



**HANSLAB (PTY) Ltd**  
**ENVIRONMENTAL AND GROUND**  
**ENGINEERING SPECIALIST**

**2017**

# **SITE INFORMATION REPORT**



**PROJECT NAME: L20 EXTENSION**

**AREA/MUNICIPALITY: OKHAHLAMBA**

**CLIENT: KZN DOT – ESTCOURT**

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**BEE Status: Level One**

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## ACTIVITY INFORMATION

### **PROJECT TITLE**

Proposed construction of pipe culvert structures as part of the local road extension along L20 in the Geluksburg area under the Okhahlamba Local Municipality.

### **PROJECT DESCRIPTION**

The KZN Department of Transport (Applicant) proposes to extend the existing L20 road to meet D364. The proposed road will be 10 km in length, 6 m in width and will have a 20m road reserve. The existing portion of the road is 6.5 km long and the Department proposes to extend the road by a further 10 km. The proposed route transverses a number of drainage lines therefore the Department proposes to construct pipe culvert structures to allow for the continual natural flow of water. The construction of the pipe culvert structure within the drainage line forms the focus of the basic assessment report, and triggers a listed activity as outlined below.

Two alternative designs for the pipe culvert structures have been outlined below and will be assessed within the BAR:

- **Alternative 1:** Precast concrete pipe culvert and associated headwalls;
- **Alternative 2:** Concrete piped culvert with stone pitched/ gabion headwalls.

**The listed activity below is triggered according to the EIA Regulations of 2014 (Listing Notice 1, GN 983)**

#### **Listing Notice 1 of 2014, Listed Activity 19:**

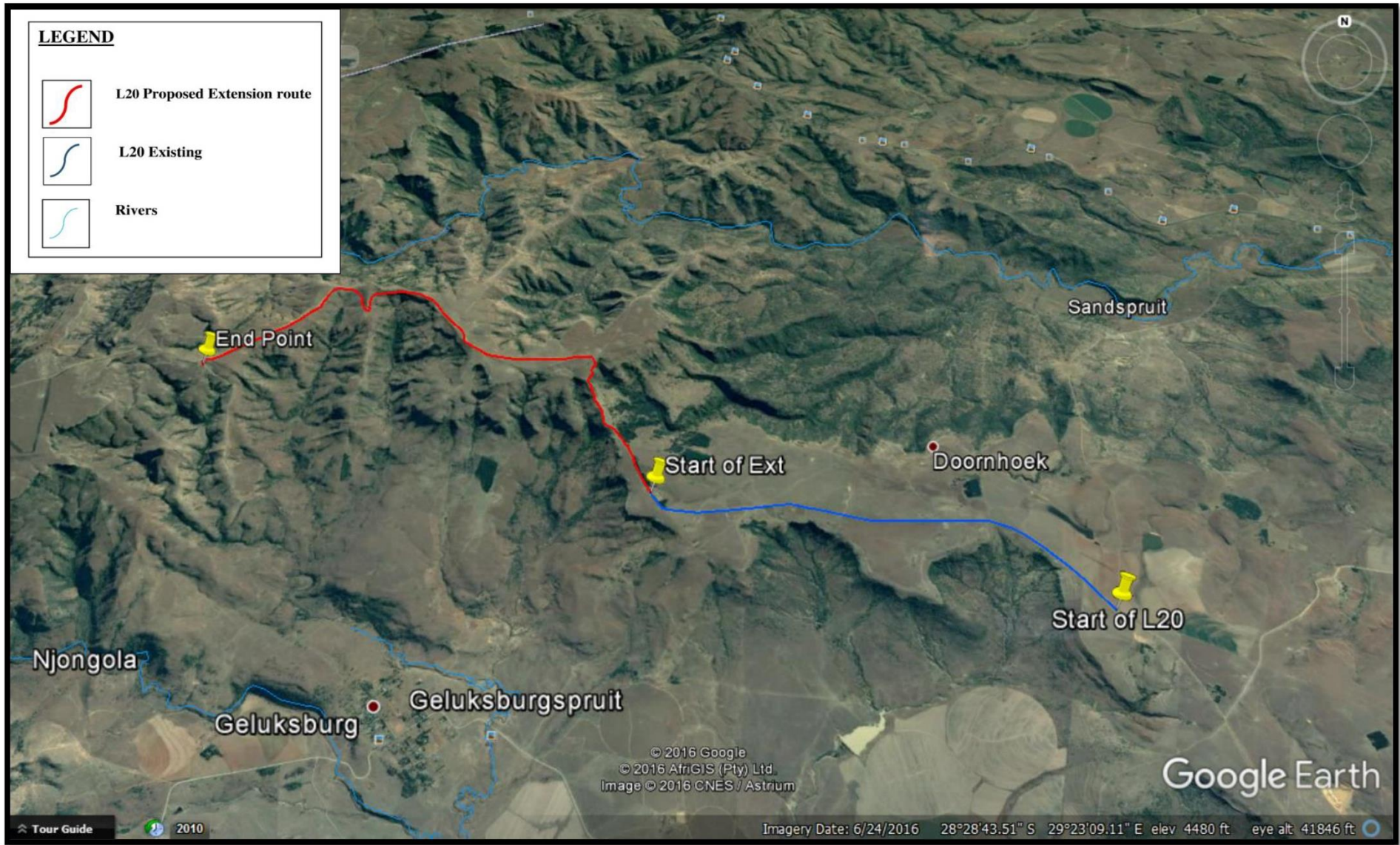
*The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from -*

