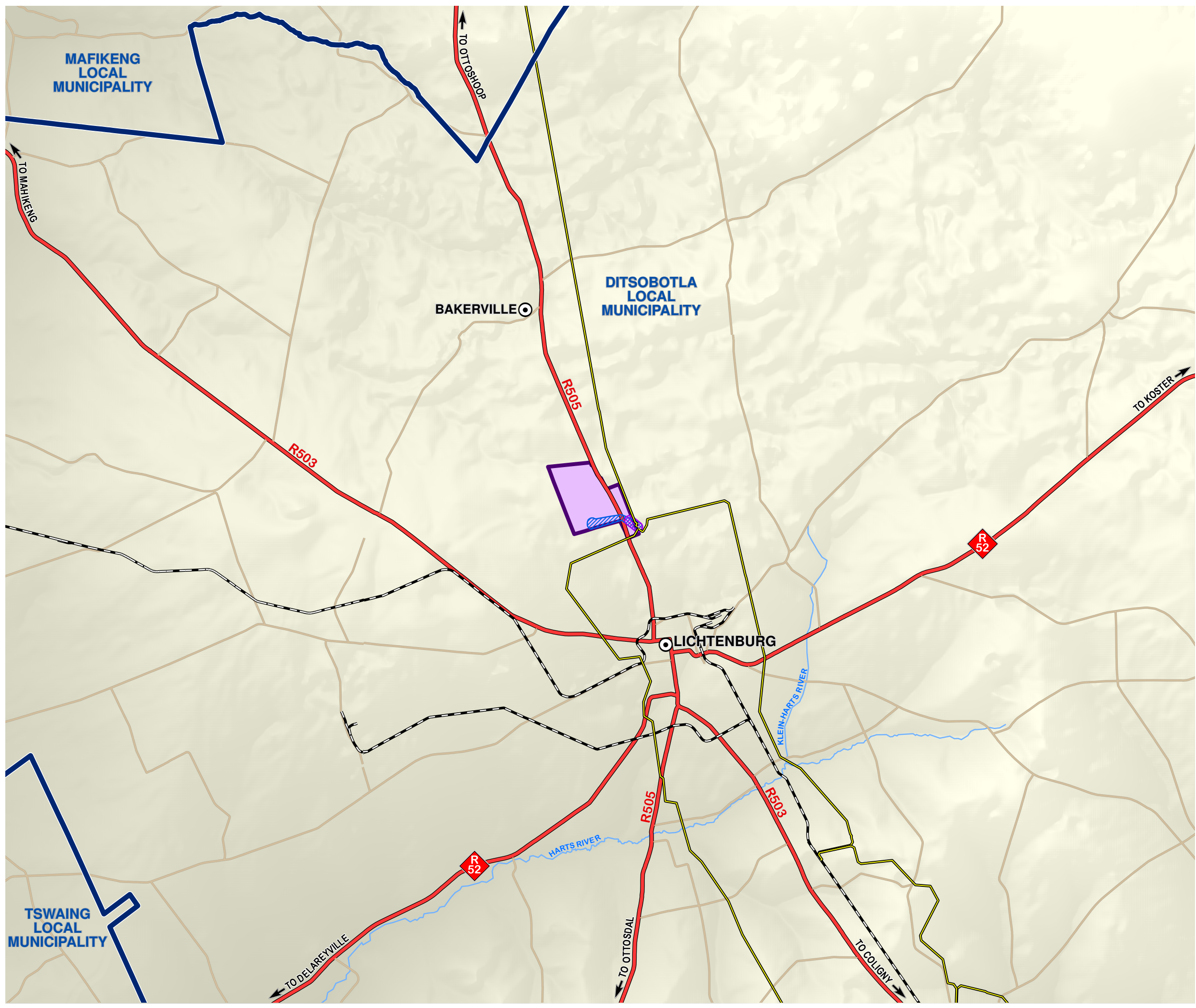




Appendix A

MAPS



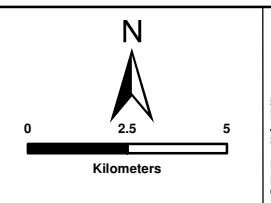
**PROPOSED
CONSTRUCTION OF
A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

**TLITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

REGIONAL CONTEXT

- Legend**
- Local Municipal Boundaries
 - Main Roads
 - Secondary Roads
 - Railway Line
 - Existing High Voltage Power Lines (<=132kV)
 - Main Rivers
 - Main Towns
 - Proposed Tlitseng Application Site
- Proposed Power Line Corridor Alternatives**
- Alternative 1
 - Alternative 2

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015



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**PROPOSED
CONSTRUCTION OF
A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

**TLITSSENSOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

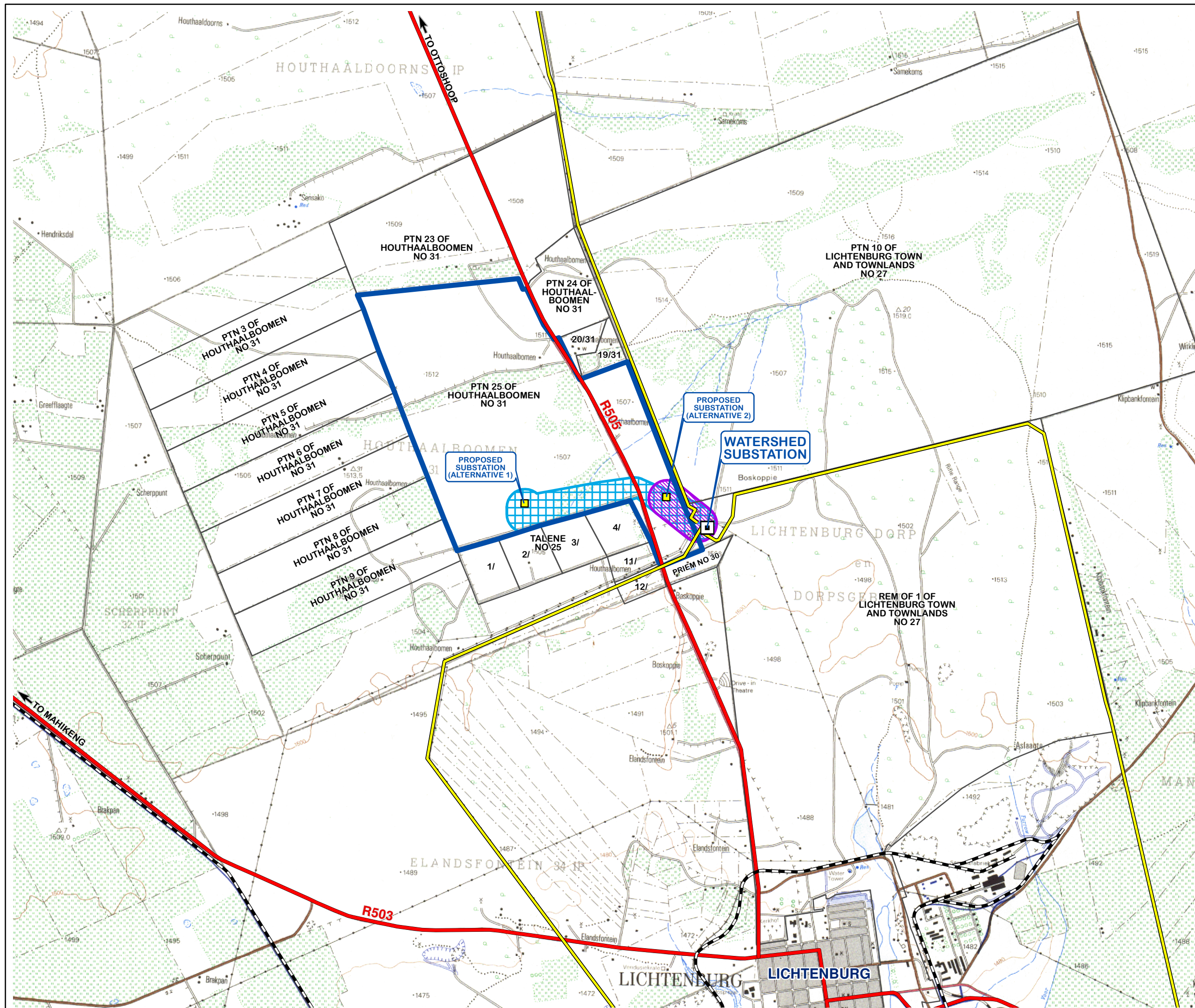
ROUTE OVERVIEW

Legend

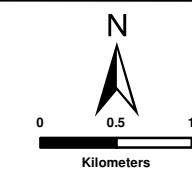
-  Main Roads
-  Railway Line
-  Existing High Voltage Power Lines (132kV)
-  Adjoining Farm Boundaries
-  Proposed Tlitsensol PV Application Site
-  Existing Substation
-  Proposed Substation Alternatives

**Proposed Power Line
Corridor Alternatives**

-  Alternative 1
-  Alternative 2



SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015



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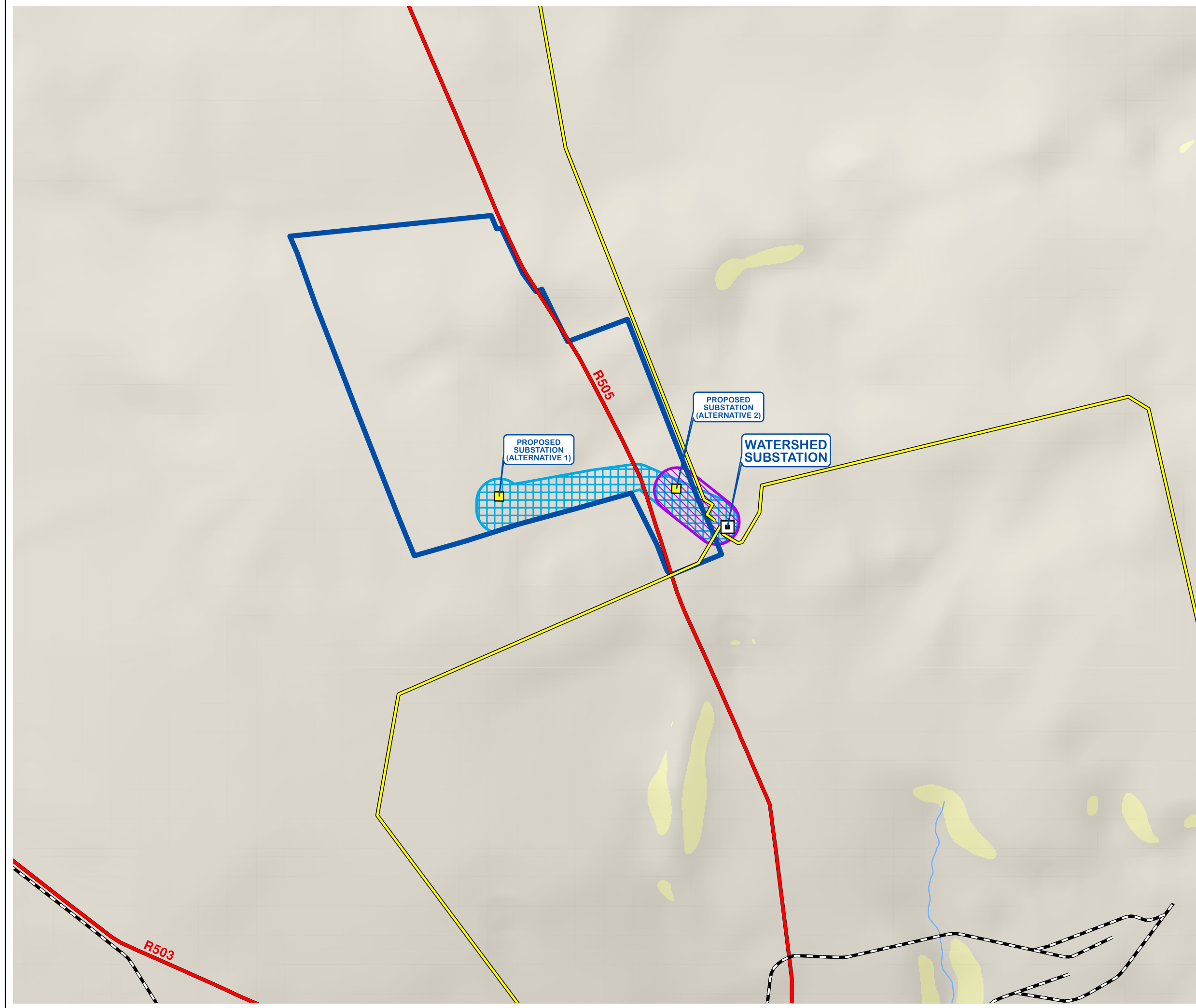
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**PROPOSED
CONSTRUCTION OF
A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

SLOPE CLASSIFICATION



Legend

- Main Roads
 - Railway Line
 - Existing High Voltage Power Lines (132kV)
 - Main Rivers
 - Proposed Tlisitseng PV Application Site
 - Existing Substation
 - Proposed Substation Alternatives
- Proposed Power Line Corridor Alternatives**
- Alternative 1
 - Alternative 2
- Slope Classification**
- Flatter than 1:50
 - 1:50 - 1:20

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015

 0 0.5 1 Kilometers	 SiVEST ENVIRONMENTAL DIVISION 51 WESSELS ROAD RIVONIA, 2128 JOHANNESBURG SOUTH AFRICA Phone: +27 11 798 0600 Fax: +27 11 803 7272 e-mail: info@sivest.co.za
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**PROPOSED
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A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**


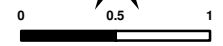

**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

TOPOGRAPHY

Legend

-  Main Roads
 -  Railway Line
 -  Existing High Voltage Power Lines (132kV)
 -  Main Rivers
 -  Contours (20m Interval)
 -  Contours (5m Interval)
 -  Proposed Tlisitseng PV Application Site
 -  Existing Substation
 -  Proposed Substation Alternatives
- Proposed Power Line Corridor Alternatives**
-  Alternative 1
 -  Alternative 2
- Elevation (msl)**
-  High : >1,515
 -  Low : >1,470

