NATIONAL ROAD 3:
KEEVERSFONTEIN TO WARDEN
(De Beers Pass Section)

DEA ref. no.12/12/20/1992

SCOPING REPORT

FINAL REPORT

Prepared by

Cave Klapwijk and Associates
P.O Box 11651
HATFIELD
0028

On behalf of

N3 TOLL CONCESSION (PTY) LTD

26th January 2011
REPORT TITLE : National Road 3: Keeversfontein to Warden (De Beers Pass Section) Scoping Report

CLIENT : N3 Toll Concession (Pty) Ltd. (N3TC)

PROJECT NAME : National Road 3: Keeversfontein to Warden (De Beers Pass Section)

REPORT STATUS : Final Report

CKA PROJECT NUMBER : 10003

CKA REPORT NUMBER : 10003/FSR-01

PLACE AND DATE : Pretoria, January 2011
OVERVIEW

Following a public tender process, the South African National Roads Agency Ltd (SANRAL) appointed the N3 Toll Concession (Pty) Ltd. (N3TC) as the Concessionaire responsible for the Design, Construction, Financing, Operating and Maintenance of a portion of National Route 3 from Cedara in KwaZulu Natal to the Heidelberg South Interchange in Gauteng as a Toll Highway with Developments and Associated Facilities. This 415 kilometre section of the N3 is referred to as the N3 Toll Route. The concession is for a thirty year period that commenced on 2 November 1999.

Included in the Concession Contract is the requirement to construct a new route known as the De Beers Pass Route (DBPR), between Keeversfontein and Warden. Completion of the DBPR has a completion date, linked to a traffic volume trigger, based on the annual average daily traffic (AADT) on the portion of the N3 between Keeversfontein and Harrismith. Based on the most recent AADT, the predicted commencement date of the project is 2013 and the construction period is approximately 3.5 years.

N3TC obtained environmental approval by means of a Record of Decision (ROD), issued by the Department of Environmental Affairs and Tourism, on 26 March 1999, authorising the construction and upgrading of the N3 Toll Road System from Heidelberg to Cedara, comprising of the routes, (i) Cedara to Heidelberg (via Van Reenen) and (ii) Keeversfontein to Warden (De Beers Pass Route). The ROD was issued subject to certain conditions.

In order to comply with these conditions, N3TC embarked on an analysis process to compare alternative alignments with the DBPR. During this process, N3TC established through the use of new road design software, an alternative geometrically compliant route in the vicinity of the existing Van Reenen’s Pass, with various alternatives to re-join the DBPR at appropriate positions. A comparison of environmental impacts was then required. In 2008, N3TC launched a Route Location Initiative (RLI). This RLI was used to identify directly affected landowners and their concerns as they relate to the then studied alternatives to the DBPR, as well as an initial assessment to determine and rank the environmental impacts assessed.

It is important to note that the RLI process was an N3TC initiative to determine the environmental and social impact on the directly affected landowners of the alternatives identified by N3TC. The RLI initiative culminated in an issues and responses report, included as Appendix J (Section 5) herein.

The RLI process identified that regardless of the viability of alternative routes satisfying the engineering constraints, there would be impacts on the natural, social and economic environment. In discussion with the Department of Environmental Affairs (DEA), previously DEAT, it was agreed that when the application for Environmental Authorisation for the DBPR was made, it should include a study of an additional alternative, referred to as Alternative A in this report (refer to route descriptions below).

N3TC initiated the formal EIA process, in order to comply with the time line for the contractual implementation date of the DBPR, and to conform to new legislation. In this regard N3TC, on 23 July 2010 submitted an EIA Application to the National Department of Environmental Affairs (DEA) for the construction of the National Road 3: Keeversfontein to Warden (De Beers Pass Section).

In order to facilitate this process N3TC appointed Mr. Alan Cave as the Independent Environmental Assessment Practitioner (EAP).
Project locality and description of route alignments

The route alignment alternatives which are included in this EIA process are:

- De Beers Pass Route
- De Beers Pass Route: Alternative A
- De Beers Pass Route: Alternative B

Refer to Figure 3: Locality map showing the proposed alternative route alignments. A description of each route alignment is provided below.

- **De Beers Pass Route (DBPR)**

This proclaimed DBPR runs from Keeversfontein (Tugela Toll Plaza) via the De Beers Pass area to Warden. The route branches off the current N3 just north of the Tugela Toll Plaza. The route reaches the top of the KwaZulu-Natal escarpment where it passes through a tunnel approximately 500m in length and then goes around the top edge of a gorge before entering the Free State. A wetland associated with the Wilge River is crossed and the alignment then runs close to the Wilge River before the road climbs to the more even plateau of the Free State Highveld. The Wilge, Meul and Cornelis Rivers are crossed before the DBPR re-joins the existing N3 just north of Warden, where a Toll Plaza is proposed. The total length of this route is approximately 97.7 km.

- **De Beers Pass Route: Alternative A**

This route up the escarpment starts just north of the Tugela Toll Plaza and runs for a short distance almost parallel to and east of the existing N3 Van Reenen’s Pass. The route then follows the landform ridges and reaches the crest of the escarpment through a saddle immediately south of Van Reenen Village. Just north of Van Reenen village an interchange will connect with the existing N3. The route continues in a north westerly direction to intersect the N3 in the Swinburne area. The route will then deviate to the north and connects with the existing N3 at an interchange before continuing across the slopes of Platberg Mountain to an interchange north of Harrismith near 42nd Hill. From this point the route will follow the existing N3 closely to Warden, where a Toll Plaza is proposed. The Wilge River is crossed at Swinburne and the Meul and Cornelis Rivers will be crossed at the same points they are crossed by the existing N3. The detailed design will determine to which side the existing road is widened. The total length of this route is approximately 107 km.

- **De Beers Pass Route: Alternative B**

The route from Tugela Toll Plaza to Van Reenen village interchange is the same as DBPR Alternative A. At this point the route crosses a wetland north of Van Reenen village and follows a north westerly direction along the high ground to join the DBPR at the Lincoln Interchange. The route from there to Warden will follow the DBPR. The DBPR re-joins the existing N3 just north of Warden, where a Toll Plaza is proposed. The route will cross the Wilge River north of Swinburne. The total length of this route is approximately 98.3 km.

N3TC is contractually obliged to continue to operate and maintain the existing N3 in its current form. Should the proposed DBPR, or DBPR: Alt B, receive environmental authorisation and be constructed, the existing N3 will remain as a public road in its current state, providing access to Harrismith and central South Africa.
Draft Scoping Report Comment

During the Draft Scoping Report comment period from the 4th November 2010 to the 14th December 2010 the following two options were requested to be assessed. For an alternative route to be considered in the EIA study it shall need to be a ‘reasonable and feasible’ option. (NDEA Guideline 5).

- Existing N3 Road widening

At a stakeholder meeting of the Harrismith Business Forum held in Harrismith on the 13th December 2010, a member of the forum proposed that, due to the fact that many interested and affected parties have, to date, voiced their opinion that there should be no new road, and that the Business Forum is opposed to a new road, the EIA should consider and study an alternative to remain exactly on the existing N3 alignment. The suggestion was made that the road can be widened to accommodate additional traffic, and accesses can be eliminated where appropriate, but the road alignment and geometry, with respect to curves and grades, will remain unaltered.

It is important to realise that (a) if De Beers Pass (Green Route) is built, the existing N3 will be retained and maintained, and, thus, the access to the towns of Van Reenen, Swinburne, Harrismith and Warden will not be altered and (b) if Alternative A (Red Route) is built, the access to the towns will also be retained and maintained by existing and new interchanges (two at Warden and Harrismith, and one at Swinburne and Van Reenen).

Having considered the proposal to widen the existing road from Keeversfontein (Tugela Plaza) to Verkykerskop, just North of Harrismith it was found that this alternative is neither reasonable nor feasible and, therefore, does not justify further consideration during the EIA phase of the Environmental Impact Assessment process.

- The “Do Nothing ” option

The ‘Do Nothing’ alternative will consist of the section of the N3 from Keeversfontein (Tugela Plaza) via Van Reenen’s Pass, Van Reenen and Harrismith to Warden. This section will have no changes made to the alignment or road width, and the status quo will prevail. However, the road will continue to be maintained to the same standard.

For a Toll Road to be justified, especially along a national corridor between a port and a major inland city, the objectives of efficiency and safety for road users must be met. At the same time, the public are entitled to a safe and pollution free environment (Section 24 of the Constitution of South Africa).

This right is promoted by a road design that complies with the Toll Road standards and alignments that do not pass through towns, and that reduce the carbon footprint by efficient engine operation.

The ‘Do Nothing’ alternative along the section of the N3 from the Tugela Plaza via Van Reenen’s Pass, Van Reenen, Swinburne and Harrismith to Warden is neither Reasonable nor Feasible and, therefore, does not justify consideration during the EIA phase of the Environmental Impact Assessment process.
EIA Process

Since the acceptance of the EIA application by DEA, the application has proceeded in conformance with applicable legislation.

This Draft Scoping Report (has been prepared in accordance with Section 29(1) of the NEMA EIA Regulations of April 2006) and introduces the project and describes the project background. It includes the experience of the Environmental Assessment Practitioner (EAP) and specialists who have contributed to the Draft Scoping Report. The report further expands on the legislation, strategies and guidelines applicable to the project.

An overview of the environmental setting of the regions in which the proposed project is situated is provided. Also included is a preliminary assessment of the impacts, as assessed by the Wetlands, Flora and Fauna, Avifauna, Heritage, Social and Economics specialists on the three proposed route alternatives.

The Report also includes a section on the Public Involvement Programme (PIP) and issues and concerns raised by Interested and Affected Parties (I&AP’s). A preliminary route ranking exercise based on the discussions and findings of preliminary specialist studies ranks the routes according to impact category for each of the abovementioned elements.

Conclusion

Based on the indications of the preliminary studies, both the DBPR and Alternative B are more environmentally intrusive than Alternative A. These relate to biodiversity, habitat and water quality that may have local, regional and national effects. This is predominantly due to Alternative A following closer to the alignment of the existing N3 and other transport corridors. This will be studied in detail during the EIA specialist studies.

The socio-economic impact on directly affected land owners on both Alternative A and Alternative B is considerable in that land required will fragment existing small farms with the resultant impact on their viability.

The transport economic analysis of the DBPR compared to Alternative A and Alternative B, show that the DBPR has the highest benefit. This preliminary study has considered the transport economy benefit and has not taken into account, the cost impact on local communities, which will form part of specialist studies.

The public participation process has to-date identified a lobby group of interested and affected parties in support of Alternative A, but who’s request is to maintain the existing N3 on its current alignment through Harrismith. The specialist studies will determine the associated impacts, and early indications are that should the existing N3 remain through Harrismith, it could impose impacts, eg. Noise on other interested and affected parties.

Early indications are that the environmental and social impacts associated with Alternative B are more intrusive when compared to the other routes and it is therefore recommended that detailed studies on this route are not pursued at this stage.

The N3 widening alternative and the Do-Nothing alternative were found to be neither reasonable nor feasible as required by DEA Guideline 5 : Assessment of Alternatives and Impacts in support of the EIA Regulations (2006)

It is recommended that the DBPR and the Alternative A be selected for further investigation in the EIA phase and that the required specialist studies, as listed herein, are completed.
## ENVIRONMENTAL APPLICATION: 12/12/20/1992


<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>29 (1)</td>
<td>Information necessary for proper understanding of the nature of issues identified during scoping and must include:</td>
</tr>
<tr>
<td>a</td>
<td>Details and expertise of the EAP who prepared the report and carried out the scoping process</td>
</tr>
<tr>
<td>b</td>
<td>Description of the proposed activity and of any feasible and reasonable alternatives that have been identified</td>
</tr>
<tr>
<td>c</td>
<td>Description of the property on which the activity is to be undertaken and the location of the activity on the property</td>
</tr>
<tr>
<td>d</td>
<td>Description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity</td>
</tr>
<tr>
<td>e</td>
<td>Identification of all legislation and guidelines that have been considered in the preparation of the scoping report</td>
</tr>
<tr>
<td>f</td>
<td>Description of all environmental issues and potential impacts, including cumulative impacts that have been identified.</td>
</tr>
<tr>
<td>g</td>
<td>Information on the methodology that will be adopted in assessing the potential impacts, including any specialist studies or specialised processes that will be undertaken</td>
</tr>
<tr>
<td>h</td>
<td>Details of the public participation process conducted in terms of regulation 28(a): (i) the steps that were taken to notify potentially interested and affected parties of the application; (ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the application have been displayed, placed or given; (iii) a list of all persons or organisations that were identified and registered in terms of regulation 57 as interested and affected parties in relation to the application; and (iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues.</td>
</tr>
<tr>
<td>i</td>
<td>Plan of study for impact assessment which sets out the proposed approach of the EIA, which includes (i) a description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialist reports or specialised processes, and the manner in which such tasks will be undertaken; (ii) an indication of the stages at which the competent authority will be consulted; (iii) a description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity; and (iv) particulars of the public participation process that will be conducted during the environmental impact assessment process</td>
</tr>
<tr>
<td>j</td>
<td>A scoping report must take into account any guidelines applicable to the kind of activity which is the subject of the application</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS

Overview iii-iv

1 INTRODUCTION 1

1.1 Historical Context 1

1.2 Environmental Processes 4

1.3 Project locality and description of route alignments 5
   1.3.1 De Beers Pass Route (DBPR) 5
   1.3.2 De Beers Pass Route: Alternative A 5
   1.3.3 De Beers Pass Route: Alternative B 5

1.4 Draft Scoping Report Comment 6
   1.4.1 Existing N3 Road Widening 6
   1.4.2 The “Do Nothing” Option 8

1.5 Technical Information 12

1.6 Time Study 12

1.7 Draft Scoping Report Structure 12

1.8 Expertise of the Environmental Assessment Practitioner 14

2 LEGAL AND ADMINISTRATIVE REQUIREMENTS 14

2.1 Constitution of South Africa 108 of 1996, section 2 (24) 15


2.3 NEMA EIA Regulations 15

2.4 National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) 26

2.5 National Water Act (Act No. 36 of 1998) 26

2.6 National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) 27

2.7 National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) 28

2.8 Protected Areas - Provincial Ordinances 29
   2.8.1 Natal Conservation Ordinance, 15 of 1974 29
   2.8.3 Free State Nature Conservation Ordinance, 8 of 1969 29

2.9 National Heritage Resources Act, 1999 (Act No. 25 of 1999) 29
2.10 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) 30

2.11 National Forest Act, 1998 (Act No. 84 of 1998) 30

3 DEVELOPMENT STRATEGIES 32

3.1 Introduction 32
  3.1.1 Integrated Development Plans 32
  3.1.2 Spatial Development Frameworks 33

3.2 Okhahlamba Integrated Development Plan 2008/09 33

3.3 Emnambithi/Ladysmith Spatial Development Framework 2009/10 33
  3.3.1 The Van Reenen Complex 33
  3.3.2 Rural Water Schemes 34

3.4 The Maluti-a-Phofung Spatial Development Framework 2010/11 34
  3.4.1 The Harrismith-Intabaswe-Tshiame Urban Complex 34
  3.4.2 Maluti-a-Phufong Rural Areas 34
  3.4.3 The Phumelela Micro Spatial Development Framework 2009/10 38

4 DESCRIPTION OF THE AFFECTED ENVIRONMENT 38

4.1 Regional Location 38

4.2 Topography 41

4.3 Climate 41
  4.3.1 Free State 41
  4.3.2 KwaZulu-Natal 41

4.4 Geology 41

4.5 Soil 42

4.6 Wetlands 42

4.7 Flora and Fauna 45

4.8 Avifauna 45

4.9 Heritage 46

4.10 Socio Economics 46
  4.10.1 Settlements and settlement patterns 46
  4.10.2 Land-use 47
  4.10.3 Tourism and tourism related developments 47
  4.10.4 Public Sector infrastructure development 47
  4.10.5 Land restitution 47

5 SUMMARY ASSESSMENT OF SCOPING LEVEL STUDIES OF THE THREE ROUTE ALTERNATIVES 48
5.1 De Beers Pass Route (DBPR) green 48
  5.1.1 Wetlands 48
  5.1.2 Flora and Fauna 48
  5.1.3 Avifauna 49
  5.1.4 Heritage 49
  5.1.5 Social 50
  5.1.6 Economics 51

5.2 DBPR Alternative A 51
  5.2.1 Section: Keeversfontein to Van Reenen 51
  5.2.2 Section: Van Reenen to Warden 53

5.3 DBPR Alternative B 54
  5.3.1 Section: Keeversfontein to Van Reenen 54
  5.3.2 Section: Van Reenen to Warden 55

6 PUBLIC INVOLVEMENT PROGRAMME 56

6.1 Identification, notification and registration of I&APs 57
  6.1.1 Identification & registration 57
  6.1.2 Notification 58

6.2 Comments and Response Report (Scoping) 60

6.3 Public review of Draft Scoping Report 60

7 ROUTE RANKING 62

7.1 Route Ranking Method 62

7.2 Summary of Initial Route Ranking Results 64

8 DISCUSSION AND CONCLUSION 64

De Beers Pass Route (Green) 71
  8.1.1 Environmental 71
  8.1.2 Social 72
  8.1.3 Heritage, Palaeontology, Archaeology and visual 72

8.2 Alternative A (N3 upgrade and realignment) (Red) 73
  8.2.1 Environmental 73
  8.2.2 Social 74
  8.2.3 Heritage Palaeontology Archaeology Visual 74

8.3 Alternative B (Yellow) 75
  8.3.1 Environmental 75
  8.3.2 Social 76
  8.3.3 Heritage Palaeontology Archaeology Visual 77
  8.3.4 Economic 77

8.4 Summary of impact issues 78
  8.4.1 The Environment 78
  8.4.2 Social 79
  8.4.3 Economic 79
8.5 Summary and Conclusion

9 PLAN OF STUDY FOR EIA REPORT

9.1 Introduction

9.2 Authority Consultation

9.3 Terms of Reference for the EIA stage

9.3.1 General Terms of Reference

9.3.2 Specific terms of Reference

9.4 Concluding remarks

10 REFERENCES

LIST OF FIGURES

Figure 1: Route from Heidelberg to Cedara

Figure 2: De Beers Pass- and Blydevooruitzich Pass Routes

Figure 3: Locality map showing the proposed route alignments

Figure 4: The Harrismith, Intabaze, Tshame Spatial Development Framework.

Figure 5: Maluti-a-Phofung Spacial Development Framework – Rural Development

Figure 6: Regional Location of the Study Area

Figure 7: Thabo Mofutsanyane District Municipality

Figure 8: UThukela District Municipality

Figure 9: Soil Map of the Free State

Figure 10: Soil Map of KwaZulu-Natal

Figure 11: Environmental Characteristics Plan

LIST OF TABLES

Table 1: The Draft Scoping Report Team

Table 2: NEMA EIA Listed Activities

Table 3: Development Strategies Consulted

Table 4: Paid advertisements

Table 5: List of venues where notices displayed
Table 6: Information Sharing Sessions .......................... 60
Table 7: Route Ranking .................................................. 62
Table 8: Summary of Expected Long-term impacts .......... 67
Table 9: Impact Criteria Assessment and Rating Scales .... 83

APPENDICES

A: CV’s of the Scoping Team
B: List of registered I&AP’s
C: Advertisements
D: Public Notices
E: Notification Letter to I&AP’s
F: Background and Information Document (BID)
G: Information Sharing Sessions records
H: Key Stakeholder and Authorities meeting records
I: Focus Group meeting records
J: Comments and Responses Report (preceding Draft Scoping Report)
J.1: Comments and Responses Report (following Draft Scoping Report - Volume 1)
J.2: Comments and Responses Report (following Draft Scoping Report – Volume 2)
K: Draft Scoping Report Review Letters and Meetings

ACRONYMS

ACER ACER (Africa) Environmental Management Consultants
CKA Cave Klapwijk and Associates
DBPR De Beers’ Pass Route
DEA Department of Environmental Affairs (National)
KZN DAEARD KwaZulu-Natal Department of Agriculture Environmental Affairs and Rural Development
FS DETEA Free State Department of Economic Development, Tourism and Environmental Affairs
DLA Department of Land Affairs
EIA Environmental Impact Assessment
EIR Environmental Impact Report
EMP Environmental Management Plan
IBA Important Bird Areas
KZN KwaZulu-Natal
FS Free State
N3TC N3 Toll Concession (Pty) Ltd
NEMA National Environmental Management Act (No. 107 of 1998)
RLI Route Location Initiative
ROD Record of Decision
SANBI South African National Biodiversity Institute
SANRAL South African National Roads Agency Limited
1 INTRODUCTION

1.1 Historical Context

In 1971 Construction of the dual carriage freeway from Durban to Johannesburg was accepted by Government as part of the new National Road Program. Refer to Figure 1 for a map of the Route between Heidelberg (Johannesburg) and Cedara (KZN).

To complete the route between Estcourt and Villiers several alternatives were investigated by the National Transport Commission and two were considered as realistic. These were:

- Frere via Bergville up Blydevooruitzich Pass (Bezuidenhouts Pass) to Harrismith and;
- Frere via De Beers Pass to Warden.

The Frere via De Beers Pass to Warden was chosen over the Frere via Bergville – Bezuidenhouts Pass to Harrismith and Warden, due to geotechnical stability and shorter length. Refer to Figure 2 for a map of the two alternatives.

In 1974 the basic planning for the De Beers Pass Route (DBPR) was finalised but due to the shortage of funds the construction was delayed.

