

## Basic Assessment Report



### **KZN Agriculture, Environmental Affairs & Rural Development**

*umNyango: ezoLimo ezeMvelo nokuThuthukiswa  
kweMiphakathi yaseMakhaya*

### **ISIFUNDAZWE SAKWAZULU-NATALI**

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File Reference Number:  
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Date Received:

DC/
KZN/EIA/

## **Basic Assessment Report** in terms of the **Environmental Impact Assessment Regulations, 2010** promulgated in terms of the **National Environmental Management Act, 1998 (Act No. 107 of 1998)**

### **Kindly note that:**

1. This **basic assessment report** meets the requirements of the EIA Regulations, 2010 and is meant to streamline applications. This report is the format prescribed by the KZN Department of Agriculture, Environmental Affairs and Rural Development. Please make sure that this is the latest version.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with text.
3. Where required, place a cross in the box you select.
4. An incomplete report will be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it will result in the rejection of the application as provided for in the regulations.
6. No faxed or e-mailed reports will be accepted.
7. The report must be compiled by an independent environmental assessment practitioner ("EAP").
8. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
9. The KZN Department of Agriculture, Environmental Affairs and Rural Development may require that for specified types of activities in defined situations only parts of this report need to be completed.
10. The EAP must submit this basic assessment report for comment to all relevant State departments that administer a law relating to a matter affecting the environment. This provision is in accordance with Section 24 O (2) of the National Environmental Management Act 1998 (Act 107 of 1998) and such comments must be submitted within 40 days of such a request.
11. **Please note that this report must be handed in or posted to the District Office of the KZN Department of Agriculture, Environmental Affairs and Rural Development to which the application has been allocated (please refer to the details provided in the letter of acknowledgement for this application).**

## SECTION A: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER AND SPECIALISTS

### 1. NAME AND CONTACT DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Name and contact details of the EAP who prepared this report:

Business name of EAP:	EnviroPro		
Physical address:	47 Shongweni Road; Unit 3 La Piazza Duo; Plantations; Hillcrest		
Postal address:	PO Box 1391 Kloof		
Postal code:	3640	Cell:	082 568 3687 / 082 887 4362
Telephone:	031 765 2942	Fax:	086 549 0342
E-mail:	<a href="mailto:josette@enviropro.co.za">josette@enviropro.co.za</a> <a href="mailto:iain@enviropro.co.za">iain@enviropro.co.za</a>		

### 2. NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP

Names and details of the expertise of each representative of the EAP involved in the preparation of this report:

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
Josette Oberholzer	BSc (Hons) MSc	Member of IAIASA EAPSA certified	8
Iain Jourdan	BSc (Hons) in Geographical Science	Member of IAIASA	4

### 3. NAMES AND EXPERTISE OF SPECIALISTS

Names and details of the expertise of each specialist that has contributed to this report:

Name of specialist	Education qualifications	Field of expertise	Section/ s contributed to in this basic assessment report	Title of specialist report/ s as attached in Appendix D
David Otto	Nat. Dip. Environmental Health; B-Tech Environmental Management Air Pollution Control	Emissions testing	Conducted emission testing on plant	Isokinetic Emissions Report: Aqua Asphalt Verulam

## SECTION B: ACTIVITY INFORMATION

### 1. PROJECT TITLE

Describe the project title as provided on the application form for environmental authorization:

Operation of A Mobile Asphalt Plant at the AfriSam Quarry, Newcastle.

### 2. PROJECT DESCRIPTION

Provide a detailed description of the project:

The applicant Aqua propose to set up a mobile asphalt plant<sup>1</sup> at the Afrisam Quarry site in Newcastle located off the N11. This is a DMR permitted quarry. The mobile asphalt plant will be used to produce pre-mix asphalt for SANRAL's upgrade of National route 11 (See letter in Appendix G) which was authorised on the 23<sup>rd</sup> February 2011 and is currently underway. Trucks will then transport the premix from the mobile plant to where it is required along the road upgrade.

The mobile asphalt plant is a mobile self-contained unit that is now being used quite regularly by asphalt companies to produce premix on construction sites. The production capacity of the plant is 120 tons – 150 tons per hour and the plant will operate on a daily basis for a 12 hour shift. The plant will be fuelled by HFO (See Appendix G for MSDS) which will be stored in a 20 000 litre tank on site. The tank will be re-filled approximately five times a month, depending on production levels. Material stockpiles for the storage of aggregates (crushed rock) that will be used to produce the pre-mix will be stored on site and these stockpiles will occupy an area of approximately 1 000m<sup>2</sup>. Reclaimed or waste asphalt from the process will also be stockpiled temporarily on site for re-use in the process. It is anticipated that the volume of waste material stored at any one time will be below 100m<sup>3</sup>. The plant is equipped with a 30 000 litre tank for the storage of bitumen and an additional 30 000 litre tank will be erected on site for the storage of bitumen in order to be able to supply the plant (see Appendix G for MSDS). Therefore there will be at least 60 000 litres of bitumen and 20 000 litres of HFO on site at any one time, bringing the total storage of dangerous goods on site to 80 000 litres or 80 cubic meters. It is anticipated that a Ciber Mobile asphalt plant will be used, however other brands are being considered including the Amman and Marini. The Ciber plant being considered is currently being stored at Aqua's site in Verulam. The operation of a mobile asphalt plant requires an emissions licence therefore an application of an atmospheric emissions licence (AEL) is in the process of being lodged with DAEARD's Air Quality Management and Climate Change department with Mr Jay Puckree. Please see the specialist report in Appendix D on emissions testing conducted as well as Appendix G for more information on expected emissions and emissions control equipment that comes standard with the plant.

### 3. ACTIVITY DESCRIPTION

Describe each listed activity in Listing Notice 1 (GNR 544, 18 June 2010) or Listing Notice 3 (GNR 546, 18 June 2010) which is being applied for as per the project description:

**Government Notice No. R. 545 of 18th June 2010**

*5. The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the*

<sup>1</sup> Asphalt is a compound formed by mixing mainly bitumen and aggregates (crushed rock) through a heated process. The final product is primarily used for surfacing roads. In general conversation we often hear the term "tarred road" due to the similarity in colour and texture of the old coal tar compound and the new bitumen compound (Neveling, 2007: 10). An asphalt plant is mechanized system where the various ingredients of the asphalt compound is brought unto unity (Sabita report prepared by Chameleon Environmental Report: Air Quality Act And The Asphalt Production Industry February 2011).

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*National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.*

A mobile asphalt plant will be erected on site at the AfriSam quarry. The mobile asphalt plant requires an emissions license.

### **Government Notice No. R. 545 of 18th June 2010**

*26. Commencing of an activity, which requires an atmospheric emission license in terms of section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004), except where [Activity 28 in Notice No. R. 544 of 2010 applies] such commencement requires basic assessment in terms of Notice of No. R544 of 2010.*

A mobile asphalt plant will be operated on site at the AfriSam quarry. The mobile asphalt plant requires an emissions license for which an application is being submitted.

Given the small scale of the plant, a motivation to downgrade the process from a Scoping and EIA to a Basic Assessment was submitted and approved by DAEARD, therefore this application will be assessed under a Basic Assessment Process.

### **Government Notice No. R. 544 of 18th June 2010**

*13. The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres;*

A 20 000 liter tank for the storage of HFO will be erected on site as will a 30 000 liter tank for the storage of bitumen. The mobile plant itself is also equipped with a 30 000 liter tank for bitumen used in the process, bringing the total storage of dangerous goods on site to 80 000 liters or 80 cubic meters.

## **4. FEASIBLE AND REASONABLE ALTERNATIVES**

**“alternatives”**, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this report. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

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**Site Alternative 1**

The proposal is to place a mobile asphalt plant unit at the Afrisam Quarry site outside Newcastle so that Aqua can provide a local source of pre-mix asphalt for SANRAL’s upgrade of the N11. This will also potentially allow on-going provision of pre-mix for other road upgrade projects in the area.

**Site Alternative 2 (also the No Go Alternative as it will involve leaving the mobile plant at the Verulam site)**

Aqua can supply pre-mix from their existing site in Verulam where they currently operate a permitted static plant and are also able to operate a mobile plant under the existing APPA schedule process permit. Asphalt will then be transported by road from Verulam to Newcastle. Use of the Verulam site would not require environmental authorisation as there is an existing scheduled process certificate (APPA) for the site. Under section 61 “*Transitional arrangements in respect of registration certificates issued in terms of Atmospheric Pollution Prevention Act*”, Aqua have until April 2013 to amend their APPA certificate to an emissions licence under the Air Quality Act.

Sections B 5 – 15 below should be completed for each alternative.

**5. ACTIVITY POSITION**

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. List alternative sites were applicable.

**Alternative:**  
Alternative S1<sup>2</sup> (preferred site alternative)  
Newcastle  
Alternative S2 (if any)  
Verulam

Latitude (S):		Longitude (E):	
27°	50'22.80"	29°	56'42.20"
29°	37'42.00"	31°	1'19.33"

**In the case of linear activities:**

**Alternative:**  
Alternative S1 (preferred or only route alternative)

Latitude (S):	Longitude (E):
NA	

**6. PHYSICAL SIZE OF THE ACTIVITY**

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

**Alternative:**  
Alternative A1<sup>3</sup> (preferred activity alternative)  
including stockpiles of aggregate  
Alternative A2 (if any) no new stockpiles of aggregate required as the plant would use the existing stockpiles on site  
Alternative A3 (if any)

Size of the activity:
+2000 m <sup>2</sup>
+1000 m <sup>2</sup>
m <sup>2</sup>

or, for linear activities:

**Alternative:** NA  
Alternative A1 (preferred activity alternative)

Length of the activity:
m

<sup>2</sup> “Alternative S..” refer to site alternatives.