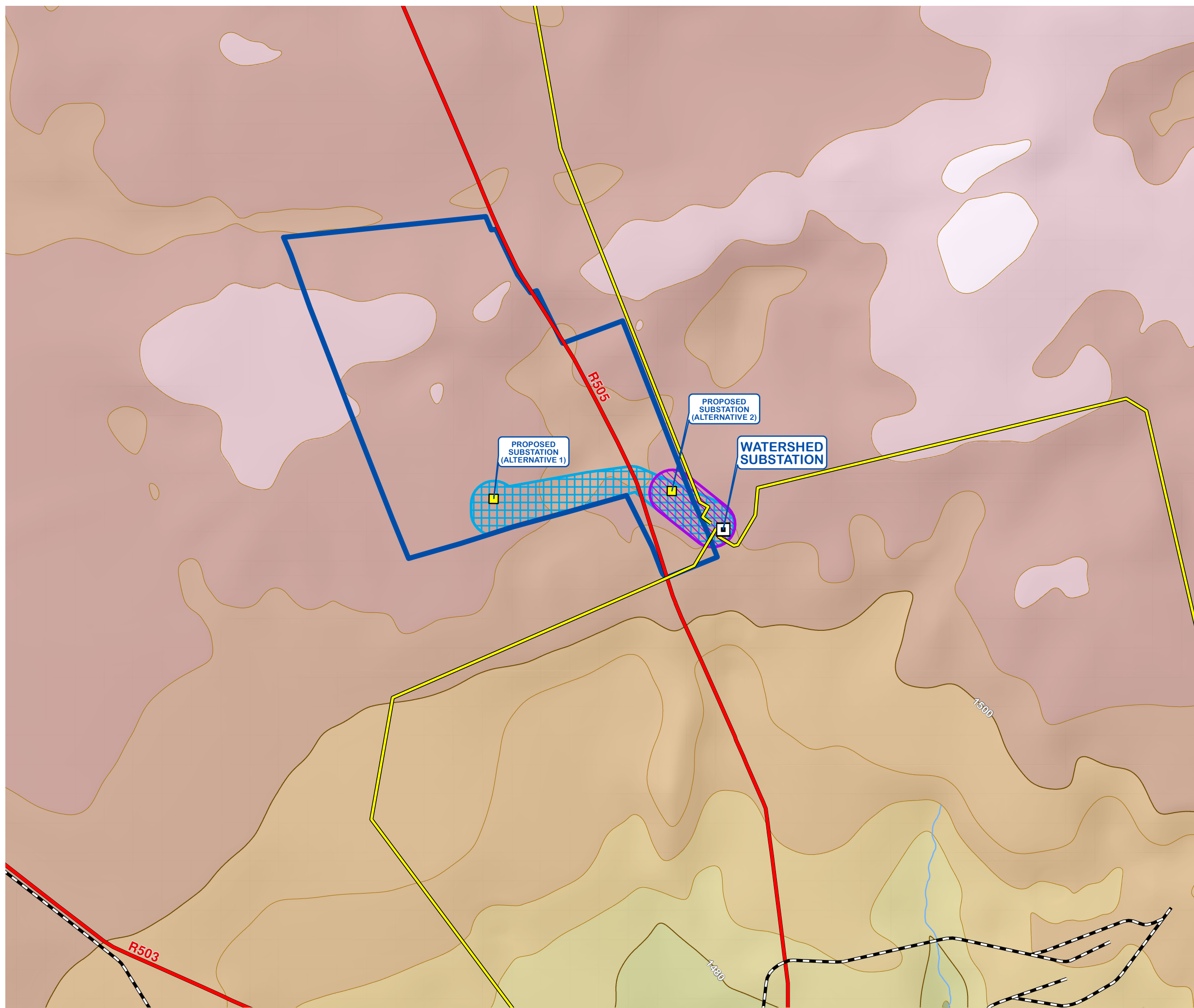
SOURCE:
ESKOM, 2012
BIOTERM ENERGY, 2015
NGI, 2015

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**PROPOSED
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A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

VEGETATION CLASSIFICATION





Legend

-  Main Roads
-  Railway Line
-  Existing High Voltage Power Lines (132kV)
-  Main Rivers
-  Proposed Trisitseng PV Application Site
-  Existing Substation
-  Proposed Substation Alternatives


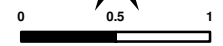

**Proposed Power Line
Corridor Alternatives**

-  Alternative 1
-  Alternative 2

Vegetation Classification

-  Gh 14 Western Highveld Sandy Grassland
-  Gh 15 Carletonville Dolomite Grassland

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
SANBI, 2009

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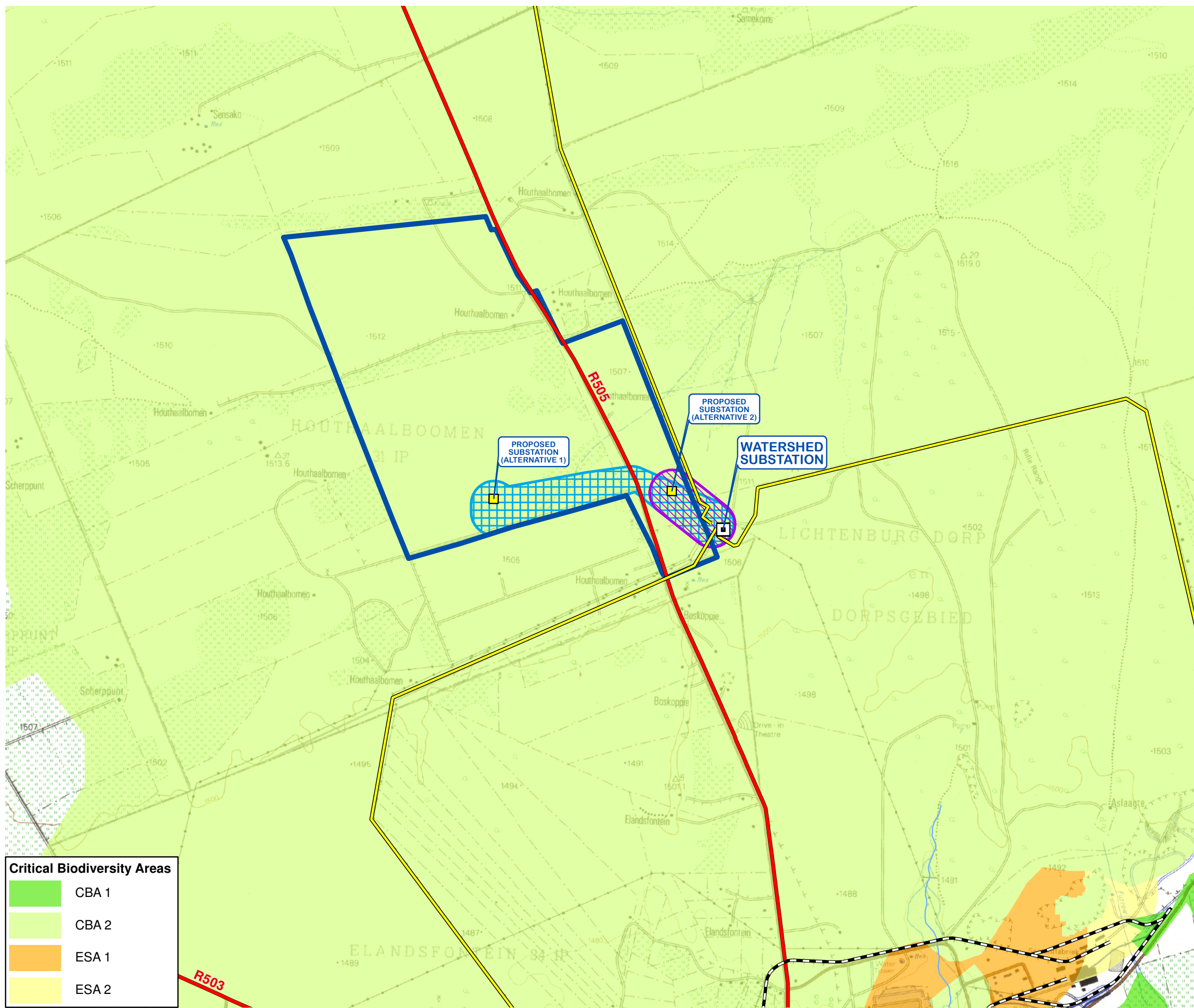
**PROPOSED
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A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**





**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

CRITICAL BIODIVERSITY AREAS

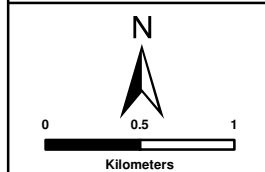
Legend

-  Main Roads
 -  Railway Line
 -  Existing High Voltage Power Lines (132kV)
 -  Main Rivers
 -  Proposed Tlisitseng PV Application Site
 -  Existing Substation
 -  Proposed Substation Alternatives
- Proposed Power Line Corridor Alternatives**
-  Alternative 1
 -  Alternative 2



- Critical Biodiversity Areas**
-  CBA 1
 -  CBA 2
 -  ESA 1
 -  ESA 2

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NORTH WEST PROVINCE BIODIVERSITY
CONSERVATION ASSESSMENT, 2009



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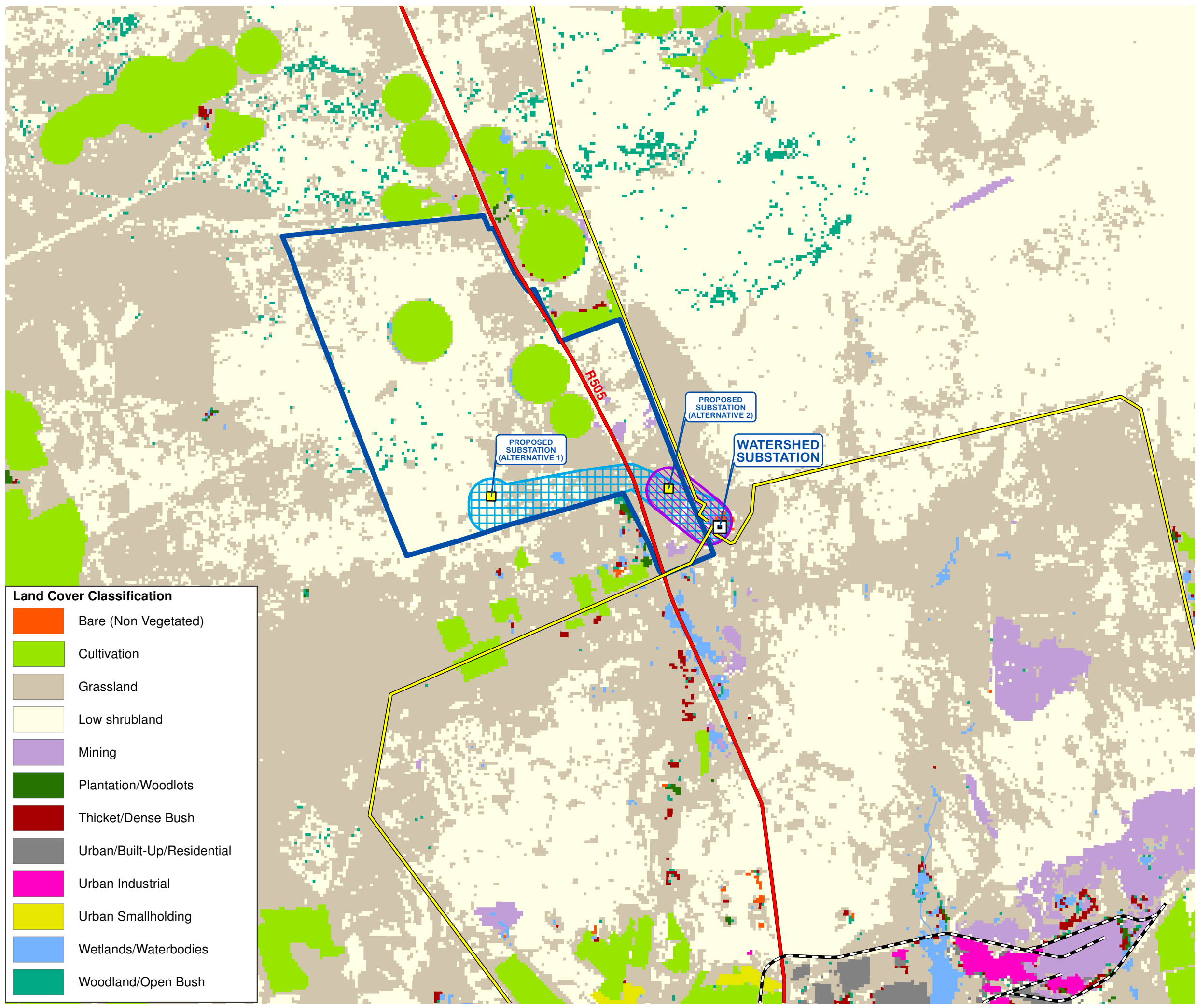
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**PROPOSED
CONSTRUCTION OF
A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

**BROAD LAND COVER
CLASSIFICATION**




Legend

-  Main Roads
 -  Railway Line
 -  Existing High Voltage Power Lines (132kV)
 -  Main Rivers
 -  Proposed Tlisitseng PV Application Site
 -  Existing Substation
 -  Proposed Substation Alternatives
- Proposed Power Line Corridor Alternatives**
-  Alternative 1
 -  Alternative 2

Land Cover Classification

	Bare (Non Vegetated)
	Cultivation
	Grassland
	Low shrubland
	Mining
	Plantation/Woodlots
	Thicket/Dense Bush
	Urban/Built-Up/Residential
	Urban Industrial
	Urban Smallholding
	Wetlands/Waterbodies
	Woodland/Open Bush

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
2013-2014 SA NATIONAL LAND COVER
(© GEOTERRAIMAGE - 2014)


0 0.5 1
Kilometers

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**PROPOSED
CONSTRUCTION OF
A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**


