JOE GQABI

DISTRICT MUNICIPALITY

A G E N D A

OF THE FIRST JOE GQABI DISTRICT MUNICIPAL PLANNING TRIBUNAL MEETING TO BE HELD ON FRIDAY, 14 FEBRUARY 2020 AT 10H00 AT THE MOUNT FLETCHER CRAFT CENTRE

MEMBERS:

Fiona Sephton (Chairperson)

Nandi Mshumi (Deputy Chairperson)

Themba Phintshane

Nomthandazo Libazi

Palesa Bushula

Ntomboxolo Eddie

Wiseman Nodwele

Andiswa Qinisile

Mike Coleman

Tony Williams

Yolisa Mabentsela

SECRETARIAT

Tsepiso Ntwanambi

Simnikiwe Mbekushe

Zamazulu Nonkula

Dakhalo Muthelo

Nohleli Khethwa

Notice and confirmation of Members

This serves as a notice of the first meeting of the Joe Gqabi District Municipal Planning Tribunal to be held at the Mount Fletcher Craft Centre on the 14 February 2020 at 10h00.

BARKLY EAST

_____

F. SEPHTON
MPT CHAIRPERSON

DATE:

	AGENDA
.	**OPENING AND WELCOME**
2.	**ATTENDANCE**
2.1	Members: Present
2.2	Members: Absent with leave (Please see appendix A)
2.3	Members: Absent without leave
2.4	Officials present
2.5	Members of the public present
3.	**ADOPTION OF THE AGENDA**
4.	**TABLING OF THE DRAFT SOP** (Please see appendix B)
5.	**NOTING OF RULES OF ENGAGEMENT**
6.	**DECLARATION OF INTEREST BY MEMBERS AND OFFICIALS** (Declaration forms issued to each member during the meeting)
7.	**MINUTES OF THE PREVIOUS MEETING** None.
7.1	**CONFIRMATION OF MINUTES** None.
7.2	**MATTERS ARISING** None.
8.	**NEW APPLICATIONS FOR CONSIDERATION**

8.1	Application for Rezoning and Subdivision: Erf 318, Mount Fletcher, Ext 3 (Elundini Local Municipality) - Ethembeni Housing Development **Decision Required: Approval**
9.	**DATE OF THE NEXT MEETING**
10.	**CLOSURE**

MPT20/01/01ELM

APPLICATION FOR REZONING AND SUBDIVISION: ERF 318, MOUNT FLETCHER, EXT 3 (ELUNDINI LOCAL MUNICIPALITY) - ETHEMBENI HOUSING DEVELOPMENT

PURPOSE

This application is submitted for the approval of rezoning and subdivision of erf 318, Mt Fletcher, ext 3 in the Elundini local municipality in terms of the provisions of the Townships Ordinance (Ordinance 33 of 1934) and the Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA). The intension is to formalize the area currently occupied by a formal and informal development. The area will be upgraded in-situ as part of the Ethembeni Housing Development.

BACKGROUND

A planning process was initiated in early 2009 to establish a mixed use extension, referred to as Extension 3, on this portion of Municipal Commonage (Erf 318 Mount Fletcher). The application was finally submitted to the Township's Board in November 2010 and approved by the Provincial MEC in terms of Ordinance 33 of 1934. The approved Township was surveyed and a General Plan registered at the end of July 2014. Although some of the Government, Educational and Commercial erven were developed in line with the plan, the residential component was never formally implemented.

The informal residential development did not adhere to the approved plan. Due to this, the layout had to be redesigned to, whilst striving to accommodate existing structures, ensure that the use of land is optimised and that basic design principles for township layouts are adhered to.

DISCUSSION

Compliance with SPLUMA principles

This application for the formalisation of existing residential properties and provision of additional residential erven is considered important for ensuring that the following principles contained in SPLUMA are achieved:

(i) Principle of spatial justice, by:
   a. inclusion of formerly excluded persons and areas to improve access to and use of land;
   b. promotion of the concept of secure tenure and incremental upgrading of informal settlements.

(ii) Principle of spatial sustainability, by:
   a. promoting land development in locations that are sustainable and limit urban sprawl, while protecting prime agricultural and environmentally sensitive land;
   b. creating viable communities

(iii) Principle of efficiency, by:

a. optimising use of existing resources and infrastructure to minimise negative financial, social, economic or environmental impacts.

This formalisation and upgrade process is expected to assist in the social and economic upliftment of local residents.

Engineering Services Feasibility

With the informal residential structures already supplied with VIP toilets and communal standpipes, it is not expected that the formalisation will have any significant impact on infrastructure in the town.

It also expected that the formalisation of the development (by achieving land use approval) will enable the municipality to access additional funding to upgrade other infrastructure elements such as roads and electricity. An existing Eskom power line is crossing the site and Eskom confirmed that any new supply connection will require an application to be lodged to them.

The formalised extension is situated within the urban edge and can be included within the waste management collection services for town.

With the bulk of the development occupied by informal structures, there is no significant increase in traffic generation expected. With the roads that are already formally developed and future upgrade of roads forming part of the redesigned layout, traffic safety is expected to improve.

The development (and this application for subdivision and rezoning) is in line with the proposals of the latest SDF, which clearly highlights the Ext 3 area for residential expansion.
The zonings allocated to the development are in line with the applicable Land Use Scheme. The development controls of the Scheme will in future be applied by the Municipality to development of individual properties.

PROPOSAL

The proposed subdivision to reconfigure the area known as Ext. 3, Mount Fletcher, will result in the following erven:

Use	Zoning	No of erven	Area (m²)	% allocation
Residential	Special Residential	322	327095.02	38,72%
Business	General Business	10	28435.38	3,37%
School	Educational	2	27743.46	3,28%
Technical College	Educational	2	62944.99	7,45%
Hospital	Institutional	1	53038.97	6,28%
Institution	Institutional	2	14097.24	1,67%
Government Offices	Government	1	33903.09	4,01%

Sportsfield	Municipal	1	20641.42	2,44%
Cemetery	Municipal	1	3359.48	0,40%
Open Space	Open Space	9	160255.68	18,97%
Reservoir	Municipal	1	1000.00	0,12%
Sewer Ponds	Municipal	1	11424.44	1,35%
Taxi Rank	Municipal	1	9624.77	1,14%
Public Roadway	Roadway	2	91248.07	10,80%
TOTAL		**356**	**844812.00**	**100.00**

FINANCIAL IMPLICATIONS

The cost of development of Ext. 3, Mount Fletcher (which includes the land development application, surveying, internal infrastructure development and construction) is covered by funding allocations to the Municipality from the Provincial Government, in line with the housing subsidy quantum.

It is envisaged that the long term financial implications of services and maintenance will be covered by service charges and grants (covering indigent households' contributions).

LEGAL IMPLICATIONS

This application is being submitted in terms of the Townships Ordinance, 33 of 1934 and the Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA).

CREDIBILITY

The application, associated motivation report and supporting documentation have been assessed and are confirmed as credible.

RECOMMENDATIONS

That the report on the application for rezoning and subdivision: erf 318, Mount Fletcher, ext 3 (Elundini local municipality) - Ethembeni housing development be noted.

That the application for rezoning and subdivision: erf 318, Mount Fletcher, ext 3 (Elundini local municipality) - Ethembeni housing development be approved in terms of the provisions of the Townships Ordinance (Ordinance 33 of 1934) and the Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA) as follows:

Use	Zoning	No of erven	Area (m^2)	% allocation
Residential	Special Residential	322	327095.02	38,72%
Business	General Business	10	28435.38	3,37%
School	Educational	2	27743.46	3,28%
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Public Roadway	Roadway	2	91248.07	10,80%
TOTAL		**356**	**844812.00**	**100.00**

The approval is subject to the following conditions:

i.) no building may commence without approved building plans by Elundini Local Municipality;
ii.) the development must comply with the provisions of the existing Elundini Local Municipality Land Use Scheme;
iii.) the applicant be liable for applicable development charges for provision and installation of external engineering services at a fair and reasonable cost to be determined in agreement with the responsible authorities;
iv.) the applicant be liable for the costs of provision and installation of all internal engineering services and specifications are to be approved by the responsible authorities;
v.) the Municipality shall be entitled to reasonable access to the land adjoining the servitude area for construction, maintenance or removal of such servitudes;
vi.) indication of the water demand of the total housing development to be furnished to the Water Service Authority;
vii.) This approval applies to the application as outlined above and may not be construed as authority to depart from any other legal prescription or requirements;

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ANNEXURES

FIGURES

PLANS

APPENDIX

MPT Meeting Date :

1	4	0	2	2	0

Venue : Mount Fletcher Town Hall

Application : Application for Subdivision and Rezoning: Mount Fletcher Extension 3 – (Elundini Local Municipality – Ethembeni Housing Development

Property Description : Remainder Erf 318 Mount Fletcher

Reference Number	**Application Submission Date**	**Date Report Finalised**
MPT/20/01/01/ELM	**28/01/2020**	**06/02/2020**

Status of Application									
Received	✗	**Confirmed as complete**	✗	**Circulation**	✗	**Advertised**		**All comments received**	✗
Responded to comments		**Assessment report**		**Decision**	✗	**Applicant / Objectors notified**		**Appeal received**	
Appeal hearing		**Final decision**		**Other**					

SECTION A: AUTHOR DETAILS	
First name(s)	Dakalo Emmanuel
Surname	Muthelo
Job title	Town Planner
Prof body registration number (if applicable & supported by the relevant by-law)	Pr. Pln (A/ 2776/2019)
Directorate/Department	Planning & Economic Development
Contact details	
Physical Address	Municipal Office, 1 Seller Street, Maclear
Postal Address	Municipal Manager, PO Box 1, Maclear, 5480

Tel no:	045 932 8172
Fax:	086 246 8142
E-mail address	ntomboxoloe@elundini.gov.za
SECTION B: APPLICANT DETAILS	
First name(s)	The Elundini Local Municipality
Surname	n/a
Company name / CC	n/a
Company / CC Reg. Nr.	n/a
Cipro documents	n/a
SACPLAN Registration Number	n/a
Is the applicant authorised to submit this application	**Yes**
Power of Attorney & Minutes	The Municipality is the applicant
Registered owner(s)	Elundini Municipality
Contact details	
Physical Address	Municipal Office, 1 Seller Street, Maclear
Postal Address	Municipal Manager, PO Box 1, Maclear, 5480
Tel no:	045 93 8107
Fax:	0800 007 7882
E-mail address	khayag@elundini.gov.za
SECTION C: PROPERTY DETAILS	
Property description (in accordance with Title Deed)	Remainder Erf 318 Mount Fletcher
Physical address	Mount Fletcher Commonage
Town / City	Mount Fletcher
Current zoning	Undetermined (Commonage)
Extent (m^2/ha)	1122.4530Ha
Are there existing buildings on the property?	**Yes**
Applicable zoning scheme	Standard Transkei Town Planning Scheme
Current land use	Partly formally developed with college and other institutional uses, with part informally settled.
Title Deed number & date	T632/2002
Any restrictive title conditions applicable (if yes, list condition below)	**No**

Any third party conditions applicable? (if yes, specify below)		**No**
Any unauthorised land use/building work (if yes, explain below)	**Yes**	
Large part of the area informally occupied, not in line with previously approved layout.		

SECTION D: PRE – APPLICATION CONSULTION OR WRITTEN ENQUIRY (ATTACHED MINUTES)

Has pre-application consultation been undertaken? (if yes, provide a brief summary of the outcomes below)	**Yes**	
Comments were received from the Tribunal and further consultation and engagement took place.		

SECTION E: TYPE OF APPLICATIONS (TICK APPLICABLE)

Rezoning	**X**	**Removal suspension or amendment of restrictive conditions**		**Subdivision**	**X**	**Temporary departure**	
Permanent departure		**Consent use**		**Township Development / Division of land**		**Division of an approved township**	
Cancellation of General Plan		**Extension of the validity period of an approval**		**Permissions in terms of the zoning scheme**		**Closure of public place**	
Determination of zoning		**Disestablish a home owner's association**		**Rectify failure by home owner's association to meet obligations**		**Occasional use**	

SECTION F: APPLICATION DESCRIPTION

Application in terms of the Townships Ordinance, 33 of 1934 and the Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA) for subdivision and rezoning to enable formalisation and in-situ upgrade on a portion of Remainder Erf 318 Mount Fletcher

SECTION G: BACKGROUND

A planning process was initiated in early 2009 to establish a mixed use extension, referred to as Extension 3, on this portion of Erf 318 Mount Fletcher. The application was finally submitted to the Township's Board in November 2010 and approved by the Provincial MEC in terms of Ordinance 33 of 1934. The approved Township was survey and a General Plan registered at the end of July 2014. Although some of the Government, Educational and Commercial erven were developed in line with the plan, the residential component was never formally implemented.

The residential component of Extension 3 is fully occupied by informal residential development that did not adhere to the approved plan. Due to this, the layout had to be redesigned to, whilst striving to accommodate existing structures, ensure that the use of land is optimised and that basic design principles for township layouts are adhered to.

SECTION H: SUMMARY OF APPLICATIONS MOTIVATION

The following factors contribute to the desirability of the proposed development:

- The development was previously approved for formal development and partially implemented, but due to delays with the administrative process that was required to register at least one property forming part of the development, the validity of the approval has since lapsed.
- The project area is for all intents and purposes fully developed, but in order to enable development of infrastructure and passing of formal title to the occupants, it is a legal requirement to again formally approve the proposed development.
- The fact that informal development did not align with a portion of the previously approved layout requires that the layout be amended to as far as possible, maintain the status quo.
- The development area has been confirmed as suitable for development from a physical and environmental point of view.

In order to comply with the participatory planning approach, a process of public participation was undertaken in the formulation of the proposed layout. A meeting was held with community members and the Ward Councillor.

SECTION I: SUMMARY OF PUBLIC PARTICIPATION

Method of advertising:				*Date published:*	*Closing date comments:*
Press	**Yes**	**No**	**N/A**		
Gazette	**Yes**	**No**	**N/A**		
Notices	**Yes**	**No**	**N/A**		
Site notice	**Yes**	**No**	**N/A**		
Community organisation(s)	**Yes**	**No**	**N/A**		
Public meeting	**Yes**	**No**	**N/A**		
Third parties	**Yes**	**No**	**N/A**		
Other				Meeting with residents, with the councillor present	

Total valid comments / objection			None			
Total comments & petitions refused			None			
Valid petition(s)	Yes	No	If yes, number of signatures			
Community organisation(s) response				**Yes**	**No**	**N/A**
Ward councillor response				**Yes**	**No**	**N/A**
Total letters of support						
Was public participation undertaken in accordance with the relevant By-law & policies				**Yes**	**No**	

SECTION J: COMMENTS RECEIVED DURING PUBLIC PARTICIPATION

In support:
Community happy with the process to formalise and upgrade.
Objections:
None

SECTION K: COMMENTS FROM ORGANS OF THE STATE AND/OR MUNICIPAL DEPARTMENTS

State/Municipal Department Name:	*Date Received:*	*Comments (Attached Annexure?):*	*Recommendations (√):*		
			Supported	**Not Supported**	**N/A**
DEDEA	11/11/2019	Yes (Annexure F)			
WSA	20/01/2020	Yes (Annexure F)			

SECTION L: APPLICANT'S REPLY TO COMMENTS

SECTION M: MUNICIPAL ASSESSMENT OF COMMENTS

SECTION N: MUNICIPAL PLANNING EVALUATION (REFER TO RELEVANT CONSIDERATIONS GUIDELINE)

Was the application processed correctly (if no, elaborate below):	**Yes**	**No**
All procedures were adhered to within the prescribed time periods.		
Is the proposal consistent with the principles referred to in	**Yes**	**No**

chapter 2 of SPLUMA & decision guideline in relevant By-law		

Application History:

A planning process was initiated in early 2009 to establish a mixed use extension, referred to as Extension 3, on this portion of Erf 318 Mount Fletcher. The application was finally submitted to the Township's Board in November 2010 and approved by the Provincial MEC in terms of Ordinance 33 of 1934. The approved Township was survey and a General Plan registered at the end of July 2014. Although some of the Government, Educational and Commercial erven were developed in line with the plan, the residential component was never formally implemented.

(In)consistency with the IDP/Various levels of SDF's/Applicable policies?

Yes – in line with SDF and IDP.

The site is located within the urban edge Mount Fletcher and in line with the proposal for formalisation as highlighted in the Elundini Local Municipality's approved Spatial Development Framework.

Outcomes of investigations/applications i.t.o other applicable legislation

Environmental / hydrological studies conducted as part of the previous application process confirmed that the area is suitable for formalisation of existing developments.

Engineering – formally serviced with water standpipes and VIP toilets. Situated within the urban edge of the town and should therefore be included within the waste management collection services for town. Eskom confirmed that any new supply connection will require an application to be lodged to them (see Annexure E).

An environmental assessment process was conducted as part of the previous application and formal authorisation was granted. Part of the previously approved development was implemented at the time of the environmental authorisation. The balance of the developable land has been fully developed by informal structures (see Annexure F).

A floodline calculation was previously undertaken by NewGround Engineers and Sinotech (see Motivation Report Annexure D) and the 1:100 year floodline is reflected on the draft land plan.

Existing and proposed zoning comparisons and considerations

The zonings were retained as per the previously approved development authorisation.

The desirability of the proposal

The Spatial Planning and Land Use Management Act, 16 of 2013, (SPLUMA) contains the following development principles:

i.) Principle of spatial justice – inclusion of formerly excluded persons and areas to improve access to and use of land; and promotion of the concept of secure tenure and incremental upgrading of informal settlements.
ii.) Principle of spatial sustainability – promote land development in locations that are sustainable and limit urban sprawl, while protecting prime agricultural and environmentally sensitive land, and create viable communities
iii.) Principle of efficiency – optimising use of existing resources and infrastructure to minimise negative financial, social, economic or environmental impacts.

The formalisation of existing residential properties and provision of additional residential erven is considered important for ensuring that the principles contained in SPLUMA as

listed above are achieved. This formalisation is expected to assist in the social and economic upliftment of local residents

SECTION O: ADDITIONAL PLANNING EVALUATION FOR REMOVAL OF RESTRICTIONS

None

SECTION P: SUMMARY OF EVALUATION

None

SECTION Q: RECOMMENDATION

It is recommended that the application subdivision and rezoning for in-situ upgrade on a portion of Remainder Erf 318 Mount Fletcher in terms of Townships Ordinance, 33 of 1934 and the Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA) as follows:

Use	Zoning	No of erven	Area (m²)	% allocation
Residential	Special Residential	322	327095.02	38,72%
Business	General Business	10	28435.38	3,37%
School	Educational	2	27743.46	3,28%
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Taxi Rank	Municipal	1	9624.77	1,14%
Public Roadway	Roadway	2	91248.07	10,80%
TOTAL		**356**	**844812.00**	**100.00**

The approval is subject to the following conditions:

viii.) no building may commence without approved building plans by Elundini Local Municipality;

ix.) the development must comply with the provisions of the existing Elundini Local Municipality Land Use Scheme;

x.) the applicant be liable for applicable development charges for provision and installation of external engineering services at a fair and reasonable cost to be determined in agreement with the responsible authorities;

xi.) the applicant be liable for the costs of provision and installation of all internal engineering services and specifications are to be approved by the responsible authorities;

xii.) the Municipality shall be entitled to reasonable access to the land adjoining the servitude area for construction, maintenance or removal of such servitudes;

xiii.) indication of the water demand of the total housing development to be furnished to the Water Service Authority;

xiv.) This approval applies to the application as outlined above and may not be construed as authority to depart from any other legal prescription or requirements;

SECTION R: REASONS FOR RECOMENTATION

- The proposal is not in conflict with Section 7 of the Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA) in that the proposal is not in conflict with the development principles; and
- The proposal is considered compliant with the decision-making criteria as contemplated in terms of the Section 42 of the Spatial Planning and Land Use Management Act.
- The proposal is in line with the Spatial Development Frameworks of the Joe Gqabi District municipality and the Elundini local municipality
- The proposed application complies with the provisions of Section 53 of the Elundini Municipality Standard Land Use Planning By-law (2016);

SECTION S: ANNEXURES

ANNEXURE A: Application Form
ANNEXURE B: Deed of Transfer
ANNEXURE C: Diagrams
ANNEXURE D: Hydrological & Hydraulic Report
ANNEXURE E: Infrastructure Report
ANNEXURE F: Comments from Organs of State
ANNEXURE G: Traffic Impact Assessment
ANNEXURE H: Motivation Report

SECTION T: SIGNITURES

Author Name: Dakalo Emmenuel Mothelo _____

Author Signiture: _____

Date: 27 January 2020

Director Name: Ntomboxolo Charlote Eddie

Director Signiture: _____

Date: 27 January 2020

***(Section to be completed post Tribunal)**

APPROVED		APPROVED CONDITIONALLY		APPROVED IN PART		REFUSED	

If in part – outline details: _____

Decision Maker Name: _____

Decision Maker Signiture: _____

Date: _____

CONDITIONS OF APPROVAL

ANNEXURE A

APPLICATION FORM

Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA)

LAND USE APPLICATIONS

(Place a cross in all the appropriate blocks)

TYPE OF APPLICATION :

	Rezoning to subdivisional area (LUPO)
	Rezoning which does not comprise a rezoning to subdivisional area
	Departure
X	Subdivision ~~and consolidation~~
	Consent Use
	Extension of approval (Ordinance 33 of 1934)
X	Any other application, give details: **In-situ upgrading and township establishment**…..……..

TYPE OF LEGISLATION APPLICABLE:

	Land Use Planning Ordinance 15 of 1985 (Former CPA areas)
X	Townships Ordinance 33 of 1934 (Former Transkei areas)
	Land Use Regulation act 15 of 1987 (Former Ciskei areas)
	Townships Proclamation R293 of 1962
	Black Communities Development Act 4 of 1984 (Regulations)
X	Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA)

COMPLETE THE FOLLOWING :

Local Authority: **Elundini Municipality** ……..…..……

Description of Land: **Remainder Erf 318 Mount Fletcher** ……....

Registered owner(s): **Elundini Municipality** ……...

Postal address: **P.O. Box 1**……..……..
MACLEAR……..…….

…….. Code: **5480**

Applicant: **Elundini Municipality** ……..

Postal address: **P.O. Box 1**…….……..……

MACLEAR……..……..……

…….. Code: **5480**

INSTRUCTIONS

(These instructions should be read before completing this form)

1. GENERAL REMARKS

1.1 If any application requires approval in terms of various types of legislation and two or more of the applications have to be advertised, the applicant must inform the town clerk, secretary or executive officer accordingly so that all applications may be advertised and submitted for approval simultaneously.

1.2 All applications should comply with the Chapter one Principles of the Development Facilitation Act of 1995.

1.3 All applications should take cognizance of the requirements for the change of land use in terms of the Environment Conservation Act of 1997.

1.4 Incorrect and incomplete applications will be returned to the Applicant. The Applicant's attention is drawn to the plans and other documentation that must Accompany their application.

1.5 Applicants must note that until such time that an approval has been approved in writing, any correspondence or discussions pertaining to this application must not be regarded as an indication that it will in fact be approved and do not bind the local authority, or the Premier, in any way.

1.6 The Premier reserves the right to have an approval declared null and void if it was based on wrong information supplied by the applicant. Applicants must therefore ensure that information about restricting factors that could influence the application, is provided.

1.7 Applications in terms of Land Use Regulation Act 15 of 1987 and the Townships Ordinance 33 of 1934 require 10 copies for the Land Use Planning Board and Townships Board respectively.

1.8 Applicants may supply any additional information, on a particular issue, if they want to.

2. PRIOR LIAISON WITH OTHER INTERESTED PARTIES

2.1 Prior liaison with interested bodies including National and Provincial Departments, is strongly recommended, as the processing of applications will be expedited in this way. Where an applicant submits proof that an interested party is satisfied with a proposal, it will not be necessary to again approach such interested party for comments.

2.2 A list of the different authorities and other interested parties effected by the development, together with the names, telephone numbers and addresses of contact persons may be available from the local authority.

3. SUBMISSION OF APPLICATION

3.1 If the application must be submitted in duplicate, together with all the required annexes, to the local authority in whose area of jurisdiction the land unit is situated. If the land is to be incorporated within the jurisdiction of a local authority the application form must also be submitted to the local authority concerned.

3.2 If the relevant local authority does not have the delegated powers to finalize the application, a copy of the application must also be submitted to :

The Regional Director: Department of Housing and Local Government
Private Bag X 6005
PORT ELIZABETH
6000

The Regional Director: Department of Housing and Local Government
2 Floor Metropolitan Life Building
Drury Lane
EAST LONDON
5200

The Regional Director: Department of Housing and Local Government
Private Bag X 5030
UMTATA
5100

The Regional Director: Department of Housing and Local Government
Private Bag X 7086
QUEENSTOWN
5320

3.3 Lack of information leads to delays and add to the workload of the Department. It is essential that all applications that are submitted for consideration contain all of the information necessary for the relevant authority to take a rational decision. Ideally applications should include the following information ;

3.3.1 Details in respect of the application

- A locality sketch showing clearly the details of the application;
- A description of the site that is to be developed;
- What does the owner intend to do with the land;
- What are the envisaged development parameters (for instance the proposed floor area and coverage) ;
- What portion of the site is to be developed;
- What is the existing zoning and use of the subject land;
- A copy of the advertisement of the proposal;
- A site development plan.

3.3.2 Details in relation to the existing and proposed development of the land in the vicinity of the subject land

- the existing uses and zonings to be shown on separate map;
- the visual or historical characteristics of the area;
- topographical and physical features;
- details of illegal and non-conforming uses.

3.3.3 Details in respect of the planning proposals for the subject area

- what is the existing and proposed conditions applicable to the subject land (servitudes, title deed and / or zoning scheme conditions) ;
- relevant details contained in Land Development Objectives, or any other policy proposals for the area.

3.3.4 Details in respect of the application

- the applicant's motivation and comments on the objections and / or the appeal;
- the comments of relevant government departments ;
- details of the objections received.

3.3.5 Evaluation of the application by the Council

- The evaluation of the application in relation to the DFA principles, Land Development Objectives, desirability, precedents, the council's policies et cetera ;
- In case of land zoned for public purposes, the reasons why such land is no longer required for the use by the public ;
- Desirability is usually considered in terms of the following:
  - physical characteristics of the area ;
  - potential of the site ;
  - character of the surrounding area ;
  - planning proposals for the area (LDO / Framework / Structure Plan etc.) ;
  - location and accessibility of the site ;
  - provision of services ;
  - environmental impact of the proposal ;
  - impact of the construction phase.

3.3.6 The decision of the Council

- Council's decision, including the conditions that must be imposed if the application is approved. (Note that the application must contain these conditions, even if the relevant council recommends that the application be refused by the Premier).

Note that applications that are submitted to District of Local Council's for a decision must also contain all of the relevant details. A copy of the item submitted to the aforementioned authorities must be attached to any application that is submitted to this Department. The above information can serve as a checklist for the purpose

SECTION A

TO BE COMPLETED BY THE APPLICANT

(* ANSWER YES, NO, OR NOT APLLICABLE)

1. PERSONAL PARTICULARS OF APPLICANT

Your reference number	……
Name of person to whom correspondence should be addressed :	**Ms Eddie** …… ……
Address :	**P.O. Box 1**…… **MACLEAR**…… …… Postal Code: **5480**……
Telephone number :	**045 932 8100** ……
Facsimile number :	**045 932 1094** ……

1.1. Is the applicant the only registered owner of the property? **Yes**

If not, attach the power of attorney from the registered owner(s) to the application. This is also applicable if the person who is applying is still in the process of obtaining the land unit, or if the land unit is owned by a company or more than one person.

1.2. Name the registered owner(s) : **Elundini Municipality**

1.3. Is the property encumbered with a bond? **No**

If so, please attach the authorization of the mortgage holder to the application.

2. DETAILS OF LAND UNIT

2.1. Registered description of the property, as shown on title deed:

Remainder Erf 318 Mount Fletcher

Number & date of the title deed: **T632/2002** dated **2002/03/14**

2.2. What is the present zoning of land unit : **Undetermined**

2.3. Are any departures applicable to the land unit? : **No**

If so, give a full explanation:

2.4. Is there any building or other development on the land unit? : **Informal settlement**

If so, what are the nature and condition of these improvements?

2.5. Is the site being used in accordance with its present zoning? **Yes**

If not, how is the land being utilized?

3. DETAILS OF APPLICATION

3.1. Describe the proposed development in detail (A separate motivational report may be added) : **(See Motivation Report Dated July 2019)**

3.2. Does the proposal development involve the entire land unit? **No**

If not, indicate the position and size of the portion of the land unit that is not included in the proposed development and for what purpose it is, or will be used :

(See Motivation Report Dated July 2019)

3.3. Is a departure being applied for in order to obtain a temporary change of use on the land unit? **No**

If so, explain why rezoning is not being considered and supply reasons for the proposed period of the departure:

4. RESTRICTING FACTORS

(A separate report may be added to address the restricting factors)

4.1. Are there any title deed restrictions that, which may have an effect on this application in terms of the Removal of Restrictions Act, 1967 (Act 84 of 1967)? **No**

If so, furnish full details:

4.2. Is any portion of the land unit subject to tidal flow or situated under the high-water mark? **No**

If so, furnish details:

4.3. Is any portion of the land unit situated in a flood-plain of a river under the 1 in 50 years flood-line or subject to any floods? **No**

If so, furnish details:

4.4. Are there any physical restrictions (such as steep slopes, unstable soil formations, swamps, etc.) which could affect the development? **No**

If so, furnish details and state how the problem can be solved:

4.5. Are there any other restrictions of which you are aware, but which were not mentioned above? **No**

If so, furnish full details:

5. POSSIBLE REFERRAL TO OTHER BODIES

5.1. Does the application fall within the area of a land Development Objective (LDO) and / or Policy Plan (Structure Plan, Framework Plan etc.)? **Yes**

If so, please give details in so far as they affect the application under consideration:

The proposal falls within the Elundini Local Municipality's approved Spatial Development Framework

5.2. Are the provisions of the Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970) applicable in the case of this application? **No**

5.3. Is the land unit situated within the boundaries of a nature area reserved in terms of section 4 of the Physical Planning Act, 1967 (Act 88 of 1967), or a mountain catchment –area reserved in terms of the Mountain Catchment Areas Act, 1970 (Act 63 of 1970), or a nature reserve reserved in terms of the Former Nature and Environmental Conservation Ordinance, 1974 (Ordinance 19 of 1974), or a national park reserved in terms of the Nature Parks Act, 1978 (Act 57 of 1976). **No**

If so, furnish details:

5.4. Does the land unit abut on the area of jurisdiction of another local authority or does any other local authority have an interest in this application? **No**

If so, state the name of the local authority and its interest in the application:

5.5. Does the property abut on any national, trunk, main or divisional road or such proposed road? **No**

If so, furnish full details (including status of the road and full statutory width):

5.6. Is the land situated in a metropolitan transport area in terms of the Urban Transport Act, 1977 (Act 78 of 1977)? **No**

If so, has it been referred to the relevant transport authority?

5.7. Is the land unit close to, or is it affected by, a power line, a power station, a railway line, a railway station, airport or harbor? **No**

If so, furnish details:

5.8. Are there any conservation worthy building / graves / rock engravings / archeological finds on the property including those that have not been declared national monuments? **No**

If so, furnish details:

5.9. Is the land unit situated within 1000 m from the high-water mark of the sea or tidal river? **No**

If so, has nature conservation been consulted?

5.10. Does the land unit abut on, or is it in any way influenced by any property belonging to the S.A. National Defence Force? **No**

If so, please supply details:

ANNEXURES

HAVE THE FOLLOWING ANNEXURES BEEN ATTACHED ?

(* ANSWER YES, NO, OR NOT APPLICABLE)

ANNEXURE	YES	NO	NOT APPLICABLE
Power of attorney		✓	
Authorization from mortgagee			✓
Flood-line certificate			✓
Regional map			✓
Locality map	✓		
Extract from zoning map	✓		
Land-use map	✓		
Layout plan	✓		
Motivation report	✓		
Title deed	✓		
Copy of advertisement		*1✓	
Any other annexures, give details:……			

If any of the above questions, answers are no, give reasons:

*1 **The Municipality will place the necessary advertisement**

I, the undersigned, certify that the information appearing in this section of the form and the information in the annexures is correct and complete, and that I understand the application. (Please note the contents of paragraph 1.6 of the Instructions).

SIGNATURE: …….. DATE: ……..

FULL NAME: ……..

DATE ON WHICH THE APPLICATION WAS SUBMTTED TO THE LOCAL AUTHORITY

……

SECTION B

TO BE COMPLETED BY THE LOCAL AUTHORITY WHEN APPLICATIONS ARE SUBMITTED TO THE PREMIER IN TERMS OF SECTION 2.2 BELOW

(* ANSWER YES, NO, OR NOT APPLICABLE)

1. DETAILS OF LOCAL AUTHORITY

Name :	……
Address :	…… …… …….. Postal Code :…….
Name of contact person :	……
Telephone number : *	……
Facsimile number :	……
Reference number :	……

2. DETAILS OF PREVIOUS ACCOMPANYING APPLICATIONS

2.1 Has there been previous correspondence with the Department of Housing and Local Government in respect of this land unit or a land unit of which this one forms part ? ……. *

If so, furnish all reference numbers of the Department and the date of the most recent correspondence : ……..

2.2 Does the current application also involve an application to the Premier for :

	YES	**NO**	**NOT APPLICABLE**
The removal of restrictions in terms of Act 84 of 1967 ?			
The expropriation / sale / long term lease of land by a local authority ?			
The closure of street / public places ?			
Application for land that is within 1000 m of the high water mark of the sea			
A rezoning which may not be approved			

by the local authority in terms of the General Structure Plan ?			

If the answer is YES to any of the above questions, please supply details and the motivation for the applications : ……..……..
……..……
……..……
……..……

2.3 If the answer is YES to any of the above questions, were all the applications advertised simultaneously ? (it is required that advertising should be done simultaneously in such cases.) …… *

2.4 Have any of the above applications already been submitted to the Eastern Cape Provincial Administration ? ……..
If so, state which applications were given and furnish the relevant Department's Reference number(s) in respect of each such application and the date of submission :
……
……

3. ADVERTISING

3.1 Has notices been served on the owners of adjacent properties ? ……..…….. *
If so, attach a map indicating the names of those property owners on whom notices have been served and a copy of the notice.

3.2 Indicate whether it was necessary to advertise in the press and the Provincial Gazette ? …… * If so, attach a copy of the advertisement

3.3 Have any objections been received ? ……..…….. *
If so, attach a map indicating the name of every objector on his erf as well as copies of the objections and the comments of the applicant and the local authority on each issue of objection.

4. LAND DEVELOPMENT OBJECTIVES AND POLICY PLANS

4.1 Is there Land Development Objectives or a Policy Plan for the local authority's Area of jurisdiction, or the area within which the subject erf is situated ? ……. *

4.2 If so, what is the status of such objectives / plan ? …… *
……

4.3 Furnish any applicable reference number(s) of the Department of Housing and Local Government in respect of the plans concerned and the date of the most recent correspondence : ……..……..
……..……

……

4.4 To what extent does the proposal comply with the Land Development Objectives or Policy Plans ? …….

……

5. APPLICANT'S INFORMATION

5.1 Is the information supplied by the applicant correct and complete ? …….. *

5.2 If not, provide the correct information : …….

……

……

5.3 Are any problems envisaged with the provision of the following services ?

	YES	NO	NOT APPLICABLE
Water			
Electricity			
Sewerage			
Storm water drainage			
Refuse removal			
Roads			

If the answer to any of the above is YES, furnish full details regarding the problem and how it will be solved : ……..……..

……..……..……

……..……..……

6. COMMENTS OF THE COUNCIL

6.1 Does the Council recommend the application for approval ?……..…….. *

6.2 Date of Council's resolution : ……..…….

6.3 Furnish a copy of the item considered by Council and the reasons for the above-Mentioned resolution (on a separate sheet, if necessary).

……..……

……..……

……..……

……..……

……..……

……..……..……

A copy of the proposed conditions of approval, must be attached, irrespective of Whether or not the Council supports the application.

7. ANNEXURES

7.1 Have the following annexures been attached ?

	YES	NO	NOT APPLICABLE
Map indicating those persons on whom notices have been served.			
Copy of notice			
Copy of press notice			
Map of objectors properties			
Copies of objections received			
Comments of applicant on objections			
Comments of Council on objections			
List of conditions			
Scoping report if required			
Comments from other government Departments			
Any other documents / correspondence Please give full details ?: …… …… …… ……			

I CERTIFY THAT THE APPLICATION IS COMPLETE AND CORRECT.

……

SIGNATURE

CHIEF EXECUTIVE OFFICER : LOCAL AUTHORITY

NAME : …… **DATE : …….**

ANNEXURE B

DEED OF TRANSFER

T632/2002

Expropriation Ex 1379/74

1

EXECUTION

A. FOR DEEDS OFFICE USE:

(a) Date of lodgement:

UMHALALISI MIHLABA
2001 -08- 31
UMTATA
REGISTRAR OF DEEDS

2002 -02- 27
2002 -01- 24
2002 -02- 06
2002 -03- 07

(b) 2002 -03- 07

RC

RC 30/6/2002

	Examiners 14	Rooms	Linking			Pass
1	MKETSHWAYI	30				
2	MALANGENI MKETSHWAYI		2	2		
3						

B. FOR CONVEYANCER'S USE:
Nature of Deed e.g.: Transfer, Bond, etc.

TRANSFER

T 632 /2002

Ref. No.	Linking	
FIRM 8	32	32

SIMULS

	Code	Names of Parties	Firm No.	No. in batch	Titles etc. within
1	T	ELUNDINI MUNICIPALITY	8	1	Grant 239/53
2	T	APPLICATION	8	1	
3	BC VA	CERTIFICATE	8	2	
4	T	PROVINCE OF E.C./ELUNDINI	8	3	Grant 239/53
5					
6					
7					
8					
9					
10					

DATA VASLEGGING/DATA CAPTURED
OPGENEEM ENTERED: OPERATEUR OPERATOR:
GESTAF VERIFIED: OPERATEUR OPERATOR:

REGISTRATION
Approved:
Conveyancer:

090000002746

Brief Description of property (Only para 1 in Deed)

REMAINDER OF ERF 318 MOUNT FLETCHER

anca & co
rm No 8
l/Fax: (047) 531 2592

2

DEPARTMENT: LAND AFFAIRS
REPUBLIC OF SOUTH AFRICA

Receipt

Summary of Receipt on Account

Date: 13 March 2002

Receipt No:	Account No:	Adress	Type	Amount
000005556-00002	UMT00008	P.O.BOX 802 UMTATA 5100	CHECK	95.00

Total Payment Received Thank You	**95.00**

Is by: UNATHI for Chief Registrar of Deeds

3

T 632 /2002

DEED OF TRANSFER

PROVINCE OF THE EASTERN CAPE

in favour of

ELUNDINI MUNICIPALITY

Prepared by:- CANCA & CO
ATTORNEYS
P O BOX 802
UMTATA

4

SEELREG
STAMP DUTY: .....
FOO
FEES: R95-00

Prepared by me,

CONVEYANCER

MATUBATUBA R A
Surname and Initials.

T 632 /2002

Deed of Transfer

Be it hereby made known:

THAT ROSEMOND ANDILE MATUBATUBA

appeared before me, Registrar of Deeds

at UMTATA

he, the said Appearer, being duly authorised thereto by a Power of Attorney granted to him by

PROVINCE OF THE EASTERN CAPE

dated the 18 day of NOVEMBER 1999 , and signed

at BISHO

5

And the said Appearer declared that on the 18th day of NOVEMBER 1999

His Principal aforesaid had donated the hereinaftermentioned property to the undermentioned Donee;

and that he in his capacity aforesaid did, by these presents, cede and transfer, in full and free property, to and on behalf of

ELUNDINI MUNICIPALITY

Its Successors-in-title or Assigns:-

REMAINDER of Erf 318 MOUNT FLETCHER
Elundini Municipality
District of Mount Fletcher
Province of the Eastern Cape

IN EXTENT : One One Two Two comma Four Five Three Zero
(1122,4530) Hectares

First registered by Certificate of Registered Crown Title No. 38/1949 with diagram No. 4388/1948 annexed thereto and held by Crown Grant No. 239/1953;

SUBJECT to such conditions as are referred to in Crown Grant No. 239/1953, reading:-

1. Subject to the provisions of the Reserved Minerals Development Act 1926, and of the Precious Stones Act, 1927, as amended, all rights to all minerals, mineral products, mineral oils, coal, base or precious metals or precious stones in or under the land are reserved to the Government.

2. The Government of the Republic of South Africa shall have the right at all times of resuming such portion or portions of the land as may not have been alienated by the Municipality. In the event of such resumption no compensation shall be payable by the Government except in respect of substantial improvements of a permanent nature effected on the land, whether by the Municipality or any other body or person acting under the express authority of the said Municipality,

3/.....

MF. FORM 501E—2

3. This grant is made subject to the reservation in favour of the Government of the Republic of South Africa of all water arising from the two springs marked on the diagram No. 6710/1951, hereunto annexed and to a water pipe line servitude, 1m² wide over the Remainder of Erf 318 Mount Fletcher in favour of the said Government as the registered owner of Erven 313, measuring 3965m², 314 measuring 7931m², 315 measuring 5948m², 316 measuring 3,2147 hectares, 319 measuring 8911 hectares, 321 measuring 173m² and 322 measuring 376m², all being portions of Erf 318 Mount Fletcher, held by it under Certificate of Registered Title No. 20291/1962, the middle of which servitude is represented on the aforesaid diagram No. 6710/1951 by the blue lines a, b, c and d.

4. SUBJECT FURTHER to the Certificate of mineral Rights No. 211/1953 issued in terms of Section 72 of Act 47 of ~~1951~~ 1937 RM in respect of the said mineral rights herein aforesaid.

5. FURTHER SUBJECT to a perpetual servitude right-of-way over a portion measuring ± 17,8114 Ha of the within property has been expropriated by the Republic of South Africa in terms of Section 8(1) of Act 54 of 1971.

AS WILL MORE FULLY APPEAR from Ex 1379/74 and diagram No. N 19/6/2 (a) filed herewith.

4/.....

7

Wherefore the Appearer, renouncing all the Right and Title which

PROVINCE OF THE EASTERN CAPE

heretofore had to the premises, did, in consequence also acknowledge it to be entirely dispossessed of, and disentitled to, the same; and that, by virtue of these Presents, the said

ELUNDINI MUNICIPALITY

Its Successors-in-title [illegible] or Assigns, now is and henceforth shall be entitled thereto, conformably to local custom, The State, however, reserving its rights, and finally acknowledging the value of the property to be the sum of R300 000.00 (THREE HUNDRED THOUSAND RAND)

In witness whereof, I, the said Registrar of Deeds, together with the Appearer, q.q., have subscribed to these Presents and have caused the Seal of Office to be affixed thereto.

Thus done and executed, at the Office of the Registrar of Deeds

at UMTATA

on this 14TH day of MARCH in the Year Two Thousand and Two (2002)

In my presence,

Registrar of Deeds.

q.q.

1. Transfer Duty Receipt No. _____
OR Exemption Certificate*. Issued
at _____
on _____ for
R _____

2. Rates Clearance Certificate issued by
(i) _____
valid till _____
(ii) _____
valid till _____

Checked: 1. _____

2. _____

REGISTERED IN THE ERVEN REGISTER OF MOUNT FLETCHER BOOK .....FOLIO 318.

CLERK IN CHARGE

*Delete which is not applicable.

If necessary, insert a Registration Clause, etc., approved by the Registrar.

MF. FORM 501E—3

CANCA & CO.
Firm No. 8
Tel.: 31259?/22948/23755

PREPARED BY ME
CONVEYANCER
MATUBATUBA ~~S.R.~~R A

POWER OF ATTORNEY TO PASS TRANSFER

I, the undersigned, **GUGILE NKWINTI** in my capacity as Member of the Executive Council for Housing and **Local Government** in the Provincial Government of the Eastern Cape and duly authorised thereto.

Do hereby appoint
~~**SANDILE ROSERY MATUBATUBA**~~ ROSEMOND ANDILE MATUBATUBA

with power of substitution to be my/our true and lawful Attorney and Agent to appear before the

REGISTRAR OF DEEDS, UMTATA

and there to declare that GOVERNMENT ~~OF REPUBLIC OF SOUTH AFRICA~~ THE PROVINCIAL OF THE EASTERN CAPE

did on the 18TH of NOVEMBER 1999 donate to

MUNICIPALITY OF MOUNT FLETCHER
(Constituted in terms of Section 208 of the Municipalities Act No. 24 of 1979)

the following property, namely :-

Remainder of Erf 318 MOUNT FLETCHER
Mount Fletcher Transitional Local Council
District of Mount Fletcher
PROVINCE OF THE EASTERN CAPE

IN EXTENT ~~One One Two Two comma four five three zero (1122,4530)~~ ~~One One Seven Two comma Seven Seven Nine Zero (1172,7790)~~ hectares

HELD by Crown Grant No. 239/1953 and to transfer
~~and to donate~~ the said property in full and the free property to the said MUNICIPALITY OF MOUNT FLETCHER in terms of the State Land Disposal Act 1961 (Act 48/61) as delegated by the Minister of Land Affairs in terms of the Provisions of the Land Administration Act 1995(Act 2/ 1995) and subject to compliance and adherence to the condition of the Delegated authority

and to renounce all right, tittle and interest which the said GOVERNMENT OF ~~REPUBLIC OF SOUTH AFRICA~~ THE PROVINCIAL EASTERN CAPE

heretofore has in and to the said property, to so whatsoever shall be necessary as effectively as I/WE could do if personally present and hereby promising to ratify and confirm all that my/our Attorneys shall lawfully do by virtue hereof.

2/.....

to

and to donate the said MUNICIPALITY OF MOUNT FLETCHER in terms of the State Land Disposal Act 1961 (Act 48/61) as delegated by the Minister of Land Affairs in terms of the Provisions of the Land Administration Act 1995 (Act 2/1995) and adherence to the condition of the Delegated authority

and the value of the property being R300 000.00 (THREE HUNDRED THOUSAND RAND)

and to renounce all right, title and interest which the said GOVERNMENT OF ~~REPUBLIC OF SOUTH AFRICA~~ PROVINCIAL THE EASTERN CAPE

heretofore has in and to the said property, to do whatsoever shall be necessary as effectively as I/We could do if personally present and hereby promising to ratify and confirm all that my/our Attorneys shall lawfully do by virtue hereof.

SIGNED at BISHO

this 18th day of NOVEMBER 1999

AS WITNESSES :

1.....

2.....

.....

CANCA & CO.
Firm No. 8
Tel.: 312692/22840/23755

Rev. 684

SARS SOUTH AFRICAN REVENUE SERVICE

TRANSFER DUTY - FORM B
DECLARATION BY PURCHASER (DONEE)

10

PART I

TRANSFEROR (Seller)

PROVINCE OF THE EASTERN CAPE

RECEIVER OF REVENUE
P.O. BOX 692 POSBUS
2002-01-18
EAST LONDON/OOS-LONDEN 5200
ONTVANGER VAN INKOMSTE

TRANSFEREE (Purchaser)

ELUNDINI MUNICIPALITY

DESCRIPTION OF PROPERTY

REMAINDER of Erf 318 MOUNT FLETCHER
Elundini Municipality
District of Mount Fletcher
Province of the Eastern Cape
MEASURING One One ~~Seven~~ Two Two comma ~~Seven Seven Nine Zero~~ Four Five Three Zero (1122,4530) ~~(1172,7790)~~ hectares

| 4 | 7 | 7 | 0 | Postal Code of district in which property is situated.

Date of transaction: 18 NOVEMBER 1999	Consideration: R 300 000.00

TRANSFER DUTY PAID BY MATUBATUBA & ASSOCIATES

Postal Address P O BOX 802 UMTATA 5100

FOR OFFICIAL USE

ransfer duty paid on ...... | Being

Act under which duty charged

SOUTH AFRICAN
Office of issue
1160 2002 -01- 18 1160
REVENUE SERVICE

Receiver of Revenue

CASH REGISTER RECEIPT

EXEMPT FROM TRANSFER DUTY IN TERMS OF SECT. 9(1)(b) OF THE TRANSFER DUTY ACT

GANCA & CO.
Firm No. 8
Tel.: 312592/22848/23755

11

MUNICIPAL CLEARANCE CERTIFICATE

Issued in terms of Section 118 of Act 32/2000

PROPERTY	:	Remainder of Erf 318 MOUNT FLETCHER Elundini Municipality District of Mount Fletcher Province of the Eastern Cape
IN EXTENT	:	One One Two Two comma Four Five Three Zero ~~One One Seven Two comma Seven Seven Nine Zero (1172,7790) hectares~~ (1122,4530) hectares
TRANSFEROR	:	PROVINCE OF THE EASTERN CAPE
TRANSFEREE	:	ELUNDINI MUNICIPALITY

I certify that all amounts due in connection with the above property for Municipal Service fees, surcharge on fees, property rates, other Municipal taxes, levies and duties during the 2 years preceding the above date of application have been fully paid.

This certificate expires on 30 June 2002

06/09/01

DATE

TOWN ~~CLERK~~

MOUNT FLETCHER
MUNICIPALITY
P.O. BOX 1
MOUNT FLETCHER

CANCA & CO.
Firm No. 8
Tel.: 31[illegible]/22848/23755

12

CERTIFICATE

I, the undersigned,

ROSEMOND ANDILE MATUBATUBA

in my capacity as Conveyancer at the offices of MATUBATUBA & ASSOCIATES (formerly CANCA & CO) do hereby certify that the property herein transferred is situated within Elundini Municipality and reference in the Power of Attorney and other documents to the Municipality of Mount Fletcher should be read as reference to Elundini Municipality.

ROSEMOND ANDILE MATUBATUBA

13

DRS09001 Prod DEEDS REGISTRATION SYSTEM - UMTATA DATE : 20020307 TIME : 11:37:02.6 PAGE : 1

TRACK NUMBER : 90000002746

BLACK-BOOKING ENQUIRY ON NAME - PROVINCE OF THE EASTERN CAPE
ID NUMBER -
BIRTH DATE - 0
MARITAL STATUS -
MAIDEN NAME -
TYPE OF PERSON - GOVERNMENT

PERSON NAME AND ID	CONTRACTS/INTERDICTS	NOTED ON MICROFILM REF
PROVINCE OF THE EASTERN CAPE	I-362/2001C	20010531
	I-5/2002C	20020111
	I-670/2001C	20011011
	I-669/2001C	20011011
	I-667/2001C	20011011
	I-6/2002C	20020111
	I-668/2001C	20011011
	I-70/2002C	20020207
	I-79/2002C	20020211
	I-99/2002C	20020219

* * * END OF REPORT * * *

Subd. 3 Farm Clydesdale approved
applies to ptn of 49 Lusiki.
T/Ship extension in Kentani
ptn of 15 W/Bose
applied to Clydesdale
Rem of Subd + Rezoning of 503 ptn of 187 Tabankulu
applies to Ngqamakwe

appl for Dev. on ptn of Rem of Farm Clydesdale No 165 Umzimkulu approved

Subdr + Rez of Rem of ptn of F Idutywa approved

Subd. of ptn of 47 Lusikisiki approved

DRS09001 Prod DEEDS REGISTRATION SYSTEM - UMTATA DATE : 20020307 TIME : 11:39:07.6 PAGE : 1

TRACK NUMBER : 90000002746

PROPERTY DETAILS PRINT FOR PORTION 0
ERF NO 318
TOWNSHIP MOUNT FLETCHER
REG DIV MOUNT FLETCHER RD

PROVINCE EASTERN CAPE

PREV DESCRIPTION
DIAGRAM DEED NO
EXTENT 1172.7790 H
CLEARANCE UMZIMVUBU MUNICIPALITY

INTERDICTS	CASE NUMBER	CASE DATE/TITLE NR	NOTED ON
I-671/2001C			20011012

NO DOCUMENTS

* * * END OF REPORT * * *

AMAGQABANTSHINTSHI ABAPHICOTHI - EXAMINER'S NOTES

8 Reflect the correct transferor in Deeds & in Doc. 2

Discussed with Registrar & noted

9 Doc. 2 must reflect correct transferor of [illegible]

25/01/02 DONE

10 Reflect correct outstanding [illegible] in Deeds

DONE

11 Bring forward condition [illegible]

See endorsement [illegible] DONE 11/RM 53

12 Reflect the value of ppty in P/A

13 Preparer must sign prep Clause of deeds. DONE

14 Reflect in Cause that the principal "Donated" instead of saying "agreed to donate." in deeds. DONE

15 Reflect the Correct extent of ppty in deeds & all documents. DONE

P.T.O. 7/2/2002

Q 9 16

(16) Reflect the correct extending Clause in deeds, the ppty was first registered by title. CRCT 38/1949 as reflected in Deeds DONE

(17) Reflect the correct Diagram no in extending Clause of deeds. DONE

(18) Reflect the word 'to transfer' instead of 'donate' after the held clause of P/A. DONE

(19) Amend error in first paragraph on page 2 of P/A, no-one can donate the Municipality. DONE

(20) Office Copy of holding title reflects an expropriation endorsement & right of Way Servitudes refer to the same in conditions, DONE

(21) Attend to notices not removed by deeds office.