<sup>3</sup> “Alternative A..” refer to activity, process, technology or other alternatives.

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Alternative A1 (preferred activity alternative)	m
Alternative A2 (if any)	m
Alternative A3 (if any)	m

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	Size of the site/servitude:
Alternative A1 (preferred activity alternative)	5km <sup>2</sup>
Alternative A2 (if any)	+-24 700m <sup>2</sup>
Alternative A3 (if any)	m <sup>2</sup>

### 7. SITE ACCESS

Does ready access to the site exist?

Yes - however the Quarry has requested that a new access road be added so that trucks accessing the asphalt plant do not need to drive through the quarry.

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

YES x	NO
+-290m	

Although there is existing access to the proposed location for the plant within the quarry site, AfriSam has requested that the plant have its own access that does not require trucks to drive through the quarry itself. A standard gravel access road will be constructed which will link onto an existing internal access road which then links to the main access road to the quarry site.  
There is existing access to the Verulam site.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

Please see Appendix A

### 8. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this report.

The site or route plans must indicate the following:

- 8.1. the scale of the plan which must be at least a scale of 1:500;
- 8.2. the property boundaries and numbers/ erf/ farm numbers of all adjoining properties of the site;
- 8.3. the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 8.4. the exact position of each element of the application as well as any other structures on the site;
- 8.5. the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 8.6. walls and fencing including details of the height and construction material;

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- 8.7. servitudes indicating the purpose of the servitude;
- 8.8. sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
  - rivers, streams, drainage lines or wetlands;
  - the 1:100 year flood line (where available or where it is required by DWA);
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation including protected plant species (even if it is degraded or infested with alien species);
- 8.9. for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 8.10. the positions from where photographs of the site were taken.

### 9. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

### 10. FACILITY ILLUSTRATION

A detailed illustration of the facility must be provided at a scale of 1:200 and attached to this report as Appendix C. The illustrations must be to scale and must represent a realistic image of the planned activity/ies.

### 11. ACTIVITY MOTIVATION

#### 11.1. Socio-economic value of the activity

##### Applicable to both site alternatives

- What is the expected capital value of the activity on completion?
- What is the expected yearly income that will be generated by or as a result of the activity?
- Will the activity contribute to service infrastructure?
- Is the activity a public amenity?
- How many new employment opportunities will be created in the development phase of the activity?
- What is the expected value of the employment opportunities during the development phase?
- What percentage of this will accrue to previously disadvantaged individuals?
- How many permanent new employment opportunities will be created during the operational phase of the activity?
- What is the expected current value of the employment opportunities during the first 10 years?
- What percentage of this will accrue to previously disadvantaged individuals?

R10 million	
<b>YES</b> <b>X</b>	NO
YES	<b>NO</b> <b>X</b>
24	
R24 375.00	
100%	
24	
R585 000.00	
100%	

## 11.2. Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

The plant is required to provide pre-mix asphalt for the SANRAL National Route 11 upgrade which is currently in progress. There is also the possibility that the plant may remain in situ if other projects in the Newcastle area become available, in which case, it would be sensible for the plant to remain in place rather than move it to another possibly less suitable location. The proposal will have an impact on the road upgrade in terms of quality of the pre-mix that will be provided and in terms of costs. The Mobile plant will use material directly from the quarry and therefore have a direct benefit for a local industry. The option of keeping the plant on site in the longer term will also mean a local source of pre-mix for other road upgrades in the area which will have a cost benefit.

Indicate any benefits that the activity will have for society in general:

The Mobile asphalt plant produces pre-mix asphalt for use in tarring of roads and is therefore a key component in road rehabilitation and construction, which has a direct benefit for society in terms of improved access and connectivity for communities and businesses.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The Mobile asphalt plant produces pre-mix for use in tarring of roads and is therefore a key component in road rehabilitation and construction, which has a direct benefit for society in terms of improved access and connectivity for communities and businesses.

## 12. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are relevant to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
1. National Environmental Management Act	All government bodies	1998
2. National Water Act	DWA	1998
3. National Waste Management Act	DEA	2008
4. Environmental Conservation Act	DEA	1996
5. Air Quality Act	DEA	2004

## 13. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

### 13.1. Solid waste management

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

YES X	NO
+5 m <sup>3</sup>	

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

The plant is an existing plant that is already assembled and so will only need to be re-assembled on site. The only construction required will be to cast a concrete slab for plant to be placed on and to allow connections to the electrical and water supply. Hard surfaced bunded areas for the HFO and Bitumen tanks will also be constructed.

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

Construction rubble will be collected in a skip and disposed of at a registered landfill site by the appointed construction contractor or by a certified waste contractor.

Where will the construction solid waste be disposed of? (provide details of landfill site)

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Should any material require disposal, this will be disposed of to the Newcastle Land fill site, which is the nearest registered landfill.

Will the activity produce solid waste during its operational phase?

YES	NO
X	
+330 m <sup>3</sup>	

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

Based on averages recorded for these types of plants while in full production, less than 3% wastage is anticipated. The full quantity of asphalt estimated for the contract is 50 000 tons or approximately 11 000 tons per month. However the contract program will determine how many tons will be manufactured over the full contract period in which case this may change.

How will the solid waste be disposed of? (provide details of landfill site)

The waste produced will be a combination of raw aggregates and a small percentage of asphalt. All of the waste generated can be re-used provided the different aggregate sizes are screened and separated. Therefore, the volume requiring disposal to landfill will be very low. The solid waste, including hardened bitumen can be disposed of to a registered landfill that accepts builder's rubble.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

The waste produced will be a combination of raw aggregates and a small percentage of asphalt. All of the waste generated can be re-used again provided the different aggregate sizes are screened and separated. Therefore, the volume requiring disposal to landfill will be very low.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine the further requirements of the application.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

YES	NO
	X

During operation of the plant, there is the risk that small quantities of HFO, oils and lubricants may be spilled. Such material will need to be disposed of as hazardous waste. Solid waste pre-mix asphalt is not considered hazardous and can be disposed of as a general waste and bitumen once cooled and hardened is not hazardous.

**If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development to obtain clarity regarding the process requirements for your application.**

Is the activity that is being applied for a solid waste handling or treatment facility?

YES	NO
	X

**If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development to obtain clarity regarding the process requirements for your application.**

### 13.2. Liquid effluent

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

YES	NO
	X

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

NAm <sup>3</sup>	
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Will the activity produce any effluent that will be treated and/or disposed of on-site?

Yes	NO
	X

**If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development to obtain clarity regarding the process requirements for your application.**

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	NO
	X

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If yes, provide the particulars of the facility:

Facility name:	NA		
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

NA
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### 13.3. Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES X	NO
----------	----

If yes, is it controlled by any legislation of any sphere of government?

YES X	NO
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**If yes, contact the KZN Department of Agriculture, Environmental Affairs and Rural Development to obtain clarity regarding the process requirements for your application.**

The operation of a mobile asphalt plant requires an emissions licence therefore an application of an atmospheric emissions licence (AEL) is in the process of being lodged with DAEARD's Air Quality Management and Climate Change department with Mr Jay Puckree. Please see the specialist report in Appendix D on emissions testing conducted as well as Appendix G for more information on expected emissions and emissions control equipment that comes standard with the plant.

If no, describe the emissions in terms of type and concentration:

NA
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### 13.4. Generation of noise

Will the activity generate noise?

YES X	NO
----------	----

If yes, is it controlled by any legislation of any sphere of government?

YES	NO X
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If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

The plant will generate noise during operation. Noise will also be generated during the loading and offloading of trucks and materials.
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## 14. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	water board	Groundwater X	river, stream, dam or lake	other	the activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

+ - 5 000  
litres

Does the activity require a water use permit from the Department of Water Affairs?

YES	NO X
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If YES, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this report.

Water will only be used for cleaning and office use and will therefore be low. Afrisam currently abstract water from a borehole on site and Aqua will make use of the same borehole. However if Afrisam are unable to supply water from their existing borehole, Aqua may be required to sink and operate an additional borehole. Should this occur, the necessary water use permits will be obtained from DWA.

### 15. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The plant itself will use energy in the form of electricity and HFO. In order to optimize energy efficiency, the plant must run efficiently<sup>4</sup>. The following recommendations<sup>3</sup> can assist in monitoring and reducing energy consumption:

- 1) Fuel usage should be recorded and monitored.
- 2) Minimize air leaks in the system as these reduce efficiency.
- 3) Ensure the plant is well maintained and that a record of the maintenance procedures is kept.
- 4) Ensure exhaust fans and damper controls are working in tandem to provide the correct amount of combustion air at all production rates and ambient air temperatures.
- 5) Ensure production temperature is in accordance with asphalt production temperature charts.
- 6) Store aggregates under cover or in a silo to reduce rewetting and, where possible, encourage air-drying of aggregates.
- 7) Ensure the air compressor system is running at the lowest practical air pressure.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No alternate energy sources are feasible for this type of operation at this stage.

## SECTION C: SITE/ AREA/ PROPERTY DESCRIPTION

### Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No.   
(e.g. A):

- Subsections 1 - 6 below must be completed for each alternative.

<sup>4</sup> <http://oeenrcan.gc.ca/industrial/technical-info/benchmarking/roadrehab/chapter4.cfm?attr=24>

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### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

#### Alternative S1:

Flat <input checked="" type="checkbox"/>	1:50 – 1:20 <input checked="" type="checkbox"/>	1:20 – 1:15 <input checked="" type="checkbox"/>	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### 2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (**Please cross the appropriate box**).