**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

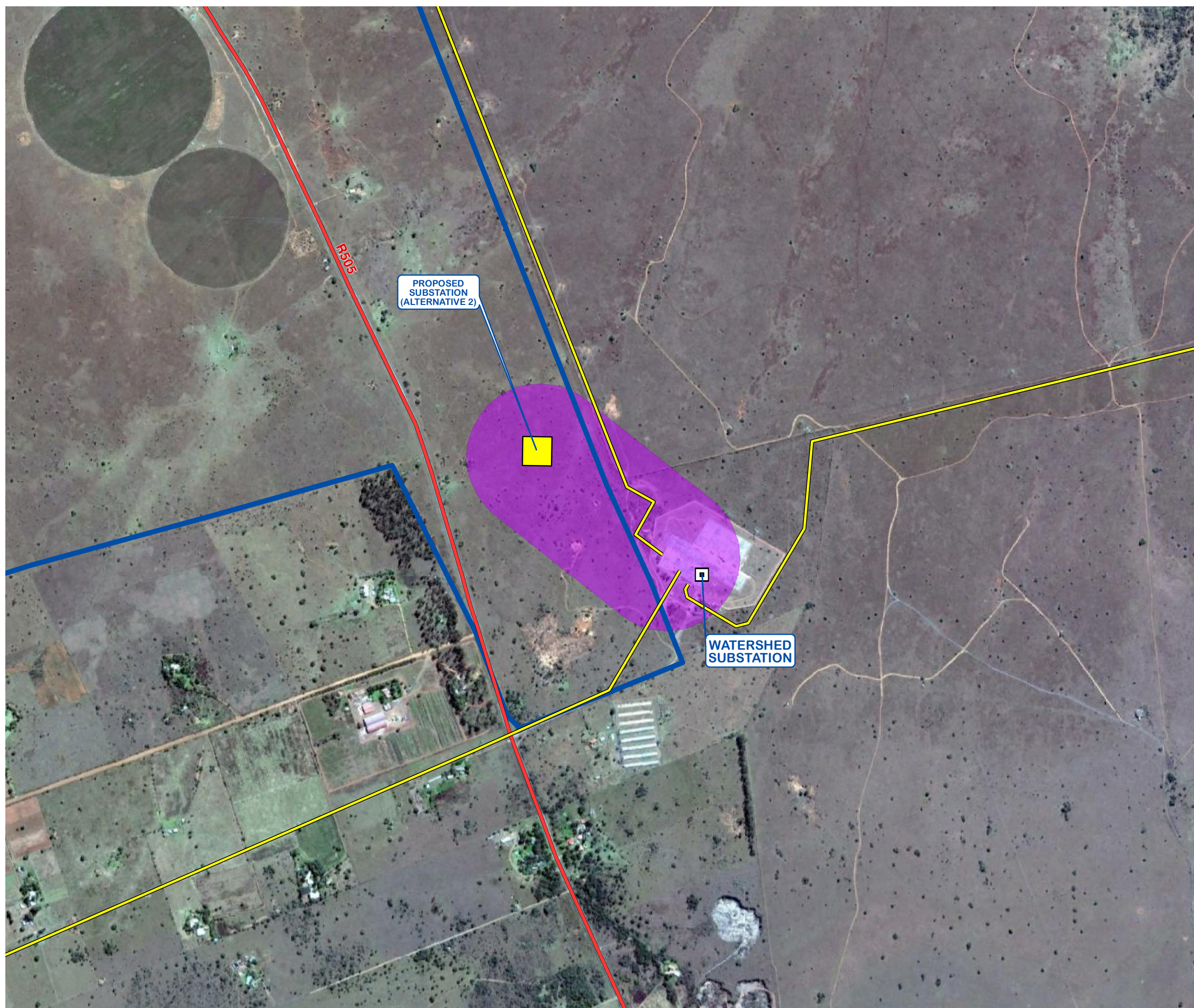
PREFERRED ALTERNATIVES

Legend

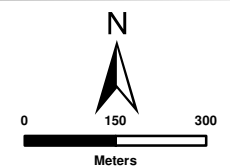
-  Main Roads
-  Existing High Voltage Power Lines (132kV)
-  Proposed Tlisitseng Solar Application Site
-  Existing Substation
-  Preferred Substation Site

Preferred Corridor Alternative

-  Alternative 2



SOURCE:
ESKOM, 2012
GOOGLE EARTH, 2016
BIOTHERM ENERGY, 2015
NGI, 2015



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Map Ref No 13303TPL/BA2_08	Revision 0	Date _____
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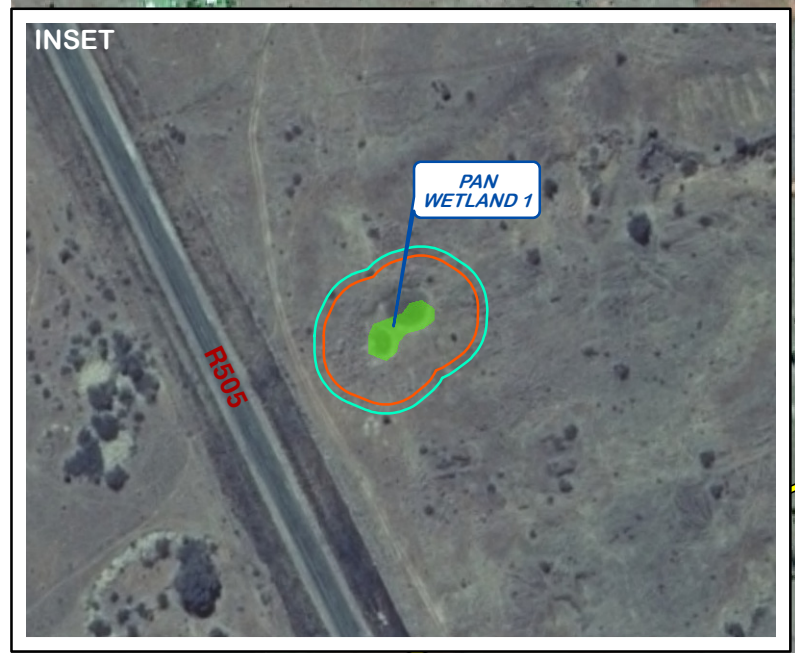
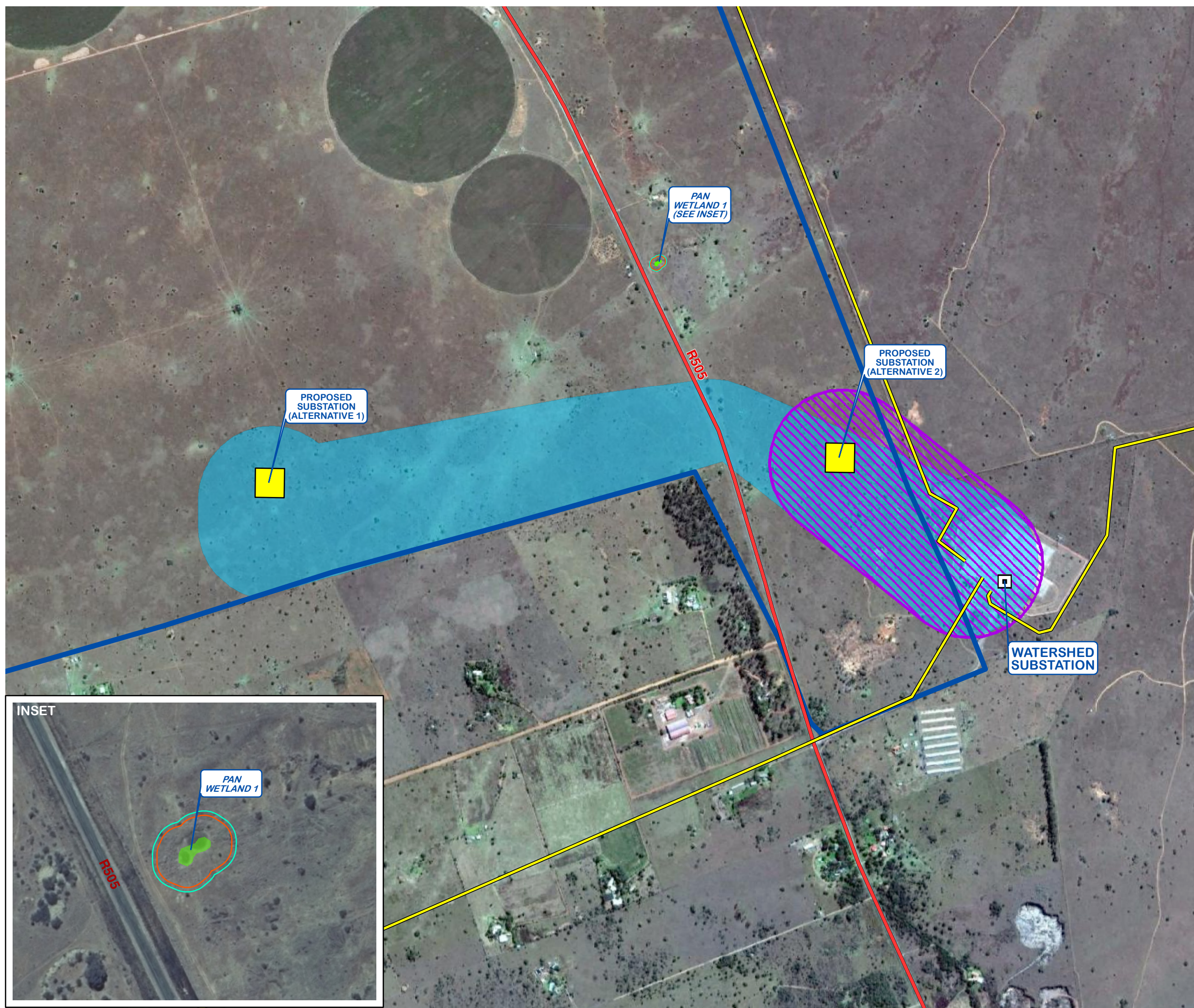
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**PROPOSED
CONSTRUCTION OF
A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**



**SURFACE WATER ASSESSMENT:
SURFACE WATER DELINEATION**



Legend

-  Main Roads
-  Existing High Voltage Power Lines (132kV)
-  Proposed Tlisitseng Solar Application Site
-  Existing Substation
-  Proposed Substation Alternatives
- Proposed Power Line Corridor Alternatives**
-  Alternative 1
-  Alternative 2
- Surface Water Features**
-  Wetlands
-  15m Construction Phase Buffer
-  18m Operation Phase Buffer

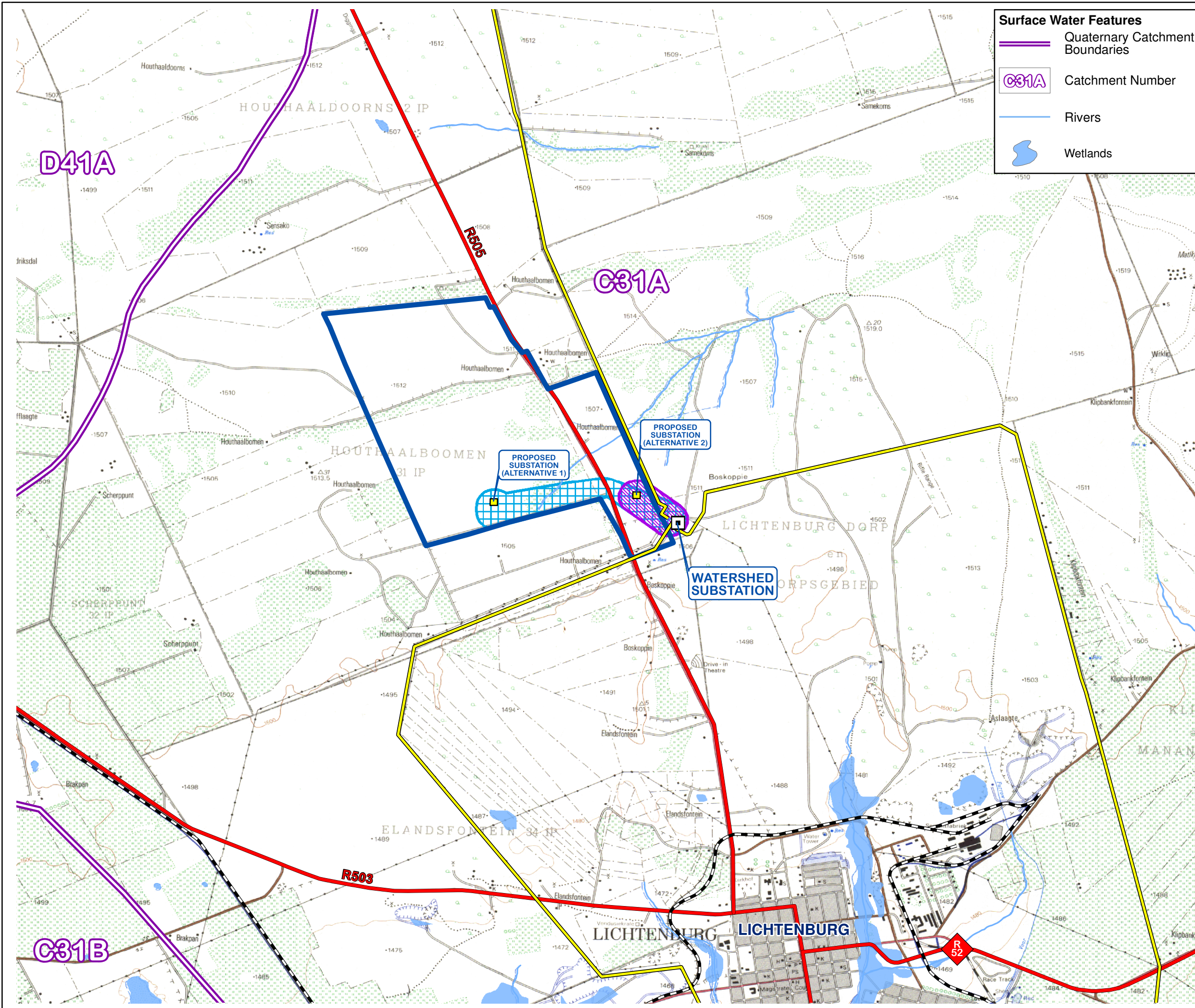
SOURCE:
ESKOM, 2012
GOOGLE EARTH, 2016
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Surface Water Features

- Quaternary Catchment Boundaries
- Catchment Number
- Rivers
- Wetlands

PROPOSED CONSTRUCTION OF A 132kV POWERLINE AND SUBSTATION TO SERVE PROPOSED PHOTOVOLTAIC (PV) ENERGY FACILITIES

TLISITSENG SOLAR 2 NEAR LICHTENBURG NORTH WEST PROVINCE

SURFACE WATER ASSESSMENT: DATABASE SURFACE WATER RESOURCES

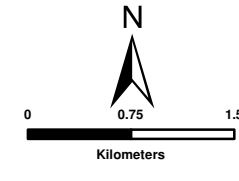
Legend

- Main Roads
- Railway Line
- Existing High Voltage Power Lines (132kV)
- Proposed Tlisitseng PV Application Site
- Existing Substation
- Proposed Substation Alternatives