9/2/2022

(22) Initial for the deletion in divesting clause page 4 of the deeds & in fact initial for all deletions made DONE

(23) Reflect correct extending clause and name ref. to C. Grant No. 239/1953, as holding title and add thereto after diagram No. 4 (R) DONE

Notes 9/2/2022

AMAGQABANTSHINTSHI ABAPHICOTHI - EXAMINER'S NOTES

(24) Lodge Rates clearance certificate & (R)
DONE

8/3/2002

(25) Reflect the correct year of the Act in condition 4 on page 3 of deeds
DONE

14/03/02

(26)

8 7 18

(1) Reflect the place where the appearer appearing in preamble of deeds false. DONE

(2) Initial for the deletion of extent in PA. DONE

(3) Item 28 (1) [illegible] lodged separately with [illegible]

DONE

25/01/02

(4) Reflect correct extent of [illegible] in Deeds & PA.

(5) Reflect [illegible] & [illegible]

See Registrar's Circular No. 01/2001 Discussed and noted

(6) Lodge Transfer Duty receipt or proof of [illegible] DONE

(7) Lodge [illegible] Rates [illegible] DONE

25/01/02

ANNEXURE C

DIAGRAMS

4388/1948

6710/1951

S.G. No. 4358/49

Approved

[illegible signature]
Surveyor-General
13.1.1949

Sides C. Feet			Angles ° ′ ″				Co-ordinates y			x	
a b	296	49	a	99	43	40	a	+ 753	55	− 330	48
b c	244	25	b	183	26	50	b	+ 562	01	− 556	48
c d	175	55	c	123	0	40	c	+ 415	48	− 751	86
d e	189	86	d	156	53	30	d	+ 248	31	− 740	08
[illegible]	383	65	e	159	22	20	e	+ 71	07	− 653	90
[illegible]	215	26	f	156	9	30	f	− 157	64	− 370	60
[illegible]	176	24	g	223	7	0	g	− 256	47	− 166	56
[illegible]	122	00	h	163	43	0	h	− 211	38	− 92	35
j k	745	65	j	85	21	0	j	− 458	94	− 11	53
k a	1049	81	k	89	6	30	k	+ 81	11	+ 475	51

Scale 1/24000. C. Roods

The figure [illegible] of Snow Valley, y. right bank of [illegible] River & exclusive of:
(1) Erven Nos. [illegible] 235, 237-243, 245, 246, 257, 259-267, 270-271, 303-309, as shown on Gen. Plan 2792 AA
(2) Erven Nos. [illegible] as shown on Gen. Plan [illegible]
(3) Erf No. [illegible] (4) Erf No. [illegible] Erf No. [illegible]
(5) Erf No. [illegible] (6) Erf No. [illegible] (7) Erf No. [illegible]
(8) Erf No. [illegible]
represents [illegible] of land being Erf No. [illegible] Mount Fletcher situate in the [illegible] Mount Fletcher District of Mount Fletcher [illegible] Province of Cape of Good Hope

Framed in terms of Sect. 39 of [illegible] from surveys made by [illegible] 1937 (Plans 2792 & 2793) & [illegible] (Plan [illegible])

○ Portion of Street altered
[illegible]

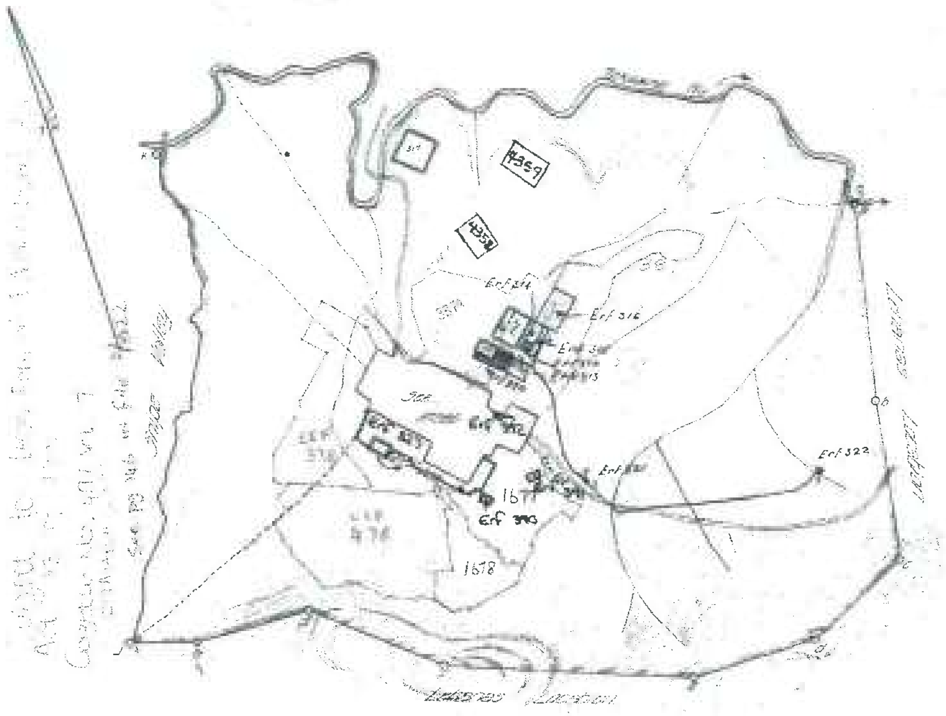
[illegible signature]
[illegible]
29-9-1953

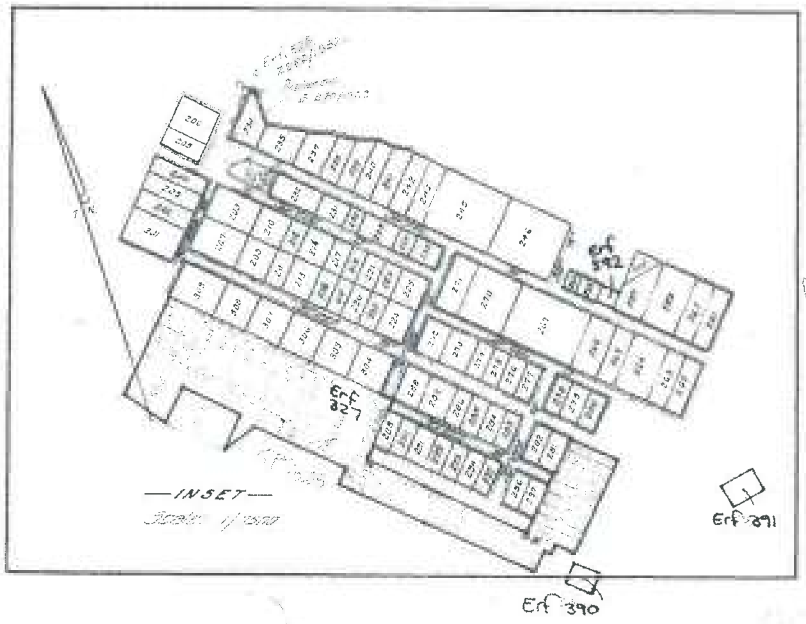
② Street altered A.B. now
13 metres wide.

for Surv. General

This diagram is annexed to Certificate of Registered Crown Title No. 78/44 dated 29/3/44 in favour of the Government of the union of S. Africa.

S.G. File No. [illegible]
Dep. [illegible]
Notary Plan 3[illegible]





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MOUNT FLETCHER

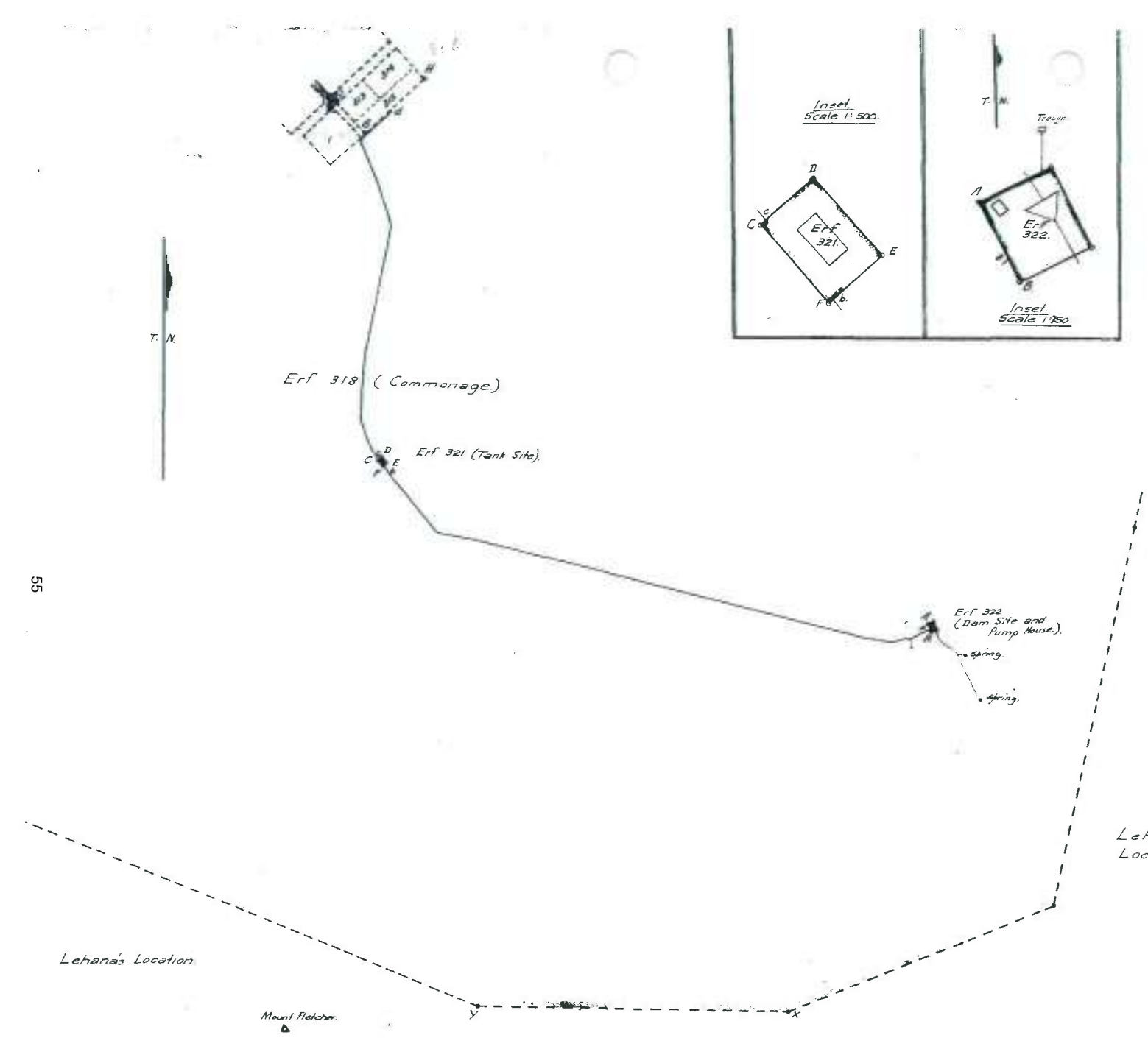
188/1946

The following subdivisions have been made from this diagram.

Survey Records.	Diag. No.	Subdivision	Area		Transfer No.	Initials
	B.420/1929	Erf 313	.277	112	20291/52	
E.683/1930	B.460/1930	Erf 314		80000	20291/52	[illegible] 17.12.52
E.611/1930	B.2434/1930	Erf 315		600.00	20291/52	
E.1656/1930	6633/1930	Erf 316	3.7332		20291/52	
E.1800/1951	6708/1951	Erf 321		1750	20291/52	
E.1310/1951	6703/1951	Erf 322		3.790	20291/52	
E.1793/1951	6706/1951	Erf 319	1.0404		20291/52	
E.1793/1951	6707/1951	" 320	1.5653		C.G.I 238/53	[illegible] 17.11.53
E.490/1962	2882/1962					
TE 87/1982	TR53/1982	Erf 327	9,9660 ha			
TE 7/1989	TR5/1989	Erf 390	2000 s.m.			
TE 14/1989	TR6/1989	Erf 391	2600 s.m.			
TE 7/1989	TR7/1989	Erf 392	978 s.m.			
TE62/1993	TR110/1993	ERF 398				
TE17/1993	TR37/1993	ERF 478				
E2698/2001	6760/2001	Erf 1677				
"	6761/2001	" 1678				
E 186/2014	186/2014	Erf 3310	58 2604 ha			
E107/2018	167/2018	Erf 4358	2,9678 ha			
E107/2018	168/2018	Erf 4359	3,4901 ha			

Survey Records.	Diag. No.	Description	Land C.G.I.	Initials
E.1800/1951	6710/1951	The blue lines wxyz repr. the middle of a water pipe line Serv.	239/53	[illegible] 17.11.53

318



Sides. Cape Feet.		Angles Direct.
AB	64·7	181·19·
CD	35·0	75·6·
FE	35·0	75·6·
GH	600·0	79·27
Ba	19·2	1·19·
Fb	3·0	75·6·
Cc	3·0	75·6·
Gd	262·0	79·27·
BX	3002·2	226·22·
YA	4347·2	75·18·
FY	4038·2	196·0·
ZC	4238·2	82·48

De

A. = [illegible]" x 2'6" h
B = 1" x 21" h
C. D. E. F = 1" x 18" r
G. H = Planted
X = ½" x 18" R.
Y. Z = Cairn.

The blue lines
the middle of a

Er

Situate in the V.M.
District of Mt. Fle.

Framed for the pu.
actual survey in

This diagram is
annexed to Gr.
(refer to con

Registrar of Dee

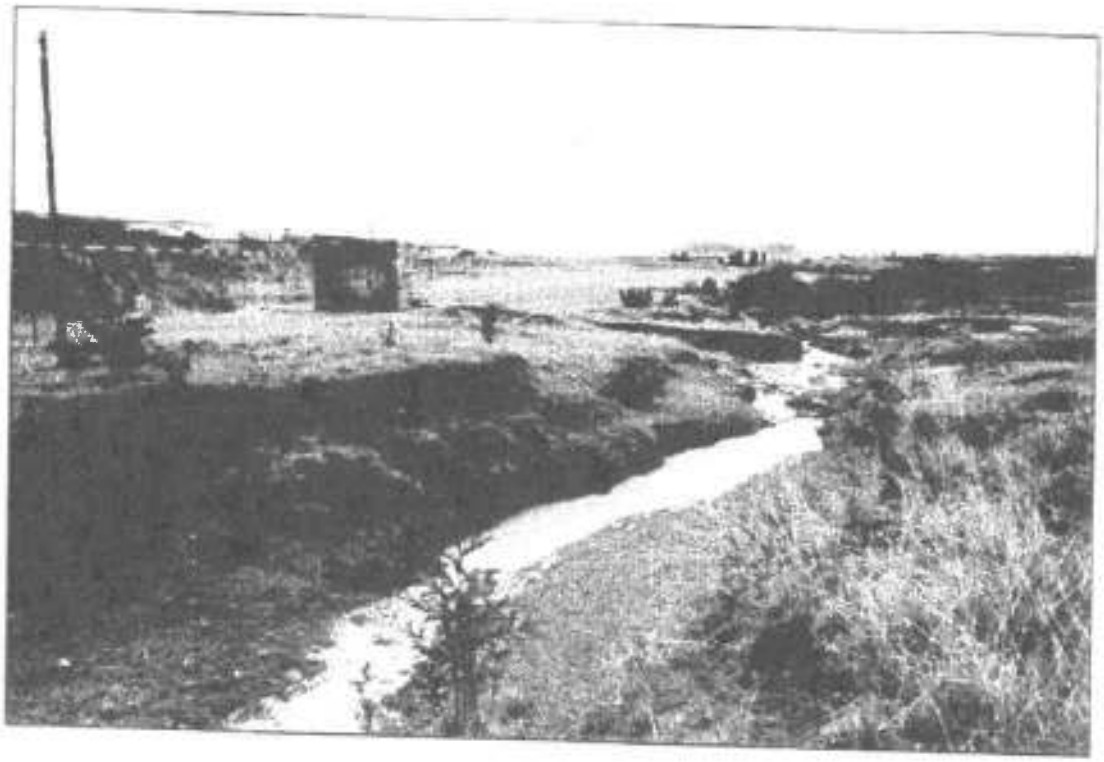
ANNEXURE D

Hydrological & Hydraulic Study

HYDROLOGICAL & HYDRAULIC STUDY

FOR THE

MT FLETCHER HOUSING DEVELOPMENT



Compiled on behalf of

Cell: 082 5766 828
Tel: 043 726 2827
Fax: 086 520 6942
lfourie@ngpro.co.za

By

Sinotech

Cell: 083 394 8627
Tel: 012 420 3176
Fax: 012 362 5218
Sinotech CC 90/23860/23

Revision nr 02
25 August 2009

2nd DRAFT

HYDROLOGICAL AND HYDRAULIC STUDY FOR THE Mt FLETCHER HOUSING DEVELOPMENT

DOCUMENT HISTORY

Revision nr	Date	Title	Comments/remarks
01	27 July 2009	Hydrological and Hydraulic Study for the Mt Fletcher Housing Development	First draft detailing hydrological analysis hydraulic analyses and details of flood lines
02	25 August 2009	Hydrological and Hydraulic Study for the Mt Fletcher Housing Development	2nd draft detailing hydrological analysis hydraulic analyses and details of flood lines including Area 3, stream flowing past Area 1

HYDROLOGICAL AND HYDRAULIC STUDY FOR THE Mt FLETCHER HOUSING DEVELOPMENT

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TABLES

FIGURES

APPENDICES

Appendix A: Hydrological calculations
Appendix B: Photographs
Appendix C: Cross sections
Appendix D: HEC-RAS results

HYDROLOGICAL AND HYDRAULIC STUDY FOR THE Mt FLETCHER HOUSING DEVELOPMENT

1. INTRODUCTION

In this report the hydrological and hydraulic analyses of the rivers and stream that affect the Mt Fletcher Housing Development is described. Mt Fletcher is situated along the R56 approximately 200 km South South–East of Maseru (**Figure 1**).

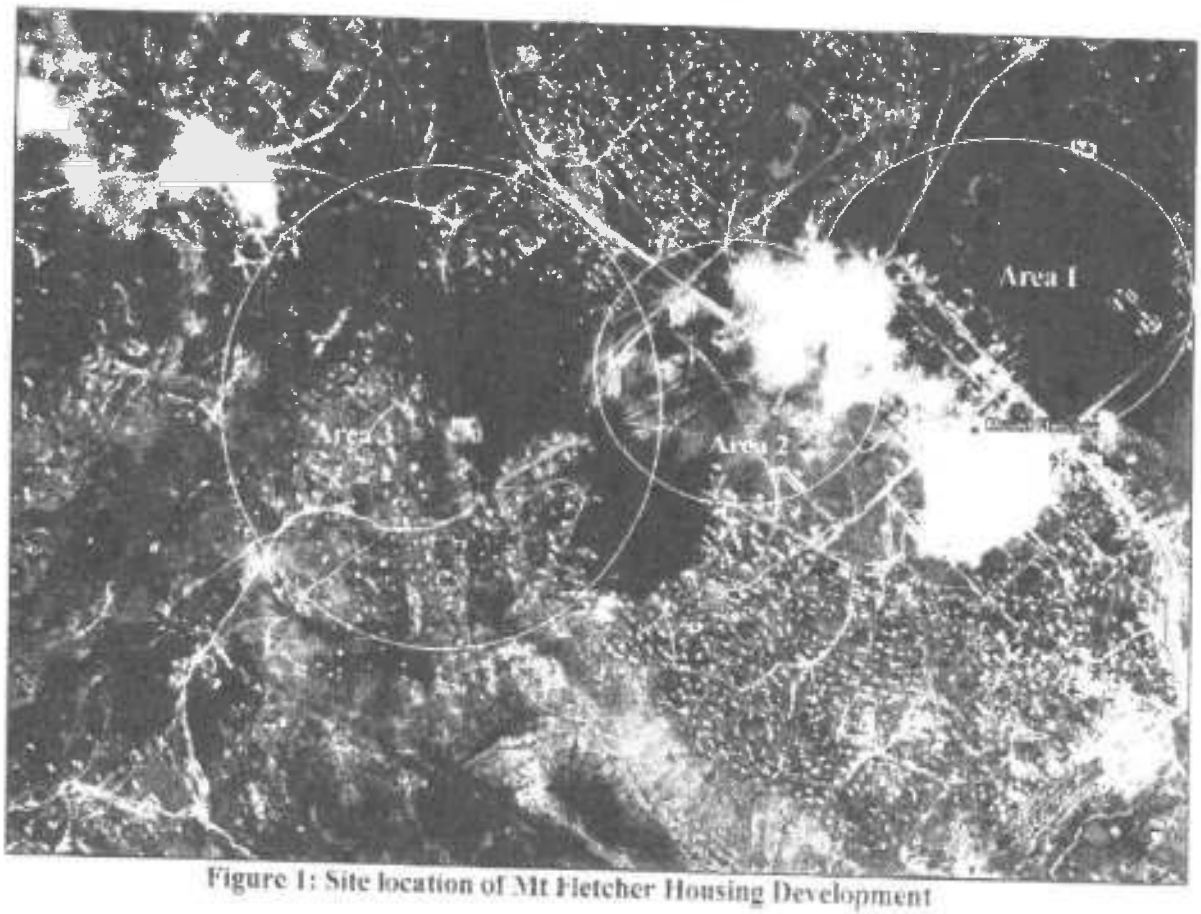

Figure 1: Site location of Mt Fletcher Housing Development

This report reflects the hydrological and hydraulic aspects of the streams and rivers passing through the three specific development areas of the Mt Fletcher Housing Development:

- Area 1: Greenfields Mixed Use (73 Ha)
- Area 2: Re-application for Approval of Mixed Greenfields Ext (46 Ha)
- Area 3: Formalisation of Approx 600 Erven (101 Ha)

The proposed Mt Fletcher development is situated in the catchment of the Tokwana River. Out of the tributaries of the Tokwana River, the Tsekong River with a number of smaller streams passes through Area 3. Smaller streams pass through Areas 1 and 2 all flowing into the Tokwana River.

2. TERMS OF REFERENCE

Mr Louis Fourie of New Ground Projects requested the hydrological and hydraulic analyses of the streams and rivers passing through the Mt Fletcher Housing Development (Areas 1, 2 and 3 in **Figure 2**) in order to determine the 1:100 year flood lines. I was agreed that the input of Sinotech will be limited to:

- Determining of the hydrological characteristics of the catchment areas
- Calculation of the 1:5, 1:10, 1:20, 1:25, 1:50 and 1:100 year recurrence interval floods
- Setting-up of a numerical hydraulic model for the river system.
- Performing the hydraulic analysis to determine the flood lines.
- Providing a description of the calculation procedure and methodology utilized.

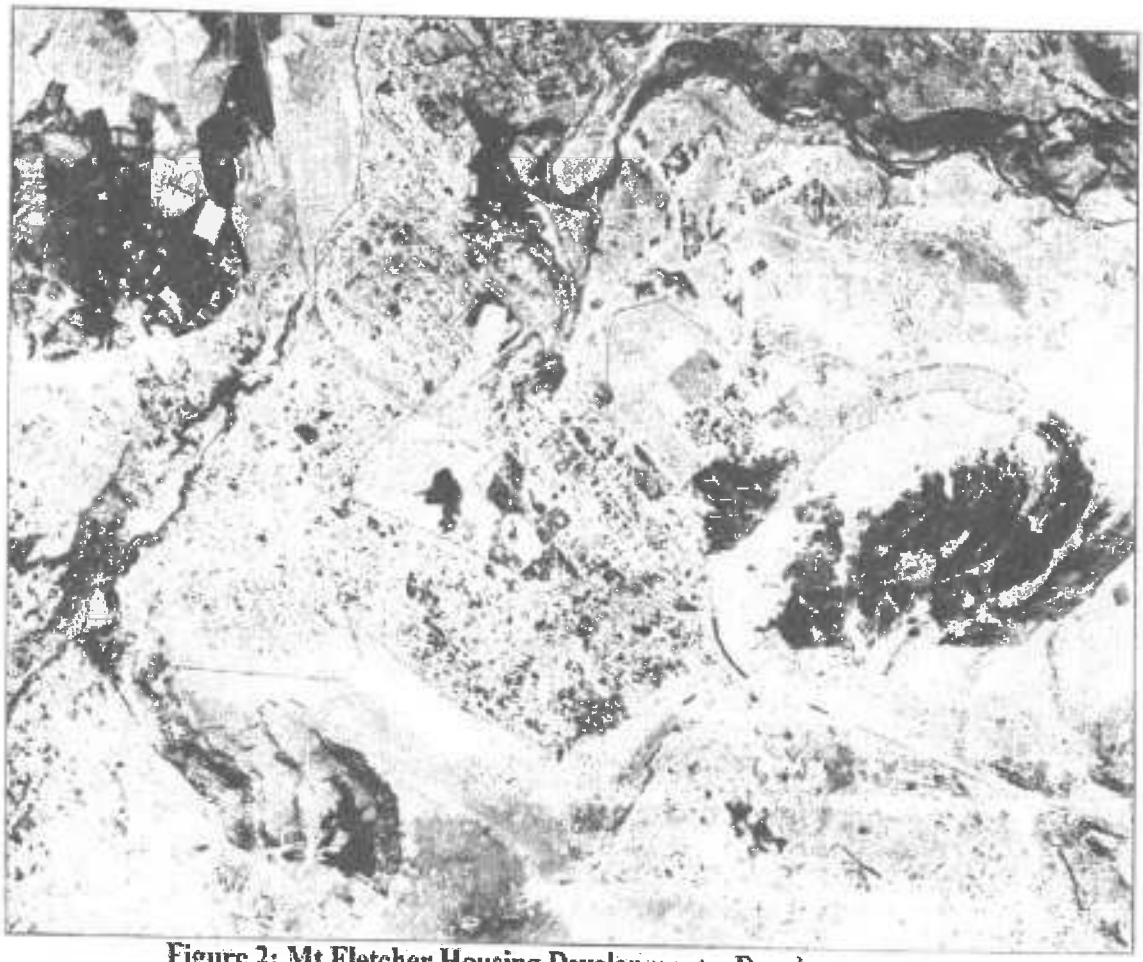

Figure 2: Mt Fletcher Housing Development – Development areas

The following tasks fall outside the TOR allocated to Sinotech CC:

- The draughting of the final drawings as required by the client.
- Submitting of documentation for approval with the authority

3. PROFESSIONAL LIABILITY

The work, which was executed by Prof SJ van Vuuren and Mr M van Dijk from Sinotech CC, will be covered under the Professional Liability Policy of New Ground Projects and that all arrangements in this regard, will be made by yourselves. It is however recorded that you and/or your insurers will have recourse against Sinotech CC in the event when negligence can be proved on the part of Sinotech CC in the execution of the work. The total claim will be limited to twice the professional monetary input by Sinotech CC for this project.

4. HYDROLOGICAL ANALYSIS

4.1 Introduction

The run-off generated within a catchment resulting from precipitation will depend on the:

- characteristics of the storm event;
- the response characteristics of the catchment;
- and the influence of temporal storage on the run-off.

The temporal distribution of the run-off is reflected in a hydrograph. The flood peak (Q_P) is reached as soon as the entire catchment contributes to the flood, which is also referred to as the time of concentration (T_C).

The Utility Programs for Drainage software program was used to calculate the flood peaks using deterministic and empirical methods applicable for catchments of these particular sizes. These results are attached as **Appendix A**.

4.2 Flood calculations

4.2.1 Available information

The following information was reviewed:

- 1:50 000 contour maps
- 1:10 000 contour maps with orthophotos
- Adamson, P.T. (1981). Southern African storm rainfall. Department of Water Affairs. Technical Report TR 102.
- Additional rainfall station data was obtained from Smithers and Schulze (2002) in a WRC report entitled "Design Rainfall Estimation in South Africa".
- Aerial photographs and photos of the site attached in **Appendix B.**

4.2.2 Defining catchment and catchment characteristics

The catchment areas were defined as shown in **Figures 3, 4** and **5**. The catchments' characteristics were determined and summarized in **Table 1.**

Table 1: Catchments characteristics

Description of characteristic	A1	A2	A3
Catchment area	4,54 km²	2,03 km²	0,785 km²
Hydraulic length of catchment	3,60 km	2,49 km	1,86 km
Height difference (10-85 method)	124 m	185 m	128,5 m
Height difference (equal area method)	123 m	159 m	140 m
Average catchment slope (10-85 method)	0,04590 m/m	0,10203 m/m	0,09234 m/m
Average catchment slope (equal area method)	0,03476 m/m	0,06588 m/m	0,07554 m/m
Distance to catchment centroid	1,95 km	1,35 km	0,95 km
SDF Drainage basin number	23		
Mean Annual Rainfall	687 mm		
RMF K-factor	5.0 (K5 region) (site location)		
Description of catchment run-off characteristics	Considered 100% rural developments, large permeable areas with between 20 and 30% flat areas, 50-60% of areas considered hilly and 20% steep. No dolomitic areas.		
Generalized veld type zone	Zone 5		
Days on which thunder was heard	70 days/year		
Weather Bureau station	Averaged MAP based on number of stations in catchment area		

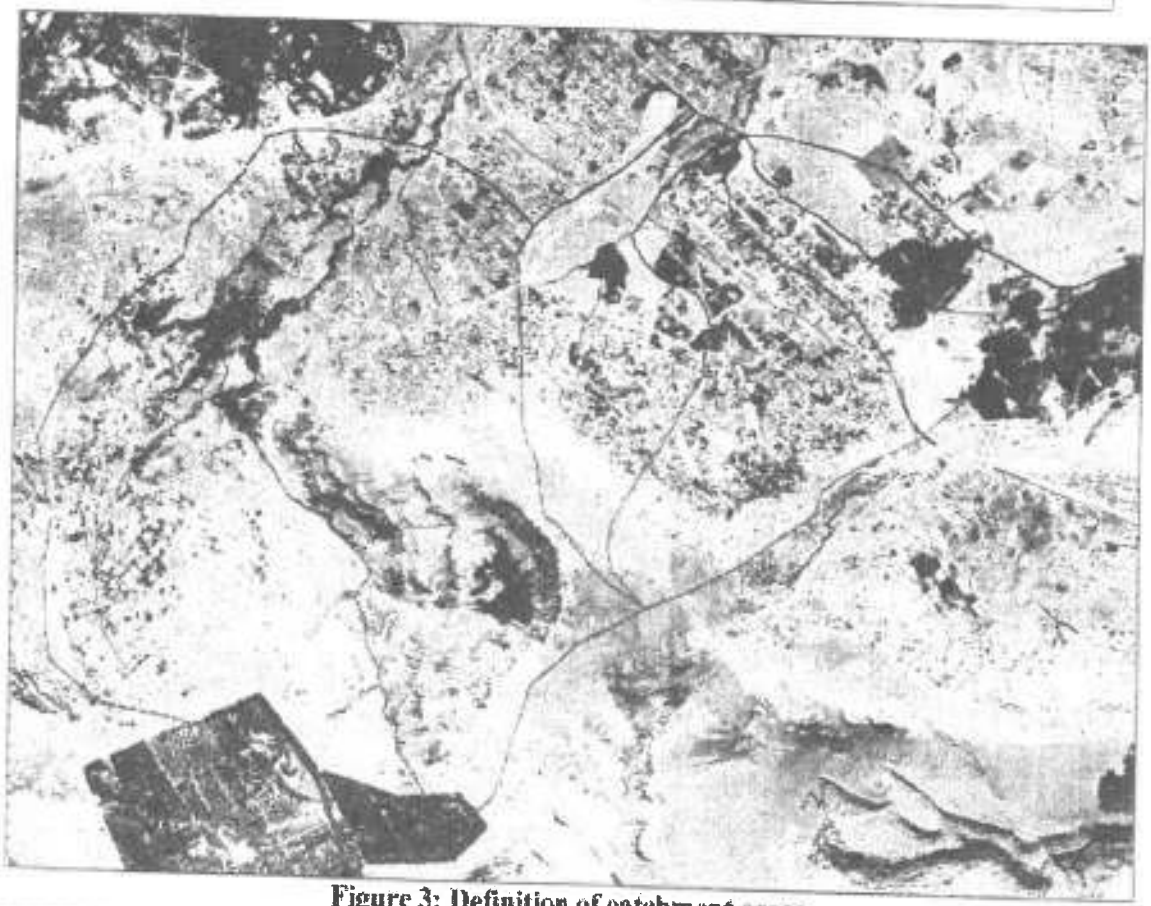

Figure 3: Definition of catchment areas

Table 2: TR102 rainfall data for Mount Fletcher station

Weather Services Station and Number	MOUNT FLETCHER - 178881						
Mean annual precipitation	664						
Coordinates	Latitude - 30° 41', Longitude - 28° 30'						
	Return period						
Duration (days)	2	5	10	20	50	100	200
1 day	48	65	77	91	111	128	146
2 days	61	83	99	116	140	160	182
3 days	70	95	114	134	162	185	210
7 days	91	120	141	163	192	216	242

Figure 4: Catchment area and longest watercourse (Catchment A1)

Figure 5: Catchment area and longest watercourse (Catchment A2)

Figure 6: Catchment area and longest watercourse (Catchment A3)

4.2.3 Defined watercourse or overland flow

The time of concentration, T_C, is defined as the required time for a storm of uniform area and temporal distribution to contribute to the run-off from the catchment. In calculating the time of concentration, distinction is made between overland flow (sheet flow) and flow in defined watercourses.

- Calculation of the time of concentration for overland flow

This type of flow (overland) usually occurs in small catchments or in the upper reaches of catchments, where there is no clearly defined watercourse. Run-off, then, is in the form of thin layers of water flowing slowly over the fairly uneven ground surface. The Kerby formula is recommended for the calculation of T_C in this case. It is only applicable to parts where the slope is fairly even.

$$T_c = 0{,}604\left(\frac{rL}{S^{0.5}}\right)^{0.467} \qquad \ldots(1)$$

Where: T_C = time of concentration (hours)
r = roughness coefficient (0,2)
L = hydraulic length of catchment, measured along flow path from the catchment boundary to the point where the flood needs to be determined (km).

S = slope of the catchment $S = \frac{H}{1000L}$ (m/m)

H = height of most remote point above outlet of catchment (m).

- Calculation of the time of concentration for flow in a defined watercourse

In a defined watercourse, channel flow occurs. The recommended empirical formula for calculating the time of concentration in natural channels was developed by the US Soil Conservation Service.

$$T_C = \left(\frac{0{,}87L^2}{1\,000\,S_{av}} \right)^{0.385} \quad \ldots(2)$$

where: T_C = time of concentration (hours)

L = hydraulic length of catchment, measured along flow path from the catchment boundary to the point where the flood needs to be determined (km)

S_{av} = average slope (m/m)

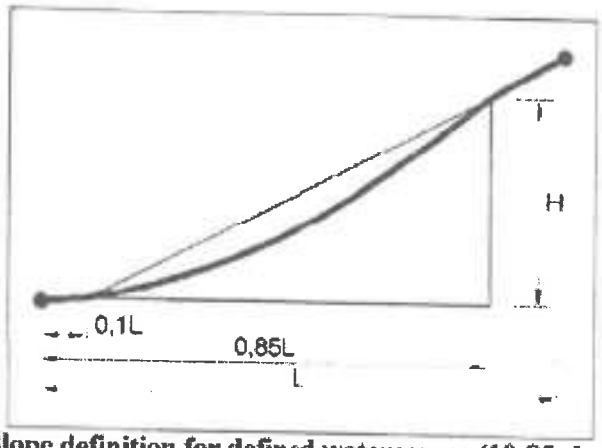

Figure 7: Slope definition for defined watercourse (10-85 slope method)

Although there is no defined watercourse for the first sections of the streams the slope as provided in **Table 1** was calculated based on the following formula (10-85 slope method):

$$S_{av} = \frac{H_{0.85L} - H_{0.10L}}{(1\,000)(0{,}75L)} \quad \ldots(3)$$

Where:

S_{av} = average slope of the catchment (m/m) (see **Figure 7**)

$H_{0.10L}$ = elevation height at 10% of the length of the watercourse (m)

$H_{0.85L}$ = elevation height at 85% of the length of the watercourse (m)

L = length of watercourse (km)

Longitudinal profiles of the longest watercourses are shown in **Figures 8, 9** and **10,** with the average slopes based on the equal area method indicated with the blue lines and the average slopes based on the 10-85 method indicated with the red lines.

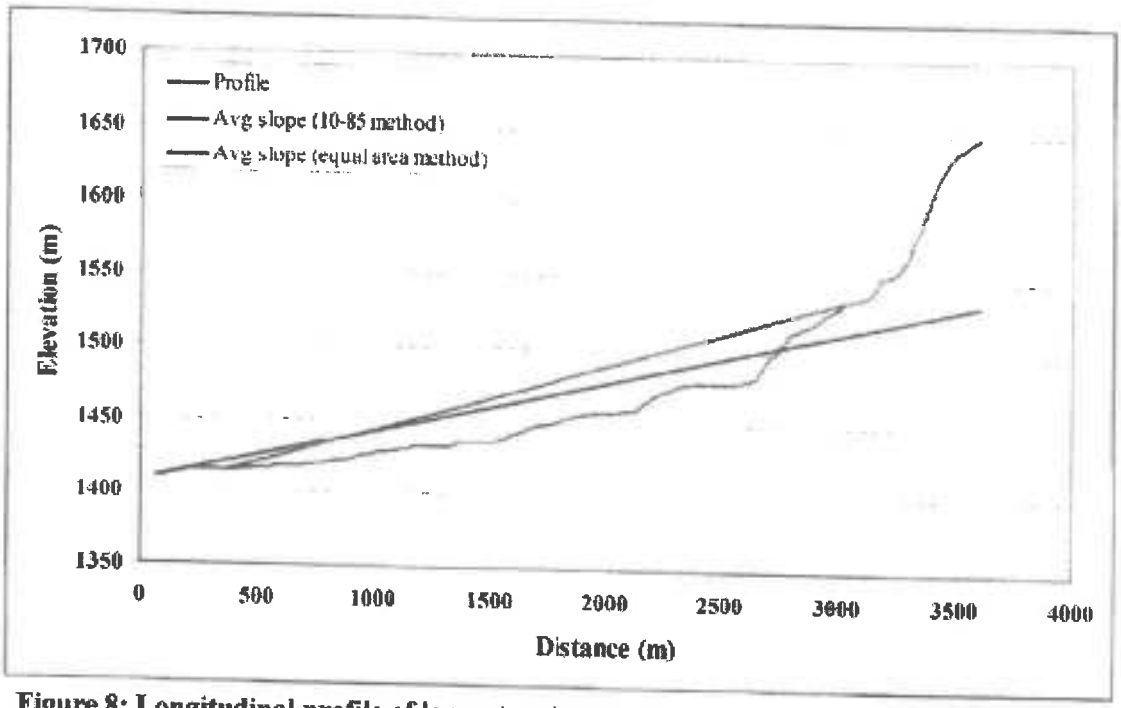

Figure 8: Longitudinal profile of longest watercourse and average slopes (Catchment A1)

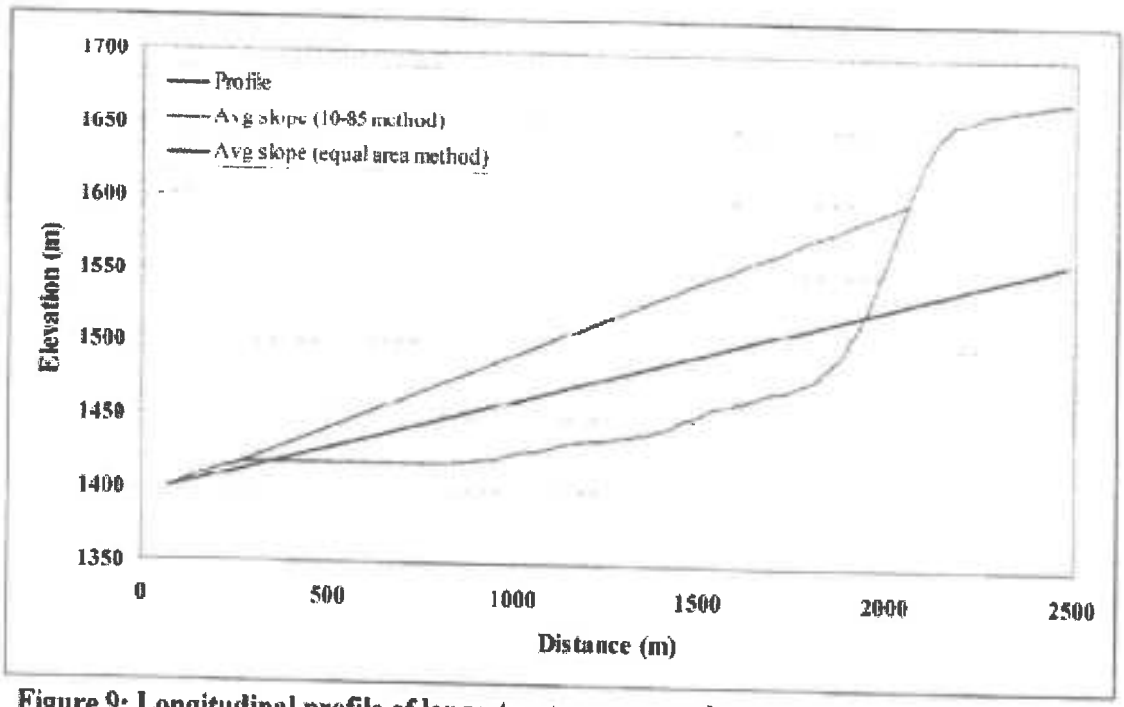

Figure 9: Longitudinal profile of longest watercourse and average slopes (Catchment A2)

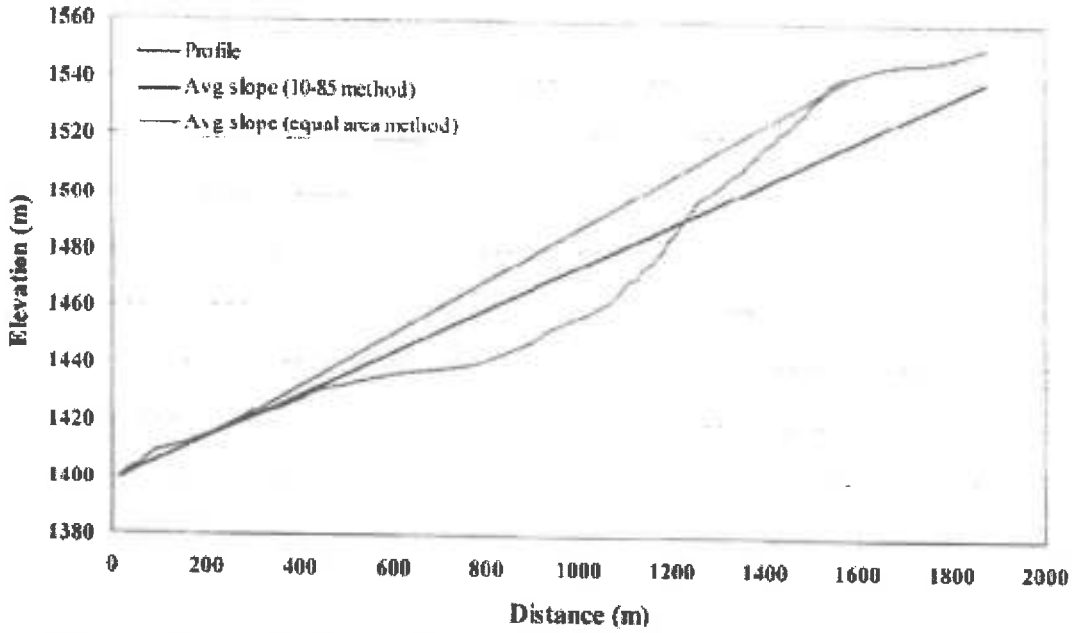

Figure 10: Longitudinal profile of longest watercourse and average slopes (Catchment A3)

4.2.3 Flood calculation methods

- The **Rational method** is based on a simplified representation of the law on conservation of mass. Rainfall intensity is an important input in the calculation. Because uniform aerial and time distributions of rainfall have to be assumed, the method is normally only recommended for catchments smaller than 15km^2. Only flood peaks and empirical hydrographs can be determined by means of the rational method.

- The **Alternative Rational method** is an adaptation of the standard rational method. Where the rational methods uses the depth-duration-return period diagram to determine the point precipitation, the alternative method uses the modified recalibrated Hershfield equation as proposed by Alexander for storm durations up to 6 hours, and the Department of Water Affairs' technical report TR102 for durations from 1 to 7 days. In addition to this the *Design Rainfall Estimation in South Africa* data provided by Smithers and Schulze (2002) was also utilized.

- The **Unit Hydrograph method** is suitable for the determination of flood peaks as well as hydrographs for the medium-sized rural catchments (15 to 5000km^2). The method is based mainly on regional analyses of historical data, and is independent of personal judgment. The results are reliable, although some natural variability in the hydrological occurrences is lost through the broad regional divisions and the averaged form of the hydrographs. This is especially true in the case of catchments smaller than say 100km^2 on size.

- The **Standard Design Flood (SDF) method** was developed by Alexander to prove a uniform approach to flood calculations. The method is based on a calibrated discharge coefficient for a recurrence period of 2 and 100 years. Calibrated discharge parameters are based on historical data were determined for 29 homogeneous basins in South Africa

- **Empirical methods** slope are not suitable for the determination of design floods. They usually consist of a combination of experience, historical data and/or the results of other methods. These methods are more suited to check the order of magnitude of the results obtained by means of the other methods.

A summary of the calculated results are shown in **Table 3.** The time of concentrations were equal to 34,9 min, 19,6 min and 16.1 min for catchment areas A1, A2 and A3 respectively.

Table 3: Summary of calculated peak flows

		Calculated peak flows (m³/s)				
Return period		**5**	**10**	**20**	**50**	**100**
Catchment A1	**Rational**	30,27	40,48	52,79	72,17	93,15
	Alternative rational	30,26	42,05	55,01	72,70	88,18
	Unit hydrograph	25,77	37,85	53,02	80,11	110,60
	Standard Design Flood	29,74	53,50	80,86	122,27	157,44
	Empirical		24,77	33,58	46,60	58,77
	Based on RMF*				95,24	117,19
Catchment A2	**Rational**	18,95	25,45	33,22	45,48	58,79
	Alternative rational	19,85	27,59	36,10	47,70	57,86
	Unit hydrograph	18,64	27,46	38,57	58,52	81,17
	Standard Design Flood	19,19	34,52	52,17	78,90	101,59
	Empirical		16,05	21,76	30,19	38,07
	Based on RMF#				63,69	78,36
Catchment A3	**Rational**	9,11	11,89	15,13	20,25	25,64
	Alternative rational	9,72	13,12	16,72	21,57	25,59
	Unit hydrograph	9,65	14,31	20,20	30,80	42,87
	Standard Design Flood	8,52	15,33	23,17	35,04	45,12
	Empirical		8,68	11,76	16,32	20,58
	Based on RMF##				39,60	48,73

* Based on RMF peak flood of 213,1 m³/s
\# Based on RMF peak flood of 142,5 m³/s
Based on RMF peak flood of 88,6 m³/s

Table 4: Summary of proposed design flows

	Calculated peak flows (m³/s)				
Return period	**5**	**10**	**20**	**50**	**100**
Design flood Catchment A1	30	42	55	73	95
Design flood Catchment A2	20	28	36	48	59
Design flood Catchment A3	9,7	13,1	17	22	26

5. HYDRAULIC ANALYSES

5.1 Introduction

The hydraulic analyses of a natural river section is time consuming when conducted by hand calculations, especially if there is variation in the roughness parameter, slope or cross-sectional characteristics along the river. The effect of backwater due to the local narrowing in the river or obstructions (control points such as bridges and culverts) as well as the irregular shapes complicates the hydraulic analyses. This necessitates the numerical analysis and modeling of natural river sections using software such as HEC-RAS. HEC-RAS has been developed over a number of years and have been proven and accepted in practice.

A number of photographs of the terrain and rivers are included in **Appendix B**.

5.2 Numerical modeling of rivers (HEC-RAS)

5.2.1 Introduction

The public domain and internationally accepted software package HEC-RAS (version 4.0) developed by the US Army Corps of Engineers was used to hydraulically model the river system. The system consists of three components i.e. flow data, geometric data and simulation options. These components are described in more detail below.

The software provides graphical output of the flow in the river as well as tabulated output of the calculated results. A list of errors and warnings are also provided as an output in order to carefully evaluate and interpret the obtained results.

5.2.2 Surveyed data

A Digital Terrain Model (DTM) of the Mt Fletcher area was obtained. The river reaches were determined for the two catchments as defined in **Figure 3** and cross sections were generated which are provided in **Appendix C**. These cross sections were spaced 20 m apart and were 60 m wide. In total 379 cross sections were generated and used to setup the numerical hydraulic model as described in the paragraphs below.

5.2.3 Roughness parameters and boundary conditions

In order to accurately model the flow in the rivers and streams the roughness parameters along each cross section had to be defined. The rivers/streams were divided into three sections i.e. the left bank, main channel and right bank. The positioning of the main channel was based on the anticipated flow in the river (low flows) or the extent of the channel. The Manning n roughness values (**Equation 4** below) used for each of the three sections were 0,035 $s/m^{1/3}$, 0,024 $s/m^{1/3}$ and 0.035 $s/m^{1/3}$ for the left bank, main cannel and right bank respectively.

Manning equation:

$$Q = \frac{1}{n}\frac{A^{\frac{5}{3}}}{P^{\frac{2}{3}}}S_0^{\frac{1}{2}} \quad \ldots (4)$$

Where:

Q	=	flow rate (m^3/s)
n	=	Manning value ($s/m^{1/3}$)
A	=	flow area (m^2)
P	=	wetted perimeter (m)
S_0	=	slope (m/m)

The Froude number, as calculated with **Equation 5**, provides information on the flow regime in the cross section. A Froude number less than 1,0 indicates sub-critical flow which is controlled downstream and a Froude number greater than 1,0 indicates supercritical flow which is controlled upstream. For all return period flood peaks the flow regime was sub-critical (Fr < 1,0))

$$Fr^2 = \frac{Q^2 B}{gA^3} \quad \ldots (5)$$

Where:

Fr	=	Froude number
Q	=	flow rate (m^3/s)
A	=	flow area (m^2)
B	=	width open to atmosphere (m)
g	=	gravitational acceleration (m/s^2)

The boundary conditions that were assumed in the numerical model described in the next paragraphs are that uniform flow depth is supposed to occur on the up and downstream ends. These uniform depths are based on the average slope in the river sections at those positions. It is usually a good indication that you have sufficient cross sections up and downstream of the area under investigation, if the definition of what occurs at the boundary does not affect the obtained water levels at the sites. In this numerical model the assumption of what happens at the boundary does not have a noteworthy influence on the calculated water levels at the sites, since there are other hydraulic control points in the system. The assumed slopes at each of the boundary conditions are reflected in **Table 5**. The internal boundaries are modeled as junctions based on conservation of energy.