#### Alternative S1 (preferred site):

Ridgeline	Plateau	Side slope of hill/mountain <input checked="" type="checkbox"/>	Closed valley	Open valley	Plain	Undulating plain/low hills <input checked="" type="checkbox"/>	Dune	Sea- front
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#### Alternative S2 (Alternative site):

Ridgeline	Plateau	Side slope of hill/mountain <input checked="" type="checkbox"/>	Closed valley	Open valley <input checked="" type="checkbox"/>	Plain	Undulating plain/low hills <input checked="" type="checkbox"/>	Dune	Sea- front
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### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Has a specialist been consulted for the completion of this section?

YES	<b>NO</b> <input checked="" type="checkbox"/>
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If YES, please complete the following: **NA**

Name of the specialist:

**NA**

Qualification(s) of the specialist:

**NA**

Postal address:

**NA**

Postal code:

**NA**

Telephone:

**NA**

Cell:

E-mail:

**NA**

Fax:

Are any further specialist studies recommended by the specialist?

YES	<b>NO</b> <input checked="" type="checkbox"/>
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If YES,  
specify:

**NA**

If YES, is such a report(s) attached in Appendix D?

YES	<b>NO</b> <input checked="" type="checkbox"/>
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Signature of specialist: \_\_\_\_\_

Date: \_\_\_\_\_

Is the site(s) located on any of the following (cross the appropriate boxes)?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any): <b>NA</b>	
Shallow water table (less than 1.5m deep)	YES	<b>NO</b> <input checked="" type="checkbox"/>	YES	<b>NO</b> <input checked="" type="checkbox"/>	YES	NO
Dolomite, sinkhole or doline areas	YES	<b>NO</b> <input checked="" type="checkbox"/>	YES	<b>NO</b> <input checked="" type="checkbox"/>	YES	NO
Seasonally wet soils (often close to water bodies)	YES	<b>NO</b> <input checked="" type="checkbox"/>	YES	<b>NO</b> <input checked="" type="checkbox"/>	YES	NO

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Unstable rocky slopes or steep slopes with loose soil	YES	NO X	YES	NO X	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO X	YES	NO X	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO X	YES	NO X	YES	NO
Any other unstable soil or geological feature	YES	NO X	YES	NO X	YES	NO
An area sensitive to erosion	YES	NO X	YES	NO X	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

### 4. GROUND COVER

Has a specialist been consulted for the completion of this section?

YES	NO X
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If YES, please complete the following:

Name of the specialist:	NA		
Qualification(s) of the specialist:	NA		
Postal address:	NA		
Postal code:	NA		
Telephone:	NA	Cell:	
E-mail:	NA	Fax:	

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?	YES	NO X
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If YES, specify and explain: NA

Are there any special or sensitive habitats or other natural features present on any of the alternative sites?	YES	NO X
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If YES, specify and explain: NA

Are any further specialist studies recommended by the specialist? NA	YES	NO
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If YES, specify: NA

If YES, is such a report(s) attached in <u>Appendix D</u> ?	YES	NO
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Signature of specialist: \_\_\_\_\_ Date: \_\_\_\_\_

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s). The site is an unvegetated existing quarry site. The access road that will be developed will require some clearing of grassland adjacent to the quarry but only a small section will need to be cleared for the new road as there is a pre-existing track that the new access road will link up to. As per comments from EKZN Wildlife, their databases highlight common issues for the area, such as Oribi and Northern KZN Moist Grassland. The 2010 Terrestrial Systematic Conservation Plan also indicated *Dorotogonus falcatus* as being modelled to occur there. They are however quite densely populated throughout the rest of the Tugela Valley (although they are restricted to that valley). They indicated however that there do not appear to be any concerns from a biodiversity perspective

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### S1 Newcastle site

Natural veld - good condition <sup>E</sup>	Natural veld with scattered aliens <sup>E</sup> <b>X</b> (applicable to short section of access road)	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land	Paved surface <b>X</b> (tar)	Building or other structure	Bare soil <b>X</b>

### S2 Verulam site

Natural veld - good condition <sup>E</sup>	Natural veld with scattered aliens <sup>E</sup>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	Cultivated land	Paved surface <b>X</b>	Building or other structure <b>X</b>	Bare soil <b>X</b>

If any of the boxes marked with an "E" is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

## 5. LAND USE CHARACTER OF SURROUNDING AREA

Cross the land uses and/or prominent features that currently occur within a 500m radius of the site and give a description of how this influences the application or may be impacted upon by the application:

### S1 Newcastle site

Land use character	YES	NO	Description
Natural area	<b>YES</b>	NO	The existing quarry site is adjacent to an open veld area which is comprised primarily of grassland. under grassland. It is understood that a housing development (approximately 850 units on 800m <sup>2</sup> plots) has been authorized for development and that units will be placed no closer than 100m from the boundary fence of the quarry. The potential impacts of emission from the plant on these future residents will need to be considered. The Plant and associated storage area will be fenced off ensuring that access is controlled.
Low density residential	<b>YES</b>	NO	A small cluster of homes is located approximately 500m from the boundary of the site. These homes are some distance from the site, however the potential impact of emissions on these residents must be considered. The Plant and associated storage area will be fenced off ensuring that access is controlled.
Medium density residential	YES	<b>NO</b>	However, there is an approved proposal to develop approximately 850 units on 800m <sup>2</sup> plots at least 100m from the boundary fence of the quarry.
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High density residential	YES	NO	
Informal residential	YES	NO	
Retail commercial & warehousing	YES	NO	
Light industrial	YES	NO	
Medium industrial	YES	NO	
Heavy industrial	YES	NO	
Power station	YES	NO	
Office/consulting room	YES	NO	
Military or police base/station/compound	YES	NO	
Spoil heap or slimes dam	YES	NO	
Quarry, sand or borrow pit	YES	NO	The plant will be located within an existing quarry site. The quarry should not be impacted on by the proposal and a separate access is proposed so as to control traffic movement through the quarry itself. There is a small scale mining operation just over 500m to the south east of the quarry.
Dam or reservoir	YES	NO	
Hospital/medical centre	YES	NO	
School/ creche	YES	NO	
Tertiary education facility	YES	NO	
Church	YES	NO	
Old age home	YES	NO	
Sewage treatment plant	YES	NO	
Train station or shunting yard	YES	NO	
Railway line	YES	NO	
Major road (4 lanes or more)	YES	NO	
Airport	YES	NO	
Harbour	YES	NO	
Sport facilities	YES	NO	
Golf course	YES	NO	
Polo fields	YES	NO	
Filling station	YES	NO	
Landfill or waste treatment site	YES	NO	
Plantation	YES	NO	
Agriculture	YES	NO	
River, stream or wetland	YES	NO	There is a drainage line approximately 70m from the proposed location for the plant. It is not anticipated that this will be impacted on by the plant as it is some distance away and well outside the boundary fence for the quarry.
Nature conservation area	YES	NO	
Mountain, hill or ridge	YES	NO	There are hills within 500m of the site, however the plant will not be located within a valley therefore there is little likelihood of an inversion layer forming in the area which could trap and concentrate emissions from the plant.
Museum	YES	NO	
Historical building	YES	NO	
Protected Area	YES	NO	
Graveyard	YES	NO	

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Archaeological site	YES	NO	
Other land uses (describe)	YES	NO	

### S2 Verulam site

Land use character			Description
Natural area	YES	NO	
Low density residential	YES	NO	A small cluster of homes is located approximately 500m from the boundary of the site. These homes are some distance from the site, however the potential impact of emissions on these residents must be considered. The Plant and associated storage area will be fenced off ensuring that access is controlled.
Medium density residential	YES	NO	
High density residential	YES	NO	
Informal residential	YES	NO	There is an informal settlement adjacent to the site who might be affected by emission from the existing site and plant.
Retail commercial & warehousing	YES	NO	
Light industrial	YES	NO	
Medium industrial	YES	NO	
Heavy industrial	YES	NO	
Power station	YES	NO	
Office/consulting room	YES	NO	
Military or police base/station/compound	YES	NO	
Spoil heap or slimes dam	YES	NO	
Quarry, sand or borrow pit	YES	NO	The existing static plant is located adjacent to an existing quarry site in Verulam and is currently in operation.
Dam or reservoir	YES	NO	
Hospital/medical centre	YES	NO	
School/ creche	YES	NO	
Tertiary education facility	YES	NO	
Church	YES	NO	
Old age home	YES	NO	
Sewage treatment plant	YES	NO	
Train station or shunting yard	YES	NO	
Railway line	YES	NO	
Major road (4 lanes or more)	YES	NO	
Airport	YES	NO	
Harbour	YES	NO	
Sport facilities	YES	NO	
Golf course	YES	NO	
Polo fields	YES	NO	
Filling station	YES	NO	
Landfill or waste treatment site	YES	NO	
Plantation	YES	NO	
Agriculture	YES	NO	
River, stream or wetland	YES	NO	There is a drainage line approximately 100m from the existing static plant.
Nature conservation area	YES	NO	
Mountain, hill or ridge	YES	NO	There are hills within 500m of the existing plant and site.

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Museum	YES	NO	
Historical building	YES	NO	
Protected Area	YES	NO	
Graveyard	YES	NO	
Archaeological site	YES	NO	
Other land uses (describe)	YES	NO	

### 6. CULTURAL/ HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or within 20m of the site? The site is within an existing quarry and therefore has been significantly disturbed. The proposal is below the threshold for a development that requires a heritage assessment by AMAFA. There will also be no significant excavation other than what is required to create the short (less than 300m) access road.