- (i) ***a watercourse;***

### **Description of Activity (Drainage Line):**

The proposed road extension traverses drainage lines where the Department of Transport (DOT) proposes to **construct pipe culvert structures**. The proposed activity will require the temporary removal of soil from the drainage line for the proposed construction of pipe culvert structures. Approximately 5 m<sup>3</sup> of soil will be removed from the drainage lines to allow for the construction. The removed soil & material from the drainage lines will be re-used for stabilization of the banks as well as planting of grass.





**FIGURE 1: SHOWING AERIAL VIEW OF THE EXTISTING LOCAL ROAD (BLUE LINE) & PROPOSED EXTENSION ROUTE (RED LINE)**

## FEASIBLE & REASONABLE ALTERNATIVES

### a) Site Alternative 1 (preferred option)

#### Pipe Culvert Structure:

The Department of Transport (DOT) proposes to extend the existing L20 road. The extension will be approximately 10 km, width of 6m and a road reserve of 20m in order to conform to conform to the DOT type 7A gravel road standards.

The proposed road extension will require the construction of pipe culvert structures within the drainage lines to allow for natural flow of the water. There are no site alternatives for the position of the pipe culvert structure, as the road transverses the drainage lines at the existing crossing points. Following the site visit it was evident that there has been a significant amount of erosion surrounding the proposed project area, which has led to the deepening of the drainage lines, which in turn, will lead to further erosion in the long term if not dealt with accordingly.

#### Proposed route:

Location of the pipe culverts	Lat. (DDMMSS)	Long (DDMMSS)
Start point	S 28°29'24.10"	E 29°22'47.43"
End Point	S 28°28'15.40"	E 29°19'03.28"

#### Position of proposed Pipe Culvert Structures:

Location of the pipe culverts	Lat. (DDMMSS)	Long (DDMMSS)
	S 28°28'16.65"	E 29°22'16.03"
	S 28°28'15.02"	E 29°22'16.76"
	S 28°27'21.80"	E 29°20'06.19"
	S 28°27'22.24"	E 29°19'54.99"
	S 28°27'30.93"	E 29°19'51.56"
	S 28°27'34.40"	E 29°19'50.57"

