ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF A CEMENT GRINDING FACILITY ON A SITE LOCATED WITHIN THE COEGA INDUSTRIAL DEVELOPMENT ZONE, PORT ELIZABETH

Draft Environmental Impact Assessment Report

April 2013
Reference No: J31358

DEDEAT REF: ECM1 / LN2 / M / 12-56

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## PROJECT INFORMATION

<table>
<thead>
<tr>
<th><strong>Title:</strong></th>
<th>Environmental Impact Assessment for the Proposed Development of a Cement Grinding Facility on a Site Located within the Coega Industrial Development Zone, Port Elizabeth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Environmental Authority:</strong></td>
<td>Department of Economic Development, Environmental Affairs and Tourism: Cacadu Region (DEDEAT)</td>
</tr>
<tr>
<td><strong>DEDEAT Ref Number:</strong></td>
<td>DEDEAT REF: ECM1 / LN2 / M / 12-56</td>
</tr>
<tr>
<td><strong>Applicant:</strong></td>
<td>OSHO Cement Pty Ltd</td>
</tr>
<tr>
<td><strong>Environmental Consultant:</strong></td>
<td>GIBB Pty Ltd</td>
</tr>
<tr>
<td><strong>Date:</strong></td>
<td>April 2013</td>
</tr>
</tbody>
</table>
SUBMISSION OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

This Draft Environmental Impact Assessment Report (Draft EIR) was prepared based on the Final Scoping Report that had been distributed for authority and public comment in November 2012, as well as the comments received during the public comment period that closed on 16 January 2013. Comments received were logged and responded to in the Issues and Response Report which is included as Appendix E3.

This Draft EIR forms part of the submission for Environmental Authorisation to the DEDEAT for the proposed development of the Cement Grinding Facility within the Coega IDZ zone 5 (DEDEAT Ref. No.: ECM1 / LN2 / M / 12-56).

All registered Interested and Affected Parties (I&APs) will be notified of the availability of the Draft EIR (and associated Issues and Response Report) and will be sent an electronic copy of the report (without appendices) on request. Copies with full appendices can also be downloaded from the GIBB website: http://projects.gibb.co.za. Hard copies will be placed at the Main Public Library, Market Square, Govan Mbeki Avenue, and Nelson Mandela Bay Municipal Library, Govan Mbeki Street; both these Libraries are located in the Nelson Mandela Bay Municipality, City of Port Elizabeth.

Should IAPs wish to raise concerns on the Draft EIR, such concerns must be submitted in writing by post, fax or via email (including any additional supporting material) to the Public Participation Office using the details provided below:

Att: Ms Alecia Barnard
Email: osho@gibb.co.za
Tel: 011 519 4600 (weekdays 09h00 – 17h00)
Fax: 011 807 5670
Postal Address: 14 Eglin Road, Sunninghill, 2191
Physical Address: P O Box 2700 Rivonia, 2128

Please include the following subject heading to your correspondence:

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF A CEMENT GRINDING FACILITY ON A SITE LOCATED WITHIN THE COEGA INDUSTRIAL DEVELOPMENT ZONE, PORT ELIZABETH – DEDEAT Ref. No.: ECM1 / LN2 / M / 12-56: COMMENT ON DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT.

Should I&AP’s require any information on the availability of the Draft EIR, please contact:

<table>
<thead>
<tr>
<th>Name</th>
<th>Ms Urishanie Govender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>14 Eglin Road, Sunninghill, 2191</td>
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<tr>
<td>Postal Address:</td>
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<td><a href="mailto:osho@gibb.co.za">osho@gibb.co.za</a></td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

Introduction

OSHO Cement Pty Ltd (OSHO) proposes to develop a cement grinding facility (CGF) with associated infrastructure at the Coega Industrial Development Zone (IDZ), which is located within the Nelson Mandela Bay Municipality in Port Elizabeth.

The site identified for the CGF is approximately 11.5 Ha in extent. The purpose of the CGF is to produce cement. It is anticipated that the CGF would produce 150 tons of cement per hour with storage facilities accommodating up to 20,000 tons of cement and a combined capacity of 100,000 tons of clinker and GBFS. In order for the proposed development to proceed, environmental authorisation is required from the DEDEAT. Environmental Authorisation is issued subsequent to the undertaking of an Environmental Impact Assessment (EIA).