YES	NO X
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If YES, contact a specialist recommended by AMAFA to conduct a heritage impact assessment. The heritage impact assessment must be attached as an appendix to this report.

Briefly explain the recommendations of the specialist: NA.

Will any building or structure older than 60 years be affected in any way?

YES	NO X
YES	NO X

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

If YES, please submit the necessary application to AMAFA and attach proof thereof to this report.

### SECTION D: PUBLIC PARTICIPATION

The following steps were followed during the public participation process.

- Notification of the project was provided to the two ward councilors and the owner of the surrounding properties, Mr. Willemse who was represented by Gerhard Cillie. The land owner and quarry operator, Afrisam were contacted as were Amajuba District Municipality, Newcastle Local Municipality the Department of Minerals and Energy Resources the local authorities, WESSA, KZN Wildlife and DAEARD Air Quality Management and Climate Change (Appendix E).
- A meeting was held on site to discuss the project on the 6<sup>th</sup> September 2011 (Appendix E).
- It was agreed with the ward councilors that they would notify the local community regarding the proposal and each councilor was provided with notices for this purpose (Appendix E).
- Two signboards detailing the project were placed on site at the entrance to the quarry (Appendix E).
- Adverts were placed in the Regional Ilanga newspaper and the local Newcastle Advertiser (Appendix E).
- A complete copy of the Basic Assessment report will be provided to all registered I &Aps and copies will be provided to the ward councilors for dissemination to the community.

## 1. ADVERTISEMENT

### Appendix E

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  - (i) the site where the activity to which the application relates is or is to be undertaken; and
  - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the local and district municipality which has jurisdiction in the area;
  - (vi) any organ of state having jurisdiction in respect of any aspect of the activity (as identified in the application form for the environmental authorization of this project); and
  - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
  - (i) one local newspaper; or
  - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  - (i) illiteracy;
  - (ii) disability; or
  - (iii) any other disadvantage.

## 2. CONTENT OF ADVERTISEMENTS AND NOTICES

### Appendix E

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—

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- (i) that an application for environmental authorization has been submitted to the KZN Department of Agriculture, Environmental Affairs and Rural Development in terms of the EIA Regulations, 2010;(ii)
- (iii) a brief project description that includes the nature and location of the activity to which the application relates;
- (iv) where further information on the application can be obtained; and
- (iv) the manner in which and the person to whom representations in respect of the application may be made.

### **3. PLACEMENT OF ADVERTISEMENTS AND NOTICES**

#### [Appendix E](#)

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

### **4. DETERMINATION OF APPROPRIATE PROCESS**

The EAP must ensure that the public participation process is according to that prescribed in regulation 54 of the EIA Regulations, 2010, but may deviate from the requirements of subregulation 54(2) in the manner agreed by the KZN Department of Agriculture, Environmental Affairs and Rural Development as appropriate for this application. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate.

Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

### **5. COMMENTS AND RESPONSE REPORT**

#### [Appendix E](#)

The practitioner must record all comments and respond to each comment of the public before this application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations (regulation 57 in the EIA Regulations, 2010) and be attached as [Appendix E](#) to this report.

### **6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES**

#### [Appendix E](#)

District, local and traditional authorities (where applicable) are all key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of this application and provided with an opportunity to comment.

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Has any comment been received from the district municipality?

YES	NO X
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If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

The report has been provided to Amajuba District Municipality for comment. All comments and responses received to date have been included in the comments and response table in Appendix E.

Has any comment been received from the local municipality?

YES	NO X
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If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

The report has been provided to the Newcastle Local Municipality for comment. All comments and responses received to date have been included in the comments and response table in Appendix E.

Has any comment been received from a traditional authority?

YES	NO X
-----	---------

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

There is no traditional authority in this area, however the two ward councilors have been provided with copies of the report. All comments and responses received to date have been included in the comments and response table in Appendix E.

### 7. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

YES X	NO
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If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

All relevant identified stakeholders have been notified and provided with a copy of this report. Please see the comments and response table in Appendix E.

## SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

### 1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

See Comments and Response Table in Appendix E.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached as Appendix E to this report):

See Comments and Response Table in Appendix E.

**2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES**

**2.1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE**

There are no impacts associated with the design and planning phase as all design and planning was done at desktop level.

**2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE**

- a. Site alternatives
- b. Process, technology, layout or other alternatives

**2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE**

- a. Site alternatives
- b. Process, technology, layout or other alternatives

**SITE ALTERNATIVES  
CONSTRUCTION PHASE**

**Preferred Site Alternative – Placement of Mobile Asphalt Plant at Afrisam Quarry in Newcastle**

The plant is already a complete unit and only needs to be re-assembled on site, however there will be minor road construction required to set up the access road and bunded areas will need to be built for the HFO and bitumen tanks.

<b>Impacts</b> The following lists the potential impacts associated with the construction phase and is applicable to the proposed site.	<b>Mitigations</b> The following lists mitigation measures that may eliminate or reduce the potential impacts listed:
<p><b>Direct impacts:</b></p> <ol style="list-style-type: none"> <li>1. Dusty conditions generated by construction vehicles travelling over exposed soil.</li> <li>2. Clearing and loss of vegetation.</li> <li>3. Emissions from construction vehicles.</li> <li>4. Temporary increase in waste and litter due to the construction process.</li> <li>5. Insufficient number of toilet facilities resulting in unsanitary conditions on site.</li> <li>6. Inappropriate disposal of toilet waste resulting in the contamination of the environment.</li> <li>7. Generation of noise.</li> <li>8. Encroachment of alien vegetation into areas disturbed during construction.</li> <li>9. Speeding construction vehicles creating unsafe working conditions.</li> </ol> <p><b>Indirect impacts:</b></p> <ol style="list-style-type: none"> <li>10. Unsustainable sourcing of raw materials such as gravel, sand, water etc. which could result in the promotion of illegal mining operations which can cause significant damage to the environment.</li> </ol> <p><b>Cumulative impacts:</b></p> <ol style="list-style-type: none"> <li>11. General increase of waste to landfill.</li> </ol>	<p><b>Direct impacts:</b></p> <ol style="list-style-type: none"> <li>1. This will be managed by the EMPr. A water cart will be used to dampen dusty surfaces and suppress dust.</li> <li>2. There will be no clearing required for the site of the mobile plant and associated stockpile and tank storage areas. However, a short section (290m) of virgin road will be cut and this will require some clearing of existing grassland. The area of cleared grassland will be relatively small as the road will link to an existing track. Red data species are not expected to be located within such close proximity to the quarry where the area has been regularly disturbed in the past. If the access road is not required for future use after the mobile plant is removed, the material must be removed and the hard surface ripped. The ripped surface must be topsoiled and seeded with indigenous grass species local to the area and this must be watered and maintained until such time as the vegetation has established itself. Any alien invasive species must be removed until the vegetation has re-established.</li> <li>3. All construction vehicles will be fitted with the appropriate silencers and exhausts. Emissions generated from these vehicles will be negligible and are not expected to significantly affect surrounding communities.</li> <li>4. Littering will not be permitted on site. Waste management will be controlled</li> </ol>

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	<p>through the implementation of the EMPr. Volumes of waste generated during construction are expected to be relatively low and all waste must be disposed of at a registered landfill.</p> <ol style="list-style-type: none"> <li>5. Appropriate and sufficient toilet facilities will be provided by the contractor and will be controlled through the EMP.</li> <li>6. Toilet facilities must be provided by a registered company and all sewage must be disposed of at an appropriate facility. Toilets must be regularly maintained. Safe disposal certificates will be kept on record. Any spills must be immediately contained and the spilled material disposed of appropriately.</li> <li>7. All construction vehicles will be fitted with standard silencers. The noise generated will be a temporary impact during construction.</li> <li>8. The construction EMPr will specify that alien vegetation will not be allowed to encroach onto the site and must be continually removed.</li> <li>9. Speed limits must be obeyed and enforced. The contractor to be made aware of the requirements of working near a quarry and to ensure that workers follow the rules of the quarry.</li> </ol> <p><b>Indirect impacts:</b></p> <p>10. The implementation of the EMPr will manage these issues. Contractors must provide proof of sustainable sourcing of materials i.e. permits for quarries and sand winning operations from which stone and sand have been obtained.</p> <p><b>Cumulative impacts:</b></p> <p>11. Waste generated during the construction of the road and bunded areas will include left over construction materials and general litter. This will only be generated during the construction period and volumes are expected to be low.</p>
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### Site Alternative – Supply of Pre mix asphalt from existing plant in Verulam.

No construction associated with this alternative as the Verulam operation is already in place and operational. No additional storage of fuel or bitumen would be required as this is already in place.