Proposed Power Line Corridor Alternatives

- Alternative 1
- Alternative 2

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NFEPA, 2011
NGI, 2015



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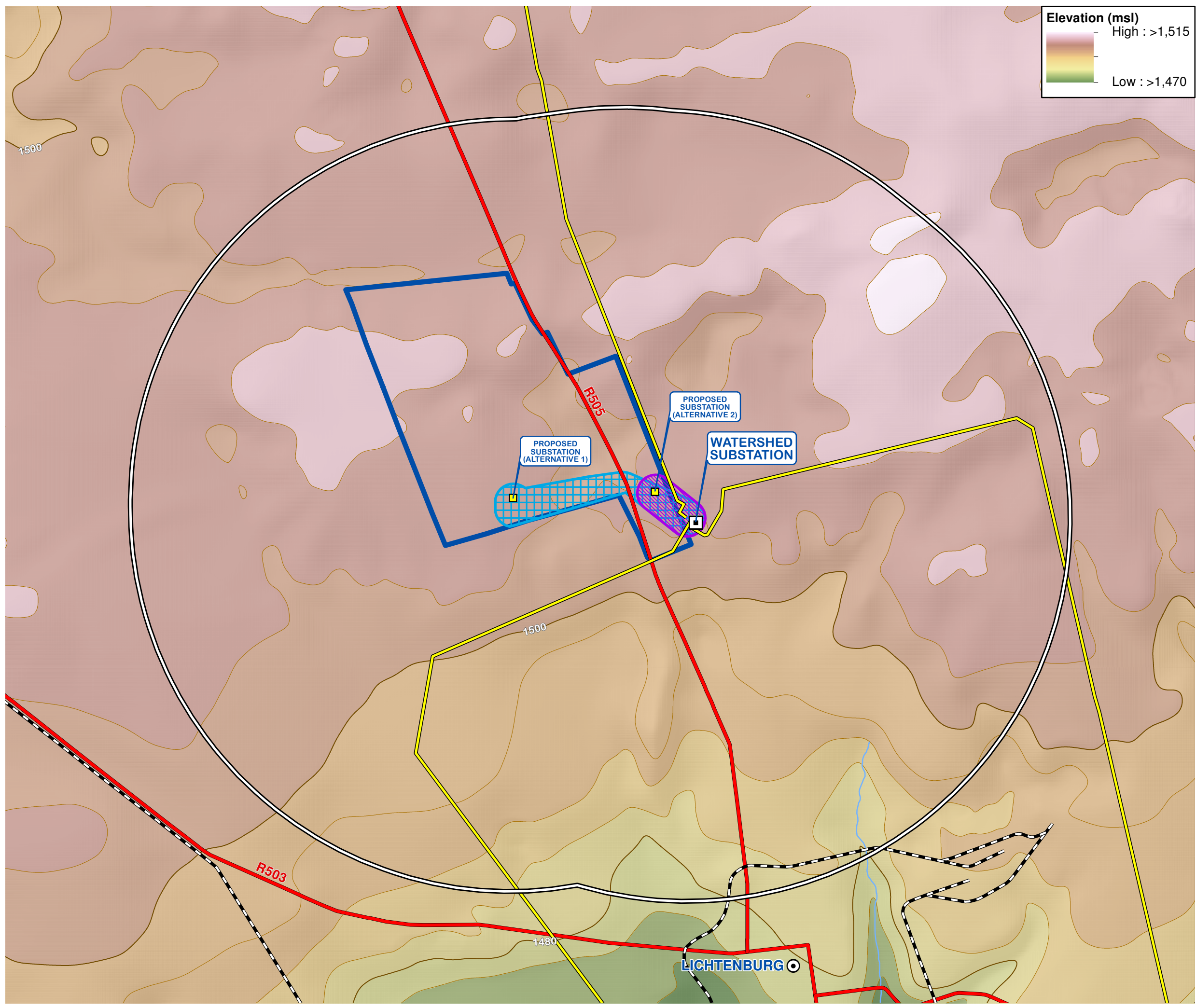
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**PROPOSED
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A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

**VISUAL ASSESSMENT:
TOPOGRAPHY**

- Legend**
- Main Roads
 - Railway Line
 - Existing High Voltage Power Lines (132kV)
 - Main Rivers
 - Contours (20m Interval)
 - Contours (5m Interval)
 - Proposed Tlisitseng PV Application Site
 - 5km Visual Assessment Zone
 - Main Towns
 - Existing Substation
 - Proposed Substation Alternatives
- Proposed Power Line Corridor Alternatives**
- Alternative 1
 - Alternative 2

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015

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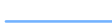

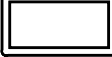



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**PROPOSED
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A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

**VISUAL ASSESSMENT:
VEGETATION CLASSIFICATION**



Legend

-  Main Roads
-  Railway Line
-  Existing High Voltage Power Lines (132kV)
-  Main Rivers
-  Proposed Tlisitseng PV Application Site
-  5km Visual Assessment Zone
-  Main Towns
-  Existing Substation
-  Proposed Substation Alternatives

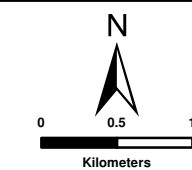
**Proposed Power Line
Corridor Alternatives**

-  Alternative 1
-  Alternative 2

Vegetation Classification

-  Gh 14 Western Highveld Sandy Grassland
-  Gh 15 Carletonville Dolomite Grassland

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
SANBI, 2009



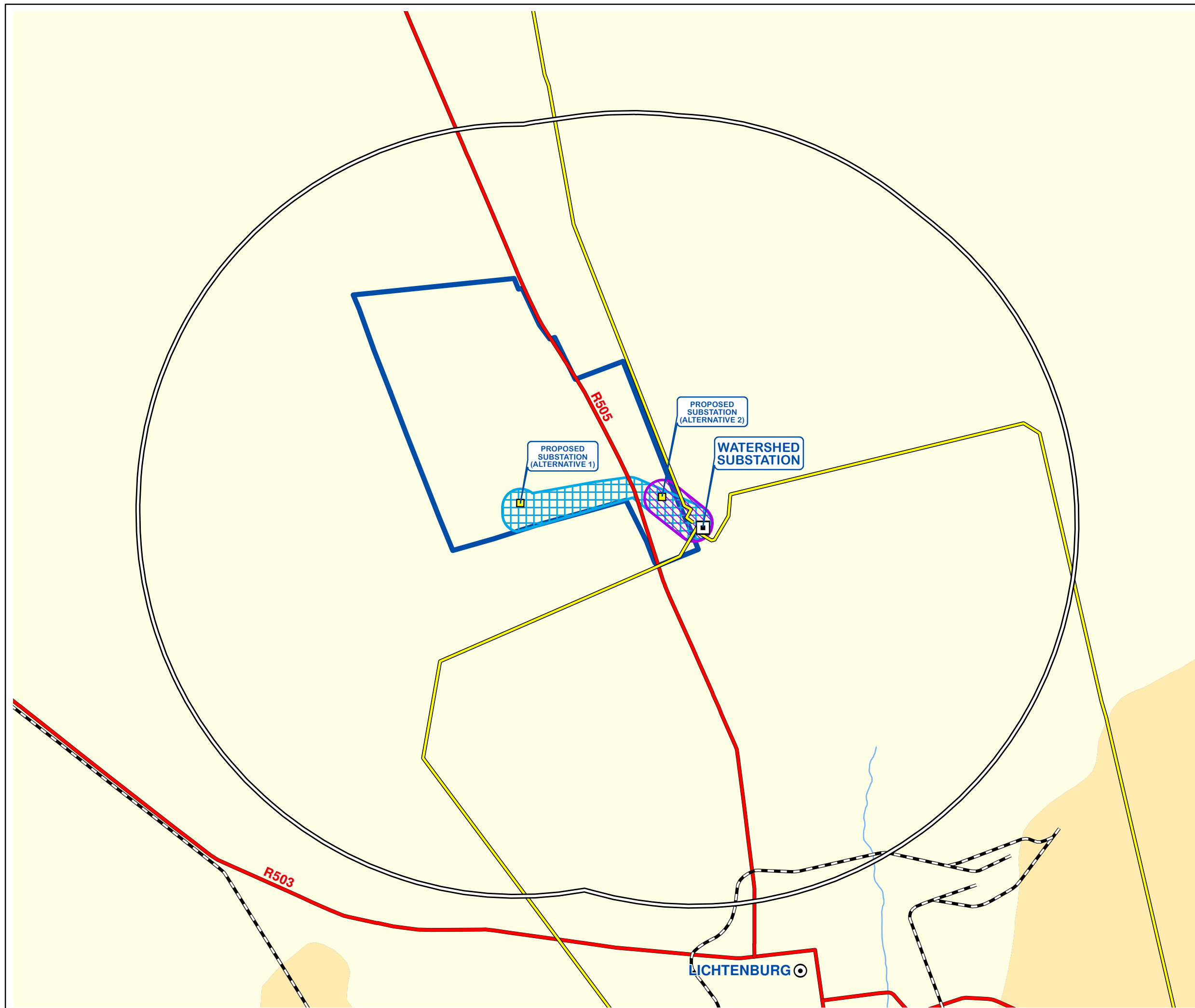
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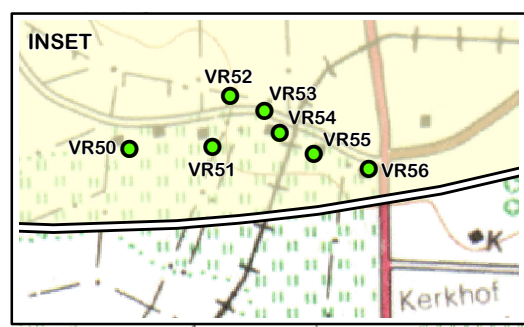
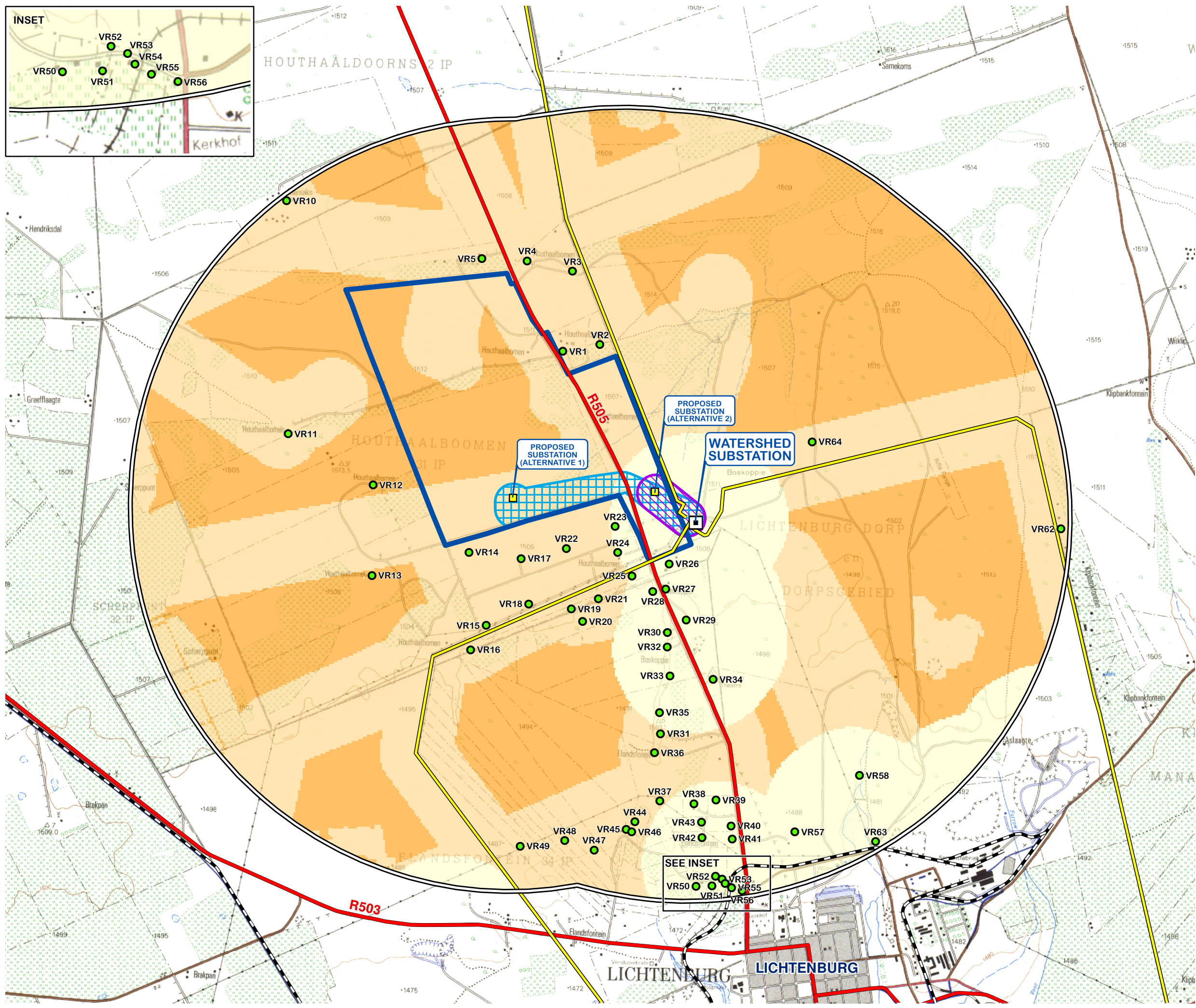
Project No 13303	Prepared By KLS	Date 15/03/2016
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Map Ref No 13303TPL/BA2_V04	Revision 1	Date 27/06/2016
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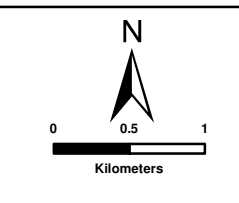




PROPOSED CONSTRUCTION OF A 132kV POWER LINE TO SERVE PROPOSED PHOTOVOLTAIC (PV) ENERGY FACILITIES
TLITSENG SOLAR 2 NEAR LICHTENBURG NORTH WEST PROVINCE
VISUAL ASSESSMENT: ZONES OF VISUAL CONTRAST