In 1983 the authority to charge tolls was granted by the National Roads Amendment Act 79 of 1983.
Figure 1: Route from Heidelberg to Cedara
Figure 2: De Beers Pass- and Blydevooruitzich Pass Routes
Following a public tender process, the South African National Roads Agency Ltd (SANRAL) appointed the N3 Toll Concession (Pty) Ltd. (N3TC) as the Concessionaire responsible for the Design, Construction, Financing, Operating and Maintenance of a portion of National Route 3 from Cedara in KwaZulu Natal to the Heidelberg South Interchange in Gauteng as a Toll Highway with Developments and Associated Facilities. This 415 kilometre section of the N3 is referred to as the N3 Toll Route. The concession is for a thirty year period that commenced on 2 November 1999.

Included in the Concession Contract is the requirement to construct a new route known as the De Beers Pass Route (DBPR), between Keeversfontein and Warden. Completion of the DBPR has a completion date, linked to a traffic volume trigger, based on the annual average daily traffic (AADT) on the portion of the N3 between Keeversfontein and Harrismith. Based on the most recent AADT, the predicted commencement date of the project is 2013 and the construction period is approximately 3.5 years.

The DBPR name is derived from the alternative route between Keeversfontein (the farm name on which the Tugela Toll Plaza is located) and the town of Warden, that was selected by the then National Transport Commission in 1971 and which has an alignment up the escarpment that is near the existing De Beers Pass.

1.2 Environmental Processes

N3TC obtained environmental approval by means of a Record of Decision (ROD), issued by the Department of Environmental Affairs and Tourism, on 26 March 1999, authorising the construction and upgrading of the N3 Toll Road System from Heidelberg to Cedara, comprising of the routes, (i) Cedara to Heidelberg (via Van Reenen) and (ii) Keeversfontein to Warden (De Beers Pass Route). The ROD was issued subject to certain conditions.

In order to comply with these conditions, N3TC embarked on an analysis process to compare alternative alignments with the DBPR. During this process, N3TC established through the use of new road design software, an alternative geometrically compliant route in the vicinity of the existing Van Reenen’s Pass, with various alternatives to re-join the DBPR at appropriate positions. A comparison of environmental impacts was then required. In 2008, N3TC launched a Route Location Initiative (RLI). This RLI was used to identify directly affected landowners and their concerns as they relate to the then studied alternatives to the DBPR, as well as an initial assessment to determine and rank the environmental impacts assessed.

It is important to note that the RLI process was an N3TC initiative to determine the environmental and social impact on the directly affected landowners of the alternatives identified by N3TC. The RLI initiative culminated in an issues and responses report, included as Appendix J Section 5, herein.

The RLI process identified that regardless of the viability of alternative routes satisfying the engineering constraints, there would be impacts on the natural, social and economic environment. In discussion with the Department of Environmental Affairs (DEA), previously DEAT, it was agreed that when the application for Environmental Authorisation for the DBPR was made, it should include a study of an additional alternative, referred to as Alternative A in this report(refer to route descriptions).

N3TC initiated the formal EIA process, in order to comply with the time line for the contractual implementation date of the DBPR, and to conform to new legislation.
In this regard N3TC, on 23 July 2010 submitted an EIA Application to the National Department of Environmental Affairs (DEA) for the construction of the National Road 3: Keeversfontein to Warden (De Beers Pass Section). In order to facilitate this process N3TC appointed Mr. Alan Cave as the Independent Environmental Assessment Practitioner (EAP).

1.3 Project locality and description of route alignments

The route alignment alternatives which are included this EIA process are:

- De Beers Pass Route
- De Beers Pass Route: Alternative A
- De Beers Pass Route: Alternative B

Refer to Figure 3: Locality map showing the proposed alternative route alignments. A description of each route alignment is provided below.

1.3.1 De Beers Pass Route (DBPR)

This proclaimed DBPR runs from Keeversfontein (Tugela Toll Plaza) via the De Beers Pass area to Warden. The route branches off the current N3 just north of the Tugela Toll Plaza. The route reaches the top of the KwaZulu-Natal escarpment where it passes through a tunnel approximately 500m in length and then goes around the top edge of a gorge before entering the Free State. A wetland associated with the Wilge River is crossed and the alignment then runs close to the Wilge River before the road climbs to the more even plateau of the Free State Highveld. The Wilge, Meul and Cornelius Rivers are crossed before the DBPR re-joins the existing N3 just north of Warden, where a Toll Plaza is proposed. The total length of this route is approximately 97.7 km.

1.3.2 De Beers Pass Route: Alternative A

This route up the escarpment starts just north of the Tugela Toll Plaza and runs for a short distance almost parallel to and east of the existing N3 Van Reenen’s Pass. The route then follows the landform ridges and reaches the crest of the escarpment through a saddle immediately south of Van Reenen Village. Just north of Van Reenen village an interchange will connect with the existing N3. The route continues in a north westerly direction to intersect the N3 in the Swinburne area. The route will then deviate to the north and connects with the existing N3 at an interchange before continuing across the slopes of Platberg Mountain to an interchange north of Harrismith near 42nd Hill. From this point the route will follow the existing N3 closely to Warden, where a Toll Plaza is proposed. The Wilge River is crossed at Swinburne and the Meul and Cornelius Rivers will be crossed at the same points they are crossed by the existing N3. The detailed design will determine to which side the existing road is widened. The total length of this route is approximately 107 km.

1.3.3 De Beers Pass Route: Alternative B

The route from Tugela Toll Plaza to Van Reenen village interchange is the same as DBPR Alternative A. At this point the route crosses a wetland north of Van Reenen village and follows a north westerly direction along the high ground to join the DBPR at the Lincoln Interchange. The route from there to Warden will follow the DBPR. The DBPR re-joins the existing N3 just north of Warden, where a Toll Plaza is proposed. The route will cross the Wilge River north of Swinburne. The total length of this route is approximately 98.3 km. The N3TC is contractually obliged to continue to operate and maintain the existing N3 in its current form. Should the proposed DBPR, or DBPR: Alt B, receive environmental authorisation and be constructed, the existing N3 will remain as a public road in its current state, providing access to Harrismith and central South Africa via the N5.
Should the proposed DBPR Alt A receive environmental authorisation and be constructed, the existing N3 where it has not been incorporated into the realignment, will continue to provide access to Harrismith and central South Africa.

1.4 Draft Scoping Report Comment

During the Draft Scoping Report comment period from the 4th November 2010 to the 14th December 2010 the following two options were requested to be assessed. For an alternative route to be considered in the EIA study it shall need to be a ‘reasonable and feasible’ option. (NDEA Guideline 5).

1.4.1 Existing N3 Road Widening

At a stakeholder meeting of the Harrismith Business Forum held in Harrismith on the 13th December 2010, a member of the forum proposed that, due to the fact that many interested and affected parties have, to date, voiced their opinion that there should be no new road, and that the Business Forum is opposed to a new road, the EIA should consider and study an alternative to remain exactly on the existing N3 alignment. The suggestion was made that the road can be widened to accommodate additional traffic, and accesses can be eliminated where appropriate, but the road alignment and geometry, with respect to curves and grades, will remain unaltered.

This proposed alternative is similar to the ‘Do Nothing’ alternative and differs only in the widening of the existing road.

For an alternative route to be considered in the EIA study it shall need to be a ‘reasonable and feasible’ option. (NDEA Guideline 5).

The ‘N3 Road Widening’ alternative will consist of the section of the N3 from Keeversfontein (Tugela Plaza) via Van Reenen’s Pass, Van Reenen and Harrismith to Warden. However, as the section of the road north of the Verkykerskop Road intersection to Warden is already included in Alternative A, the discussion below refers only to that section of the road from Keeversfontein (Tugela Plaza) to the Verkykerskop intersection just north of Harrismith.

1.4.1.1 The perceived objective of this alternative

The following is the likely rational behind the proposed alternative.

- The existing transport corridor for the N3 will be retained and, therefore, the only impact will be on additional land required for road widening.
- All on grade access to the N3 will remain.
- All traffic will continue to pass through Harrismith and, therefore, the economy of the towns and businesses will remain unaffected.

1.4.1.2 The rationale for the improvements to the existing N3

The N3 is the National Road link between the Port of Durban in KwaZulu-Natal with the economic node of Johannesburg in Gauteng. It is desirable for the entire route to comply with the National Road standard of a design speed of 120km/h. The design speed of the road dictates minimum geometric requirements and this is primarily a function of road safety, operational capacity, topography and minimising road user costs. SANRAL requires the section of new road between Keeversfontein and Warden to comply with the requirements of a design speed of 120km/h.
1.4.1.3 The requirements of the road improvements, Keeversfontein to Warden

In order for the new road to comply with the requirements for a design speed of 120km/h, the following design requirements, taking topography into account, are relevant.

- Horizontal curve radii may not be less than 700m, but 1200m is desirable;
- Vertical grade may not exceed 5%;
- Crest and sag curves have minimum requirements;
- At grade intersections are not permitted onto a National Toll Road.
- Road Reserve width should be a minimum of 80m to accommodate future road widening.

Further it has been stated in official documentation and during all information sharing sessions that the existing N3 road within the study area will remain in operation within the total road network regardless of which option is constructed. The existing N3 will, therefore, continue to serve all adjacent communities as well as the N5 link to central South Africa.

1.4.1.4 Discussion on the existing N3

The existing N3 has the following limitations:

- Geometric Compliance

Both the vertical and horizontal alignment of the existing N3 do not comply with the requirements of a 120km/h design speed. Widening the existing road does not address these shortcomings. To address these problems, the existing road requires substantial sections to be regraded and realigned. However, to achieve compliance on Van Reenen’s Pass, on its current alignment, is virtually impossible due to the mountainous topography traversed by the road. Other similar sections include the Swinburne area, the Harrismith South Interchange and Wimpy Hill. In these areas, substantial realignments will be required to address the current shortcomings. There are also other areas where local realignments will be required to achieve geometric compliance.

A further limitation on the existing road is the at grade intersections giving access and cross access to properties, facilities as well as secondary and tertiary roads. To achieve the required safety standards associated with future traffic volumes, all these accesses must be closed. This will be done by introducing a service road system and interchanges where vehicles can access or depart from the N3 under safe conditions and at safe operating speeds.

- Safety

The variance in vertical grades results in high speed differentials between light and heavy vehicles, which lead to head tail crashes, one of the most common crashes on this section of the N3.

- Road User Costs

The benefits in reduced operating costs from improved gradients and shorter travel distance are substantial. A very conservative estimate on the heavy vehicle operating cost saving when comparing De Beers Pass to the existing N3 equates to approximately R165 million per annum; this for a 14km distance saving. In upgrading the existing N3, this national economic benefit is lost.
By widening the existing N3 there will be no user cost reduction. On the contrary, with an increase in traffic volume, user costs are likely to increase due to congestion that will result in extended travel times.

- **Noise and Air Quality**

Current projections indicate that in around 2035, the N3 will require three lanes per direction to accommodate growing traffic volumes. Currently, the annual average daily traffic volume is approximately 11 500 vehicles per day, of which an estimated 3500 are heavy vehicles. Conservatively estimated, the total vehicle count will double over the next 25 years, with heavy vehicles more than trebling (to 12 000 heavy vehicles per day). The increase in traffic over time will increase current noise and pollution affects to unacceptable levels through towns/residential areas. In terms of Section 24 of the Constitution, the public are entitled to a safe and pollution free environment.

The benefits in reduced carbon emissions and improved air quality cannot be achieved if the geometric standards for efficient vehicle operation are not in place. Longer roads will have larger carbon footprints. Negative impacts of poor air quality on the natural and social environment are well documented in Sagnotti, L. Dinarès-Turell, J. Winkler, A and Cascella, A. (2002) Biomonitoring of traffic air pollution in Rome using magnetic properties of tree leaves. As well as in Buckeridge, DL. Glazier, R. Harvey, BJ. Escobar, M. Amrhein, MC and Frank, J. (2002) Effect of motor vehicle emissions on respiratory health in an urban area.

**1.4.1.5 Conclusion**

It is important to realise that (a) if De Beers Pass (Green Route) is built, the existing N3 will be retained and maintained, and, thus, the access to the towns of Van Reenen, Swinburne, Harrismith and Warden will not be altered and (b) if Alternative A (Red Route) is built, the access to the towns will also be retained and maintained by existing and new interchanges (two at Warden and Harrismith, and one at Swinburne and Van Reenen).

From the above, the proposal to widen the existing road from Keeversfontein (Tugela Plaza) to Verkykerskop, just North of Harrismith, is neither reasonable nor feasible and, therefore, does not justify further consideration during the EIA phase of the Environmental Impact Assessment process.

**1.4.2 The “Do Nothing” Option**

The ‘Do Nothing’ alternative will consist of the section of the N3 from Keeversfontein (Tugela Plaza) via Van Reenen’s Pass, Van Reenen and Harrismith to Warden. This section will have no changes made to the alignment or road width, and the status quo will prevail. However, the road will continue to be maintained to the same standard.

**1.4.2.1 The objective of this alternative**

The following rational is behind the alternative:

- The existing transport corridor for the N3 will be retained and, therefore, conditions and experiences of the road user will remain as they are.

- The economy of the towns and businesses will remain unaffected.

- The existing condition will be used as a base case against which the other Alternative routes will be compared in the Environmental Impact Assessment phase of the study.
1.4.2.2  The requirements of the Do Nothing alternative

The road will remain as it is at present. No changes in alignment or width will be made.

Existing on-grade access points to the N3 will remain.

The road will be maintained to the required standard for the duration of the concession contract.

1.4.2.3  Discussion on the existing N3

- Access

‘On-grade’ access to the N3 will remain for all roads and farm accesses. As the traffic volume increases, the risk of accidents will significantly increase.

Geometric compliance

Both the vertical and horizontal alignment of the existing road do not comply with the 120km/h design speed, a requirement for a Toll Road.

- Safety

The general safety of the road user will decline as traffic volumes increase on a road that has many on grade access points. The variance in vertical grades results in high speed differentials between light and heavy vehicles which lead to head tail crashes, one of the most common crashes on this section of the N3.

- User cost

The cost to the road user will not be reduced and may increase as traffic congestion adds to journey time. The high cost of maintenance and management associated with a Toll Road must be justified by a reduction in travel time and user costs, and, therefore, if these aspects offer no benefit to the road user there is no justification or motivation to charge a toll fee. If this is the case then the cost of maintaining the road cannot be redeemed. The road project is then no longer feasible as there is no return on investment and no user cost benefit.

- Noise and air quality

The increase in traffic volume over time will add to the already uncomfortably high levels of noise experienced by residents near the road, particularly in Harrismith.

The quality of air in the vicinity of a very busy national road will also be degraded with the effects being experienced most where the road passes through towns, in particular Harrismith. The ‘carbon footprint’ will also increase due to longer travel times.

It is unreasonable to impose such discomfort on residents of towns when other less environmentally intrusive alternatives are possible.
1.4.2.4 Conclusion

For a proposed Toll Road to be justified, especially along a national corridor between a port and a major inland city, the objectives of efficiency and safety for road users must be met. At the same time, the public are entitled to a safe and pollution free environment (Section 24 of the Constitution of South Africa).

This right is promoted by a road design that complies with the Toll Road standards and alignments that do not pass through towns, and that reduce the carbon footprint by efficient engine operation.

The 'Do Nothing' alternative along the section of the N3 from the Tugela Plaza via Van Reenen’s Pass, Van Reenen, Swinburne and Harrismith to Warden is neither Reasonable nor Feasible and, therefore, does not justify consideration during the EIA phase of the Environmental Impact Assessment process.
Figure 3: Locality map showing the proposed route alignments
1.5 Technical Information

The proposed National Road 3: Keeversfontein to Warden (De Beers Pass Section) will comply with SANRAL technical specifications for divided and undivided highways, as follows:

- Road reserve width: generally 80m;
- Road cross section: dual divided or undivided, with a minimum of 4 lanes, 2 lanes in each direction and surfaced shoulders. The cross section will make provision for future expansion to 6 lanes;
- Road surface details: bitumen / concrete (where necessary);
- Road median: vegetated or barrier (as the situation requires);
- Drainage infrastructure: to effectively manage discharge from the road surface and surrounding areas;
- Access Control: there will be no at-grade intersections. In the case of upgrading the existing N3, the existing at grade intersections will be closed and alternative access will be provided by means of appropriate service roads / interchange system;
- Interchanges: proposed new and upgraded interchanges are shown on the Figure 3.
- Toll Plaza: a Mainline Plaza, together with associated Ramp Plazas just north of Warden;
- Bridges, viaducts under and over passes and link roads will be built where the terrain dictates their need, to provide landowners appropriate access to their properties and to interchanges.

For ancillary works associated with the construction of the road the following are required:

- Borrow pits and haul roads to supply the material for the layer works of the road.
- Quarries, crushing and screening plants and aggregate storage areas. The aggregate will be used for road pavement, asphalt and concrete mixes.
- Temporary Asphalt Plants that will supply asphalt for the road construction, and concrete batching plants for the mixing and supply of concrete for the concrete works required.
- Site offices, lay-down yards, workshops and laboratories for the Contractor’s and Professional teams.

1.6 Time Study

The contractual requirements for the opening of the De Beers Pass Section, based on the current timeline, gives the predicted commencement date of 2013 and the construction period is approximately 3.5 years.

1.7 Draft Scoping Report Structure

The purpose of this scoping report is to obtain information on the natural social and economic aspects and characteristics of the study area. This was achieved by preliminary specialist reports and a comprehensive Public Involvement Programme (PIP). The assembled information was used to advise which alternatives would be studied further in the EIA phase and what specialist studies would be commissioned to provide answers to the concerns and matters raised by specialists, stakeholders and Interested and Affected Parties (I&AP’s).
This Draft Scoping Report (DSR) structure is as follows:

- **Chapter 1** introduces the project and describes the project background. It also discusses the experience of the Environmental Assessment Practitioner (EAP), including specialists who have contributed to the Final Scoping Report.

- **Chapter 2** outlines the environmental legislation and administrative requirements applicable to the study.

- **Chapter 3** outlines the various Development Strategies that have been consulted.

- **Chapter 4** provides an overview of the natural, social and economic setting of the region(s) in which the proposed project is situated.

- **Chapter 5** is a summary of the preliminary assessment of the three proposed alignments by specialists. The impacts on Wetlands, Flora and Fauna, Avifauna, Heritage, Social and Economics are discussed for each of the three proposed alignments.

- **Chapter 6** describes the Public Involvement Programme (PIP) and issues and concerns raised by Interested and Affected Parties (I&AP’s) and responses thereto. This chapter also provides evidence of notification of the Project to the Public, Stakeholders and Local Authorities.

- **Chapter 7** contains a preliminary Summary Route Ranking for each environmental exercise based on the discussions and preliminary findings of the specialist studies in progress.

- **Chapter 8** contains the conclusion to the Final Scoping Report.

- **Chapter 9** describes the environmental impact reporting phase and includes the Plan of Study for the EIA.

- **Chapter 10** lists references indicated in the Final Scoping Report.
1.8 Expertise of the Environmental Assessment Practitioner

Staff and specialists who have worked on this project and contributed to the compilation of this Scoping Report are detailed in Table 1: The Scoping Report Team.

Table 1: The Scoping Report Team

<table>
<thead>
<tr>
<th>SKILL</th>
<th>NAME</th>
<th>COMPANY NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td>Mr A Cave</td>
<td>Cave Klapwijk &amp; Associates</td>
</tr>
<tr>
<td>Environmental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment Practitioner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Assistant</td>
<td>Me H Grobbelaar</td>
<td>Cave Klapwijk &amp; Associates</td>
</tr>
<tr>
<td>Visual impact</td>
<td>Mr M Klapwijk</td>
<td>Cave Klapwijk &amp; Associates</td>
</tr>
<tr>
<td>Avifauna</td>
<td>Mr D Allan</td>
<td>Durban Natural Science Museum</td>
</tr>
<tr>
<td>Flora and Fauna</td>
<td>Mr W de Frey</td>
<td>EkolInfo</td>
</tr>
<tr>
<td>Wetlands</td>
<td>Dr M Mentis</td>
<td>Envirobiz Africa</td>
</tr>
<tr>
<td>Heritage</td>
<td>Mr L van Schalkwyk</td>
<td>eThembeni Cultural Heritage</td>
</tr>
<tr>
<td>Social</td>
<td>Dr. N Bews</td>
<td>Dr Neville Bews &amp; Associates</td>
</tr>
<tr>
<td>Economics</td>
<td>Prof. W Pienaar</td>
<td>University of Stellenbosch</td>
</tr>
<tr>
<td>Public Participation</td>
<td>Ms J Tooley/</td>
<td>Acer</td>
</tr>
<tr>
<td>Project Leader</td>
<td>Mr D Heinsohn</td>
<td></td>
</tr>
<tr>
<td>Public Participation</td>
<td>Ms B Shinga</td>
<td>Acer</td>
</tr>
<tr>
<td>Project Manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIS and mapping</td>
<td>Mr N Berjak</td>
<td>S3 Technologies</td>
</tr>
</tbody>
</table>

*Please refer to attached CV’s (See Appendix A).

2 LEGAL AND ADMINISTRATIVE REQUIREMENTS

An application for Environmental Authorisation for the N3: Keeversfontein to Warden (De Beers Pass Section) project was submitted to the National Department of Environmental Affairs (DEA) on 23 July 2010 under the National Environmental Management Act, 1998 (Act no. 107 of 1998) (as amended) and the EIA Regulations of 2006. Environmental Legislation that will govern the EIA process is discussed below:
2.1 Constitution of South Africa 108 of 1996, section 2 (24)

Section 2 (24) of the South African Constitution states that:

Everyone has the right to

An environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -

- prevent pollution and ecological degradation;
- promote conservation; and
- secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.


NEMA was promulgated on the 27th of November 1998 and gives effect to the abovementioned section of the South African Constitution.