### OPERATIONAL PHASE

#### Preferred Site Alternative – Placement of Mobile Asphalt Plant at Afrisam Quarry in Newcastle

<b>Impacts</b> The following lists the potential impacts associated with the operational phase and is applicable to the proposed site.	<b>Mitigations</b> The following lists mitigation measures that may eliminate or reduce the potential impacts listed:
<ol style="list-style-type: none"> <li>1. Release of dust and other harmful emissions from mobile plant during operation, impacting on surrounding neighbours.</li> <li>2. Release of dust from the aggregate piles during storage.</li> <li>3. Poor maintenance or poor operation of plant</li> </ol>	<ol style="list-style-type: none"> <li>1. As per the manufacturers specifications (Appendix G) emissions levels from the plant should be very low and well under the legislated guidelines. One of the primary emissions sources is the burning of the fuel to run the process which will result in the</li> </ol>

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<p>leading to release of emissions in excess of the legislated guidelines.</p> <ol style="list-style-type: none"> <li>4. Generation of noise during operation.</li> <li>5. Increase in traffic due to vehicles collecting and transporting pre-mix asphalt to various locations along the N11 upgrade as well as vehicles delivering fuel, bitumen and aggregates. This could impact on local businesses and neighbours.</li> <li>6. Dust release from aggregates during transport.</li> <li>7. Spillage or leakage of bitumen during handling, storage or production.</li> <li>8. Spillage or leakage of HFO during handling or storage.</li> <li>9. Spillage of lubricants and oils used on the plant.</li> <li>10. Increase in water usage leading to impact on scarce water resources.</li> <li>11. Generation and disposal of grey water generated through washing on site.</li> <li>12. Unsustainable sourcing of raw materials such as gravel, sand, water etc. which could result in the promotion of illegal mining operations which can cause significant damage to the environment.</li> </ol> <p><b>Indirect impacts:</b></p> <ol style="list-style-type: none"> <li>13. Provision of local employment.</li> <li>14. Provision of locally available asphalt for N11 and other potential road construction and upgrade projects.</li> </ol> <p><b>Cumulative impacts:</b></p> <ol style="list-style-type: none"> <li>15. Cumulative impact on air quality of Newcastle area when added to existing emissions sources.</li> <li>16. Increase in waste to landfill.</li> </ol>	<p>release of oxides of nitrogen and carbon monoxide<sup>5</sup>. Key emissions generated during the process itself are released from the dryer, and these include the products of complete and incomplete combustion such as No<sub>x</sub>, So<sub>2</sub> and Co<sub>2</sub>, Co and VOCs. Other emissions from the dryer would include particulate matter or dust from the aggregate. In terms of emissions control equipment, the plant is fitted with a bag house and all dust, steam and incombustible gasses are passed through a bag house filter before being released through the stack tower (Appendix G). The bag filter retains particulates from the exhaust fumes and so prevents solid particles being released into the atmosphere. Larger particles of dust are captured in the pre-collector with only the finest particles reaching the bag filter. The bag filter operates by providing a mechanical barrier to dust. The dust is deposited on the bags fabric surface and at pre-set times, pulses of air are blasted on its inside in order to shake the dust loose and clean the surface. This dust then falls to the bottom of the filter and then screw conveyors send it to the mixer. After passing through the bag, the fumes are expelled by the exhaust fan. The material collected in the bag filter is then injected into the mixer and does not become a waste product requiring disposal. An emissions test was conducted on the mobile asphalt plant proposed for the site (Appendix D) at the APPA permitted premises in Verulam in order to confirm whether emission resulting from its operation were in line with the manufacturers specifications. Tests results show that emissions levels were below the required limits stipulated in the legislation (Appendix G) for existing plants. Another factor to consider is local climactic conditions. The prevailing winds for Newcastle are north westerly which means that for a large part of the year, the winds will be blowing from behind the site towards the nearest neighbours. Newcastle experiences pronounced temperature inversions at night during winter. Inversion layers act to trap pollutants preventing them from disbursing great distances. The location of the site within an open valley means that topography will also have an effect on local winds. Such conditions are</p>
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<sup>5</sup> National Pollutant Inventory; Emission Estimation Technique Manual for Hot Mix Asphalt Manufacturing; June 1999

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	<p>not expected to be favorable to the dispersal of pollutants which will likely concentrate at the site. Therefore it is important that emissions mitigation measures are operating correctly to ensure that emissions remain below the legal limits permitted.</p> <ol style="list-style-type: none"> <li>2. Some dust will be blown off the aggregate piles, especially in strong winds. Therefore the siting of the aggregate should take into account prevailing wind and location of neighbours. The best location for the aggregate would be as close to the adjacent hill as possible as this will act to slow wind speed and reduce dust blow off. It is not anticipated that dust levels will not exceed those currently generated by the quarry which has been in operation for a number of years.</li> <li>3. All staff working on the plant will be trained by the supplier and the operator will receive a certificate of compliance. The operation of the plant is controlled via a PLC which assists in minimizing waste and emissions especially during start up and shut down. The PLC manages all operating parameters to minimize or control waste. The plant will be monitored by the operator and plant manager. The plant operator will have daily/weekly/monthly checklists for the plant to ensure optimal operation. The results for the final product, plant efficiency and waste volumes generated will be regularly reviewed. Further to this the maintenance requirements as stipulated in the Ciber Plant manual (Appendix G), especially for maintenance of the bag house must be strictly adhered to. As per the manual, bag filters must be operated in accordance with the manufacturers operating manual and specific note to be taken of the requirements for operating when new bag filters are installed. Note also be taken of the variation in pulse times that are required as the bags age.</li> <li>4. During operation, the plant generates very low levels of noise. However noise will also be generated when the asphalt is loaded onto the trucks and when aggregates are offloaded from trucks for use in the production process. This noise will not exceed that generated during normal quarry operations, therefore no new impacts will be introduced by the operation of the mobile asphalt plant.</li> <li>5. There will be an unavoidable increase in traffic entering and leaving the quarry site as asphalt is transported from the quarry to where it is required along the N11 upgrade.</li> </ol>
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	<p>There will also be an increase in traffic as vehicles will be required to bring fuel and Bitumen to site at least 5 times a month. Aqua will use its own vehicles for the most part and will therefore be able to directly ensure that these vehicles are well maintained and that the drivers are properly licensed and trained. The quarry has its own entrance onto the N11 with good visibility from either direction, making it easy for trucks leaving to see oncoming traffic and for oncoming traffic to see trucks entering and leaving the road from some distance away. There are no other entrances onto the road for several hundred metres. The entrance itself is wide and there is a double lane on both sides of the road near the entrance to allow for trucks to turn without impeding traffic flow. The distance that vehicles will be required to travel will still be less than if they were to travel from Verulam which is some 360kms from Newcastle, thereby reducing carbon footprint and vehicle emissions as well as transport costs.</p> <p>6. Where possible loads must be covered to prevent dust release from the aggregates during transport. Drivers must also drive with care to ensure that dust release is not aggravated by bad driving or speeding. Loads must be properly secured to prevent loss of material in transit.</p> <p>7. Bitumen is not classified as hazardous to the environment (See MSDS in Appendix G) but while in a hot and liquid state, it may cause burns and therefore it must be handled with caution. Under certain conditions it can be flammable and the molten liquid can splatter or erupt if brought into contact with water. The bitumen is not soluble in water but may physically impede aquatic organisms. It is not viewed as toxic as it is insoluble but will adhere to soil particles and will not biodegrade. Therefore liquid bitumen must be handled with care and may not be spilled or disposed of in a liquid state. Hardened bitumen can be treated as a general waste and either re-used in the process or disposed at a permitted landfill. Bitumen will be brought to site by tanker from where it will be offloaded into the bitumen tanks that will be placed on site. During offloading precautions must be taken to ensure that spills do not occur. The hard surfaced and bunded area around the tank will be able to provide protection from spills while the tank is filled. If there are any leakages from the truck or pipe during</p>
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	<p>filling, drip trays must be placed to capture these. Any spills must be cleaned up and spilled material stored for later disposal and a copy of the MSDS must be kept on site. Bitumen used in the plant to produce the pre-mix will be injected directly into the plant drum thereby minimizing handling and risk of spills. The storage tanks must be placed on hard surfaced areas and must be banded to 110% of the capacity of the tank. The tanks must be regularly monitored for leaks and any leaks must be reported immediately and repaired. Any spills of raw bitumen in a liquid state must be treated as hazardous until the liquid has cooled and hardened. If any bitumen is disposed of, safe disposal certificates for its disposal at a permitted landfill must be retained.</p> <p>8. HFO will be brought to site by a tanker and offloaded into the tank. The hard surfaced area around the tank should provide protection in case of spill during offloading but again, drip trays should be on standby and used in case of any leaks in the pipes or from the truck. Any spills must be immediately cleaned up and stored in a sealed drum as hazardous waste. Contaminated soil must be disposed of as hazardous waste at a permitted hazardous landfill and safe disposal certificates must be retained. A record of all spills and how and where they were disposed of must be retained on site. The storage tank must be placed on a hard surfaced area and must be banded to 110% of the capacity of the tank. The tank must be regularly monitored for leaks and any leaks must be reported immediately and repaired.</p> <p>9. Precautions must be taken when using oils and lubricants for plant maintenance. Oils and lubricants must be stored in a hazardous store area which must be hard surfaced and banded. During usage, operators must keep the oils and lubricants on a drip tray and any spills must be cleaned immediately and stored in a sealed container for disposal as hazardous waste. Any waste oils and lubricants must also be stored as hazardous waste in the hazardous store area (hard surfaced and banded). Where possible, oils and lubricants should be recycled by a recognised oil recycler and records of safe disposal must be kept.</p> <p>10. Water usage must be kept to a minimum. It is understood that water use will be limited to what is required for washing and office use. Therefore it is suggested that</p>
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	<p>vehicle washing should not be permitted on site and that staff be educated about saving water.</p> <p>11. Any grey water generated during washing of tools and equipment on site must be collected and disposed of into the municipal sewer system or removed from site by a waste contractor for disposal as hazardous waste.</p> <p>12. The material required to produce the asphalt will be sourced from the Afrisam quarry which is a permitted quarry. This is one of the reasons for placing the plant at a quarry site as this will reduce costs and vehicles on the road bringing raw materials to the plant.</p> <p><b>Indirect impacts:</b></p> <p>13. At least seven local people will be employed with one skilled position, three semi-skilled and three unskilled positions also becoming available.</p> <p>14. There are a number of benefits to supplying the SANRAL project from a local mobile plant as opposed to transporting material from the applicant's existing stationary plant in Verulam, namely; reduced transport costs, reduced traffic on roads, reduced vehicle emissions and lower carbon footprint from transport activity, reduced wear on national roads used by trucks to transport material from Verulam to Newcastle. This will also translate to reduced costs for the material which will reduce the costs of the road upgrades.</p> <p><b>Cumulative impacts:</b></p> <p>15. The key emissions from the plant which are controlled by legislation are particulate matter (dust), sulphur dioxide (SO<sub>2</sub>) and Volatile organic compounds (VOCs). According to the manufacturer's specifications, these emissions will be below the legislated limits allowed. Emissions testing conducted on the plant at its current location on the APPA permitted site in Verulam, it was confirmed that emissions levels were below the legislated limits for existing plants (Appendix C). Therefore, operation of the plant is only expected to make a minor contribution to cumulative air quality issues in the Newcastle area.</p> <p>16. Generation of waste is expected to be very low as the plant is expected to produce less than 3% of waste per ton of pre-mix produced. The bulk of this waste material will then be fed back into the process and re-used, leaving a very small amount that</p>
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	will require disposal to landfill. It is not cost effective for the plant to produce waste nor is it cost effective to dispose of material that can be used in the process, therefore very little landfill material is generated during the making of asphalt.
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### Site Alternative 2 – Supply of Pre mix asphalt from existing plant in Verulam / No-go alternative (compulsory)