Table 5: Boundary conditions

River reach	Cross section	Description	Slope (m/m)
A1-1	1740	Upstream	0,0544
A1-2.1	0	Downstream	0,0114
A1-2.3	1640	Upstream	0,0891
A1-3	750	Upstream	0,1706
A2-4.1	0	Downstream	0,0090
A2-4.3	1620	Upstream	0,0349
A2-5	308	Upstream	0,0925
A2-6	278	Upstream	0,0673
A3-3.1	1064	Upstream	0,1426
A3-3.1	0	Downstream	0,0787

5.2.4 Flow data

The natural flow in the river and the streams varies from super- to sub-critical since there are some natural controls in the system. The proposed design flows as described in **Table 4** were used in the analyses. The flows were incrementally increased along the river based on the square root of the areas principle until reaching the maximum peak flows at the last cross section. Flows at various points in the river were calculated and are listed in **Table 6**.

Table 6: Peak flows at various points in river systems

	Reach	Cross section	Return period				
			5	10	20	50	100
Catchment A1	A1 - 1	1740	23,8	33,3	43,6	57,8	75,2
	A1 - 1	840	25,5	35,7	46,8	62,1	80,8
	A1 - 1	40	27,3	38,2	50,0	66,3	86,3
	A1 - 3	750	7,0	9,8	12,9	17,1	22,2
	A1 - 2.1	720	30,0	42,0	55,0	73,0	95,0
	A1 - 2.2	1000	10,9	15,3	20,0	26,5	34,6
	A1 - 2.2	1240	9,0	12,6	16,5	21,9	28,5
	A1 - 2.3	1640	5,6	7,9	10,3	13,7	17,8
Catchment A2	A2 - 5	308	9,0	12,6	16,3	21,7	26,6
	A2 - 6	278	9,6	13,5	17,3	23,1	28,4
	A2 - 4.2	1320	12,7	17,8	22,9	30,5	37,5
	A2 - 4.3	1620	8,3	11,6	14,9	19,9	24,4
	A2 - 4.1	820	17,2	24,0	30,9	41,2	50,6
	A2 - 4.1	640	19,6	27,4	35,3	47,0	57,8
Catchment A3	A3-3.1	1064	5,3	7,2	9,3	12,0	14,2
	A3-3.1	800	6,5	8,8	11,4	14,8	17,4
	A3-3.1	480	7,5	10,1	13,2	17,0	20,1
	A3-3.1	140	9,2	12,4	16,1	20,9	24,7
	A3-3.1	0	9,7	13,1	17	22	26

5.2.5 Geometric data

The geometric data of the system was entered in the model and consisted of the following:

- **Cross sectional data** (distance, elevation, downstream reach lengths, roughness parameters, channel bank stations and sub-critical flow contraction and expansion coefficients). The position of the cross sections is shown in **Figure 11** while the plots are shown in **Appendix C**.
- **Culvert/bridge data** (culvert openings, type, bridge deck data, pier detail, width, levels, dimensions, loss coefficients, roughness parameters, and relative position in cross section, modeling approach and flow calculations procedures).

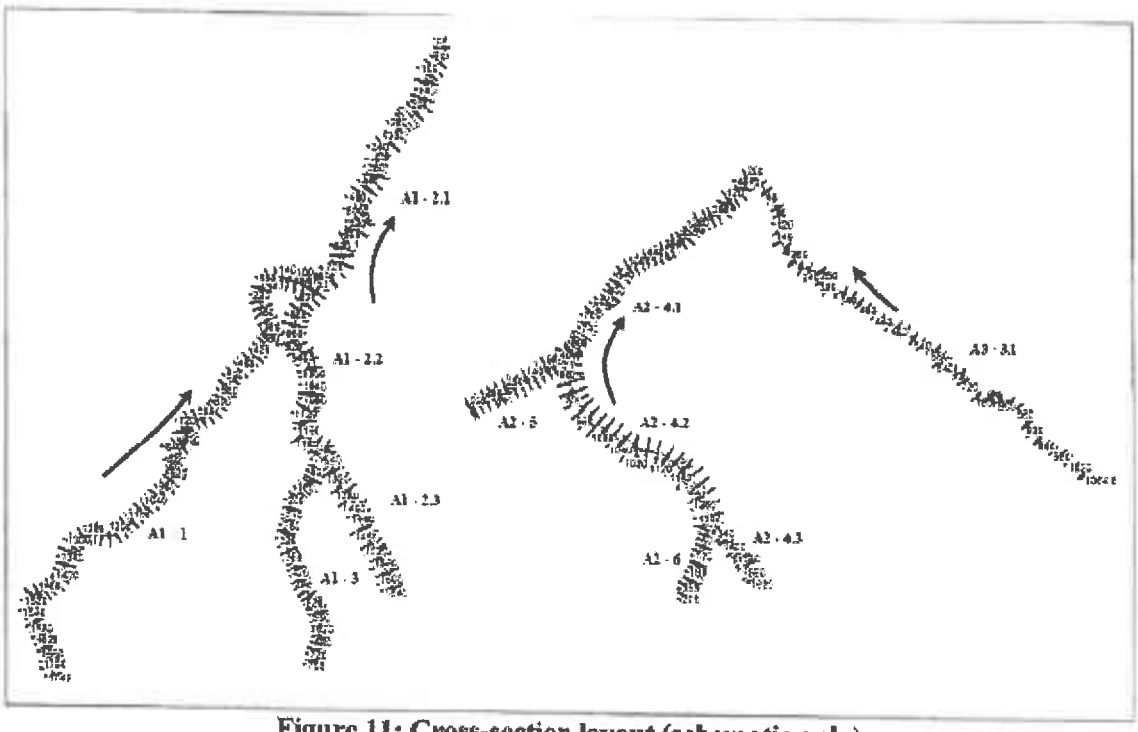

Figure 11: Cross-section layout (schematic only)

5.2.6 Simulation options

The HEC-RAS software package allows for the simulation of super, sub-critical or mixed flow regimes. The flow regime varies throughout the river and streams although being predominantly supercritical, hence it was analysed as a mixed flow regime. Positions where hydraulic jumps would occur could be determined as well as transitions from sub-critical to supercritical flow.

5.2.7 HEC-RAS model

The HEC-RAS model, which was set-up, which includes the culvert systems is shown in graphical format in **Figure 12**.

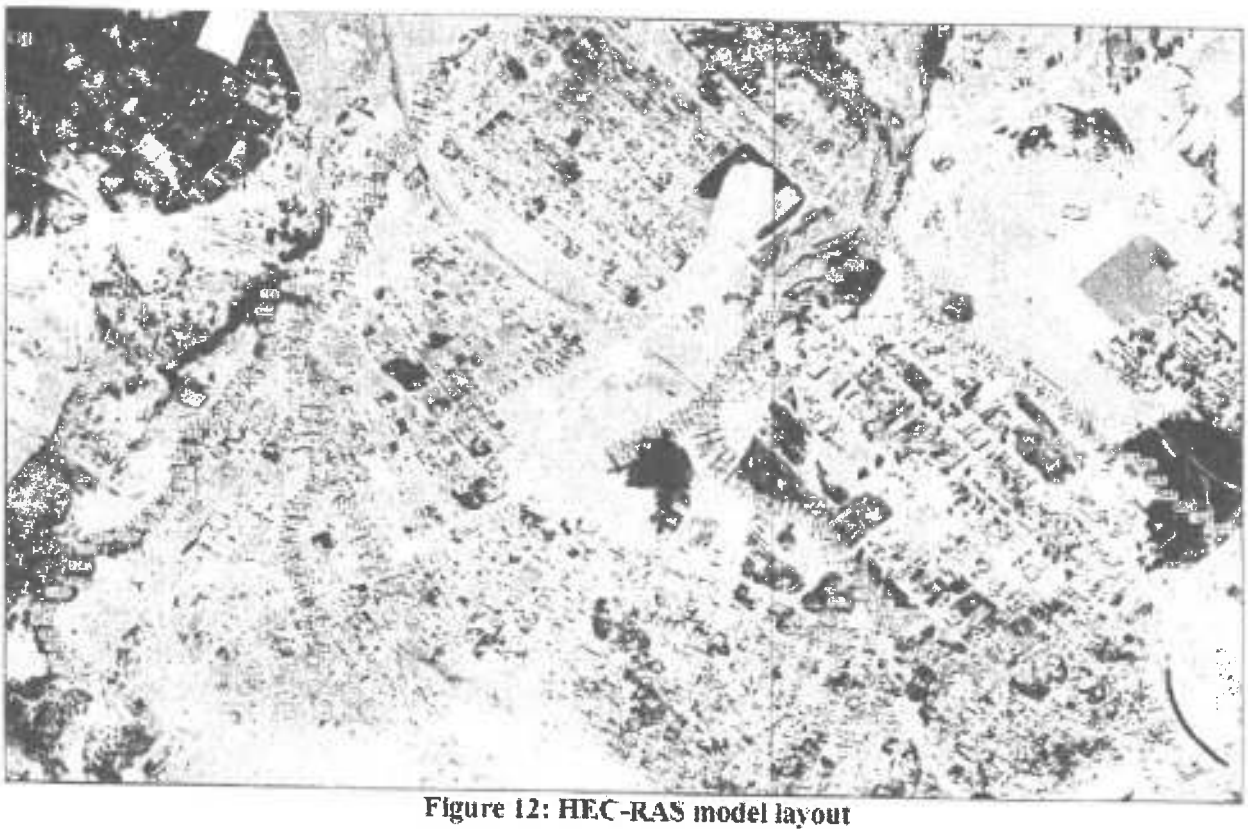

Figure 12: HEC-RAS model layout

The hydraulic structures as shown in **Figures 13** and **14** were also included in the hydraulic model to determine their effect on the obtained water levels.

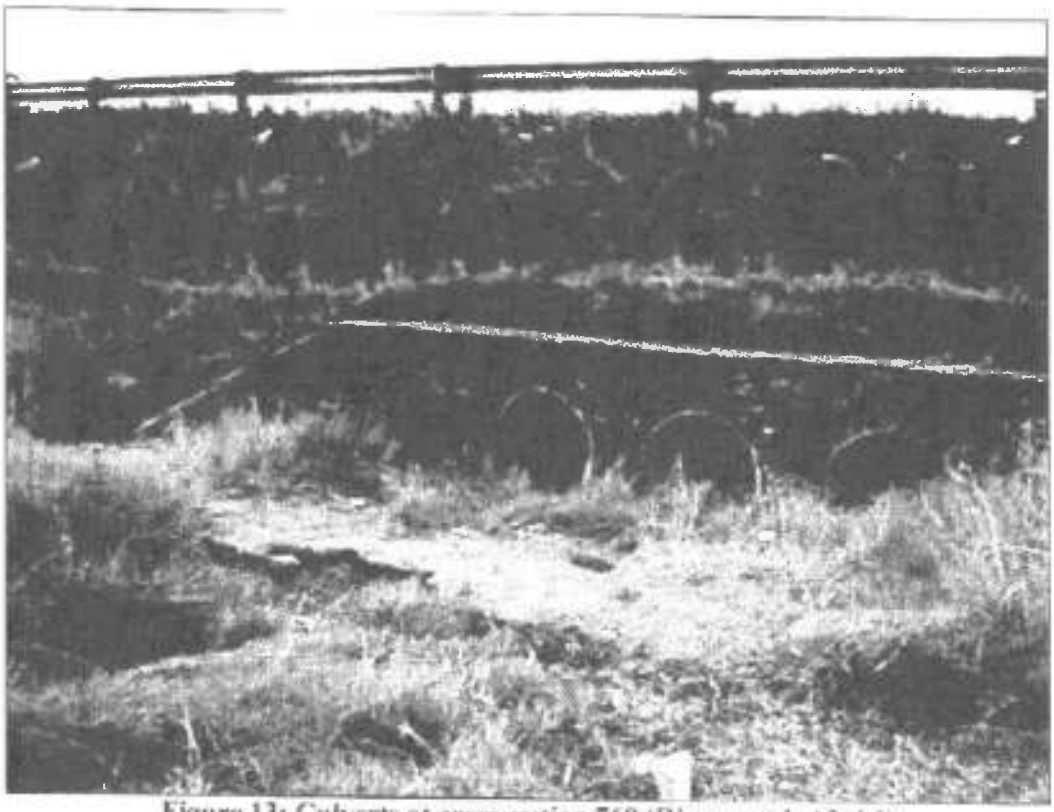

Figure 13: Culverts at cross section 760 (River reach A2-4.1)

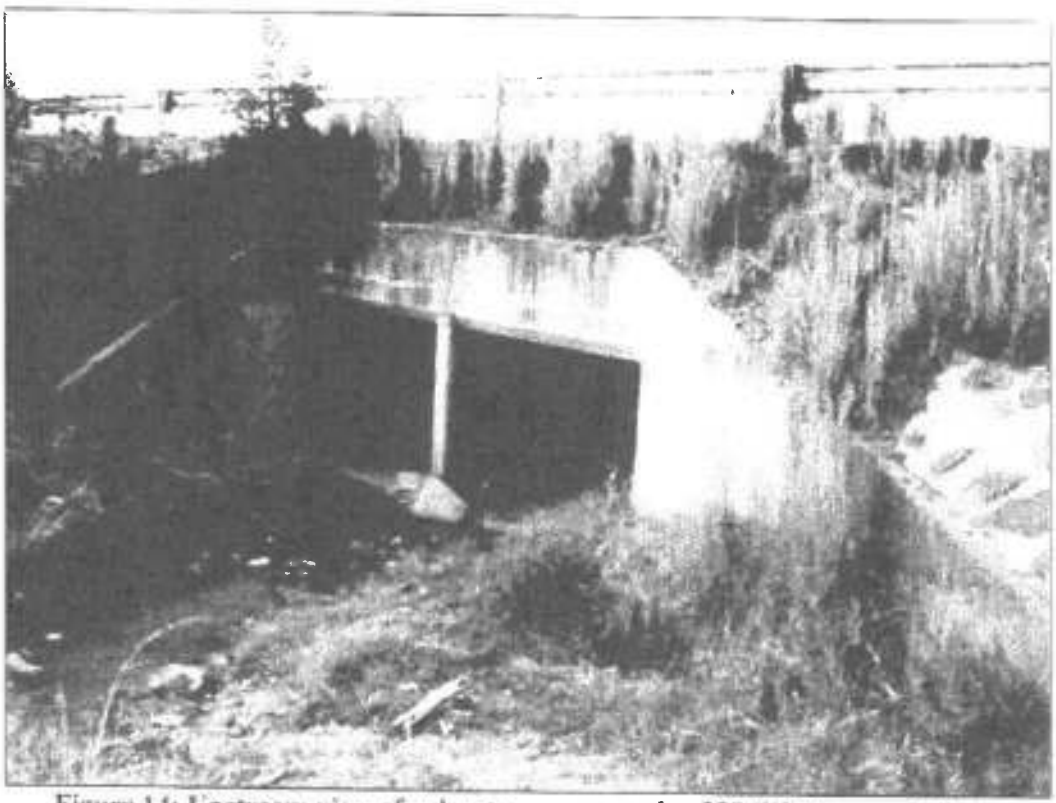

Figure 14: Upstream view of culverts at cross section 220 (River reach A1-2.1)

5.3 Hydraulic model analyses

The numerical analyses modeled the entire system and reflected the influence of the up- and downstream controls were determined.

5.3.1 Analyses for rivers in Catchment A1

The longitudinal profiles are shown in **Figures 15** to **17** below for the 1:100 year recurrence interval event. As can be seen the flow regime changes in the rivers between super- and subcritical flow at a number of points in the river although it is predominantly flowing supercritical. It also dams at the road crossing at cross section 220 (River reach A1-2.1) and overtops the hydraulic structure. **Table D1** in **Appendix D** provides the complete set of results of the performed analysis.

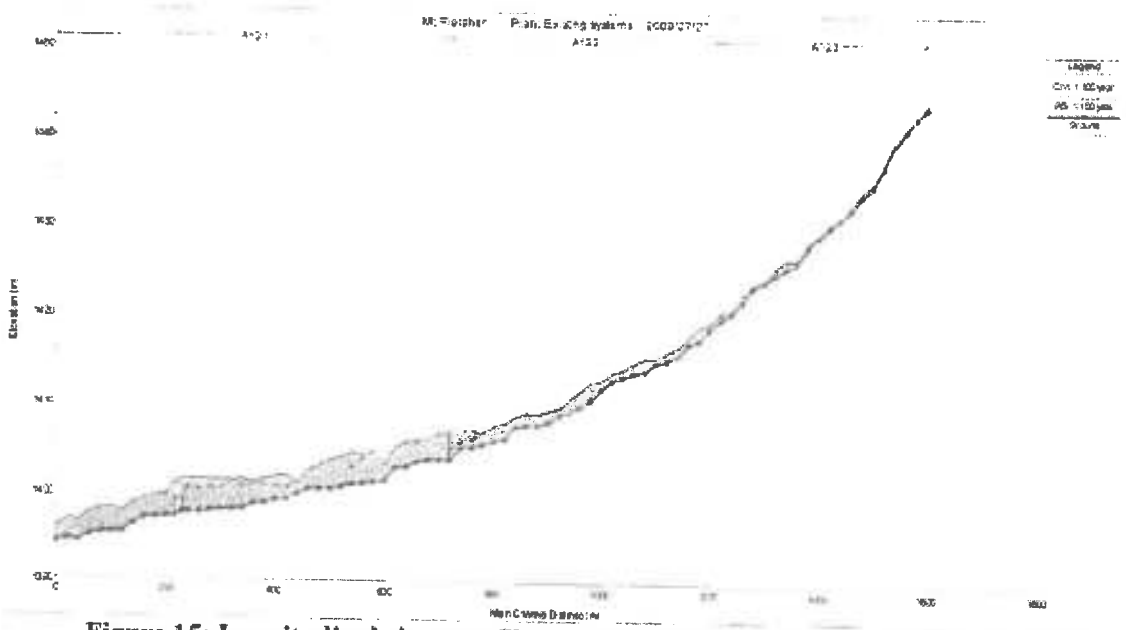

Figure 15: Longitudinal river profile, A1-2.3 to A1-2.1 (Q_{100} = 95 m³/s at outlet)

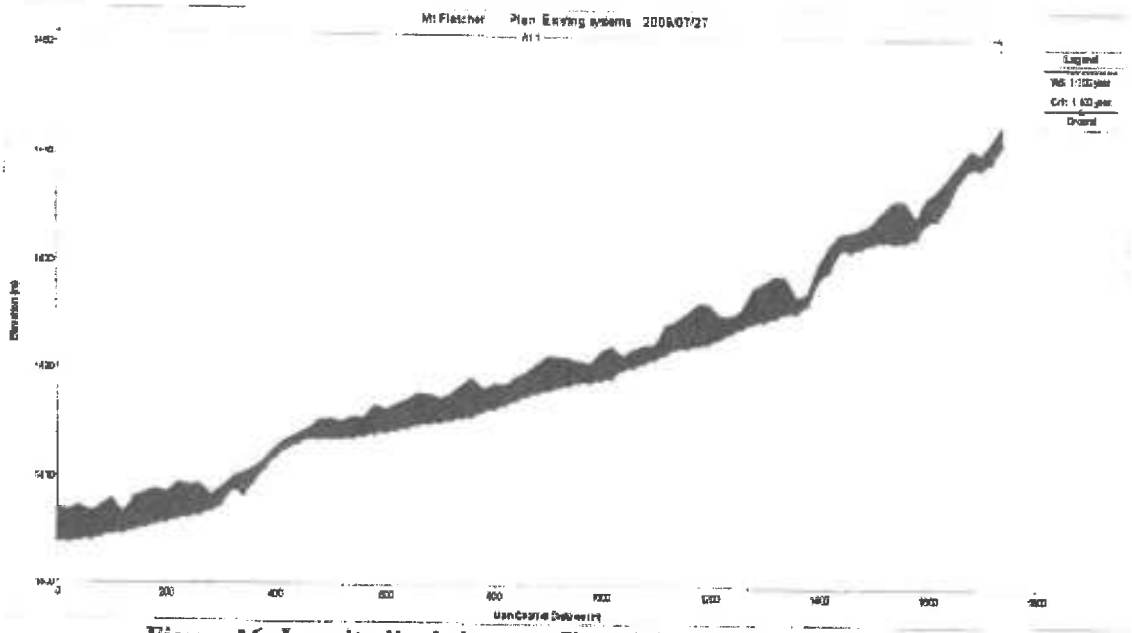

Figure 16: Longitudinal river profile, A1-1 (Q_{100} = 86,3 m³/s at outlet)

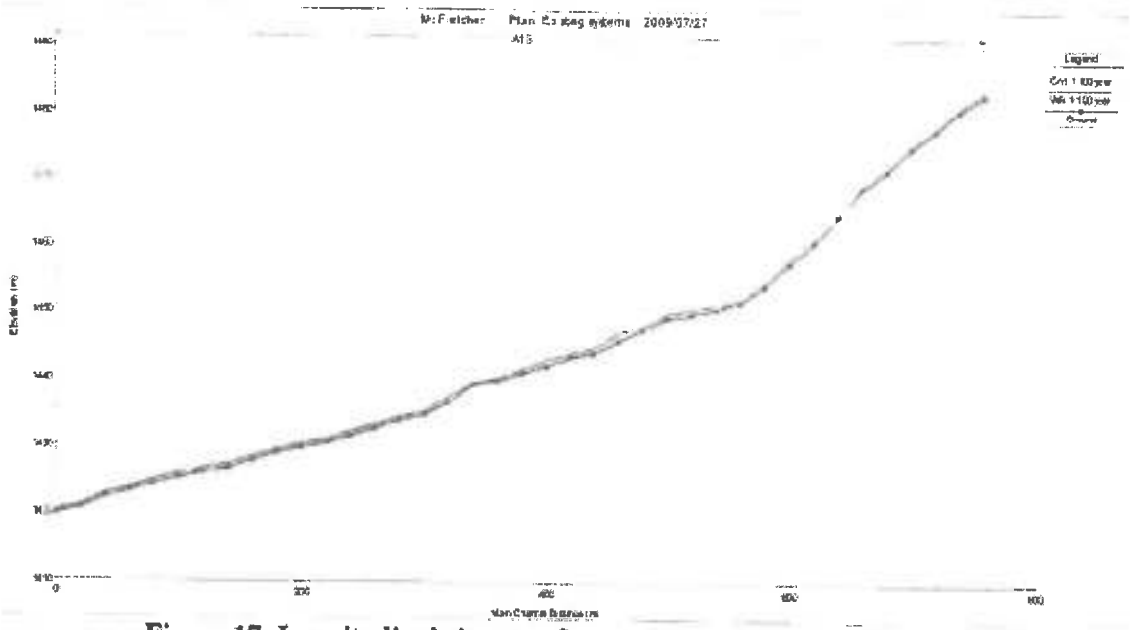

Figure 17: Longitudinal river profile, A1-3 (Q_{100} = 22,2 m³/s at outlet)

A typical cross section is shown in **Figure 18** for cross section 620 on River reach A1-1. Similar detail can be extracted for each cross section if required.

As can be seen the flow is super critical in the river at this cross section since the water surface is below the dotted red line (critical line). The green line is the energy grade line (or total energy line). The total energy line reflects that if there is any interference the flow could reach these levels.

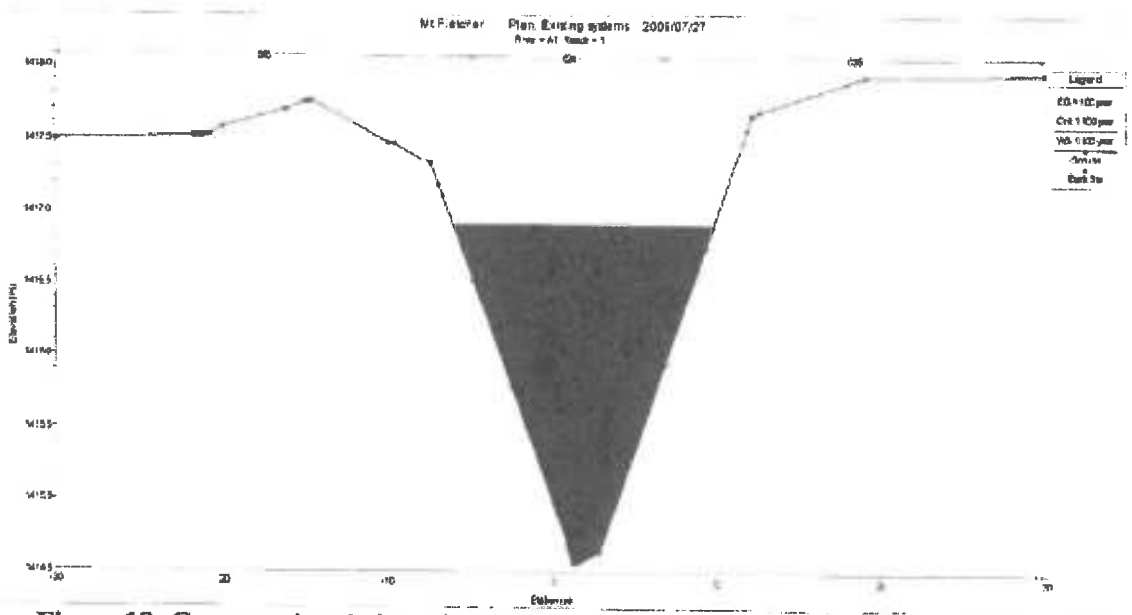

Figure 18: Cross sectional view of cross section 620, A1-1 (Q_{100} = 62,1 m³/s at this point)

The culvert system at cross section 220 on River reach A1-2.1 is overtopped by about 0,8 m during the 1:100 year flood peak. It is also overtopped during the 1:5 year flood peak which is equal to 30 m³/s with only ±27 m³/s passing through the culverts (see **Figure 19**). Some attenuation in the upper reaches, might result in this not occurring as frequently as found in the hydraulic model analysis.

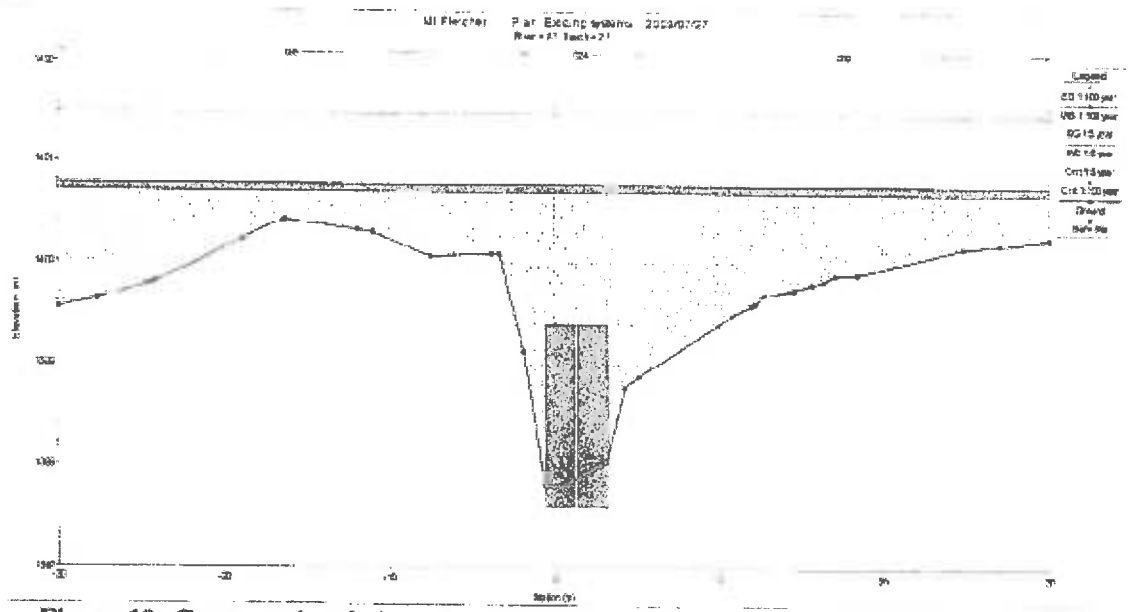

Figure 19: Cross sectional view of cross section 620, A1-1 (Q_{100} = 62,1 m³/s at this point)

As can be seen in the XYZ-perspective plot shown in **Figure 20**, the 1:100 year recurrence interval flood does not always remain in the main channel (in between the red lines, which are the edges of the channel).

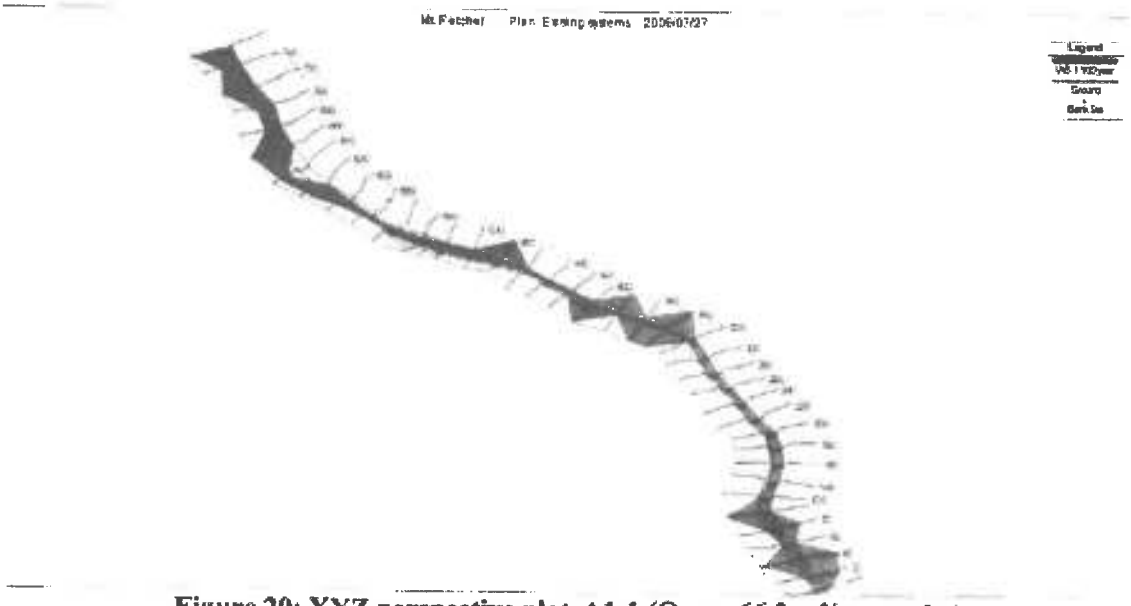

Figure 20: XYZ perspective plot, A1-1 (Q_{100} = 66,3 m³/s at outlet)

5.3.2 Analyses for rivers in Catchment A2

The second analysis was conducted for the streams of catchment A2. The longitudinal profiles are shown in **Figures 21** to **23** below for the 1:100 year recurrence interval event. As can be seen the flow regime changes in the rivers between super- and subcritical flow at a number of points in the river although it is predominantly flowing supercritical. It also dams at the road crossing at cross section 760 (River reach A2-4.1) and overtops the hydraulic structure. **Table D2** in **Appendix D** provides the complete set of results of the performed analysis.

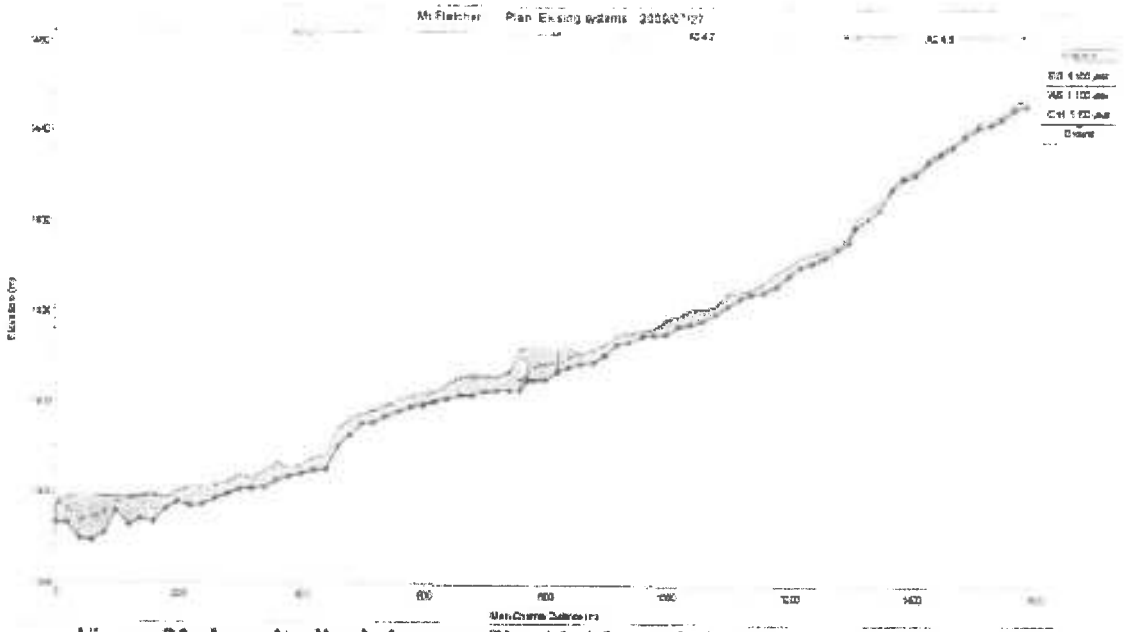

Figure 21: Longitudinal river profile, A2-4.3 to A2-4.1 (Q_{100} = 57,8 m³/s at outlet)

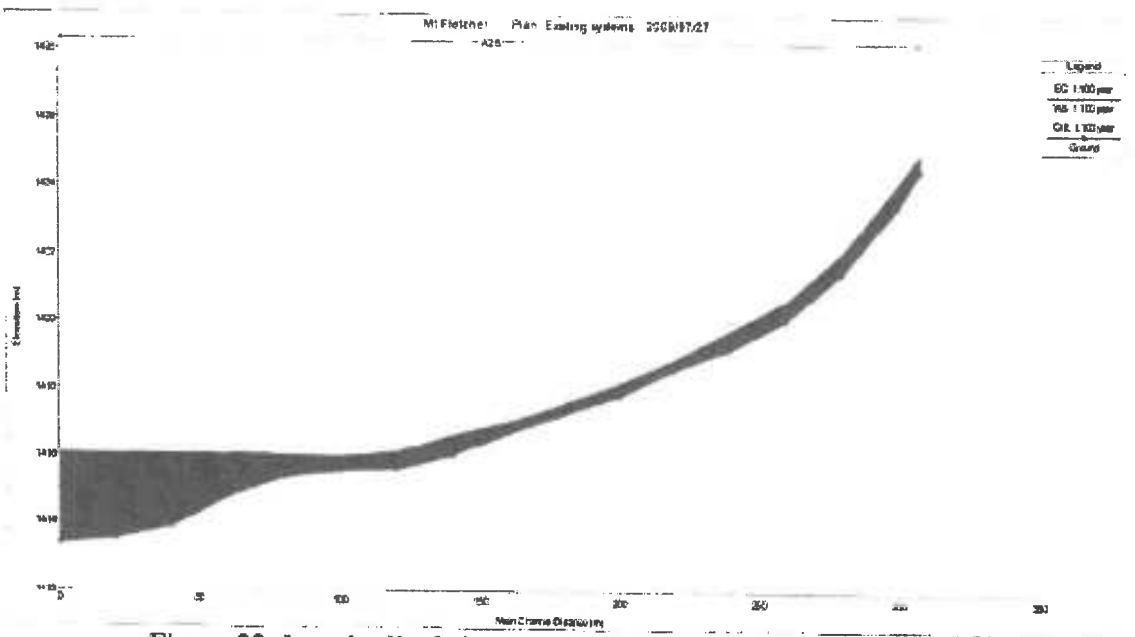

Figure 22: Longitudinal river profile, A2-5 (Q_{100} = 26,6 m³/s at outlet)

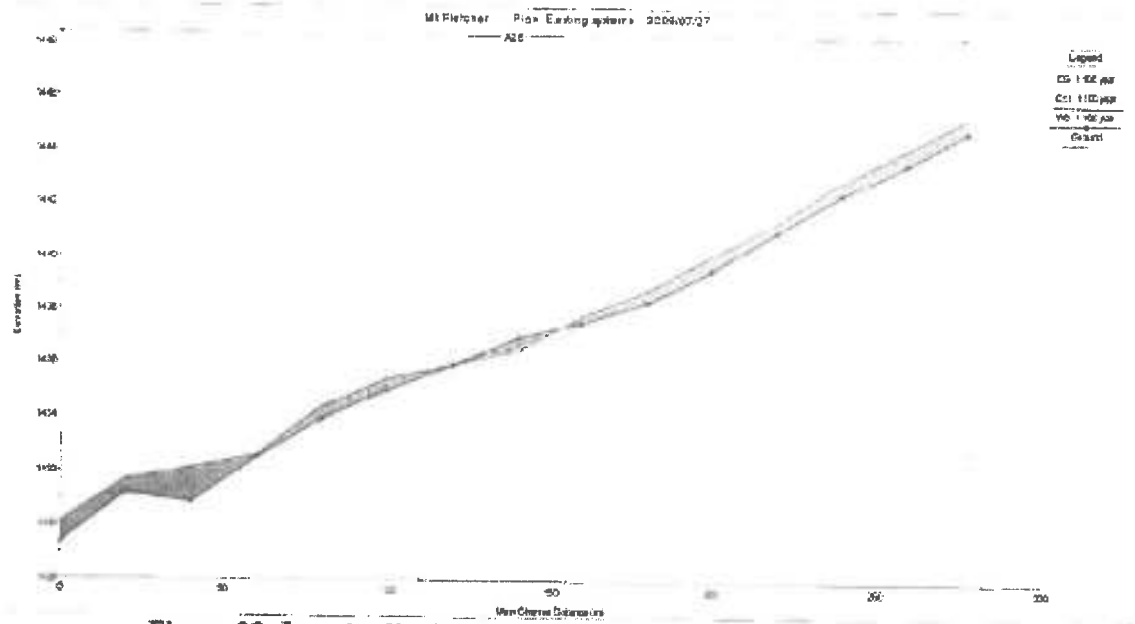

Figure 23: Longitudinal river profile, A2-6 (Q_{100} = 28,4 m³/s at outlet)

A typical cross section is shown in **Figure 24** (cross section 800 on River reach A2-4.1). Similar detail can be extracted for each cross section if required. Please note the vertical left side in **Figure 24** which is a conservative assumption which the software makes when the entered cross sections does not extend high enough vertically on either side.

As can be seen the flow is subcritical in the river at this cross section since the water surface is above the dotted red line (critical line). The green line is the energy grade line (or total energy line). The reason for the subcritical flow regime is the damming effect of the culvert system at cross section 620 (River reach A2-4.1).

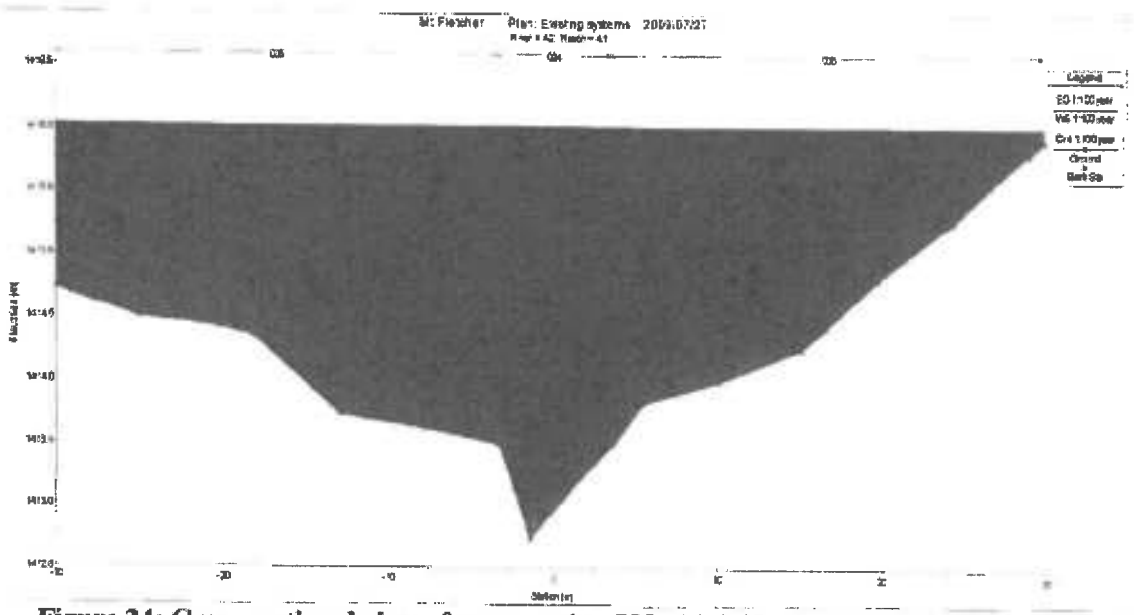

Figure 24: Cross sectional view of cross section 800, A1-1 (Q_{100} = 50,6 m³/s at this point)

The culvert system at cross section 620 on River reach A2-4.1 is overtopped during the 1:100 year flood peak. It is also overtopped during the 1:5 year flood peak which is equal to 17,2 m³/s with only ±13,1 m³/s passing through the culverts (see **Figure 25**). Some attenuation in the upper reaches might result in this not occurring as frequently as found in the hydraulic model analysis.

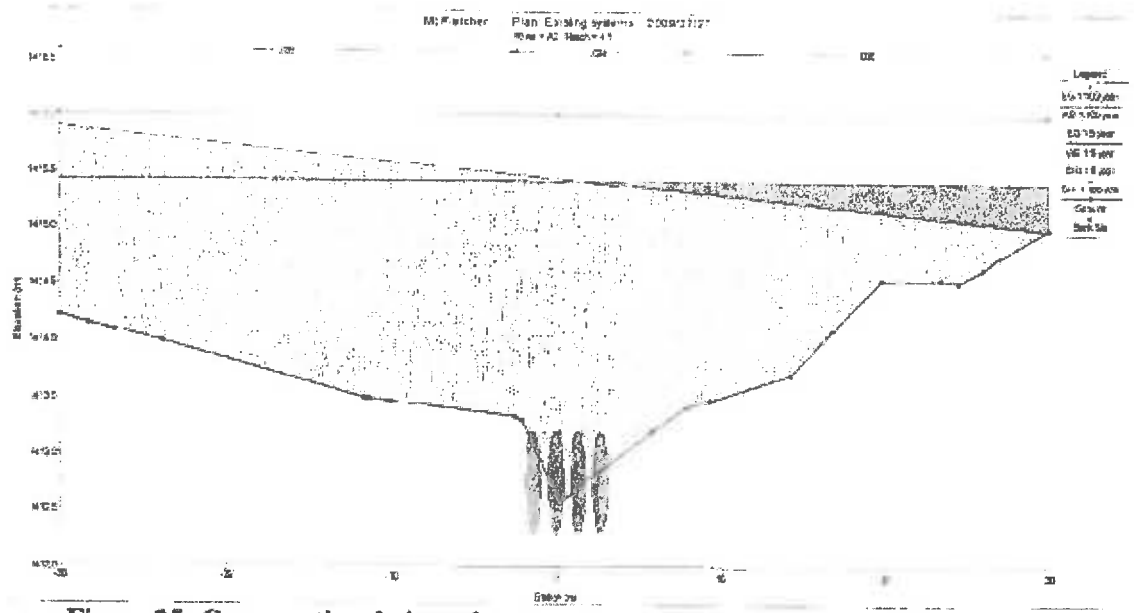

Figure 25: Cross sectional view of cross section 620, A1-1 (Q_{100} = 62,1 m³/s at point)

As can be seen in the XYZ-perspective plot shown in **Figure 26** the 1:100 year recurrence interval flood does not always remain in the main channel (in between the red lines, which are the edges of the channel) and the effect of damming upstream of the culvert system (A2-4.1, cross section 620).

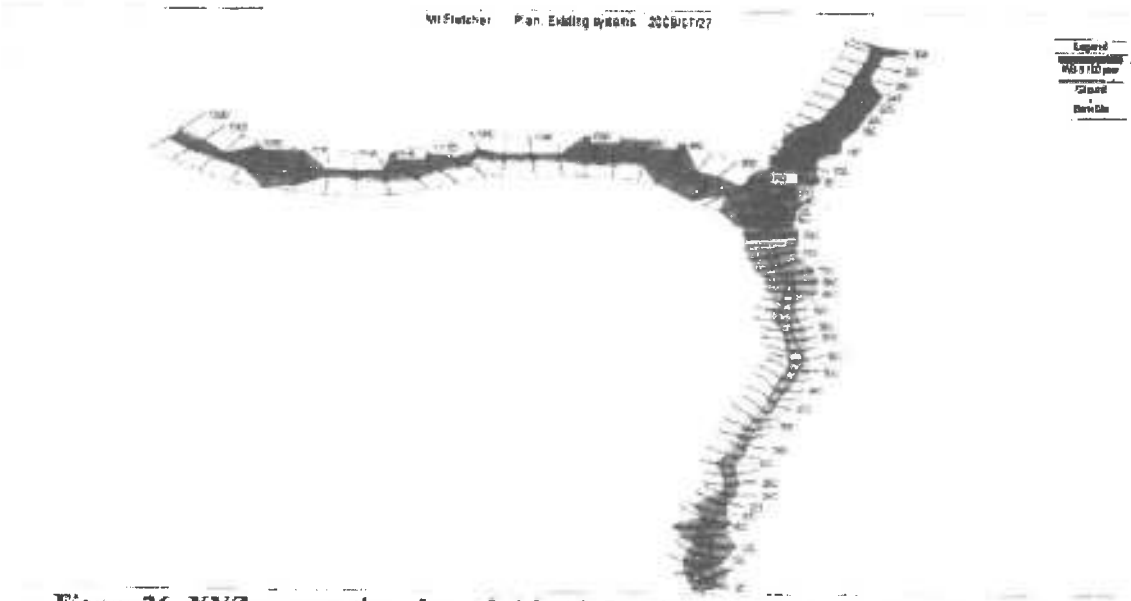

Figure 26: XYZ perspective plot, A2-4.2, A2-5 and A2-4.1 (Q_{100} = 57,8 m³/s at outlet)

Figure 27: Longitudinal river profile, A2-4.2 to A2-4.1 (Q_{100} = 57,8 m³/s at outlet) – Damming at culvert system

5.3.3 Analysis for river in Catchment A3

The third analysis was conducted for the single stream of catchment A3. The longitudinal profile is shown in **Figure 28** below for the 1:100 year recurrence interval event. As can be seen the flow regime changes in the rivers between super- and subcritical flow at a number of points in the river although it is predominantly flowing supercritical. **Table D3** in **Appendix D** provides the complete set of results of the performed analysis.

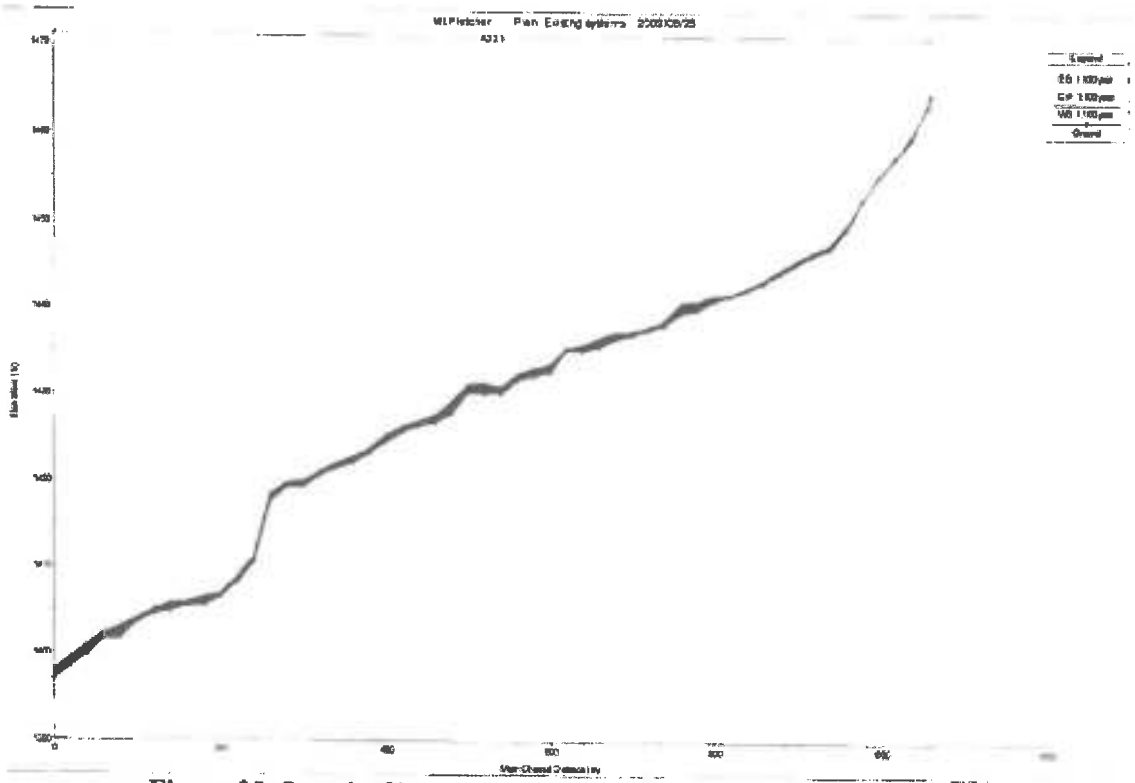

Figure 28: Longitudinal river profile, A3-3.1 (Q_{100} = 26 m³/s at outlet)

A typical cross section is shown in **Figure 29** (cross section 480 on River reach A3-3.1). Similar detail can be extracted for each cross section if required. As can be seen the flow is supercritical in the river at this cross section since the water surface is below the dotted red line (critical line). The green line is the energy grade line (or total energy line). This energy grade line would be a conservative indication of the anticipated flood line for the specific return period flood.

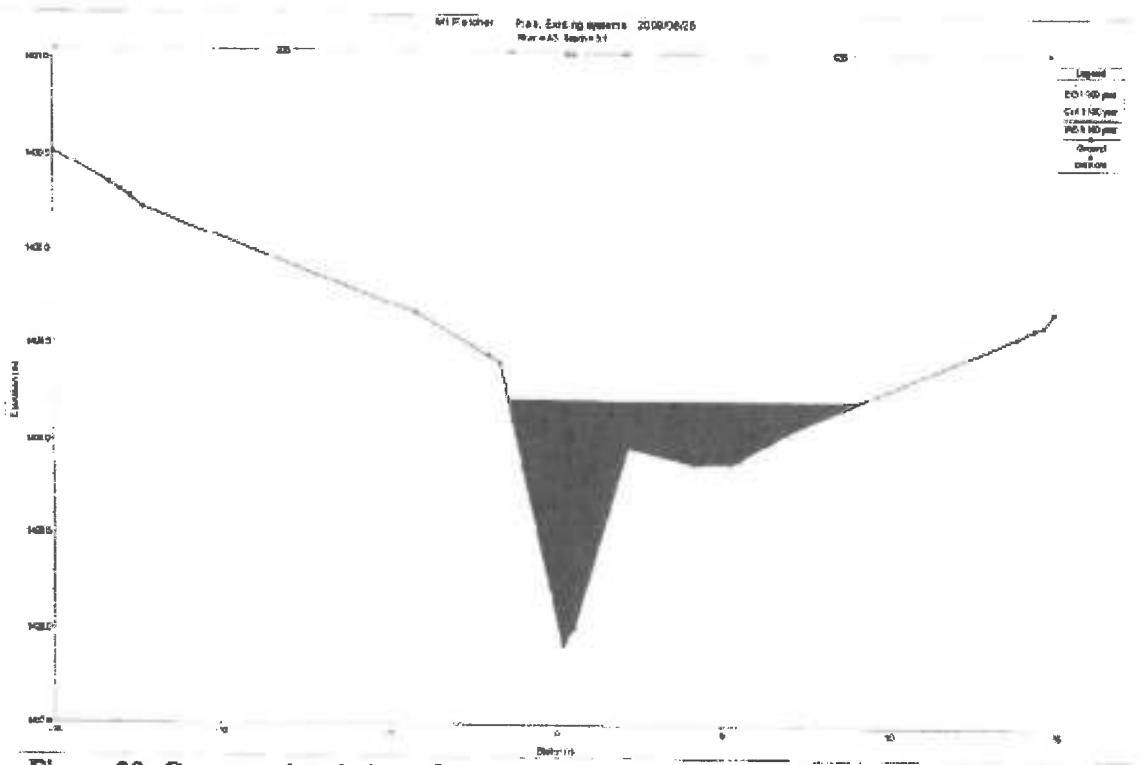

Figure 29: Cross sectional view of cross section 480, A3-3.1 (Q_{100} = 20,1 m³/s at this point)

No detail of any crossings was available for this river reach.