The intention of NEMA is to provide for:

- Co-operative environmental governance by establishing principles for decision-making on matters affecting the environment;
- Institutions that will promote co-operative governance;
- Procedures for coordinating environmental functions exercised by Organs of State;
- The prohibition, restriction or control of activities which are likely to have a detrimental effect on the environment; and

Section 28(1) of NEMA states that “every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring”. If such degradation/pollution cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution.

The N3TC therefore has a responsibility to ensure that the proposed activities and the EIA process conform to the principles of NEMA.

2.3 NEMA EIA Regulations

Sections 24 and 44 of NEMA make provision for the promulgation of regulations that identify activities which may not commence without an Environmental Authorisation. NEMA therefore governs the EIA process through the EIA regulations of April 2006 (Government Gazette No. 28753 of 21 April 2006). The 2006 EIA Regulations are contained in three Government Notices and came into force on 3 July 2006. Government Notice (GN) R 385 lays out two alternative authorisation processes.

Depending on the type of activity that is proposed, either a Basic Assessment process or a full EIA process is required to obtain Environmental Authorisation. GN R 386 lists activities that require Basic Assessment, while GN R 387 lists activities that require a full EIA.

The 2006 EIA Regulations were amended and came into effect on 2 August 2010. The new regulations are contained in three Government Notices: GN R 543 lays out the new regulations for activities identified in three listing notices. GN R 544 (Listing Notice 1) outlines activities that require Basic Assessment; GN R 545 (Listing Notice 2) outlines
activities that require a full EIA and GN R (Listing Notice 3) outlines activities that require Basic Assessment in the various Geographical Areas.

According GN R 543 of the 2010 Regulations the following applies to the N3: Keeversfontein to Warden (De Beers Pass Section) Project:

Regulation 76(3) : “Where an application submitted in terms of the previous NEMA regulations, is pending in relation to an activity of which a component of the same activity was not listed under the previous NEMA Notices, but is now listed in terms of 24(2) of the Act, the competent authority must dispense of such application in terms of the previous NEMA regulations and may authorise the activity listed in terms of section 24(2) as if it was applied for, on condition that all impacts of the newly listed activity and requirements of these regulations have also been considered and adequately assessed by the applicant”

In order to comply with the abovementioned condition of GN R 543 a comparison of relevant activities listed under the 2006 EIA Regulations and the 2010 Regulations is made in Table 2 below.
Table 2: NEMA EIA Listed Activities

<table>
<thead>
<tr>
<th>2006 NEMA EIA REGULATIONS</th>
<th>2010 NEMA EIA REGULATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 1(m) of GNR 386 of April 2006</strong></td>
<td><strong>Activity 16(iv) of GNR 546 of August 2010</strong></td>
</tr>
<tr>
<td>The construction of facilities or infrastructure, including associated structures or infrastructure, for –</td>
<td>The construction of –</td>
</tr>
<tr>
<td>(m) any purpose in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including –</td>
<td>(iv) infrastructure covering 10 square meter or more -</td>
</tr>
<tr>
<td>(i) canals;</td>
<td>Where such construction occurs within a watercourse or within 32 meters of a watercourse measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</td>
</tr>
<tr>
<td>(ii) channels;</td>
<td><strong>Activity 24 (f) of GNR 546 of August 2010</strong></td>
</tr>
<tr>
<td>(iii) bridges;</td>
<td>The expansion of –</td>
</tr>
<tr>
<td>(iv) dams; and</td>
<td>(f) infrastructure where the infrastructure will be expanded by 10 square meters or more –</td>
</tr>
<tr>
<td>(v) weirs;</td>
<td>Where such construction occurs within a watercourse or within 32 meters of a watercourse measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</td>
</tr>
<tr>
<td>2006 NEMA EIA REGULATIONS</td>
<td>2010 NEMA EIA REGULATIONS</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td><strong>Activity 11 of GNR 544 of August 2010</strong></td>
<td><strong>Activity 39 of GNR 544 of August 2010</strong></td>
</tr>
<tr>
<td>The construction of –</td>
<td>The expansion of –</td>
</tr>
<tr>
<td>(i) Canals</td>
<td>(i) Canals</td>
</tr>
<tr>
<td>(ii) Channels</td>
<td>(ii) Channels</td>
</tr>
<tr>
<td>(iii) Bridges</td>
<td>(iii) Bridges</td>
</tr>
<tr>
<td>(iv) Dams</td>
<td>(iv) Weirs</td>
</tr>
<tr>
<td>(v) Weirs</td>
<td>(v) Bulk storm water outlet structures</td>
</tr>
<tr>
<td>(vi) Bulk storm water outlet structures</td>
<td></td>
</tr>
<tr>
<td>(xi) Infrastructure covering 50 square meters or more</td>
<td></td>
</tr>
</tbody>
</table>

Where such construction occurs within a watercourse or within 32 meters of a watercourse measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.

Where such construction occurs within a watercourse or within 32 meters of a watercourse measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.
<table>
<thead>
<tr>
<th>2006 NEMA EIA REGULATIONS</th>
<th>2010 NEMA EIA REGULATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 4 of GNR 386 of April 2006</strong></td>
<td><strong>Activity 18 of GNR 544 of August 2010</strong></td>
</tr>
<tr>
<td>The dredging, excavation, infilling, removal or moving of soil, sand or rock exceeding 5 cubic metres from a river, tidal lagoon, tidal river, lake, in-stream dam, floodplain or wetland.</td>
<td>(i) The infilling of any material of more than 5 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from –</td>
</tr>
<tr>
<td></td>
<td>(i) a watercourse</td>
</tr>
<tr>
<td></td>
<td>but excluding where such infilling, depositing, dredging, excavation, removal or moving –</td>
</tr>
<tr>
<td></td>
<td>(a) Is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority, or</td>
</tr>
<tr>
<td></td>
<td>(b) occurs behind the development setback line.</td>
</tr>
<tr>
<td><strong>Activity 7 of GNR 386 of April 2006</strong></td>
<td><strong>Activity 10 of GNR 546 of August 2010</strong></td>
</tr>
<tr>
<td>The above ground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres at any one location or site.</td>
<td>The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic meters.</td>
</tr>
<tr>
<td>2006 NEMA EIA REGULATIONS</td>
<td>2010 NEMA EIA REGULATIONS</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Activity 8 of GNR 386 of April 2006</strong></td>
<td><strong>Activity 19 of GNR 544 of August 2010</strong></td>
</tr>
<tr>
<td>Reconnaissance, prospecting, mining or retention operations as provided for in the</td>
<td>Any activity which requires a prospecting right or renewal thereof in terms of section</td>
</tr>
<tr>
<td>such permissions, rights, permits and renewals thereof.</td>
<td>(Act No. 28 of 2002).</td>
</tr>
<tr>
<td><strong>Activity 9 of GNR 386 of April 2006</strong></td>
<td><strong>Activity 20 of GNR 544 of August 2010</strong></td>
</tr>
<tr>
<td>In relation to permissions, rights, permits and renewals granted in terms of 8 above, or</td>
<td>Any activity requiring a mining permit in terms of section 27 of the Mineral and</td>
</tr>
<tr>
<td>any other similar right granted in terms of previous mineral or mining legislation, the</td>
<td>Petroleum Resources Act, 2002 (Act No. 28 of 2002) or renewal thereof.</td>
</tr>
<tr>
<td>undertaking of any prospecting or mining related activity or operation within a</td>
<td></td>
</tr>
<tr>
<td>prospecting, retention or mining area, as defined in terms of section 1 of the Mineral</td>
<td></td>
</tr>
<tr>
<td><strong>Activity 12 of GNR 386 of April 2006</strong></td>
<td><strong>Activity 14 of GNR 546 of August 2010</strong></td>
</tr>
<tr>
<td>The transformation or removal of indigenous vegetation of 3 hectares or more or of any</td>
<td>The clearance of an area of 5 hectares or more of vegetation where 75% or more of the</td>
</tr>
<tr>
<td>size where the transformation or removal would occur within a critically endangered or an</td>
<td>vegetative cover constitutes indigenous vegetation except for:</td>
</tr>
<tr>
<td>endangered ecosystem listed in terms of section 52 of the National Environmental</td>
<td>3. undertaking of a linear activity falling below the thresholds in Notice 544 of 2010.</td>
</tr>
<tr>
<td>Management: Biodiversity Act, 2004 (Act No. 10 of 2004).</td>
<td></td>
</tr>
<tr>
<td>Activity 13 of GNR 386 of April 2006</td>
<td>Activity 14 of GNR 386 of April 2006</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>The abstraction of groundwater at a volume where any general authorisation issued in terms of the National Water Act, 1998 (Act No. 36 of 1998) will be exceeded.</td>
<td>The construction of masts of any material or type and of any height, including those used for telecommunication broadcasting and radio transmission, but excluding – masts of 15 metres and lower exclusively used (i) by radio amateurs; or (ii) for lighting purposes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity 15 of GNR 386 of April 2006</th>
<th>Activity 3 of GNR 546 of August 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>The construction of a road that is wider than 4 metres or that has a reserve wider than 6 metres, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 metres long.</td>
<td>The construction of masts or towers of any material or type used for telecommunication broadcasting or radio transmissions purposes where the mast: (a) is to be placed on a site not previously used for this purpose and (b) will exceed 15 meters in height but excluding attachments to existing buildings and masts on rooftops.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity 22 of GNR 544 of August 2010</th>
<th>Activity 22 of GNR 544 of August 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>The construction of a road outside urban areas (i) with a reserve wider than 13.5 meters or, (ii) where no reserve exists where the road is wider than 8 meters,</td>
<td></td>
</tr>
<tr>
<td>2006 NEMA EIA REGULATIONS</td>
<td>2010 NEMA EIA REGULATIONS</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------</td>
</tr>
</tbody>
</table>
| **Activity 47 of GNR 544 or August 2010** | The widening of a road by more than 6 meters, or the lengthening of a road by more than 1 kilometre-  
   (i) where the existing reserve is wider than 13.5 meters or  
   (ii) where no reserves exists, where the existing road is wider than 8 meters |
<p>| excluding widening or lengthening occurring inside urban areas. | |
| <strong>Activity 19 of GNR 386 of April 2006</strong> | The development of a new facility or the transformation of an existing facility for the conducting of manufacturing processes, warehousing, bottling, packaging, or storage, which, including associated structures or infrastructure, occupies an area of 1 000 square metres or more outside an existing area zoned for industrial purposes. |
| <strong>No similar Listing in GNRs 544 545 and 546 and Regulation 76(2) of GNR 543 accordingly applies:</strong> | “If a situation arises where activities, listed under the previous NEMA Notices, are not listed similarly under the current list of activities and competent authorities identified in terms of section 24(2) and 24 D of the National Environmental Management Act, 1998 (Act No 107 of 1998) or in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), and where a decision on an application is submitted under the previous NEMA regulations is still pending, the competent authority will consider such application to be withdrawn” |
| <strong>Activity 20 of GNR 386 of April 2006</strong> | The transformation of an area zoned for use as public open space or for a conservation purpose to another use. |
| <strong>Activity 24 of GNR 544</strong> | The transformation of land bigger than 1000 square meters in size to residential, retail, commercial, industrial or institutional use, where at the time of the coming into effect of this Schedule such land was zoned open space, conservation or had an equivalent zoning. |</p>
<table>
<thead>
<tr>
<th>2006 NEMA EIA REGULATIONS</th>
<th>2010 NEMA EIA REGULATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 24(c) of GNR 386 of April 2006</strong></td>
<td><strong>Activity 5 of GNR 545 of August 2010</strong></td>
</tr>
<tr>
<td>The re-commissioning or use of any facility or infrastructure, excluding any facility or infrastructure that commenced under an environmental authorisation issued in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006, after a period of two years from closure or temporary closure, for facilities for any process or activity, which require permission, authorisation, or further authorisation, in terms of legislation governing the release of emissions, pollution, effluent or waste prior to the facility being re-commissioned, unless the facility for the process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the activity is regarded to be excluded from this list.</td>
<td>The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution, effluent and waste which is not identified in Notice No 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.</td>
</tr>
<tr>
<td><strong>Activity 1(e) of GNR 387 of April 2006</strong></td>
<td><strong>No similar Listing in GNRs 544 545 and 546 and Regulation 76(2) of GNR 543 accordingly applies:</strong></td>
</tr>
<tr>
<td>The construction of facilities or infrastructure, including associated structures or infrastructure, for - (e) any process or activity which requires a permit or license in terms of legislation governing the generation or release of emissions, pollution, effluent or waste and which is not identified in Government Notice No. R. 386 of 2006 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2009) in which case the activity is to be excluded from this list;</td>
<td>“If a situation arises where activities, listed under the previous NEMA Notices, are not listed similarly under the current list of activities and competent authorities identified in terms of section 24(2) and 24 D of the National Environmental Management Act, 1998 (Act No 107 of 1998) or in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), and where a decision on an application is submitted under the previous NEMA regulations is still pending, the competent authority will consider such application to be withdrawn”</td>
</tr>
<tr>
<td><strong>2006 NEMA EIA REGULATIONS</strong></td>
<td><strong>2010 NEMA EIA REGULATIONS</strong></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Activity 2 of GNR 387 of April 2006</strong></td>
<td><strong>Activity 24 of GNR 544 of August 2010</strong></td>
</tr>
<tr>
<td>Any development activity, including associated structures and infrastructure, where the</td>
<td>The transformation of land bigger than 1000 square meters in size, to</td>
</tr>
<tr>
<td>total area of the developed area is, or is intended to be, 20 hectares or more.</td>
<td>residential, retail, commercial, industrial or institutional, where, at the time of the</td>
</tr>
<tr>
<td></td>
<td>coming into effect or this Schedule such land was zoned open space, conservation or had an</td>
</tr>
<tr>
<td></td>
<td>equivalent zoning.</td>
</tr>
<tr>
<td><strong>Activity 4 of GNR 387 of April 2006</strong></td>
<td><strong>Activity 42 of GNR 545 of August 2010</strong></td>
</tr>
<tr>
<td>The extraction of peat.</td>
<td>The extraction or removal of peat or peat soils including the disturbance of vegetation or</td>
</tr>
<tr>
<td></td>
<td>soils in anticipation of the extraction or removal of peat or peat soils.</td>
</tr>
<tr>
<td><strong>Activity 5 of GNR 387 of April 2006</strong></td>
<td><strong>Activity 18 of GNR 545 of August 2010</strong></td>
</tr>
<tr>
<td>The route determination of roads and design of associated physical infrastructure, including</td>
<td>The route determination of roads and design of associated physical infrastructure including</td>
</tr>
<tr>
<td>roads that have not yet been built for which routes have been determined before the</td>
<td>roads that have not yet been built for which routes have been determined before 03 July</td>
</tr>
<tr>
<td>publication of this notice and which has not been authorised by a competent authority in</td>
<td>2006 and which have not been authorised by a competent authority in terms of the Environmental</td>
</tr>
<tr>
<td>terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of</td>
<td>Impact Assessment Regulations, 2006 or 2009, made under section 24(5) of the Act and</td>
</tr>
<tr>
<td>the Act and published in Government Notice No. R. 385 of 2006, where</td>
<td>published in GNR 385 of 2006 where -</td>
</tr>
<tr>
<td></td>
<td>(i) it is a national road as defined in section 40 of the South African National Roads</td>
</tr>
<tr>
<td></td>
<td>Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998);</td>
</tr>
<tr>
<td></td>
<td>(ii) it is a road administrated by a provincial authority;</td>
</tr>
<tr>
<td></td>
<td>(iii) the road reserve is wider than 30 meters; or</td>
</tr>
<tr>
<td></td>
<td>(iv) the road will cater for more than one lane of traffic in both directions.</td>
</tr>
<tr>
<td>(a) it is a national road as defined in section 40 of the South African National Roads</td>
<td></td>
</tr>
<tr>
<td>Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998);</td>
<td></td>
</tr>
<tr>
<td>(b) it is a road administrated by a provincial authority;</td>
<td></td>
</tr>
<tr>
<td>(c) the road reserve is wider than 30 metres; or</td>
<td></td>
</tr>
<tr>
<td>(d) the road will cater for more than one lane of traffic in both directions.</td>
<td></td>
</tr>
<tr>
<td>2006 NEMA EIA REGULATIONS</td>
<td>2010 NEMA EIA REGULATIONS</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td><strong>Activity 7 of GNR 387 of April 2006</strong>&lt;br&gt;Reconnaissance, exploration, production and mining as provided for in the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), as amended in respect of such permits and rights.</td>
<td><strong>Activity 21 of GNR 545 of August 2010</strong>&lt;br&gt;Any activity which requires an exploration right or renewal thereof as contemplated in sections 79 and 81 respectively of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).</td>
</tr>
<tr>
<td><strong>Activity 8 of GNR 387 of April 2006</strong>&lt;br&gt;In relation to permits and rights granted in terms of 7 above, or any other right granted in terms of previous mineral legislation, the undertaking of any reconnaissance exploration, production or mining related activity or operation within a exploration, production or mining area, as defined in terms of section 1 of the Mineral and Petroleum Development Act, 2002 (Act No. 28 of 2002).</td>
<td><strong>Activity 20 of GNR 545 of August 2010</strong>&lt;br&gt;Any activity which requires a mining right or renewal thereof as contemplated in sections 22 and 24 respectively of the Mineral and Petroleum Development Act, 2002 (Act No. 28 of 2002).</td>
</tr>
<tr>
<td><strong>Activity 10 of GNR 387 of April 2006</strong>&lt;br&gt;Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).</td>
<td><strong>Activity 26 of GNR 455 of August 2010</strong>&lt;br&gt;Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).</td>
</tr>
</tbody>
</table>

The National Environmental Management: Air Quality Act of 2004 was only fully implemented on 1st April 2010 replacing the Atmospheric Pollution Prevention Act No. 45 of 1965. The new Act is a major improvement on APPA as it sets national ambient air quality standards in addition to emission standards which the old Act regulated. The new Act therefore gives effect to section 24(b) of the constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of the people.

The New Air Quality Management Approach therefore aims to:

- Shift focus to the receiving environment in order to protect and enhance the quality of air;
- Provide reasonable measures for preventing pollution and ecological degradation;
- Secure ecologically sustainable development while promoting justifiable economic and social development;
- Decentralise management by shifting responsibilities to provincial and local government;
- Provide baseline air quality characterisation by identifying priority areas, pollutants and sources;
- Provide a range of emissions reduction measures through command and control measures as well as market incentives and disincentives;
- Standardise through routine monitoring, information management and reporting;
- Promote public participation and access to information.

This act is relevant to the proposed project as the new road may result in higher or lower levels of air pollution (dust and vehicle emissions) in the area, through both the construction and operational phases.

It would therefore be the responsibility of the N3TC or its agents to monitor the ambient air in the area works associated with the construction of the proposed route prior and during construction. This information would need to be reported to the relevant local authority.

2.5 National Water Act (Act No. 36 of 1998)

The National Water Act, No 36 of 1998 (NWA) was promulgated on 20 August 1998. The purpose of this Act is to ensure that the nation’s water resources are protected, used, developed, conserved, managed and controlled in ways which take into account the following factors:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Redressing the results of the past racial and gender discrimination;
- Facilitating social and economic development.
- Providing for the growing demand of water use;
- Protecting aquatic and associated ecosystems and their biological diversity;
- Reducing and preventing pollution and degradation of water resources;
- Meeting international obligations;
- Promoting dam safety and
- Managing floods and droughts.

In terms of Section 19 of the Act owners/ managers/ people occupying land on which any activity or process undertaken which causes, or is likely to cause pollution of a water resource must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring. These measures may include:

- Measures to cease, modify, or control any act or process causing the pollution;
- Compliance with any prescribed waste standard or management practice;
- Containment or prevention of the movement of pollutants;
- Remediation of the effects of the pollution; and
- Remediation of the effects of any disturbance to the bed and banks of a watercourse.

This Act is relevant to the proposed project as both the construction and operational phases may impact negatively on water resources (for example, streams, rivers, wetlands and groundwater resources).

The N3TC is therefore required to take all reasonable measures to prevent any pollution to water resources as a result of the proposed project. Should any pollution occur, the N3TC will be obliged to cease the activity that has caused the pollution and remediate any negative impacts resulting from the activity.

2.6 **National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)**

The National Environmental Management: Waste Act was promulgated in 2008 with the following objectives in mind:

- To protect health, well-being and the environment by providing reasonable measures for:
  - Minimisation of consumption of natural resources;
  - Avoiding and minimising the generation of waste;
  - Reducing, reusing, recycling and recovering of waste;
  - Treating and safely disposing of waste as last resort;
  - Preventing pollution and ecological degradation;
  - Securing ecological sustainable development while promoting justifiable
• economic and social development;
• Promoting and ensuring the effective delivery of waste services;
• Remediating land where contamination is present, or may be present, a
• significant risk of harm to health or the environment; and
• Achieving integrated waste management reporting and planning.

• To ensure that people are aware of the impact of waste on their health, well-being and
the environment;

• To provide for compliance with the measures set out as above; and

• Generally, to give effect to section 24 of the Constitution in order to secure an
environment that is not harmful to health and well-being.

According to the abovementioned Act “waste” can be defined as any substance:

• That is surplus, unwanted, rejected, discarded or abandoned;

• Where the generator has no further use of for the purposes of production,
reprocessing or consumption;

• That must be treated or disposed of;

This Act is relevant to the proposed project as both the construction and operational phases
may result in the generation of waste, directly or indirectly. The N3TC is therefore required to
take all reasonable measures to comply with the objectives of the act and to prevent any
pollution as a result of the proposed project. Should any pollution occur, the N3TC will be
obliged to cease the activity that has caused the pollution and remediate any negative
impacts resulting from the activity.