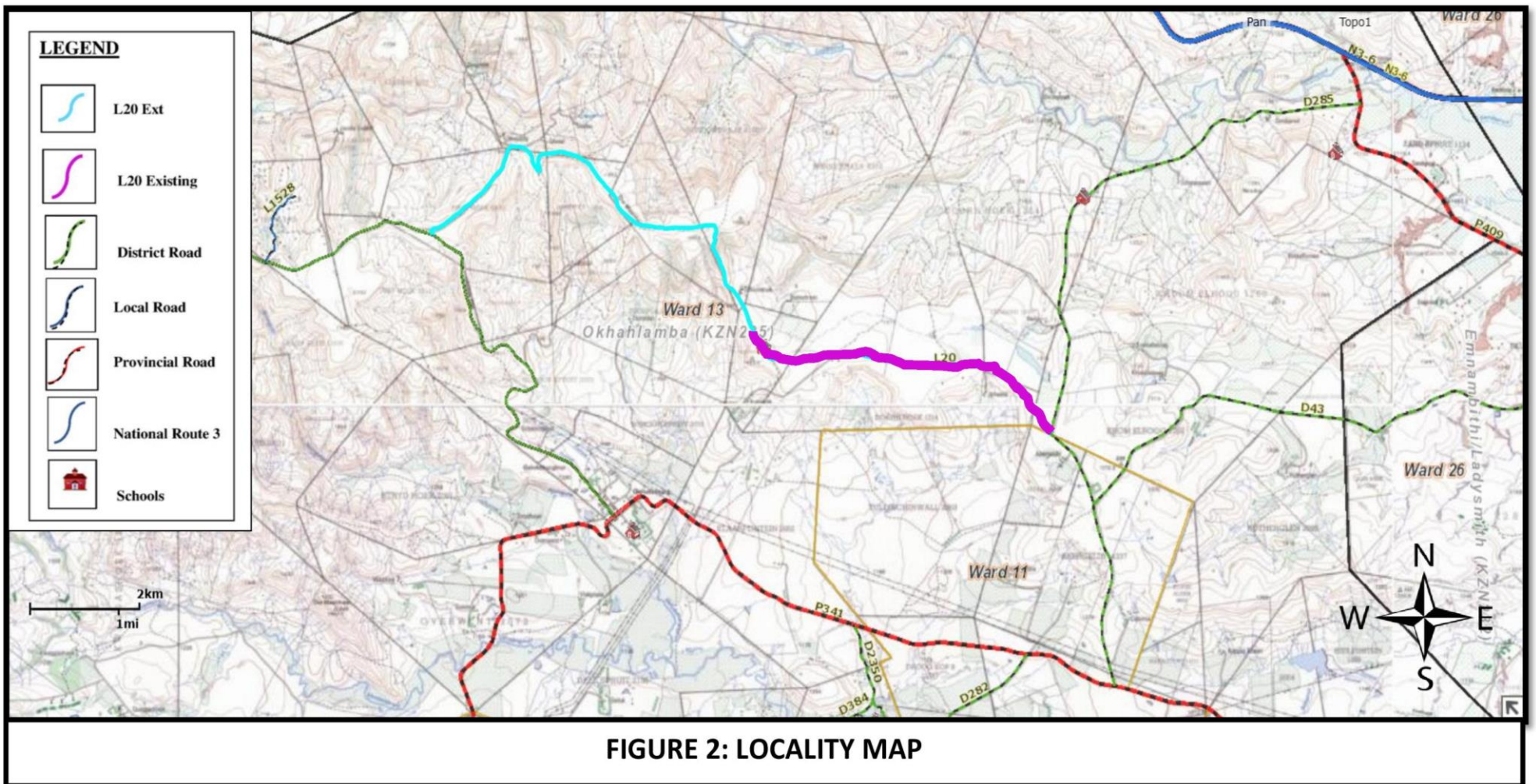




Photo 1: Showing drainage line in relation to the road.



Photo 2: Showing proposed extension road route.



### **c) Technology alternatives**

The Department of Transport proposes to construct pipe culvert structures at the drainage lines in order to allow for the continual flow of water. The drainage lines are located along the proposed road extension route (L20). The method for achieving this will require excavation of the trench, bed preparation, laying of pipe culverts (and installation of precast head-walls or gabion head-walls if used), back-filling and compacting in incremental depths of 150mm.

Pipe culvert structures will be installed at each drainage lines along the proposed route. Two design alternatives have been investigated w.r.t the culvert structures:

- i) precast pipe culverts with associated precast headwalls;
- ii) a concrete piped culvert with stone pitched/ gabion headwalls.

#### Alternative 1 –Pipe culvert (Concrete headwalls)

The concrete headwall pipe culvert structure has been chosen as the preferred design to be implemented. 600mm Diameter, class 100D pipes of 2.44m lengths spanning, covered by a minimum of 150mm compacted back-fill material will be constructed in the drainage lines. Concrete head-walls will be installed on the inlet and outlet sides of the culverts. The preferred alternative has been considered as the best practical option by the applicant, as it has a longer life span, and much more cost effective to install and maintain. This option is the best environmental option as it will not require no formwork and no cement mixing on site thereby minimising spillages on site.