As can be seen in the XYZ-perspective plot shown in **Figure 30** the 1:100 year recurrence interval flood does not always remain in the main channel (in between the red lines, which are the edges of the channel).

Not all cross sections form defined channels as shown in the typical example in **Figure 29**. This is especially true in the upper reaches of the stream were the stream is not as clearly defined (see **Figure 31**).

Figure 30: XYZ perspective plot, A3-3.1 (Q_{100} = 26 m³/s at outlet)

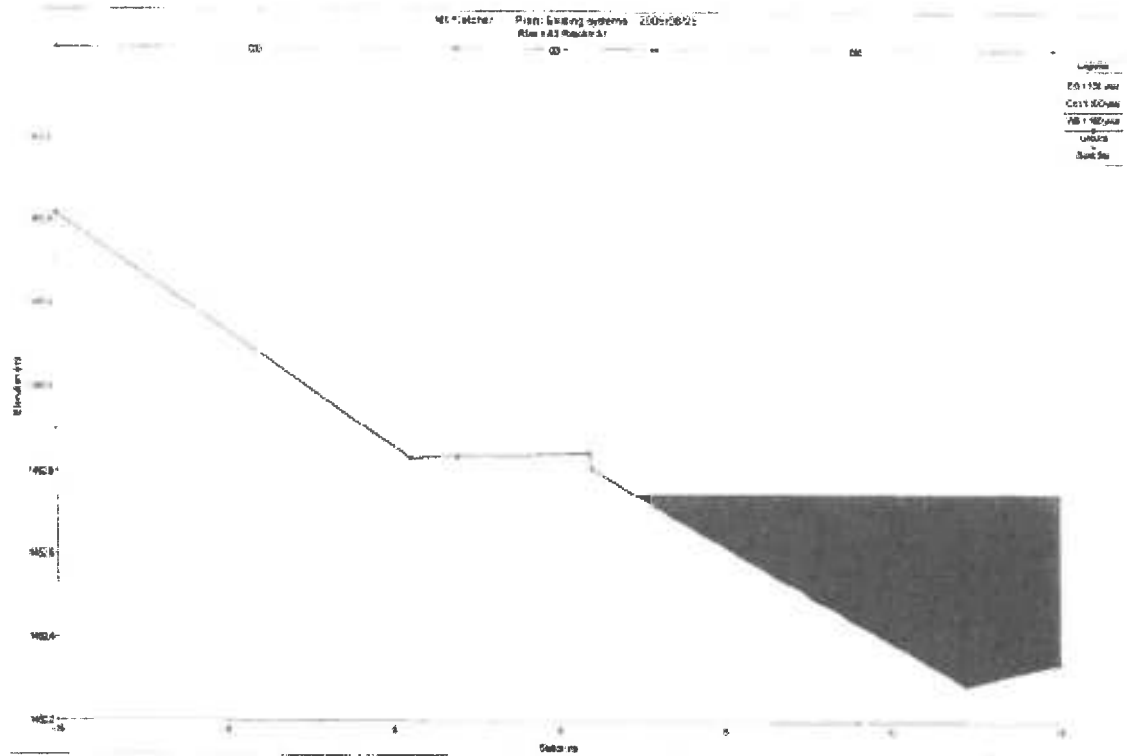

Figure 31: Cross sectional view of cross section 980, A3-3.1 (Q_{100} = 14,2 m³/s at this point)

6. CONCLUSIONS & RECOMMENDATIONS

The report summarizes the hydrological and hydraulic analyses of the rivers and streams for the Mt Fletcher Housing Development which flows to the Tokwana River as indicated in **Figure 3**. The following conclusions could be made based on one dimensional flow and the deterministic calculation procedure for flood calculations:

- The flood peaks for each of the streams and rivers were determined and this is summarized in **Table 6**.
- The 1:100 year flood was used to determine the water surface profile in the rivers and streams. Results provided in **Appendix D** allows for the setting up of a flood line since the water level at each cross section is now established.
- The existing culvert systems cause damming upstream as can be seen on **Figures 15** and **23** and increasing the capacity of these could potentially reduce the upstream impact.
- No allowance was made for potential debris build-up at the culverts which could effect of the functioning of the culvert systems.
- The results reflect a one dimensional analysis of the river system and is based on a number of assumptions and theoretical formulae. The actual flow conditions and flow profiles could vary slightly.

.....
Prof SJ van Vuuren
25 August 2009

.....
Mr M van Dijk
25 August 2009

7. REFERENCES

1. Alexander, W.J.R. (2001). Flood Risk Reduction Measures incorporating Flood Hydrology for Southern Africa. S.A. National Committee on Large Dams. Pretoria.

2. Adamson, P.T. (1981). Southern African Storm Rainfall. Department of Water Affairs and Forestry. Technical Report No. TR102. Pretoria.

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ANNEXURE E

Infrastructure Report

ELUNDINI LOCAL MUNICIPALITY

THEMBENI TOWNSHIP ESTABLISHMENT: INFRASTRUCURE ASSESSMENT

CONTRACT NO.: ELM-3/005/2011-2012

TECHNICAL REPORT

FEBRUARY 2015

Revision 1.0

EMPLOYER

ELUNDINI LOCAL MUNICIPALITY
CHRIS HANI DISTRICT MUNICIPALITY
1 SELLER STREET
MACLEAR
QUEENSTOWN
5480
Tel : 045928100

EMPLOYER'S AGENT

11 ST LUKES ROAD
SOUTHERNWOOD
EAST LONDON
5201
P.O. Box 2592, Beacon Bay
Tel 043 742 3323.
FAX: 043 742 3323

TABLE OF CONTENTS

1. INTRODUCTION

Hekima projects was appointed upon successful tendering to prepare a technical report for infrastructure at the Thembeni planned settlement within Mount Fletcher town. The scope originally involved the bulk services (roads, water supply, and Sanitation. During the inception meeting held in December 2012, it was realised that a planner was required to develop the plans required for township establishment before engineers can look at infrastructure. A planning consultant was subsequently appointed and has now completed with the planning work, and is awaiting the engineering component to submit the reports for registration of the township.

In a subsequent inception meeting held on the first of July 2014 at Maclear with the client's representatives, it was agreed that the scope should be looked at to include reticulation services, and that a preliminary report should be submitted by Thursday 10 July 2014 for discussion in meetings to be held then.

This report details the status quo of the infrastructure services, with proposed options

The settlement, as currently planned comprises of 1163 housing sites, three church sites, two(2) clinic site, two(2) business sites, one(1) school, and one(I) sports field site, with a number of public open spaces.

2. BACKGROUND INFORMATION

2.1 Location

Thembeni is located approximately 0.8km from Mount Fletcher on the way to Maclear to the left of the Main Road. The coordinates on the main road at the turnoff to the settlement are: 30° 41' 54.54" S; 28° 30' 35.61" E

The area is illustrated in the Google map below (Photo-1)

Photo-1: Location of Thembeni Housing Project site

2.2 Topography

The site is located on a ridge with altitude ranging from 1450m to 1553 m above sea level with gentle slopes at the top, and gentle to steep slopes on the sides. The Northern to South Eastern edge of the site have steep slopes.

2.3 Geology & Land cover

As per the preliminary Geotechnical investigation of the area, carried out in 2011 by AGES, the site is predominantly covered by a dolerite sill underlain by sedimentary rocks of the Molteno formation that forms part of the KAROO Supergroup. The soil resulting from weathering of the rocks Include: hillwash, comprising of slightly weathered boulder and cobbles, sandy clay to clayey silt displaying a firm to stiff consistency.

Outcrops of dolerite with mudstone country rock are expected in the area. The rocks occur at depths ranging from 0.3m to 1.0m below the ground surface.

The transported and residual soil is expected to have a moderate to high potential of expansiveness, with consolidation settlement, and dispersive characteristics

The site is basically covered by the invasive wattle forest with a few patches of sourveld grassland and bare rock.

2.4 Climate

2.4.1 Rainfall

The area falls in the summer rainfall region of the country receiving approximately 635mm of rain per year on average. The lowest rainfall

occurs in July (2mm), and the highest in January (117mm). Rainfall statistics are available from www.weathersa.co.za .

2.4.2 Temperature

The average highest mid-day temperatures range from 16°C in June to 25.5°C in January. Minimum temperatures in the winter months are normally low, with the lowest being July with an average temperate of 1.2°C at night.

3. DESCRIPTION OF EXISTING SERVICES

3.1 Existing Water Supply

There is currently a rudimentary supply serving household at the fringes of the proposed settlement area, which is currently predominantly covered by the invasive wattle tree forest. There is one borehole equipped with an electric pump that forms part of the borehole water supply that serves the Mount Fletcher Area

photo-2: Existing borehole at Thembeni, coordinates: 30°41'52.22"; 28°30'43.45"E

The Mount Fletcher area is served by a regional water scheme sourcing water from the Mount Fletcher dam and a number of boreholes within the area. The total population of 1103 people within Mt Fletcher town, and 29 360 people in the surrounding areas is served by this scheme as per the Joe Gqabi District Municipality's current Water Services Development Plan (WSDP).

Photo-3: Regional scheme reservoir across the R56 main road opposite the Thembeni site

3.2 SANITATION

The area is currently not serviced in terms of sanitation as it is largely unoccupied. The houses at the periphery of the site are serviced through VIP toilets. The rest of the town relies either on septic tanks, or VIP toilets.

A few areas, particularly the prison and hospital are connected to the rudimentary sewer reticulation with oxidation (stabilisation) ponds for the sewage treatment.

There are two sets of ponds on the North Eastern outskirts of the town. The effluent of the first system comprising of one primary pond and two secondary ponds was meant to be discharged into the second set comprising of seven ponds. Due to lack of maintenance, the effluent by-passes these second set of ponds and flows the natural water course (stream) as illustrated in the google earth map (photo-4)

Photo-4: stabilisation pond effluent flowing into the stream, bypassing the 2nd set of ponds

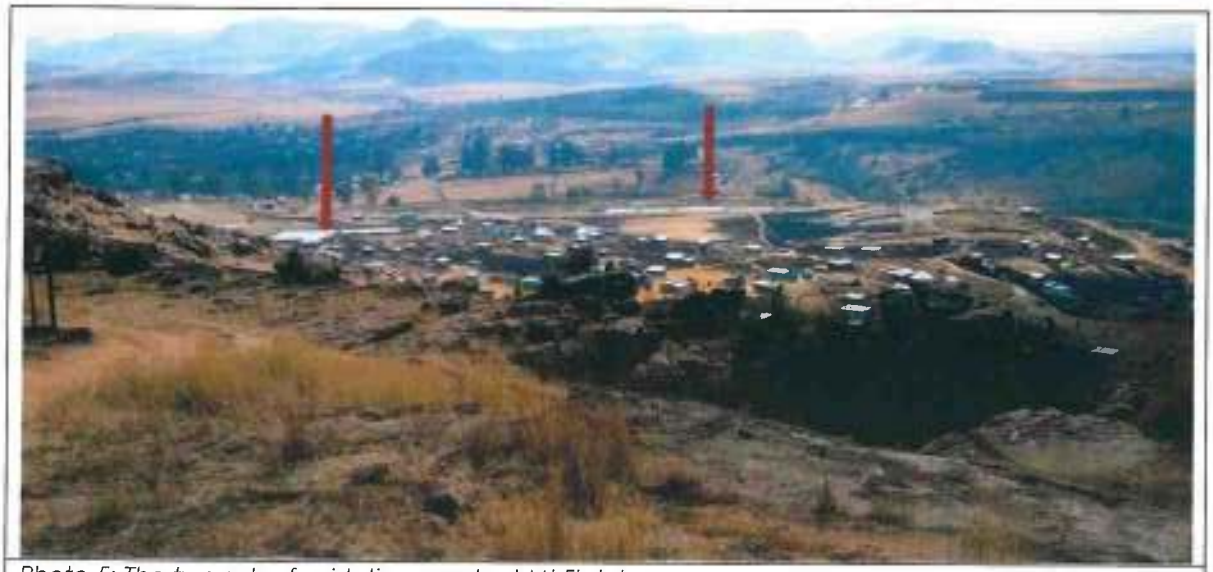

Photo-5: The two sets of oxidation ponds at Mt Fletcher

Photo-6: overflowing pond due to blocked outlet(set2 ponds)

Photo-7: Effluent from set 1 ponds that by-passes the set 2 ponds.

3.3 ROADS & STORMWATER

The access onto the site from the R56 Main road is a gravel access road up to the site where precast toilet structures are being manufactured. Beyond this, there are no roads in the site, except earth tracks.

Photo-8_ typical earth track through the site.

3.4 ELECTRICITY

There is supply at the site but the adequacy to cater for the increased demand and the Eskom plans for the whole of mount Fletcher should be established.

Photo 9: Electricity supply at Thembeni site

4.1 Water Supply

The following references, among others, were used as guidelines for the design of the water supply:

(a) Technical Guidelines for the Development of Water and Sanitation Infrastructure, second edition 2004, Department of Water Affairs and Forestry.

(b) Guidelines for Human Settlement Planning and Design, compiled under the patronage of the Department of Housing by CSIR Building and Construction Technology, 2000 (referred to as "The Red Book").

The reticulation system is to be made in such a way that it will incorporate rain water harvesting and storage while connected to the regional water scheme without much alteration.

The minimum pipe size for the water reticulation will be 50 mm nominal diameter.

Minimum Class 9 pipes will be installed due to structural considerations so that the integrity of the pipe will be maintained under varying loading conditions.

The pipeline materials will be HDPE (PE100) for diameters up to 63 mm, and uPVC for diameters greater than 63 out of cost considerations.

The entire system will have a number of isolating valves strategically placed to enable maintenance to be done on sections without interfering with the supply to the balance of the settlement, wherever possible.

Standpipes will perform the function of air valves and scour valves, where possible, and this will also aid in mitigating the negative effects of pressure surges / water hammer for the internal reticulation network.

No provision for fire-fighting is incorporated in the scheme.
A branched pattern (herringbone) reticulation will be adopted as opposed to a closed loop system to avoid dead ends where water may be trapped and go stale affecting the suitability of the water supplied.

4.1.1 Bulk Supply

Bulk supply is taken to mean the main line from the regional scheme to distribution reservoirs in the settlement.

Three options are considered, mainly for the distribution reservoirs.

4.1.1.1 One Ground Reservoir and One Elevated Tank

The first one involves the use of two reservoirs; a ground reservoir that serves the bulk of the area, and an elevated reservoir serving the sites that are at a higher elevations such it is not possible to serve them from the ground reservoir within the area. Both reservoirs will be fed by gravity from the regional water scheme.

4.1.1.2 One ground Reservoir and Two Elevated Tanks

The second option involves two elevated reservoirs, and a ground reservoir. The objective of this is to reduce the size of the single elevated reservoir, and the diameter of the main reticulation pipeline.

4.1.1.3 Roof Tanks with no storage reservoir in the settlement

The Last option is direct reticulation from the main gravity line with no storage tank in the village. Water is fed directly into 200 litre roof tanks in the houses which is approximately equal to 24 hour storage, with the other 24 provided by the balancing (command) reservoir. This is augmented by the rain water harvesting tanks. The rain water harvesting tanks may also be filled from the distribution line to increase the household storage to 48 hours

4.1.2 Population

The total population that will benefit from this project is estimated to be 1163 houses. Assuming an occupancy rate of 4 people per house (Joe Gqabi District municipality IDP, 2014/15) the population to be served will be 4652 people. This forms the design population, applying a zero percent growth rate as per the DWA guidelines (2004), which also agrees with the trends observed in the 2011 census, and the density of the planned settlement.

Table1: The population in settlement is as tabulated below:

	NO. OF HOUSEHOLDS	POPULATION
Thembeni	1163	4652

4.1.3 Reticulation

At the household level, each house shall be equipped with a jojo tank with a float valve for rain water harvesting. It will either be fed by the inlet pipe from the regional water scheme, equipped with a float valve to close when full, or from rainfall from the roof of the house.

An intermediate level of service is envisaged with a branch into the jojo tank in the yard, which is augmented by rain water in the summer when it rains, easing the pressure in the water supply system.

4.1.4 Recommended option

The option recommend for implementation is the use of one ground reservoir and two elevated reservoirs with rain water harvesting tanks in each yad to augment the supply. This option results in the use of smaller reticulation pipe sizes and improves water conservation as there will be minimal demand from the main system during the rain season.

4.1.5 Reservoir capacity estimation

Reservoir No	Description	Households served	No. of People/household	No. of People Served	Daily Demand, at 38l/p/day, Kl	Daily Demand, at 60l/p/day	16 hr Storage at 38l/p/d, including 1.2 SPDF, and 10% Losses, Kl	16 hr Storage at 60l/p/d, including 1.2 SPDF, and 10% Losses, Kl	Recommended Reservoir Size
1	Ground	710	4	2896	110	174	73	116	130
2	Elevated	264	4	1056	40	63	27	42	45
3	Elevated	175	4	700	27	42	18	28	30

4.2 SANITATION

The following references, among others, were used as guidelines for the design of the interim water reticulation:

(a) Technical Guidelines for the Development of Water and Sanitation Infrastructure, second edition 2004, Department of Water Affairs and Forestry.

(b) Guidelines for Human Settlement Planning and Design, compiled under the patronage of the Department of Housing by CSIR Building and Construction Technology, 2005 (referred to as "The Red Book").

(c) Smith. F (1993): *Guidelines for the Design, Operation and Maintenance of SEPTIC TANK EFFLUENT DRAINAGE SYSTEMS IN SOUTH AFRICA with reference to the Marcelle Case Study.* Report No. BOU/R9706. CSIR. 1997

(d) J. Otis, DD Mara (1985). *The Design of Small Bore Sewer Systems*: World Bank, Technology Advisory Group (TAG). 1985

(e) Gloyna EF (1971) *Waste Stabilisation Ponds*. World health Organisation(WHO). Monograph Series No.60. (WHO, 1971)

The options considered are as discussed in the following sections.

4.2.1 VIPs

VIP toilets may not be a suitable option in the settlement considering the density of dwellings in the settlement, the sizes of the proposed erven, the proximity of rock to the ground surface (0.3-1.0m from the ground surface), and the presence of a working borehole within the area that may be susceptible to pollution from the VIPs. This is to be confirmed through the ground water protocol that is going to be prepared (by others) under a separate appointment

4.2.2 Septic Tanks

Septic tanks require sizable areas for the construction of the septic tank, and the soak field/French drains. The surround soil should also have adequate permeability for the liquid effluent to percolate through and be naturally treated without polluting underground water resources, or the ground surface.

The size of the Yards and prevailing ground conditions renders the use of septic tanks unsuitable.

The septic tanks also need to be emptied periodically as they get filled up. The emptying service may not readily be available, which may lead to general pollution and health risks. This further rules out the consideration of septic tanks in this area.

4.2.3 Bio-digester/Small Bore sewer system

The bio-digester, and/or small bore sewer option is also not recommended considering that these have been replaced soon after construction in other areas due to its not functioning as expected (Ntabankulu LM is an example).

The system is basically an improved septic tank whereby solids settle and get digested on site (in an interceptor tank similar to the septic tank) with the liquid being conveyed to a sewage treatment plant (oxidation ponds for oxidation and stabilisation, or a conventional treatment plant) before being discharged to the environment or re-used for other purposes. Due to the lack of solids in the conveyance pipes, smaller diameters, with gentler slopes may be used.

The frequency of emptying the interceptor tanks for the small bore system makes it untenable as they get full and allow solids to get into the small bore sewerage pipes that are not designed for self-cleansing, hence clogging them.

The minimum recommended diameter of pipe of 110mm (Otis & Mara) makes the cost to be comparable to that of a conventional system.

Further, the materials used for anal cleaning contribute to the sustainability of the small bore sewer system. This can be a cause of unsustainability, especially in a low income environment where toilet pare that easily disintegrates cannot readily be purchased.

4.2.4 Conventional sewer system

The full water borne system would be the most appropriate for this area. The District Municipality (The Water Services Authority (WSA), and Provider (WSP) has however raised concerns with the water supply and sewage treatment facilities within the Local Municipality.

There are plans to dredge the Mount Fletcher dam to increase the storage to cater for the increased demand.

The option recommended is that of a full water borne system with a package sewage treatment plant to treat the estimated flow with capability for upgrading to cater for increased flow.

4.3 Roads

Three options are considered for constructing the roads as follows:

4.3.1 All-weather gravel wearing course.

This will be the cheapest option on the short term, in terms of construction. However maintenance and the economic cost of this option might be more expensive in the long run. It is also not advisable due to dust in a densely populated area.

4.3.2 Bituminous surface roads

This will involve the construction of the subgrade, sub-base, base and bituminous surfacing layers. While it is a commonly selected option in many areas, it is an expensive option, more so when it comes to maintenance.

4.3.3 Paving brick surface roads

In this option, the subgrade, and sub-base layers are constructed conventionally, with the interlocking bricks forming the base and surfacing of the road. These are normally constructed (packed) by labour on a thin layer of sand on the completed sub-base.

The paving bricks may be manufactured locally on site, thus creating further employment. There is currently a project on the site manufacturing pre-cast concrete VIP toilet structures supplying the VIP sanitation projects in the surrounding areas. This can be extended to manufacture the paving bricks required for the roads.

Maintenance of the block-paved roads is also an easy exercise that can be carried out by local labour with minimal supervision.

Photo 10: VIP toilet pre-cast concrete structures being manufactured at the Thembeni site.

5 SCOPE OF WORKS AND SERVICES

5.1 General criteria for Water Supply

-Design Water Demand	:	38 ℓ / c / day for reservoirs
-General guideline	:	0.6 m/s – 1.2 m/s
-Min. for treated water	:	0.3 m/s, where possible
-Max. under DPFR	:	1.5 m/s for reticulations
-Max. under design flow	:	3.0 m/s for bulk pipelines
-Max. under scour	:	5.0 m/s
-Minimum residual pressure	:	5 m minimum under instantaneous peak demand at point of delivery, where possible.
-Desirable residual pressure	:	20 m
-Maximum static head	:	Shall not be greater than 90 m, but to be kept lower where possible to reduce water losses.
-Slope of pipes	:	Steeper than 0.3% to avoid air pockets.
-Provision of Standpipes	:	Each household must be within a 200m for communal stand pipes
-Position of pipes	:	All water mains to be laid at least 1.0 m from household boundaries unless otherwise indicated.
-Cover to pipes	:	All water mains to be laid to provide cover to crown of pipe for pipes sizes up to and including 110mm diameter minimum cover of 1.0 m under roadways and 0.8 m cover elsewhere. Pipe sizes 125 mm diameter to 250 mm diameter: 1.2 m cover
-Minimum trench width	:	450 mm
-Bedding and backfill	:	According to SANS 1200 LB
-Water meters	:	To be placed on each outlet pipe exiting from a reservoir.

: To be placed on at each yard connection

5.2 Water Supply

The scope of works is divided into bulk services and reticulation.

5.2.1 Bulk water supply

5.2.1.1 Bulk pipelines

The bulk services include pipeline to convey water from the treatment works to the reservoir within the settlement area, complete with the reservoirs.

The bulk gravity main will comprise of 1680m of pipeline (uPVC), with some short sections of steel where rocks persist on the ground. The pipeline connects to the one supplying the 2.1Ml main town reservoir in the village opposite the study area. This line gets water from the command reservoir (balancing reservoir) near the treatments works at Mount Fletcher dam. The permitted draw-off from the dam is 86 l/s, but is currently supplying 62.9 l/s at peak demand. The settlement will add approximately 3.3 l/s draw-off.

5.2.1.2 Reservoirs

The option recommended for implementation is the one with one ground tank, and two elevated tanks at different parts of the settlement. The option recommended results in the least diameter of reticulation pipes, hence lowest cost, especially when the cost of the reservoirs is eliminated from the equation.

The reservoirs should be sized to provide a 48 hour storage capacity in the settlement with a demand of 60 l/p/d including the peak demand factor (2.5) and the losses factor (10%).

The main reservoirs are to provide storage of 16 hours, while the rest comes from the yard tanks, which will also be used for rain water harvesting.

The Reservoirs are sized as tabulated below:

Reservoir No	Description	Households served	No. of People/household	No. of People Served	Daily Demand, at 38l/p/day, Kl	Daily Demand, at 60l/p/day	16 hr Storage at 38l/p/d, including 1.2 SPDF, and 10% Losses, Kl	16 hr Storage at 60l/p/d, including 1.2 SPDF, and 10% Losses, Kl	Recommended Reservoir Size
1	Ground	710	4	2840	108	170	72	114	130
2	Elevated	264	4	1056	40	63	27	42	45
3	Elevated	175	4	700	27	42	18	28	30

Jojo tanks , that will also double up as rain water harvesting tanks will be used to increase the storage to an excess the recommended 48 hours. Each of the yard tanks will be one kilolitre in capacity, which equates to 76 hours of storage for a household of four occupants at a demand of 60 l/p/d. This thus gives room for reduction of the main reservoir sizes if necessary.

The design of the reservoirs will be done as listed below:

- The reinforced concrete reservoirs will be designed to a 0.2 mm crack width using 40MPa concrete in accordance with BS8007.
- The reinforced concrete reservoir will be complete with a reinforced concrete roof.
- Storage capacity of the reservoir will provide for sludge accumulation and a scour valve will be provided. The scour pipe will be separate from the inlet or the outlet pipe.
- Submerged valves and fittings will be avoided where possible.
- There will be no pipe work below the reservoir floor.
- A screen will be installed at the outlets of the reservoir.

5.2.2 Water reticulation

Reticulation services include the pipelines from the from the main bulk gravity line from the balancing tank to the distribution reservoirs. The rest of the reticulation involve the lines from the distribution reservoirs to the yard tanks the (1.0 Kl jojo tank that will also be used for rain water harvesting tank). At a demand of 60 l/p/day, the yard storage for 1kilolitre jojo tank is approximately 75 hours for an occupancy rate of four people per household.

The items discussed below equally apply to the bulk pipeline as well as the reticulation pipelines.

5.2.2.1 Isolating Valves

- To be placed such that a maximum of 4 valves need to be closed to isolate a section of pipeline.
- To be placed at all pipeline intersections in the branch pipeline and main pipeline.
- Where pipes intersect, isolating valves should generally be installed in the smaller-diameter branches.
- To be placed so that the length of main included in an isolated section does not exceed, where possible, 600 metres.
- To be placed at each Standpipe.
- To be mounted with flange adapters to aid in removal.

5.2.2.2 Air Release/Intake Valves

- To be placed on summits of main and bulk pipelines.
- To be placed upstream and downstream of isolation valves on ascending and descending pipeline slopes, respectively.
- To be placed along a main pipeline so that the minimum distance between air valves is 600 meters.
- Each air valve assembly is to have a separate isolating valve on each air valve branch for maintenance purposes.
- The diameter of the air valve branch below the air valve is to be as follows:
  - For a pipeline of diameter ≤ 200 mm: Install an equal T-piece below the air valve.
  - For a pipeline of diameter > 200 mm: The air valve branch pipe must be as large as practically possible with a maximum air valve branch pipe diameter of 600 mm for all pipelines > 600 mm.

5.2.2.3 Scour Valves

- To be placed at all low points so as to drain the pipeline when required.
- To be so sized that the section of pipeline between two isolating valves can be drained within 2 hours.
- The diameter of the drainpipe to be 0.4 to 0.6 times the diameter of the main pipeline but should be an equal T-piece for pipelines of nominal diameters ≤ 200 mm.

5.2.2.4 Valve Chambers

- To be provided for all valves.
- To be of robust construction.
- To be properly ventilated with vermin proof fixed PVC/GMS or 3CR12 louvered ventilators.
- To have a sufficient working space for the removal of bolts, where applicable.
- The cover of the valve chamber to be 700 mm above ground level,

where possible, and should be of a hinged and non-removable type to allow for the removal and replacement of the valve.

- To be provided with a sump for dewatering.
- To be secure against vandalism.

5.2.2.5 Thrust blocks and anchors

- Coupled/Joined pipelines will be anchored at:
  - All changes of direction, whether vertical or horizontal, greater than 10 degrees.
  - At changes in pipe size.
  - At slopes steeper than 1:6.
  - At blank ends.
- The anchor blocks will be large enough to:
  - Provide sufficient friction and bearing forces between the anchor block and soil to balance the thrust force in any direction; and
  - Balance upward forces through the mass of the block/anchor.
- The pipe is to be embedded at least up to the centre line at bends.
- A flexible membrane is to be inserted between the pipe and the anchor block to prevent damage to pipes subjected to chafing.

5.3 SANITATION

5.3.1 ESTIMATION OF FLOW

The Red Book recommends a daily flow of 500 l/day per dwelling of 7 people With 1163 dwellings in the settlement, thus 286 l/dwelling/day for dwellings of low income with 4 people per dwelling as is the case for the project area. Therefore, the main sewer pipe will have a flow of:

286x1163 = 332618 l/d

= 332618/(24×60×60) = 3.85 l/s

Allowing for a peak flow factor of 2.5 and a 15% peak flow rate for extraneous flow, the design flow rate becomes:

3.85× 2.5×1.15 = 11.07 l/s

5.3.2 Sewer pipe diameter

Assuming the lowest gradient of the sewer of 1 in 120 to have the minimum allowed flow velocity of 0.7 m/s for self-cleansing; the minimum diameter recommended for sewer pipes of 100mm will suffice. As part of integrated design, consideration should be made in using larger diameter pipes at the lower reaches of the sewer in anticipation of more connections from the town.

5.3.3 Package sewage treatment plant

A number of suppliers of package treatment plants were contacted. However, no tangible feedback could be obtained except from Scarab Treatment Systems.

The available information on their package plant is attached as an annexure to this report.

5.3.3.1 Siting of the package plant

The site for the package plant has been tentatively sited to the North East of the settlement subject to confirmation of the suitability of the site through a the Environmental impact assessment process, particularly with respect to prevailing wind direction, distance from the settlement, and from natural water resources.

5.4 ROADS

The main bus route will be made 7.0m wide and the internal streets will range from 5 to 6.0 m in width. All of them will be concrete block paved with a concrete edging or kerbing with adequate visibility splays. The

Design speed limit for ranges from 60km/h to 30 km per hour due to space limitations taking cognizance of the fact that the area will also be a densly populated residential area.

The total length of the main road is approximately 4.5km, and the internal streets add up to approximately 10km

The total surface area of paving will be 90700 m2.

6. DOCUMENTATION

6.1 TENDER RULES AND TARGETED PROCUREMENT

The standard Elundini Municipality Supply chain Management regulations shall apply.

6.2 CONDITIONS OF CONTRACT

The General Conditions of Contract, for the Works of Civil Engineering Construction (2010), as recommended by the South African Institution of Civil Engineers (SAICE), the Consulting Engineers South Africa (CESA) and the South African Federation of Civil Engineering Contractors (SAFCEC) will be applied.

6.3 STANDARD SPECIFICATIONS

The SANS 1200 Standardized Civil Engineering Construction Specifications shall form part of the Contract.

6.4 FEATURES REQUIRING SPECIAL ATTENTION

6.4.1 Safety Regulations

The Contractor shall at all times ensure that his operations do not endanger any member of the public.
As the works are close to residential areas the Contractor shall take special precautions to prevent public access to any danger areas on the Works, eg. by temporary barricades and/or fencing.

Open excavations and other hazardous conditions on site shall be barricaded and precautions shall be taken to protect the public from the same in terms of the Occupational Health and Safety Act Construction Regulations 2013.

No additional payment will be made in this regard and any costs incurred by the Contractor in ensuring that the technical requirements of these clauses are met shall be deemed to be included in the tendered rates. However, separate payment will be made for the Contractor's compliance with the administrative requirements set out in the Employer's Occupational Health and Safety Specification for Construction, as shall be detailed in the relevant Particular Specification PA of the contract Document.
The Contractor shall direct, control, facilitate and safeguard all traffic during construction of the Works, provide all notices, and arrange for watching and lighting in accordance with the requirements of the relevant authorities.

6.4.2 Survey Beacons

Any survey pegs will be indicated to the Contractor. The Contractor shall be solely responsible for the protection of survey pegs.

6.4.3 Labour Intensive Construction

The work renders itself suitable for labour intensive construction and should be implemented as such.

7 COST ESTIMATE

8.1 CONSTRUCTION COST

The total construction cost is estimated as 57867461.05 broken down into the various components as tabulated below with the full bills of quantities attached as annexures to this report.

8.1.1 Water supply

SECTION	DESCRIPTION	AMOUNT
1	**RETICULATION**	
(a)	Preliminary & General	847 300.00
(b)	Earthworks (Pipe Trenches)-Reticulation	3 044 053.47
(c)	Medium Pressure Pipelines	5 960 704.55
(d)	Bedding	259 745.06
	Sub-Total	**10 111 803.09**
2	**BULK LINE**	
(a)	Earthworks (Pipe Trenches)	613 766.89
(b)	Medium Pressure Pipelines	87 301.50
(c)	Bedding	32 671.55
	Total	**733 739.94**
3	**RESERVOIRS**	
3.1	130KL Reservior	488 217.36
3.2	Pressed steel Elevated Tank :45KL	213 500.00
3.3	Pressed steel Elevated Tank :30KL	199 525.00
4	**SUB-TOTAL 1**	**11 746 785.39**
5	CONTINGENCIES 10%	**1 174 678.54**
6	**SUB-TOTAL 2**	**12 921 463.93**
7	**Add 14% Value Added Tax**	**1 809 004.95**
8	**TOTAL**	**14 730 468.88**

8.1.2 sanitation

SECTION	DESCRIPTION	AMOUNT
1	**RETICULATION**	
(a)	PRELIMINARY AND GENERAL	1 314 870.00
(b)	TRENCH EXCAVATION	1 130 292.50
(c)	Bedding of Pipes	138 875.00
(d)	MEDIUM PRESSURE PIPELINES	325 300.00
(d)	Manholes	509 408.00
(e)	erf Connection	498 819.00
	Total	**3 917 564.50**
2	**BULK LINE**	
(a)	TRENCH EXCAVATION	327 160.00
(b)	MEDIUM PRESSURE PIPELINES	726 835.00
(C)	Bulk Sewr manholes	73 536.00
(d)	BEDDING (PIPES)	176 584.50
	Total	**1 304 115.50**
3	**Oxidation Pond Rehabilitation**	**3 243 769.76**
4	**SUB-TOTAL 1**	**8 476 624.76**
5	CONTINGENCIES 10%	**847 662.48**
6	**SUB-TOTAL 2**	**9 324 287.24**
7	**Add 14% Value Added Tax**	**1 305 400.21**
8	**TOTAL**	**10 629 687.45**

8.1.3 Roads

SECTION	DESCRIPTION	AMOUNT
1	PRELIM & GENERAL	R 1 116 250.00
2	ERTHWORKS	R 989 570.07
3	DRAINAGE	R 5 274 051.20
4	SUBBASE	R 610 663.75
	SEGMENTAL BLOCK PAVING	R 19 457 329.38
6	**SUB-TOTAL 1**	R 27 447 864.40
7	ADD 10% CONTINGENCIES	R 2 744 786.44
8	**SUB-TOTAL 2**	**R 30 192 650.84**
9	ADD 14% VALUE ADDED TAX	R 4 226 971.12
10	**Total Amount to form of OFFER**	**R 34 419 621.95**

8.2 FEES

The fees is estimated at an average 10% of the construction cost including additional service and disbursements, giving a total of R5 977 977.81.

8.3 OVERAL ESTIMATED BUDGET

The preliminary estimate of the overall budget is R 65 757 756.12

ANNEXURES

1 Bills of Quantities
2 Book of Drawings.
3 Details of Sewage package plant

Water Supply BOQ

Sanitation BOQ

Access Roads BOQ

ANNEXURE F

Comments

JOE GQABI
DISTRICT MUNICIPALITY

cnr Cole & Graham Streets
Private Bag X102
Barkly East, 9786

An improved quality of life for all residents

Tel : (045) 979 3000
Fax: (045) 971 0251
www.jgdm.gov.za

Our Reference	: 16/5/R/Ext3Erf318
Date	: 20 January 2020
Enquiries	: Sicelo Pongoma
E-mail	: sicelop@jgdm.gov.za
Contact details	: 045 979 3000/ 3141

The Municipal Manager
Elundini Local Municipality
P.O. Box 1
Maclear
5480

Dear Mr K. Gashi

CC: Ms N. Eddie

FEEDBACK TO THE APPLICATION FOR SUBDIVISION AND REZONING REMAINDER OF ERF 318 IN MT FLETCHER

This letter serves as feedback on request for comments on the "*Application for Subdivision and Rezoning of Remainder of erf 318 Mt Fletcher*" dated July 2019.

The Joe Gqabi District Municipality is:

- A Water Services Authority (WSA) thus responsible for the provision of water supply and sanitation services within its area of jurisdiction as mandated by the Water Services Act (Act 108 of 1997). The function entails development, operations and maintenance of water and sanitation infrastructure.
- A Fire Authority as per Section 84(1) of the Municipal Structures Act (Act 117 of 1998);
- Implementing the National Health Act (Act 61 of 2003) and its regulations relating to Municipal Health Services; and
- Responsible for Disaster Management in terms of the National Disaster Management Act (Act 57 of 2002) in the region.

In terms of the aforementioned application, the outcomes of the District evaluation including the *extensive engagements with Elundini LM and the district's engineering opinion* of proposed subdivision and rezoning, and proposed development:

- Updating of the water supply and sanitation information on Page 12 of the report;
- The municipality and/or developer will be responsible for the construction of the internal water supply reticulation, storage and communal stand-pipes/ yard connections;
- The municipality and/or developer will also be responsible for the construction of the bulk and internal sewer network and associated infrastructure including the upgrade to the wastewater treatment works;

- Indication of the water demand of the total housing development;
- Approval of the specifications for water and sewer fittings, pipelines and other installations;
- Inclusion of fire hydrants in the layout and development of water infrastructure
- Evaluation and commenting on the building plans before the construction commences to ensure the incorporation of water, sewer and fire services requirements in line with the National Building Regulations; and
- The outcomes of the environmental impact assessment.

Based on the above issues and recommendations, the Joe Gqabi District Municipality does not object to the application for the subdivision and rezoning of erf 318 in Mt Fletcher and would request the consideration, incorporation and feedback on the above conditions, measures and corrections.

All enquiries regarding the contents of the letter can be directed to Mr. Sicelo Pongoma at 045 979 3000/3141 or 060 555 8506.

Yours faithfully

Z.A.WILLIAMS
MUNICIPAL MANAGER

Joe Gqabi Regional Office
P/Bag x 1016, Aliwal North, 9750
Enquiries: Mihlali Kambi

Attention: Mr. Johan Jonas

Umhlaba Consulting

P.O Box 19017

Tecoma

5214

Fax No: 043 721 1554

PER FACSIMILE

11 November 2019

Dear Sir

Re: Re-layout plan for Mount Fletcher Ext. 3

The Department confirms having received the inquiry for the above-mentioned project. Please be advised that if the proposed project was part of the scope for the Environmental Authorization that was issued on the 19 October 2010 for a Township Establishment, there is no new environmental authorization that will be required, however if the proposed project triggers any listed activities In terms of 2014 Environmental Impact Assessment (EIA) Regulations as amended, a new EIA application must be submitted to the Department. If you have any queries with regards to this matter, please do not hesitate to contact the Department.

Yours Faithfully

.....

Thozamile Babane

Assistant Manager: EQM (Joe Gqabi Region)

11/11/2019

Date

THE SOUTH AFRICAN NATIONAL
ROADS AGENCY SOC LTD
Reg. No.1998/009584/06

Southern Region
Delivery Address: Block C, Southern Life Gardens, 70 Second Avenue, Newton Park, Port Elizabeth
Postal Address: P O Box 27230, Greenacres, South Africa, 6057
Tel +27 (0) 41 398 3200 Fax +27 (0) 41 398 3222

Our Ref:	**S11/2/1 (#504829V1)**	Your Ref:	
Date:	**25 June 2014**	Fax Number:	**+27 (0) 41 398 3222**
Enquiries:	**Mrs J Gouws**	Direct Line:	**+27 (0) 41 398 3226**
Email:	gouwsj@nra.co.za	Website:	**www.nra.co.za**

Creating wealth through infrastructure

Engineering Advice & Services (Pty) Ltd
P O Box 13867
HUMEWOOD
6013

Attention : Mr Cary Hastie

Dear Sir

THE SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED AND NATIONAL ROADS ACT, 1998 (ACT 7 OF 1998); PROPOSED ESTABLISHMENT OF THEMBENI TOWNSHIP IN MOUNT FLETCHER, ELUNDINI MUNICIPALITY: REVISED TRAFFIC IMPACT ASSESSMENT (TIA)

Your revised TIA dated February 2014 in this regard refers.

The recommendations as reflected in the TIA are acceptable and approved by SANRAL. All road network improvements to provide access to the proposed Thembeni Township (Figure 9) have to be submitted to SANRAL for consideration and all costs associated with these road network improvements will be solely for the Elundini Municipality.

Yours faithfully

Marlize Nel-Verwey
Acting on behalf of Mr M S Peterson
REGIONAL MANAGER : SOUTHERN REGION

ELUNDINI LOCAL MUNICIPALITY

NO. 1 CELLER STR. MACLEAR; P O BOX 1 MACLEAR, 5480

TEL. 045 – 932 8100; FAX. 045 – 932 1094/777; WEBSITE: www.elundini.org.za

ATTENDANCE REGISTER

MEETING : Presentation – Layout Plan for TISHP formalisation (Mbeki Loc)

VENUE : MT Fletcher Town HALL

DATE & TIME : 06 June 2019 @ 16h50

SURNAME & INITIALS	ORGANISATION	DESIGNATION	PHONE NO.	EMAIL ADDRESS	SIGNATURE
R. Maketela	Mbeki	Mhlali	0749411594	—	R. Maketela
N. Ngxongxela	Mbeki	11	0799372326	—	N.V. Ngxongxela
Mnqabe N.C.	Mbeki	Mhlali	0734196699	—	N.C. Mnqabe
[illegible]	[illegible]	11	[illegible]	—	[signature]
SIHLWAYI A	MBEKI	MHLALI	0784557236	Sihlwayia@gmail.com	[signature]
L. DUBE	ELM	Property D Officer	0459328159	lwandile@elundini.gov.za	[signature]
N.C [illegible]	ELM	Director	0458328804	nkambadoe@elundini.gov.za	[signature]

ELUNDINI LOCAL MUNICIPALITY

NO. 1 CELLER STR. MACLEAR; P O BOX 1 MACLEAR, 5480

TEL. 045 – 932 8100; FAX. 045 – 932 1094/777; WEBSITE: www.elundini.org.za

ATTENDANCE REGISTER

MEETING : Presentation - layout Plan For T/Ship Formalisation (Mbeki Loc)

VENUE : MT Fletcher Town HALL

DATE & TIME : 05 June 2019 @ 16 H30

SURNAME & INITIALS	ORGANISATION	DESIGNATION	PHONE NO.	EMAIL ADDRESS	SIGNATURE
Mzimkulu A	Mbeki	to town plan	0627707[illegible]	N/A	

ELUNDINI LOCAL MUNICIPALITY

NO. 1 CELLER STR. MACLEAR; P O BOX 1 MACLEAR, 5480

TEL. 045 – 932 8100; FAX. 045 – 932 1094/777; WEBSITE: www.elundini.org.za

ATTENDANCE REGISTER

MEETING : PRESENTATION - LAYOUT PLAN FOR T/SHIP FORMALISATION (MBEKI

VENUE : Mount Fletcher Town HALL

DATE & TIME : 05 June 2019 @ 16H30

SURNAME & INITIALS	ORGANISATION	DESIGNATION	PHONE NO.	EMAIL ADDRESS	SIGNATURE
N.T SALMAN	mbeki	mhlali	0735hs9907	—	
MADINA N	MBEKI	"	0761140417		
B. Mtimkhulu	mbeki	"	079 188 4703		
M. MPhithi	"	"	—	—	M. MPhithi
N. Mzimkulu	MBEKI	"	—	—	
C. Mqqq	MBEKI	"	0640845606	—	
Mndabe I.	MBEKI	Mhlali	0788569846	indimndabe@gmail.c	

ELUNDINI LOCAL MUNICIPALITY

NO. 1 CELLER STR. MACLEAR; P O BOX 1 MACLEAR, 5480

TEL. 045 – 932 8100; FAX. 045 – 932 1094/777; WEBSITE: www.elundini.org.za

ATTENDANCE REGISTER

MEETING : PRESENTATION – LAYOUT PLAN FOR T/SH FORMALISATION/MBEKILE

VENUE : Mount Fletcher Town HALL

DATE & TIME : 05 June 2019 @ 16H30

SURNAME & INITIALS	ORGANISATION	DESIGNATION	PHONE NO.	EMAIL ADDRESS	SIGNATURE
Mbambo.S	Mbheki	P. Head	- - -	- -	
Mdunusana.S	Mbheki	P. Head	—	—	
Z Lamla.	Mbheki	P. Head.	-	-	
T. Bilana	MBEKI		0736946691	-	
Mw MBANGI	MBEKI		0739509931	-	
M. MONGO	MBEKI		0724364995		
T.D MOHALE	MBEKI	SUB HEADMAN	0795238704	Mohale.75.gmail	

ELUNDINI LOCAL MUNICIPALITY

NO. 1 CELLER STR. MACLEAR; P O BOX 1 MACLEAR, 5480

TEL. 045 – 932 8100; FAX. 045 – 932 1094/777; WEBSITE: www.elundini.org.za

ATTENDANCE REGISTER

MEETING : PRESENTATION – LAYOUT PLAN FOR T/SHIP FORMALISATION (MBEKI)

VENUE : MOUNT FLETCHER TOWN HALL

DATE & TIME : 05 JUNE 2019 @ 16H30

SURNAME & INITIALS	ORGANISATION	DESIGNATION	PHONE NO.	EMAIL ADDRESS	SIGNATURE
NOMZOTHANDO SPELMAN	BHEKI	MHLALI	0603566517	—	N.S.
Ntombovuyo Nalletemi	MBheki	Mhlali	0783745514	—	N. Nalletemi
Phameki Nalletemi	MBheki	Mhlali	0782465069	—	P. Nalletemi
Motshebeletso Kwelakhe	MBeki	"	0799926764	—	MKK
Mbulelo Sgoko	Mbeki	"	071 925 210	—	M. Sgoko
Ndabo Mondoloti	Mbeki	"	0632722533	—	[illegible]
BONISILE YUNDISA	COMMUNITY	ISOLOMZI/MBEKI	082 626 8342	bonisile.yundisa@gmail.com	B. Yundisa

ELUNDINI LOCAL MUNICIPALITY

NO. 1 CELLER STR. MACLEAR; P O BOX 1 MACLEAR, 5480

TEL. 045 – 932 8100; FAX. 045 – 932 1094/777; WEBSITE: www.elundini.org.za

ATTENDANCE REGISTER

MEETING : Meeting with Mbeki Residents

VENUE : Mt Fletcher - Mbeki Location

DATE & TIME : 25 June 2019 @ 10h00

SURNAME & INITIALS	DESIGNATION	PHONE NUMBER	EMAIL ADDRESS	SIGNATURE
M. Spelman		5805105882085	0719997563	[illegible]
A LEKEPA ALFRED		6302275581085		AT Lekepa
LEKEPA MATINYANE		4508230129080		X
Nozombile Chuliwe		6602101090083	0762834431	N. Chuliwe
Nonkizeb mbomb				
Ngxongxela Lusindh		8805166009 86	060600456	[illegible]
Ngxongxela Lulama		1986	0787873454	[illegible]
Sihlwayi A		8703270999080	0767434180	[illegible]
Kolpati mcebisi		9301096661082	0625521844	K.M
Mbombo Nosisa		6502050268084		[illegible]
Spelman N. S				[illegible]

ELUNDINI LOCAL MUNICIPALITY

NO. 1 CELLER STR. MACLEAR; P O BOX 1 MACLEAR, 5480

TEL. 045 – 932 8100; FAX. 045 – 932 1094/777; WEBSITE: www.elundini.org.za

ATTENDANCE REGISTER

MEETING : 25 JUNE 2021 @ 10H00

VENUE : MT FLETCHER - MBEKI LOCATION

DATE & TIME : MEETING WITH MBEKI RESIDENTS

SURNAME & INITIALS	DESIGNATION	PHONE NUMBER	EMAIL ADDRESS	SIGNATURE
N.C Eddie	Director PSCD	045 932 1172	ntombizodwe@elundinigov.za	
NKALITSHANA N.	COUNCILLOR	0823050173	—	

ANNEXURE G

Motivation Report

MOTIVATION REPORT

Mount Fletcher Extension 3
Application for Subdivision and Rezoning
Remainder Erf 318 Mount Fletcher

ELUNDINI
MUNICIPALITY
IKAMVA ELIGAGAMBILEYO

July 2019

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ANNEXURE B	DEED OF TRANSFER T632/2002 Expropriation Ex 1379/74
ANNEXURE C	DIAGRAMS 4388/1948 6710/1951
ANNEXURE D	Hydrological & Hydraulic Study
ANNEXURE E	Engineering Report
ANNEXURE F	Environmental Authorisation

Application for In Situ Upgrade: Remainder Erf 318 Mount Fletcher Extension 3

1.0 PURPOSE OF THIS REPORT

Elundini Local Municipality has been instructed to formalise existing unstructured informal settlement on commonage land of mount Fletcher town, registered as Remainder Erf 318 Mount Fletcher.

This report provides supporting documentation and motivation in support of an application in terms of the Townships Ordinance, 33 of 1934 and the Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA).

2.0 BACKGROUND

A planning process was initiated in early 2009 to establish a mixed use extension, referred to as Extension 3, on this portion of Erf 318 Mount Fletcher. The application was finally submitted to the Township's Board in November 2010 and approved by the Provincial MEC in terms of Ordinance 33 of 1934. The approved Township was survey and a General Plan registered at the end of July 2014. Although some of the Government, Educational and Commercial erven were developed in line with the plan, the residential component was never formally implemented.

The residential component of Extension 3 is fully occupied by informal residential development that did not adhere to the approved plan. Due to this, the layout had to be redesigned to, whilst striving to accommodate existing structures, ensure that the use of land is optimised and that basic design principles for township layouts are adhered to.

3.0 VALIDITY OF THE APPROVAL

Searchers at the deeds office confirmed that no registration and transfer of any of the properties forming part of the general plan have taken place.

In terms of the provisions of Ordinance 33 of 1934, approvals for township establishment issued by the MEC laps if a single erf forming part of the township is not registered within 2 years of the approval.

It is therefore accepted that the land use development approval for establishment of Extension 3 is no longer valid.

4.0 LOCALITY

Mount Fletcher is situated in the North eastern extent of Elundini Municipality and serves as an important commercial and administrative service centre to a wider rural hinterland.