2.7 National Environmental Management: Protected Areas Act, 2003 (Act No. 57
of 2003)

The purpose of the National Environmental Management: Protected Areas Act, 2003 is as
follows:

• To protect ecologically viable areas representative of South Africa’s biological
diversity;
• To preserve the ecological integrity of those areas;
• To conserve biodiversity in those areas;
• To protect areas representative of all ecosystems, habitats and species naturally
occurring in South Africa.
• To protect South Africa’s protected species;
• To protect an area which is vulnerable and sensitive;
• To assist in ensuring the sustained supply of goods and services.

Protected areas in South Africa are divided into three types in terms of level of protection:

• Type 1: Protected areas include National Parks, Provincial Nature Reserves, Local
Authority Nature Reserves and DWAF Forest Nature Reserves.

• Type 2: Protected areas include Mountain Catchment Areas, Wildlife Management
Areas, Private Nature Reserves, National Heritage Sites, DWAF Forest Areas, SANDF
property, bird sanctuaries and botanical gardens.
• Type 3: protected areas include game farms, private game reserves and conservancies.

2.8 Protected Areas - Provincial Ordinances

Provincial Ordinances aim to protect sensitive animal and plant species within the various provinces of the country. These may be species which are under threat or which are already considered to be endangered. The provincial environmental authorities are responsible for the issuing of permits in terms of this legislation.

The following Ordinances may be applicable to the N3 Keeversfontein to Warden (De Beers Pass Route) Project:

2.8.1 Natal Conservation Ordinance, 15 of 1974

• Restriction of entry into parks and prohibition of certain acts therein (Section 15)
• Establishment of a private nature reserve or a private wild-life reserve (Section 59)


• Proclamation of protected areas (Section 47)
• Suspension of activities in protected areas (Section 49)
• Offences and penalties in respect of protected areas (Section 50)

2.8.3 Free State Nature Conservation Ordinance, 8 of 1969

• Establishment and management of a nature reserve (Chapter 5)

2.9 National Heritage Resources Act, 1999 (Act No. 25 of 1999)

The National Heritage Resources Act 25 of 1999 (NHRA) was promulgated in 1999 and aims to protect and manage the heritage resources of South Africa.

The South African Heritage Resources Agency (SAHRA) is the enforcing authority of this Act and according to Section 38 SAHRA demands that a Heritage Impact Assessment (HIA) is carried out where certain activities are proposed.

The activities that apply to the National Road 3: Keeversfontein to Warden (De Beers Pass Section) project include:

• Section 38 (1) (a): The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
• Section 38 (1) (c): any development or other activity which will change the character of a site-
  (i) exceeding 5 000 m² in extent; or
  (ii) involving three or more existing erven or subdivisions thereof; or
  (iii) involving three or more erven or subdivisions thereof which have been consolidated within the past five years; and
Section 38 (1) (d): The rezoning of a site exceeding 10 000 m² in extent.

The N3TC therefore needs to notify SAHRA of the proposed activities and also undertake assessment as deemed necessary.

2.10 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

The objective of the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA), within the framework of NEMA, is to provide for:

- The management and conservation of biological diversity within South Africa;
- The use of indigenous biological resources in a sustainable manner; and
- The fair and equitable sharing among stakeholders of benefits arising from bioprospecting;

The South African National Biodiversity Institute (SANBI), which was established as a result of the NEMBA, and has the key responsibility of monitoring and reporting on the country’s biodiversity and conservation status in terms of threatened and protected species or ecosystems.

Threatened or protected species are listed in GNR No. 151 of 23 February 2007 according to the following criteria:

- Critically endangered species: any indigenous species facing an extremely high risk of extinction in the wild in the immediate future.
- Endangered species: any indigenous species facing a high risk of extinction in the wild in the near future, although it is not a critically endangered species.
- Vulnerable species: Any indigenous species facing an extremely high risk of extinction in the wild in the medium-term future; although it is not a critically endangered species or an endangered species.
- Protected species: any species which is of such high conservation value or national importance that it requires national protection. Species listed in this category will include, among others, species listed in terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

In the future SANBI will undertake a detailed fine scale mapping of South Africa’s biodiversities in order to publish a list of threatened eco-systems. At the moment, however, it is considered good practice to conduct Faunal and Floral Impact assessment studies where development projects are to be implemented in sensitive areas. The N3TC will therefore conduct these studies during the environmental impact assessment process. If any negative impacts on biodiversity should be identified the N3TC will take all reasonable measures to limit the impacts.

2.11 National Forest Act, 1998 (Act No. 84 of 1998)

The purpose of the National Forest Act 84 of 1998 (NFA) is:

- To promote the sustainable management and development of forests for the benefit of all;
• To promote the sustainable use of forests for economic, environmental, educational, recreational, cultural, health and spiritual purposes;
• To promote community forestry
• To promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination
• To provide special measures for the protection of certain forests and trees.

According to Section 15 of the NFA anyone who:

• cuts, disturbs, damage or destroy any protected tree or
• possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived from a protected tree'

must complete a form (Form12) and submit it to the Forestry office of DWEA and obtain a license. A list of protected tree species was published in Government Gazette No 30253 of September 2007.

The NFA is relevant to the proposed project as the clearance and removal of indigenous vegetation may be required. Any such clearance would thus need authorisation.
3 DEVELOPMENT STRATEGIES

3.1 Introduction

The proposed N3: Keeversfontein to Warden (De Beers Pass Section) project will have development consequences in two Provinces; two District Municipalities; four Local Municipalities and 5 towns / nodes. A schematic layout of the latest available Development Strategies that were consulted is outlined in Table 3 below. The Local Level strategies are discussed in more detail in sections 3.2 – 3.4.

Table 3: Development Strategies Consulted

<table>
<thead>
<tr>
<th>Provincial Level</th>
<th>KWAZULU-NATAL</th>
<th>FREE STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uthukela IDP 2008/09</td>
<td>Thabo Mafutsanyana IDP 2009/10</td>
</tr>
<tr>
<td>District Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uthukela SDF 2008/09</td>
<td>Thabo Mafutsanyana SDF 2010/11</td>
</tr>
<tr>
<td>Local Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Okhahlamba</td>
<td>Emnambithi/Ladysmith IDP 2009/10</td>
<td>Maluti-a-Phofung IDP 2010/11</td>
</tr>
<tr>
<td>SDF (not available)</td>
<td>Phumulela IDP 2009/10</td>
<td></td>
</tr>
<tr>
<td>Local Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Okhahlamba</td>
<td>Emnambithi/Ladysmith SDF 2009/10</td>
<td>Maluti-a-Phofung SDF 2010/11</td>
</tr>
<tr>
<td>SDF 2009/10</td>
<td>Phumulela SDF 2009/10</td>
<td></td>
</tr>
<tr>
<td>Towns/Nodes of interest</td>
<td>Keeversfontein</td>
<td>Van Reenen</td>
</tr>
<tr>
<td></td>
<td>Van Reenen Swinburne Harrismith</td>
<td>Warden</td>
</tr>
</tbody>
</table>

3.1.1 Integrated Development Plans

According to the Municipal Systems Act (MSA) of 2000, all municipalities have to undertake an Integrated Development Plan (IDP) process to produce IDP’s. As the IDP is a legislative requirement it has a legal status and supersedes all other plans that guide development at local government level.

An Integrated Development Plan (IDP) is defined as an inclusive and strategic plan that:

- Links, integrates and co-ordinates a municipality’s sector specific plans;
- Aligns the resources and capacity of the municipality to the overall development objectives of the municipality;
- Forms the policy framework on which annual budgets rest; and
3.1.2 Spatial Development Frameworks

In terms of Section 26(e) of the Municipal Systems Act (Act 32 of 2000), every municipality is required to formulate a Spatial Development Framework as a part of its Integrated Development Plan (IDP).

A Spatial Development Framework (SDF) is a plan that seeks to guide overall spatial distribution of current and future desirable land uses within a municipality, in order to give physical effect to the vision, goals and objectives of the municipal IDP. It highlights priority investment and development areas and serves as a guide to decision-makers and investors. A SDF is thus an integral component of the corresponding IDP, its purpose being to translate the IDP into its spatial implications to provide broad, overall development guidelines. The aim of a SDF is not to control spatial development but rather to act as a framework that gives strategic guidance in respect of the location and nature of anticipated future development in a given municipality. Because land is a scarce resource, it needs to be planned in the most optimum manner.

3.2 Okhahlamba Integrated Development Plan 2008/09

The Okhaklamba Integrated Development Plan was last reviewed in 2009. It makes reference to the Okhaklamba Spatial Development Plan but this document could not be located through the Local Municipality. The IDP does not highlight any projects/programs that may be influenced by the proposed project.

3.3 Emnambithi/Ladysmith Spatial Development Framework 2009/10

The Emnambithi/Ladysmith SDF makes reference to the following projects/programs which may be influenced by the proposed project:

3.3.1 The Van Reenen Complex

The Van Reenen settlement forms a kidney shape settlement which straddles the N3 between Harrismith and Ladysmith. The settlement has the potential to develop into a tourism node with the potential development of the Polo Estate. Existing settlements are located to the north of the N3. Infill development has been identified to the south of the N3 whereas a small portion has been identified to the east of the existing settlement. Van Reenen has also been identified as a Tourism Node as it is the gateway to the province of KwaZulu Natal and is the first settlement tourists pass through on the voyage southwards along the N3. Existing tourism facilities are clustered within this node.

A proposed agri-urban development / De Angelis Estates, located to straddle the Free State /KZN border south east of Van Reenen village will be affected by the alignment of the DBPR Alt A.

Van Reenen village will have the DBPR Alternative A route and an Interchange on the North Eastern boundary.
3.3.2 Rural Water Schemes

There are 11 communal rural schemes within Emnambithi/Ladysmith Municipality that utilise groundwater as a resource. One of these schemes falls in the Van Reenen area. This scheme is still in the planning phase and no detailed information about of the scheme is available to date.

3.4 The Maluti-a-Phofung Spatial Development Framework 2010/11

The following towns / areas may be influenced by the proposed project:

3.4.1 The Harrismith-Intabazwe-Tshiame Urban Complex

The Maluti-a-Phofung SDF highlights the town of Harrismith as the most important economic centre in the region based on its ability to attract capital-intensive industries. The SDF further mentions that this is due to the town's favourable position at a major junction (the N3 and N5), as well as its relative close proximity to the export harbour at Durban. The relatively cheaper labour cost and the large labour force residing in the Maluti-a-Phofung region as well as the good railway and road infrastructure are also identified as contributing factors. The SDF also highlights Platberg mountain, located on the eastern boundary of Harrismith, as an important natural landmark in the area.

The Intabazwe community is located 1.5km north of Harrismith just west of the N3 and are separated from Harrismith by a mountain stream. Tshiame is located 10 km west from Harrismith along the N5. The SDF considers these three towns as a single entity and describes it as a loosely-grouped and spatially dispersed arrangement in which Harrismith forms the core of economic activity and Intabazwe and Tshiame are dormant towns with a predominant residential character and a very limited mixture of other supporting land uses.

The following Programmes and Projects of the Maluti-a-Phofung Local Municipality IDP 2008/09 are also listed in the Maluti-a-Phofung SDF 2009/10. These projects may be affected by the proposed project.

- Harrismith Corridor Township Establishment
- Logistic Hub: Harrismith
- Intabazwe 793 Township Establishment
- Intabazwe 707 Township Establishment
- Development and implementation of a Land Use Management System (LUMS)

Refer to Figure 4 for the Map of the Harrismith, Intabaswe, Tshiame Spatial Development Framework.

3.4.2 Maluti-a-Phufong Rural Areas

The Maluti-a-Phufong SDF classifies the majority of land within the municipal area as rural or agriculture land and also mentions the potential of this land to be developed to compliment other sectors. The rural spatial development programs/projects that may be affected by the proposed project are listed below under the key subjects identified in the SDF.
• Agriculture:
  ✓ The protection of agricultural land as productive units
  ✓ Utilisation of the railway line for mass transit of manufactured goods and materials. Further, the line between Harrismith and Tshiame need to be investigated in order to provide more break-off points for greater utilisation.
  ✓ The airstrip north of Intabazwe needs to be investigated for better utilisation.

• Rural Service Centers: The following localities are proposed (amongst others that fall outside the scope of this study) Refer to Figure 5.
  ✓ Swinburne
  ✓ Van Reenen

• Natural Environment (Tourism, Conservancies, Cultural Heritage). The following tourism and environmental areas, identified in the SDF, may be affected:
  ✓ Harrismith as a primary tourist and commercial attraction
  ✓ The Maluti-Drakensberg Transfortier Park
  ✓ Resorts along pristine river systems and mountainous areas

• Infrastructure:

The N3 (and N5): The SDF points out that in view of the large traffic volumes which these roads carry commercial and tourism opportunities need to be maximized in order to promote economic growth.
Figure 4: The Harrismith, Intabaze, Tshame Spatial Development Framework. Source: Maluti-a-Phofung SDF 2009/10
Figure 5: Maluti-a-Phofung Spacial Development Framework – Rural Development. Source: Maluti-a-Phofung SDF 2009/10
3.4.3 The Phumelela Micro Spatial Development Framework 2009/10

Landowners of the Verkykerskop village situated 30km south east of Warden formed the Verkykerskop Development Consortium. This was motivated by economic growth potential of the village because of its historic value. Following liaison with the Phumelela Local Municipality and the Free State Provincial Government it was agreed to prepare a Micro Spatial Development Framework for the area in question. This Document however focuses on Verkykerskop area only and no programs/projects that may be affected by the proposed project could be identified.

4 DESCRIPTION OF THE AFFECTED ENVIRONMENT

4.1 Regional Location

The section of the N3 under consideration stretches from Keeversfontein (Tugela Toll Plaza) in KwaZulu-Natal to the town of Warden in the Free State. The study area is bounded in the west by the existing N3 and in the east by the proposed De Beers Pass. Refer to Figure 6 for the regional location of the study area.

The District Municipalities through which the route alternatives pass are the following:

Free State: Thabo Mofutsanyne District Municipality (Refer to Figure 7)
KZN: UThukela District Municipality (Refer to Figure 8)
Figure 6: Regional Location of the Study Area
Figure 7: Thabo Mofutsanyane District Municipality (Demarcation Board)

Figure 8: UThukela District Municipality (PortalPages/PORT_MAPS/Munics, 2009)
The following is an overview of the characteristics of the various environmental attributes of the Region through which the alternative N3 routes are aligned:

4.2 Topography

The KwaZulu-Natal portions of the proposed routes are located on the rising foothill landform of the Drakensberg escarpment at elevations up to 1,500 meters, while the remainder of the study area is on the Free State Highveld plateau that mainly consists of gently rolling plains with mountains of outlier younger sediments nearer the escarpment edge.

Implications for the project:

The changes to the landform to accommodate the geometric requirements of the route will result in areas of cut and fill. These new surfaces will require stabilisation to prevent erosion. The slopes should be matched to the material type with harder material having a steeper slopes than softer or placed fill material.

4.3 Climate

4.3.1 Free State

The Free State experiences a continental climate, characterised by warm to hot summers and cool to cold winters. Rainfall varies from 1200 mm at Van Reenen on the escarpment edge to 650 - 1000 mm at Harrismith and 650 – 750 at Warden. Areas in the east experience occasional snowfalls, especially on the higher ranges. Snowfall duration approximates to 2 – 3 days per year. Freezing conditions are experienced possibly on average 31 – 60 days a year. Summer and winter mist conditions occur and heavy summer rainstorms are experienced both at the escarpment and over the Highveld plateau. High to very high wind velocities are experienced closer to the escarpment edge on the plains as wind is channelled up and along valleys.

Implications for the project:

The road alignment and design should incorporate features to improve the safety of vehicles along lengths that will be subject to high winds, freezing and to snow.

4.3.2 KwaZulu-Natal

Rainfall varies from 700mm per annum on the plains below the escarpment to 1,500 mm at the escarpment. This is frequently encountered both in summer and winter on the Natal Midlands, while freezing conditions are experienced possibly on average 31 – 60 days a year on the escarpment. Snow conditions occur probably 2 – 3 days per year on the escarpment. Summer and winter mist conditions occur and heavy summer rainstorms are experienced on the escarpment. High to very high wind velocities are experienced closer to the escarpment edge on the plains as wind is channelled up and along valleys.

Implications for the project:

The road alignment and design should incorporate features to improve the safety of vehicles along lengths that will be subject to high winds, freezing and to snow.

4.4 Geology

All geological formations traversed by the proposed routes are components of the Karoo Supergroup, which are primarily sedimentary rocks. The 1:1 000 000 scale geological map of South Africa, indicates the geology underlying the routes are mainly sandstone and mudstone. Dolerite sills and dykes occur at a larger scale. It is expected that the dominance of fine textured sedimentary lithological units will contribute to the development of fine
textured soils. Fossils of animals and vegetation are known to occur in the sandstones of the Highveld plateau.

Implications for the project:

Excavation or blasting in the sandstone will most likely expose fossils. If this is the case the rock will have to be removed to another site for examination by a Palaeontologist. The geology will determine the rehabilitation requirements for the cut and the fill slopes adjacent to the road prism.

4.5 Soil

Three derived types of soil texture dominate the landscape, which the proposed routes transect, namely (from the north to south): loamy, moist, sandy, moist and sandy, well-drained.

Implications for the project:

The majority of soil on the Free State Highveld between Warden and Van Reenen are derived from the underlying sandstone and therefore when stripped of vegetation are easily eroded. The high winds in the area can compound the erosion problem if large areas are stripped of vegetation for the road works and ancillary works (Refer to Figure 9 for Soil Map of the Free State). Similarly the soils of the KZN highlands off the escarpment also have a sandy texture and will also be vulnerable to erosion (Refer to Figure 10 for Soil Map of KZN).

4.6 Wetlands

In terms of the National Water Act 36 of 1998 section 1 (1) (xxix) wetland means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil. Wetlands perform important environmental functions such as water storage, flood attenuation, water purification, carbon sequestration and support biodiversity due to their associated fluctuating conditions.

There are numerous wetlands in the N3TC project area. Many of these wetlands have been damaged and transformed due to human interference on the land such as ploughing, trampling etc. This has compromised their environmental functions to a greater or lesser extent depending on the individual wetlands. The transformed wetlands have lost resilience – capacity to withstand intervention. For this reason the need to mitigate road construction and operation impacts on wetlands and preserve and enhance the environmental services that they perform has heightened. There are a number of sensitive wetlands within the project area. Two especially sensitive wetlands include the Klip River and Wilge River areas. Crossing these water bodies in the project area is unavoidable and all the routes other than the KZN section of the DBPR Alternative A and Alternative B (in the vicinity of Van Reenen’s Pass) will cross the Wilge River. The KZN sections of DBPR Alternatives A and Alternative B, however, will avoid crossing the Klip River which the De Beers Route traverses.

Implications for the project:

All wetlands should be taken into consideration during the road alignment as roads located close to these wetlands are likely to cause contaminants to enter these water bodies, due to water runoff, vehicle accident and spillage on the road. Pollution mitigation measures will be required to ensure the contamination of wetlands is minimised or avoided.
Figure 9: Soil Map of the Free State (Source: The Institute for Soil, Climate and Water)
Figure 10: Soil Map of KwaZulu-Natal (Source: The Institute of Soil, Climate and Water)
4.7 Flora and Fauna

Nine regional vegetation units representing three biomes are associated with the study area. The area is considered to be largely intact with 87% covered by natural area. Large continuous areas of untransformed grassland dominate the area. Two of the nine vegetation units are considered Vulnerable; they are Basotho Montane Shrubland and Northern KwaZulu-Natal Moist Grassland. The route alternatives mainly transect the Eastern Free State Sandy Grassland which is the only unit to be considered Endangered. Only the vegetation units that are threatened were considered as they can be regarded as a conservation priority. The South African National Biodiversity Institute's (SANBI's) interim Red Data flora list indicates that there are 149 threatened plants that occur in the associated study area and the provinces it transects. Of these species 92 are considered to be Vulnerable, 34 Endangered and 23 Critical Endangered.

Implications for the project:

Roads are responsible for altering the quality of adjacent habitat and result in direct loss of faunal habitat. They will contribute to road-kills, impede the natural movement of faunal taxa, and cause habitat fragmentation. In addition, constructing a new road is likely to result in secondary developments such as tourist facilities in the form of lodges, dams for recreation, petrol stations and housing estates, along its alignment, further modifying and fragmenting the habitat.

The route alignment of the road will need to take into account the habitat of rare and endangered species in order to avoid the partial destruction of the habitat. The control of new development in the region serviced by the road is the responsibility of the Provincial and Municipal Authorities and therefore will need to be proactive in the establishment of Environmental Management Frameworks for their regions to protect vulnerable and sensitive habitats.

4.8 Avifauna

A total of 156 bird species were recorded in the study area during two visits. A large number of these bird species are Red Data species and the study area falls within the highest national region of concern relevant to threatened bird populations. These Red Data bird species are spread throughout the study area. Four of them are vagrants to the area and are considered to be of little conservational significance.

Of the remaining Red Data species, 16 inhabit grassland, 10 inhabit wetland, one inhabits forest and the last four are considered habitat generalists. Grassland and wetland bird species are more sensitive and vulnerable to road disturbances. It is, therefore of particular concern that many Red Data bird species reside in these habitats, particularly grassland.

Two Important Bird Areas (IBAs) are also located within the study area. These include Alexpan and Murphy’s Rust. Alexpan is designated as an IBA due to the presence of the roosting Wattle, Blue and Grey Crowned cranes, Southern Bald Ibis and the potential presence of Rudd’s and Botha’s larks and Yellow-breasted Pipit. Murphy’s Rust was designated as an IBA primarily based on the presence of the White-winged Flufftail, Grey Crowned Crane and Blue Cranes, as well as Southern Bald Ibis in the immediate surroundings.
Implications for the project:

The environmental impact of roads extends onto bird populations. These impacts include; the destruction and degradation of bird habitat, mortalities resulting from collisions with motor vehicles, disturbance resulting from vehicle noise, increased litter hazards, potential dangers imposed by overhead utility lines and exacerbated fire risks.