**Figure 1: Showing a precast concrete pipe culvert with concrete headwalls**

Alternative 2 - Pipe culvert (stone pitched headwalls)

The second option will be pipe culvert structures with stone pitched or gabion headwalls will be constructed within the drainage lines. Stone pitching as it applies to road construction are uniform-sized stones placed shoulder to shoulder on a prepared surface. The stones used must be sound, tough, durable, clean & are usually sourced from rock quarries. These are placed on cement with the spaces between stones filled with cement. The gabions are recommended in areas where stability is required. This option will be considered based on specific site conditions and the site engineer will advise accordingly during the site assessment and construction phase



**Figure 2: Showing concrete pipe culvert with stone pitched headwalls.**

No-go Alternative

No gravel road and pipe culvert structures will be constructed, therefore there will be no negative impacts associated with construction activity. However, there will also be no positive impacts associated with the road construction such as the improved connectivity and access for local residents. Residents will continue walking long distances to get to public transport facilities and experiencing the usual delayed emergency service response time. Erosion along the mud track is evident in areas as a direct result of poor drainage. The proposed route is transformed by existing footpaths and is highly degraded, most natural vegetation has been invaded by alien vegetation along the track.

**PHYSICAL SIZE OF THE ACTIVITY**

**Alternative:**

Alternative A1<sup>1</sup> (preferred activity alternative)

**Size of the activity:**

**Pipe culvert  
Structure**

	<50m <sup>2</sup>
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Alternative A2 (if any)

Alternative A3 (if any)

	<50m <sup>2</sup>
	N/A m <sup>2</sup>



## ACTIVITY MOTIVATION

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>	<input checked="" type="checkbox"/> YES X	<input type="checkbox"/> NO	Please explain
<p>The proposed road extension is located along L20 and providing access to the local communities, and school children. The gravel road will be extended to ensure safe access to pedestrians and motorists. This activity is in line with the property's existing land use rights.</p>			
<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	<input checked="" type="checkbox"/> YES X	<input type="checkbox"/> NO	Please explain
<p>The Bergville region is predominately rural and access to basic developmental areas is limited. There are no formal roads in the rural areas hindering access to basic services. Development in this area will create opportunities and unlock new development. Therefore, the activity is in line with the PSDF.</p>			
<b>(b) Urban edge / Edge of Built environment for the area</b>	<input checked="" type="checkbox"/> YES X	<input type="checkbox"/> NO	Please explain
<p>The road and proposed pipe culvert structure is not in a built urban environment thus urban edge policies are not affected.</p>			

<p><b>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</b></p>	<p>YES</p>	<p><b>NO</b> X</p>	<p>Please explain</p>
<p>It has been identified by the IDP (2015-2016) that the construction of local roads is a priority. Funding constrains in terms of road infrastructure and bridges development have been the main concern for the municipality therefore the Department aids in service delivery. The main aim of the municipality is to improve service delivery and facilitate the provision and maintenance of new and existing infrastructure while creating functional systems and procedures to attain effective land use and sustainable environmental management. There are numerous environmental applications that govern all projects that are planned or implemented; thus ensuring sustainable development at Okhahlamba. NEMA principles which involve EIA principles as well are followed in order to achieve sustainable development. Therefore, the activity is in line with both the IDP and SDF of the local municipality.</p>			
<p><b>(d) Approved Structure Plan of the Municipality</b></p>	<p><b>YES</b> X</p>	<p>NO</p>	<p>Please explain</p>
<p>The ward councillor expressed the communities' concerns with regards to the need for local roads that are not inundated during high rainfall periods. He expressed these concerns to the local municipality. Therefore, the activity is in line with the approved structure plan of the municipality. However, project is not funded by the local municipality but rather by the KZN Department of Transport.</p>			

<p><b>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</b></p>	<p>YES</p>	<p><b>NO</b> X</p>	<p>Please explain</p>
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The UThukela District EMF specifies the municipal compliance with the national environmental act requirements of sustainability and polluter pays principles. No existing environmental management priorities for the area will be compromised, as the activity will contribute to the EMF. An environmental authorisation is being applied for and will be adhered to as per stipulations of the relevant authority and an EMPr has been drawn up for best management to ensure environmental sustainability.

<p><b>(f) Any other Plans (e.g. Guide Plan)</b></p>	<p>YES</p>	<p><b>NO</b> X</p>	<p>Please explain</p>
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N/A

<p><b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b></p>	<p><b>YES</b> X</p>	<p>NO</p>	<p>Please explain</p>
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The proposed activity contributes to improved access routes within the local municipality, and therefore is in line with the IDP and SDF.