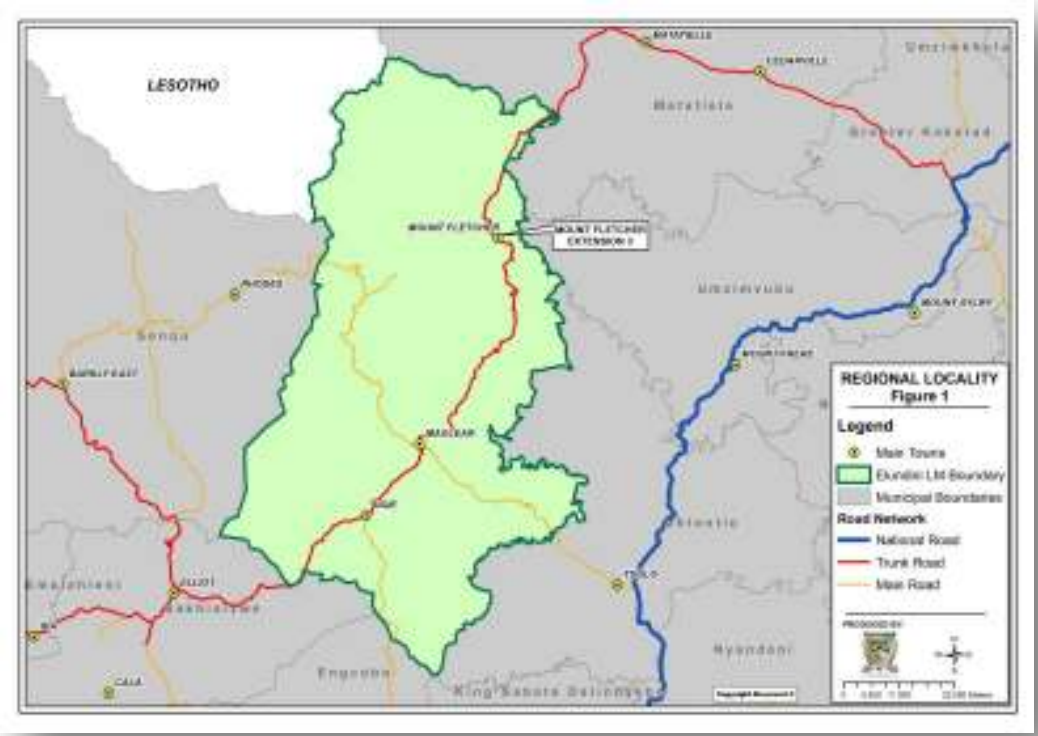


Figure 1: Regional Locality

The focus area of this planning process is on an area to the immediate east of the central business district of the town.

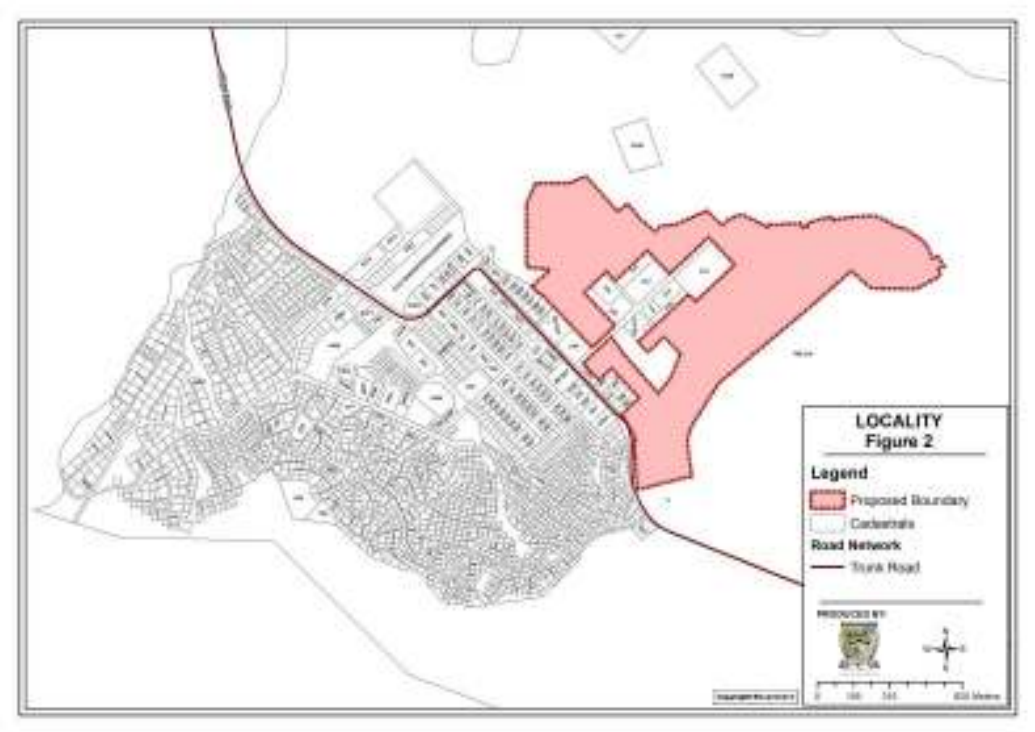


Figure 2: Locality

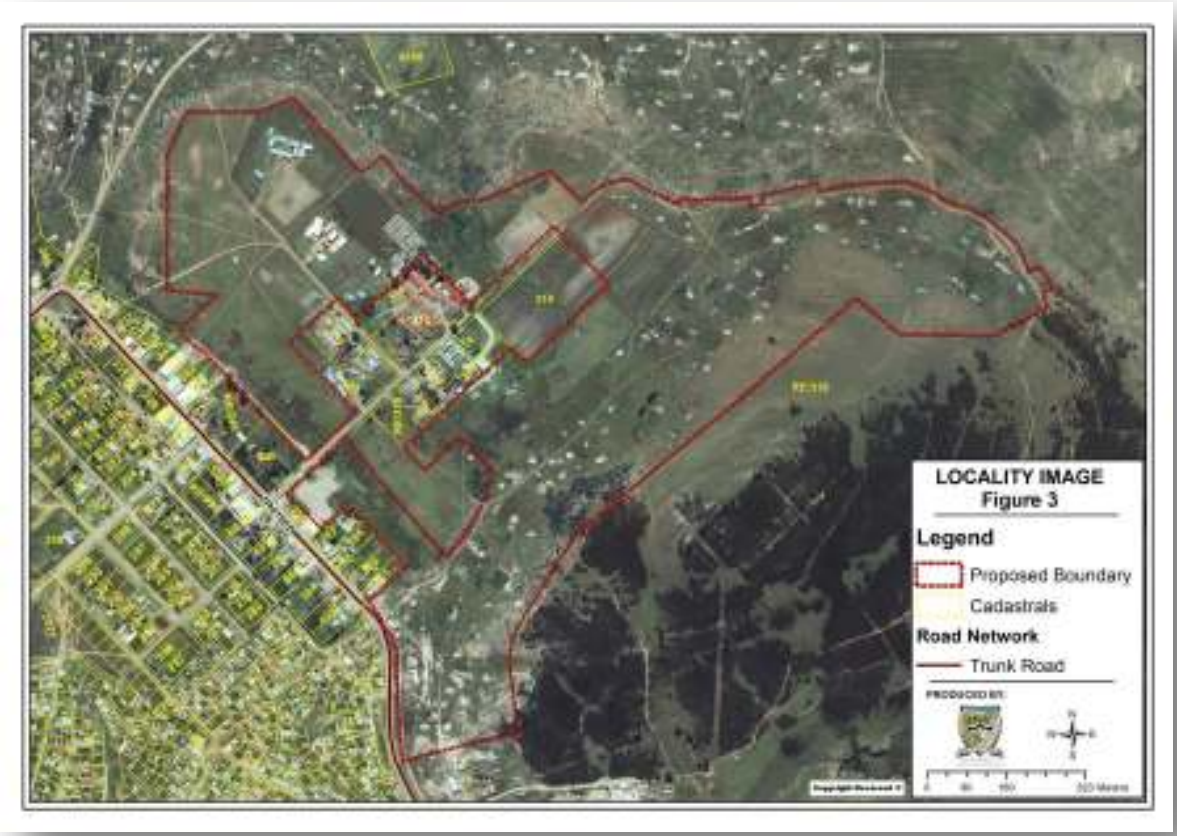


Figure 3: Locality Image

5.0 SUPPLEMENTARY INFORMATION

5.1 PROPERTY DESCRIPTION AND OWNERSHIP

Property Description :	Remainder Erf 318 Mount Fletcher
Extent :	1122.4530Ha
Ownership :	ELUNDINI MUNICIPALITY
Title Deed :	T632/2002
Restrictive Conditions :	None
Bond :	None
Survey Diagram :	Erf 318 was first framed in 1897 & 1914 (See S.G. Diagram attached as **Annexure C**)
Servitudes :	Yes – (See 5.2 below and attached Expropriation Ex 1379/74 as **Annexure B**)

5.2 REGISTERED SERVITUDES

The following endorsements are present in the Title Deed of the property:

(3) *This grant is made subject to the reservation in favour of the Government of the Republic of South Africa of all water arising from the two springs marked on the diagram No. 6710/1951, hereunto annexed and to a water pipe line servitude, 1m² wide over the Remainder of Erf 318 Mount Fletcher in favour of the said Government as the registered owner of Erven 313, measuring 3965m², 314 measuring 7931m², 315 measuring 5948m², 316 measuring 3,2147 hectares, 319 measuring 8911 hectares, 321 measuring 173m² and 322 measuring 376m², all being portions of Erf 318 Mount Fletcher, held by it under Certificate of Registered Title No. 20291/1962, the middle of which servitude is represented on the aforesaid diagram No. 6710/1951 by the blue lines a, b, c and d.*

(5) FURTHER SUBJECT to a perpetual servitude right-of-way over a portion measuring+ 17,8114 Ha of the within property has been expropriated by the Republic of South Africa in terms of Section 8(1) of Act 54 of 1971.

AS WILL MORE FULLY APPEAR from Ex 1379/74 and diagram No. N 19/6/2 (a) filed herewith.

*** All existing servitudes to be retained and will remain un-interrupted.**

6.0 PHYSICAL ENVIRONMENT

6.1 TOPOGRAPHY

The part of the land development area on which the layout is situated is relatively flat, with only the southern extent consisting of slopes that are steeper than 1:5, as shown on **Figure 4: Slope Analysis.**

The steep terrain is excluded from the proposed development / subdivision plan.

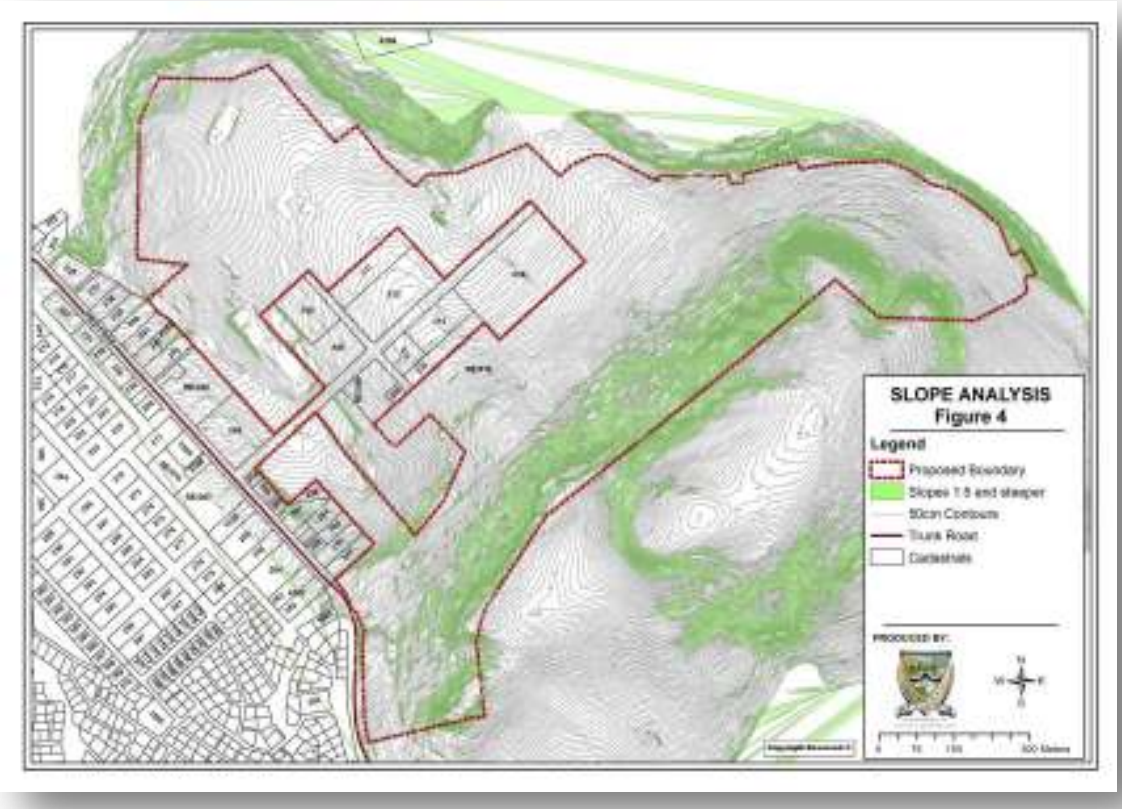


Figure 4: Slope Analysis

The topography can generally be described as favourable for the proposed use as a residential extension.

A minor drainage line is situated in Western extent of the development area and has been accommodated within the area set aside as public open space. A floodline calculation was previously undertaken and the 1:100 year floodline is reflected on the draft land plan.

6.2 VEGETATION

The original motivation report of 2010 described the vegetation as follows: *"The most prominent type of vegetation found in the area of Mount Fletcher is grasslands specifically East Griqualand Grassland. This vegetation type is often evident on disturbed, ploughed or heavily overgrazed and degraded sites".*

During a recent site assessment, it was confirmed that the bulk of the development area has been transformed by both formal and informal land development activities. There is no significant natural vegetation remaining on the site.

6.3 GEOLOGY

The area is underlain by the Tarkastad Subgroup consisting of horizontal layers of imbedded sandstones and mudstones.

Based on information gathered during recent site visits and environmental / hydrological studies conducted as part of the previous application process (refer **Annexure D**), it is confirmed that the area is suitable for formalisation of existing developments.

7.0 EXISTING LAND USE

7.1 EXISTING LAND USE ON THE SITE

The site forms part of the commonage of Mount Fletcher.

Existing land uses within the development area include the following:

- Informal settlement that ranges from low density "rural" residential character to higher density with mixed / rental residential character closer to the CBD.
- An informal sports field
- Cultivated fields (being used by the correctional centre)
- Existing government social services, including a Hospital and Technical College.

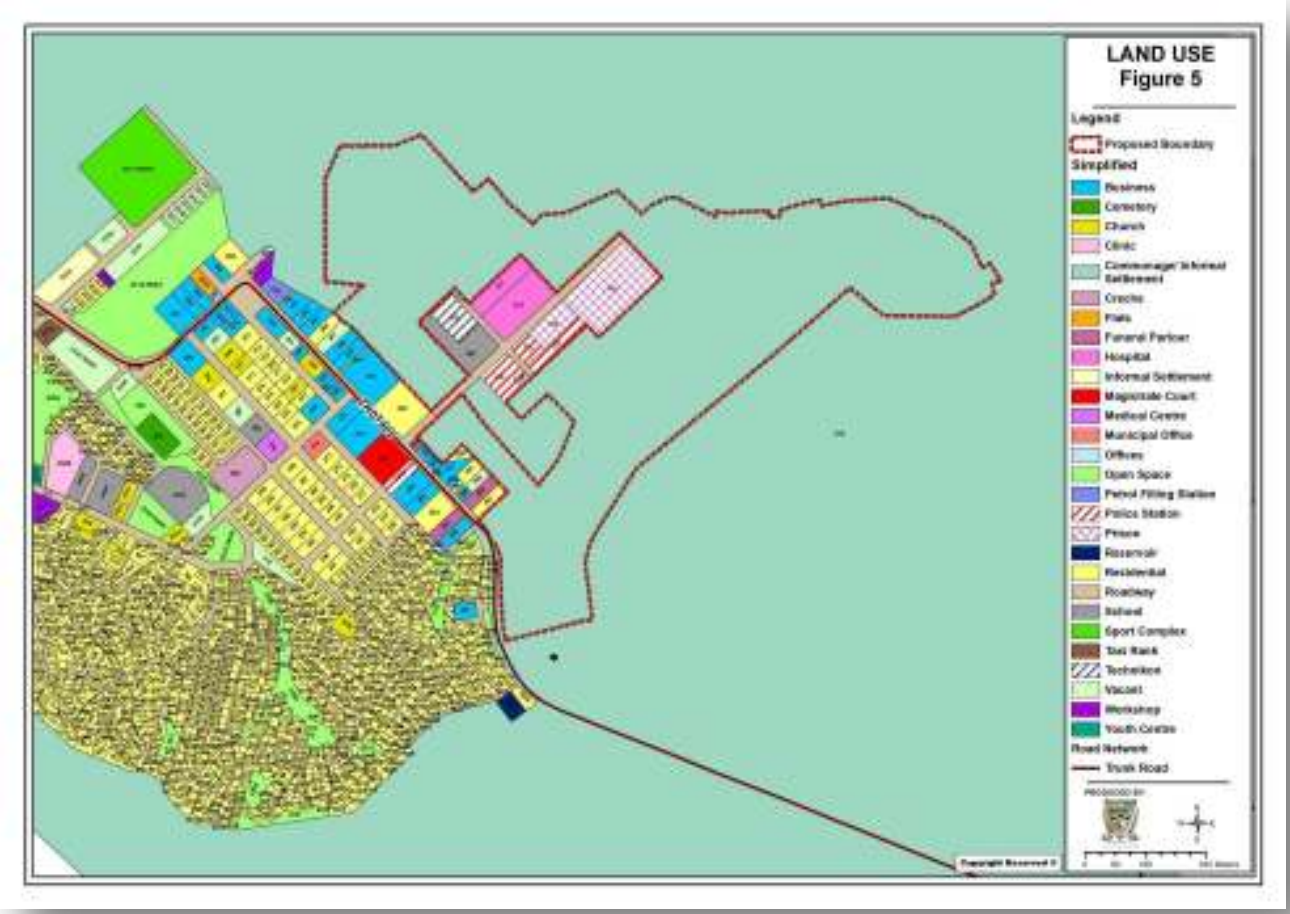


Figure 5: Land Use

7.2 EXISTING LAND USE ON SURROUNDING PROPERTIES

Surrounding land uses include the following:

- A vacant / undeveloped residential extension to the south, separated from the land development area by steep terrain.
- Vacant commonage land to the east, draining towards a well-defined valley.
- Informal residential settlement with a low density rural character to the north, separated from the land development area by steep terrain.
- The Mount Fletcher central business area and R56 to the west, with the bulk of the town situated on the opposite side of the R 56.

8.0 EXISTING ZONING

8.1 ZONING OF THE SITE

The underlying property is zoned as Undetermined, with its present use considered as Commonage.

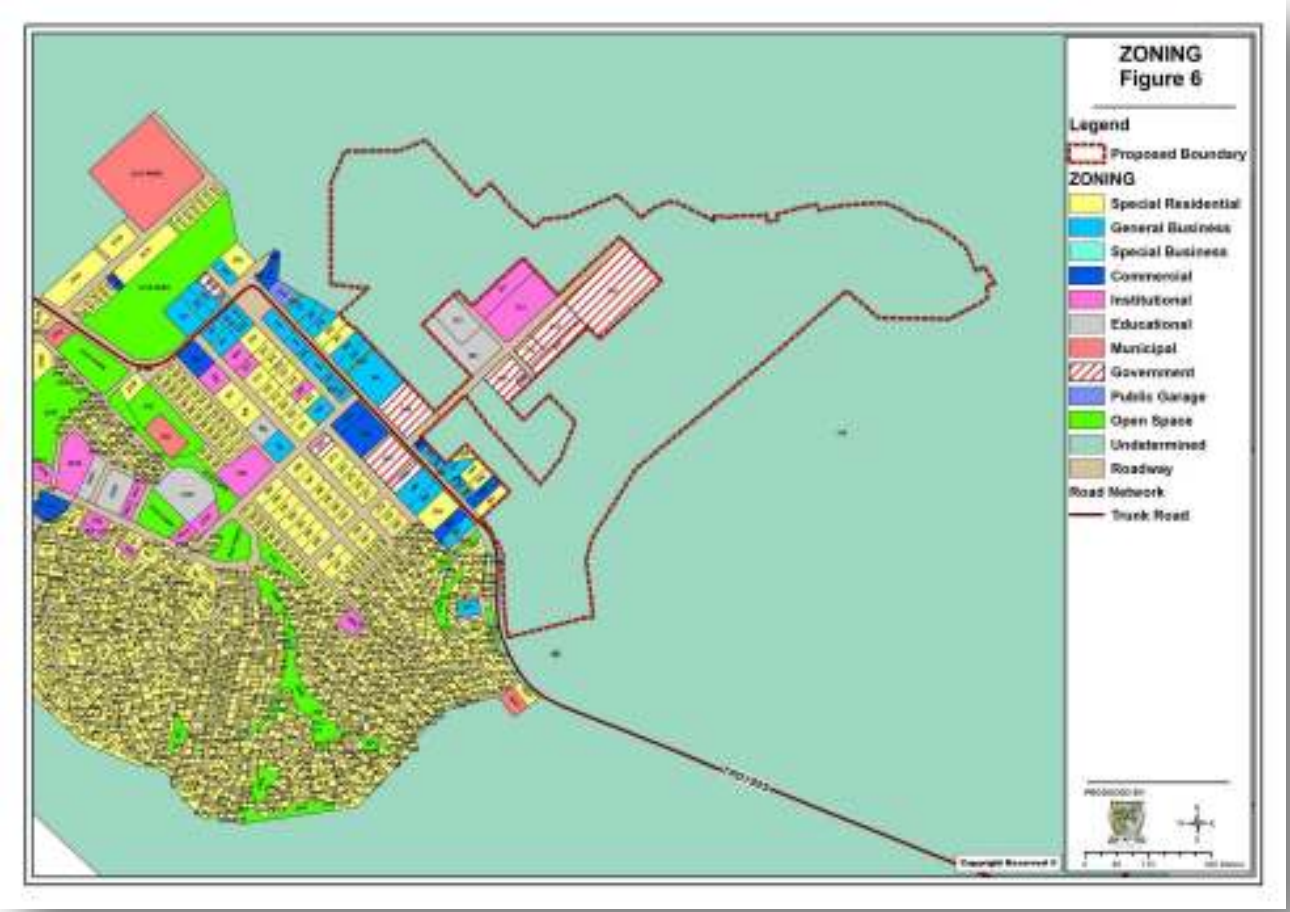


Figure 6: Zoning

8.2 ZONING OF SURROUNDING PROPERTIES

The formal developed area excluded from the sub-divisional plan (surrounded by the land development area) is mainly zoned for institutional purposes, with the balance of land towards the West (forming part of the CBD) being zoned for business purposes

All land to the north, east and south considered to be zoned undetermined and functioning as commonage of the town. The proposed residential extension to the south of the land development area as not been formally approved and is therefore considered to retain its commonage function.

9.0 PROPOSED DEVELOPMENT

9.1 LAYOUT PLAN DESIGN PRINCIPLES

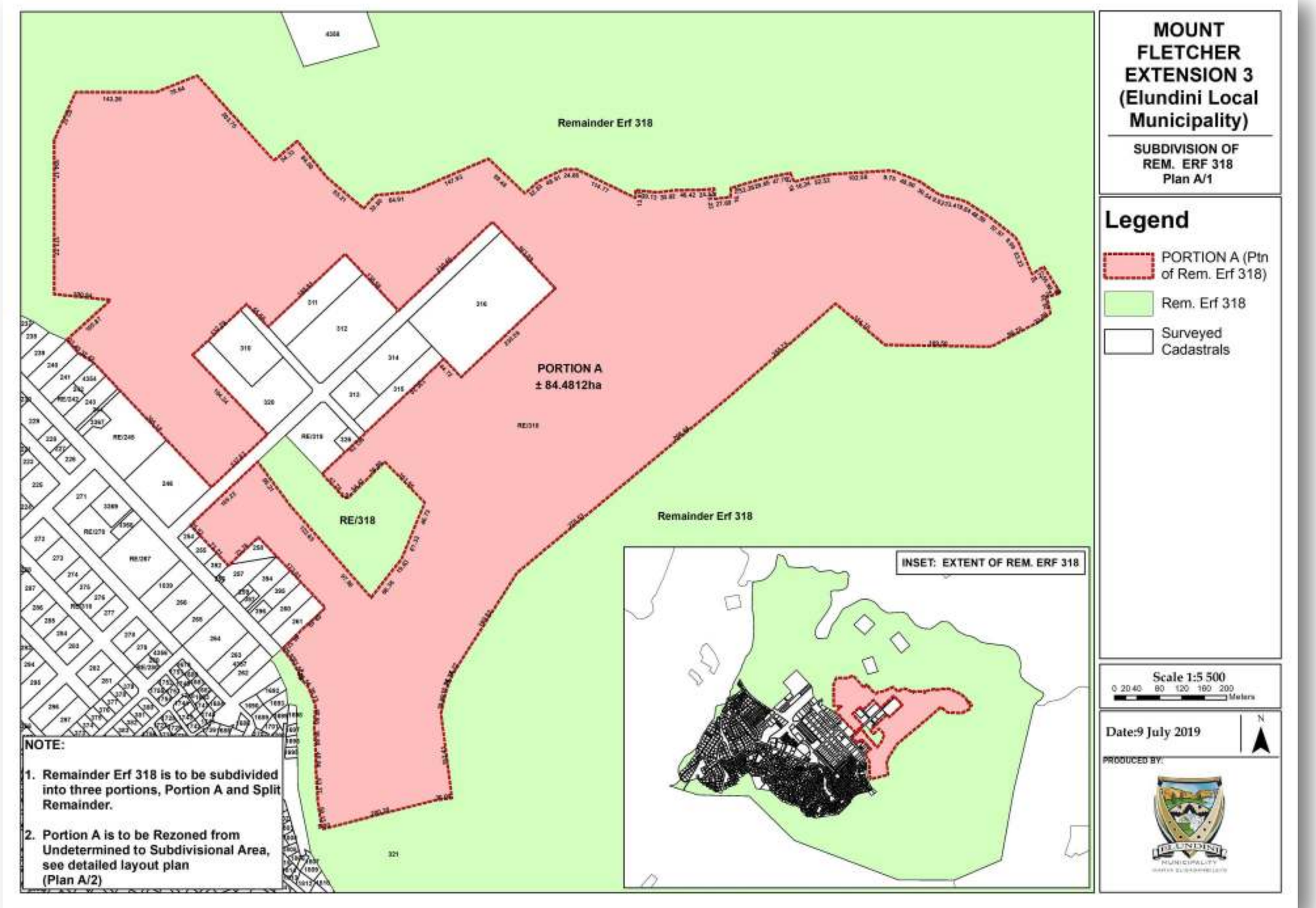
The planning approach when dealing with the upgrading of a partially established development area is distinctly different from the approach associated with green fields planning. Whilst an attempt has been made to apply appropriate geometric and spatial design principles, the process also remained sensitive towards existing built structures and associated improvements around homesteads.

To this effect the following principles apply:

- Unsuitable land, including steep slopes and rocky outcrops were excluded due to the implication for construction and infrastructure development costs.
- Identification of sensitive environmental features and introduction of appropriate buffers or setback areas to protect the resource (such as the drainage line in the western extent of the site) were incorporated in an open space system.
- The township layout and design was undertaken on the basis of the specific needs of the community and on the principle that relocations should be avoided as far as possible.
- The current groupings of erven, which were established through an informal settlement process represent established social associations. Disturbance of these groupings were avoided as far as possible.
- The township design and layout has as far as practical, complied with the guidance provided by the "Red Book".
- Integration of the study area with the surrounding existing urban structure.
- Allowance for the future extension of roads to enable the future linking and integration of residential areas.
- Alignment of roads and associated stormwater infrastructure to enable effective drainage and channelling of stormwater.

9.2 LAYOUT PLAN DETAILS

In order to formalise the existing settlement, it is necessary to create a subdivision of the overall development area which can then be subdivided and rezoned as depicted by the proposed layout plan. **Figure 5: Proposed Subdivision** creates the proposed Portion A, measuring 84.4812ha. The resulting remainder will retain its Undetermined zoning and Commonage function.

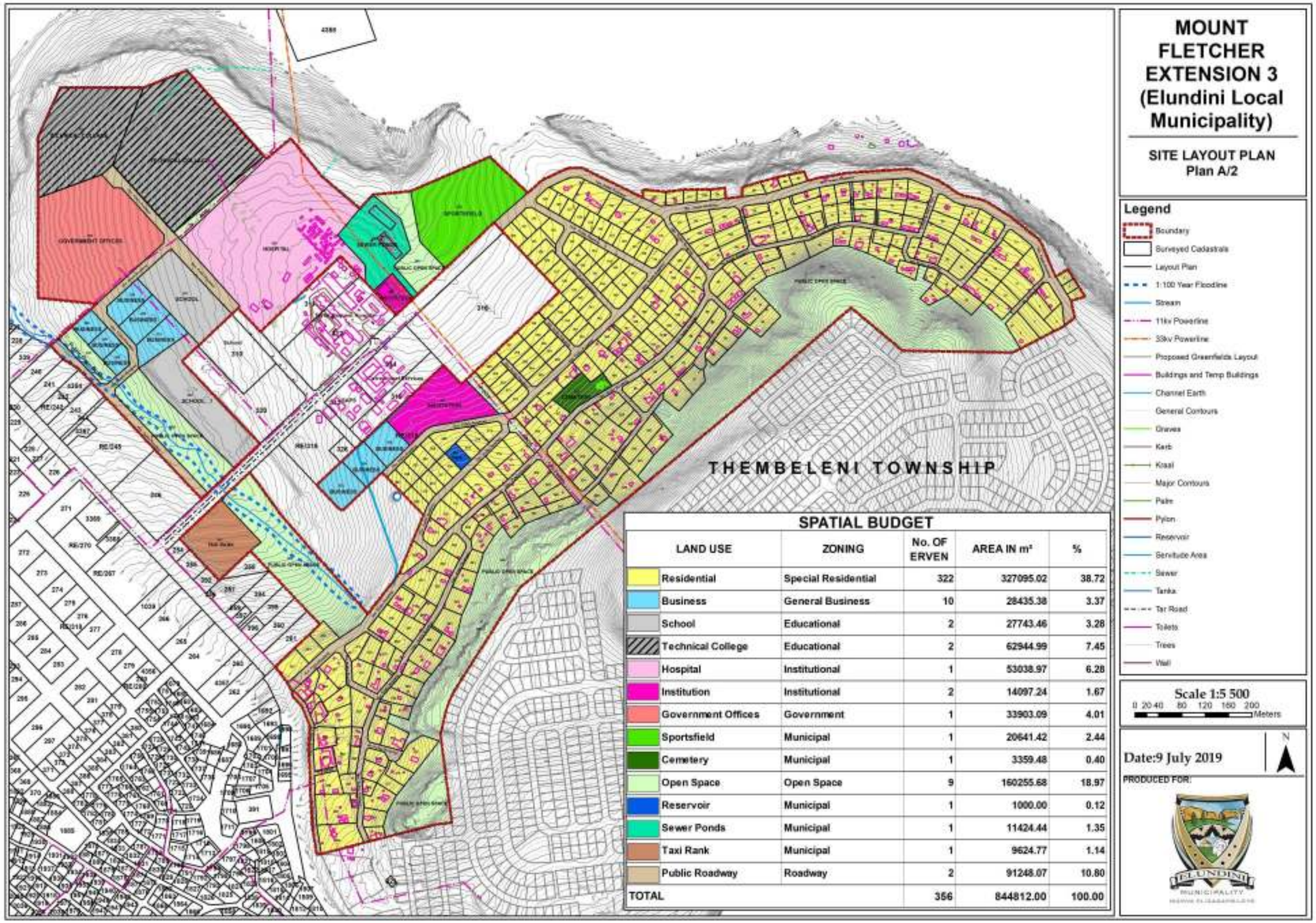


Plan 1: Subdivision Plan No. A/1

Proposed Portion A will be further subdivided and rezoned as per the proposed spatial budget below

Use	Zoning	No of erven	Area (m²)	% allocation
Residential	Special Residential	322	327095.02	38,72%
Business	General Business	10	28435.38	3,37%
School	Educational	2	27743.46	3,28%
Technical College	Educational	2	62944.99	7,45%
Hospital	Institutional	1	53038.97	6,28%
Institution	Institutional	2	14097.24	1,67%
Government Offices	Government	1	33903.09	4,01%
Sportsfield	Municipal	1	20641.42	2,44%
Cemetery	Municipal	1	3359.48	0,40%
Open Space	Open Space	9	160255.68	18,97%
Reservoir	Municipal	1	1000.00	0,12%
Sewer Ponds	Municipal	1	11424.44	1,35%
Taxi Rank	Municipal	1	9624.77	1,14%
Public Roadway	Roadway	2	91248.07	10,80%
TOTAL		**356**	**844812.00**	**100.00**

Table 1: Spatial Budget



Plan 2: Site Layout Plan No. A/2

10.0 ENGINEERING SERVICES

An Engineering Report was prepared as part of the previous application process and is attached hereto as **Annexure E**.

10.1 Water

The engineering report suggests that there was at the time no additional bulk water supply infrastructure.

10.2 Sanitation

Informal residential properties within the project area have been supplied with formal VIP toilets. A project is presently underway to upgrade the wastewater treatment works to the town and it is advisable that in time, the VIP toilets be replaced by waterborne sewerage infrastructure.

10.3 Roads

Some of the roads within the "Institutional Precinct" section of the layout plan have been formally constructed. The balance of the roads consists mainly of gravel tracks.
The layout plan makes provision for a "ring road" that will connect the project area with the planned residential expansion south. Care was also taken to ensure that existing informal properties in close proximity to the R61 are provided with "service road" access alignments to prevent these properties from taking direct access of the R 61.

10.4 Solid Waste

The formalised extension is situated within the urban edge of Mount Fletcher town and should therefore be included within the waste management collection services for town.

10.5 Electricity:

An existing Eskom power line is crossing part of the site and has been accommodated within a road reserve and public open space.
At the time of the previous application, Eskom confirmed that any new supply connection will require an application to be lodged to them.

11.0 ENVIRONMENTAL IMPACT ASSESSMENT

An environmental assessment process was conducted as part of the previous application and formal authorisation granted for the development in terms of NEMA on 19 October 2010 (refer **Annexure F**).

In light of the following, the land development (formalisation) as proposed in this application no longer requires or triggers environmental authorisation:

- Part of the development, as approved, was implemented at the time of the environmental authorisation. Based on this, the authorisation was taken up and therefore could not have lapsed.
- The site has been fully developed by formal and informal land uses.

It is nevertheless critical to ensure that all the conditions stipulated in the NEMA authorisation be complied with during any future upgrade or construction of infrastructure forming part of this development.

12.0 DEVELOPMENT PRINCIPLES AND SPATIAL DEVELOPMENT FRAMEWORK

12.1 DEVELOPMENT PRINCIPLES

The Spatial Planning and Land Use Management Act, 16 of 2013, (SPLUMA) contains the following development principles:

(i) Principle of spatial justice – inclusion of formerly excluded persons and areas to improve access to and use of land; and promotion of the concept of secure tenure and incremental upgrading of informal settlements.

(ii) Principle of spatial sustainability – promote land development in locations that are sustainable and limit urban sprawl, while protecting prime agricultural and environmentally sensitive land, and create viable communities

(iii) Principle of efficiency – optimising use of existing resources and infrastructure to minimise negative financial, social, economic or environmental impacts.

The formalisation of existing residential properties and provision of additional residential erven is considered important for ensuring that the principles contained in SPLUMA as listed above are achieved.

This process is expected to assist in the social and economic upliftment of local residents.

12.2 SDF PROPOSALS

The site is located within the urban edge Mount Fletcher and in line with the proposal for formalisation as highlighted in the Elundini Local Municipality's approved Spatial Development Framework.

The site is indicated as ★ on the plan overleaf.

Figure 7: Extract from approved Municipal SDF

13.0 MOTIVATION

The following factors contribute to the desirability of the site for the proposed development:

- The development was previously approved for formal development and partially implemented, but due to delays with the administrative process that was required to register at least one property forming part of the development, the validity of the approval has since lapsed.
- The project area is for all intents and purposes fully developed, but in order to enable development of infrastructure and passing of formal title to the occupants, it is a legal requirement to again formally approve the proposed development.
- The fact that informal development did not align with a portion of the previously approved layout requires that layout to be amended to as far as possible, they the present status quo.
- The development area has been confirmed as suitable for development from a physical and environmental point of view.

In order to comply with the participatory planning approach, a process of public participation was undertaken in the formulation of the proposed layout. A meeting was held with community members and the Ward Councillor.

14.0 CONCLUSION

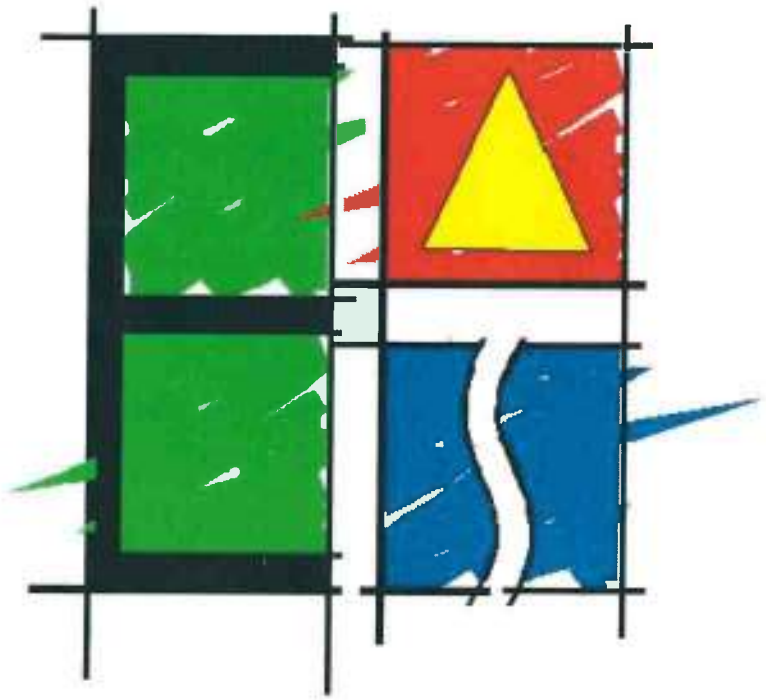
- It is recommended that the application for in-situ upgrade on a portion of Erf Remainder Erf 318 Mount Fletcher in terms of Townships Ordinance, 33 of 1934 and the Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA) be approved.
- The proposal is in line with the principles contained in SPLUMA and in accordance with the proposals contained in the Spatial Development Framework.

ANNEXURE H

Traffic Impact Assessment Report

TRAFFIC IMPACT ASSESSMENT

FOR THE ESTABLISHMENT OF THEMBENI TOWNSHIP IN MOUNT FLETCHER, ELUNDINI MUNICIPALITY



February 2014

Prepared for: **Elundini Local Municipality**

Prepared by: **Engineering Advice and Services (Pty) Ltd**
(041) 5812421

Document Control Sheet

CLIENT REF:	**ELUNDINI LOCAL MUNICIPALITY**
PROJECT NAME:	**THEMBENI TOWNSHIP ESTABLISHMENT, MOUNT FLETCHER, ELUNDINI MUNICIPALITY**
DOCUMENT TITLE:	**TRAFFIC IMPACT ASSESSMENT**
DOCUMENT FILE REF:	F:\1050 - 1059\1059\Reports\Rep001 - Thembeni Township, Mount Fletcher - TIA.docx

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Reviewed by	CGA Hastie Pr Tech. Eng (200070122)	February 2014	
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Version			
Compiled by			
Reviewed by (Director)			
Amendments made by			
Version			
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1. INTRODUCTION

1.1 BACKGROUND

Engineering Advice & Services (Pty) Ltd is part of a team of specialist service providers led by Urban Dynamics WC Inc., appointed by Elundini Municipality during May 2013 to establish Thembeni Township in Mount Fletcher. EAS is responsible for the traffic impact assessment component of the township establishment process.

View of site from south-east

1.2 OBJECTIVES OF THE STUDY

In broad terms, the purpose of the traffic assessment is to determine the extent and nature of the traffic generated by the proposed development, to assess the impact of this traffic on the operation of the associated road network, and to devise solutions for any problems identified. The following key elements, *inter alia*, are addressed in this traffic impact assessment:

- The suitability and safety of proposals for access to and egress from the site;
- The capacity of the existing and future road network within the influence radius; and
- The road upgrading measures required to accommodate the proposed development.

In general, this report serves to satisfy the Elundini Local Municipality and the South African National Roads Agency SOC Ltd that the traffic impact of the envisaged development is within acceptable limits and that the suggested improvements conform to the standards and parameters set by these authorities.

1.3 METHODOLOGY

The approach followed in conducting the traffic impact assessment was in accordance with the **TMH 16 Volume 1- South African Traffic Impact and Site Assessment Manual** [1]. Given the extent of the proposed development (1200 general residential erven), in terms of the aforementioned guidelines, the development is considered to be a medium-sized development and this assessment should thus consider impact for the development (assumed to be 2015) and development plus ten-year (2025) horizons.

The methodology used was as follows:

- Present traffic flow patterns were obtained and the affected intersections analysed, where after recommendations were made on the present need for road upgrading, without taking the proposed development into account.

- Given the extent of the development, the expected number of trips that will be generated by the development was determined by using applicable trip generation rates as recommended by the National Department of Transport.

- The distribution of the generated trips was estimated where after the generated traffic was assigned to the surrounding road network.

- Once again, the functioning of the affected intersections was analysed and recommendations made on the need for road upgrading taking cognisance of the proposed development for the development (2015) and development plus ten-year (2025) planning horizons given that more than 200 peak hour trips will be generated by the proposed development.

- The access location was assessed in terms of traffic operations and safety to ensure that it operates at an acceptable level of service and conforms to traffic safety requirements.

- By taking into account the major findings of the study, conclusions were made regarding the financial responsibilities of the affected parties for the required road upgrading measures.

1.4 Study Area

Based on the type and extent of the development as well as the environment in which it is located the study area extended to the adjacent intersection of Trunk Road 01905 (R56) with the existing access road to Tayler Bequest Hospital as it is considered that trips generated by the proposed development will approach along these roads and through this intersections

2. The Development and Environs

2.1 Current and Proposed Land Use Rights

The site is located on a portion of erf 318, Mount Fletcher (commonage), which is municipally owned and measures approximately 77.94 ha in extent.

The township establishment process will result in the preparation of a layout plan which will comprise of residential, community and other necessary land uses.

The township establishment process will include:

- Preparation and approval of a layout plan;
- Preparation of the General Plan;
- Submission to and approval of General Plan by the Surveyor-General; and
- Land survey.

2.2 Overview of Development and Environs

The site is situated to the east of the Mount Fletcher urban area above an escarpment as indicated on **Figure 1.**

The R56 National Road is located to the south of the site. To the north and east of the site are rural tribal lands.

The proposed development will comprise of 1164 general residential sites, two general business sites, one school site, three church sites, two clinic sites and one municipal site.

Access to the development is proposed from a new access road, which is an extension of the Tayler Bequest Hospital access road and which will intersect with the R56.

It is important to note that the township development is not aimed at providing new residential opportunities in Mount Fletcher, but rather at accommodating existing households that are currently dispersed on informal sites in the surrounding area.


Tayler Bequest Hospital
Proposal Township Area
Mount Fletcher
LEGEND
National
Provincial Surfaced
Provincial Unsurfaced
Municipal Roads
No Roads
Proposed Township Area
N
Project Title:
Drawing Title:
Figure 01
Locality Plan
Coordinates:
Project Date:
July 2013
0 200 400 600 800
Meters
Scale 1 : 50,000
Prepared by : LM
Checked by : CH
Elundini
Local Municipality
Engineering Advice
and Services

3. DATA COLLECTION

3.1 PEAK HOUR TRAFFIC VOLUMES

Peak hour traffic turning movement counts were conducted during typical weekday morning and evening peak periods on Thursday 13th June 2013 at the following intersection:

- TR01905 (R56) / Access Road to Tayler Bequest Hospital

The detailed survey data is attached as **Annexure A** and summarised on **Figure 2** below.

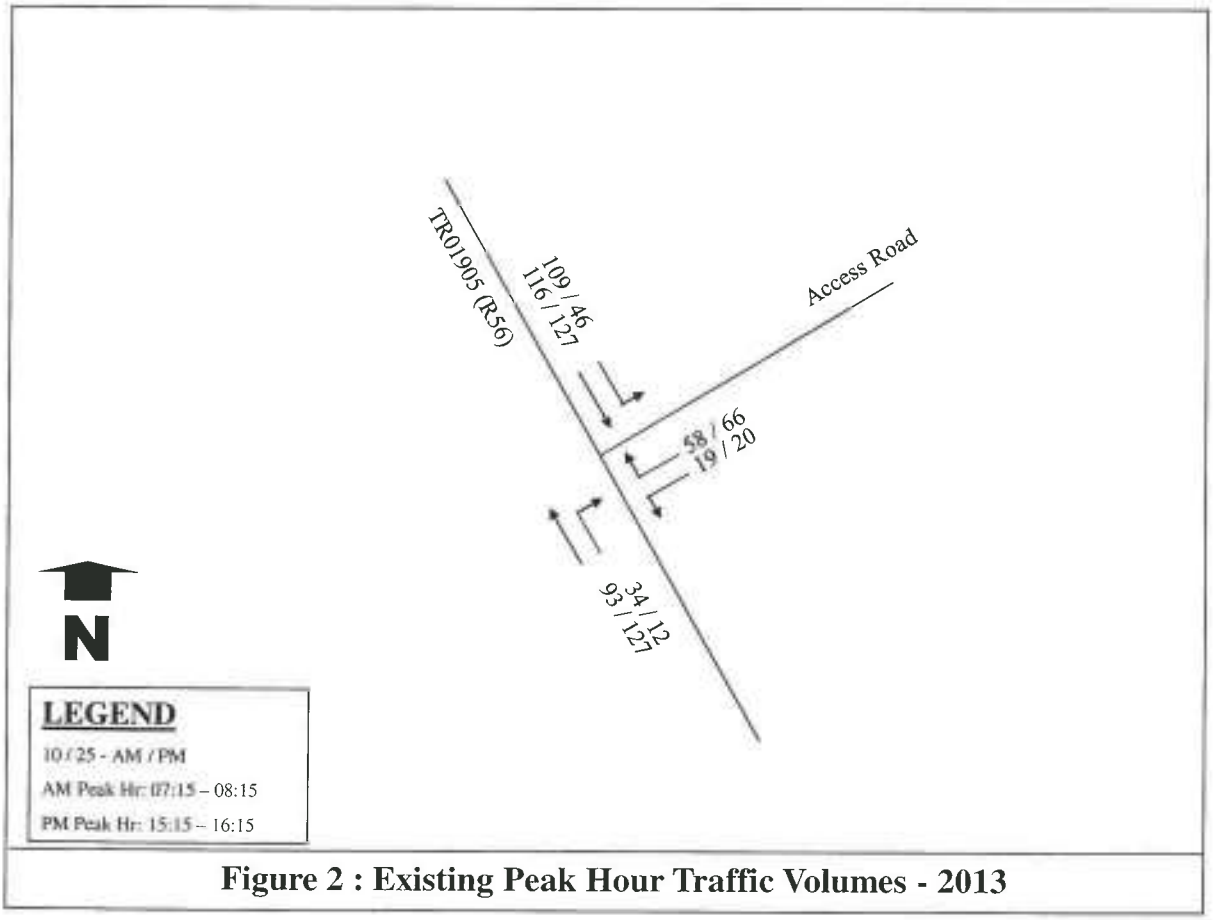


Figure 2 : Existing Peak Hour Traffic Volumes - 2013

3.2 DAILY TRAFFIC VOLUMES

As this study will also analyse the impact of the full development in 2025, daily traffic volumes at count stations in the vicinity of the proposed development were obtained from SANRAL and the Eastern Cape Department of Transport in order to determine average traffic growth per annum. However, only one station, 00420 on the R56 just south of Matatiele has historical data.

The data recorded between 2008 and 2011 at this count station indicates annual growth of 4.8% per annum. The current Average Daily Traffic is 2614 vehicles per day, of which 9% is truck traffic.

Given the lack of historical data, it is proposed that in order to be conservative, an annual growth rate of 5% per annum be used to project peak hour background traffic to 2015 and 2025.

The growth rate calculation and the 2015 and 2025 count data is attached as **Annexure B** and the escalated peak hour volumes are indicated on **Figure 3** below.

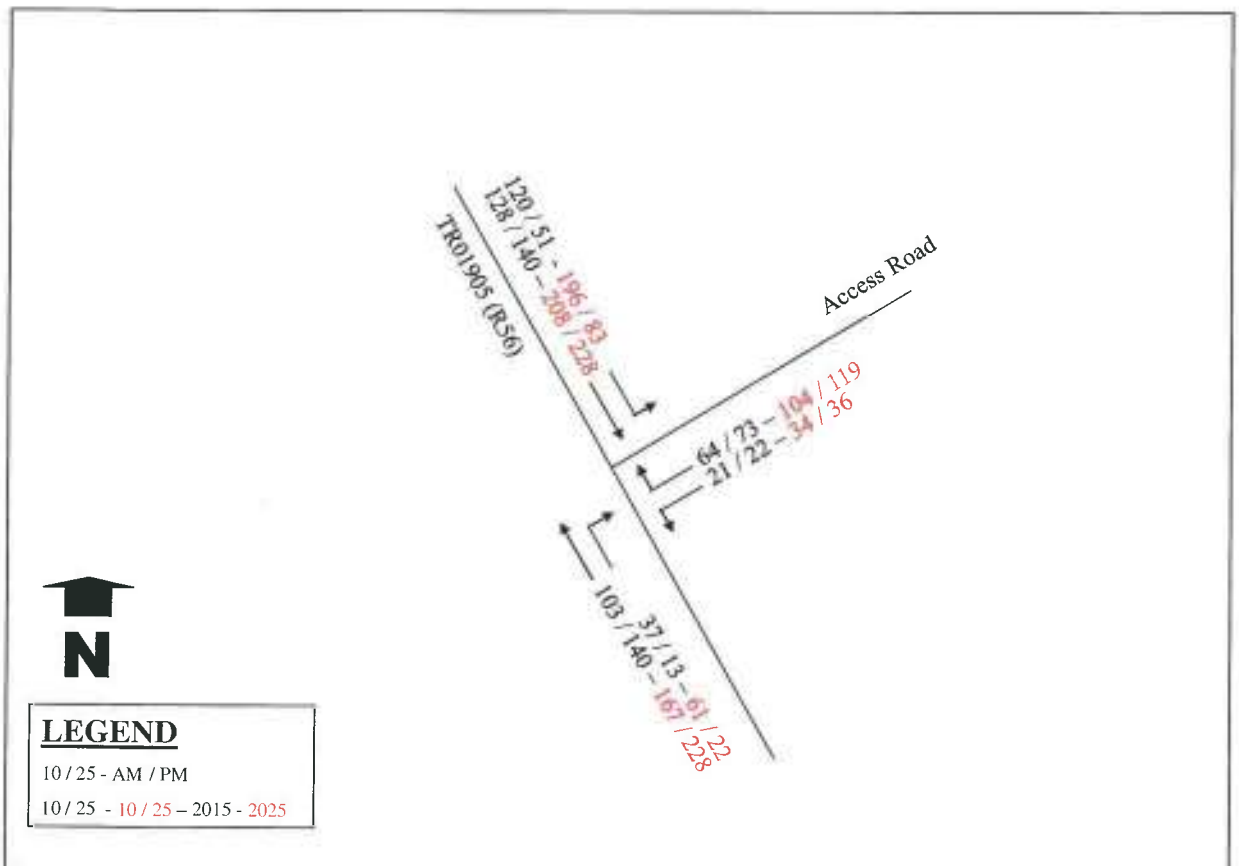


Figure 3 : Escalated Background Peak Hour Traffic Volumes – 2015 & 2025

3.3 ROAD NETWORK

The existing road network and intersection configuration were roughly measured up using a tape measure and aerial photography.