<b>Impacts</b> The following lists the potential impacts associated with the operational phase and is applicable to the proposed site.	<b>Mitigations</b> The following lists mitigation measures that may eliminate or reduce the potential impacts listed:
<ol style="list-style-type: none"> <li>1. Release of dust and other harmful emissions from mobile plant during operation, impacting on surrounding neighbours.</li> <li>2. Poor maintenance or poor operation of plant leading to release of emissions in excess of the legislated guidelines.</li> <li>3. Generation of noise during operation.</li> <li>4. Increase in traffic with vehicles collecting and transporting pre-mix asphalt from Verulam and travelling to various locations along the N11 upgrade.</li> <li>5. Spillage or leakage of bitumen used to produce asphalt.</li> <li>6. Increase in water usage leading to impact on water resources.</li> <li>7. Generation and disposal of grey water generated through washing on site.</li> </ol> <p><b>Indirect impacts:</b></p> <ol style="list-style-type: none"> <li>8. Provision of local employment.</li> <li>9. Provision of asphalt for N11 and other potential road construction and upgrade projects.</li> </ol> <p><b>Cumulative impacts:</b></p> <ol style="list-style-type: none"> <li>10. Cumulative impact on air quality of Verulam area when added to existing emissions sources.</li> <li>11. Increase in waste to landfill.</li> </ol>	<ol style="list-style-type: none"> <li>1. As per the manufacturers specifications (Appendix G) emissions levels from the plant should be very low and well under the legislated guidelines. One of the primary emissions sources is the burning of the fuel to run the process which will result in the release of oxides of nitrogen and carbon monoxide<sup>6</sup>. Key emissions generated during the process itself are released from the dryer, and these include the products of complete and incomplete combustion such as No<sub>x</sub>, So<sub>2</sub> and Co<sub>2</sub>, Co and VOCs. Other emissions from the dryer would include particulate matter or dust from the aggregate. In terms of emissions control equipment, the plant is fitted with a bag house and all dust, steam and incombustible gasses are passed through a bag house filter before being released through the stack tower (Appendix G). The bag filter retains particulates from the exhaust fumes and so prevents solid particles being released into the atmosphere. Larger particles of dust are captured in the pre-collector with only the finest particles reaching the bag filter. The bag filter operates by providing a mechanical barrier to dust. The dust is deposited on the bags fabric surface and at pre-set times, pulses of air are blasted on its inside in order to shake the dust loose and clean the surface. This dust then falls to the bottom of the filter and then screw conveyors send it to the mixer. After passing through the bag, the fumes are expelled by the exhaust fan. The material collected in the bag filter is then injected into the mixer and does not become a waste product requiring disposal. An emissions test was conducted on the mobile asphalt plant proposed for the site (Appendix D) in order to confirm whether emission resulting from its operation were in line with the manufacturer's specifications. Tests results show that</li> </ol>

<sup>6</sup> National Pollutant Inventory; Emission Estimation Technique Manual for Hot Mix Asphalt Manufacturing; June 1999

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	<p>emissions levels were below the required limits stipulated in the legislation (Appendix D) for existing plants.</p> <ol style="list-style-type: none"><li>2. All staff working on the plant will be trained by the supplier and the operator will receive a certificate of compliance. The operation of the plant is controlled via a PLC which assists in minimizing waste and emissions especially during start up and shut down. The PLC manages all operating parameters to minimize or control waste. The plant will be monitored by the operator and plant manager. The plant operator will have daily/weekly/monthly checklists for the plant to ensure optimal operation. The results for the final product, plant efficiency and waste volumes generated will be regularly reviewed. The plant must be maintained as specified in the Ciber manual (Appendix G). As per the manual, bag filters must be operated in accordance with the manufacturers operating manual and specific note to be taken of the requirements for operating when new bag filters are installed. Note also be taken of the variation in pulse times that are required as the bags age.</li><li>3. During operation, the plant generates very low levels of noise. However noise will also be generated when the asphalt is loaded onto the trucks and when aggregates are offloaded from trucks for use in the production process. This noise will not exceed that generated during normal quarry operations; therefore no new impacts will be introduced by the operation of the mobile asphalt plant.</li><li>4. There will be an unavoidable increase in traffic which will have to travel from Verulam to Newcastle to where it is required along the N11 upgrade. This option will mean increased road traffic over a long distance.</li><li>5. Bitumen is already being stored on site in bunded tanks. These tanks must be regularly monitored for leaks and any leaks must be reported immediately and repaired. Any raw bitumen spills must be treated as hazardous waste and safe disposal certificates to prove disposal at a hazardous waste landfill must be retained.</li><li>6. Water usage must be kept to a minimum and staff must be educated about saving water. Very little water will however be required as it will only be used for some washing and for staff use.</li><li>7. Any grey water generated during washing of tools and equipment on site must be collected and disposed of into the</li></ol>
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	<p>municipal sewer system or removed from site by a waste contractor for disposal as hazardous waste.</p> <p><b>Indirect impacts:</b></p> <p>8. At least 7 local people will be employed with 1 skilled position, 3 semi-skilled and 3 unskilled positions becoming available.</p> <p>9. Transporting asphalt from Verulam to Newcastle will mean increased transport costs, increased traffic on roads, increased vehicle emissions and increased carbon footprint from transport activity, increased wear on national roads used by trucks to transport material from Verulam to Newcastle. This will also translate to increased costs for the material which will impact on the costs of the road upgrades.</p> <p><b>Cumulative impacts:</b></p> <p>10. The key emissions from the plant which are controlled by legislation are particulate matter (dust), sulphur dioxide (So<sub>2</sub>) and Volatile organic compounds (VOCs). According to the manufacturer's specifications these emissions will be below the legislated limits allowed. The emissions testing conducted on the plant confirmed that emissions levels are below the legislated limits for existing plants (Appendix D). Therefore, operation of the plant is only expected to make a minor contribution to cumulative air quality issues in the Verulam area.</p> <p>11. Generation of waste is expected to be very low as the plant is expected to produce less than 3% of waste per ton of pre-mix produced. The bulk of this waste material will then be fed back into the process and re-used, leaving a very small amount that will require disposal to landfill. It is not cost effective for the plant to produce waste nor is it cost effective to dispose of material that can be used in the process, therefore very little landfill material is generated during the making of asphalt.</p>
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### 2.4. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE

- a. Site alternatives
- b. Process, technology, layout or other alternatives

#### Preferred Site Alternative – Placement of Mobile Asphalt Plant at Afrisam Quarry in Newcastle

<b>Impacts</b> The following lists the potential impacts associated with the decommissioning phase and is applicable to the proposed site.	<b>Mitigations</b> Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:
<p><b>Direct impacts:</b></p> <ol style="list-style-type: none"> <li>1. Rubble left on site after demolition of the bunded areas and the concrete bases.</li> <li>2. Generation of dust during demolition of</li> </ol>	<p><b>Direct impacts:</b></p> <ol style="list-style-type: none"> <li>1. All rubble generated must be removed from site and disposed of at a permitted landfill site. Safe</li> </ol>

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<p>bunded areas and concrete bases.</p> <p>3. Contamination of the soil due to spills from the fuel and bitumen tanks while they are being removed from site.</p> <p><b>Indirect impacts:</b></p> <p>4. The removal of the mobile plant from the Newcastle site will mean that Aqua will have no local supply of bitumen and bitumen will need to be brought from their Verulam operation. The removal of the mobile plant from the Verulam site would mean reduced</p> <p><b>Cumulative impacts:</b></p> <p>5. Increased waste to landfill due to disposal of rubble.</p>	<p>disposal certificates for the waste must be retained.</p> <p>2. A water cart must be used to control dust generated during demolition.</p> <p>3. The tanks must be completely emptied of all fuel and bitumen before they are removed from site. Excess fuel and bitumen may not be dumped on site or in any of the surrounding areas. This material should be safely removed by tanker or decanted into a suitable container for safe transport off the site. Hardened bitumen can be disposed of as general waste but fuel would need to be disposed of as hazardous waste though there should be no need to dispose of fuel which can be re-used.</p> <p><b>Indirect impacts:</b></p> <p>4. Asphalt will need to be transported</p> <p><b>Cumulative impacts:</b></p> <p>5. Rubble must be disposed of at a permitted landfill and safe disposal certificates must be obtained.</p>
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### Site Alternative 2 – Supply of Pre mix asphalt from existing plant in Verulam / No-go alternative (compulsory)