The alignment of the road will need to avoid by some distance (the minimum of which still has to be established) the two IBA’s in order to not disturb breeding and roosting vulnerable bird species.

4.9 Heritage

There may be unidentified sub-surface heritage resources that could be affected by the proposed road development as the assessment was limited to above ground surface investigations. This could include places attached to oral traditions, geological sites of scientific and cultural importance, as well as archaeological and paleontological sites. Ancestral graves and burial grounds occur within the development area. Many of these will be known to residents and identified during the public participation process; however older graves may not be identified by residents.

No formally protected settlements or townships will be directly affected by any of the route alignments. The village of Van Reenen may be visually affected and result in a cumulative impact as the N3 highway already traverses this area. Certain natural features will be altered permanently and significantly resulting from any of the new route alignments, as they cross similar terrain. These include, incised river valleys which extend from the uKhahlamba Drakensburg escarpment, grasslands and extensive agricultural lands used for beef, mutton and crop production.

Implications for the project:

The heritage significance of an area includes, buildings, structures, equipment, places with oral traditions, historical settlements, townscapes, landscape, natural features, geological sites of scientific or cultural importance, archaeology and palaeontology sites, graves and burial grounds, and sites related to the history of slavery and wars in South Africa.

The construction and operation of a highway will alter both the aesthetic and the cultural landscape and therefore the alignment and the rehabilitation may require adjustment to minimise the changes to the cultural heritage of the area or region.

4.10 Socio Economics

The socio economic study focuses on the directly affected properties, their landowners and labour tenants, the current infrastructure and activities on potentially affected properties communities and people, as well as planned developments on these properties.

4.10.1 Settlements and settlement patterns

The directly affected towns namely Van Reenen, Swinburne, Harrismith and Warden within the regional location referred to in paragraph 2.1, will be included in the social impact assessment and an economic evaluation, which will form part of the specialist studies.
4.10.2 Land-use

The study area is dominated by rural landscape and agriculture. Agriculture includes; dryland and irrigation crops, stock farming and grazing. There also seems to be a growing trend among landowners to replace cattle and sheep for game on their properties. This is due to the increasing stock theft and the intention to convert the land from commercial agriculture to tourism and eco-tourism.

4.10.3 Tourism and tourism related developments

The study area is rich in both cultural and historical value, with listed national heritage sites. Provincial tourism departments of both the Free State and KwaZulu Natal (KZN) are investigating strategies to establish a tourism ‘gateway’ between KZN and the Free State. There is also a growing interest in the area below and above the escarpment as a tourism and especially eco-tourism destination.

In recent years a number of farms have not only been changing to game farming, but a number of guest farms have begun offering opportunities such as; fly fishing, hiking trails, horse trails, quad bike trails and 4x4 routes. There are also a number of larger tourism developments at varying stages underway in the area along three of the proposed routes. These inter alia include; the residential and holiday, Highland Farm Estate, intended developments on portions of the farm Nolans Volens and adjacent properties, the housing development on farm Das Krantz Portion 1 and 6 and a hotel and shopping complex development on Keeversfontein Portion 13.

4.10.4 Public Sector infrastructure development

There are currently two major infrastructure developments in progress in the study area that have a number of potentially affected properties in common with the proposed project.

These are the Eskom Ingula Pump Storage Scheme and the Transnet multi-products pipeline (NMPP).

The IPSS comprises of two reservoirs that are 6 km apart one on top of the escarpment and one below. Extensive roads have been constructed to link the two reservoirs. Transnet, through Petronet, is currently installing the NMPP project that will transport various fuel products from KZN to Gauteng.

The Free State Government have indicated their intentions of developing a Logistics Hub at Harrismith.

4.10.5 Land restitution

The land restitution initiatives and labour tenant claims have been identified, for example, there are currently properties along the different route alternatives with active labour tenant claims, and on the DBPR, ownership of SANRAL acquired farms will be transferred to the Department of Land Affairs (DLA), and only that portion required for the DBPR road reserve will be retained.

Allegations are that the restitution initiative is causing many negative impacts on the agricultural economy in parts of the study area where it was implemented. These include; poor livestock management by claimants which has been reported to have spread diseases to neighbouring farms which have far reaching economic consequences. The claimants have also neglected veldt and firebreak management resulting in a number of damaging fires which have been reported to have originated on their farms.
Implications for the project:

When aligning a national highway it is very difficult to avoid all farm homesteads and labour tenant homesteads. The nature of the impact on homesteads is strictly related to the proximity of the road; the worst case scenario is when families have to be relocated and the inconvenience of new road links to towns and community schools and clinics. Residing within a short distance of a highway is usually an unfavourable option due to, noise and other nuisance factors, such as privacy loss and visual impacts, both during construction and operation of the road.

Whichever route is selected, there will be landowners and tenants who will be negatively affected. Detailed discussions with landowners and tenants are required to resolve new access points to property and existing roads in the area.

5 SUMMARY ASSESSMENT OF SCOPING LEVEL STUDIES OF THE THREE ROUTE ALTERNATIVES

Alternative route lengths from Tugela Plaza (Keeversfontein) to Warden

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Colour</th>
<th>Approximate Length (km)</th>
<th>Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>De Beers Pass Route</td>
<td>green</td>
<td>97.7</td>
<td>Kwazulu Natal &amp; Free State</td>
</tr>
<tr>
<td>DBPR Alternative A</td>
<td>red</td>
<td>107</td>
<td>KwaZulu Natal/ Free State</td>
</tr>
<tr>
<td>DBPR Alternative B</td>
<td>yellow</td>
<td>98.3</td>
<td>KwaZulu Natal/ Free State</td>
</tr>
</tbody>
</table>

The findings of preliminary scoping level studies by specialists are presented for the route alternatives. This initial information indicates the relative importance of subject in the context of the study area.

5.1 De Beers Pass Route (DBPR) green

5.1.1 Wetlands

The DBPR will have the biggest impact on untransformed wetlands of all three proposed alignments. A total distance of 30.48 km of untransformed wetlands will be intersected along this alignment. Especially sensitive wetlands that exist along this proposed route are the Klip River and Wilge River crossings.

5.1.2 Flora and Fauna

For both the De Beers Pass Route and the DBPR Alternative B the calculated sensitivity ratings were numerically very similar and that both alignments crossed less transformed and disturbed areas. This could be explained by the relatively homogenous and undisturbed nature of the grasslands and associated habitat types of these areas making these alignments more sensitive in terms of flora and fauna diversity.
5.1.3 Avifauna

As the De Beers Pass Route will have the biggest impact on untransformed wetlands, it will also have the biggest impact on water bird species associated with these areas. One particularly sensitive area identified along this alignment is the Alexpan IBA (Important Bird Area) just south of the Lincoln Interchange. Alexpan was designated as an IBA on the basis of roosting Wattled, Blue and Grey Crowned cranes at the large dam in the northwest of the property, as well as the presence of Southern Bald Ibis, and the potential presence of Rudd’s and Botha’s larks and Yellow-breasted Pipit, in the surrounding grasslands.

5.1.4 Heritage

The following archaeological and historical sites were identified along the De Beers Pass Route by G. Anderson for the heritage impact study carried out for the N3 Toll Road from Cedara to Heidelberg in 1998.

**KFN1:** Two settlements consisting of stone-walled circles of various sizes that may or may not relate to each other. The walling at the sites is generally well preserved and a cultural deposit may be present. These sites may have the potential to provide additional information on local settlement patterns and for this reason is of research interest.

**KFN2:** This site has approximately four stone-walled features near the base of the hill. These features may be cattle pens. One of the larger stone-walled features has an entrance facing uphill indicating that it probably pre-dates AD1829. There is another stone-walled feature at the summit of the hill. The site may date to the Late Iron Age and may be associated with either KFN1 or KFN3. The site is of low significance. A cultural deposit probably exists within these walls.

**KFN3:** The settlement layout of KFN3 differs to that of KFN1, though it may be part of the same complex of settlements. The site consists of circular and rectangular stone-walled features. Some of these features have secondary walling. There is a rectangular stone-walled cattle pen to the north of the site. A cultural deposit probably exists within these walls.

**KFN4:** The site consists of two stone-walled enclosures, each with adjoining enclosures. A cultural deposit may exist within these stone-walled features.

The only military historical site along the proposed De Beers Pass Route is a stone sangar, located approximately 1km from the proposed route. This pile of rocks in pristine condition was possibly used to position a pom pom gun in 1900 by Free State commandos during the Anglo-Boer War and must not be disturbed.

**BD1:** The site is on a flat section of a sandstone koppie overlooking the southern banks of the Meulriver. There are thirteen circular stone structures. Three more circular structures are located on the floodplains below the koppie. Two possible graves are associated with this settlement. These are probably Sotho graves. Two shreds with a red burnish and one fragment of European ceramic plate were observed between the structures.

**BD2:** The site is situated in a sandstone outcrop facing the Meulriver directly below DB1 and contains rock art in a well preserved condition.

**SVK1:** This is a graveyard that belongs to the Wessels family who lived on the farm Somersvlekte around 1890 AD. Some building of the nearby farmhouse appears to be older than 100 years and coincide with the dates of the graves.
ALP1: This site consists of a livestock pen, two rectangular features upslope of the livestock pen and possibly four graves on the down slope side of the pen. The site appears to be a family settlement and a cultural deposit probably exists.

SPF1: SPF1 is a grove of oak trees in the shape of a Union Jack planted by Sir Percy Fritzpatrick between 1910 and 1920. The trees are a unique example of British architecture in the middle of the Free State. These trees were planted to make a socio-political statement and are therefore considered as a cultural resource.

5.1.5 Social

Qualitative data will be collected through discussions with the lead environmental and public participation consultants as well as scanning the issues and response trail, and various documents created through studies already undertaken on the N3 project, as well as field studies.

On the basis of the above the following social impacts were identified and will be assessed in accordance with a recognised assessment technique and optimisation or mitigation measures will be suggested in respect each impact.

- Access issues
- Competition for labour
- Crime and security
- Disturbance of Cultural, Spiritual and Religious Sites
- Dust and Pollutants
- Economic
- Fencing
- Fire hazards
- Impact on farming operations
- Job creation
- Job losses
- Loss of agricultural land
- Noise
- Potential increase in tensions in the taxi industry
- Relocation
- Ribbon development
- Road safety
- Sense of place and aesthetics
- Services infrastructure and provisions
- SMME opportunities
- STDs, HIV and AIDS risk
- Social Stability
- Toll fees
- Tourism
- Traffic disruption during construction
- Do nothing alternative
- The level of the impact of the proposed route alternatives on the above will be determined during the EIA phase of the study.
5.1.6 Economics

Initial indications of the impacts related to economic aspects are included below.

5.1.6.1 Potential economic impacts on businesses

Agriculture, tourism and industry in the study area will, with a high probability, gain at a medium intensity in the long term. Financial returns within agriculture will within one season with a high probability rise by a small proportion. Tourism within the service area will with a high probability grow relatively rapidly from a small activity base.

The cost of manufacturing in the study area and towards the north and south along the present N3 road will marginally decrease after implementation of the new road. Due to the diversion of traffic from the N3 road to the DBPR, or Alternative B the average travel time and cost to reach places of production and manufacture in Harrismith on the existing N3 will decrease. This will render it marginally easier to conduct business in Harrismith. The cost of manufacturing towards the south of Tugela Toll Plaza and towards the north of Warden will decrease (in cases where input material and finished products are conveyed through the study area). For freight traffic (heavy vehicles) the cost of carrying industrial input material will decrease, while the carriage of finished products during distribution will be conducted at lower cost, and the products will reach their market points more effectively. Productivity increases by manufacturers, consignors and consignees will, with a high probability, increase.

5.1.6.2 Net (Transport) Economic Impact

When net economic impacts, namely the increase in agency costs (construction plus maintenance costs) and the decrease in user costs (running costs, savings due to delays, accidents etc), are compared, the DBPR is the most economically viable option.

5.1.6.3 Potential economic impact on towns

The impact that the proposed route alternatives will have on the economy of the towns in the study area will be investigated in detail. It is expected that after implementation of the proposed new road traffic volumes at these towns will drop.

Any loss in income in the towns will be less than proportional to the percentage traffic diverting to the DBPR or Alternative B. Long-distance travellers are not captive purchasers in towns along the present route - their on-route transactions are incidental and voluntary.

Road users who have any of the towns as a business, work or tourist destination will still use the existing N3 as first-choice route, while the existing N5 road link between Harrismith and central South Africa and beyond remains intact (which will continue to bring business to Harrismith) – neither the mobility nor the accessibility function of the N3 and N5 routes will disappear.

5.2 DBPR Alternative A

5.2.1 Section: Keeversfontein to Van Reenen

5.2.1.1 Wetlands

Some mid slope seeps are crossed along the upper third of the route towards the escarpment. Preliminary indications are that there are no significant impacts on wetlands.
5.2.1.2  **Flora and Fauna**

Combined sensitivity ratings for both floral and faunal components revealed that this route section is a feasible option for consideration and the preferred alternative in the KwaZulu-Natal area. Although this route contains a high percentage of highly sensitive flora habitats, it is not as sensitive as that which is found along the De Beers route.

5.2.1.3  **Avifauna**

Traveling from south to north this route crosses grassland on the midslopes which provides habitat for grassland bird species. Further north as the road climbs against the escarpment a remnant indigenous forest is passed before the road reaches Van Reenen village.

Bird surveys carried out indicated that the route between Keeverfontein and Van Reenen would be less sensitive than the De Beers Pass Route and was therefore the preferred option. This is based on the fact that no sensitive wetlands are crossed. In addition no especially noteworthy habitats relevant to threatened (or even non-threatened) birds were noted except possibly the remnant indigenous forest which is bypassed.

5.2.1.4  **Heritage**

Initial identified heritage resources in the proposed development included graves, circular stone age walling and Anglo Boer War associated structures.

- **Places, buildings, structures and equipment:** A site comprises the remains of a farmhouse from the historical period. Mitigation should comprise further background research and mapping prior to any recommendations for its future management.

- **Places to which oral traditions are attached or which are associated with living heritage:** These sites are associated with living heritage. The graves will require exhumation and reinterment, subject to the permission of the families concerned and the necessary permits from Amafa. The structures will require detailed survey and mapping.

- **Landscapes and natural features:** The landscape comprises the uKhahlamba Drakensberg Mountains, which have high heritage significance at all levels for their historical, aesthetic, scientific, social and cultural values. It is imperative that the proposed infrastructure is designed and located to minimise visual impact on the surrounding landscape.

- **Archaeological and palaeontological sites:** These sites are archaeological sites that comprise of stone-walled settlements that might date to the Moor Park period (14th century); the later Langa / Dlamini immigration along the eastern escarpment and the establishment of the Zizi chiefdom in the 1600s; and / or to the 18th-19th century Mfecane period. The Late Iron Age archaeology and history of black farming settlement along the eastern escarpment is under-researched and poorly documented, although it is alluded to in recorded oral histories (Bryant 1929). The stone-walled settlements are thus of considerable research value and are monuments to the expansion of African societies into the Highveld regions of the sub-continent (Whitelaw pers. comm.). Although further research is required, we believe that these sites have medium to high heritage significance at all levels for their historic and social values.

- **Graves and burial grounds:** We identified seventeen graves along the proposed road route, all of which have high heritage significance at levels for their social significance.
These graves will require exhumation and reinternment, subject to the permission of the families concerned (where possible) and the necessary permits from Amafa.

- **Battlefields**: Two sites include stone-packed breast work and defences associated with the Anglo-Boer War, specifically the Siege of Ladysmith.

- The sites were the encampments of the Free State commando under Cmdt Prinsloo, whose hooflaer and field hospital were located in the vicinity of Site 29 from November 1899 to February 1900 (Gillings pers. comm.). Although further research is required, we believe that these sites have low to medium heritage significance at all levels for their historic values. Both sites require detailed survey and mapping.

5.2.1.5 **Social**

Refer to paragraph 5.1.5 above.

5.2.1.6 **Economics**

Refer to paragraph 5.1.6 above.

5.2.2 **Section: Van Reenen to Warden**

5.2.2.1 **Wetlands**

The DBPR Alternative A intersects 11.01km of wetland. Of the wetland intersected by this route, significantly less is also untransformed than wetlands found on the De Beers Pass Route and on Alternative B.

5.2.2.2 **Flora and Fauna**

Combined sensitivity ratings for both floral and faunal components reveal that this section is a viable option for consideration and the preferred alternative in the Free State. This route section in combination with the New Van Reenen’s Pass will not significantly contribute to habitat fragmentation in the area. The route section does not traverse a significantly high percentage of either high or highly sensitive floral habitats. It is the least sensitive and most preferred route in the Free State.

5.2.2.3 **Avifauna**

The only Red Data bird species recorded along this deviation was an adult Martial Eagle seen on 15 August 2010 above the plantations.

The proposed Oatesdale-Phomolong deviation would not appear to present any significant threat to bird populations.

The remaining stretches of the existing N3 between Van Reenen and Warden were also examined briefly during this survey.

This road section traverse similar habitat to the rest of the general area, i.e mainly natural grassland agricultural fields and pastures. No especially noteworthy habitats relevant to threatened (or even non-threatened) birds were noted, except possibly for the following two dams:

- Essendale Dam between Van Reenen and Swinburne, which would in any event be bypassed by the proposed Van Reenen-Swinburne deviation.
• The large dam at the northern edge of Warden town.

• There are also numerous small farm dams, and, more important, small pans along the stretch between Phomolong and Warden that support small waterbird populations.

In conclusion, the upgrading of the remaining stretches of the existing N3 between Van Reenen and Warden, i.e. along its existing route, would not appear to present any significant threat to bird populations.

5.2.2.4 Heritage

The proposed route realignment at Harrismith includes passing through the Platberg Reserve. The Reserve includes the highly visible natural feature of Platberg Mountain. The Reserve and mountain have high heritage significance at the local, regional and provincial levels for their historical, aesthetic and social values; with at least low to medium heritage significance at all levels for their scientific value.

Three Late Iron Age archaeological stone walled sites are located within the Platberg Reserve and the proposed road realignment. At least two (possibly three) stone packed graves are located in the reserve. All human remains have high heritage significance at all levels for their social, cultural and spiritual values.

Various remains associated with the Anglo-Boer War are located within the Platberg Reserve, including a blockhouse, stables, detention barracks, canal and two dams. All of these remains have at least medium heritage significance at all levels for their historical and social values.

The project will have extensive site-specific and local permanent direct and indirect high negative impacts on the landscape and natural feature of Platberg and surrounds. The impact on all other heritage resources will be site-specific, permanent and high negative if they are affected directly; and site-specific, permanent and low negative if affected indirectly (visual changes to their setting and surrounds).

5.2.2.5 Social

Refer to paragraph 5.1.5 above.

5.2.2.6 Economics

Refer to paragraph 5.1.6 above.

5.3 DBPR Alternative B

5.3.1 Section: Keeversfontein to Van Reenen

This section is identical to that of DBPR Alternative A: Section: Keeversfontein to Van Reenen and is discussed in paragraph 5.2.1 above.
5.3.2 Section: Van Reenen to Warden

5.3.2.1 Wetlands

The DBPR Alternative A intersects 20.49km of wetland. However, this alternative does intersect a large amount of untransformed wetland and does not avoid the highly sensitive wetlands associated with the Wilge River between De Beers Pass and Nelsons Kop.

5.3.2.2 Flora and Fauna

For both the DBPR and Alternative B, the preliminary indications of the Fauna and Flora scoping study are that the calculated sensitivity ratings are numerically very similar to each other and that both alignments crossed less transformed and disturbed areas. This could be explained by the relatively homogenous and undisturbed nature of the grasslands and associated habitat types of these areas making these alignments more sensitive in terms of fauna and flora diversity.

5.3.2.3 Avifauna

This section of the DBPR Alternative B traverses the second highest amount of natural grassland and can be considered similar in its extent of undesirability as the section from Keeversfontein to Van Reenen as described in paragraph 5.2.1. It does not, however, traverse any IBA’s.

5.3.2.4 Heritage

Previous studies have shown that there are a large number of ancestral graves located along this route. Some of these graves are still visited by families. The impacts of disturbance of cultural, spiritual and religious sites across this route will occur during construction.

5.3.2.5 Social

Refer to in paragraph 5.1.5 above.

5.3.2.6 Economics

Refer to paragraph 5.1.6 above.
6 PUBLIC INVOLVEMENT PROGRAMME

Public participation is an essential and legal requirement for an application for environmental authorisation and is defined in National Environmental Management Act (NEMA), No. 107 of 1998 (as amended) the “process by which potential interested and affected parties are given opportunity to comment on, or raise issues relevant to the application”.

Section 24(4)(a)(v) of NEMA requires that such public information and participation procedures “provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures”.

The actual public participation procedures are prescribed in Regulations 56 – 59 of GN No. R385 of 21 April 2006 (the “2006 EIA Regulations”) and are also guided by relevant principles contained in Chapter 1 of NEMA as well the current Public Participation Guidelines published by the Department of Environmental Affairs.

The public participation process for the EIA of the proposed N3 Keeversfontein to Warden (De Beers Pass Section) has been designed to satisfy the requirements laid down in the above legislation and guidelines.

As required by Regulation 29, this section of the Draft Scoping Report and its associated appendices provide a record of the public participation process undertaken up to the distribution of the Draft Scoping Report for public comment, including:

- The steps that were taken to notify potentially interested and affected parties of the application.
- Proof that advertisements and notices notifying potentially interested and affected parties of the application have been displayed, placed or given.
- A list of all persons or organisations that were identified and registered in terms of regulation 57 as interested and affected parties in relation to the application; and
- A summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues.