OSHO, as the project proponent, has appointed GIBB (Pty) Ltd (GIBB) as the independent Environmental Assessment Practitioner (EAP) to undertake the EIA for the proposed development and construction and installation of associated infrastructure.

This Draft Environmental Impact Report (DEIR) constitutes the initiation of the second phase of the EIA, the Impact Assessment Phase. The Impact Assessment Phase aims to:

- Investigate and gather information on the proposed site, in order to establish an understanding of the area;
- Establish how the proposed development activities will potentially impact on the environment;
- Identify the Interested and Affected Parties (I&APs) by undertaking a Public Participation Process (PPP). Note: An I&AP is a person that is interested and/or affected by the proposed development;
- Identify the significance and rating of potential environmental impacts through investigation and PPP; and
- Describe potential alternatives and mitigation measures.
Site Location

<table>
<thead>
<tr>
<th>Property Description</th>
<th>Coega Industrial Development Zone 5 (Metallurgical Zone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximates Coordinates from Site Centre point</td>
<td>Latitude: 33°47'12.69&quot;S  Longitude: 25°39'3.12&quot;E</td>
</tr>
<tr>
<td>Project Footprint</td>
<td>11.5ha</td>
</tr>
<tr>
<td>Municipality</td>
<td>Nelson Mandela Bay Municipality (NMBM)</td>
</tr>
<tr>
<td>District Municipality</td>
<td>Cacadu District Municipality</td>
</tr>
<tr>
<td>Ownership</td>
<td>Coega Development Corporation</td>
</tr>
<tr>
<td>Zoning</td>
<td>Special Purposes</td>
</tr>
</tbody>
</table>

The Proposed Development

This section provides an overall description of the proposed development of the Cement Grinding Facility and associated infrastructure.

The applicant proposes to manufacture cement for bagged and bulk sale to be used in the construction industry. Cement is a powdery substance made from a mixture of natural elements, such as limestone/secondary extender, clay, sand and gravel which when combined with water forms a solid mass called concrete. Grades and/or quality of cement are usually determined by the amount of time taken for the cement to harden into concrete as well as the final strength of the cement. Skyscrapers for example require the highest and strongest grade of cement whereas cement needed for paving pathways does not need to meet the same strength grade.

Cement is manufactured by crushing the raw materials into powder. The powder is then heated with a furnace in a process called sintering. Sintering changes the physical and chemical properties of the raw material. The material then comes out of the furnace as large glassy red hot cinders called clinker. The clinker is cooled and a small amount of gypsum is added. The material is then ground and the final product is called Portland Cement (high grade cement).

The proposed cement grinding facility as part of this project will not produce clinker. Clinker would be purchased and then crushed at this facility. Additionally, in order to vary the type and grades of cement produced, the clinker would be mixed in different proportions (recipes) with extenders such as Granulated Blast Furnace Slage GBFS (GBFS), fly ash, limestone/secondary extender, etc. The main extender in this process will be GBFS which is a by-product of the steel industry. GBFS in the context of this report is GBFS which has been confirmed by possible suppliers as a by-product/product. It is important to understand the constituents of the GBFS used to ensure the quality of the cement is not compromised. Future phases of the project will however investigate the use of other types of slag material in the process.

In order to conceptualise the complex cement production process, it is important to first understand each component of the proposed facility. The proposed development will consist of the following infrastructure:
- **Mill Complex & Blending Facility:** The mill complex comprises of the actual mill, the laboratory, the Stores and the Workshop. At this stage there are three potential options for the proposed mill, as outlined below:

  - **Option 1: Vertical Roller Mill:** The vertical roller mill consists of horizontal rollers running over a grooved rotating table. The large particles are forced between the rollers and the table and fractured into far smaller particles in the process. The ground particles are lifted by an air current sweeping through the mill into an integrated separator above the mill. The separator returns insufficiently ground particles back to the grinding table and releases the fine ones to a down-stream bag filter where they are separated from the dust laden air.