<p><b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b></p>	<p><b>YES</b> X</p>	<p>NO</p>	<p>Please explain</p>
<p>Community members do not have a formal access road that caters for their transportation needs therefore the extension of the gravel road will impact positively to members of the community. During the construction process local labour will be sourced (required/rooted) by the contractor, thus offering skilled training opportunities to members of the community. As a result of the construction process, employment will increase as potential investors will be able to access the area. It is therefore, a high societal priority for local community members.</p>			
<p><b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?</b></p>	<p><b>YES</b> X</p>	<p>NO</p>	<p>Please explain</p>
<p>All necessary services are available for the activity to commence.</p>			
<p><b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)?</b></p>	<p>YES</p>	<p><b>NO</b> X</p>	<p>Please explain</p>
<p>No infrastructure planning is envisaged by the municipality with regards to this project. The project costs are borne by the Department of Transport.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	<p>YES</p>	<p><b>NO</b> X</p>	<p>Please explain</p>
<p>The proposed activity is site specific and is at a localized level.</p>			

<b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b>	<b>YES</b> X	<b>NO</b>	Please explain
<p>The site is extremely degraded with erosion due to lack of proper stormwater facilities. The road will follow an existing path created by community members. The natural vegetation of the site is interrupted by the existence of alien vegetation and uncontrolled grazing. On completion of construction, the site will be rehabilitated. Therefore, the location factors favour this activity.</p>			
<b>9. Is the development the best practicable environmental option for this land/site?</b>	<b>YES</b> X	<b>NO</b>	Please explain
<p>The proposed site has been assessed and a favourable position for the pipe culvert structure construction and has been identified with all stakeholders. This will significantly decrease the overall costs.</p>			
<b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b>	<b>YES</b> X	<b>NO</b>	Please explain
<p>The proposed construction of the pipe culvert structure will positively impact the local community by providing access to basic amenities, and minimizing the negative impact of flooding, and soil erosion along the road development.</p>			
<b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b>	YES	<b>NO</b> X	Please explain
<p>No precedent will be set in the area; however, the extension of the road and construction of pipe culverts will improve accessibility for community members.</p>			
<b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b>	YES	<b>NO</b> X	Please explain
<p>No person will be negatively affected by the proposed activity as it will not directly affect them. No dwellings will be relocated as the proposed route does not transverse any properties or infringe on the rights of the residents. The route will follow footpaths and mud track that has been utilized by the community.</p>			

<b>13. Will the proposed activity/ies compromise the “urban edge” as defined by the local municipality?</b>	YES	<b>NO</b> X	Please explain
The project is located in a rural area, and therefore the urban edge is not affected.			
<b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b>	YES	<b>NO</b> X	Please explain
This is a localized site specific activity, and will benefit the local community members.			
<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain		
<p>There is a need to ensure safe and reliable means of crossing the drainage lines for both vehicles and pedestrians when the road has been constructed. The proposed activity of extending the existing local road and construction of pipe culvert structures along the route will encourage economic development in the area. The extension of the existing road will also make travelling for basic amenities, education and work feasible for local community members. The existing footpath is only utilized by pedestrians thus limiting the access to basic amenities and transport. The local road may not have benefits as far reaching as to society in general, however, the extension of the local road and construction of a pipe culvert structures lays the foundation for further and knock-on development which would lead to the upliftment of disadvantaged societies. The majority of the population has no formal education and is illiterate. Most community members are dependent on governmental social grants, pensions and even informal trading to earn a living. Therefore, the development of this area is of great importance. The proposed action of extending the local road and structures can be considered as the first step towards upliftment or development of the local community.</p>			
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain		
<p>According to the IDP (2015 to 2016) there is a critical need to improve access roads within the local municipality. The area is predominately rural and developmental initiatives are limited with regards to funding. The Department of Transport has funded the project and similar projects within the District.</p>			