---------------------------------------------

1 In terms of Subregulation 56(6), permission was requested from DEA to deviate from the requirement in Subregulation 56(2) of fixing a notice board at a place conspicuous to the public at the boundary or fence of the project site and its alternative sites. For various practical reasons, such a requirement is typically considered inappropriate for linear activities such as roads.
6.1 Identification, notification and registration of I&APs

Taking into account the legal requirements set out in Regulations 56 and 57 and the Public Participation Guidelines, the following steps were undertaken to identify, notify and register potentially interested and affected parties (I&APs).

6.1.1 Identification & registration

The identification of I&APs was concentrated at the beginning stages of Scoping but has continued for its entire duration. I&APs were identified by using existing databases, including the landowner database established during the Route Location Initiative consultation process (2008 – 2009), telephonic and email inquiries, internet searches, stakeholder referrals, responses to advertisements, completed comment sheets and attendance registers at meetings.

I&APs were entered onto an electronic database. At the time of compiling this report, the database contained approximately 814 I&APs across a range of sectors and spheres of government, including:

- National Government
- Provincial Government (Free State and KwaZulu-Natal)
- Local Government (local and district municipalities)
- Agriculture (landowners, unions, farmer associations)
- Tourism (tourism associations, landowners, operators, managers)
- Conservation authorities (provincial and national bodies)
- Transport associations and bodies
- Residents and Ratepayers Associations
- Local residents
- Environmental groups
- Cultural heritage authorities
- Public enterprises, utilities and agencies
- Organised business
- Industry
- Media
- Educational organisations and institutions
- Academics and consultants

The database was also used to code what are termed key stakeholders. These include the authorities (relevant national, provincial and local government authorities) and I&APs who act as sectoral representatives (e.g. Agriculture, Business, Conservation, Transport and Tourism Organisations). Key Stakeholders received all project documentation and special efforts were made to encourage their attendance at the Key Stakeholder and Authorities Meeting, Focus Group Meetings and Public Meetings as well as submission of their comment in writing.

A register has been opened using an electronic database and all I&APs who submitted comment sheets, registered online through ACER’s website link, provided their details using alternative means (letter, fax, email, telephonically) or signed attendance registers at the various meetings have been registered. In addition to capturing I&AP details, the database is also used to record I&AP interactions, including what and when information was distributed to or received from I&APs and which I&APs attended each meeting.

The register will remain open and be maintained for the duration of the EIA process. A list of I&APs is provided in Appendix B.
6.1.2 Notification

The project and EIA process was widely announced with an invitation to the general public to register as I&APs and to actively participate in the public participation process. Written notification was also given to specific persons, organisations and authorities as described below. The following communication tools were used:

- **Print media advertisements** in English, Afrikaans, SeSotho and Zulu were placed in national, regional and local newspapers for project announcement as indicated in Table 4. Copies of advertisements are provided in Appendix C.

- **Notices** in all four languages were placed at various public places within the study area. A list of the respective places is provided in Table 5. Copies of such notices and photographs of each placement are provided in Appendix D.

- A **notification letter**, including an invitation to the Information Sharing Sessions was sent on 18 August 2010 to identified I&APs announcing the project and opportunities for participation. This list of I&APs included land owners and occupiers of land, affected district and local municipalities, ward councillors and organs of state that have jurisdiction in respect of any aspect of the activity. A copy of the letter is provided in Appendix E.

- A **Background Information Document** (BID) in English, Afrikaans SeSotho and Zulu was sent to all identified I&APs and copies were distributed at the various meetings, provided to various organisations for internal distribution and placed at various public venues in the study area. The BID contains a description of the proposed project and the various alternative routes being considered and the EIA process. A copy of the BID is provided in Appendix F.

- A **comment sheet** was sent out with the notification letters and BIDs and was also available on ACER’s website for electronic submission.

- All public documents (letters, comment sheet, advertisements, Background Information Document) were loaded onto ACER’s website: www.acerafrica.co.za under the link ‘N3EIA (National Road 3: Keeversfontein to Warden)’.

- Key stakeholders and authorities were contacted telephonically and informed of the project and the EIA process.

- Three Information Sharing Sessions were held on 13 and 14 September 2010. Details are provided in Table 6 and a record of each session is provided in Appendix G.

---

2 Similar in format to a Public Open Day where the EAP and the applicant were present to provide information about the project. Posters and maps were displayed to facilitate discussion. However, many I&APs arrived at these sessions expecting a meeting and in response, an *impromptu* meeting was held at each venue where participants raised issues or asked questions.
A Key Stakeholders and Authorities Meeting was held on 7 October 2010 just outside Harrismith. Approximately 70 people attended this meeting representing all three spheres of government, both provinces (KwaZulu-Natal and the Free State) and a wide range of sectors. A copy of the invitation, RSVP sheet, invitation list, agenda and minutes are provided in Appendix H.

Focus Group Meetings were held in Ladysmith with Emnambithi/Ladysmith Municipality and organised business and in Harrismith with Harrismith business representatives and owners on 6 and 7 October 2010 respectively. A copy of the minutes of both meetings are provided in Appendix I.

### Table 4: Paid advertisements

<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Distribution</th>
<th>Language</th>
<th>Publication Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volksblad</td>
<td>Regional</td>
<td>Afrikaans</td>
<td>27 August 2010</td>
</tr>
<tr>
<td>Sunday Times</td>
<td>National</td>
<td>English</td>
<td>29 August 2010</td>
</tr>
<tr>
<td>Rapport</td>
<td>National</td>
<td>Afrikaans</td>
<td>29 August 2010</td>
</tr>
<tr>
<td>iLanga</td>
<td>Regional</td>
<td>Zulu</td>
<td>30 August 2010</td>
</tr>
<tr>
<td>Northern Natal Farmer</td>
<td>Regional</td>
<td>Afrikaans</td>
<td>30 August 2010</td>
</tr>
<tr>
<td>Free State Business Bulletin</td>
<td>Regional</td>
<td>Afrikaans</td>
<td>1 September 2010</td>
</tr>
<tr>
<td>Ladysmith Herald</td>
<td>Local</td>
<td>English</td>
<td>31 August 2010</td>
</tr>
<tr>
<td>Times of Ladysmith</td>
<td>Local</td>
<td>English</td>
<td>31 August 2010</td>
</tr>
<tr>
<td>Express QwaQwa</td>
<td>Regional</td>
<td>Afrikaans</td>
<td>1 September 2010</td>
</tr>
<tr>
<td>Eastern Free State Issue</td>
<td>Regional</td>
<td>South Sotho</td>
<td>2 September 2010</td>
</tr>
<tr>
<td>Ladysmith Gazette</td>
<td>Local</td>
<td>English</td>
<td>2 September 2010</td>
</tr>
<tr>
<td>Vrystaat</td>
<td>Regional</td>
<td>Afrikaans</td>
<td>2 September 2010</td>
</tr>
<tr>
<td>Harrismith Chronicle</td>
<td>Local</td>
<td>English</td>
<td>3 September 2010</td>
</tr>
<tr>
<td>Meander Chronicle</td>
<td>Local</td>
<td>English</td>
<td>13 September 2010</td>
</tr>
</tbody>
</table>

### Table 5: List of venues where notices displayed

<table>
<thead>
<tr>
<th>AREA</th>
<th>VENUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harrismith</td>
<td>BKB</td>
</tr>
<tr>
<td>Harrismith</td>
<td>Malutia Pho Fung Council Municipality</td>
</tr>
<tr>
<td>Harrismith</td>
<td>Makotie FET College Campus</td>
</tr>
<tr>
<td>Harrismith</td>
<td>Magistrate Office</td>
</tr>
<tr>
<td>Harrismith</td>
<td>Corporation AGRI</td>
</tr>
<tr>
<td>Harrismith</td>
<td>BR Services</td>
</tr>
<tr>
<td>Harrismith</td>
<td>Dries Auto Spares</td>
</tr>
<tr>
<td>Harrismith</td>
<td>Magistrate Office</td>
</tr>
<tr>
<td>Warden</td>
<td>Magistrates Office</td>
</tr>
<tr>
<td>Warden</td>
<td>Municipal Offices</td>
</tr>
</tbody>
</table>
## Table 6: Information Sharing Sessions

<table>
<thead>
<tr>
<th>Venue</th>
<th>Date</th>
<th>Time</th>
<th>No. of I&amp;APs who registered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Lantern Inn, Van Reenen</td>
<td>13 September 2010</td>
<td>08h30 – 12h30</td>
<td>44</td>
</tr>
<tr>
<td>Harrismith Inn, Harrismith</td>
<td>13 September 2010</td>
<td>14h30 – 18h30</td>
<td>184</td>
</tr>
<tr>
<td>Warden Town Hall, Warden</td>
<td>14 September 2010</td>
<td>08h30 – 12h30</td>
<td>95</td>
</tr>
</tbody>
</table>

### 6.2 Comments and Response Report (Scoping)

All issues raised by interested and affected parties during Scoping, either submitted as written comment or raised at the various meetings, together with the date of receipt and a response from the EAP have been collated into a Comments and Response Report. The comments raised by landowners as part of the consultation process for the Route Location Imitative process have also been included at the request of landowners and farmers’ associations and upon DEA’s directive.

The Comments and Response Report (Scoping) is provided in Appendices J, J1 and J2.

### 6.3 Public review of Draft Scoping Report

In terms of subregulation 58(2), registered interested and affected parties must be given access to, and an opportunity to comment on the Scoping Report in writing. To fulfil this requirement a number of public participation activities was undertaken:

- **A letter** was sent out to all registered I&APs informing them of the availability of the report and the comment period. A copy of the letter is provided in Appendix K.

- **All relevant authorities** were sent a letter requesting written comment and provided with either a hard or electronic copy of the report depending on their preference. A copy of the letter is provided in Appendix K.

- The **Draft Scoping Report was made available on ACER’s website** (www.acerafrica.co.za).

- **Electronic copies** of the Draft Scoping Report were also emailed to I&APs on request.
• **Hard copies** of the report were placed at the following **public libraries** or other suitable venues accessible to the public should no public library occur in a particular area.

  - Ladysmith Public Library
  - Green Lantern Inn (Van Reenen)
  - Harrismith Public Library
  - Warden Public Library

• **Hard copies and CD copies** of the report were provided to:

  - Farmers Associations: Besters, Eeram, Ladysmith & District, Swinburne and Van Reenen (Chairmen).
  - District Farmers Unions: Warden and Harrismith (Chairmen).
  - Local Municipalities: Emnambithi/Ladysmith, Maluti-a-Phofung and Phumelela.
  - District Municipalities: Thabo Mofutsanyane and Uthukela.

• **Hard copies and CD copies** of the report were provided to the following Authorities:

  - Department of Environmental Affairs (National)
  - Department of Economic Development, Tourism and Environmental Affairs (Free State)
  - Department of Agriculture, Environmental Affairs and Rural Development (KwaZulu-Natal)
  - Department of Water Affairs (Free State & KwaZulu-Natal)
  - South African Heritage Resources Agency (Free State)
  - Amafa AkwaZulu Natali (KwaZulu-Natal)
  - Department of Agriculture (Free State)
  - Ezemvelo KZN Wildlife
  - South African National Biodiversity Institute
  - South African National Roads Agency Limited
  - Department of Transport (National)

• **Public meetings** were held within the study area during the comment period to facilitate the understanding of the report and the submission of comment as follows:

<table>
<thead>
<tr>
<th>Area</th>
<th>Venue</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ladysmith</td>
<td>Emnambithi/Ladysmith Municipal Town Hall</td>
<td>22 November 2010</td>
<td>09h00 - 11h30</td>
</tr>
<tr>
<td>Harrismith</td>
<td>New Horizon College</td>
<td>23 November 2010</td>
<td>09h00 - 11h30</td>
</tr>
<tr>
<td>Warden</td>
<td>Warden Town Hall</td>
<td>23 November 2010</td>
<td>14h00 - 16h30</td>
</tr>
</tbody>
</table>

All comment received during the Draft Scoping Report review has been collated into a **Comments and Response Report** which will be submitted to DEA with the Final Scoping Report.
7 ROUTE RANKING

7.1 Route Ranking Method

Discussions from the preliminary specialist studies are summarised in Table 7, under the heading “Specialist Discussions”. The three proposed routes are then ranked based on the discussions and preliminary findings of the Specialists by assigning “1” to the most preferred route and “3” to the least preferred route.

It is important to note that the ranking has been indicated on initial findings of the specialists where this can be applied and serves to indicate at this stage in the EIA process how the routes are ranked relative to each other for that study field.

Table 7: Route Ranking

<table>
<thead>
<tr>
<th>Specialist Discussions</th>
<th>Routes and rankings</th>
</tr>
</thead>
<tbody>
<tr>
<td>*1 = Most preferred route</td>
<td>DBPR</td>
</tr>
<tr>
<td>*3 = Least preferred route</td>
<td></td>
</tr>
</tbody>
</table>

Wetlands:
The route that intersects the least wetland is Alternative A at 11.01 km wetland. This is followed by Alternative B at 20.49 km of wetland intersected. The route that intersects the most wetland is the DBPR at 30.48 km. Especially sensitive wetlands includes the Klip River and Wilge River wetlands as well as a large wetland at Clifton on the Swinburne realignment on Alternative A.

The identity of these especially sensitive wetlands relates partly to the close proximity of road and water body such that contaminant washed off the road in runoff, or from vehicle accident and spillage on the road, is likely to enter the nearby water body more or less directly with limited prospect for interception and clean-up. While crossing water bodies is mostly not avoidable (though a routing along Alternatives A and B avoids the Klip River that the De Beers Pass Route traverses), routing alongside water bodies (as with the DBPR through Wapad, Bloem Hoek, Trafalgar, Pitchers Rest and Nelsons Kop) should be avoided.

Flora and Fauna:
The proposed construction of any alternative N3 highway will impact on both faunal and floral populations, but most severely on less mobile and fossorial (burrowing) taxa. Therefore, substrate and habitat specialists (e.g. *Tetradactylus* and *Chamaesaura* species and many of the butterfly taxa) are most vulnerable towards habitat fragmentation and less likely to cross a hard-surfaced road such as the proposed new N3 highway. In addition, the construction of a new road in an otherwise under-developed landscape would be an attraction for various secondary developments along its alignment. These would include the establishment of lodging and residential developments, fuel stations and secondary roads – which ultimately encourage habitat modification and fragmentation.
**Flora:** Each of the proposed route alternatives as well as the alternatives derived from the least cost approach was evaluated using 100 m servitude. From this analysis in terms of the proposed route alternatives, it is clear that Alternative A is the least sensitive alignment in terms of vegetation. Alternative B transects less transformed and disturbed areas and are therefore more sensitive to change caused by these two routes.

**Fauna:** Both the DBPR and the Alternative B showed that the calculated sensitivity ratings were numerically very similar to each other, which could be explained by the relatively homogenous and undisturbed nature of the grasslands and associated habitat types on the study area. Therefore, large contiguous areas of grassland still exist and dominate the region which was untransformed and rural, thereby contributing towards the relatively high sensitivity ratings for the respective taxa selected.

**Avifauna:**
Alternative A is the least potentially damaging route to bird populations compared with the other two route options. This is due its routing largely along the existing N3.

Of the remaining two options, the DBPR option seems the most potentially damaging to bird populations due to a higher presence of wetlands and indigenous forests. The presence of a “No-go area”, the Alexpan Important Bird Area (IBA), just south of Lincoln Interchange also contributes to making the DBPR alignment the most sensitive.

**Heritage:**
The proposed route, Alternative A, at Harrismith will traverse the landscape of the Platberg Reserve. The Reserve includes the highly visible natural feature of the Platberg Mountain. The Reserve and mountain have high heritage significance at the local, regional and provincial levels for their historical, aesthetic and social values; with at least low to medium heritage significance at all levels for their scientific value.

Few mitigation options exist to avoid extensive and permanent direct and indirect negative impacts on the landscape and natural feature of Platberg and surrounds. For this reason the heritage specialist recommended that this route alignment, Alternative A, is either abandoned entirely in favour of DBPR or realigned to avoid the Platberg Reserve.

**Social:**
Rankings cannot be considered on the basis of initial findings as there are still many factors that require further study in order to understand the full implications of the route alternatives on the social environment.
Economics:
Rankings cannot be considered on the basis of initial findings as there are still many factors that require further study in order to understand the full implications of the route alternatives on the economic base on which communities depend.

Public Participation:
Rankings cannot be considered as there are still many factors that require further study in order to understand the full implications of the route alternatives.

7.2 Summary of Initial Route Ranking Results

<table>
<thead>
<tr>
<th>Route</th>
<th>Wetland</th>
<th>Flora &amp; Fauna</th>
<th>Avifauna</th>
<th>Heritage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBPR</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>DBPR A</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>DBPR B</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

* 1 = most favourable to 3 = least favourable

8 DISCUSSION AND CONCLUSION

It is the objective of the Scoping Phase to obtain factual information about the expected impacts of the alternative routes to enable a decision to be made on which will have the highest potential negative impact. Please refer to Figure 11 for the draft Environmental Characteristics Map. The information obtained during this Scoping Phase is categorised into environmental, social and economic categories and is preliminary.

Landowners along the DBPR and Alternative B have had the opportunity to provide their concerns with respect to those routes during the Route Location Initiative in 2008/9. During the Information Sharing Sessions, Stakeholder and Business Forum meetings there was a preference expressed, by a significant number of I&AP’s, for the Alternative A, but with the condition that this route passes directly through Harrismith on the current N3 alignment, and not bypass the town along the eastern side on the lower slopes of the Platberg. This opinion was mainly based on the presumption that any road that “bypassed” the town of Harrismith would cause a significant loss of employment despite the fact that the existing N3 would be maintained to the same standard regardless whether the DBPR or Alternative B is the route for which environmental authorisation is given and built. The Heritage Study had particular preference for an alternative alignment to the section across the lower slopes of the Platberg Mountain in Alternative A to be investigated.
Figure 11: Environmental Characteristics Plan
Additional to the preliminary specialist studies, a table of expected long term impacts has been compiled which includes aspects that have not been investigated at this stage. The information presented is based on experience and discussion with specialists, authorities, and the public and which concern issues that relate to the spirit of place and the unique character of the region. These aspects include noise, water and noise pollution, visual quality degradation, tourism opportunities and the wise use of sustainable resources. Refer to Table 8.

The status quo of the study area includes:

- Four river catchments: In the Free State the Wilge, Meul and Cornelis and the Klip River in KwaZulu-Natal which provide good quality water to the Vaal River and the Tugela respectively.

- A hinterland that has changed little from its natural rural and agricultural land use.

- An area that contains a wealth of biodiversity that is largely intact over large areas of land and landscape.

The study area therefore has a unique combination of important attributes that have potential for growth in the region if developed in a sustainable manner and that contribute to the national water source, and scenic beauty and biodiversity.

As yet there appears to be no Strategic Environmental Framework Plan that delineates important ecological zones and compatible land-uses within the study area.