  - **Option 2: Ball mill:** A ball mill is a horizontally rotating tube typically filled with round steel balls known as grinding media. The materials to be ground are passed from one end of the tube (the feed end) to the other. En-route these particles are crushed by falling balls and thus get reduced to a fine powder. On exiting the mill, the ground cement transported to an air separator which separates the course particles from the fine particles. The course particles are returned to the mill for re-processing. The fine particles are taken to a bag filter which separates the fine particles from the dust laden air.

  - **Option 3: Roller press ball mill combination:** The roller press ball mill combination is very similar to a ball mill with one main difference. Prior to entering the ball mill material is passed through two rotating rollers which press incoming material and fracture it to a smaller particles size. This material then proceeds through the ball mill in the same fashion as described above.

- **Lab:** A fully functioning laboratory is required to test for cement quality as well as to perform other operational tasks associated with cement manufacture.
- **Workshop:** The workshop area would be utilised for general maintenance servicing the mill and all other mechanical components on the facility.
- **Stores and Stockpiles:** Ground cement is stored in silos. This could consist of a single silo with multiple compartments or of a number of individual single compartment silos. The main transport points conveying material from the mill to the silo is equipped with filters to minimize dust generation. Refer to the table below detailing the raw materials that are to be stored on site.
- **Cooling Tower:** A cooling tower is utilised to cool water from the mill which would be used to cool the bearings in the mill. The water would circulate from the mill to the cooling tower and back to the mill in a closed circuit.
- **Weighbridge:** A Weighbridge is a mechanised bridge that accurately measures the mass of product on vehicles.
- **General Buildings:** The proposed facility would comprise of administrative building(s). The office buildings would be utilised for general administrative and plant management functions.
- **Bagging and Palletising Shed:** The finished product is stored in the main storage silos. Thereafter the cement is transported to the packing and
palletizing plant. In the packing plant, a packer accepts cement feed and puts it into bags. These bags may be loaded directly onto flat-bed trucks. Optionally they may be palletized and covered by plastic. The palletizing process entails stacking approximately 20 bags (1 ton) onto wooden or plastic pallets. Pallets are stored in a warehouse which also covers the packing and palletizing units. Some fully packed pallets may be stored outside on an open concrete slab. Pallets are also loaded onto flatbed trucks using a forklift truck.

**Identified Impacts**

The Impact assessment phase is already complete and the following impacts were identified:

- **Loss or fragmentation of indigenous natural vegetation:**
  Construction of infrastructure may lead to direct loss of vegetation. This will lead to localised or more extensive reduction in the overall extent of vegetation. Where this vegetation has already been stressed due to degradation and transformation at a regional level, the loss may lead to increased vulnerability (susceptibility to future damage) of the habitat. Some vegetation types that have suffered regionally high levels of transformation are listed in the Draft Ecosystem List and are protected according to the National Environmental Management: Biodiversity Act.

- **Loss of habitat or individuals of threatened animals:**
  Loss of a population or individuals could lead to a direct change in the conservation status of the species. This may arise if the proposed infrastructure is located where it will impact on such individuals or populations or the habitat that they depend on.

- **Loss of populations of threatened plants:**
  Plant species are especially vulnerable to infrastructure development due to the fact that they cannot move out of the path of the construction activities, but are also affected by overall loss of habitat. Loss of a population or individuals could lead to a direct change in the conservation status of the species, possibly extinction. This may arise if the proposed infrastructure is located where it will impact on such individuals or populations. Consequences may include fragmentation of populations of affected species, reduction in area of occupancy of affected species and loss of genetic variation within affected species.
• **Loss of individuals of protected tree species:**
  In terms of section 15(1) of the National Forests Act, 1998 “no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a license granted by the Minister to an applicant and subject to such period and conditions as may be stipulated”

• **Establishment and spread of declared weeds and alien invader plants:**
  Exotic species are often more prominent near infrastructural disturbances than further away. Consequences of invasion may include further loss of indigenous vegetation, change in vegetation structure leading to change in various habitat characteristics, change in plant species composition, change in soil chemical properties, loss of sensitive habitats, loss or disturbance to individuals of rare, endangered, endemic and/or protected species, fragmentation of sensitive habitats, change in flammability of vegetation, depending on alien species, hydrological impacts due to increased transpiration and runoff.