- Legend**
- Main Roads
 - Railway Line
 - Existing High Voltage Power Lines (132kV)
 - Proposed Tlitseng PV Application Site
 - 5km Visual Assessment Zone
 - Existing Substation
 - Proposed Substation Alternatives
 - Potentially Sensitive Receptor Locations
- Proposed Power Line Corridor Alternatives**
- Alternative 1
 - Alternative 2
- Zones of Visual Contrast**
- High
 - Moderate
 - Low

SOURCE:
 ESKOM, 2012
 BIOTHERM ENERGY, 2015
 NGI, 2015

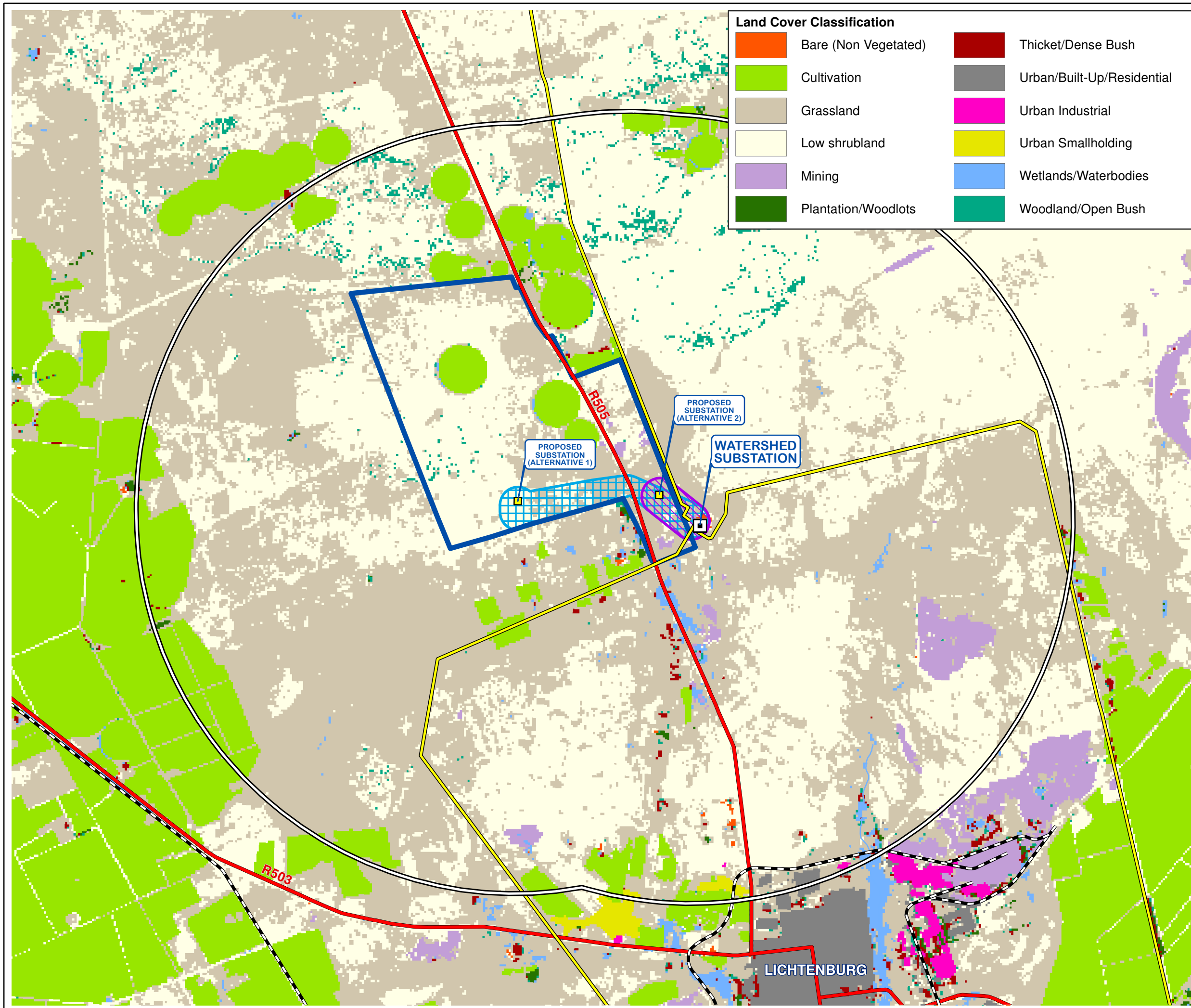


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Project No 13303	Prepared By KLS	Date 08/03/2016
Map Ref No 13303TPL/BA2_V06	Revision 1	Date 27/07/2016

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Land Cover Classification	
	Bare (Non Vegetated)
	Cultivation
	Grassland
	Low shrubland
	Mining
	Plantation/Woodlots
	Thicket/Dense Bush
	Urban/Built-Up/Residential
	Urban Industrial
	Urban Smallholding
	Wetlands/Waterbodies
	Woodland/Open Bush

**PROPOSED
CONSTRUCTION OF
A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

**VISUAL ASSESSMENT:
BROAD LAND COVER
CLASSIFICATION**

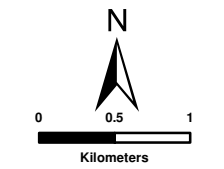
Legend

- Main Roads
- Railway Line
- Existing High Voltage Power Lines (132kV)
- Main Rivers
- Proposed Tlisitseng PV Application Site
- 5km Visual Assessment Zone
- Existing Substation
- Proposed Substation Alternatives

Proposed Power Line Corridor Alternatives

- Alternative 1
- Alternative 2

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
2013-2014 SA NATIONAL LAND COVER
(© GEOTERRAIMAGE - 2014)



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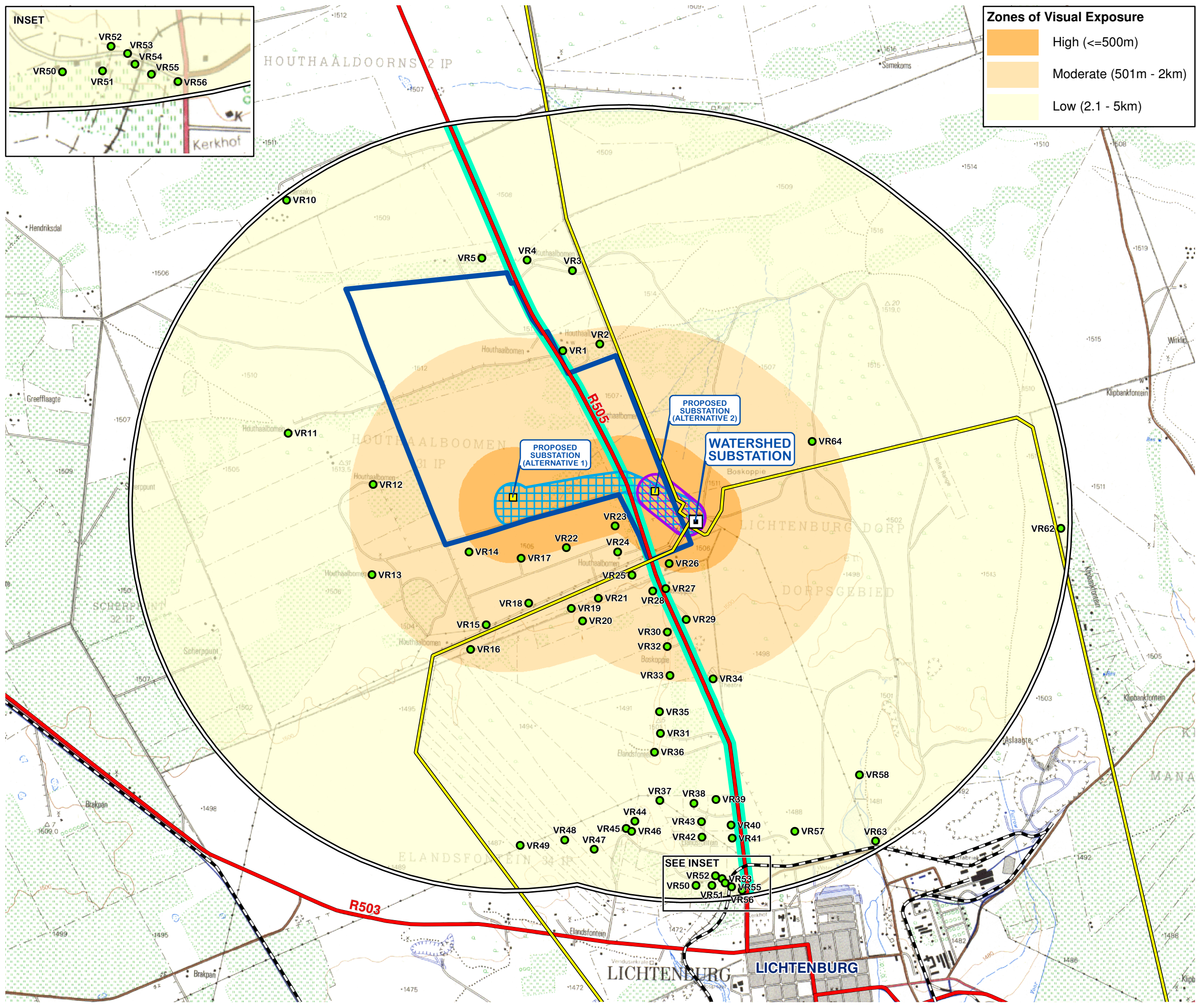
ENVIRONMENTAL DIVISION
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Zones of Visual Exposure

- High (<=500m)
- Moderate (501m - 2km)
- Low (2.1 - 5km)

PROPOSED CONSTRUCTION OF A 132kV POWER LINE TO SERVE PROPOSED PHOTOVOLTAIC (PV) ENERGY FACILITIES

TLITSSENG SOLAR 2 NEAR LICHTENBURG NORTH WEST PROVINCE

VISUAL ASSESSMENT: POTENTIALLY SENSITIVE VISUAL RECEPTOR LOCATIONS

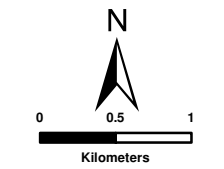
Legend

- Main Roads
- Railway Line
- Existing High Voltage Power Lines (132kV)
- Proposed Trisitseng PV Application Site
- 5km Visual Assessment Zone
- Existing Substation
- Proposed Substation Alternatives
- Potentially Sensitive Receptor Locations
- Receptor Road

Proposed Power Line Corridor Alternatives

- Alternative 1
- Alternative 2

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015



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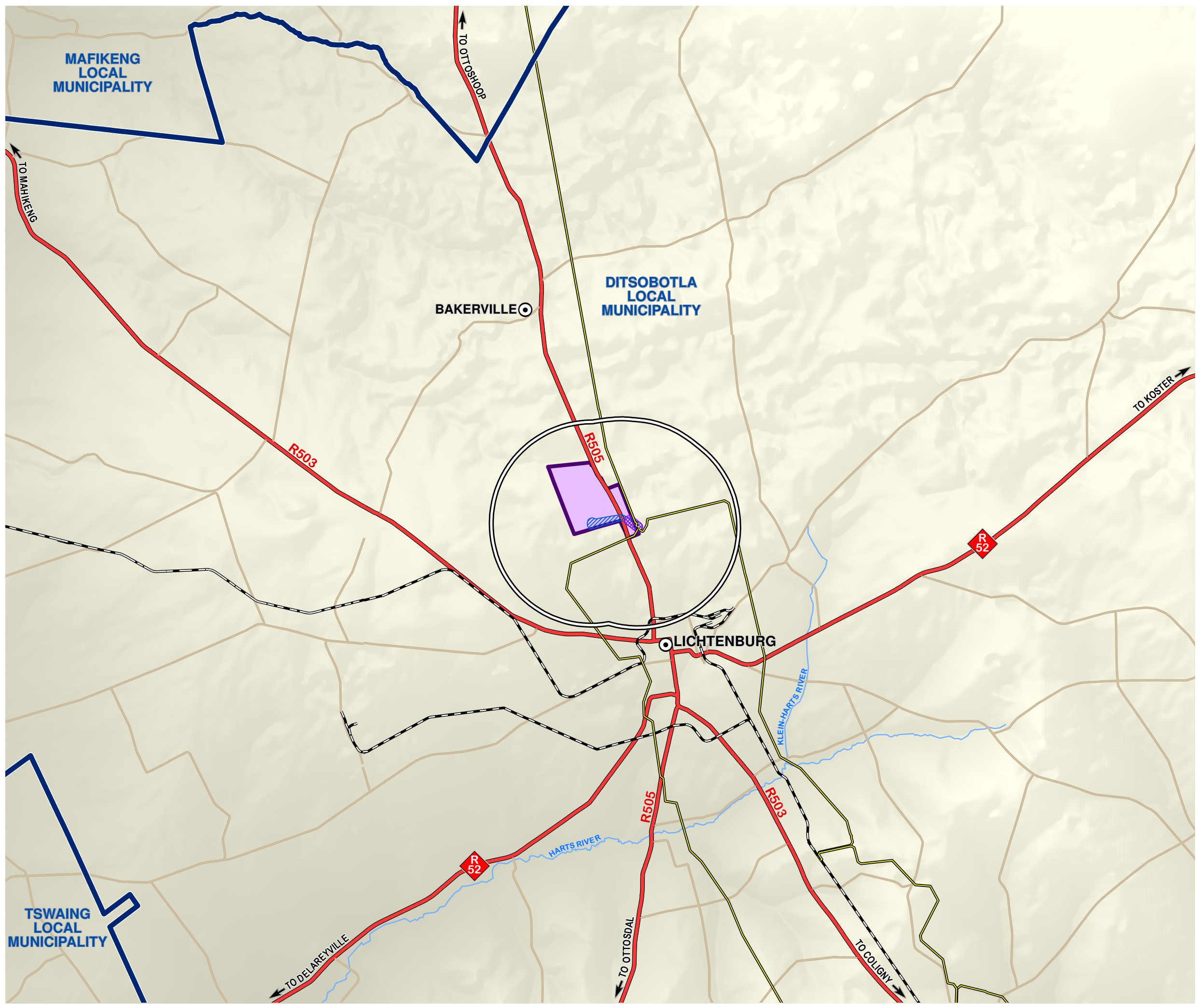
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Map Ref No 13303TPL/BA2_V07	Revision 1	Date 27/06/2016

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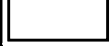