The following discussion relates to the expected impacts of the three routes on the environmental, social and economic components of the region and beyond.
Table 8: Summary of Expected Long-term impacts

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>DBPR – green</th>
<th>ALTERNATIVE A - red</th>
<th>ALTERNATIVE B - yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority Wetlands crossed causing disruption and damage</td>
<td>Crosses upper Wilge River (FS) and Klip River (KZN) wetlands</td>
<td>Crosses Wilge River wetland upstream of existing bridge. Bridge over Meul and Cornelis.</td>
<td>Crosses Wilge River Wetlands ≈ 300 m width Bridge over Meul and Cornelis Rivers.</td>
</tr>
<tr>
<td>Water pollution from runoff from new road into river / wetland</td>
<td>Wherever crosses wetland – route has the greatest length of wetlands crossed</td>
<td>At each drainage line/and river crossing – mostly at same location as existing N3</td>
<td>At Wilge River, Meander wetland and new crossings at Muel and Cornelius Rivers</td>
</tr>
<tr>
<td>Air pollution due to exhaust fumes</td>
<td>Introduces linear pollution source into natural setting, but could be offset by shorter distance.</td>
<td>Adds to existing poor background air quality of existing</td>
<td>Introduces linear pollution source into natural setting, but could be offset by shorter distance.</td>
</tr>
<tr>
<td>Noise pollution continuous high level of noise</td>
<td>Introduces significant noise levels into rural setting</td>
<td>Add noise to existing noise background values</td>
<td>Introduces significant noise levels into rural setting</td>
</tr>
<tr>
<td>Land take, agricultural</td>
<td>Agricultural land take is substantial, but land acquisition complete.</td>
<td>Agricultural land take is less due to utilization of existing servitude, but extra land will be needed for proposed new alignments</td>
<td>Agricultural land take is substantial</td>
</tr>
<tr>
<td>Animal mortality – road kill includes birds</td>
<td>High due to green-fields road</td>
<td>Low due to existing corridor / servitude and proximity to existing road in Free State. High due to green-fields road in KZN</td>
<td>High due to green-fields road</td>
</tr>
<tr>
<td>Habitat fragmentation</td>
<td>High due to crossing of many habitat types / units</td>
<td>Low due to existing corridor / servitude and agricultural and degraded land</td>
<td>High, but not as high as DBPR due to high position on landform</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>DBPR – green</td>
<td>ALTERNATIVE A - red</td>
<td>ALTERNATIVE B - yellow</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Disruption of important and vulnerable habitats</td>
<td>Priority Klip River wetland and Wilge River wetland on FS escarpment / edge</td>
<td>Platberg rock outcrops habitat of girdled lizard. Detailed studies outstanding.</td>
<td>Priority Wilge wetland and other wetlands. Alex Pan IBA</td>
</tr>
<tr>
<td>Increase of fire risk into rural agricultural area and threatened veld type</td>
<td>High due to more remote area along alignment</td>
<td>Medium – existing fire control measures in place and level of surveillance greater in Free State. High in KZN due to less surveillance.</td>
<td>Medium although more surveillance from existing landowners in Free State. High in KZN due less surveillance.</td>
</tr>
<tr>
<td><strong>SOCIAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity of life of existing residence units and lodges.</td>
<td>The quality of life will reduce due to noise pollution of air and water and</td>
<td>The quality of life will be reduced due to the increase in noise resulting from more traffic, particularly within Harrismith if the road is taken through the town. Generally the status quo will remain in FS. In KZN the quality of life will be reduced.</td>
<td>The quality of life will reduce due to noise pollution of air and water and more people in the area as access will be improved to a remote area. Theft of livestock could increase.</td>
</tr>
<tr>
<td>Access to N3 – schools and other towns</td>
<td>The access will be provided by over or under passes and new roads to the existing main roads and to the new interchanges.</td>
<td>Access will be provided and the impact of these routes are likely to be extensive due to the necessity to eliminate all current direct access points onto the N3 route.</td>
<td>The access will be provided by over or under passes and new roads to the existing main roads and to the new interchanges</td>
</tr>
<tr>
<td>Disruption of landowners social and economic base caused by land acquisition for the road reserve</td>
<td>The process of acquisition of the road reserve is complete. Landowners have mostly adjusted to new boundaries and access to agriculture resources.</td>
<td>The acquisition of land for road reserve widening and for deviations of the route in the FS section will not be as extensive as for Alternative B. The KZN section will require full servitude acquisition. This is common to both alternative</td>
<td>Land acquisition in the FS will be extensive and as many smaller properties will be fragmented, the disruption to the landowners social and economic base and their environment could have serious negative long term effects.</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>DBPR – green</td>
<td>ALTERNATIVE A - red</td>
<td>ALTERNATIVE B - yellow</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A and B</td>
<td></td>
</tr>
<tr>
<td>HERITAGE, PALAEONTOLOGY AND ARCHAEOLOGY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palaeontology</td>
<td>The extensive cut and fills required to fit the road to the landform will expose new sites on the FS Highveld</td>
<td>Any cuts for the road or borrow pits and quarries will expose new sites, particularly where deviations from the existing N3 are to be routed</td>
<td>The extensive cut and fills required to fit the road to the landform will expose new sites on the FS Highveld</td>
</tr>
<tr>
<td>Archaeology</td>
<td>It is likely that archaeological sites will be identified and exposed during the construction stage</td>
<td>It is likely that archaeological sites will be identified and exposed during the construction stage</td>
<td>It is likely that archaeological sites will be identified and exposed during the construction stage</td>
</tr>
<tr>
<td>Heritage</td>
<td>A “Union Jack” tree garden on Buckland Downs has to be avoided. No other heritage sites have been identified along the given alignment.</td>
<td>The alignment from Keeversfontein to Van Reenen does pass nearby groups of stone circles which indicate earlier dwellings. Also some stone walls associated with the Boer War are in the road corridor</td>
<td>The lower part below Van Reenen Village is as for Alternative A. No sites have been identified on the upper part of the FS Highveld. The “Union Jack” is common to this alternative as well.</td>
</tr>
<tr>
<td>Visual</td>
<td>The scenic value of the landscape is considered to be high and therefore can be considered as a</td>
<td>There will be some visual degradation due to the cuts and fills as the road climbs the Drakensberg</td>
<td>There will be some visual degradation due to the cuts and fills as the road climbs the Drakensberg</td>
</tr>
</tbody>
</table>
### DESCRIPTION

| Natural asset as defined by the SAHRA Act. The intrusion of a future 6 lane road will significantly intrude on this natural beauty. This applies to the FS Plateau and associated mountains, the KZN Escarpment, the gorges, valleys and Klip River wetland. | Escarpment to Van Reenen Village. The route deviations to Harrismith will also require cuts and fill sections. The local scenic value will be reduced. The route sections where the road widening can take place, will have little influence on the scenic quality of the surrounding landscape. | Escarpment to Van Reenen Village. The main change to the scenic value of the area will be to the northern portion of the route that is from Lincoln Interchange to Warden. This landscape is north of the scenic Tantjiesberg and Neslons Kop and associated valley of the Wilge River. |

### ECONOMIC

<table>
<thead>
<tr>
<th>Employment opportunities</th>
<th>To be included in detailed specialist studies.</th>
<th>To be included in detailed specialist studies.</th>
<th>To be included in detailed specialist studies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of Employment</td>
<td>To be included in detailed specialist studies.</td>
<td>To be included in detailed specialist studies.</td>
<td>To be included in detailed specialist studies.</td>
</tr>
<tr>
<td>Transport economics benefit related to saving of transport cost and delivery time.</td>
<td>The shortest route and improved road geometrics (incline and alignment) will result in transport cost savings and lower product prices of transported goods.</td>
<td>The least cost savings due to longer road.</td>
<td>Similar cost savings as DBPR.</td>
</tr>
</tbody>
</table>
De Beers Pass Route (Green)

8.1.1 Environmental

8.1.1.1 Wetlands

The alignment crosses the Klip and the Wilge River wetlands that are considered priority wetlands according to the biodiversity mapping (BGIS website). In addition some streams have associated wetlands that will be directly affected by the closeness and parallel alignment of the route. The Alex Pan wetlands will be directly affected by the proximity of the route. The negative effect of the road on wetlands was identified as a matter of concern in the 1998/99 EIA.

8.1.1.2 Water pollution

Storm water runoff from the road surface during rain events and any spillage of material from tankers that result from accidents near streams could pollute the high quality water resource.

8.1.1.3 Air quality

Air quality in the immediate corridor will be degraded from the exhaust emissions of the vehicles using the route. Lead deposition on plant and soil is no longer a threat due to the universal use of lead free fuel. However sulphur dioxide, carbon monoxide and nitrous oxides will be emitted from vehicles into an clean and quality landscape. The reduction of emissions due to a shorter route needs to be considered.

8.1.1.4 Noise

The noise levels caused by tyre, engine and airbrakes will be a severe continuous intrusion into a quiet rural landscape. This landscape in the Free State and KZN is unspoiled in its rural quality and visual beauty because of its position at and near the plateaus to the east and the escarpment to the north respectively. These areas have views of Tantjiesberg, Nelsons Kop and associated ravines in the Free State and the Drakensberg escarpment in KZN.

8.1.1.5 Agriculture

The impact of traversing of cultivated land may be substantial due to the suitability of the sandy loam soils that have developed over the base geology.

8.1.1.6 Animal mortality

The animal and bird mortality rates may be high during the operation of the road, due to the greenfields route and the high biodiversity of the region. The route passes close to two Important Bird Areas (IBA), Murphy’s Rust and Alex Pan. The latter has been selected due to the pan being a breeding location for the endangered Wattled Crane and White Winged Flufftail.

8.1.1.7 Habitat fragmentation

The habitat fragmentation caused by the road and the new links that will provide landowners access, will be severe due to the richness of the biodiversity of the region. The number of varied habitats traversed will be high due to the road alignment that cuts across the mid slopes of landforms and valley sides near streams.
8.1.1.8 *Disruption of important and vulnerable habitats*

The Wilge River wetlands on the top of the escarpment on the FS/KZN border are considered as Priority Wetlands according to the BGIS classification on the Biodiversity Website. Alex Pan is a proclaimed Important Bird Area by Birdlife Africa because of the endangered Wattled Crane that breed there. Other rare species such as the Crowned Crane, White Winged Flufftail and Bald Ibis are also found in those areas. The Klip River wetland below the escarpment in KZN is also a priority wetland as the same species are known to frequent the area.

8.1.1.9 *Increase of fire risk*

There may be an increase in the risk of fire entering the area along the route which would damage crop, grazing and threatened veld types.

8.1.2 Social

8.1.2.1 *Quality of Life*

The noise, and potential pollution of air and water and the greater number of people who will settle and move through the area will alter the quality of life of existing communities.

8.1.2.2 *Access to Schools and Towns*

Access provided by under and over passes as well as new link roads that will ensure landowners access to the new route may be shortened or lengthened. Access to Verkykerskop will be significantly improved.

8.1.2.3 *Fragmentation of land due to road reserve acquisition*

The social impacts of land fragmentation does not apply to this route as the land was acquired some years ago and the landowners have settled into the revised boundaries and changes that these have been brought about.

8.1.3 Heritage, Palaeontology, Archaeology and visual

8.1.3.1 *Heritage*

Some Heritage sites have been identified near the route but only the “Union Jack” planted oak garden on Buckland Downs farm north of Lincoln Interchange, lies on the alignment. This was planted by Sir Percy Fitzpatrick. His farmstead nearby also has heritage status.

8.1.3.2 *Palaeontology*

Imbedded in the sandstone layers that underlie the soil of the Free State Plateau are prehistoric fossils of animals and plants.

The fossilised tree trunks found on the farm that lies on the FS / KZN border and the fossils found in the quarry at the Ingula Pumped Water Scheme have provided confirmation of their existence. Cuts into this rock are likely to expose fossils and when this occurs a palaeontologist will need to investigate the site and record what is exposed.

8.1.3.3 *Archaeology*
Although no sites have been identified to date it is likely that some may be discovered during the construction phase of the project.

8.1.3.4 Visual

The scenic value of the plateau and mountains and the escarpment can be considered a natural and national asset according to the South African Heritage Resources Act (SAHRA), and therefore the intrusion of a highway will have a significant visual impact on the natural beauty due to its scale and the cut and fill required to fit the road to the landform.

8.1.3.5 Economic

- Employment opportunities: To be included in detailed specialist studies.
- Loss of employment: To be included in detailed specialist studies. This and the related decline in the economy of Harrismith were identified as a matter of concern in the 1998/1999 EIA because the proposed road would bypass the town.
- Transport Economics: The shorter distance and better alignment of the route makes the DBPR the most economically viable option. The DBPR will result in savings in transport costs which could be translated into lower product prices.

8.2 Alternative A (N3 upgrade and realignment) (Red)

8.2.1 Environmental

8.2.1.1 Wetlands

The route crosses the Wilge River near Montrose as well as the Meul and Cornelius River. The last two crossings will be at the same point as the existing road crossings. There are no priority wetlands that are crossed.

8.2.1.2 Water pollution

Runoff from the road will enter the stream at each drainage line and river crossing as is the existing situation.

8.2.1.3 Air quality

The existing background air quality along the route will be added to by the increase in traffic.

8.2.1.4 Noise

The existing background noise level along the corridor will increase due to the increase in traffic, with particular impact where the route passes through towns. Where the realignments occur, the noise will be transferred to the new corridor. These corridors are relatively close to the existing alignment of the N3.

8.2.1.5 Agriculture

The agricultural land affected by the route will be the least of the three routes, but is still non the less significant. The deviations for geometric compliance will require the full reserve width acquisition.
8.2.1.6 Animal mortality

The incidence will be the lowest of the three routes because the of the existing corridor will be used for much of the route.

8.2.1.7 Habitat fragmentation

The habitat fragmentation will be minimal as the existing route corridor will be widened. The new alignments will however fragment habitats along their length.

8.2.1.8 Disruption of important and vulnerable habitats

No such habitats have been identified along the route.

8.2.1.9 Increase in fire risk

The risk will be lower than the other two routes due to existing surveillance and emergency response teams nearby. The deviations are in steeper landforms and cut and fill sections will contain fire for a while thereby reducing the risk of rapid dispersion.

8.2.2 Social

8.2.2.1 Quality of life

The negative changes in the quality of life will be the least of all the routes. The noise air and water pollution will increase but relative to the background values the change will be less than on the other routes. The noise will have the most negative impact on Harrismith because of the higher density of people.

This aspect will be a significant negative aspect if the eventual 6 lane highway goes through the town. The higher noise levels in this case could affect property values negatively.

8.2.2.2 Access to schools and towns

Access will be provided for landowners to gain access to the N3 highway and other provincial roads by under and overpasses and interchanges. The new link roads will be extensive given the large number of existing at-grade accesses to the N3.

8.2.2.3 Fragmentation of land due to road reserve

The social and related economic impacts of land fragmentation does apply to this route as the land will need to be acquired for the road reserve. New boundaries and accesses can change the viability of an enterprise and the employment opportunities of staff. This aspect is expected to have a high social impact for landowners.

The reserve acquisition south of Van Reenen will include this section whereas the acquisition between Van Reenen and Harrismith will be for the reserve widening and the new alignments. Reserve widening will apply predominantly to the section Harrismith to Warden.

8.2.3 Heritage Palaeontology Archaeology Visual

8.2.3.1 Heritage

The route from Keeversfontein to Van Reenen, passes groups of stone circles and some stone walls associated with the Anglo Boer War. These sites are not limiting to the alignment.
The Alignment along the foote slope of the Platberg has heritage sites associated with the Anlo Boer War and late Stone Age habitation.

8.2.3.2  **Palaeontology**

It is likely that cuts into sandstone will expose fossils. This situation will occur along the Keeversfontein to Van Reenen section and along the deviations from the existing N3 alignment.

8.2.3.3  **Archaeology**

The stone circle sites have been identified and it is likely that some additional sites or graves may be discovered during the construction phase of the project.

8.2.3.4  **Visual**

The Keeversfontein to Van Reenen route will alter the escarpment landform by the cuts and fills and the viaducts that are required to bridge valleys near the Multi Products Pipeline Pump Station near the top of the escarpment.

The visual intrusion of these elements onto the escarpment will be significant particularly as the view of the road up against the landform will be highly visible. Visual mitigation measures may be necessary.

8.2.3.5  **Economic**

- *Employment opportunity:* To be included in detailed specialist studies.
- *Loss of employment:* To be included in detailed specialist studies.
- *Transport economics:* Due to the longer route distance, Alternative A is the least economically viable option, and will result in the highest vehicle operating cost.

8.3  **Alternative B (Yellow)**

8.3.1  **Environmental**

8.3.1.1  **Wetlands**

The route crosses the Wilge River in an area that is classified as a priority wetland defined as such by the Free State Department of Environment Tourism and Economic Affairs (DETEA). New Bridges over the Meul River and the Cornelis River will be required. The IBA site Murphy’s Rust will be indirectly affected by the road as it passes over the Wilge river to the south.

8.3.1.2  **Water Pollution**

Runoff from the road will enter the stream at each drainage line and river crossing as is the existing situation. These will be new points of pollution on the three rivers.
8.3.1.3 **Air Quality**

Air quality in the immediate corridor will be degraded from the exhaust emissions of the vehicles using the route. Lead deposition on plant and soil is no longer a threat due to the universal use of lead free fuel. However sulphur dioxide, carbon monoxide and nitrous oxides will be emitted from vehicles into a clean and quality landscape.

8.3.1.4 **Noise**

The noise levels caused by tyre, engine and airbrakes will be a severe continuous intrusion into a quiet rural landscape. This landscape in the Free State and KZN is unspoiled in its rural quality and visual beauty because of its position at and near the plateaus to the east and the escarpment to the north respectively. These areas have views of Tantjiesberg, Nelsons Kop and associated ravines in the Free State and the Drakensberg escarpment in KZN.

8.3.1.5 **Agriculture**

The traversing of cultivated land is substantial due to the suitability of the sandy loam soils that have developed over the base geology.

8.3.1.6 **Wildlife mortality**

The animal and bird mortality rates may be high during the operation of the road, due to the greenfields route and the high biodiversity of the region. The route crosses a priority wetland of the Wilge River, defined as such by the Free State Department of Environment Tourism and Economic Affairs (DETEA).

8.3.1.7 **Habitat fragmentation**

The habitat fragmentation caused by the road and the new links to provide landowners access to and across the new road will be severe due to the richness of the biodiversity of the region. The number of varied habitats traversed will be high but not as high as the DBPR due to the road alignment that is aligned on the top of landforms and therefore does not cut across as many mid slopes and valley sides near streams.

8.3.1.8 **Disruption of important and vulnerable habitats**

The Wilge River wetlands on the top of the escarpment on the FS/KZN border are considered as Priority Wetlands according to the BGIS classification on the Biodiversity Website. The route crosses this wetland.

8.3.1.9 **Increase in fire risk**

There may be an increase in the risk of fire entering the area along the route which would damage crop, grazing and threatened veld types.

8.3.2 **Social**

8.3.2.1 **Quality of Life**

The noise, and pollution of air and water and the greater number of people who will settle and move through the area will alter the quality of life. This will be a result of the easier access to the area by the interchange/s provided.
8.3.2.2  Access to Schools and Towns

Access provided by under and over passes as well as new link roads that will ensure landowners access to the new route may be shortened or lengthened. Access to Verkykerskop will be significantly improved.

8.3.2.3  Fragmentation of land due to road reserve acquisition

The purchase of land for the road reserve will cause the greatest land fragmentation and therefore the social and related economic impacts are expected to be the most severe of the three alternatives. A new reserve will need to be acquired from Keeversfontein to Lincoln Interchange. Land on the route section from Lincoln IC to Warden has already been acquired.

8.3.3  Heritage Palaeontology Archaeology Visual

8.3.3.1  Heritage

Along the route Van Reenen to Warden the Heritage site on Buckland Downs farm north of Lincoln Interchange is the "Union Jack" planted oak garden lies on the alignment. This was planted by Sir Percy Fitzpatrick. The nearby farmstead also has heritage status. The route from Keeversfontein to Van Reenen, passes groups of stone circles and some stone walls associated with the Anglo Boer War.

8.3.3.2  Palaeontology

Imbedded in the sandstone layers that underlie the soil of the Free State Plateau are prehistoric fossils of animals and plants. Cuts into this rock are likely to expose fossils and when this occurs a palaeontologist will need to investigate the site and record what is exposed. A similar likelihood of finding fossils in the shales below the escarpment exists when deep cuts are made into the landform.

8.3.3.3  Archaeology

The stone circle sites have been identified on the section Keeversfontein and Van Reenen and it is likely that some additional sites or graves may be discovered during the construction phase of the project.

8.3.3.4  Visual

The Keeversfontein to Van Reenen route will alter the escarpment landform by the cuts and fills and the viaducts that are required to bridge valleys near the Multi Products Pipeline Pump Station near the top of the escarpment. The visual intrusion of these elements onto the escarpment will be significant particularly as the view of the road up against the landform will be highly visible from near and afar. Visual mitigation measures may be necessary. The Van Reenen to Warden route crosses scenic rolling landforms that are incised by the Wilge Meul and Cornelis rivers. The mountains of Tantjiesberg and Nelson's Kop are some distance to the east and add to the high visual quality of that area of the Free State Highveld.

8.3.4  Economic

-  Employment opportunity: To be included in detailed specialist studies.
-  Loss of Employment: To be included in detailed specialist studies.
Transport Economics: The savings in road user costs is similar to the DBPR due to equivalent distance savings, but the economic viability for Alternative B is less than that of the DBPR due to higher development costs.

8.4 Summary of impact issues

The information obtained from the preliminary studies, the public and the Provincial Authorities has indicated the following preferences with respect to the routes.

8.4.1 The Environment

8.4.1.1 The DBPR (Green route)

The DBPR (Green route) between Keeversfontein and the Lincoln Interchange traverses very sensitive wetlands of the Wilge and the Klip Rivers and high biodiversity areas. For this reason alternatives should be considered. The DBPR from Lincoln Interchange to Warden traverses a landscape that is not as sensitive or biodiverse yet forms part of the relatively undisturbed upper catchments of the Meul and Cornelis Rivers that flow into the Wilge which is part of the Vaal River Catchment. The physical disruption of the area of particularly high scenic quality along the entire DBPR by noise air and water pollution will be significant and can have long term negative secondary impacts that will diminish the water and biodiversity sustainability potential of the region.

The disturbance of the landscape by borrow pits, quarries, aggregate storage areas and asphalt plants will add to the negative impacts on environmentally sensitive areas. These will occur during the construction phase, but areas changed will be rehabilitated on completion of construction. This disturbance will be more pronounced in the green fields road alternatives DBPR (green) and Alternative B (yellow).

8.4.1.2 The Alternative A (Red route)

Early indications are that this alternative has the least environmental impact of the three routes.

8.4.1.3 The Alternative B (Yellow route)

The section from Keeversfontein to Van Reenen avoids sensitive wetlands although some side seeps are passed and a valley wetland near the Escarpment is bypassed. A remnant forest upslope of the longest viaduct will remain unaffected. This route section is common to Alternative A (Red route) N3 upgrade, and crosses the least environmentally sensitive terrain.

The route from Van Reenen to the Lincoln Interchange crosses sensitive wetlands of the Wilge River and smaller sensitive wetlands on the crest and side slopes of the sandstone plateau.

These wetlands and particularly the Murphy’s Rust Important Birding Area are habitats where red data bird species roost and nest. This route section combines with the DBPR north of the Lincoln Interchange end at Warden. The route section therefore from Van Reenen to Warden is considered by specialists of flora fauna birds and wetlands to be sensitive and therefore alternatives should be investigated.
8.4.2 Social

The quality of life in the vicinity (at least 500m from the road) of the DBPR and Alternative B will be significantly altered due to the noise, air and water pollution that will be at a higher incremental level than those adjacent to an existing road corridor. Alternative A will be the least negatively affected due to the existing impact of the N3 alignment.

The social impacts of farm boundary changes associated with the acquisition of the road reserve for Alternative A will be less severe than for Alternative B because of the widening of the existing road reserve for the former. The land required for the road reserve for the road section south of Van Reenen is common to Alternative A and Alternative B.

8.4.3 Economic

When net Economic impacts, namely the increase in agency costs (construction plus maintenance costs) and the decrease in user costs (running costs, savings due to delays, accidents etc), are compared, the DBPR is the most economically viable option.