<b>17.How does the project fit into the National Development Plan for 2030?</b>	Please explain
<p>The National Development Plan for 2030 sets out strategic goals in terms of access to basic services and amenities. Although this project is site specific in nature, it contributes to the cumulative effect of developmental nodes of rural communities to the urban environments.</p>	
<b>18.Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</b>	
<p>According to Section 23 of NEMA the appropriate environmental management tools were applied effectively. The EAP is an independent person, appointed by According to Section 23 of NEMA, appropriate Environmental Management Tools have been put in place to ensure the Integrated Environmental Management of activities. The EAP which has been appointed by the client (DOT) has assessed negative as well as positive impacts of the proposed development. Mitigation measures have been outlined to reduce negative impacts. The EAP has identified socio-economic conditions, cultural heritage as well as the risks and consequences of alternatives. A Draft BAR is going to be circulated into the public domain as part of the public participation process. All comments received during the commenting period will be included in the Final BAR</p>	
<b>19.Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</b>	
<p>Section 2 of NEMA encourages environmental management that places people and their needs at the forefront of it concern, to be able to meet their physical, developmental, cultural and social interests. Taking this into consideration the communities will therefore be able to access basic amenities permanently because of the proposed development. Economically, the proposed activity will ensure that communities gain access to the school &amp; allows easy access for potential investments. All factors mentioned in Section 2 (4) of NEMA were taken into consideration, assessed and discussed in Section D. Through Section 2 of NEMA it is understood that the principles as set out in this section have been considered through the proper application of a Basic Assessment Process as described by NEMA, and by assessing the predicted and actual impacts of the proposed activity to assist the Competent Authority in adequately making an informed decision.</p>	

## **APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES**

### a) NEMA and the Environmental Impact Assessment Regulations

The EIA Regulations 2014, promulgated under NEMA (1998), focus primarily on creating a framework for co-operative environmental governance. NEMA provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by State Departments and to provide for matters connected therewith.

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

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

This Act is applicable to this application for environmental authorisation, in the sense that it requires the project applicant to consider the protection and management of local biodiversity.

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

This Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 hectares (ha) and where linear developments (including roads) exceed 300 metres in length. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by Amafa KwaZulu-Natal, the Provincial Heritage Resources Authority.

### d) Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

To provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons

other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

e) Constitution of Republic of South Africa (Act No 108 of 1996)

The project falls within the boundaries of South Africa. The Constitution of the Republic of South Africa has major implications for environmental management. The main effects are the protection of environmental and property rights, the change brought about by the sections dealing with administrative law, such as access to information, just administrative action and broadening of the locus standing of litigants. These aspects provide general and overarching support and are of major assistance in the effective implementation of the environmental management principles and structures of the NEMA. Section 24 in the Bill of Rights of the Constitution specifically states that:

Everyone has the right -

- To an environment that is not harmful to their health or well-being; and
- To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -
- Prevent pollution and ecological degradation;
- Promote conservation; and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development

## **WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT**

- **Solid waste management**

Will the activity produce solid construction waste during the construction/initiation phase?

YES	NO
X	

If YES, what estimated quantity will be produced per month?

5 m<sup>3</sup>

How will the construction solid waste be disposed of (describe)?

All solid waste accumulated during construction will be kept at designated areas and disposed at the registered local landfill site. The ECO will conduct monthly audits and submit monthly audit reports to the Competent Authority.

Where will the construction solid waste be disposed of (describe)?

All solid waste generated from site activities will be collected & transported to the Okhahlamba landfill site in Bergville or Waste Treatment Site situated in Cathkin Park for domestic waste to comply with by-laws against littering & other pollution.

Will the activity produce solid waste during its operational phase?

YES	NO <input checked="" type="checkbox"/>
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If YES, what estimated quantity will be produced per month?

N/A m<sup>3</sup>

Can any part of the solid waste be classified as hazardous in terms of the NEM: WA?

YES	NO <input checked="" type="checkbox"/>
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Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO <input checked="" type="checkbox"/>
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### LIQUID EFFLUENT

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	NO <input checked="" type="checkbox"/>
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If YES, what estimated quantity will be produced per month?

N/A m<sup>3</sup>

Will the activity produce any effluent that will be treated and/or disposed of on-site?

YES	NO <input checked="" type="checkbox"/>
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Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	<del>NO</del> <input checked="" type="checkbox"/>
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**EMISSIONS INTO THE ATMOSPHERE**

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES	<del>NO</del> <input checked="" type="checkbox"/>
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If YES, is it controlled by any legislation of any sphere of government?

YES	NO
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**WASTE PERMIT**

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM: WA?

YES	<del>NO</del> <input checked="" type="checkbox"/>
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**GENERATION OF NOISE**

Will the activity generate noise?

<del>YES</del> <input checked="" type="checkbox"/>	NO
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If YES, is it controlled by any legislation of any sphere of government?

YES	<del>NO</del> <input checked="" type="checkbox"/>
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Describe the noise in terms of type and level:

Noise will only be generated during the construction phase (machinery, generator etc.) The level of the noise is however low and below 70 decibels threshold limit. No noise will be generated during the operational phase; therefore, the impact is short-term and can be minimised with effective monitoring by the ECO.