area

 Preferred Xha! Boom Substation Site Alternative*

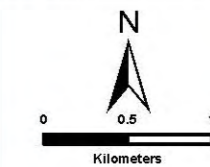
 Proposed Turbine Positions

 Proposed Hardstand Areas

 Proposed Internal Road Network

*500m x 300m Footprint to include:
Xha! Boom Substation
Operation & Maintenance Buildings
Construction Laydown Area

SOURCE:
GOOGLE EARTH, 2016
NGI, 2014












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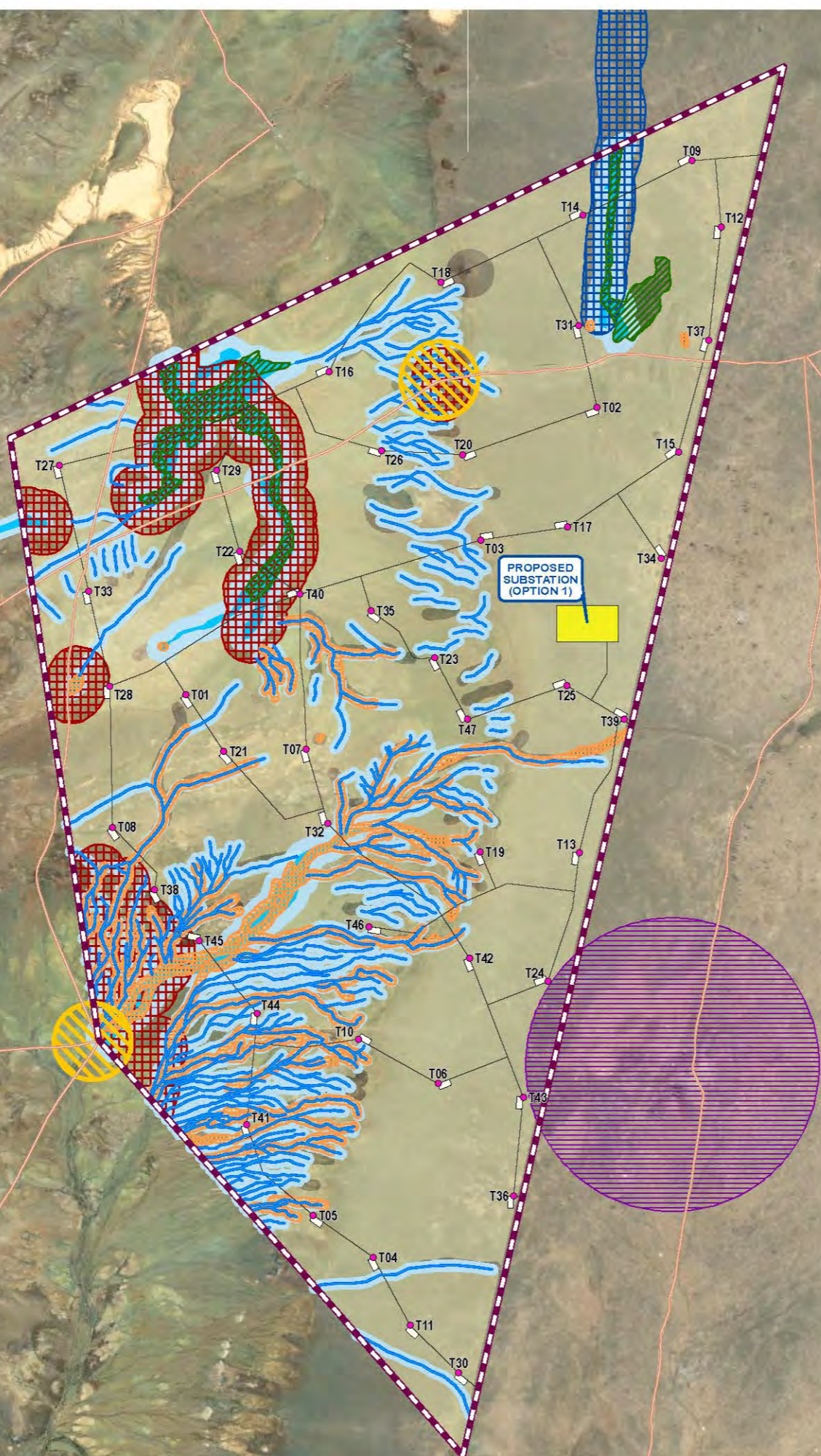
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Environmental Sensitivity

-  Avifaunal Sensitivity
-  Bat Sensitivity: High
-  Bat Sensitivity: Moderate
-  Ecological Sensitivity: High
-  Ecological Sensitivity: Medium-High
-  Noise Sensitivity
-  Wetlands
-  Water Courses
-  Surface Water Buffers



**PROPOSED
CONSTRUCTION OF THE
XHA! BOOM WIND FARM
NEAR LOERIESFONTEIN,
NORTHERN CAPE PROVINCE
SENSITIVITY OVERLAY
(PREFERRED LAYOUT)**

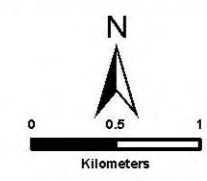
Legend

-  Local Access Roads
-  Xha! Boom Wind Farm Application Site
-  Buildable Area
-  Preferred Xha! Boom Substation Site Alternative*
-  Proposed Turbine Positions
-  Proposed Hardstand Areas
-  Proposed Internal Road Network

Layout Components

*500m x 300m Footprint to include:
Xha! Boom Substation
Operation & Maintenance Buildings
Construction Laydown Area

SOURCE:
GOOGLE EARTH, 2016
NGI, 2014



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