8.5 Summary and Conclusion

The DBPR from Keeversfontein to Lincoln will have long term negative biodiversity, habitat and water quality impacts that will have local, regional and national effects. These relate to the protection of red data species and good quality sustainable water resources and the need to protect scenic areas of the country.

The social and economic impact on the landowners along this route related to the purchase of the road servitude and in some cases to whole portions of remnant land, has been settled some time ago.

The transport economic benefits of this route are clear and show the greatest cost benefit on investment compared to that of Alternative A and B.

Route Alternative B (yellow) has similar expected long-term negative impacts that will also have local, regional and national effects for the country.

These also relate to priority wetlands, habitat and rare species disturbance and some heritage area intrusion. The wetland loss in the FS is marginally less than that for the DBPR in the FS but both affect priority wetlands of the Wilge River and associated rare bird habitat. The transport economic benefits of this route are less than the DBPR but better than Alternative A.

The significant social and associated economic impacts for directly affected landowners are related to the acquisition of the land for the road reserve. The farm sizes are somewhat smaller so the fragmentation of land will be severe and this may affect the economic viability of some farms. This situation can cause negative long-term effects on that community and region through loss of productivity and poor land management practices.

The Alternative A (red) will have the least long term local and regional biodiversity habitat and water quality impacts. The extent of these potential impacts is not considered to be national as limited biodiversity and water quality resources will be affected. This is because no priority wetlands will be crossed although the associated wetland cluster either side of the Wilge River upstream of the bridge at Swinburne is passed to the south. The new alignment along the foot of the Platberg will need to be considered in detail during the Environmental Impact Assessment due to the presence of both heritage and rare species habitats. Alternative routing to avoid the Platberg Reserve should be considered.
The social and associated economic impacts that result from the securing of additional land for a wider road reserve and for the realignments to make the route completely geometrically compliant will have local negative consequences for the landowners. Note that Alternatives A and B have a common route in KZN so comparatively the social and related economic negative impacts are similar for that portion.

The transport economic benefit is the least favourable of all three routes.

Based on early information, Alternative B has potentially the most significant social impacts on the region with the environmental disturbance of wetland and habitat similar to those expected along the DBPR. However not all the impacts have been assessed in detail. If studies do show that significant social impacts will occur, the further specialist studies will not be pursued on this route.

The N3 widening alternative and the Do-Nothing alternative were found to be neither reasonable nor feasible as required by DEA Guideline 5: Assessment of Alternatives and Impacts in support of the EIA Regulations (2006)

It is recommended that the DBPR and the Alternative A be selected for further investigation in the EIA phase and that the required specialist studies, as listed herein, are completed.

9 PLAN OF STUDY FOR EIA REPORT

9.1 Introduction

The objective of the assessment of impacts is to identify and evaluate all the significant impacts that may arise as a result of the N3 Keeversfontein to Warden (De Beers Pass Section) according to an objective set of criteria. In the Impact Assessment Phase, additional impacts must be identified through the various specialist studies and through ongoing I&AP consultation.

In order to assess impacts that relate to more than one element of the environment (e.g. visual quality and vertebrate fauna), certain specialists will be likely to require information obtained from other specialists. An integration workshop must therefore be held to ensure that all specialists and the applicant have a common understanding of the receiving environment and issues related to the project are addressed in a synergistic manner. For each of the main project phases (construction and operation), the existing and potential future impacts and benefits (associated only with the proposed development) must be described using a combination of criteria.

9.2 Authority Consultation

The stages at which the competent authority will be consulted are as follows:

- Before the submission of the final Scoping Report to the DEA. This department, the FS DETEA and KZN DAEARD will be consulted.
- On the receipt of comments from DEA and confirmation of Scoping Report;
- Before the submission of the draft Environmental Impact Report for comment;
- On submission of final EIR. DEA FS DTEA and KZN DAEARD will be consulted.
- Following response from competent authority regarding acceptance of final EIR;
9.3 Terms of Reference for the EIA stage

The Terms of Reference (TOR) for specialists in the EIA phase of the N3: Keeversfontein to Warden (De Beers Pass Section) consists of two parts: (i) a General TOR and (ii) a Specific TOR, as discussed in following two sections. The General TOR consists of overarching information and instructions that would be applicable to all specialists while the Specific TOR provides more detail of the desired outcome of each individual study.

9.3.1 General Terms of Reference

9.3.1.1 Specific requirements

This specialist study is required in terms of the scope of the full environmental impact assessment. The specialist is, therefore, required to prepare a report that will assess each route (the De Beers Pass Route and the DBPR Alternative A) and compare the results in accordance with this ToR (Refer to Figure 1). The scope and deliverables are described below. It is important that the specialist ensures that the reports describing the outcomes of these investigations be as concise and pertinent as possible. All specialists are required to be independent, i.e. have no business, financial, personal or other interest in the activity, application or appeal in respect of which that specialist is appointed other than fair remuneration for work performed in connection with that activity, application or appeal and that there are no circumstances that may compromise the objectivity of the specialist performing such work. A declaration to this effect must accompany the deliverables.

9.3.1.2 The Study Area

The area affected by the project is divided into a number of District and Local Municipalities:

- Free State: Thabo Mofutsanyne District Municipality
  - Phumulela Local Municipality
  - Maluti a Phong Local Municipality
- KwaZulu-Natal: UThukela District Municipality
  - Emnambithi–Ladysmith Local Municipality
  - Okhahlamba Local Municipality

9.3.1.3 Use existing information

All Specialists are required to apprise themselves of existing information and not “to reinvent the wheel”. Upon appointment, specialists must undertake a literature review and desktop investigation to collate relevant information and assess gaps in knowledge. This includes the Final Scoping Report which provides the most recent information about the project and the key environmental issues that have been identified to date. Information and data related to the traffic flows and the vehicle type ie cars, light and heavy trucks can be provided by the N3TC.

The Specialist shall list the information that is required for the study. In particular, specialists are also required to review the Comments and Response Report that contains the comments received during Scoping. Each specialist must ensure that all issues relevant to his/her specific field are addressed in the assessment and an adequate response is provided.
Specialists are required to provide input to responses of comments on the Draft EIAR and specialists studies after having been made available for public review.

9.3.1.4 Meetings and site visits

All specialists are required to attend a briefing meeting, a site visit, a public meeting and an integration meeting with the design team in order to discuss issue. Approximate meeting dates are as follows:

- Briefing Meeting: 15th November 2010 at 10:00hrs at N3TC offices, Pell Meadow Office Park, 60 Civin Drive Bedfordview, 2007.
- Site visit: 13th December 2010 at Harrismith office of N3TC, Bergview Centre.
- Integration Meeting: 26th April 2011 N3TC offices.
- Public Meeting: 26th July 2011 Harrismith venue to be confirmed.

9.3.1.5 Report Review

The draft specialist reports will be reviewed by CKA and then by an independent reviewer with expertise in the relevant field. On each occasion, the review comments will be provided to the specialist to address.

The specialist may also be required to amend his/her report in response to public and authority review comments.

All specialists must liaise with other specialists where there is an overlap of the subject being studied.

9.3.1.6 Report contents

All specialist studies will comply with and include the following:

- Details of the person who prepared the report; and the expertise of that person to carry out the specialist study or specialised process.
- A declaration that the person is independent.
- An introduction that presents a brief background to the study and an appreciation of the requirements stated in the specific terms of reference for the study.
- Details of the approach to the study, where activities performed and methods used are presented.
- A description of any assumptions made and any uncertainties or gaps in knowledge.
A list and brief description of the key laws, policies, guidelines and planning documents that pertain to that particular specialist field and an explanation of the relevant implications and requirements for the project.

A description of the affected environment and the study area to provide a context to the study.

Descriptions of proposed actions and alternatives of development and operation of the project that could affect the prevailing environment, and the risks that these actions and alternatives present.

A description of the impacts of actions and alternatives, defined according to the specified criteria (Refer to Table 9).

A description of any consultation process that was undertaken during the course of carrying out the study. This description should comply with Section 29 (h) of Government Notice 385 of the NEMA EIA Regulations of 2006.

A summary and copies of any comments received during any consultation process.

### 9.3.1.7 **Significance Criteria and Rating Scales**

In accordance with Government Notice R.385, promulgated in terms of Section 24 of the NEMA and the criteria drawn from the IEM Guidelines Series, Guideline 5: Assessment of Alternatives and Impacts, published by the DEAT (June 2006) as well as the Guideline Document on Impact Significance (DEAT 2002), specialists are required to assess the potential impacts in terms of the criteria listed below:

### Table 9: Impact Criteria Assessment and Rating Scales

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Rating Scales</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature</td>
<td>Positive</td>
<td>This is an evaluation of the type of effect the construction, operation and management of the proposed NPS development would have on the affected environment.</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Extent</td>
<td>Low</td>
<td>Site-specific, affects only the development footprint.</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Local (limited to the site and its immediate surroundings, including the surrounding towns and settlements within a 10 km radius);</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Regional (beyond a 10 km radius) to national.</td>
</tr>
<tr>
<td>Duration</td>
<td>Low</td>
<td>0-4 years (i.e. duration of construction phase).</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>5-10 years.</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>More than 10 years to permanent.</td>
</tr>
<tr>
<td>Intensity</td>
<td>Low</td>
<td>Where the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected.</td>
</tr>
<tr>
<td>Criteria</td>
<td>Rating Scales</td>
<td>Notes</td>
</tr>
<tr>
<td>----------</td>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>Medium</td>
<td>Where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected.</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>Where natural, cultural or social functions and processes are altered to the extent that the impact will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.</td>
<td></td>
</tr>
<tr>
<td>Potential for impact on irreplaceable resources</td>
<td>Low</td>
<td>No irreplaceable resources will be impacted.</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Resources that will be impacted can be replaced, with effort.</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>There is no potential for replacing a particular vulnerable resource that will be impacted.</td>
</tr>
<tr>
<td>Consequence (a combination of extent, duration, intensity and the potential for impact on irreplaceable resources)</td>
<td>Low</td>
<td>A combination of any of the following: - Intensity, duration, extent and impact on irreplaceable resources are all rated low. - Intensity is low and up to two of the other criteria are rated medium. - Intensity is medium and all three other criteria are rated low.</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Intensity is medium and at least two of the other criteria are rated medium.</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Intensity and impact on irreplaceable resources are rated high, with any combination of extent and duration. Intensity is rated high, with all of the other criteria being rated medium or higher.</td>
</tr>
<tr>
<td>Probability (the likelihood of the impact occurring)</td>
<td>Low</td>
<td>It is highly unlikely or less than 50% likely that an impact will occur.</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>It is between 50 and 70% certain that the impact will occur.</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>It is more than 75% certain that the impact will occur or it is definite that the impact will occur.</td>
</tr>
<tr>
<td>Significance (all impacts including potential cumulative impacts)</td>
<td>Low</td>
<td>Low consequence and low probability. Low consequence and medium probability. Low consequence and high probability.</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Medium consequence and low probability. Medium consequence and medium probability. Medium consequence and high probability. High consequence and low probability.</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>High consequence and medium probability. High consequence and high probability.</td>
</tr>
</tbody>
</table>

An explanation of the above-mentioned impact criteria is provided below. Only the above-mentioned criteria were taken into account in the assessment of impact significance. In addition, the degree of confidence in the prediction of impacts, the nature of applicable mitigation measures and legal requirements applicable to the impacts has been described by the specialists.
9.3.1.8  **Nature**

This is an evaluation of the type of effect the construction, operation and management of the proposed development would have on the affected environment. Will the impact change in the environment be positive, negative or neutral? This description must include what will be affected and the manner in which the effect will transpire. The specialist must ensure that the impact is described and not the source of the impact. There may be a number of possible activities contributing to the same impact, e.g. degradation or loss of wetlands. Vice versa there may be a number of different impacts resulting from a single activity. The specialist must try to simplify the study by not creating unnecessary categories of impacts based on the different activities.

9.3.1.9  **Extent or scale**

This refers to the spatial scale at which the impact will occur. Extent of the impact is described as: low (site-specific - affecting only the footprint of the development), medium (limited to the site and its immediate surroundings and closest towns) and high (regional and national). This refers to the actual physical footprint of the impact, not to the spatial significance. It is acknowledged that some impacts, even though they may be of small extent, are of very high importance, e.g. impacts on species of very restricted range. In order to avoid “double counting”, the specialist must indicate this under “intensity” or “impact on irreplaceable resources” but not under “extent” as well.

9.3.1.10  **Duration**

The lifespan of the impact is indicated as low (short-term: 0-4 years, typically impacts that are quickly reversible within the construction phase of the project), medium-term: (5-10 years, reversible over time) and high (long-term: greater than 10 years and continue for the operational life span of the road).

9.3.1.11  **Intensity or severity**

This is a relative evaluation within the context of all the activities and the other impacts within the framework of the project. Does the activity destroy the impacted environment, alter its functioning, or render it slightly altered? The specialist studies must attempt to quantify the magnitude of the impacts and outline the rationale used.

9.3.1.12  **Impact on irreplaceable resources**

This refers to the potential for an environmental resource to be replaced, should it be impacted. A resource could possibly be replaced by natural processes (e.g. by natural colonisation from surrounding areas), through artificial means (e.g. by re-seeding disturbed areas or replanting rescued species) or by providing a substitute resource, in certain cases. In natural systems, providing substitute resources is usually not possible, but in social systems substitutes are often possible (e.g. by constructing new social facilities for those that are lost). Should it not be possible to replace a resource, the resource is essentially irreplaceable e.g. red data species that are restricted to a particular site or habitat of very limited extent.

9.3.1.13  **Consequence**

The consequence of the potential impacts is a summation of above criteria, namely the extent, duration, intensity and impact on irreplaceable resources.
9.3.1.14 **Probability of occurrence**

The probability of the impact actually occurring based on professional experience of the specialist with environments of a similar nature to the site and/or with similar projects. Probability is described as low (improbable), medium (distinct possibility), and high (most likely). It is important to distinguish between probability of the impact occurring and probability that the activity causing a potential impact will occur. Probability is defined as the probability of the impact occurring, not as the probability of the activities that may result in the impact.

9.3.1.15 **Significance**

Impact significance is defined to be a combination of the consequence (as described below) and probability of the impact occurring. The relationship between consequence and probability highlights that the risk (or impact significance) must be evaluated in terms of the seriousness (consequence) of the impact, weighted by the probability of the impact actually occurring.

In simple terms, if the consequence and probability of an impact is high, then the impact will have a high significance. The significance defines the level to which the impact will influence the proposed development and/or environment. It determines whether mitigation measures need to be identified and implemented and whether the impact is important for decision-making.

9.3.1.16 **Degree of confidence in predictions**

Specialists will be required to provide an indication of the degree of confidence (low, medium or high) that there is in the predictions made for each impact, based on the available information and their level of knowledge and expertise. Degree of confidence is not taken into account in the determination of consequence or probability.

9.3.1.17 **Mitigation measures**

Mitigation measures will be identified to reduce the consequence or probability of an impact, or to reduce both consequence and probability. The significance of impacts will be assessed both with mitigation and without mitigation.

9.3.1.18 **Legal requirements**

The Specialist must provide a brief description of the key laws, policies, guidelines and planning documents that pertain to that particular specialist field and give an explanation of the relevant implications and requirements for the project.

In addition where relevant the specialist must identify and list the relevant permit requirements pertaining to the development proposals. Reference must be provided to the procedures required to obtain permits and describe whether the development proposals have the potential to trigger applicable licensing or permit requirements.

9.3.1.19 **Report Format**

All consultants must use the prescribed MS Word format when submitting their reports to Cave Klapwijk and Associates. Any other format will be returned to the author(s) for conversion and re-formatting. A report template and instructions has been prepared and will be sent electronically to each consultant. Only this format will be accepted.
9.3.2 Specific terms of Reference

In addition to the general terms of reference outlined in Section 2, specialists must also fulfil the terms of reference relevant to each field:

The Specialist must refer in the specialist report to the respective issues that have been documented in the Scoping Report and the Comment and Response Report and address and comment in where required.

The Specialist shall include in the specialist report anything else that the Specialist may think is relevant based on their field of expertise.

9.3.2.1 Air Quality and Climate

The study shall address the following:

- Obtain baseline data on air quality at each town (Van Reenen, Swinburne, Harrismith, Warden) and rural areas along the route corridors at selected positions (by specialist).
- Using data supplied by the N3TC on number and type of vehicles that will use the road, calculate the expected air quality at critical areas along each route. State the expected risk to health within a zone either side of the road.
- Provide baseline climate data. This shall include snow, ice, lightning strikes and seasonal wind roses.
- Identify which route will be the least affected by snow, ice, wind, mist and fog.
- Identify mitigation measures and the effectiveness of these.

9.3.2.2 Wetlands

The study shall address the following:

- Describe the setting in which the wetlands exist.
- The function and importance within the catchment.
- The impact of the route on the function of the wetlands crossed.
- The risk of function disturbance per section.
- The significance of the disturbance to wetlands.
- The condition of the existing wetlands in the Wilge river downstream of Swinburne and Harrismith and the effect on these of discharge and spills from the new crossings of the two routes.
- Identify mitigation measures and the effectiveness of these.

9.3.2.3 Flora and Fauna

The study shall address the following:

- Comply with the requirements of the National Environmental Management: Biodiversity Act No. 10 of 2004.
- Determine baseline flora and fauna counts and areas for species.
- Map habitat and list species with special reference to girdled and sungazer lizards in the Platberg and Alex Pan vicinities.
- Describe the potential impact of the road on habitat and species and liaise with the ornithologist regarding bird “hot spots”.
- Identify which route will have the least impact on habitat, species and biodiversity of the region(s).
• Identify protected areas, conservancies, ecosystems and sensitive areas with respect to vulnerability or resilience to change.
• Identify mitigation measures and outline the effectiveness of these.

9.3.2.4 Avifauna

• Identify important bird habitats and the IBA’s in the study area.
• Identify buffer zones where necessary to reduce the risk of habitat loss.
• Identify a preferred route alternative and provide reasons for this selection.
• Propose measures to mitigate habitat and species loss.

9.3.2.5 Economics

The study shall address the following:

• Describe the economic status quo and surrounding districts of the Municipalities of each town (Van Reenen, Swinburne, Harrismith, Warden).
• Assess the potential economic impact of the two route alternatives on each of the abovementioned towns.
• Assess the net economic (transport) impact of each route alignment on each of the abovementioned towns and on the national economy.
• Assess any potential impacts on the businesses of each of the abovementioned towns that may result from the two route alternatives.
• Summarise the findings as they apply to each town and each alternative route alignment.
• Assess the possible economic effect that each route may have on a logistics hub in Harrismith if it is established prior to and after the construction of each route alternative.
• Identify mitigation measures to limit negative economic impacts and discuss the effectiveness of these measures.

9.3.2.6 Agricultural economics

• Determine the extent of arable and grazing land affected by the routes, link roads and interchanges.
• Determine the value of the agricultural land to be lost to each route.
• Indicate the present value of the crop and arable product loss over 30 years.
• Identify the secondary industries such as the mills, abattoirs etc that are linked to the primary agricultural industry and draw a conclusion on the possible economic effect when land is removed for the road reserve.
• Identify which route will have the least impact on the local agricultural economy.

9.3.2.7 Social

The study shall address the following:

• The status quo of each of the 4 towns (Van Reenen, Swinburne, Harrismith, Warden) and rural communities within the study area with respect to normal social characteristics.
• Identify and assess potential impacts that can be caused by each of the routes on each of the abovementioned towns and surrounding communities.
• Rank the expected social impacts that may result from the construction and operation of each route alignment.
• Identify mitigation measures to limit identified social impacts and discuss the effectiveness of these measures.
• Identify what spatial planning has been completed for the 4 towns and comment on the impact that the two routes will have on this aspect.

9.3.2.8 Heritage

• Identify heritage and archaeological sites along the routes within the road reserve (80 m) and other areas taken up by new roads for farm access.
• Describe the importance of each site identified.
• Describe the mitigation and expected time frames to carry out the mitigation.
• Provide reasons for the selection of the route with least impact on heritage and archaeological sites.
• Ensure the heritage impact assessment also fulfils the requirements set out in the National Heritage Resources Act.
• Identify areas where palaeontological sites are likely to occur if the road will be in cut.

9.3.2.9 Noise

The study shall address the following:

• Create a baseline noise level for areas on the existing road at each of the four towns – Van Reenen, Swinburne, Harrismith and Warden and rural communities.
• Predict the noise level during the operation of the two routes for traffic volumes (13 900 vehicles per day).
• Identify mitigation measures to reduce noise levels and outline the effectiveness of these.

9.3.2.10 Visual

The study shall address the following:

• Describe the visual quality of the setting for each route alternative.
• Describe the potential visual intrusions of the route alternatives on the landscape and assess the visual impacts on the adjacent community and tourism potential of the area.
• Identify the view shed of each route with vehicles at a selected average height.
• Identify critical view points for each route alternative.
• Identify which route will create the least visual impact in the landscape.
• Identify possible mitigation measures and effectiveness of these.

9.4 Concluding remarks

Cave Klapwijk and Associates is responsible for the environmental impact assessment required to obtain the relevant environmental authorisation from DEA. This specialist study will form an integral component of this EIA process and will help to ensure that the N3 Toll Concession’s approach can be shown to meet current environmental management best practise in terms of sustainable development.
10 REFERENCES


Allan, D.G. 2010. Avifaunal Assessment for De Beers Pass Route Alternative A.


Cave, A. 1999. N-3 Toll Road from Cedara (KwaZulu-Natal) to Heidelberg (Gauteng) Scoping Report.

DEA Guideline 5 : Assessment of Alternatives and Impacts in support of the EIA Regulations (2006)