**PROPOSED
CONSTRUCTION OF
A 132kV POWER LINE
TO SERVE PROPOSED
PHOTOVOLTAIC (PV)
ENERGY FACILITIES**

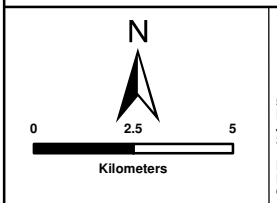
**TLISITSENG SOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE**

**VISUAL ASSESSMENT:
REGIONAL CONTEXT**

Legend

-  Local Municipal Boundaries
 -  Main Roads
 -  Secondary Roads
 -  Railway Line
 -  Existing High Voltage Power Lines (<=132kV)
 -  Main Rivers
 -  Main Towns
 -  Proposed Tlisitseng Application Site
 -  5km Visual Assessment Zone
- Proposed Power Line Corridor Alternatives**
-  Alternative 1
 -  Alternative 2

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015



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Project No 13303	Prepared By KLS	Date 15/03/2016
Map Ref No 13303TPL/BA2_V02	Revision 1	Date 27/06/2016

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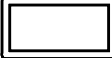




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PROPOSED CONSTRUCTION OF A 132kV POWER LINE TO SERVE PROPOSED PHOTOVOLTAIC (PV) ENERGY FACILITIES

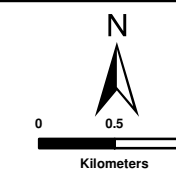
TLITSSENSOLAR 2
NEAR LICHTENBURG
NORTH WEST PROVINCE

VISUAL ASSESSMENT:
ROUTE OVERVIEW

Legend

-  Main Roads
 -  Railway Line
 -  Existing High Voltage Power Lines (132kV)
 -  Adjoining Farm Boundaries
 -  Proposed Tlitseng PV Application Site
 -  5km Visual Assessment Zone
 -  Existing Substation
 -  Proposed Substation Alternatives
- ### Proposed Power Line Corridor Alternatives
-  Alternative 1
 -  Alternative 2

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015



SIVEST

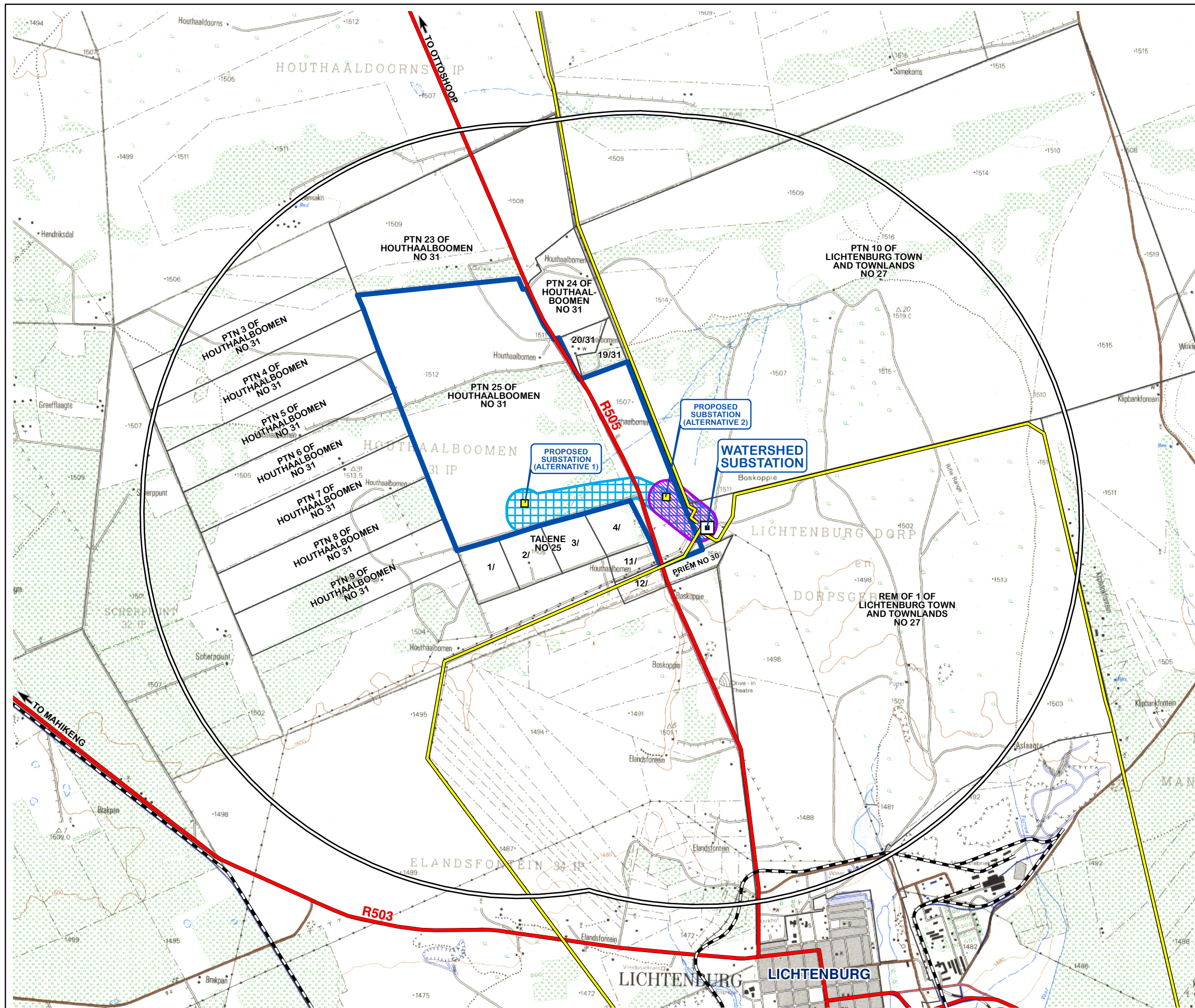
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Appendix B

PHOTOGRAPHS



**PROPOSED CONSTRUCTION OF THE TLISITSENG 2 SUBSTATION
AND ASSOCIATED 132KV POWER LINE NEAR LICHTENBURG,
NORTH WEST PROVINCE**

SITE PHOTOGRAPHS



Figure 1: View from the proposed Tlisitseng 2 Substation Alternative 2 site showing the typically flat to gently undulating terrain within the site



Figure 2: Typical vegetation cover found within the study area



Figure 3: Typical view of cultivated land which can be found scattered throughout the area. Cultivated land is however largely concentrated on the western boundary of the site.



Figure 4: Typical built form present in the areas where cultivation occurs



Figure 5: R505 main road which traverses the corridor in a north-west to south-east direction



Figure 6: Tall steel structures that make up the Watershed MTS, as well as the tall steel towers of the existing 132kV power lines that run to the Watershed MTS, which can be seen from various parts of the surrounding area



Figure 7: View of the Watershed Main Transmission Substation (MTS), which can be found within the corridor



Figure 8: Outskirts of the town of Lichtenburg which comprises a mix of commercial, light/service industrial and residential development



Figure 9: Typical natural rural visual character found within larger portions of the surrounding area

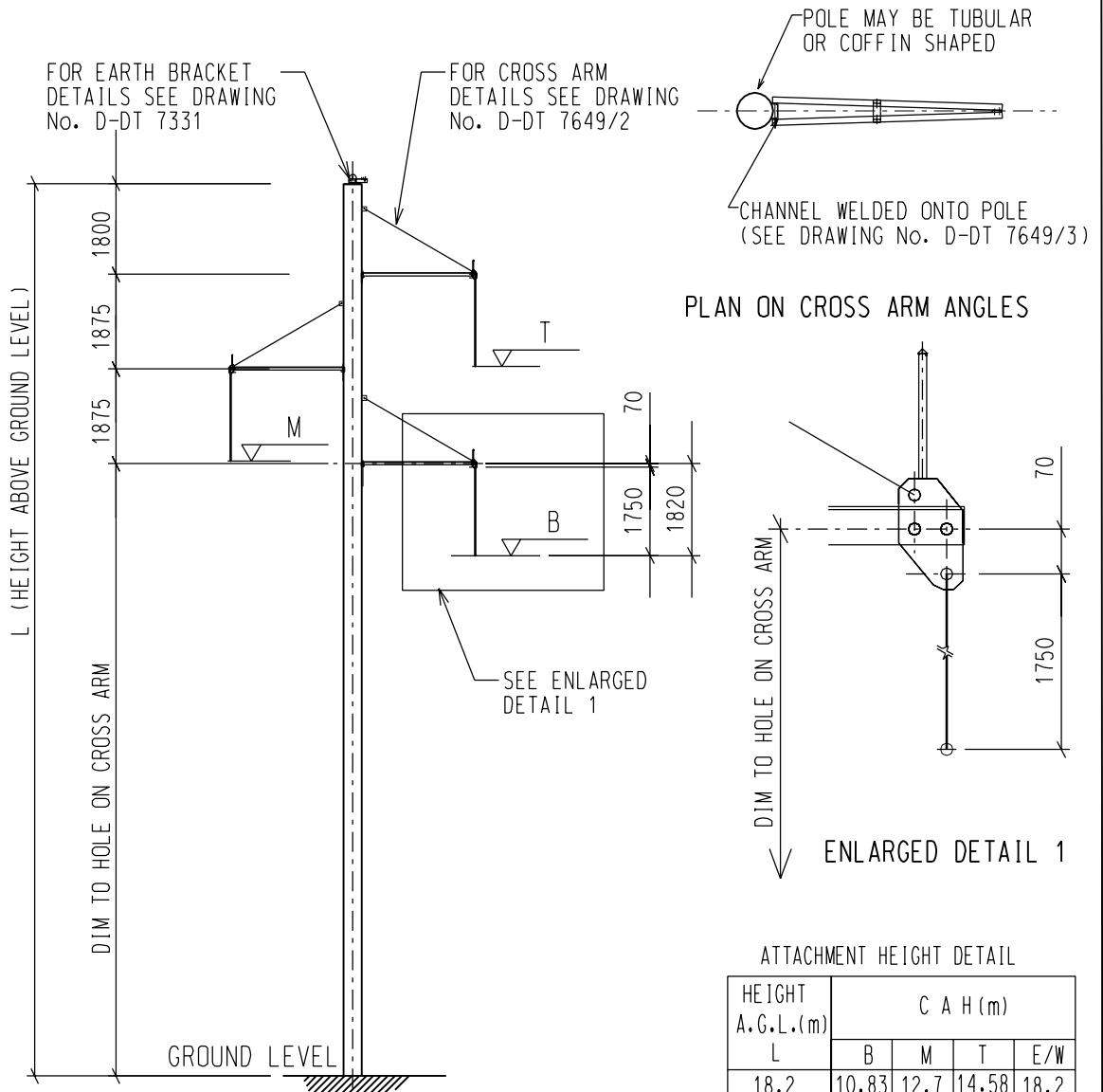


Figure 10: View from the proposed power line corridor showing the relatively natural character of the area, as well as the existing 132kV power line which the proposed power line corridor will follow



Appendix C

FACILITY ILLUSTRATIONS



ELEVATION ON POLE


PLAN ON CROSS ARM ANGLES

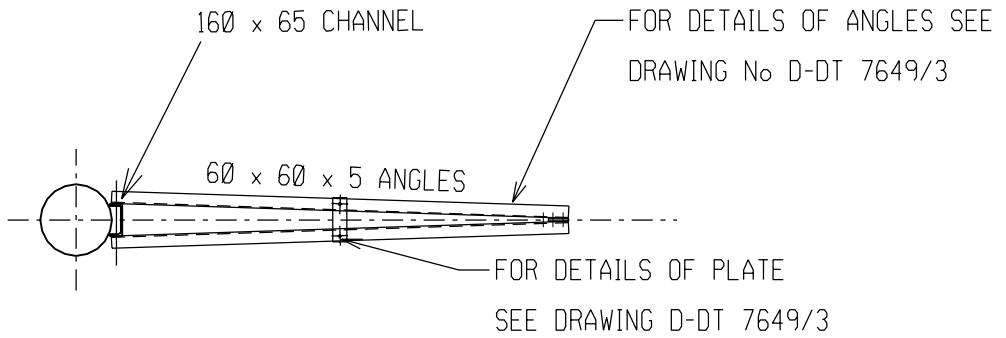
ENLARGED DETAIL 1

ATTACHMENT HEIGHT DETAIL

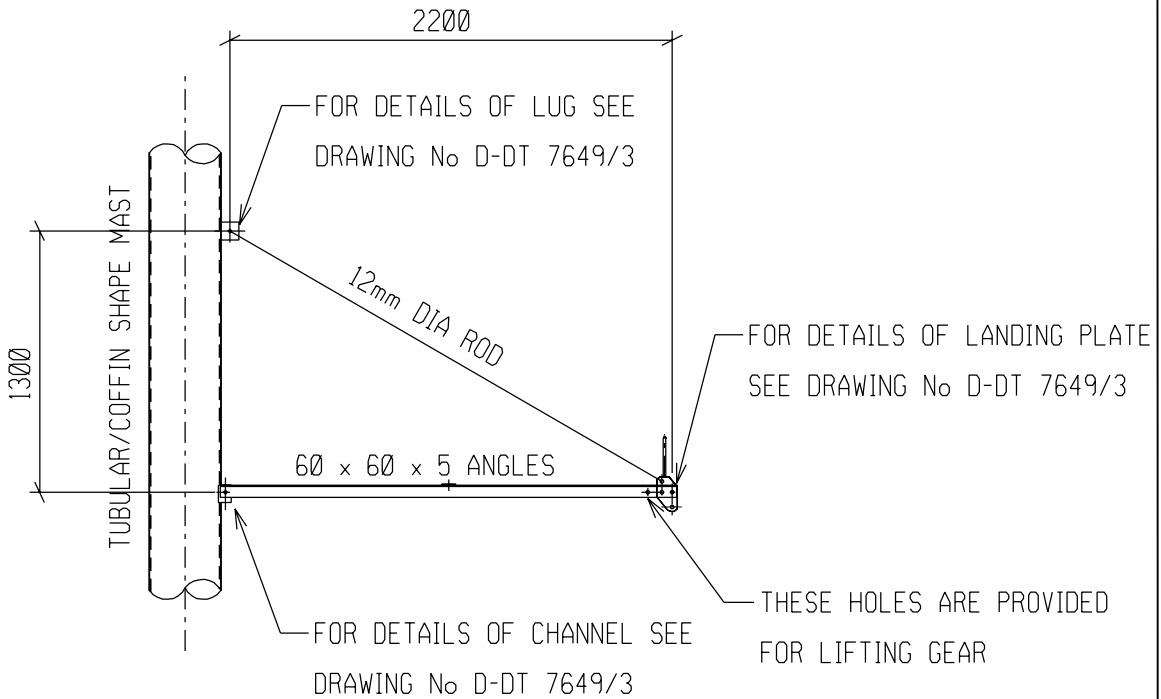
HEIGHT A.G.L.(m)	C A H (m)			
	B	M	T	E/W
18.2	10.83	12.7	14.58	18.2
19.2	11.83	13.7	15.58	19.2
20.1	12.73	14.6	16.48	20.1
21.2	13.83	15.7	17.58	21.2
22.7	15.33	17.2	19.08	22.7
24.2	16.83	18.7	20.58	24.2