<p><b>Impacts</b> The following lists the potential impacts associated with the decommissioning phase and is applicable to the proposed site.</p> <p><b>Direct impacts:</b></p> <ol style="list-style-type: none"> <li>1. Rubble left on site after demolition of the bunded areas and the concrete bases.</li> <li>2. Generation of dust during demolition of bunded areas and concrete bases.</li> <li>3. Contamination of the soil due to spills from the fuel and bitumen tanks while they are being removed from site.</li> </ol> <p><b>Indirect impacts:</b></p> <ol style="list-style-type: none"> <li>4. The removal of the mobile plant from the Verulam site will mean reduced capacity at the Verulam site.</li> </ol> <p><b>Cumulative impacts:</b></p> <ol style="list-style-type: none"> <li>5. Increased waste to landfill due to disposal of rubble.</li> </ol>	<p><b>Mitigations</b> Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:</p> <p><b>Direct impacts:</b></p> <ol style="list-style-type: none"> <li>1. All rubble generated must be removed from site and disposed of at a permitted landfill site. Safe disposal certificates for the waste must be retained.</li> <li>2. A water cart must be used to control dust generated during demolition.</li> <li>3. The tanks must be completely emptied of all fuel and bitumen before they are removed from site. Excess fuel and bitumen may not be dumped on site or in any of the surrounding areas. This material should be safely removed by tanker or decanted into a suitable container for safe transport off the site. Hardened bitumen can be disposed of as general waste but fuel would need to be disposed of as hazardous waste though there should be no need to dispose of fuel which can be re-used.</li> </ol> <p><b>Indirect impacts:</b></p>
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	<p>4. At present the Verulam site is operating off the single static plant.</p> <p><b>Cumulative impacts:</b></p> <p>5. Rubble must be disposed of at a permitted landfill and safe disposal certificates must be obtained.</p>
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### 2.5. PROPOSED MONITORING AND AUDITING

For each phase of the project and for each alternative, please indicate how identified impacts and mitigation will be monitored and/or audited.

Alternative S1 (preferred site)	Alternative S2	Alternative S3 <span style="background-color: yellow;">NA</span>
<p>Construction phase: A single construction audit should be conducted at the beginning of construction and a close out or post construction audit should be conducted once the construction is completed and the plant is up and running. The expected short duration of the construction means that monthly auditing will be unnecessary. Operational auditing can also be conducted every 3 months to determine ongoing compliance and it is recommended that emissions from the plant be tested annually.</p>	<p>Construction phase: A single construction audit should be conducted at the beginning of construction and a close out or post construction audit should be conducted once the construction is completed and the plant is up and running. The expected short duration of the construction means that monthly auditing will be unnecessary. Operational auditing can also be conducted every 3 months to determine ongoing compliance and it is recommended that emissions from the plant be tested annually.</p>	
Alternative A1 (preferred alternative)	Alternative A2	Alternative A3 <span style="background-color: yellow;">NA</span>
<p>Construction phase: A single construction audit should be conducted at the beginning of construction and a close out or post construction audit should be conducted once the construction is completed and the plant is up and running. The expected short duration of the construction means that monthly auditing will be unnecessary. Operational auditing can also be conducted every 3 months to determine ongoing compliance and it is recommended that emissions from the plant be tested annually.</p>	<p>Construction phase: A single construction audit should be conducted at the beginning of construction and a close out or post construction audit should be conducted once the construction is completed and the plant is up and running. The expected short duration of the construction means that monthly auditing will be unnecessary. Operational auditing can also be conducted every 3 months to determine ongoing compliance and it is recommended that emissions from the plant be tested annually.</p>	

### 3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been

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taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

### Preferred Site Alternative – Placement of Mobile Asphalt Plant at Afrisam Quarry in Newcastle Alternative S1 (preferred alternative)

It is the opinion of the EAP that all potential impacts that could potentially occur during the construction and operational phase of the mobile asphalt plant have been identified and key impacts and their mitigation measures are summarized below.

#### Key Construction Impacts

##### **Construction of the new access road**

A short section (290m) of virgin road will be cut and this will require some clearing of existing grassland. However the area of cleared grassland will be relatively small as the road will link to an existing track. Red data species are not expected to be located within such close proximity to the quarry where the area has been regularly disturbed in the past. If the access road is not required for future use after the mobile plant is removed, the material must be removed and the hard surface ripped. The ripped surface must be topsoiled and seeded with indigenous grass species local to the area and this must be watered and maintained until such time as the vegetation has established itself. Any alien invasive species must be removed until the vegetation has re-established. This impact is rated as low with impacts primarily restricted to the construction phase.

#### Key Operational Impacts

##### **Impact of dust and other emissions on surrounding neighbours; Poor maintenance / operation leading to release of emissions in excess of the legislated guidelines.**

Key legislated emissions from the mobile asphalt plant are VOCs, SO<sub>2</sub> and particulate matter (dust). The table below provides a comparison of results from the manufacturer's specifications and an actual emissions test conducted on the plant against the regulated limits from the GN 248. The manufacturer's specifications and the tested limits fall below the legislated limits for existing plants.

**Table 1: Comparison Of Emissions results As Per Information Provided For Ciber Plant And The Regulated Limits for Existing plants Set In GN 248**

	<b>CIBER MANUAL</b> Ciber Asphalt Plant exhaust fan emissions information (mg/Nm <sup>3</sup> )	<b>CIBER MANUAL</b> Ciber asphalt plant Thermal oil heater (mg/Nm <sup>3</sup> )	<b>TEST RESULTS</b> obtained in recent testing (Average of four test results)	<b>EXISTING PLANTS</b> Regulated limits (mg/Nm <sup>3</sup> )
Dust (particulate matter)	<50	0	113.04	120
So <sub>2</sub>	12,739	20	305.82	1000
Volatile Organic compounds (VOCs)	Not provided	Not provided	0.023	150

Based on the above it is expected that the plant will be able to run without exceeding specified legal emissions limits. However it should be noted that the measured results exceed the limits set by the manufacturer. This may be due to the fact that the plant was tested during start up and that results may drop during continuous operation. Other potential reasons for the higher results might be related to the type of fuel or due to incomplete combustion of the fuel which may be due to an improper air and fuel mixture, temperature etc. It should also be ensured that all filters are undamaged and that no extra dust is entering the system behind filter. The plant itself is fitted with a bag house which provides a mechanical barrier to dust and there are measures in place to control emissions. Further to this, maintenance procedures must be followed in accordance with the Ciber operating manual to ensure optimum operation which will be ensured by training all staff working on the plant and monitoring operation of the plant on an on-going basis. As per the manual, bag filters must be operated in accordance with the manufacturers operating manual and specific note to be taken of the requirements for operating when new bag filters are installed. Note also be taken of the variation in pulse times that are required as the bags age. Bag filters to be washed as stipulated in the operating manual should the filtering element become obstructed.

The plant operator will conduct daily/weekly/monthly checks to ensure optimal operation and the results for the final product, plant efficiency and waste volumes generated will be regularly

reviewed.

From a climate perspective, Newcastle is prone to temperature inversions during winter which means that pollutants will tend to concentrate at ground level, therefore it is important that the plant operates within the legal limits for emissions.

This impact can be mitigated provided the plant is operating efficiently and is being monitored. Therefore this impact is rated as medium and will continue for the operational life of the plant.

**Generation of noise during operation.**

During operation, the plant generates very low levels of noise. However noise will also be generated when the asphalt is loaded onto the trucks and when aggregates are offloaded from trucks for use in the production process. This noise will not exceed that generated during normal quarry operations, therefore no new impacts will be introduced by the operation of the mobile asphalt plant. This impact is therefore rated as low.

**Increase in traffic due to vehicles collecting and transporting pre-mix asphalt to various locations along the N11 upgrade as well as vehicles delivering fuel, bitumen and aggregates.**

There will be an unavoidable increase in traffic entering and leaving the quarry site as asphalt is transported from the quarry to where it is required along the N11 upgrade. There will also be an increase in traffic as vehicles will be required to bring fuel and Bitumen to site at least 5 times a month. Aqua will use its own vehicles for the most part and will therefore be able to directly ensure that these vehicles are well maintained and that the drivers are properly licensed and trained. The quarry has its own entrance onto the N11 with good visibility from either direction, making it easy for trucks leaving to see oncoming traffic and for oncoming traffic to see trucks entering and leaving the road from some distance away. There are no other entrances onto the road for several hundred metres. The entrance itself is wide and there is a double lane on both sides of the road near the entrance to allow for trucks to turn without impeding traffic flow. The distance that vehicles will be required to travel will still be less than if they were to travel from Verulam which is some 360kms from Newcastle and this will mean reduced carbon footprint and vehicle emissions and reduced transport costs. This impact will be ongoing for the lifetime of the plant and is rated as medium.

**Dust release from aggregates during transport.**

Aggregates cannot be dampened as this will impact negatively on the plant and production process therefore, where possible loads must be covered to prevent dust release from the aggregates during transport. Drivers must also drive with care to ensure that dust release is not aggravated by bad driving or speeding.

This impact is rated as low.

**Spillage or leakage of bitumen during handling, storage or production.**

Bitumen is not classified as hazardous to the environment though hot bitumen must be handled with care. Bitumen is not soluble and therefore is not toxic in water but will adhere to soil particles and will not biodegrade. Therefore hardened bitumen can be treated as a general waste and either re-used in the process or disposed at a permitted landfill. Liquid bitumen should be viewed as hazardous and must be handled with care as per the MSDS (Appendix G). Precautions during off-loading of liquid bitumen must be taken to capture any leaks and spills. The tanks will be located in hard surfaced bunded areas (110% capacity of tank) and drip trays must be available to capture any leaks during offloading.