The primary road network can briefly be described as follows:

- **Trunk Road 01905 (R56)** is a national road which functions as a major trunk road linking the towns of Maclear and Matatiele to Mount Fletcher, as well as providing access to numerous villages along the route. The road is 7m wide with gravel shoulders and is in a fair condition. In the urban area, the road is 12m wide with a single traffic lane per direction and parallel parking bays on either side. Barrier kerbs define the interface between the roadway and pedestrian sidewalks.

- **Access Road** to Tayler Bequest Hospital is a surfaced municipal road 6m in width, with barrier kerbs and pedestrian sidewalks along both sides.

The existing road network configuration is indicated on **Figure 4** overleaf.

View of R56 approaching Access Road from northwest

View of Tayler Bequest Hospital Access Road from hospital

3.4 PUBLIC TRANSPORT

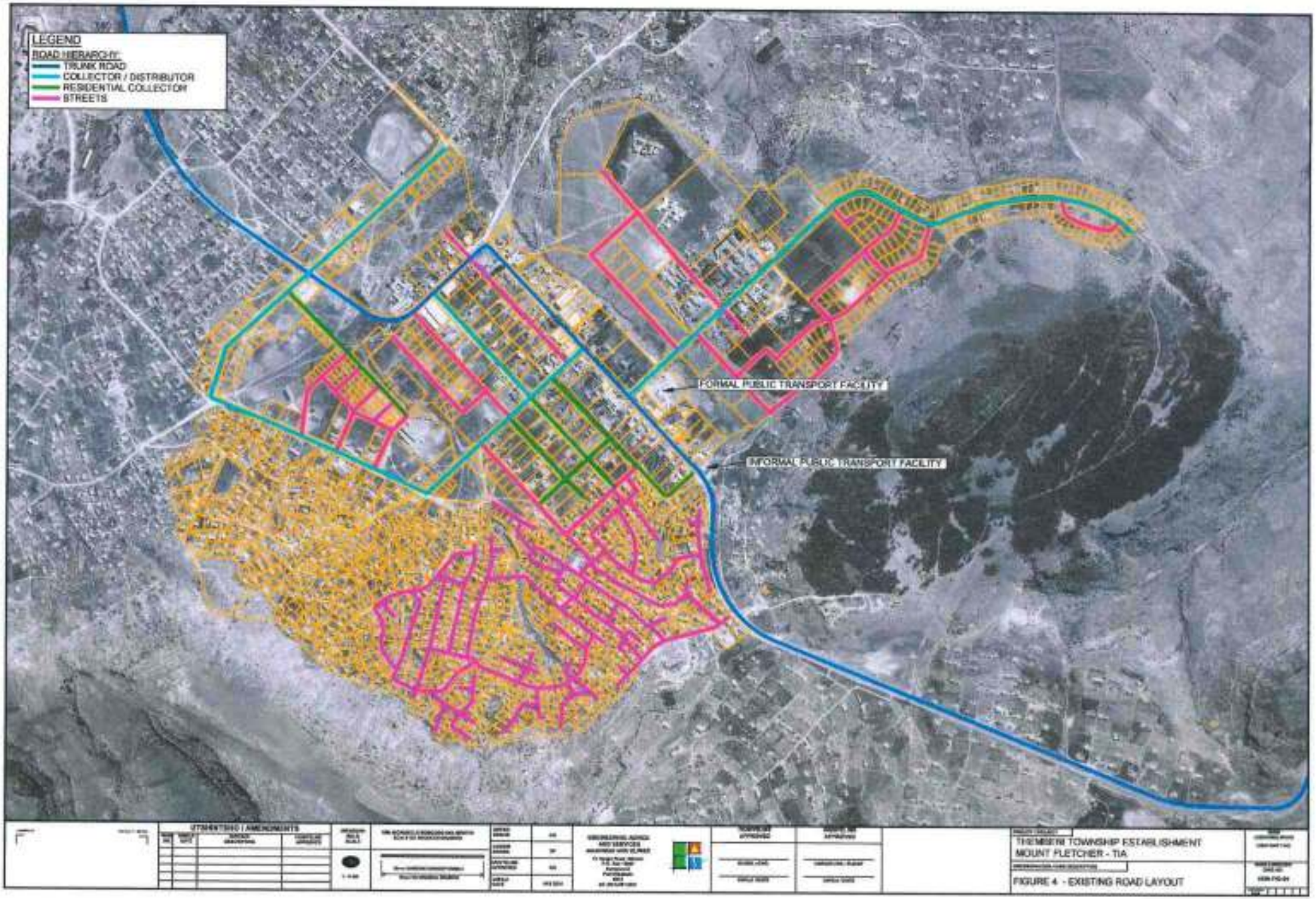
Public transport services in the form of minibus-taxis, scholar transport and AB350 buses operate in the Elundini Municipality transporting residents from rural villages to Mount Fletcher.

A formal loading and offloading facility is situated in town just north of the R56 / Tayler Bequest Road intersection. An informal taxi ranking area is also located on the southern edge of town approximately 300m from the formal facility.

The location of the public transport facilities are indicated on **Figure 4** overleaf.

3.5 NON-MOTORISED TRANSPORT

Many residents walk to their destinations, and as such pedestrian sidewalk facilities have been provided along the surfaced roads.


LEGEND
ROAD HIERARCHY
TRUNK ROAD
COLLECTOR / DISTRIBUTOR
RESIDENTIAL COLLECTOR
STREETS
FORMAL PUBLIC TRANSPORT FACILITY
INFORMAL PUBLIC TRANSPORT FACILITY
THEMBENI TOWNSHIP ESTABLISHMENT
MOUNT FLETCHER - TIA
FIGURE 4 - EXISTING ROAD LAYOUT

3.6 SPATIAL DEVELOPMENT FRAMEWORK PLAN

Figure 5 below is an extract of the **Elundini Local Spatial Development Framework** [2] prepared by Umhlaba during 2007, indicating the Mount Fletcher area. The SDF notes that while Mount Fletcher sits on an important transport route (R56), it is characterised by very low access to basic services.

The SDF also notes that Mount Fletcher is a primary development Node and as such, the Elundini Municipality should, inter alia, target improved accessibility and linkages to surrounding communities.

Figure 5: Spatial Development Framework

The SDF notes further that future residential development is proposed in the area immediately east of the town as indicated on **Figure 5** above. This is the area that is being established as a township.

4. CAPACITY ANALYSIS – EXISTING SITUATION

Level of Service (LOS) is defined as the operating condition that may occur at an intersection when it accommodates various traffic volumes. LOS is a qualitative measure of the effect of speed, travel time, traffic interruptions, freedom to manoeuvre, safety, driving comfort and convenience, and operating costs. **LOS D** is considered an acceptable design standard. The Levels of Service applicable to intersections under various control conditions, as defined in the **Highway Capacity Manual** [3] are indicated in **Table 1** below:

Table 1: Level of Service definitions for Vehicles (Highway Capacity Manual [3] method)

Level of Service	Control delay per vehicle in seconds (d) (*including geometric delay*)	
	Signals and Roundabouts	**Stop Signs and Yield Signs**
A	$d \leq 10$	$d \leq 10$
B	$10 < d \leq 20$	$10 < d \leq 15$
C	$20 < d \leq 35$	$15 < d \leq 25$
D	$35 < d \leq 55$	$25 < d \leq 35$
E	$55 < d \leq 80$	$35 < d \leq 50$
F	$80 < d$	$50 < d$

The traffic situation was analysed in order to determine the Level of Service at which the affected intersection currently operates. The capacity analysis was undertaken using the **SIDRA INTERSECTION** [4] capacity analysis method, but applying the **Highway Capacity Manual** [3] gap acceptance criteria for unsignalised intersections where applicable. The results are shown in **Table 2** below and the detailed SIDRA output sheets attached as **Annexure D**.

Table 2: Results of Intersection Capacity Analysis – 2015 Before Development

Intersection	Delay (s)		Critical Approach V/C		LOS *	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**
TR1905 / Access Road	5.2	4.0	0.137	0. 111	A	A

* - **SIDRA INTERSECTION** [4] does not calculate intersection LOS for stop controlled intersections. The LOS indicated is sourced from the **Highway Capacity Manual** [3] (**Table 1** above).

As indicated in **Table 2** above, the analysed intersections with TR1905 operate at acceptable Levels of Service in terms of capacity.

5. TRIP GENERATION

5.1 PROPOSED DEVELOPMENT TRIPS

TMH 17 Volume 1 - South African Trip Data Manual [5] recommends a peak hour trip generation rate of 1 trip per residential dwelling unit during weekday AM and PM peak hours.

In addition, the Manual provides for a reduction of 60% for areas where vehicle ownership is very low.

Data extracted from Census 2011 indicates that 15% of households in Mount Fletcher and 9% in the Elundini Municipality have a motor vehicle.

In the case of this study, the conservative approach has been followed as indicated below.

Applying these rates to the proposed development results in generated trips as follows:

TGR (Weekday AM/PM)	=	1.0 trip / unit * no of units
	=	1.0 trip / unit * 1164 units
	=	1164 trips (in and out)
Less 60% (very low vehicle ownership)	=	1164 - 60%
	=	466 trips
Split (in / out)	=	25 : 75 AM
	=	70 : 30 PM

The township development also includes general business and community sites. However, trips generated by these sites are considered to be internal as these sites are provided to serve the local community of Thembeni. As such, no trips generated by these sites have been included in the trips generated by the development expected to impact on the main road network.

5.2 TRIP DISTRIBUTION

Based on the observed traffic volumes, taking into account the location of the development relative to the surrounding employment areas, the following distribution has been assumed for trips generated by the development:

- 25% to and from the north-west via Tayler Bequest Access Road;
- 25% to and from the south-east via Tayler Bequest Access Road;
- 25% to and from the north-west via New Access Road; and
- 25% to and from the south-east via New Access Road.

The generated peak hour trips are indicated on **Figure 6** below and the generated trips added to the weekday AM and PM peak hour volumes for the 2015 and 2025 development horizons are indicated on **Figures 7** and **8** respectively overleaf.

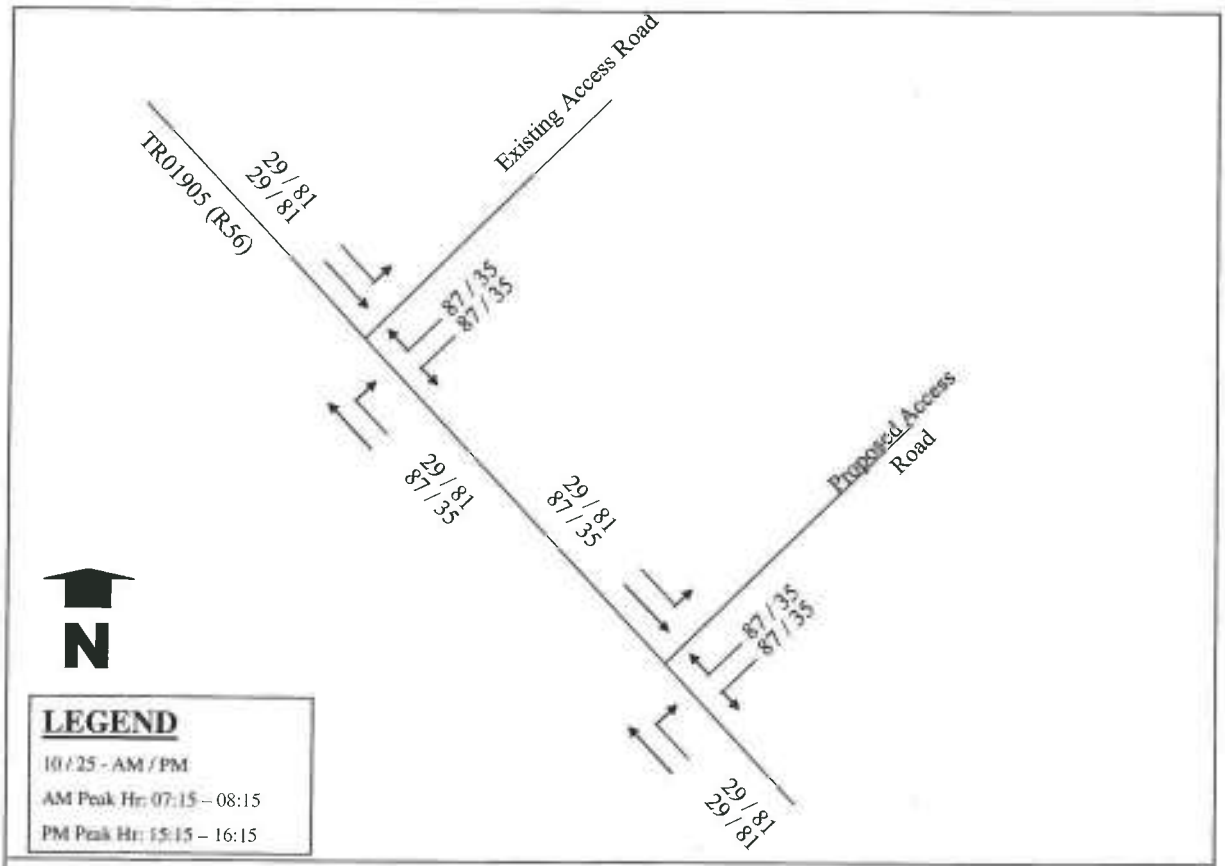


Figure 6 : Generated Peak Hour Traffic Volumes

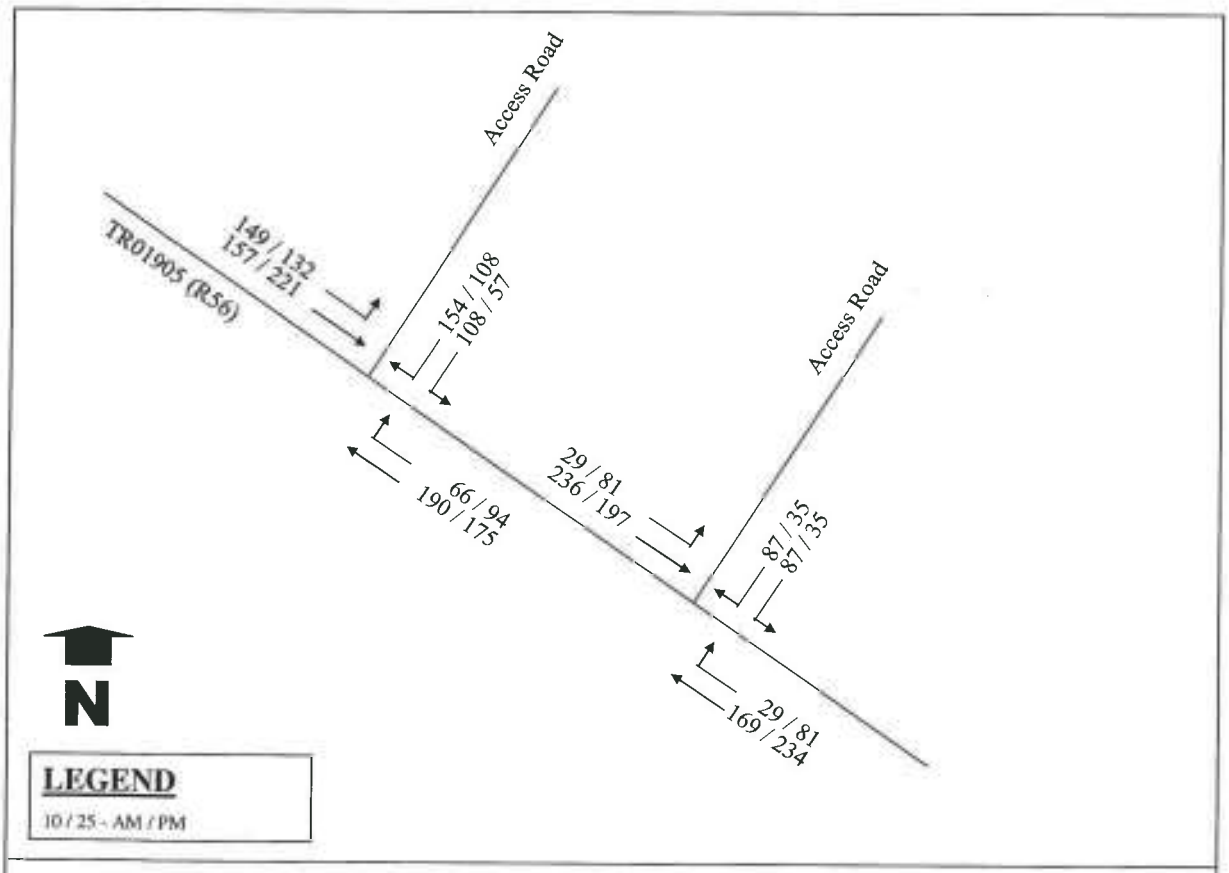


Figure 7 : Peak Hour Traffic Volumes – 2015

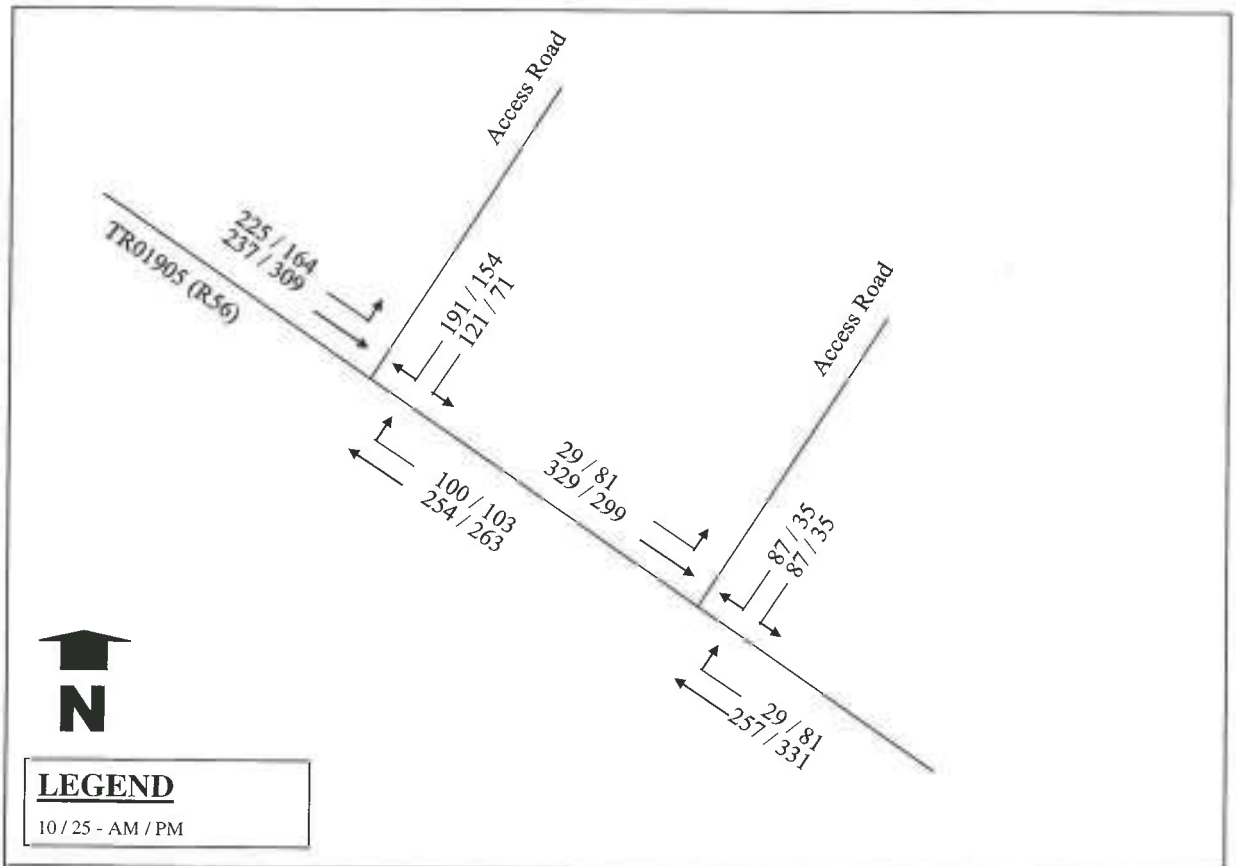


Figure 8 : Peak Hour Traffic Volumes – 2025

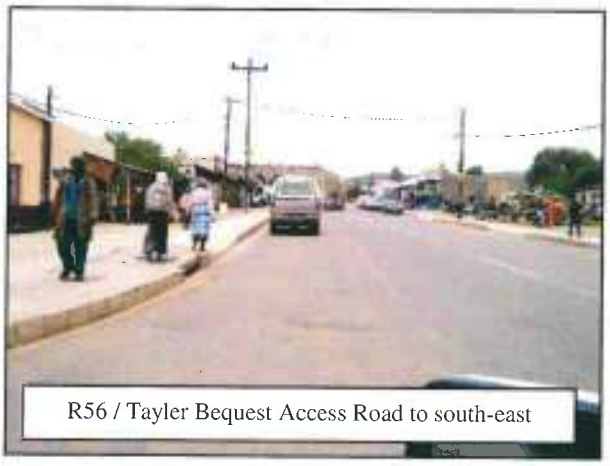
6. PROPOSED ROAD AND ACCESS ARRANGEMENTS

Access to the site is proposed from TR1905 (R56) on the south eastern side of the development via a new access road and from the Tayler Bequest Access Road on the western side of the development. The new access road is an extension of the Tayler Bequest Access Road as indicated on **Figure 9**.

The access road will function as a collector – distributor road with a number of residential collector roads collecting traffic from residential streets and feeding it into the main access road.

Tayler Bequest Access Road
This existing road is surfaced between TR1905 and the Hospital. A turnaround has been provided at the hospital around an existing tree in the road reserve.

Access to from Tayler Bequest Access Road



R56 / Tayler Bequest Access Road to south-east

As indicated in the images on the preceding page, the surfaced portion of the road is in fair condition. However, it is considered that access to the proposed township will necessitate that current visitors to the hospital including vulnerable road users are safely accommodated.

Sight distances from the intersection with the R56 are restricted given the high activity, including on-street parking that occurs along the R56. It is thus recommended that the sidewalk be extended (as indicated on **Figure 9**) to allow improved sight-distances for vehicles approaching the R56.

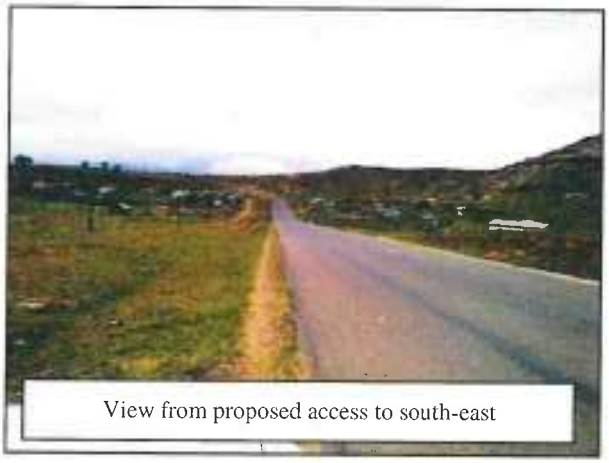
Proposed R56 Access Road

An additional access road to the township is proposed at a point approximately 370m from the existing access road to the east of the horizontal curve south of the town. As stated above, this road is an extension of the Tayler Bequest access road and will form a loop through the proposed township.

Sight distances from the proposed access point to the northwest and southeast are in the order of 400m and 900m respectively.

These distances are in excess of the proposed minimum of 370m for a single unit and trailer entering a 7.5m wide road with a design speed of 100km/h as per Figure 2.5.5.(a) of **TRH 17 – Geometric Design of Rural Roads** [6].

View from proposed access to north-west



View from proposed access to south-east

7. CAPACITY ANALYSIS – AFTER DEVELOPMENT

7.1 AFTER DEVELOPMENT 2015

The capacity analysis was undertaken using the **SIDRA INTERSECTION** [4] capacity analysis method, but applying the **Highway Capacity Manual** [3] gap acceptance criteria for unsignalised intersections.

After adding generated traffic volumes to the background peak hour volumes, the traffic situation was analysed in order to determine the LOS at which the intersections and access point would operate after development occurs. The results are shown in **Table 3** below and the detailed SIDRA output sheets attached as **Annexure D.**

Table 3: Results of Intersection Capacity Analysis – 2015 After Development

Intersection	Delay (s)		Critical Approach V/C		LOS *	
	AM	PM	AM	PM	AM	PM
TR1905 / Access Road	6.8	5.6	0.332	0.232	A*	A*
TR1905 / New Access Road	4.5	4.0	0.210	0.190	A*	A*

* - **SIDRA INTERSECTION** [4] does not calculate intersection LOS for stop controlled intersections. The LOS indicated is sourced from the **Highway Capacity Manual** [3] (**Table 1** above).

As can be seen from the results contained in **Table 3**, no capacity problems are experienced after development at the affected intersections in terms of capacity. The maximum delay experienced at each intersection is experienced on the side roads at 13 and 12 seconds for the existing and new access roads respectively.

7.2 AFTER DEVELOPMENT 2025

The capacity analysis was undertaken using the **SIDRA INTERSECTION** [4] capacity analysis method, but applying the **Highway Capacity Manual** [3] gap acceptance criteria for unsignalised intersections.

After adding generated traffic volumes to the escalated background peak hour volumes, the traffic situation was analysed in order to determine the LOS at which the intersections and access point would operate after development occurs. The results are shown in **Table 4** below and the detailed SIDRA output sheets attached as **Annexure E.**

Table 4: Results of Intersection Capacity Analysis – 2025 After Development

Intersection	Delay (s)		Critical Approach V/C		LOS *	
	AM	PM	AM	PM	AM	PM
TR1905 / Access Road	7.9	6.6	0.510	0.420	A*	A*
TR1905 / New Access Road	4.1	3.7	0.253	0.250	A*	A*

* - **SIDRA INTERSECTION** [4] does not calculate intersection LOS for stop controlled intersections. The LOS indicated is sourced from the **Highway Capacity Manual** [3] (**Table 1** above).

The results indicate minimal increases in delay, with the side road delays increasing by four and two seconds at the existing and new access roads respectively.

8. PUBLIC TRANSPORT AND PEDESTRIAN ARRANGEMENTS

8.1 PUBLIC TRANSPORT

Provision for public transport services is made at the Mount Fletcher facility in town.

As indicated on **Figure 9**, the main route through the proposed township has been designed as a public transport (Bus) route. The secondary loop roads have been designed as public transport (Taxi) routes.

Given the location of the school and sports field close to the R56, measures must be put in place to prevent possible public transport activity (loading and off-loading) along the R56

8.2 PEDESTRIAN ARRANGEMENTS

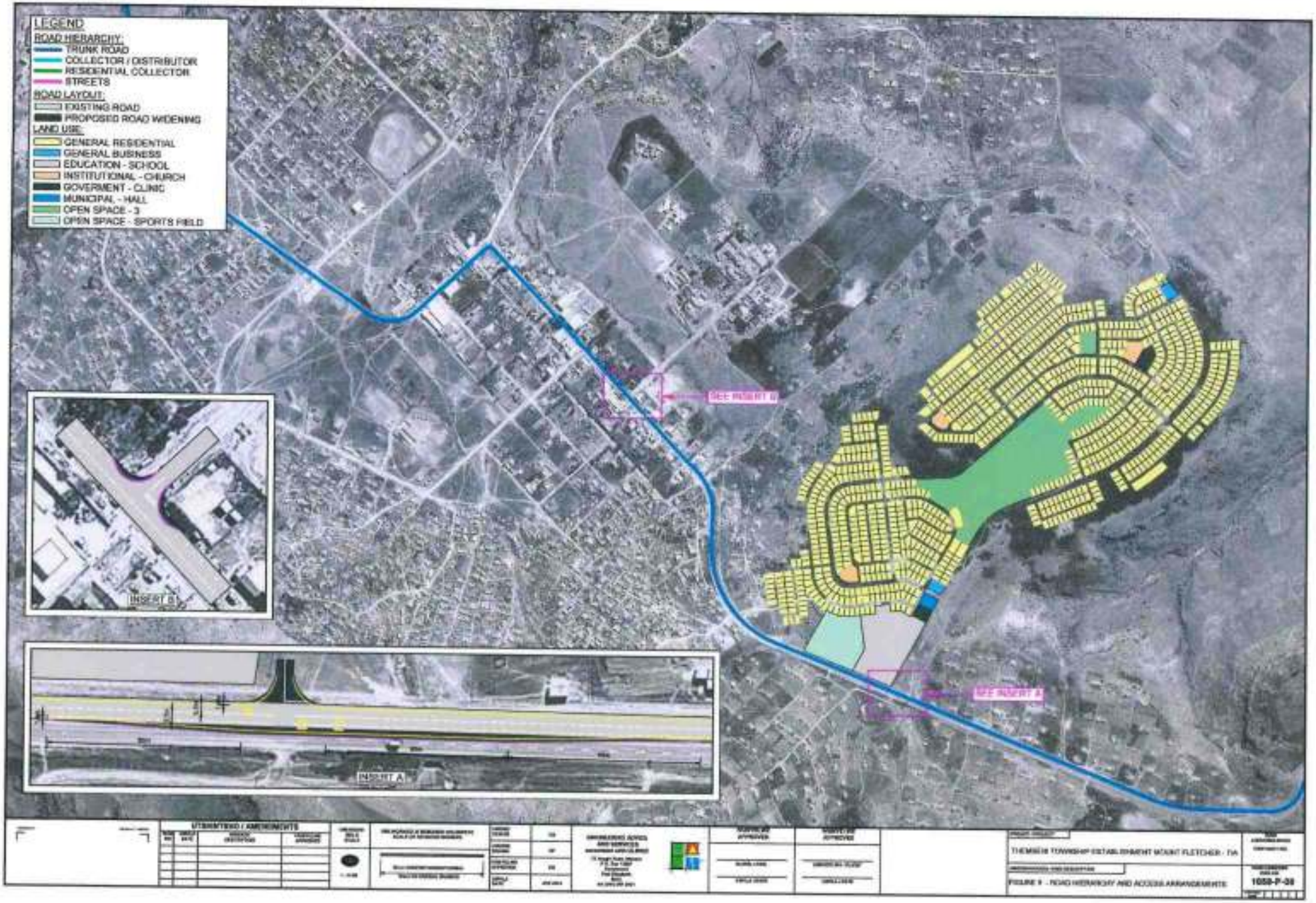
Given the low car-ownership in the area and the dependence upon public transport and non-motorised transport modes, pedestrian pathways must be provided along the proposed bus route and from the proposed access road to town along the R56 as indicated on **Figure 9**.

In addition, pedestrian crossing facilities must be provided across the R56 at the new access road intersection to accommodate the possibility of learners from residential households south of the R56 crossing the R56 to access the school and sport field.

9. CONCLUSIONS

The following conclusions can be drawn from the study:

- Under current traffic conditions no problems are experienced at the R56 / Tayler bequest intersection in terms of capacity;
- Access to the proposed development can be accommodated via the extension of the Tayler Bequest Hospital Access Road and its intersection with the R56 as indicated on **Figure 9**;
- The proposed new intersection on the R56 can be accommodated with sight distances in excess of 400m in both directions;
- On-street parking on either side of the Tayler Bequest Hospital Access Road in town impairs sight distance for vehicles approaching the R56 and extending the sidewalk into the R56, as indicated on **Figure 9**, will improve sight- distances for these vehicles thereby improving traffic safety at this intersection;
- Based on COTO [5] expected peak hour trips for the residential component can be reduced by 60% due to low car ownership and a high dependence on public and non-motorised modes of transport;
- When considering the generated peak hour trips added to the background peak hour traffic volumes the results of the intersection capacity analysis indicate that traffic generated by the development has minimal impact on the operation of the affected intersections for the 2015 and 2025 development horizons;
- While the results of the capacity analysis do not indicate that problems would be experienced, it is considered that the new access road intersection be configured to accommodate an exclusive right-turn lane on the R56 in order to ensure safe operation of the intersection.


LEGEND
ROAD HIERARCHY:
TRUNK ROAD
COLLECTOR / DISTRIBUTOR
RESIDENTIAL COLLECTOR
STREETS
ROAD LAYOUT:
EXISTING ROAD
PROPOSED ROAD WIDENING
LAND USE:
GENERAL RESIDENTIAL
GENERAL BUSINESS
EDUCATION - SCHOOL
INSTITUTIONAL - CHURCH
GOVERMENT - CLINIC
MUNICIPAL - HALL
OPEN SPACE - 3
OPEN SPACE - SPORTS FIELD
See INSERT B
See INSERT A
INSERT B
INSERT A
THEMSE TOWNSHIP ESTABLISHMENT MOUNT FLETCHER - TIA
FIGURE 9 - ROAD HIERARCHY AND ACCESS ARRANGEMENTS
1058-P-39

10. RECOMMENDATIONS

In view of the findings of this study, it is recommended that:

- This TIA be approved by the South African National Roads Agency SOC Limited;
- Access to the proposed township development be provided via the Tayler Bequest Hospital Access Road and the extension thereof to a new intersection on the R56 approximately 1250m southeast of the Tayler Bequest Hospital Access Road intersection as indicated on **Figure 9**;
- The Tayler Bequest Hospital Access Road intersection be upgraded by extending the sidewalk into the R56 in order to improve sight distance for vehicles approaching the R56;
- The R56 / New access road intersection be configured to accommodate an exclusive right-turn lane on the R56 northbound approach in order to ensure safe operation of the intersection;
- Pedestrian sidewalks be provided along the Tayler Bequest Access Road extension (proposed public transport route) in the township and along the R56 between the new access road and the town.

11. REFERENCES

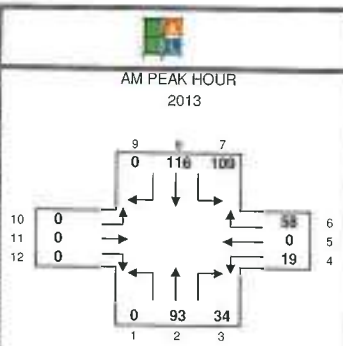
1. Joubert, Sampson, *et al*, **TMH 16 Volume 1- South African Traffic Impact and Site Assessment Manual**, COTO, August 2012.
2. *Umhlaba and Associates*, **Elundini Local Municipality Spatial Development Framework**, Elundini Municipality, 2007.
3. *Transportation Research Board*, **Highway Capacity Manual**, 2000.
4. *Akcelik & Associates (Pty) Ltd*, **SIDRA Intersection User Guide**, SIDRA Solutions, April 2013.
5. *Joubert, Sampson, et al*, **TMH 17 Volume 1- South African Trip Data Manual**, COTO, August 2012.
6. *CSIR - Division of Roads and Transport Technology*, **TRH 17 Geometric Design of Rural Roads**, Department of Transport, 1988.
7. *De Leuw Cather & SENA*, **SADC Road Traffic Signs Manual**, Department of Transport, June 1999.

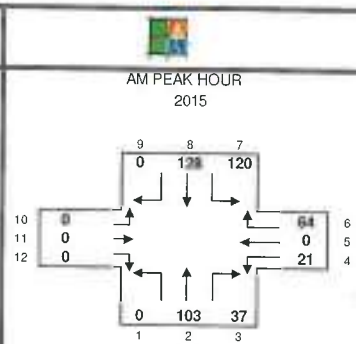
ANNEXURE A

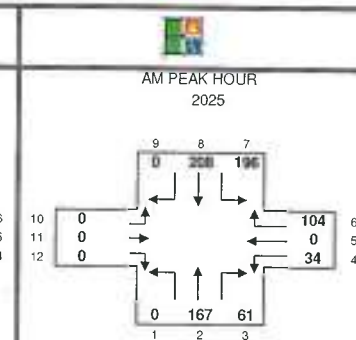
Peak Hour Traffic Counts

Project : TIA FOR THEMBENI TOWNSHIP, MOUNT FLETCHER
Intersection : R56 / Tayler Bequest Hospital Road
NO. 1
Day & date : 13/06/2013
Time period : 06:00 - 09:00

STARTING TIME	R56 Northbound				TAYLER BEQUEST ROAD Westbound				R56 Southbound				Eastbound				INTER-SECTION	
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Total	Hour
06:00	0	9	3	12	2	0	6	8	3	12	0	15	0	0	0	0	35	
06:15	0	8	2	10	2	0	2	4	4	9	0	13	0	0	0	0	27	
06:30	0	11	2	13	0	0	2	2	2	12	0	14	0	0	0	0	29	
06:45	0	13	1	14	2	0	6	8	9	22	0	31	0	0	0	0	53	144
07:00	0	24	2	26	1	0	6	7	13	30	0	43	0	0	0	0	76	185
07:15	0	24	5	29	4	0	13	17	30	23	0	53	0	0	0	0	99	257
07:30	0	22	12	34	4	0	16	20	19	34	0	53	0	0	0	0	107	335
07:45	0	26	7	33	6	0	11	17	29	34	0	63	0	0	0	0	113	396
08:00	0	21	10	31	5	0	18	23	31	25	0	56	0	0	0	0	110	429
08:15	0	30	4	34	3	0	9	12	26	26	0	52	0	0	0	0	98	428
08:30	0	22	6	28	8	0	14	22	26	21	0	47	0	0	0	0	97	418
08:45	0	26	5	31	4	0	14	18	35	27	0	62	0	0	0	0	111	416
Total	0	236	59	295	41	0	117	158	227	275	0	502	0	0	0	0	955	
Peak hour	0	93	34	132	19	0	58	72	109	116	0	224	0	0	0	0	429	
Peak 15 min				34				23				63				0	113	
PHF				0.97				0.78				0.89				#DIV/0!	0.95	







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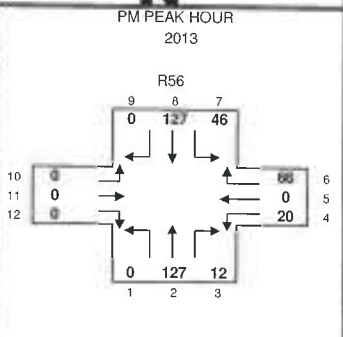
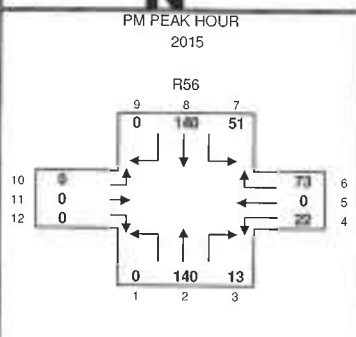
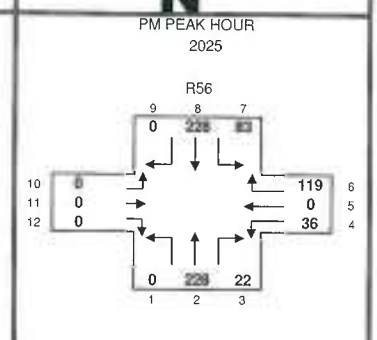
Project : TIA FOR THEMBENI TOWNSHIP, MOUNT FLETCHER
Intersection : R56 / Tayler Bequest Hospital Road
NO. 1
Day & date : 13/06/2013
Time period : 15:00 – 18:00

STARTING TIME	R56 Northbound				TAYLER BEQUEST ROAD Westbound				R56 Southbound				0 Eastbound				INTER-SECTION	
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Total	Hour
15:00	0	32	1	33	1	0	7	8	13	33	0	46	0	0	0	0	87	
15:15	0	23	3	26	2	0	12	14	12	28	0	40	0	0	0	0	80	
15:30	0	35	4	39	7	0	17	24	16	37	0	53	0	0	0	0	116	
15:45	0	20	2	22	3	0	14	17	9	26	0	35	0	0	0	0	74	357
16:00	0	49	3	52	8	0	23	31	9	36	0	45	0	0	0	0	128	398
16:15	0	30	1	31	8	0	10	18	8	22	0	30	0	0	0	0	79	397
16:30	0	37	2	39	9	0	10	19	3	41	0	44	0	0	0	0	102	383
16:45	0	31	1	32	1	0	10	11	7	36	0	43	0	0	0	0	86	395
17:00	0	48	2	50	4	0	6	10	9	24	0	33	0	0	0	0	93	360
17:15	0	19	0	19	0	0	5	5	6	14	0	20	0	0	0	0	44	325
17:30	0	22	0	22	2	0	6	8	4	27	0	31	0	0	0	0	61	284
17:45	0	16	2	18	2	0	8	10	9	20	0	29	0	0	0	0	57	255
Total	0	362	21	383	47	0	128	175	105	344	0	449	0	0	0	0	950	
Peak hour	0	127	12	140	20	0	66	45	46	127	0	140	0	0	0	0	398	
Peak 15 min				52				31				53				0	126	
PHF				0.67				0.36				0.66				#DIV/0!	0.78	







ANNEXURE B

Historical Traffic Data

Thembeni Township Development - Mount Fletcher

24 Hr Count Volumes

Count Station	Location	2008	2009	2010	2011	2012	Total Growth (%)	Average Growth Per Annum (from 2008)
410	TR01905 Maclear			1278			#DIV/0!	#DIV/0!
420	TR01905 Matatiele	2069			2614		26.34	4.79
					AVERAGE (All stations)			4.79

TRAFFIC HIGHLIGHTS OF SITE 00420				
1.1	Site Identifier			00420
1.2	Site Name			Matatiele
1.3	Site Description			9.9 km west of Matatiele on R56
1.4	Road Description	Route : R056 Road : TR01905 Section : 00 Distance : 0.0km		
1.5	GPS Position			28.68700E -30.33270S
1.6	Number of Lanes			2
1.7	Station Type			Permanent Piezo
1.8	Requested Period			2008/01/01 - 2008/12/31
1.9	Length of record requested (hours)			8784
1.10	Actual First & Last Dates			2008/01/01 - 2008/12/31
1.11	Actual available data (hours)			8774
1.12	Percentage data available for requested period			99.9
		To Matatiele	To Mount Fletcher	Total
2.1	Total number of vehicles	377157	379242	756399
2.2	Average daily traffic (ADT)	1032	1037	2069
2.3	Average daily truck traffic (ADTT)	95	91	186
2.4	Percentage of trucks	9.2	8.8	9.0
2.5	Truck split % (short:medium:long)	63 : 26 : 11	63 : 28 : 9	63 : 27 : 10
2.6	Percentage of night traffic (20:00 - 06:00)	6.7	7.2	7.0
3.1	Speed limit (km/hr)			100
3.2	Average speed (km/hr)	81.4	78.3	79.8
3.3	Average speed - light vehicles (km/hr)	82.3	79.0	80.6
3.4	Average speed - heavy vehicles (km/hr)	72.4	70.3	71.4
3.5	Average night speed (km/hr)	82.5	81.9	82.2
3.6	15th centile speed (km/hr)	61.7	59.4	59.4
3.7	85th centile speed (km/hr)	102.0	97.9	99.9
3.8	Percentage vehicles in excess of speed limit	15.3	12.3	13.8
4.1	Percentage vehicles in flows over 600 vehicles/hr	0.0	0.0	0.0
4.2	Highest volume on the road (vehicles/hr)		2008/12/24 19:00:00	361
4.3	Highest volume in the East (vehs/hr)		2008/12/24 08:00:00	267
4.4	Highest volume in the West (vehs/hr)		2008/12/24 19:00:00	243
4.5	Highest volume in a lane (vehicles/hr)		2008/12/24 08:00:00	267
4.6	15th highest volume on the road (vehicles/hr)		2008/12/23 08:00:00	310
4.7	15th highest volume in the East direction (vehs/hr)		2008/12/24 10:00:00	187
4.8	15th highest volume in the West direction (vehs/hr)		2008/12/22 16:00:00	190
4.9	30th highest volume on the road (vehicles/hr)		2008/12/24 09:00:00	287
4.10	30th highest volume in the East direction (vehs/hr)		2008/12/09 08:00:00	171
4.11	30th highest volume in the West direction (vehs/hr)		2008/12/27 13:00:00	168
5.1	Percentage of vehicles less than 2s behind vehicle ahead	6.5	8.7	7.6
6.1	Total number of heavy vehicles	34685	33231	67916
6.2	Estimated average number of axles per truck	3.3	3.3	3.3
6.3	Estimated truck mass (Ton/truck)	19.5	19.2	19.4
6.4	Estimated average E80/truck	1.3	1.3	1.3
6.5	Estimated daily E80 on the road			235
6.6	Estimated daily E80 in the East direction			120
6.7	Estimated daily E80 in the West direction			115
6.8	Estimated daily E80 in the worst East lane			120
6.9	Estimated daily E80 in the worst West lane			115
6.10	ASSUMPTION on Axles/Truck (Short:Medium:Long)			(2.0 : 5.0 : 7.0)
6.11	ASSUMPTION on Mass/Truck (Short:Medium:Long)			(10.9 : 31.5 : 39.8)
6.12	ASSUMPTION on E80s/Truck (Short:Medium:Long)			(0.6 : 2.5 : 2.1)

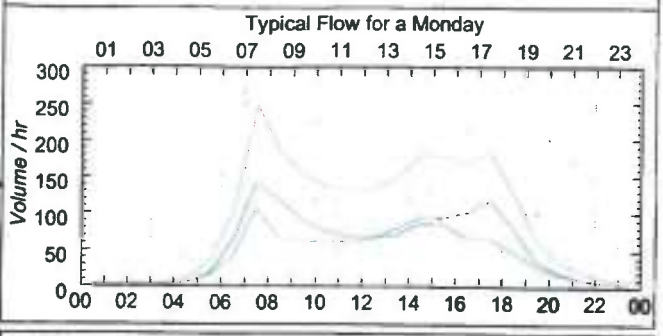
Typical Week Volume Report

Site	: 00420 - Matatiele
Region	: Alfred Nzo District
Actual Period	: 2008/01/01 to 2008/12/31
Classification	: RSA Vehicle
Day Type	: Normal Day&Fixed Public Holiday+

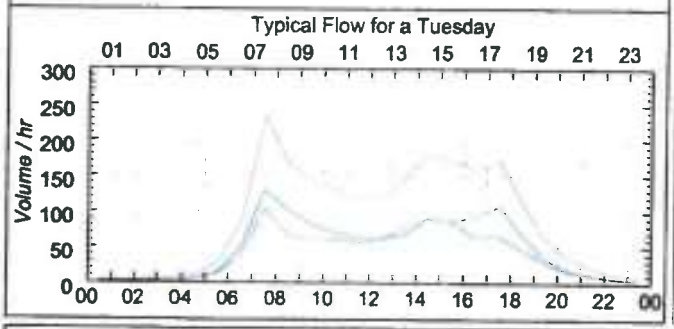
Total
To Matatiele
To Mount Fletcher

Total
Light
Heavy

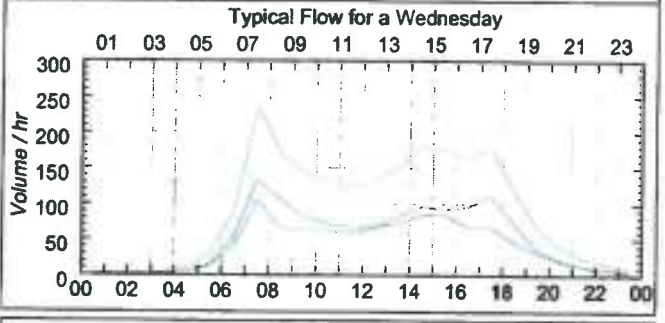
Typical Flow for a Monday



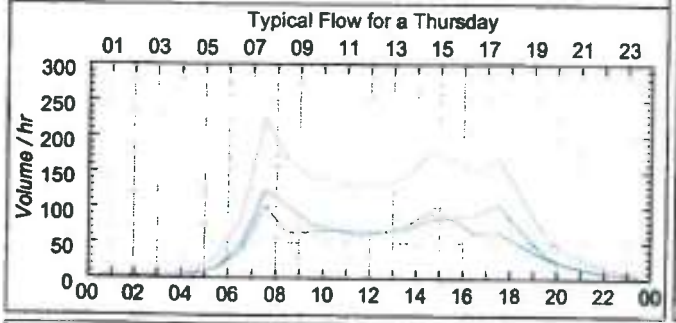
Typical Flow for a Tuesday



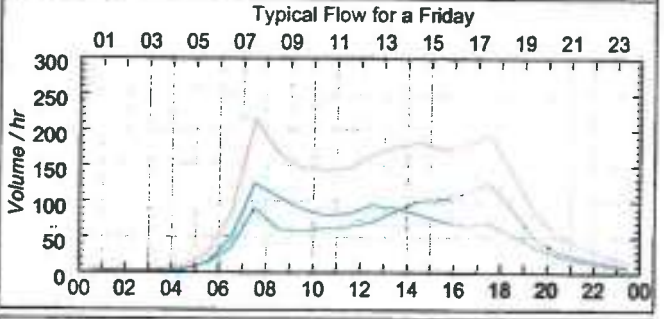
Typical Flow for a Wednesday



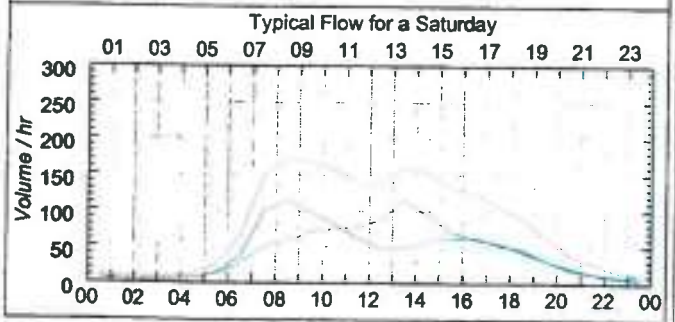
Typical Flow for a Thursday



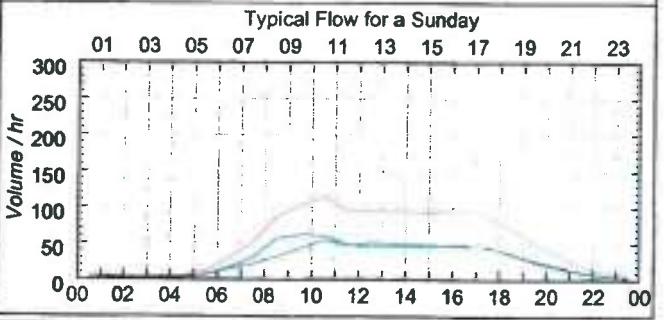
Typical Flow for a Friday

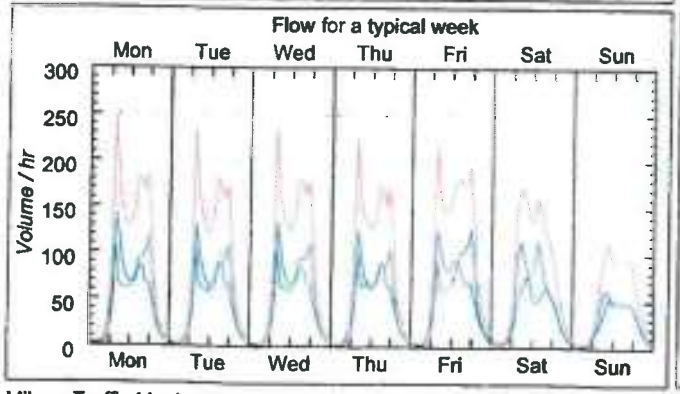


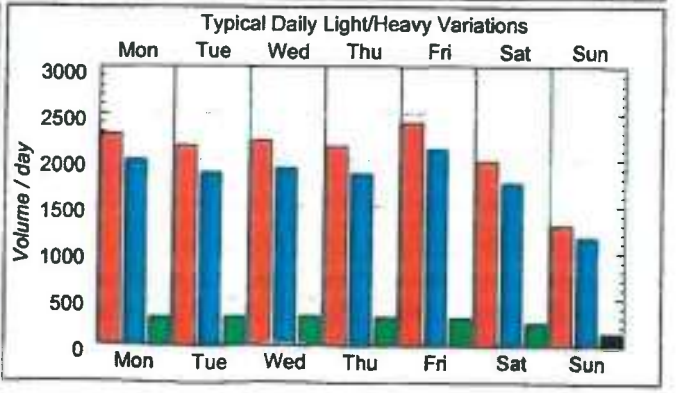
Typical Flow for a Saturday



Typical Flow for a Sunday







TRAFFIC HIGHLIGHTS OF SITE 00420				
1.1	Site Identifier			00420
1.2	Site Name			Matatiele
1.3	Site Description			9.9 km west of Matatiele on R56
1.4	Road Description			Route : R056 Road : TR01905 Section : 00 Distance : 0.0km
1.5	GPS Position			28.687000E -30.332695S
1.6	Number of Lanes			2
1.7	Station Type			Permanent Piezo
1.8	Requested Period			2011/01/01 - 2011/12/31
1.9	Length of record requested (hours)			8760
1.10	Actual First & Last Dates			2011/01/01 - 2011/12/31
1.11	Actual available data (hours)			8719
1.12	Percentage data available for requested period			99.5
		To Matatiele	To Mount Fletcher	Total
2.1	Total number of vehicles	474609	475038	949647
2.2	Average daily traffic (ADT)	1306	1308	2614
2.3	Average daily truck traffic (ADTT)	99	96	195
2.4	Percentage of trucks	7.6	7.3	7.5
2.5	Truck split % (short:medium:long)	62 : 20 : 18	64 : 20 : 16	63 : 20 : 17
2.6	Percentage of night traffic (20:00 - 06:00)	6.6	7.2	6.9
3.1	Speed limit (km/hr)			100
3.2	Average speed (km/hr)	78.7	76.7	77.7
3.3	Average speed - light vehicles (km/hr)	79.2	77.1	78.2
3.4	Average speed - heavy vehicles (km/hr)	71.9	71.4	71.6
3.5	Average night speed (km/hr)	78.3	78.9	78.6
3.6	15th centile speed (km/hr)	59.4	59.4	59.4
3.7	85th centile speed (km/hr)	97.9	95.9	95.9
3.8	Percentage vehicles in excess of speed limit	9.5	9.6	9.5
4.1	Percentage vehicles in flows over 600 vehicles/hr	0.0	0.0	0.0
4.2	Highest volume on the road (vehicles/hr)		2011/12/24 16:00:00	406
4.3	Highest volume in the East (vehs/hr)		2011/12/24 09:00:00	239
4.4	Highest volume in the West (vehs/hr)		2011/12/24 16:00:00	266
4.5	Highest volume in a lane (vehicles/hr)		2011/12/24 16:00:00	266
4.6	15th highest volume on the road (vehicles/hr)		2011/02/28 08:00:00	350
4.7	15th highest volume in the East direction (vehs/hr)		2011/04/26 10:00:00	202
4.8	15th highest volume in the West direction (vehs/hr)		2011/12/24 18:00:00	208
4.9	30th highest volume on the road (vehicles/hr)		2011/08/29 08:00:00	343
4.10	30th highest volume in the East direction (vehs/hr)		2011/04/21 08:00:00	193
4.11	30th highest volume in the West direction (vehs/hr)		2011/12/28 17:00:00	193
5.1	Percentage of vehicles less than 2s behind vehicle ahead	6.6	9.4	8.0
6.1	Total number of heavy vehicles	35994	34829	70823
6.2	Estimated average number of axles per truck	3.5	3.4	3.5
6.3	Estimated truck mass (Ton/truck)	20.2	19.7	20.0
6.4	Estimated average E80/truck	1.2	1.2	1.2
6.5	Estimated daily E80 on the road			241
6.6	Estimated daily E80 in the East direction			124
6.7	Estimated daily E80 in the West direction			118
6.8	Estimated daily E80 in the worst East lane			124
6.9	Estimated daily E80 in the worst West lane			118
6.10	ASSUMPTION on Axles/Truck (Short:Medium:Long)			(2.0 : 5.0 : 7.0)
6.11	ASSUMPTION on Mass/Truck (Short:Medium:Long)			(10.9 : 31.5 : 39.8)
6.12	ASSUMPTION on E80s/Truck (Short:Medium:Long)			(0.6 : 2.5 : 2.1)