THIS DRAWING IS RELEVANT FOR GUYED AND FREESTANDING STRUCTURES

Ø	AB	15.03 2002	FIRST ISSUE/EERSTE UITREIKING	SLR	RAB		
REV	AUTH MAG	DATE DATUM	REVISION/REVISED INDEX REF/INDEKSVERW	BY DEUR	CHKD NAGES	D-DT-	REFERENCE DRAWINGS
DRG.TEK REGISTR				<p>DISTRIBUTION TECHNOLOGY 132KV SUSPENSION X-ARM GENERAL ARRANGEMENT FOR SINGLE STEEL POLE STRUCTURE</p>			
CHKD NAGES	RAB	16.03 2002					
DRAWN GETEKEN	SLR	15.03 2002					
SCALE SKAAL	NTS		26/04/2002	FILE No.:	D-DT 7649/1		0




PLAN ON CROSS ARM ANGLES

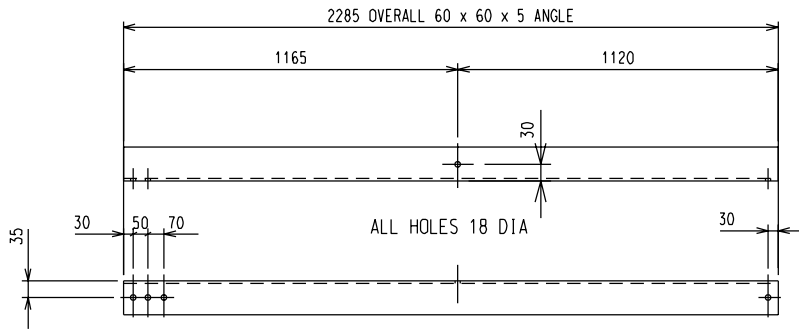


ELEVATION ON CROSS ARM

NOTE:

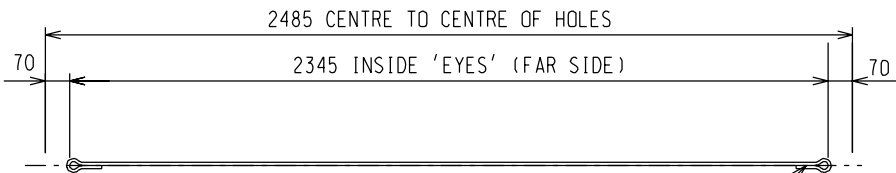
ALL BOLTS USED TO BE M16 GRADE 8.8 BOLTS

Ø	AB	15.03 2002	FIRST ISSUE/EERSTE UITREIKING	SLR	RAB		
REV	AUTH MAG	DATE DATUM	REVISION/REVISIES INDEX REF/INDEKSVERW	BY DEUR	CHKD NAGES	D-DT-	REFERENCE DRAWINGS
DRG. TEK REGISTR				DISTRIBUTION TECHNOLOGY 132KV SUSPENSION X-ARM LAYOUT OF CROSS ARM			
CHKD NAGES	RAB	16.03 2002					
DRAWN GETEKEN	SLR	15.03 2002					
SCALE SKAAL	NTS		26/04/2002	FILE No.:	REV 0		

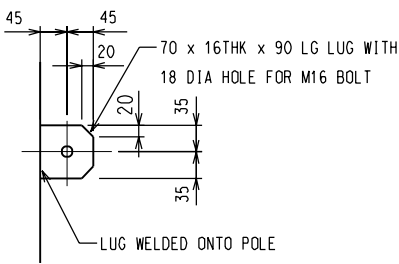


ONE ANGLE REQUIRED AS DRAWN
ONE ANGLE REQUIRED TO OPP HAND

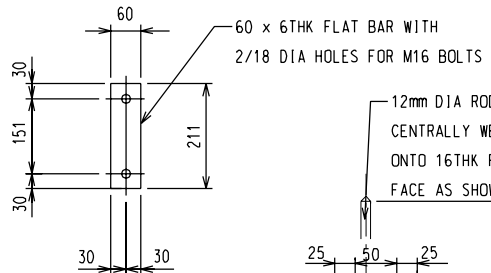
NOTE:
ALL BOLTS USED
TO BE M16 GRADE
8.8 BOLTS



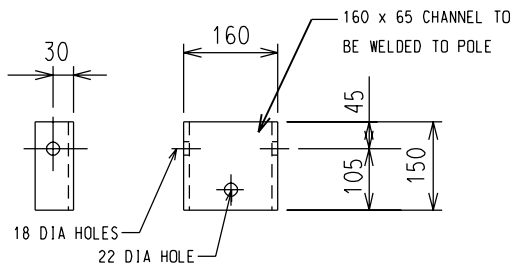
DETAIL OF 12mm DIA ROD



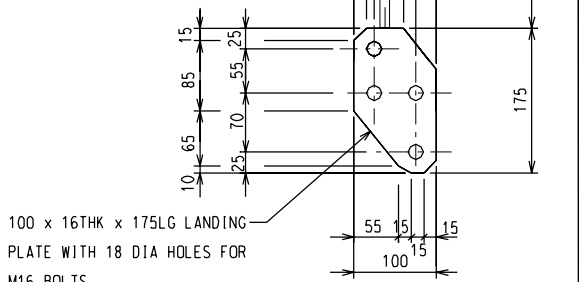
DETAIL OF LUG 'L1'




DETAIL OF PLATE 'P1'

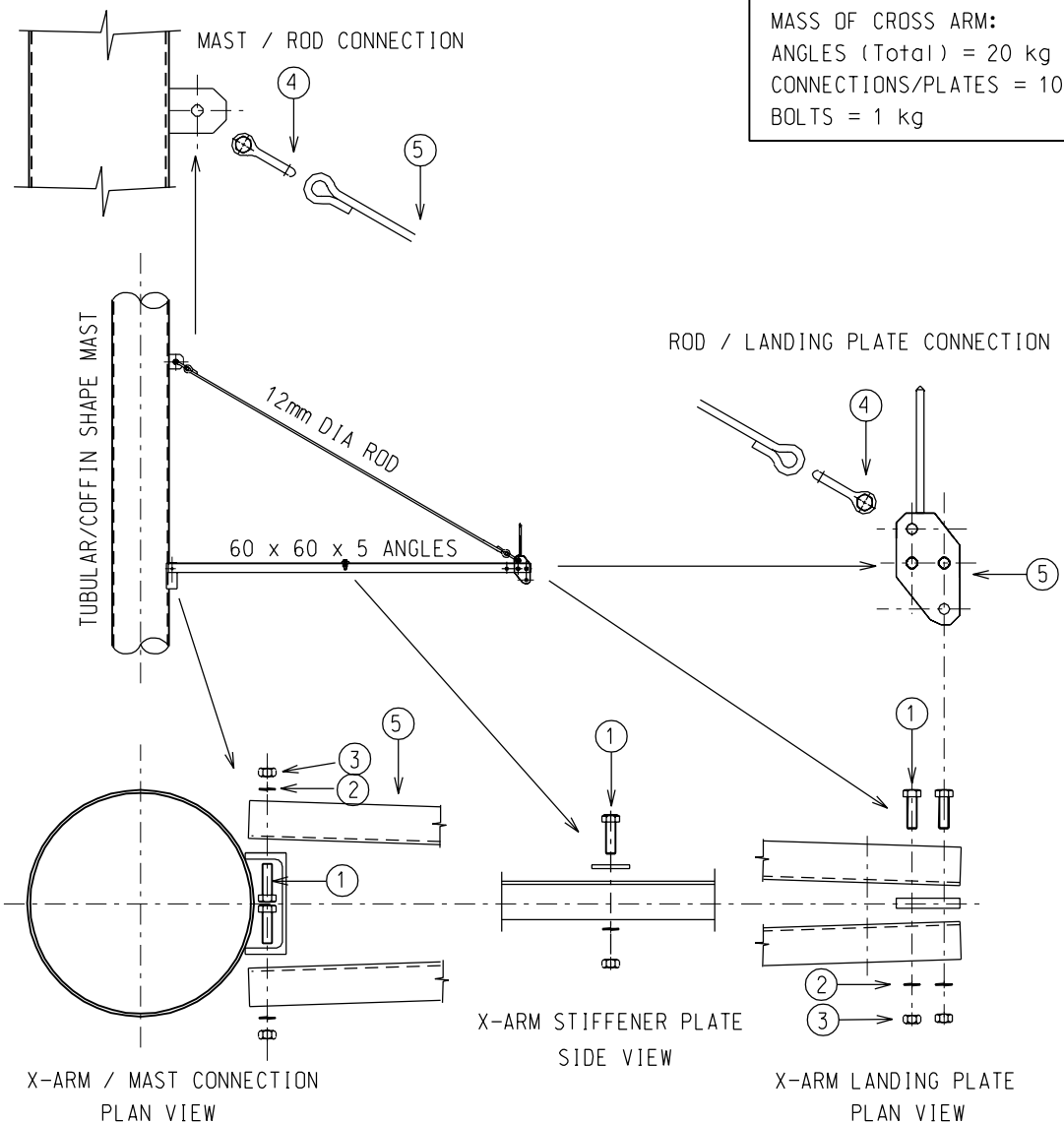


DETAIL OF CHANNEL CONNECTION



DETAIL OF LANDING PLATE


Ø	AB	15.03 2002	FIRST ISSUE/EERSTE UITREIKING	SLR	RAB		
REV	AUTH MAG	DATE DATUM	REVISION/REVISIES INDEX REF/INDEKSVERW	BY DEUR	CHKD NAGES	D-DT-	REFERENCE DRAWINGS
DRG.TEK REGISTR				DISTRIBUTION TECHNOLOGY 132KV SUSPENSION X-ARM FABRICATION DRAWING			
CHKD NAGES	RAB	16.03 2002					
DRAWN GETEKEN	SLR	15.03 2002	APPROVED AB	CAD.REF:	D-DT 7649/3		REV
SCALE SKAAL	NTS		26/04/2002	FILE No.:			0



MASS OF CROSS ARM:
 ANGLES (Total) = 20 kg
 CONNECTIONS/PLATES = 10 kg
 BOLTS = 1 kg

REF	DESCRIPTION	DRAWING NO.
1	SET SCREW, M16 x 50 LG GRADE 8.8	
2	WASHER, SPRING, M16	
3	NUT, M16	
4	SHACKLE, D 120KN	D-DT 7017
5	SUSP. ARM ASSEMB, 132KV	

REV	AUTH MAG	DATE DATUM	REVISION/REVISIES INDEX REF/INDEKSVERW	BY DEUR	CHKD NAGES	D-DT - REFERENCE DRAWINGS VERWYSINGSTEKENINGE
0	AB	15.03.2002	FIRST ISSUE / EERSTE UITREIKING	SLR	RAB	

DRG. TEK REGISTR				DISTRIBUTION TECHNOLOGY 132KV SUSPENSION X-ARM ASSEMBLY		
CHKD NAGES	RAB	16.03.2002				
DRAWN GETEKEN	SLR	15.03.2002	APPROVED AB	CAD.REF:	D-DT 7649/4	REV
SCALE SKAAL	N.T.S.		26/04/2002	FILE No.:		0

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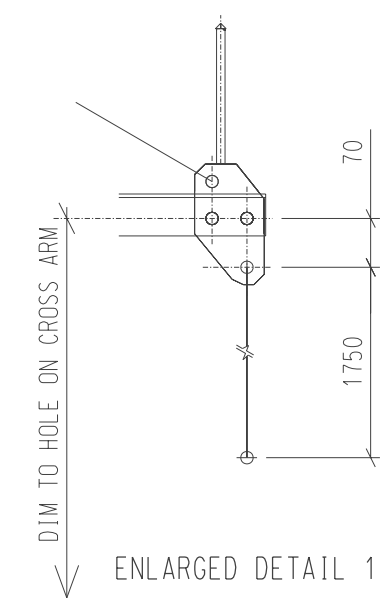
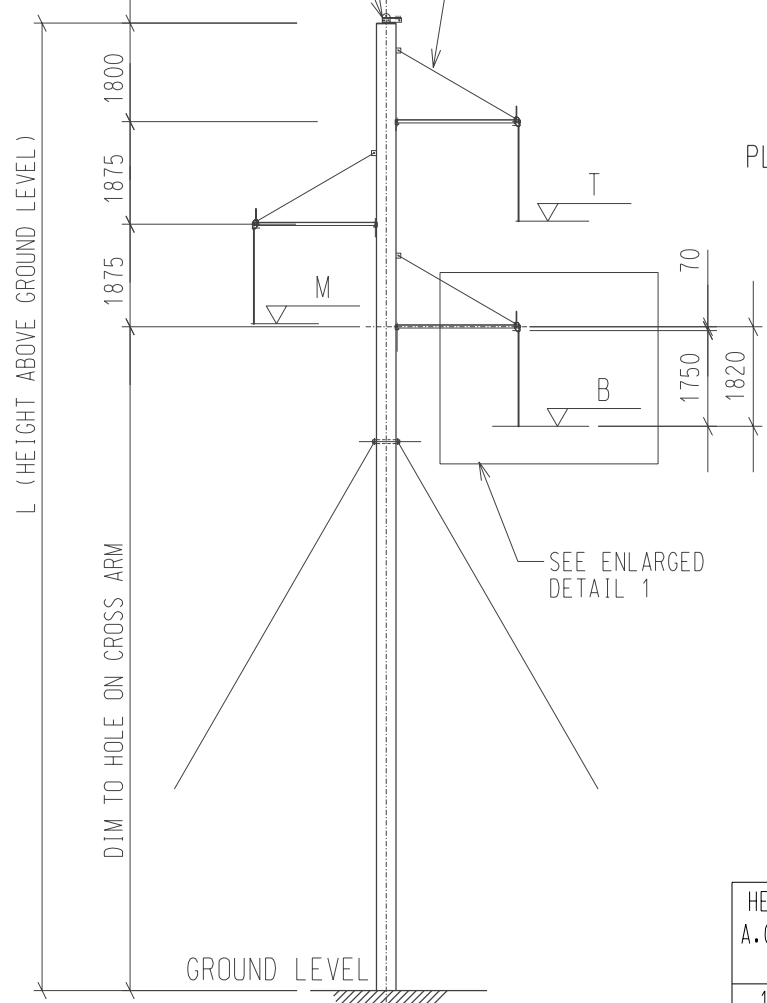
FOR EARTH BRACKET
DETAILS SEE DRAWING
No. D-DT 7331