Any spills must be cleaned up and spilled material stored for later disposal and a copy of the MSDS must be kept on site. Tanks must be regularly monitored for leaks and any leaks must be reported immediately and repaired. If any bitumen is disposed of, it must first have hardened and safe disposal certificates for its disposal at a permitted landfill must be retained.

This impact is rated as low and will occur throughout the operational phase of the project.

**Spillage or leakage of HFO during handling or storage.**

The hard surfaced area around the tank should provide protection in case of spill during offloading but again, drip trays should be on standby and used in case of any leaks in the pipes or from the truck. Any spills must be immediately cleaned up and stored in a sealed drum as hazardous

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waste. Contaminated soil must be disposed of as hazardous waste at a permitted hazardous landfill and safe disposal certificates must be retained. A record of all spills and how and where they were disposed of must be retained on site. The storage tank must be placed on hard surfaced area and must be bunded to 110% of the capacity of the tank. The tank must be regularly monitored for leaks and any leaks must be reported immediately and repaired. This impact is rated as low and will occur throughout the operational phase of the project.

### **Spillage of lubricants and oils used on the plant.**

Precautions must be taken when using oils and lubricants for plant maintenance. Oils and lubricants must be stored in a hazardous store area which must be hard surfaced and bunded. During usage, operators must keep the oils and lubricants on a drip tray and any spills must be cleaned immediately and stored in a sealed container for disposal as hazardous waste. Any waste oils and lubricants must also be stored as hazardous waste in the hazardous store area (hard surfaced and bunded). Where possible, oils and lubricants should be recycled by a recognized oil recycler and records of safe disposal must be kept.

This impact is rated as low and will occur throughout the operational phase of the project.

### **Increase in water usage leading to impact on scarce water resources.**

Water usage must be kept to a minimum. It is understood that water use will be limited to what is required for washing and office use. Therefore it is suggested that vehicle washing should not be permitted on site and that staff be educated about saving water. If a second borehole is required, then Aqua must register this as a water use with DWA.

### **Unsustainable sourcing of raw materials such as gravel, sand, water etc.; promotion of illegal mining operations.**

The material required to produce the asphalt will be sourced from the Afrisam quarry which is a permitted quarry. This is one of the reasons for placing the plant at a quarry site as this will reduce costs and vehicles on the road bringing raw materials to the plant.

This impact is therefore rated as low.

### **Increased waste to landfill**

Generation of waste is expected to be very low as the plant is expected to produce less than 3% of waste per ton of pre-mix produced. The bulk of this waste material will then be fed back into the process and re-used, leaving a very small amount that will require disposal to landfill. It is not cost effective for the plant to produce waste nor is it cost effective to dispose of material that can be used in the process, therefore very little landfill material is generated during the making of asphalt.

This impact is therefore rated as low.

Further to the above mitigation methods, an EMPr (Appendix F) has been developed to manage and control potential impacts during construction and operation. The site should be audited once during construction and a second time after construction is complete and the plant is operation. The expected short duration of the construction means that monthly auditing will be unnecessary. Operational auditing can also be conducted every 3 months to determine ongoing compliance and it is recommended that emissions from the plant be tested annually. If the EMPr is implemented correctly and the mitigation measures listed in this report are adhered to then the potential impacts associated with the proposal can be mitigated.

It is thus the opinion of the EAP that there are no significant environmental impacts associated with the proposal which cannot be mitigated.

### **Site Alternative 2 – Supply of Pre mix asphalt from existing plant in Verulam / No-go alternative (compulsory)**

#### **No-go alternative (compulsory)**

Placement of the mobile asphalt plant at the Verulam site is effectively the same as the No Go Option as the mobile plant could operate under the existing license for the Verulam site, meaning that no authorization would be required.

Operational impacts would be the same as for the Newcastle site, however the major difference would be the distance between the plant producing the asphalt and the site of the N11 where the asphalt is needed for the road works.

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There are a number of benefits to supplying the SANRAL project from a local mobile plant as opposed to transporting material from the applicant's existing stationary plant in Verulam, namely; reduced transport costs, reduced traffic on roads, reduced vehicle emissions and lower carbon footprint from transport activity, reduced wear on national roads used by trucks to transport material from Verulam to Newcastle. This will also translate to reduced costs for the material which will reduce the costs of the road upgrades. From a time and cost perspective it will be more viable for the mobile asphalt plant to operate from a local site in Newcastle.

### SECTION F. RECOMMENDATION OF EAP

Is the information contained in this report and the documentation attached hereto in the view of the EAPr sufficient to make a decision in respect of this report?

YES x	NO
NA	

If "NO", please contact the KZN Department of Agriculture, Environmental Affairs and Rural Development regarding the further requirements for your report.

If "YES", please attach the draft EMPr as Appendix F to this report and list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

The following are specific recommendations for mitigating impacts during construction and operation. However, all construction activities must be monitored and controlled through the implementation of the construction Environmental Management Program (EMPr) which provides more specific details on each issue identified in the BAR.

**Stakeholders, Properties & Services**

1. As standard construction practice the engineer and contractor should identify all existing services that may be affected prior to construction.
2. Access to electricity and water must be confirmed and agreed on between Aqua and Afrisam.
3. The site must be fenced off and access controlled.

**Traffic & Vehicles**

4. All vehicles should be fitted with the appropriate silencers and exhausts.
5. All drivers must be trained and licensed to reduce the risk of accidents as the number of vehicles entering and leaving the quarry will increase.
6. Speed limits must be obeyed.

**Housekeeping, waste management, storage and materials handling**

7. Littering must not be permitted on site.
8. All hazardous materials and substances should be stored within a secured area. The storage area must be hard surfaced, bunded and under cover.
9. During construction, cement mixing must be done on a hard surface that is protected from storm water runoff.
10. Contractors should be required to dispose of construction rubble and other asphalt / bitumen rubble generated during the process at an appropriate landfill site if it cannot be re-used in the process. Delivery notes and safe disposal certificates to prove appropriate disposal should available.
11. Appropriate and sufficient toilet facilities must be provided for staff during construction and operation.
12. Toilet facilities must be provided by a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.

**Stormwater management**

13. Only clean storm water runoff may leave the site. Any contaminated run off (i.e. grey

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water, wash water etc.) must be collected and disposed of. This can be disposed of through a registered sewage connection.

### **Construction of the new access road**

14. Dust generated during construction of the access road must be managed through use of a water cart.
15. The area alongside the road must be kept free from alien vegetation during construction and during the lifetime of the road.
16. Stormwater infrastructure should be instituted to manage run off and prevent erosion of the road and adjacent road verge.
17. The stormwater outlets must be fitted with erosion protection features to diffuse stormwater flow and so prevent erosion as a result of channeled run off.
18. If the access road is not required for future use, the material must be removed and the hard surface ripped. The ripped surface must be topsoiled and seeded with indigenous grass species local to the area and this must be watered and maintained until such time as the vegetation has established itself. Any alien invasive species must be removed until the vegetation has re-established.

### **Air emissions**

19. In order to ensure that the plant is operating within the legal limits set by AQA, it is suggested annual emissions testing be conducted on the asphalt plant. During the annual testing, should emissions levels exceed legislated limits, further steps to improve emissions levels must be taken and a second follow up test should be conducted to confirm efficacy of the improvements made.

### **Plant Operation and Maintenance**

20. The plant must be operated and maintained in strict accordance to the manufacturers operating manual.
21. Bag filters must be operated in accordance with the manufacturers operating manual and specific note to be taken of the requirements for operating when new bag filters are installed. Note also be taken of the variation in pulse times that are required as the bags age.
22. Bag filters to be washed as stipulated in the operating manual should the filtering element become obstructed.
23. All staff working on the plant to be appropriately trained and to receive certificates indicating what training they have received.
24. Operation of the plant to be monitored on an on-going basis and the plant operator to conduct daily/weekly/monthly checks to ensure optimal operation. The results for the final product, plant efficiency and waste volumes generated must be regularly reviewed.
25. Records of maintenance must be maintained.

## SECTION G: APPENDICES

The following appendices must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Public Participation

- Comments & Response report & Comments
- Proof of Notification of I A&Ps:
  - Notice boards
  - Adverts
  - Notification and communications with I &APS
  - Meetings with Community Representatives (Meeting Minutes, Attendance Registers, Signed Agreement to Notify Community)
  - Registered I&APS

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information

**Appendix A: Site plan(s)**

## Appendix B: Photographs

**Appendix C: Facility illustration(s)**

**Appendix D: Specialist reports**

## Appendix E: Public Participation

### Comments & Response Report & Comments Received

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### Proof of Notification of I A&Ps

#### Notice boards

2. The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—
3. (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
4. (i) the site where the activity to which the application relates is or is to be undertaken; and
5. (ii) any alternative site mentioned in the application;

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### Adverts

- (c) placing an advertisement in—
  - (i) one local newspaper; or
  - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  - (i) illiteracy;
  - (ii) disability; or
  - (iii) any other disadvantage.

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### Notification and communications with I &APS

- (b) giving written notice to—
- (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the local and district municipality which has jurisdiction in the area;
  - (vi) any organ of state having jurisdiction in respect of any aspect of the activity (as identified in the application form for the environmental authorization of this project); and
  - (vii) any other party as required by the competent authority;

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**Meetings with Community Representatives (Meeting Minutes, Attendance Registers,  
Signed Agreement to Notify Community)**

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## Registered I & APs

**Appendix F: Draft Environmental Management Programme (EMPr)**

**Appendix G: Other information**