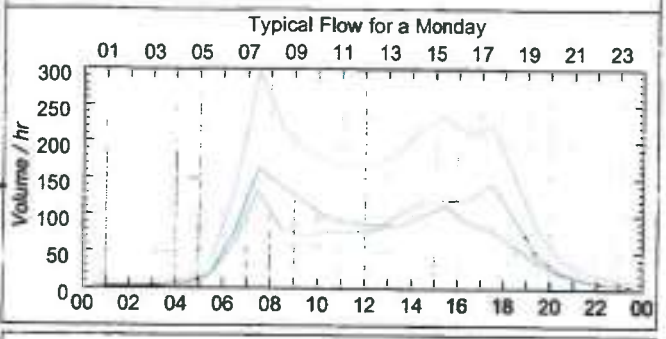
Typical Week Volume Report

Site	: 00420 - Matatiele
Region	: Alfred Nzo District
Actual Period	: 2011/01/01 to 2011/12/31
Classification	: RSA Vehicle
Day Type	: Normal Day&Fixed Public Holiday+

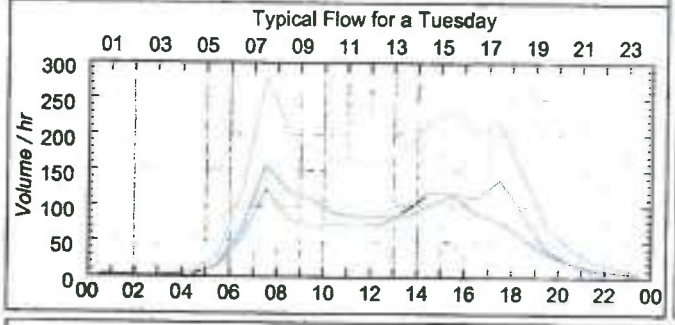
Total
To Matatiele
To Mount Fletcher

Total
Light
Heavy

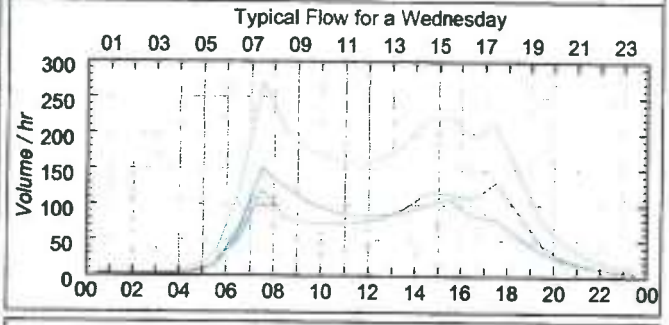
Typical Flow for a Monday



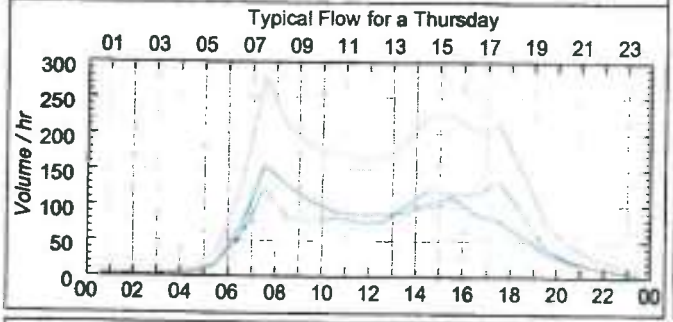
Typical Flow for a Tuesday



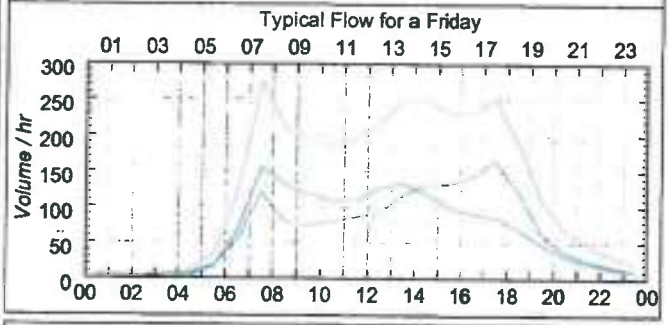
Typical Flow for a Wednesday



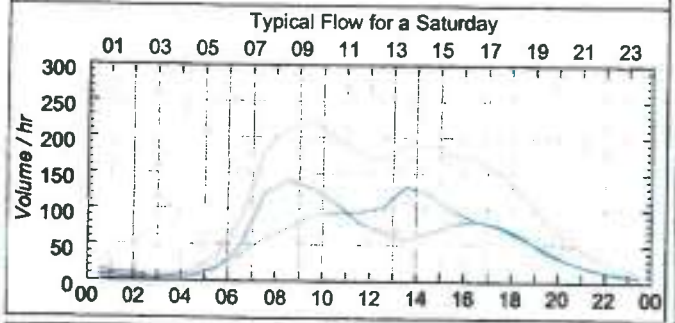
Typical Flow for a Thursday



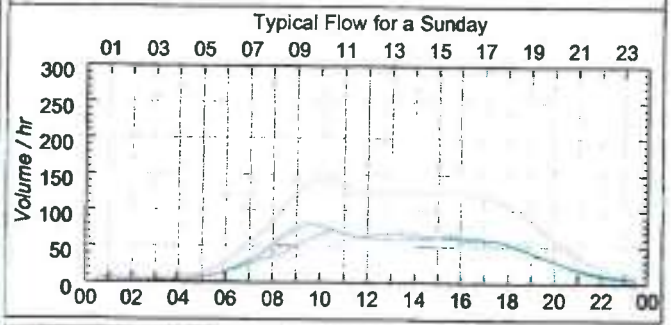
Typical Flow for a Friday



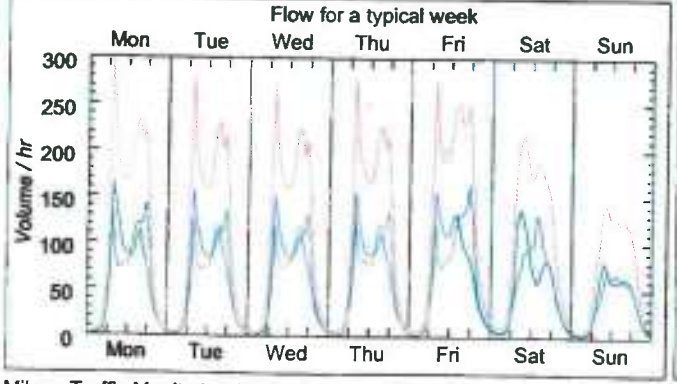
Typical Flow for a Saturday



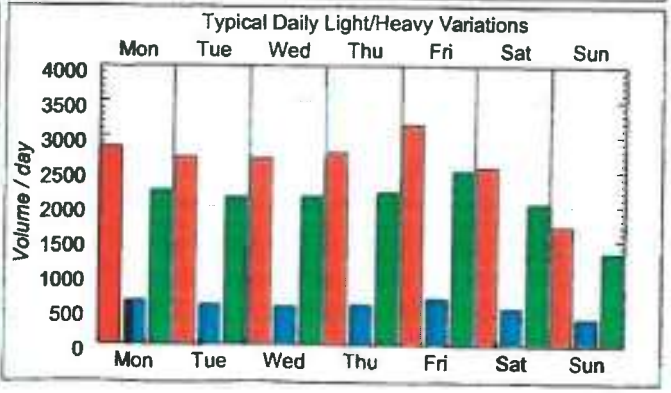
Typical Flow for a Sunday



Flow for a typical week



Typical Daily Light/Heavy Variations



TRAFFIC HIGHLIGHTS OF SITE 00410				
1.1	Site Identifier			00410
1.2	Site Name			TR01905 N
1.3	Site Description			TR01905
1.4	Road Description	Route : R396	Road : TR01905 Section :	Distance : 0.0km
1.5	GPS Position			28.348249E -31.059668S
1.6	Number of Lanes			2
1.7	Station Type			Secondary (Temp)
1.8	Requested Period			2010/01/01 - 2010/12/31
1.9	Length of record requested (hours)			8760
1.10	Actual First & Last Dates			2010/10/19 - 2010/10/22
1.11	Actual available data (hours)			68
1.12	Percentage data available for requested period			0.8
		To Mount Fletcher	To Maclear	Total
2.1	Total number of vehicles	1793	1827	3620
2.2	Average daily traffic (ADT)	633	645	1278
2.3	Average daily truck traffic (ADTT)			
2.4	Percentage of trucks	0.0	0.0	0.0
2.5	Truck split % (short:medium:long)	0 : 0 : 0	0 : 0 : 0	0 : 0 : 0
2.6	Percentage of night traffic (20:00 - 06:00)	9.9	7.8	8.9
3.1	Speed limit (km/hr)			60
3.2	Average speed (km/hr)			
3.3	Average speed - light vehicles (km/hr)			
3.4	Average speed - heavy vehicles (km/hr)			
3.5	Average night speed (km/hr)			
3.6	15th centile speed (km/hr)			
3.7	85th centile speed (km/hr)			
3.8	Percentage vehicles in excess of speed limit	0.0	0.0	0.0
4.1	Percentage vehicles in flows over 600 vehicles/hr	0.0	0.0	0.0
4.2	Highest volume on the road (vehicles/hr)		2010/10/20 08:00:00	135
4.3	Highest volume in the North (vehs/hr)		2010/10/20 08:00:00	70
4.4	Highest volume in the South (vehs/hr)		2010/10/20 08:00:00	65
4.5	Highest volume in a lane (vehicles/hr)		2010/10/20 08:00:00	70
4.6	15th highest volume on the road (vehicles/hr)		2010/10/21 10:00:00	94
4.7	15th highest volume in the North direction (vehs/hr)		2010/10/20 09:00:00	46
4.8	15th highest volume in the South direction (vehs/hr)		2010/10/20 15:00:00	51
4.9	30th highest volume on the road (vehicles/hr)		2010/10/20 11:00:00	70
4.10	30th highest volume in the North direction (vehs/hr)		2010/10/20 13:00:00	34
4.11	30th highest volume in the South direction (vehs/hr)		2010/10/20 18:00:00	34
5.1	Percentage of vehicles less than 2s behind vehicle ahead			
6.1	Total number of heavy vehicles			
6.2	Estimated average number of axles per truck			
6.3	Estimated truck mass (Ton/truck)			
6.4	Estimated average E80/truck			
6.5	Estimated daily E80 on the road			
6.6	Estimated daily E80 in the North direction			
6.7	Estimated daily E80 in the South direction			
6.8	Estimated daily E80 in the worst North lane			0
6.9	Estimated daily E80 in the worst South lane			0
6.10	ASSUMPTION on Axles/Truck (Short:Medium:Long)			(2.0 : 5.0 : 7.0)
6.11	ASSUMPTION on Mass/Truck (Short:Medium:Long)			(10.9 : 31.5 : 39.8)
6.12	ASSUMPTION on E80s/Truck (Short:Medium:Long)			(0.6 : 2.5 : 2.1)

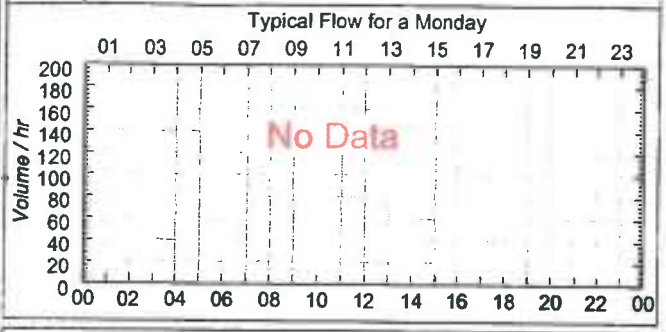
Typical Week Volume Report

Site : 00410 - TR01905 N
Region : Alfred Nzo District
Actual Period : 2010/10/19 to 2010/10/22
Classification : RSA Lgt/Hvy
Day Type : Normal Day&Fixed Public Holiday+

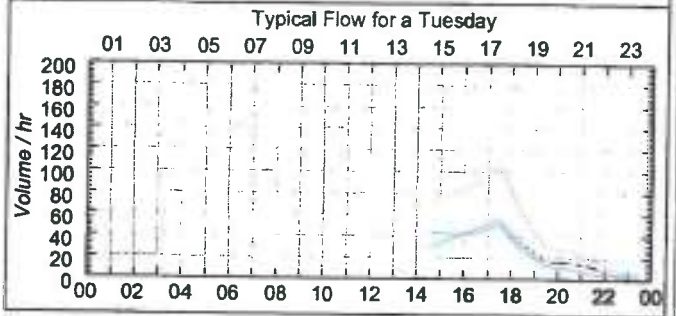
Total
To Mount Fletcher
To Maclear

Total
Light
Heavy

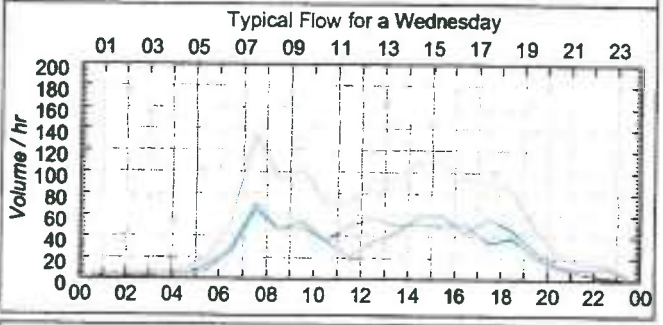
Typical Flow for a Monday



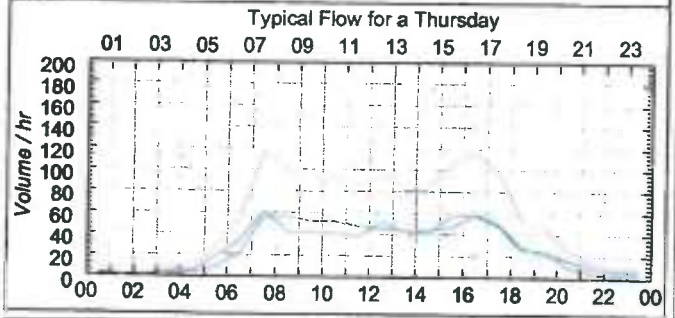
Typical Flow for a Tuesday



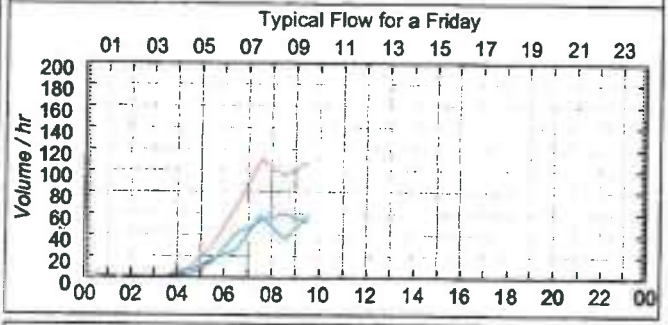
Typical Flow for a Wednesday



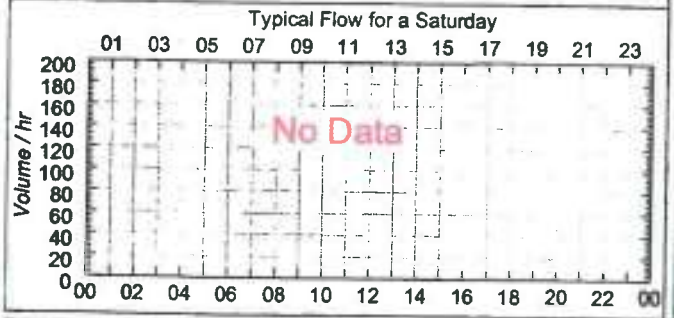
Typical Flow for a Thursday



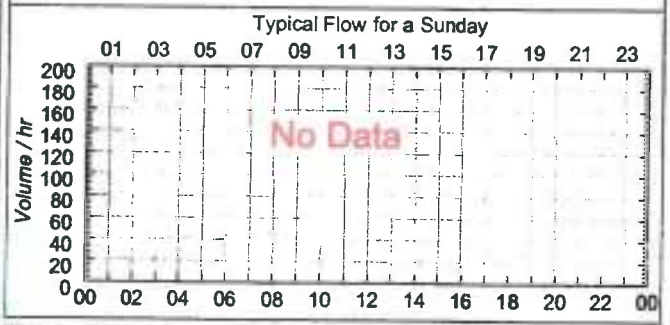
Typical Flow for a Friday



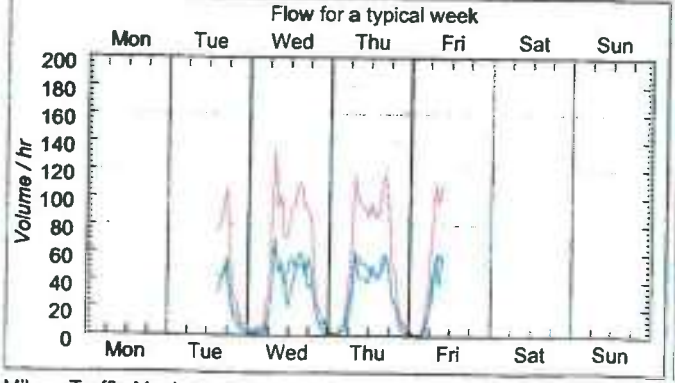
Typical Flow for a Saturday



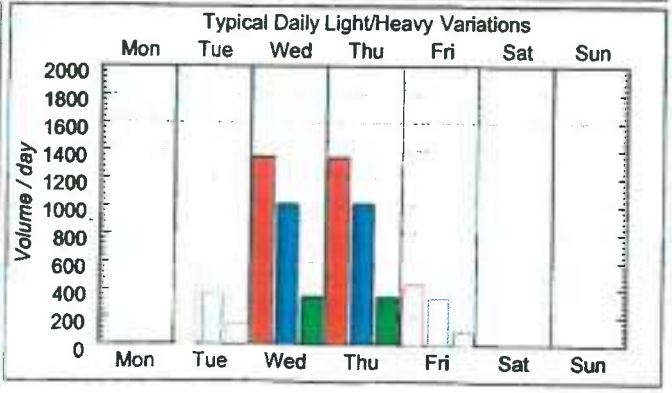
Typical Flow for a Sunday



Flow for a typical week



Typical Daily Light/Heavy Variations



ANNEXURE C

SIDRA Output Sheets

2015 Background Peak Hour Traffic Volumes

MOVEMENT SUMMARY

Site: 01 am nd

TR1905 / Access Road - existing
01 am nd 2015
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	108	0.0	0.084	3.1	LOS A	0.5	3.3	0.37	0.23	51.6
3	R2	39	0.0	0.084	3.1	LOS A	0.5	3.3	0.37	0.23	51.6
Approach		147	0.0	0.084	3.1	NA	0.5	3.3	0.37	0.23	51.6
East: Access Road											
4	L2	22	0.0	0.099	12.0	LOS B	0.3	2.4	0.33	0.91	45.6
6	R2	67	0.0	0.099	12.0	LOS B	0.3	2.4	0.33	0.91	45.6
Approach		89	0.0	0.099	12.0	LOS B	0.3	2.4	0.33	0.91	45.6
North: TR1905											
7	L2	126	0.0	0.137	4.0	LOS A	0.0	0.0	0.00	0.40	54.1
8	T1	135	0.0	0.137	4.0	LOS A	0.0	0.0	0.00	0.40	54.1
Approach		261	0.0	0.137	4.0	NA	0.0	0.0	0.00	0.40	54.1
All Vehicles		498	0.0	0.137	5.2	NA	0.5	3.3	0.17	0.44	51.6

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 pm nd

TR1905 / Access Road - existing
01 pm nd 2015
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	147	0.0	0.085	1.4	LOS A	0.5	3.5	0.32	0.08	53.6
3	R2	14	0.0	0.085	1.4	LOS A	0.5	3.5	0.32	0.08	53.6
Approach		161	0.0	0.085	1.4	NA	0.5	3.5	0.32	0.08	53.6
East: Access Road											
4	L2	23	0.0	0.111	12.0	LOS B	0.4	2.7	0.34	0.91	45.7
6	R2	77	0.0	0.111	12.0	LOS B	0.4	2.7	0.34	0.91	45.7
Approach		100	0.0	0.111	12.0	LOS B	0.4	2.7	0.34	0.91	45.7
North: TR1905											
7	L2	54	0.0	0.104	2.2	LOS A	0.0	0.0	0.00	0.25	56.6
8	T1	147	0.0	0.104	2.2	LOS A	0.0	0.0	0.00	0.25	56.6
Approach		201	0.0	0.104	2.2	NA	0.0	0.0	0.00	0.25	56.6
All Vehicles		462	0.0	0.111	4.0	NA	0.5	3.5	0.18	0.33	52.8

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ANNEXURE D

SIDRA Output Sheets

2015 Traffic Volumes After Development

MOVEMENT SUMMARY

Site: 01 am wd

Thembeni Township Development TIA
01 am wd - TR1905 / Access Road
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	200	0.0	0.156	1.3	LOS A	1.0	6.9	0.44	0.22	50.8
3	R2	69	0.0	0.156	9.7	LOS A	1.0	6.9	0.44	0.22	50.8
Approach		269	0.0	0.156	3.5	NA	1.0	6.9	0.44	0.22	50.8
East: Access Road											
4	L2	114	0.0	0.332	13.4	LOS B	1.5	10.6	0.41	0.95	44.6
6	R2	162	0.0	0.332	13.2	LOS B	1.5	10.6	0.41	0.95	44.6
Approach		276	0.0	0.332	13.3	LOS B	1.5	10.6	0.41	0.95	44.6
North: TR1905											
7	L2	157	0.0	0.169	8.2	LOS A	0.0	0.0	0.00	0.40	54.0
8	T1	165	0.0	0.169	0.0	LOS A	0.0	0.0	0.00	0.40	54.0
Approach		322	0.0	0.169	4.0	NA	0.0	0.0	0.00	0.40	54.0
All Vehicles		867	0.0	0.332	6.8	NA	1.5	10.6	0.27	0.52	49.7

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 pm wd

Thembeni Township Development TIA
01 pm wd - TR1905 / Access Road
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	184	0.0	0.159	1.5	LOS A	1.0	7.0	0.48	0.26	50.1
3	R2	79	0.0	0.159	10.0	LOS A	1.0	7.0	0.48	0.26	50.1
Approach		263	0.0	0.159	4.1	NA	1.0	7.0	0.48	0.26	50.1
East: Access Road											
4	L2	60	0.0	0.232	13.5	LOS B	0.9	6.1	0.45	0.95	44.6
6	R2	114	0.0	0.232	13.3	LOS B	0.9	6.1	0.45	0.95	44.6
Approach		174	0.0	0.232	13.4	LOS B	0.9	6.1	0.45	0.95	44.6
North: TR1905											
7	L2	139	0.0	0.194	8.2	LOS A	0.0	0.0	0.00	0.33	55.3
8	T1	233	0.0	0.194	0.0	LOS A	0.0	0.0	0.00	0.33	55.3
Approach		372	0.0	0.194	3.1	NA	0.0	0.0	0.00	0.33	55.3
All Vehicles		808	0.0	0.232	5.6	NA	1.0	7.0	0.25	0.44	51.0

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 02 am wd

Thembeni Township Development TIA
02 am wd - TR1905 / New Access Road
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	178	0.0	0.114	1.0	LOS A	0.7	4.9	0.39	0.13	52.1
3	R2	31	0.0	0.114	9.5	LOS A	0.7	4.9	0.39	0.13	52.1
Approach		208	0.0	0.114	2.3	NA	0.7	4.9	0.39	0.13	52.1
East: New Access Road											
4	L2	92	0.0	0.210	12.7	LOS B	0.8	5.7	0.42	0.93	45.2
6	R2	92	0.0	0.210	12.5	LOS B	0.8	5.7	0.42	0.93	45.2
Approach		183	0.0	0.210	12.6	LOS B	0.8	5.7	0.42	0.93	45.2
North: TR1905											
7	L2	31	0.0	0.144	8.2	LOS A	0.0	0.0	0.00	0.11	58.5
8	T1	248	0.0	0.144	0.0	LOS A	0.0	0.0	0.00	0.11	58.5
Approach		279	0.0	0.144	0.9	NA	0.0	0.0	0.00	0.11	58.5
All Vehicles		671	0.0	0.210	4.5	NA	0.8	5.7	0.24	0.34	52.3

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 02 pm wd

Thembeni Township Development TIA
02 pm wd - TR1905 / New Access Road
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	246	0.0	0.190	1.2	LOS A	1.2	8.5	0.43	0.22	50.9
3	R2	85	0.0	0.190	9.6	LOS A	1.2	8.5	0.43	0.22	50.9
Approach		332	0.0	0.190	3.4	NA	1.2	8.5	0.43	0.22	50.9
East: New Access Road											
4	L2	37	0.0	0.091	12.9	LOS B	0.3	2.2	0.38	0.91	45.0
6	R2	37	0.0	0.091	12.6	LOS B	0.3	2.2	0.38	0.91	45.0
Approach		74	0.0	0.091	12.8	LOS B	0.3	2.2	0.38	0.91	45.0
North: TR1905											
7	L2	85	0.0	0.152	8.2	LOS A	0.0	0.0	0.00	0.27	56.3
8	T1	207	0.0	0.152	0.0	LOS A	0.0	0.0	0.00	0.27	56.3
Approach		293	0.0	0.152	2.4	NA	0.0	0.0	0.00	0.27	56.3
All Vehicles		698	0.0	0.190	4.0	NA	1.2	8.5	0.25	0.31	52.3

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ANNEXURE E

SIDRA Output Sheets

2025 Traffic Volumes After Development

MOVEMENT SUMMARY

Site: 01 am wd

Thembeni Township Development TIA
2025 - 01 am wd - TR1905 / Access Road
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	267	0.0	0.235	2.5	LOS A	1.7	12.0	0.59	0.26	48.8
3	R2	105	0.0	0.235	10.9	LOS B	1.7	12.0	0.59	0.26	48.8
Approach		373	0.0	0.235	4.9	NA	1.7	12.0	0.59	0.26	48.8
East: Access Road											
4	L2	127	0.0	0.510	17.1	LOS C	3.0	21.2	0.57	1.05	41.7
6	R2	201	0.0	0.510	16.8	LOS C	3.0	21.2	0.57	1.05	41.7
Approach		328	0.0	0.510	16.9	LOS C	3.0	21.2	0.57	1.05	41.7
North: TR1905											
7	L2	237	0.0	0.255	8.2	LOS A	0.0	0.0	0.00	0.40	54.0
8	T1	249	0.0	0.255	0.0	LOS A	0.0	0.0	0.00	0.40	54.0
Approach		486	0.0	0.255	4.0	NA	0.0	0.0	0.00	0.40	54.0
All Vehicles		1187	0.0	0.510	7.9	NA	3.0	21.2	0.34	0.54	48.5

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 pm wd

Thembeni Township Development TIA
2025 - 01 pm wd - TR1905 / Access Road
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	277	0.0	0.244	2.6	LOS A	1.8	12.6	0.61	0.26	48.6
3	R2	108	0.0	0.244	11.0	LOS B	1.8	12.6	0.61	0.26	48.6
Approach		385	0.0	0.244	5.0	NA	1.8	12.6	0.61	0.26	48.6
East: Access Road											
4	L2	75	0.0	0.420	17.3	LOS C	2.0	14.2	0.61	1.04	41.6
6	R2	162	0.0	0.420	17.1	LOS C	2.0	14.2	0.61	1.04	41.6
Approach		237	0.0	0.420	17.1	LOS C	2.0	14.2	0.61	1.04	41.6
North: TR1905											
7	L2	173	0.0	0.260	8.2	LOS A	0.0	0.0	0.00	0.31	55.6
8	T1	325	0.0	0.260	0.0	LOS A	0.0	0.0	0.00	0.31	55.6
Approach		498	0.0	0.260	2.9	NA	0.0	0.0	0.00	0.31	55.6
All Vehicles		1120	0.0	0.420	6.6	NA	2.0	14.2	0.34	0.45	49.6

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 02 am wd

Thembeni Township Development TIA
2025 - 02 am wd - TR1905 / New Access Road
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	260	0.0	0.158	1.6	LOS A	1.1	7.8	0.48	0.10	51.1
3	R2	31	0.0	0.158	10.0	LOS B	1.1	7.8	0.48	0.10	51.1
Approach		291	0.0	0.158	2.5	NA	1.1	7.8	0.48	0.10	51.1
East: New Access Road											
4	L2	92	0.0	0.253	14.0	LOS B	1.0	6.9	0.51	0.96	44.2
6	R2	92	0.0	0.253	13.8	LOS B	1.0	6.9	0.51	0.96	44.2
Approach		183	0.0	0.253	13.9	LOS B	1.0	6.9	0.51	0.96	44.2
North: TR1905											
7	L2	31	0.0	0.194	8.2	LOS A	0.0	0.0	0.00	0.08	58.9
8	T1	346	0.0	0.194	0.0	LOS A	0.0	0.0	0.00	0.08	58.9
Approach		377	0.0	0.194	0.7	NA	0.0	0.0	0.00	0.08	58.9
All Vehicles		851	0.0	0.253	4.1	NA	1.1	7.8	0.28	0.28	52.4

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 02 pm wd

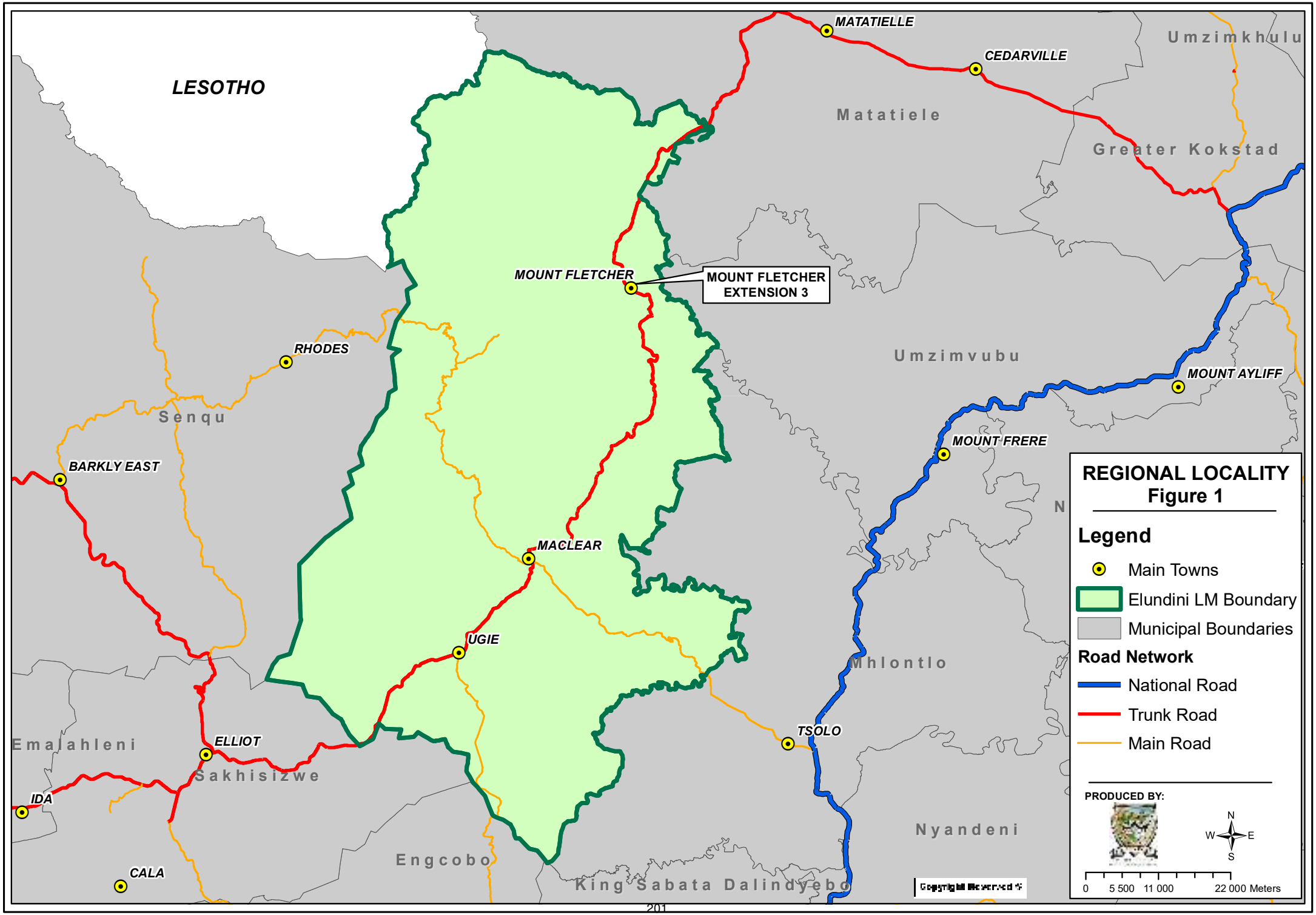
Thembeni Township Development TIA
2025 - 02 pm wd - TR1905 / New Access Road
Stop (Two-Way)

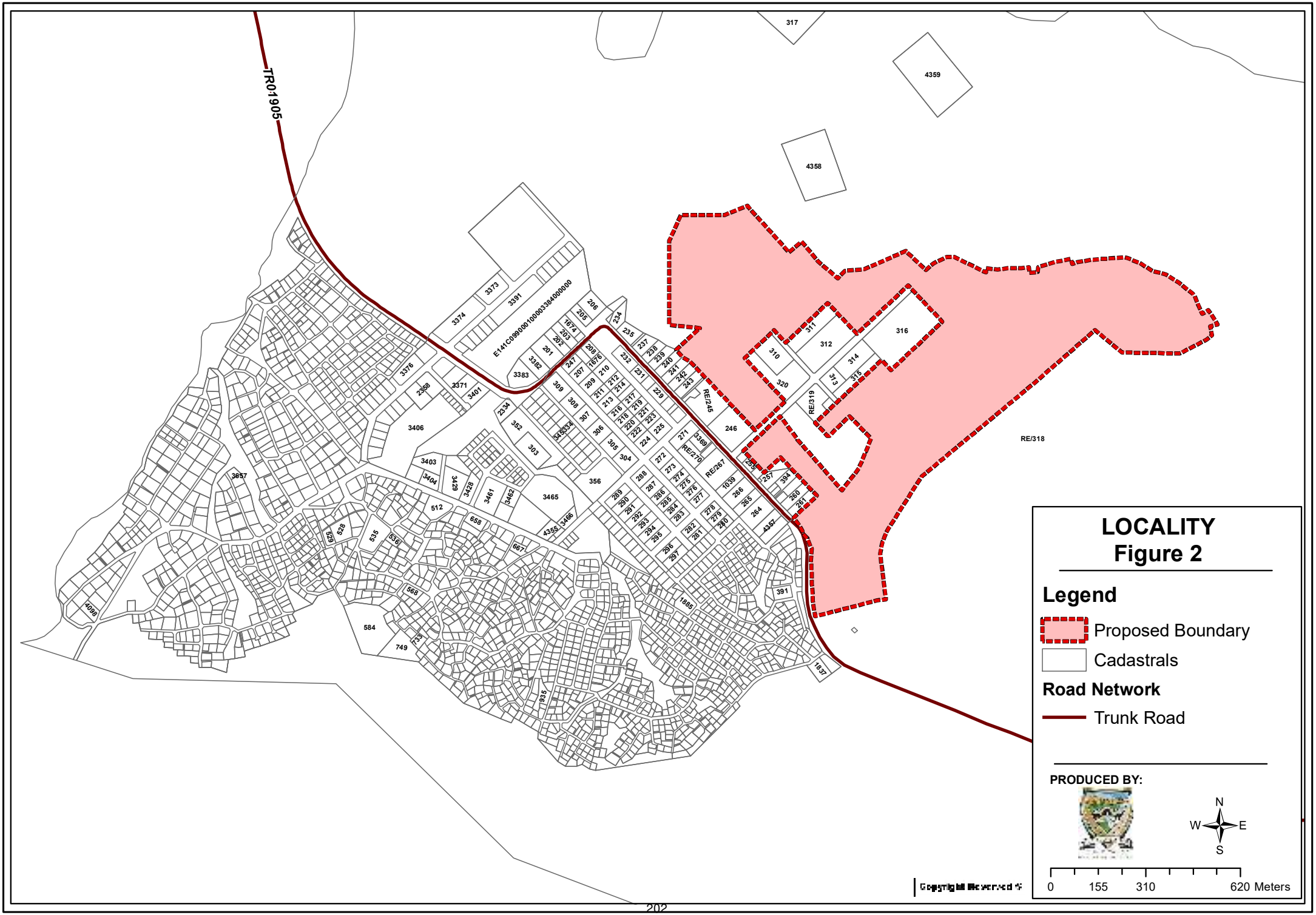
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: TR1905											
2	T1	348	0.0	0.250	1.9	LOS A	1.9	13.1	0.55	0.18	49.8
3	R2	85	0.0	0.250	10.4	LOS B	1.9	13.1	0.55	0.18	49.8
Approach		434	0.0	0.250	3.6	NA	1.9	13.1	0.55	0.18	49.8
East: New Access Road											
4	L2	37	0.0	0.114	14.3	LOS B	0.4	2.7	0.48	0.93	43.9
6	R2	37	0.0	0.114	14.1	LOS B	0.4	2.7	0.48	0.93	43.9
Approach		74	0.0	0.114	14.2	LOS B	0.4	2.7	0.48	0.93	43.9
North: TR1905											
7	L2	85	0.0	0.207	8.2	LOS A	0.0	0.0	0.00	0.20	57.2
8	T1	315	0.0	0.207	0.0	LOS A	0.0	0.0	0.00	0.20	57.2
Approach		400	0.0	0.207	1.8	NA	0.0	0.0	0.00	0.20	57.2
All Vehicles		907	0.0	0.250	3.7	NA	1.9	13.1	0.30	0.25	52.2

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ANNEXURE I

Plans


LESOTHO
MATATIELLE
CEDARVILLE
Umzimkhulu
Matatiele
Greater Kokstad
MOUNT FLETCHER
MOUNT FLETCHER EXTENSION 3
RHODES
Umzimvubu
MOUNT AYLIFF
Senqu
MOUNT FRERE
BARKLY EAST
MACLEAR
UGIE
Mhlontlo
TSOLO
Emalahleni
ELLIOT
Sakhisizwe
IDA
Nyandeni
Engcobo
CALA
King Sabata Dalindyebo
REGIONAL LOCALITY
Figure 1
Legend
Main Towns
Elundini LM Boundary
Municipal Boundaries
Road Network
National Road
Trunk Road
Main Road
PRODUCED BY:
N
W
E
S
0
5 500
11 000
22 000 Meters


TR01905
317
4359
4358
RE/318
RE/319
RE/245
RE/267
RE/270
E141C0990001000033840000000
LOCALITY
Figure 2
Legend
Proposed Boundary
Cadastrals
Road Network
Trunk Road
PRODUCED BY:
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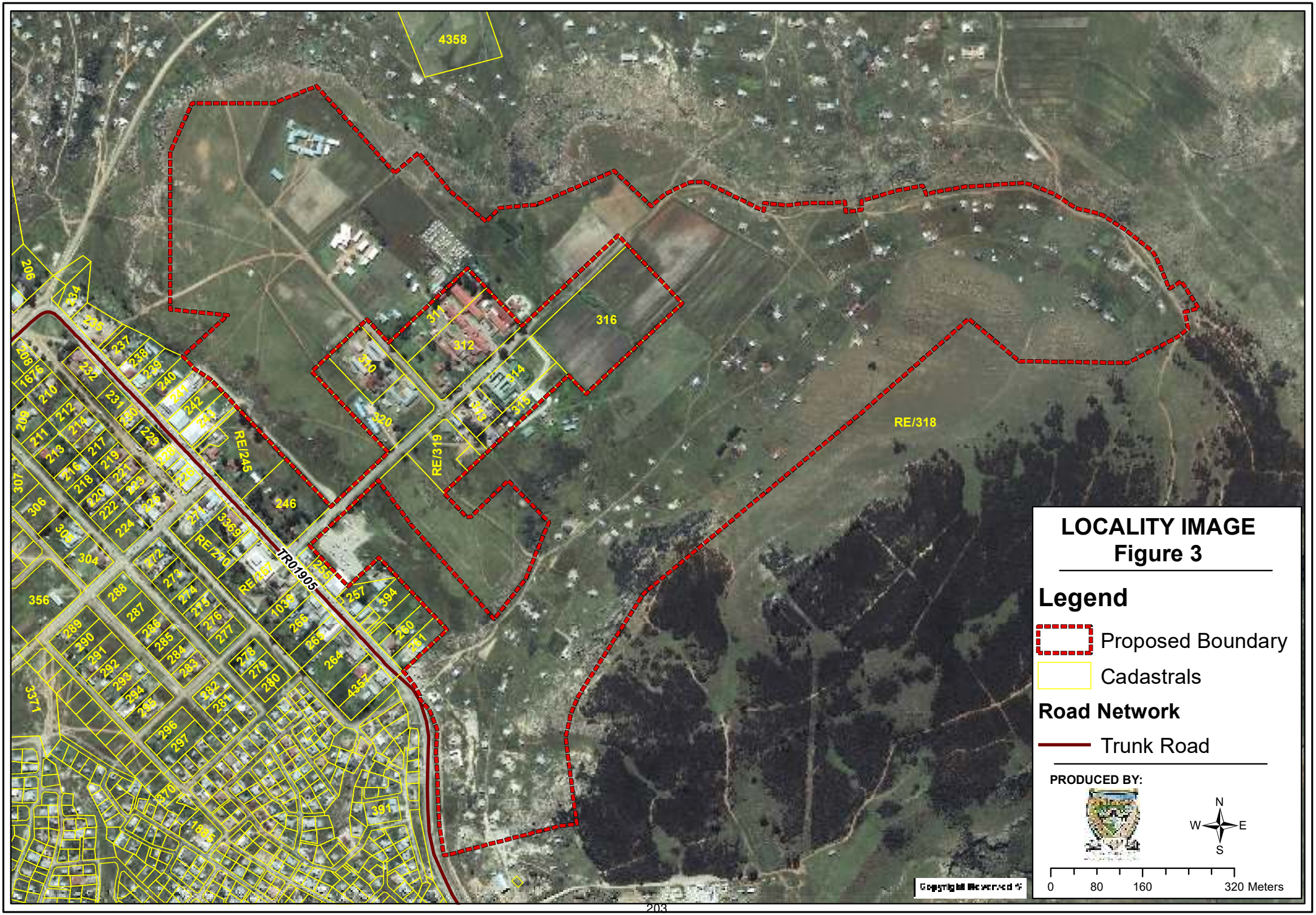
310
620 Meters
202


4358
316
312
311
314
315
313
310
320
RE/319
RE/245
RE/318
246
RE/210
RE/267
TR01905
LOCALITY IMAGE
Figure 3
Legend
Proposed Boundary
Cadastrals
Road Network
Trunk Road
PRODUCED BY:
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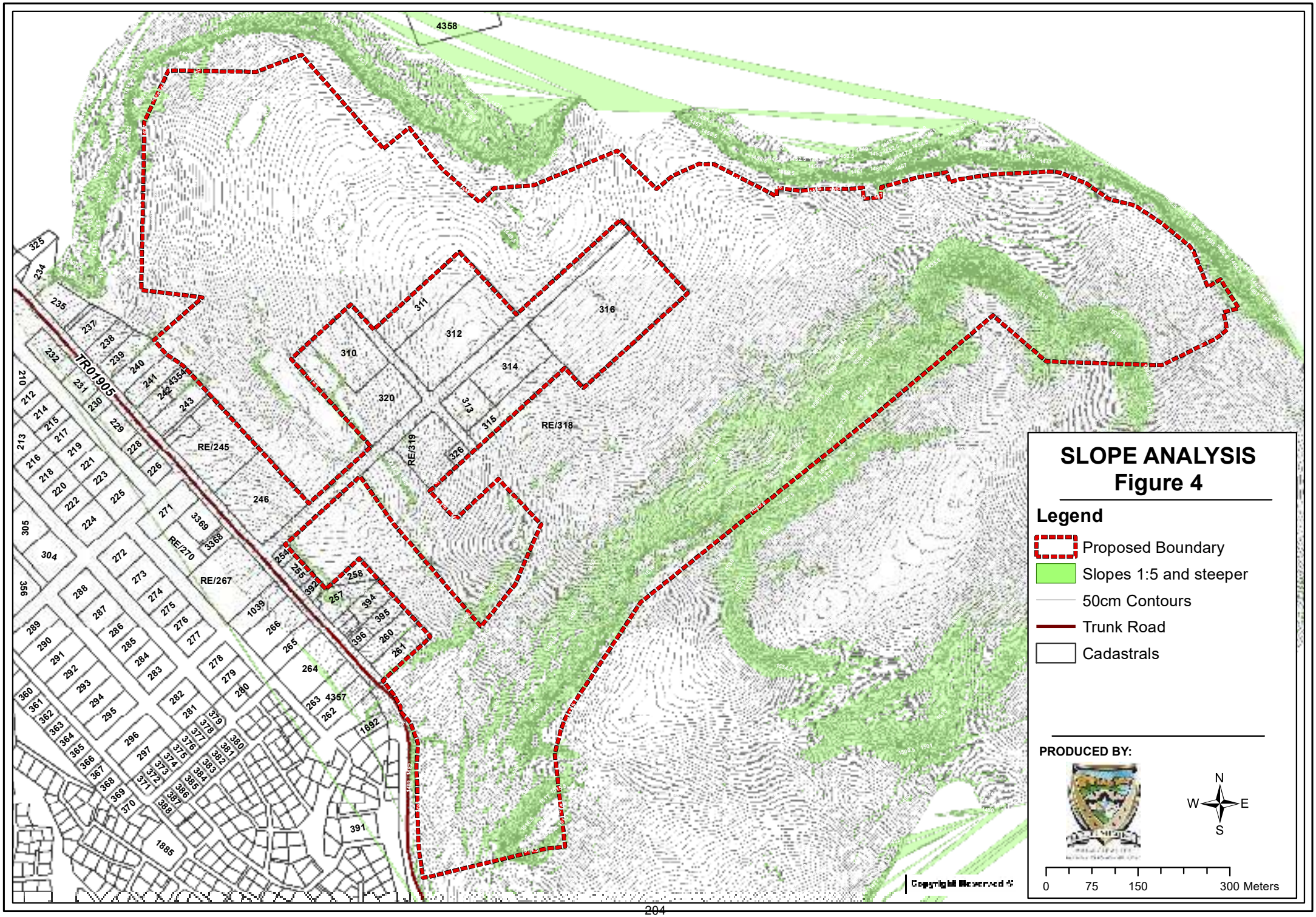
320 Meters
Copyright Reserved