FOR CROSS ARM
DETAILS SEE DRAWING
No. D-DT 7649/2

POLE MAY BE TUBULAR
OR COFFIN SHAPED

CHANNEL WELDED ONTO POLE
(SEE DRAWING No. D-DT 7649/3)

PLAN ON CROSS ARM ANGLES



SEE ENLARGED
DETAIL 1

DIM TO HOLE ON CROSS ARM

ENLARGED DETAIL 1

GROUND LEVEL

ELEVATION ON POLE

THIS DRAWING IS RELEVANT FOR
GUYED AND FREESTANDING STRUCTURES

ATTACHMENT HEIGHT DETAIL

HEIGHT A.G.L.(m)	C A H (m)			
	L	B	M	T
18.2	10.80	12.675	14.55	18.2
19.2	11.80	13.675	15.55	19.2
20.1	12.70	14.575	16.45	20.1
21.2	13.80	15.675	17.55	21.2
22.7	15.30	17.175	19.05	22.7
24.2	16.80	18.675	20.55	24.2

REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE	PROJECT NO.
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---	-----	---	---	---	---/---/---	-----

AUTH:	A. BEKKER
DATE:	JULY 2002
CHKD:	B. BRANFIELD
DATE:	JUNE 2002
DRAWN:	S. LE ROUX
DATE:	JUNE 2002

DISTRIBUTION TECHNOLOGY RETICULATION/SUB-TRANSMISSION LINES SINGLE CIRCUIT GUYED INTERMEDIATE STEEL POLE - GENERAL ARRANGEMENT				
D-DT 7641		SET 4	SHEET 1	REVISION A

1

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4 A4L

1

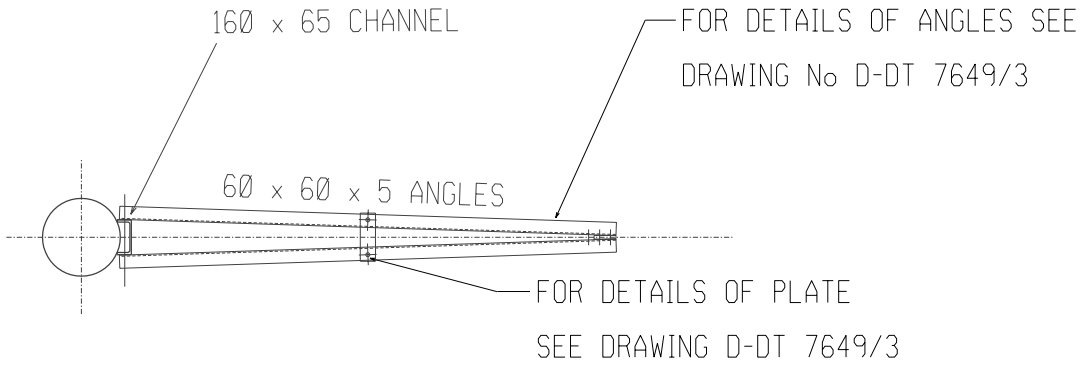
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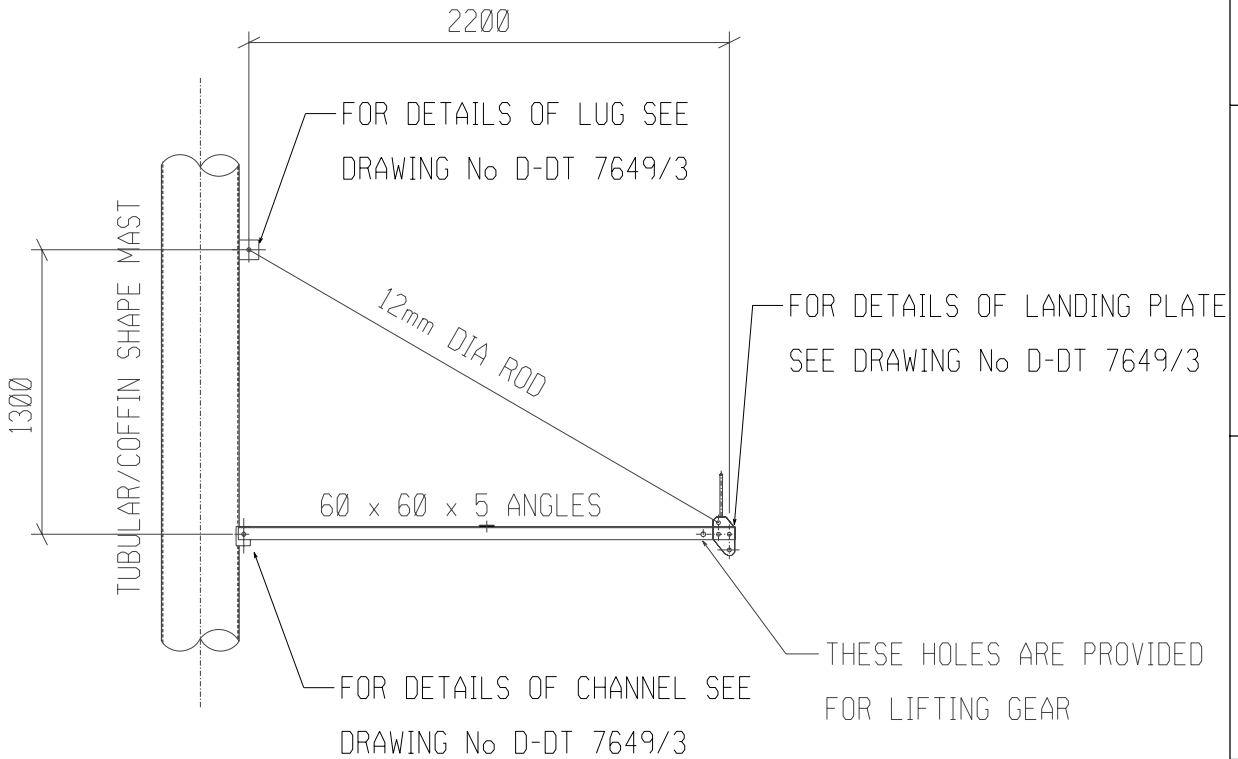
B

B

PLAN ON CROSS ARM ANGLES

C

C



D

D

ELEVATION ON CROSS ARM

NOTE:
ALL BOLTS USED TO BE
M16 GRADE 8.8 BOLTS

E

E

---	-----	---	---	---	---/---/---	-----
---	-----	---	---	---	---/---/---	-----
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE	PROJECT NO.

F

F

<p>Eskom Distribution</p> <p>AUTH: A. BEKKER</p> <p>DATE: JULY 2002</p> <p>CHKD: B. BRANFIELD</p> <p>DATE: JUNE 2002</p> <p>DRAWN: S. LE ROUX</p> <p>DATE: JUNE 2002</p>	<p>DISTRIBUTION TECHNOLOGY</p> <p>RETICULATION/SUB-TRANSMISSION LINES</p> <p>SINGLE CIRCUIT GUYED INTERMEDIATE</p> <p>STEEL POLE - LAYOUT OF CROSS ARM</p>					
	<p>D-DT 7641</p>			SET	SHEET	REVISION
				4	2	A

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4 A4L

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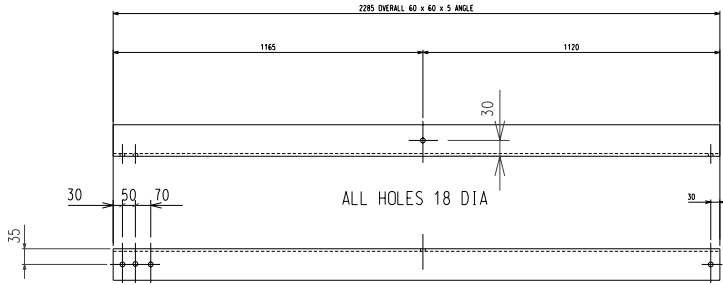
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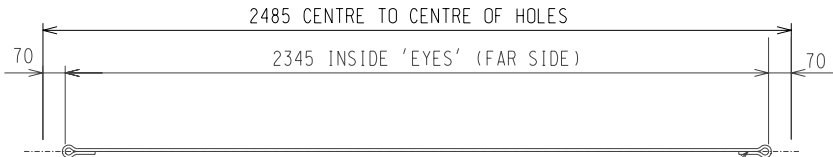


ONE ANGLE REQUIRED AS DRAWN
ONE ANGLE REQUIRED TO OPP HAND

NOTE:
ALL BOLTS USED
TO BE M16 GRADE
8.8 BOLTS

B

B

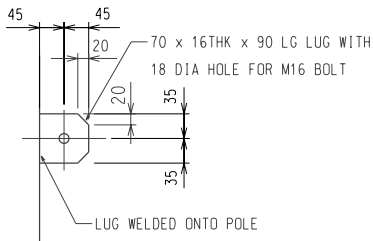


DETAIL OF 12mm DIA ROD

6mm FILLET WELD

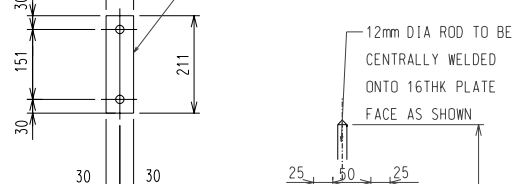
C

C



DETAIL OF LUG 'L1'

60 x 6THK FLAT BAR WITH
2/18 DIA HOLES FOR M16 BOLTS

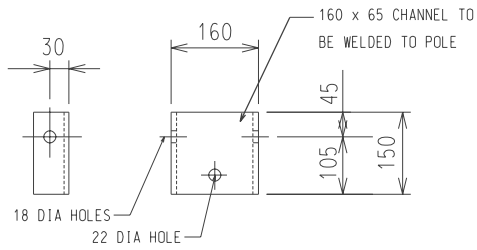


DETAIL OF PLATE 'P1'

12mm DIA ROD TO BE
CENTRALLY WELDED
ONTO 16THK PLATE
FACE AS SHOWN

D

D



DETAIL OF CHANNEL CONNECTION

100 x 16THK x 175LG LANDING
PLATE WITH 18 DIA HOLES FOR
M16 BOLTS

DETAIL OF LANDING PLATE

E

E

REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE	PROJECT NO.
---	-----	---	---	---	---/---/---	-----
---	-----	---	---	---	---/---/---	-----

F

F



AUTH:	A. BEKKER
DATE:	JULY 2002
CHKD:	B. BRANFIELD
DATE:	JUNE 2002
DRAWN:	S. LE ROUX
DATE:	JUNE 2002

DISTRIBUTION TECHNOLOGY
RETICULATION/SUB-TRANSMISSION LINES
SINGLE CIRCUIT GUYED INTERMEDIATE
STEEL POLE - X-ARM FABRICATION DRAWING

D-DT 7641

SET	SHEET	REVISION
4	3	A

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3

4 A4L

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2

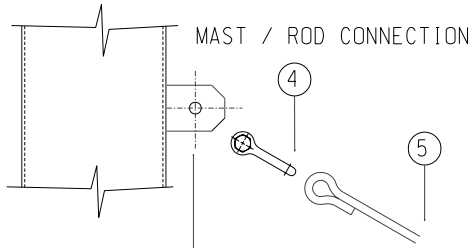
3

4

MASS OF CROSS ARM:
 ANGLES (Total) = 20 kg
 CONNECTIONS/PLATES = 10 kg
 BOLTS = 1 kg

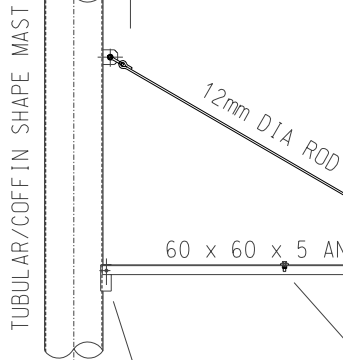
A

A



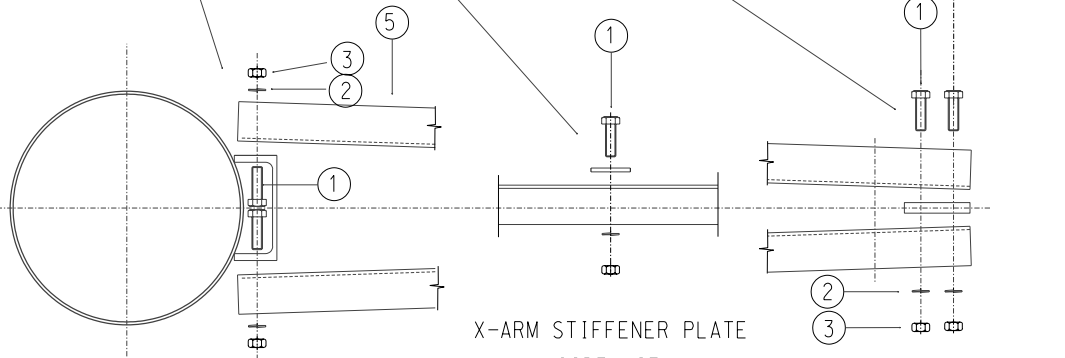
B

B



C

C



D

D

REF	DESCRIPTION	DRAWING NO.
1	SET SCREW, M16 x 50 LG GRADE 8.8	
2	WASHER, SPRING, M16	
3	NUT, M16	
4	SHACKLE, D 120KN	D-DT 7017
5	SUSP. ARM ASSEMB, 132KV	

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REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE	PROJECT NO.
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Eskom
Distribution

AUTH: A. BEKKER

DATE: JULY 2002

CHKD: B. BRANFIELD

DATE: JUNE 2002

DRAWN: S. LE ROUX

DATE: JUNE 2002

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D-DT 7641	4	4	A

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