SLOPE ANALYSIS
Figure 4
Legend
Proposed Boundary
Slopes 1:5 and steeper
50cm Contours
Trunk Road
Cadastrals
PRODUCED BY:
N
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300 Meters
TR01905
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RE/267
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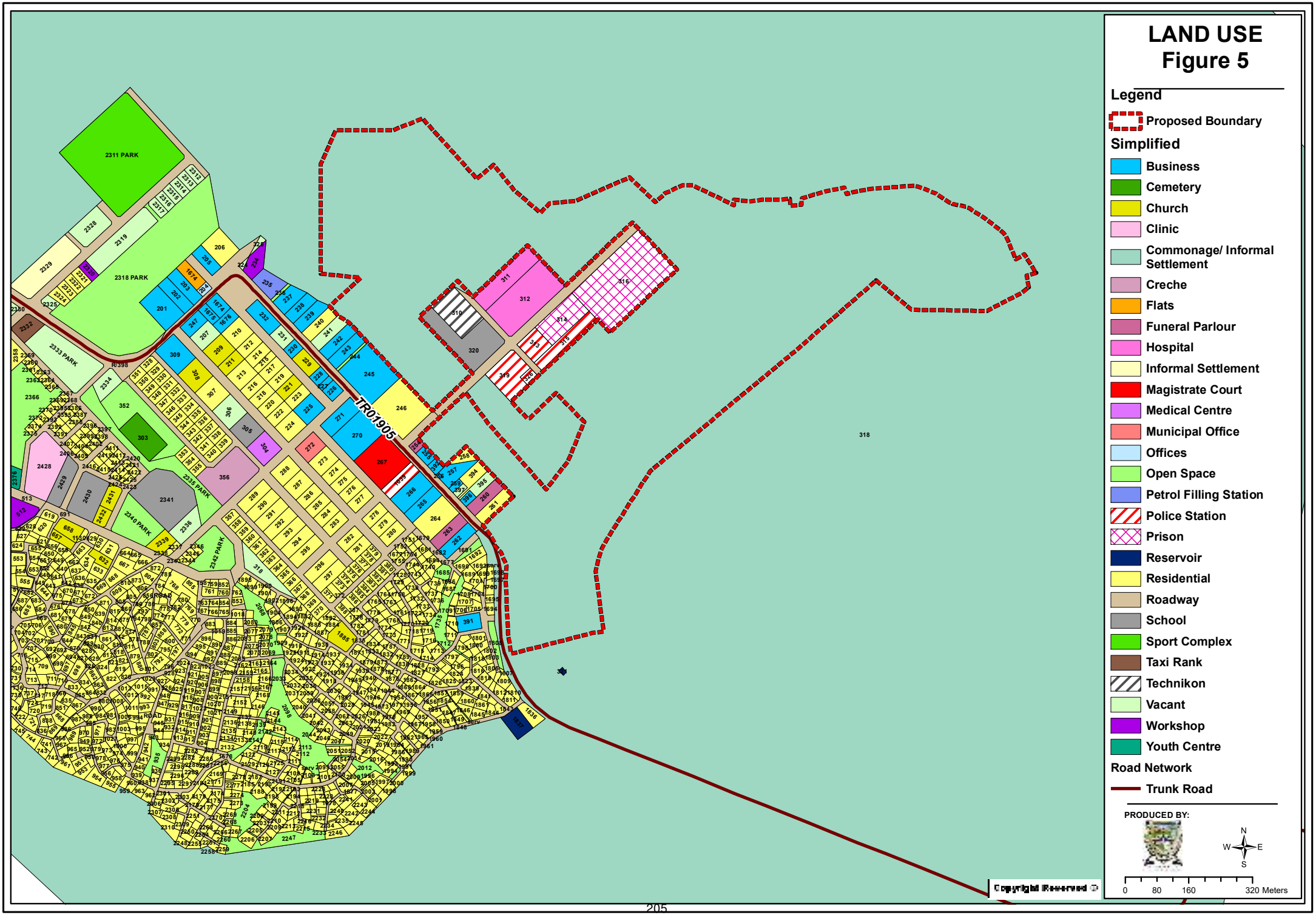
4354
4357
1692
1885
391
Copyright Reserved ©


LAND USE
Figure 5
Legend
Proposed Boundary
Simplified
Business
Cemetery
Church
Clinic
Commonage/ Informal Settlement
Creche
Flats
Funeral Parlour
Hospital
Informal Settlement
Magistrate Court
Medical Centre
Municipal Office
Offices
Open Space
Petrol Filling Station
Police Station
Prison
Reservoir
Residential
Roadway
School
Sport Complex
Taxi Rank
Technikon
Vacant
Workshop
Youth Centre
Road Network
Trunk Road
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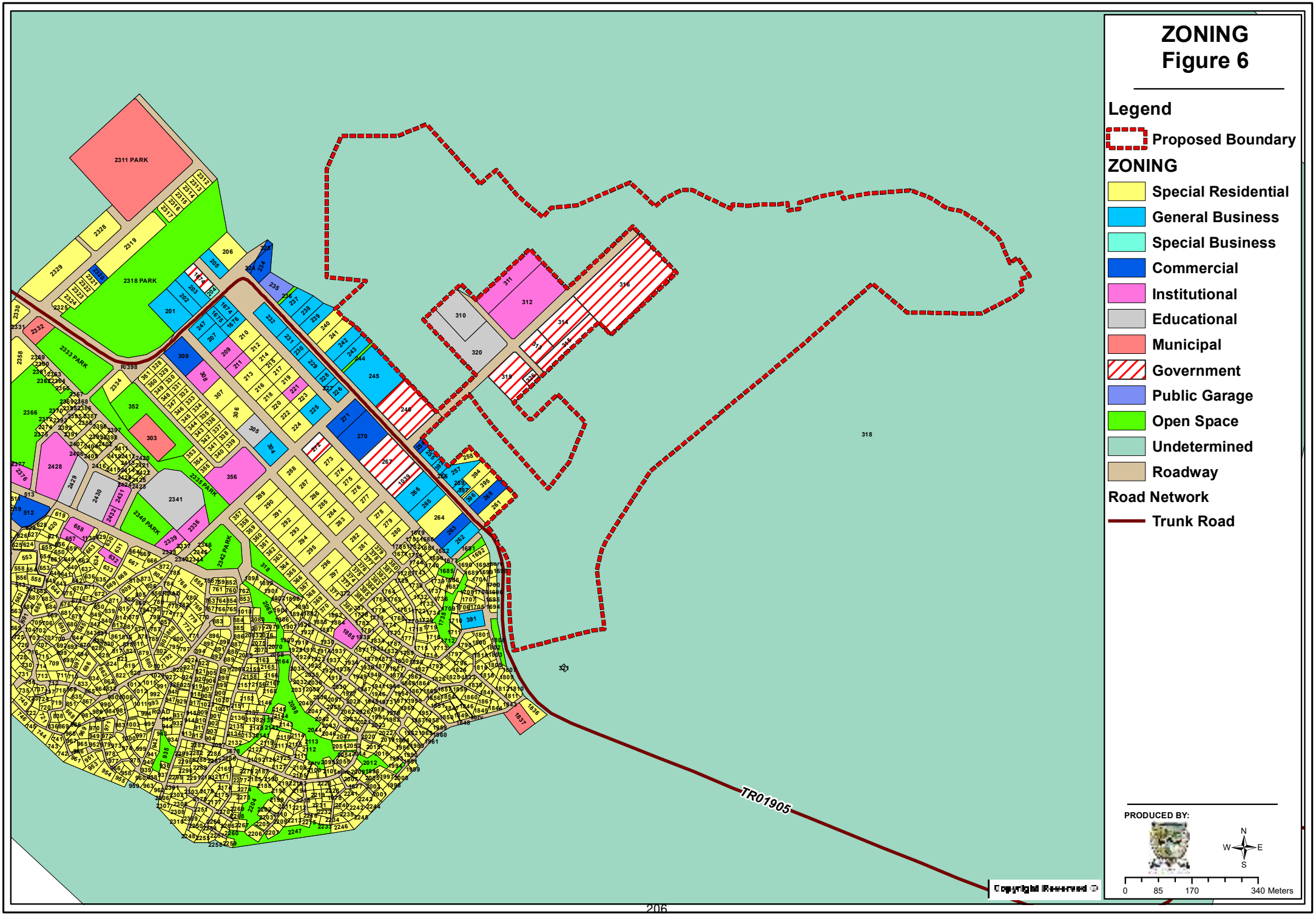
Copyright Reserved
TR01/905
R/398
2311 PARK
2318 PARK
2333 PARK
2335 PARK
2340 PARK
2342 PARK
ROAD


ZONING
Figure 6
Legend
Proposed Boundary
ZONING
Special Residential
General Business
Special Business
Commercial
Institutional
Educational
Municipal
Government
Public Garage
Open Space
Undetermined
Roadway
Road Network
Trunk Road
2311 PARK
2318 PARK
2333 PARK
2335 PARK
2340 PARK
2342 PARK
R/398
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170
340 Meters
Copyright Reserved

MOUNT FLETCHER EXTENSION 3 (Elundini Local Municipality)

SUBDIVISION OF REM. ERF 318 Plan A/1

Legend

- PORTION A (Ptn of Rem. Erf 318)
- Rem. Erf 318
- Surveyed Cadastrals

Remainder Erf 318

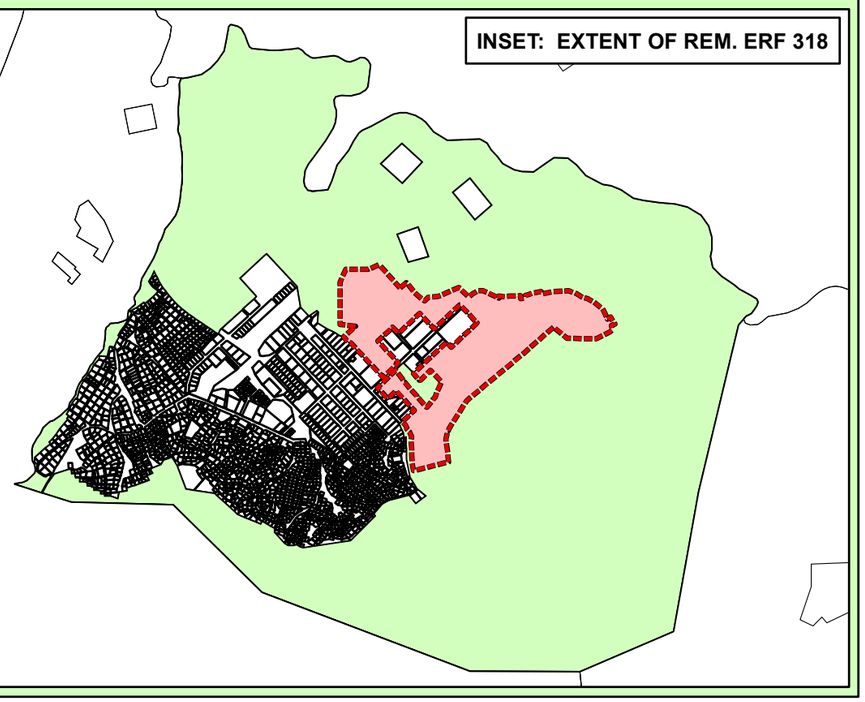
PORTION A
± 84.4812ha

RE/318

RE/318

Remainder Erf 318

INSET: EXTENT OF REM. ERF 318



NOTE:

1. Remainder Erf 318 is to be subdivided into three portions, Portion A and Split Remainder.
2. Portion A is to be Rezoned from Undetermined to Subdivisional Area, see detailed layout plan (Plan A/2)

Scale 1:5 500

0 20 40 80 120 160 200 Meters

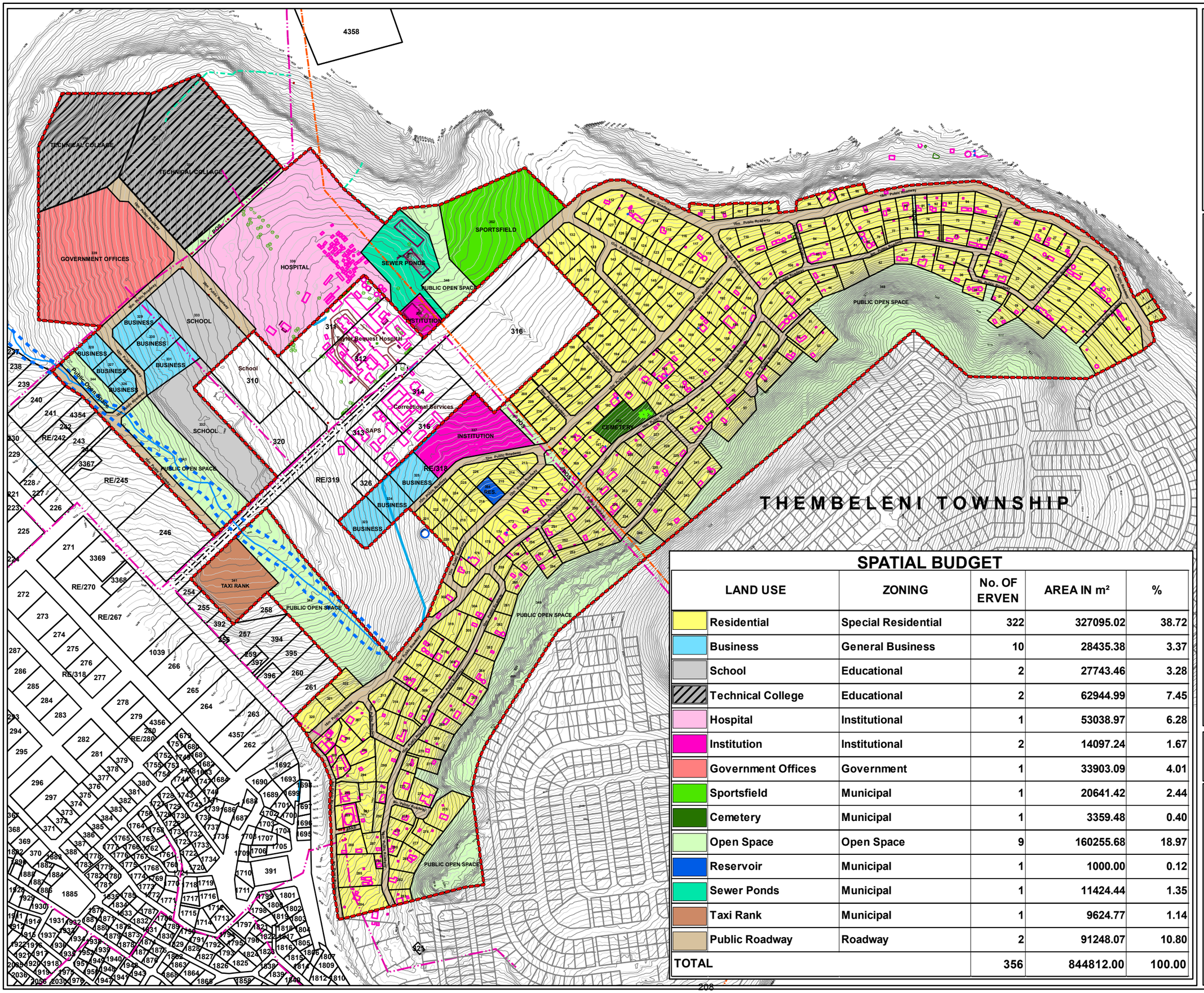
Date:9 July 2019

N

PRODUCED BY:

MOUNT FLETCHER EXTENSION 3 (Elundini Local Municipality)

SITE LAYOUT PLAN
Plan A/2



Legend

- Boundary
- Surveyed Cadastrals
- Layout Plan
- 1:100 Year Floodline
- Stream
- 11kv Powerline
- 33kv Powerline
- Proposed Greenfields Layout
- Buildings and Temp Buildings
- Channel Earth
- General Contours
- Graves
- Kerb
- Kraal
- Major Contours
- Palm
- Pylon
- Reservoir
- Servitude Area
- Sewer
- Tanks
- Tar Road
- Toilets
- Trees
- Wall

SPATIAL BUDGET

LAND USE	ZONING	No. OF ERVEN	AREA IN m²	%
Residential	Special Residential	322	327095.02	38.72
Business	General Business	10	28435.38	3.37
School	Educational	2	27743.46	3.28
Technical College	Educational	2	62944.99	7.45
Hospital	Institutional	1	53038.97	6.28
Institution	Institutional	2	14097.24	1.67
Government Offices	Government	1	33903.09	4.01
Sportsfield	Municipal	1	20641.42	2.44
Cemetery	Municipal	1	3359.48	0.40
Open Space	Open Space	9	160255.68	18.97
Reservoir	Municipal	1	1000.00	0.12
Sewer Ponds	Municipal	1	11424.44	1.35
Taxi Rank	Municipal	1	9624.77	1.14
Public Roadway	Roadway	2	91248.07	10.80
TOTAL		356	844812.00	100.00

Scale 1:5 500
0 20 40 80 120 160 200 Meters

N

Date:9 July 2019

PRODUCED FOR:

ELUNDINI MUNICIPALITY

Province of the
EASTERN CAPE

DEPARTMENT OF ECONOMIC DEVELOPMENT AND ENVIRONMENTAL AFFAIRS

JOE GQABI REGIONAL OFFICE
Private Bag x 1016
ALIWAL NORTH, 9750
Tel: 0516332001
Fax: 0516333117

Environmental Authorisation

Authorisation register number	:	*NR EC 141 -042- -2007*
NEAS number	:	
Last amended	:	
Holder of authorisation	:	*ELUNDINI LOCAL MUNICIPALITY*
Location of activity	:	*MT FLETCHER TOWNSHIP, AREA 1, AREA 2 & AREA 3, IN EASTERN CAPE PROVINCE*

1. Decision

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this environmental authorisation, that the applicant should be authorised to undertake the activity specified below.

Details regarding the basis on which the Department reached this decision are set out in Annexure 1.

2. Activities authorised

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2006 the Department hereby authorises –

Elundini Local Municipality

with the following contact details –

Mr. Charles Coetzer
Elundini Local Municipality
Private Bag X1
MACLEAR
5470

Tel: (045) 932 1082
Fax: (045) 932 1094
Cell: (082) 448 6069
E-mail: charlesc@elundini.gov.za

to undertake the following activities (hereafter referred to as "the activities" indicated in Government Notice R 387/2, Government Notice R 386/12 & Government Notice 386/1m:

GN R 387/2: Any development activity including associated structures and infrastructure, where total area of the development is 20ha or more.

GN R386/12: The transformation or removal of indigenous vegetation of 3 hectares or more or of any size where the transformation or removal would occur within a critically endangered or an endangered ecosystem listed in terms of section

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

GN R 386/1m: The construction of facilities or infrastructure, including associated structures or infrastructure, for any purpose in the one in ten year flood line of a river or within 32 meters from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including – (i) canals;(ii) channels,(iii) bridges;(iv) dams; and (v) weirs

as described in the in the Environmental Impact Assessment Report (EIAR) dated 10 May 2010:

Alternative S1	Latitude	Longitude
Area 1	30° 41' 24.12"S	28° 30' 35.96"E
Area 2	30° 41' 28.89"S	28° 29' 53.02"E
Area 3	30° 41' 45.36"S	28° 29' 29.70"E

the extension and formalisation of township in Mt Fletcher at Elundini Local Municipality in Eastern Cape, hereafter referred to as "the property".

3. Exemptions

Further, the Department hereby exempts -

Terreco Consulting cc

acting on behalf of the Elundini Local Municipality from assessing site and activity alternatives because the area has already been impacted by the same type of development. The proposed development aims to formalise the existing informal residential areas, improve sanitation by installing the low flush toilets in three areas i.e. areas 1, 2 & 3 of Mt Fletcher.

The granting of this Environmental Authorisation is subject to the conditions set out below.

4. Conditions of Environmental Authorisation

Scope of authorisation

4.1 Authorisation of the activity is subject to the conditions contained in this authorisation, which form part of the environmental authorisation and are binding on the holder of the authorisation.

4.2 The holder of the authorisation shall be responsible for ensuring compliance with the conditions contained in this environmental authorisation. This includes any person acting on the holder's behalf, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.

4.3 The activities authorised may only be carried out at Mt Fletcher township areas 1, 2 and 3.

4.4 Any changes to, or deviations from, the project description set out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.

4.5 This authorisation does not negate the holder of the authorisation from the responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

4.6 Conditions of authorization relating to the project are valid in perpetuity

4.7 Relevant legislation that must be complied with by the holder of this authorisation includes, inter alia:

i. Pollution of air through dust must be controlled as according to the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004). Water must be sprayed to control dust on site.

ii. Should fill material be required for any purpose, the contractor must utilise the borrow pits approved by the Department of Minerals Resources.

4.8 Vegetation clearing must be kept to an absolute minimum. Mitigation measures must be implemented to reduce the risk of erosion and the invasion of alien species.

4.9 Construction must include appropriate design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off.

4.10 An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste shall be disposed of at a landfill licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No. 59 of 2008).

4.11 The holder of an environmental authorisation has the responsibility to notify the competent authority of any alienation, transfer and change of ownership

Management of the activity

4.12 The Environmental Management Programme (EMPr) for the construction submitted as part of Application for Environmental Authorization is hereby approved.

4.13 The recommendations and mitigation measures recorded in the EIAR dated 10 May 2010 must be adhered to and incorporated as part of the EMPr where applicable.

4.14 Any updates or amendments to the EMPr must be submitted to the Department of Economic Development and Environmental Affairs and must be decided upon within a period of 30 days of the submission.

4.15 All correspondence with regard to this application must be forwarded for attention of The Deputy Director: Environment within the regional office, except the appeal.

Monitoring

4.16 The applicant must appoint a suitably experienced Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation / rehabilitation measures and recommendations referred to in this authorisation are implemented and to ensure compliance with the provisions of the EMPr.

4.17 The ECO shall be appointed before commencement of any land clearing or construction activities.

4.18 The ECO shall keep records of all activities on site, problems identified, transgressions noted and schedule of tasks undertaken by the ECO.

4.19 The ECO shall remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.

4.20 Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

Recording and reporting to the Department

4.21 The holder of the authorisation must submit an environmental audit report to the Department upon completion of the construction and rehabilitation activities. The environmental audit report must –

i. Indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions as well as the requirements of the EMPr.

ii. Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

Commencement of the activity

4.22 This activity must commence within a period of twelve (12) months from the date of issue. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.

4.23 Should you be notified by the MEC of a suspension of the authorisation pending appeal procedures, you shall not commence with the activity unless authorised by the MEC in writing.

Notification to authorities

4.24 Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.

Operation of the activity

4.25 Fourteen (14) days written notice must be given to the Department that the activity's operational phase will commence.

4.26 The applicant must compile an operational EMPr for the operational phase of the activity or alternatively, if an operational EMPr exists for the area, it must be amended to include the proposed activity as applied for authorisation.

Site closure and decommissioning

4.27 Should the activity ever cease or become redundant, the applicant shall undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time.

Specific conditions

4.28 Prior to any construction taking place, the contractor, engineer and the environmental control officer must inspect the site and identify any sensitive environments and declare them as the No-Go areas, the areas must be demarcated with fence or hazardous tape.

4.29 The contractor must conduct awareness training to staff on environmental compliance, environmental impacts related to construction, environmental precautions to mitigate the effects and implications of non compliance, before the construction takes place.

4.30 Removal of natural vegetation must not be done excessively; it must be phased in order to reduce erosion of the surface sediment. The degraded areas must be rehabilitated with indigenous species after the activity has been completed. Alien species must be removed immediately; the protected fauna and flora must not be disturbed.

4.31 Top soil must be stockpiled on previously disturbed areas and their height must not exceed 2m. Stockpiles must be 60m away from water bodies; they must be protected against wind erosion and maintained by removing weeds. Top soil must be separated from the sub soil. Areas affected by stockpiling must be rehabilitated to normal conditions after the material has been removed.

4.32 The exposed soil on construction areas must be protected with mulch, granular materials or straws.

4.33 Construction activities must be confined to the designated working areas.

4.34 The storage of material must be done in a way that it does not contaminate with the ground by using ground protection, bunds, covers, splash trays, dip trays and proper dispensing equipment. Storage of hazardous material must be 100m away from any water course and a warning sign must be displayed.

4.35 Construction must be stopped on the discovery of previously undetected archaeological or cultural remains and the contractor must report immediately to the South African Heritage Resources Agency (SAHRA).

4.36 Trenches dug to accommodate infrastructure must be kept as short as possible before refilling to prevent people and animals from being trapped. Refilling must be done as soon as practically possible to reduce risk of erosion.

4.37 No concrete mixing must take place on soil surface; cement mixers must be placed on trays to prevent spillage into soil surface.

4.38 Construction must be limited within the demarcated area for the development in order to reduce risk of erosion. Removal of vegetation must be constrained to the area zoned for the development. Movement of construction vehicles must be restricted to demarcated areas and the temporary road signs must be installed to direct vehicles.

4.39 Areas susceptible to erosion must be monitored regularly and protected by the construction of drainages to control run off. The contractor must rehabilitate areas affected by erosion immediately.

4.40 The engineer must install storm water drainages in low lying areas, to ensure that storm water does not encourage erosion.

4.41 Drainage of storm water must be channelled to the nearest water body with pollution control measures implemented on the outlet point.

4.42 The contractor must control sediment from discharging into watercourses by using filtering fence, temporary sediment basins and temporary inlet protection

4.43 The sanitation system installed must be the low flush toilets.

4.44 The abstraction of water must be authorised by the municipality. Water bodies must be protected from any spillages of pollutants. Water contaminated with cement, chemicals, lime or fuel must be kept in drums and removed from the site to the nearest sewage ponds. No grey water runoff or uncontrolled discharges is allowed on site.

4.45 Construction site must be kept clean at all times. Waste bins with lids must be provided to control litter on site. The waste bins must be emptied regularly and disposed in a permitted waste disposal site. No burning or burying of waste is allowed on site.

4.46 Construction must be limited to normal working hours in order to reduce noise impact. No construction must take place on Sundays and public holidays. Hours of noise generation must be discussed with the communities nearby.

4.47 Construction equipment and vehicles must be turned off when not used to avoid fumes and emissions. Vehicles and equipment must always be kept in good working conditions to avoid spills.

4.48 Fire brigade must be provided on site. Flammable materials must be stored in a condition that will limit chances of catching fire.

4.49 Light provided at night on camp must have low frequency in order to reduce disturbance on surrounding residents.

4.50 Harvesting of plants and poaching of animals is not allowed on site.

4.51 Four chemical toilet facilities for the working staff must be provided on site and must be emptied on authorised municipal ponds. No spills from the toilets are allowed on site.

4.52 The contractor must utilise skills from the local people where possible for the proposed development.

General

4.53 A copy of this authorisation must be kept at the property where the activity will be undertaken. The authorisation must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.

4.54 Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.

4.55 The holder of the authorisation must notify the Department, in writing and within 48 (forty eight) hours, if any condition of this authorisation cannot be or is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance. Non-compliance with a condition of this authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the regulations.

4.56 The provincial government shall not be held responsible for any damages or losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of authorisation as set out in this document or any other subsequent document emanating from these conditions of authorisation.

19-10-2010

Date of environmental authorisation:

M. S. Mabongo

Regional Manager (Joe Gqabi Region)

DEDEA

5. Reasons for Decision

1. Background

The application from Elundini Local Municipality is for GN R 386 activities. The following activities are being applied for:

GN R 387/2: Any development activity, including associated structures and infrastructure, where total area of the developed area is, or is intended to be 20 hectares or more.

GN R 386/12: The transformation or removal of indigenous vegetation of 3 ha or more or of any size where the transformation or removal would occur within a critically endangered or an endangered ecosystem listed in terms of section 52 of National Environmental Management: Biodiversity Act, 2004(Act No. 10 of 2004).

GN R 386/1m: The construction of facilities or infrastructure, including associated structures or infrastructure, for any purpose in the one in ten year flood line of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including – (i) canals; (ii) channels; (iii) bridges; (iv) dams; and (v) weirs.

for the proposed construction of township extension and formalisation in Elundini Local Municipality in Eastern Cape.

The Elundini Local Municipality appointed Terreco Consulting cc to undertake EIAR process as required by Regulation 17 of the EIA Regulations, 2006.

2. Information considered in making the decision

In reaching its decision, the Department took, *inter alia*, the following into consideration-

a) The information contained in the Scoping Report dated 18 March 2009.
b) The findings from a site visit conducted on 02 April 2009 by an EAP Mrs. Moira Cloete and the DEDEA officials Ms F. Zingitwa and Ms T. Myingwa.
c) The public participation process conducted as reflected in appendix I of EIAR dated 10 May 2010.
d) Mitigation measures as proposed in the EIAR dated 10 May 2010 and the EMPr.
e) The information contained in the specialist studies contained within Appendices G and H of the EIAR.
f) Additional information needed for the coordinates of the proposed development, submitted on 16 August 2010.
g) Requested information on application of exemptions, submitted on 29 September 2010.
h) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

3. Key factors considered in making the decision

All information presented to the Department was taken into account in the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance is set out below:

a) Details provided about the qualifications of the EAP indicate that the EAP is competent to carry out the environmental impact assessment procedures.
b) The findings of all the specialist studies conducted and their recommended mitigation measures.
c) No objections to the proposed development have been received from the interested and affected parties.
d) The potential negative environmental impacts associated with the activity are expected to be extensive due to the fact that some houses are in close proximity to water courses; this is risky especially on rainy season when sewage overflows form the VIPs and septic tanks. In the Department's opinion the risk can be significantly reduced through implementation of low flush toilets.

e) The EIAR dated 10 May 2010 included a 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.

f) The EIAR dated 10 May 2010 identified all legislation and guidelines that have been considered in the preparation of the Environmental Impact Assessment.

g) The proposed methodology used in assessing the potential impacts identified in the EIAR dated 10 May 2010 and the proposed specialist studies have been adequately indicated.

h) A sufficient public participation process was undertaken and the applicant has satisfied the minimum requirements as prescribed in the EIA regulations, 2010 for public involvement.

4. Findings

After consideration of the information and factors listed above, the Department made the following findings -

- The installation of low flush toilets will contribute towards environmentally accepted standards for water courses and land surface, for it will improve the levels of ground water and surface water pollution because of the over flow of sewage from the VIPs.
- The standards of living to the communities of Mt Fletcher will be improved through creation of job and training opportunities.
- The economy of the town will be improved through the purchasing of building material from the local business centres.
- The quality of life of the communities will be improved through the provision of new houses, improved sanitation and installation of new services where there are none.
- The potential negative environmental impacts associated with township formalisation and extension can be kept at accepted limits if the conditions in this authorisation and the mitigation measures in the draft EMPr are adhered to.
- The procedure followed for impact assessment is adequate for the decision-making process.
- The proposed mitigation of impacts identified and assessed adequately curtails the identified impacts.
- All legal and procedural requirements have been met.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the proposed activity will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 and that any potentially detrimental environmental impacts resulting from the proposed activity can be mitigated to acceptable levels. The application is accordingly granted.

6. Appeal of authorisation

6.1 The holder of the authorisation must notify every registered interested and affected party, in writing and within 12 (twelve) calendar days of the date of this environmental authorisation, of its decision to authorise the activity.

6.2 The notification referred must –

a) specify the date on which the authorisation was issued;

b) inform the interested and affected party of the appeal procedure provided for in Chapter 6 of the regulations;

c) advise the interested and affected party that a copy of the authorisation will be furnished on request; and

d) give the reasons for the decision.

6.3 The holder of the authorisation must publish a notice –

a) informing interested and affected parties of the decision;

b) informing interested and affected parties where the decision can be accessed; and

c) drawing the attention of interested and affected parties to the fact that an appeal may be lodged against this decision

d) in the newspapers contemplated and used in terms of regulation 56(2)(c) and which newspaper was used for the placing of advertisements as part of the public participation process.

6.4 Notice of intention to appeal against the decision contained in this authorization must be addressed in writing, to the MEC for Economic Development & Environmental Affairs (hereinafter referred to as "the MEC") in terms of Regulation 62(1) of the NEMA EIA Regulations, 2006 and within 10 (ten) days after the appellant has been notified.

6.5 The address, to which the **original** copies of any such a notice of intention to appeal must be mailed, is outlined below. Please note that originals may also be delivered per hand or courier.

Department	Department of Economic Development & Environmental Affairs
Attention	Manager Environmental Affairs
Address	Bag X0054, **BHISHO**, 5605
In order to facilitate efficient administration of appeals **copies** of the notice of intention to appeal and any subsequent appeal documentation must also be submitted as follows:	
Manager Environmental Affairs per fax:	[040] 635 2535
Senior Manager Environmental Impact Management per fax:	0866192858
It is strongly recommended that electronic copies of all appeal documentation also be e-mailed	E-mail addresses will be supplied on request

In the event that an appeal is lodged in regard to this authorization, the listed activities described in this authorization may not commence prior to the resolution of the appeal and prior to the Department's written confirmation of compliance with all conditions that must be met before construction can commence, whichever event is the latter.

Province of the
EASTERN CAPE
ECONOMIC DEVELOPMENT, ENVIRONMENTAL AFFAIRS & TOURISM

Joe Gqabi Regional Office
P/Bag x 1016, Aliwal North, 9750

Reference: EC 141/JG/LN2/M/13/02
Enquiries: Mr Babane Thozamile

Attention: Municipal Manager
Elundini Local Municipality
No. 1 Sellar Street
P.O Box 01
Maclear
5480
Fax no: 086 526 6924

PER FACSIMILE

Dear Sir

Application for Environmental Authorisation – Establishment of Thembeni Town ship - Portion remainder of ERF 318 Mount Fletcher Reference number: EC 141/JG/LN2/M/13/02

With reference to the abovementioned application, please be advised that the Department has decided to grant authorisation. The environmental authorisation and reasons for the decision are attached herewith.

In terms of regulation 10(2) of the Environmental Impact Assessment Regulations, 2006, you are instructed to notify all registered interested and affected parties, in writing and within 10 calendar days of the date of this letter, of the Department's decision in respect of your application as well as the provisions regarding the making of appeals that are provided for in the regulations.

Your attention is drawn to Chapter 7 of the Regulations which regulates appeal procedures. Should you wish to appeal any aspect of the decision, you must, *inter alia,* lodge a notice of intention to appeal with the MEC as per conditions 6.1 to 6.5 of the attached authorisation, within 10 days of receiving this letter. Appeals may be lodged by fax, post or hand.

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Should you decide to appeal, you must serve a copy of your notice of intention to appeal on all registered interested and affected parties as well as a notice indicating where, and for what period, the appeal submission will be available for inspection.

Yours faithfully

Mr.S Malongo

Regional Manager: Environmental Affairs (Joe Gqabi Region)

REF. NUMBER: EC 141/JG/LN2/M/13/02

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Environmental Authorisation

Authorisation register number	:	EC 141/JG/LN2/M/13/02
NEAS number	:	ECP/ EIA/ 0000792/2013
Last amended	:	
Holder of authorisation	:	Elundini Local Municipality
Location of activity	:	Elundini Local Municipality, Remainder of ERF 318 of Mount Fletcher

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1. Decision

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this environmental authorisation, that the applicant should be authorised to undertake the activity specified below.

Details regarding the basis on which the Department reached this decision are set out in Annexure 1.

2. Activities authorised

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2010 the Department hereby authorises –

Elundini Local Municipality

With the following contact details –

Mr. K. Gashi

P.O Box 1

Maclear

5480

Tel: (045) 932 8212

Fax: (086) 529 6924

Email: Charles@elundini.gov.za

to undertake the following activities (hereafter referred to as "the activities" indicated in Government Notice R 545 listed number 2 activity 15)

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GN R 545/15 : Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational industrial or institutional use where the total area to be transformed is 20 hectares or more:

as described in the Environmental Impact Report submitted on the 19 October 2015:

Alternative S1	Latitude	Longitude
Site	S 30 ^{0} 41.' 559"	E 28^0 30' .999 "

Elundini Local Municipality is proposing to develop a new residential township called Thembeni Township under Mount Fletcher magisterial town. The total area to be developed is approximately 20 hectare. This activity will be undertaken on a portion of remainder ERF 318 in Mount Fletcher.

The activity consists of the following land use;

The establishment or construction of 1164 residential houses or unit, Institutional (Church), School, Clinic Municipal Hall, Open space (Sports field) and Open space (Natural). The houses are to be given to community that is going to be relocated from informal settlement that is situated near or around Mount Fletcher Sewerage Oxidation ponds and Solid Waste Disposal site/ Landfill site. The remaining units will be given to families that are indigent and are currently renting backroom houses around the Mount Fletcher Town.

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3. Exemptions

No exemptions were applied for by the applicant

The granting of this Environmental Authorisation is subject to the conditions set out below.

4. Conditions of Environmental Authorisation

Scope of authorisation

4.1 Authorisation of the activity is subject to the conditions contained in this authorisation, which form part of the environmental authorisation and are binding on the holder of the authorisation.

4.2 The holder of the authorisation shall be responsible for ensuring compliance with the conditions contained in this environmental authorisation. This includes any person acting on the holder's behalf, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.

4.3 The activity authorised may only be carried out at the Portion of the Remainder of ERF 318 as per locality map, site layout plan submitted, and area pointed out during the site visit.

4.4 Any changes to, or deviations from, the project description set out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.

4.5 Conditions of authorization relating to the project are valid in perpetuity.

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4.6 Relevant legislation that must be complied with by the holder of this authorisation includes, inter alia:

i. Provisions contained in the principles of National Environmental Management Act (Act 107 of 1998) as amended and it's Regulations (2010 EIA Regulations) as amended.

ii. Pollution of air through generation of dust from excavation must be controlled as according to the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004). Water must be sprayed to control dust on site.

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

iv. National Environmental Management: Waste Act (Act No. 59 0f 2008)

4.7 An integrated waste management approach must be implemented which is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste shall be disposed of at a landfill site licensed in terms of section 20 (b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

4.8 The holder of an environmental authorisation has the responsibility to notify the competent authority of any alienation, transfer and change of ownership rights in the property on which the activity is to take place.

Management of the activity

4.9 The Environmental Management Programme (EMPr) for the construction and operation of Thembeni Township in Mount Fletcher submitted as part of application for Environmental Authorization is hereby approved.

4.10 The recommendations and mitigation measures recorded and recommended in the Environmental Impact Report and in the Environmental Management Programme received on the 19 October 2015 and conditions of this environmental authorisation must be adhered and incorporated as part of the construction method statement where applicable.

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4.11 Any updates or amendments to the EMPr must be submitted to the Department of Economic Development, Environmental Affairs and Tourism and must be decided upon within a period of 30 days of the submission.

4.12 All correspondence with regard to this application must be forwarded for attention of The Deputy Director: Environmental Affairs, DEDEAT Offices Joe Gqabi Region, Aliwal North, except the appeal.

Monitoring

4.13 The applicant must appoint a suitably experienced Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation/rehabilitation measures and recommendations referred to in this authorisation are implemented and to ensure compliance with the provisions that recommended to protect and reduce impact on the ecological sensitive areas and Archaeological importance areas.

4.14 The ECO shall be appointed before commencement of any construction activities.

4.15 The ECO shall keep records of all activities on site, problems identified, transgressions noted and schedule of tasks undertaken by the ECO.

4.16 The ECO shall remain employed until all rehabilitation measures required or necessary are done and completed and he or she must submit such report to the department stating clearly that rehabilitation is completed and it complies with recommendation that are stipulated in the EMPr and in this Environmental Authorisation .

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Recording and reporting to the Department

4.17 The holder of the authorisation must submit an environmental audit report to the Department upon completion of the construction and rehabilitation activities. The environmental audit report must –

i. Indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions as well as the requirements of the EMPr. This report may include the findings and recommendations of the ECO reports where is necessary.

ii. Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

Commencement of the activity

4.18 This activity must commence within a period of thirty six (36) months from the date of issue. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.

4.19 Should you be notified by the MEC of a suspension of the authorisation pending appeal procedures, you shall not commence with the activity unless authorised by the MEC in writing.

Notification to authorities

4.20 Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.

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Operation of the activity

4.21 Fourteen (14) days written notice must be given to the Department that the activity's operational phase will commence.

4.22 The applicant must ensure the maximum adherence to the Operation Environmental Management Programme recommendations and to any other legislation that is applicable to the operation/ s of the proposed activity operations.

4.23 The final design of the development and infrastructure must consider the climate change and vulnerability of the area thereof.

4.24 Waste management must adhere and be in accordance with National Domestic Waste Collection Standards published under section 7 (1) (b) of National Environmental Management: Waste Act (Act No. 59 of 2008) government notice no. 21 of 2011.

Site closure and decommissioning

4.25 Should the activity cease or become redundant, the applicant shall undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time.

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Specific conditions

4.26 The final route plan for bulk services and infrastructure (roads and storm water and sewerage pipes) with clear volumes and size of the infrastructure must be submitted to this department for the approval before the construction can takes place and check if it requires any authorization before the construction.

4.27 Prior to any construction taking place, the Environmental Control Officer and contractor must conduct awareness training programmes to staff on environmental compliance, environmental impacts related to construction, environmental precautions to mitigate the effects and implications of non-compliance.

4.28 The attendance register and course content of the induction for those who were inducted must be kept on the site and refresher induction must be conducted quarterly.

4.29 The ECO must inspect the proposed site and roads to confirm the absence of red data book species, any archaeological remains and environmental sensitivity area that may be detrimentally affected by the construction activities and develop a protection and a management measures thereof which must be included in construction method statement to be approved by the applicant or engineer.

4.30 The removal of alien invasive vegetation that is widely spread on the site must be accordance with requirements and guidelines for monitoring, eradication plans of invasive vegetation as required by section 76 of National Environmental Management: Biodiversity Act (Act No. 10 of 2004).

4.31 The woodlots may be given to communities provided that the communities are interested, the project contractor and project steering committee (PSC) may develop a plan and procedure and when completed it must be communicated or made available to everyone who is collecting woods, the woods must not be for sale.

4.32 The woodlots stockpile must be collected at one place which is safe and easily accessible to communities for collection and that place must have a little or no disturbance on the site activities when the communities collect the woods.

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4.33 Stock pile for wood lots must be provided with fire belt and fire equipment to prevent any fire occurrence. The municipality may investigate other source of energy which may be used by the community in the future.

4.34 The earth stockpile or soil stockpile must be re-used as far as possible within the site for rehabilitation and stockpile must not exceeds 5 m height.

4.35 The stockpile of the excavated earth works must be covered to prevent wind-blown dust fugitive and the dust management plan must adhere to 2013 National Dust Control Regulations standards it may be integrated into the construction method statement.

4.36 The earth stockpile must be provided with storm water diversion trench or berm to control storm water run-off entering the stockpile and erode thereof.

4.37 The earth stockpile must be free of alien vegetation and free of contamination with hazardous substance which may include (scoured cement mix or mortar and cement empty bag).

4.38 On completion of construction phase all earth stock pile must be removed from site and disposed at landfill site as covering material if there is no future use of soil or earth works planned in the site.

4.39 During both construction and operations of this activity, any form of disposal of a domestic waste or any waste into any place anywhere other than registered landfill site is prohibited and is an offence as defined in National Environmental Management: Waste Management Act (Act 59 of 2008).

4.40 Chemical toilets for the working staff during the construction must be provided on site at a ratio of 1:10 and must be emptied on authorised municipal ponds. No spills from the toilets are allowed on site. The toilets must be placed 50 metres away from any water course and any wetland.

4.41 The recommendations for the protection and management of the rock art that is contemplated in the submitted Environmental Management plan must be implemented during both construction and operational phase of the activity to prevent further damage to the rock art found on Cliff edge of site.

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4.42 The informal settlements near or around the Mount Fletcher Solid Waste Landfill site and Sewerage ponds must be demolished immediately or once all the families relocated to Thembeni Township and site must rehabilitated to the satisfaction of the department.

4.43 Construction site must be kept clean at all times. Waste bins with lids must be provided to control litter on site and the construction camp. The waste bins must be emptied regularly and disposed in a permitted waste disposal site. Burning of waste is not allowed on site and the construction camp.

4.44 The storage areas for all fuels and refilling station area and parking area of all fuel using equipment (generator, motor vehicles, Heavy duty machines) must be provided with impermeable surface and must be provided with soil bundles to prevent any spillage from escaping to outside environment. The drip trays or any other collecting instrument may be used to collect any drip from the machineries.

4.45 The storage area for fuel or any flammable material must be demarcated and fenced off with cautions labelling and colour coded chevrons as per dangerous and hazardous colour coding requirements written in official languages that are used in the area. It must be provided with fire fighting equipment.

4.46 Wetlands must be delineated and fenced off to prevent damage by frequently tapping and crossing by workers and construction vehicles and to reduce second induced impact.

4.47 The link or connections of internal road from the proposed Thembeni Township to the National Road (R 56) must be authorized by South African National Road Agency Limited and the costs associated thereof will be solely for the Elundini Local Municipality as per SANRAL comments .

4.48 The disposal or discharge of effluent from waste water treatment works to natural stream must be authorized by department of Water and Sanitation as per department's comments. The discharge of effluent from Waste Water Treatment Works into the wetland is a listed activity the applicant is advised to apply for the disposal permit from this department.

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4.49 The final plan for the disposal of sludge that will be generated by the waste water treatment works must be submitted to this department specifying the quantities of sludge to be disposed of and manner in which it will be disposed of and the facility it will be disposed to.

4.50 Construction vehicles must be maintained regularly in order to prevent gaseous emissions and leakages. Movement of construction vehicles must be restricted to demarcated areas and a speed limit of 30km/h must not be exceeded on dirt roads.

4.51 The prevailing wind direction must be considered when choosing the site for the waste water treatment works. The waste water treatment plant and associated infrastructure carrying capacity should cater for the future increase of the effluent received from the household.

4.52 No fires are allowed on site. Cooking must be done in demarcated areas that are safe of runaway fires. Operational fire fighting equipment must be available on site and at the construction camp at all times. Emergency fires must be reported to the local authority.

4.53 No poaching of flora and fauna will be allowed in site.

4.54 Construction staff must not use any water body or natural water source adjacent to the construction camp for the purpose of bathing, washing or for any construction related activities.

4.55 Construction must be limited to normal working hours in order to reduce noise. No construction must take place on Sunday and public holidays. Heavy vehicles must be routed away from noise sensitive areas.

4.56 Construction activities must be confined to the designated working areas. The work area must be demarcated with a danger tape and marked as a NO-GO area for the duration of the project.

4.57 Existing access routes must be used during construction. Vehicle turning areas which avoid selected ecological sensitive areas must be constructed and approved by the ECO if it not constitutes listed activity. All temporary access roads must be rehabilitated after the contract ends.

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4.58 Construction must be stopped on the discovery of previously undetected archaeological or cultural remains and the contractor must report immediately to the Eastern Cape Heritage Resource Agency (ECHRA).

4.59 The contractor must not deface, paint or otherwise mark or damage natural features on site without prior agreement with the ECO.

4.60 The contractor must utilise skills (if available) from the local people for the proposed development.

General

4.44 A copy of this authorisation must be kept at the property where the activity will be undertaken. The authorisation must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.

4.45 Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.

4.46 The holder of the authorisation must notify the Department, in writing and within 48 (forty eight) hours, if any condition of this authorisation cannot be or is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance. Non-compliance with a condition of this authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the regulations.

4.47 This authorisation does not negate the holder of the authorisation from responsibility to comply with other statutory requirements that may be applicable to the undertaking of the activity.

4.48 The provincial government shall not be held responsible for any damages or losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for

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reasons of non-compliance by the applicant with the conditions of authorisation as set out in this document or any other subsequent document emanating from these conditions of authorisation.

.....

Mr T. Babane

Environmental Officer EQM (Joe Gqabi Region)

DEDEAT

30/11/2015

Date of environmental authorisation:

.....

Mr S. Mabongo
Regional Manager (Joe Gqabi Region)
DEDEAT

27/11/2015

Date of issue of environmental authorisation

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5. Reasons for Decision

1. Background

The application from Elundini Local Municipality is for Government Notice R 545 activities. The following activities are being applied for:

GN R 545/18 : Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more.

The proposed construction/establishment of Thembeni Township in Mount Fletcher magisterial town at Elundini Local Municipality in the Eastern Cape.

Elundini Local Municipality appointed CEN Integrated Environmental Management: Environmental and Rural Development Specialist to undertake Scoping and Environmental Impact Report process as required by Regulation 16 of the EIA Regulations, 2010.

2. Information considered in making the decision

In reaching its decision, the Department took, *inter alia,* the following into consideration-

a) The information contained in the application form received on 27 June 2013.
b) Comments from Department of Water and Sanitation received and dated 28 October 2015
c) Approval letter from South Africa National Road Agency Soc. LTD dated 25 June 2014
d) Letter from Joe Gqabi district municipality confirming availability of water service dated 12 December 2014
e) Letter from Department of Rural Development and Land Reform with regards to land claims, confirming the land is under no registered claim at the current moment.

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f) Information contained in the final Environmental Impact Report submitted on 19 October 2015.
g) The findings from the site visit that was conducted on 24 March 2015 by Mr. Athenkosi Ntshinka (DEDEAT), Mr. Thozamile Babane (DEDEAT) and Miss Zamazulu Nonkulu of Elundini Local Municipality.
h) The mitigation measures as proposed in the EMPr received on the 24th of March 2015.
i) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

3. Key factors considered in making the decision

All information presented to the Department was taken into account in the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance is set out below:

a) Details provided about the qualifications of the EAP indicate that the EAP is competent to carry out the environmental impact assessment procedures.
b) The need for the proposed project is about the provision of houses in the highly needing communities that are situated near or around the Mount Fletcher Solid Waste Landfill Site and Sewerage ponds.
c) The Inclusion of project area in the Spatial Development Framework (SDF) and Integrated Development Plan (IDP).
d) The Ecological specialists and Archaeological assessment report recommendations and mitigation measures.
e) A sufficient public participation process was undertaken and the applicant has satisfied the minimum requirements as prescribed in the EIA regulations, 2010 for public involvement.
f) Mitigation measures and rehabilitation

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4. Findings

After consideration of the information and factors listed above, the Department made the following findings -

- The proposed development will provide quality housing in the community that is residing close to the landfill site and sewerage ponds and also improving the living conditions of communities that are going to benefit from the housing scheme as a whole.
- The proposed development will increase number of houses that are allocated to the communities as per national government plans.
- The proposed development will also assist in the reduction of alien invasive vegetation spreading and provide a better land use.
- Some community members will get temporary jobs during the construction phase thus improving the economy of the area and the standard of living for the beneficiaries.
- The majority of impacts on the natural environment associated with the proposed development are considered to be of low significance compared to impacts that are faced by the affected communities currently.
- Majority of listed activities that were applied for were for precautionary measures and most of them are not triggered by the project.
- There is confirmation of availability of infrastructure services required for the development from both Elundini Local Municipality and Joe Gqabi District Municipality.
- The procedure followed for impact assessment is adequate for decision making process.
- All legal and procedural requirements have been met.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the proposed activity will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the

National Environmental Management Act, 1998 and that any potentially detrimental environmental impacts resulting from the proposed activity can be mitigated to acceptable levels. The application is accordingly granted.

6. Appeal of authorisation

6.1 The holder of the authorisation must notify every registered interested and affected party, in writing and within 12 (twelve) calendar days of the date of this environmental authorisation, of its decision to authorise the activity.

6.2 The notification referred must –

a) specify the date on which the authorisation was issued;
b) inform the interested and affected party of the appeal procedure provided for in Chapter 6 of the regulations;
c) advise the interested and affected party that a copy of the authorisation will be furnished on request; and
d) give the reasons for the decision.

6.3 The holder of the authorisation must publish a notice –

a) informing interested and affected parties of the decision;
b) informing interested and affected parties where the decision can be accessed; and
c) drawing the attention of interested and affected parties to the fact that an appeal may be lodged against this decision
d) in the newspapers contemplated and used in terms of regulation 56(2)(c) and which newspaper was used for the placing of advertisements as part of the public participation process.

6.4 Notice of intention to appeal against the decision contained in this authorization must be addressed in writing, to the MEC for Economic Development, Environmental Affairs and Tourism (hereinafter referred to as "the MEC") in terms of Regulation

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60(1) of the NEMA EIA Regulations, 2010 and within 20 (twenty) days after the appellant has been notified.

6.5 The address, to which the **original** copies of any such a notice of intention to appeal must be mailed, is outlined below. Please note that originals may also be delivered per hand or courier.

Department	Department of Economic Development & Environmental Affairs
Attention	Manager Environmental Affairs
Address	Bag X0054, **BHISHO**, 5605
In order to facilitate efficient administration of appeals **copies** of the notice of intention to appeal and any subsequent appeal documentation must also be submitted as follows:	
Manager Environmental Affairs per fax:	[043] 605 7300
Senior Manager Environmental Impact Management per fax:	0866192858
It is strongly recommended that electronic copies of all appeal documentation also be e-mailed	E-mail addresses will be supplied on request

In the event that an appeal is lodged in regard to this authorization, the listed activities described in this authorization may not commence prior to the resolution of the appeal and prior to the Department's written confirmation of compliance with all conditions that must be met before construction can commence.

ANNEXURE 1

ANNEXURE 5

ANNEXURE 6

ANNEXURE 7

ANNEXURE 8