• **Reduced Air Quality:**
  Raw materials handling has the potential for emissions. Grinding of raw material such as limestone/secondary extender, gypsum, GBFS and clinker may have fugitive emissions. Lastly the packaging and dispatch of cement has the potential to result in fugitive emissions.

• **Noise Impact on nearby receptors:**
  It is anticipated that the mill itself as well as the general operating processes would result in noise impacts to the surrounding area. The facility is expected to operate for 24 hours per day. The potential impact however would be minimised by means of applicable mitigation measures in the part of the facility which may emit noise levels greater than the acceptable standards for the IDZ.

• **Traffic Impact:**
  It is anticipated that the increased volume of traffic including construction vehicles, and delivery trucks as well as light motor vehicle traffic will impact on existing services and infrastructure on site. The potential impact will be assessed and quantified to determine the level and significance of impact.

• **Storm Water Management:**
  It is anticipated that contamination of runoff from material stockpiles and spilled material may lead to storm water contamination, which may then lead to cumulative impacts such as watercourse and groundwater contamination through seepage. A storm water management plan and water balance must therefore be commissioned in order to adequately address the impacts to storm water.
## CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PROJECT INFORMATION</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td>EXECUTIVE SUMMARY</td>
<td>III</td>
</tr>
<tr>
<td>1.</td>
<td>INTRODUCTION AND BACKGROUND</td>
<td>10</td>
</tr>
<tr>
<td>1.1</td>
<td>Context of the Proposed Project</td>
<td>11</td>
</tr>
<tr>
<td>1.1.1</td>
<td>Project Description – OSHO Coega Cement Grinding Facility</td>
<td>11</td>
</tr>
<tr>
<td>1.2</td>
<td>Motivation for the Project</td>
<td>11</td>
</tr>
<tr>
<td>1.3</td>
<td>Property Description and Location</td>
<td>14</td>
</tr>
<tr>
<td>1.4</td>
<td>Environmental Authorisation</td>
<td>16</td>
</tr>
<tr>
<td>1.4.1</td>
<td>EIA Process</td>
<td>16</td>
</tr>
<tr>
<td>1.4.2</td>
<td>Air Emissions License</td>
<td>19</td>
</tr>
<tr>
<td>1.4.3</td>
<td>Water Use License</td>
<td>20</td>
</tr>
<tr>
<td>1.5</td>
<td>Responsible Parties</td>
<td>21</td>
</tr>
<tr>
<td>1.5.1</td>
<td>GIBB EIA Team</td>
<td>22</td>
</tr>
<tr>
<td>1.5.2</td>
<td>Specialists</td>
<td>23</td>
</tr>
<tr>
<td>2.</td>
<td>LEGAL FRAMEWORK</td>
<td>25</td>
</tr>
<tr>
<td>2.1</td>
<td>Legislative, Policy, Planning and Guideline Context</td>
<td>25</td>
</tr>
<tr>
<td>2.1.2</td>
<td>Department of Environmental Affairs and Tourism Integrated Environmental Management Guideline Series (2010)</td>
<td>28</td>
</tr>
<tr>
<td>2.1.3</td>
<td>Other Acts/ Regulations/ Policies/ Guidelines Relevant to the Project</td>
<td>29</td>
</tr>
<tr>
<td>2.2</td>
<td>Local and Regional Integrated Development Plans</td>
<td>34</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Noise Requirements</td>
<td>34</td>
</tr>
<tr>
<td>2.2.2</td>
<td>Air pollution requirements</td>
<td>35</td>
</tr>
<tr>
<td>3.</td>
<td>PUBLIC PARTICIPATION PROCESS</td>
<td>38</td>
</tr>
<tr>
<td>3.1.1</td>
<td>Scoping Phase Public Participation</td>
<td>38</td>
</tr>
<tr>
<td>3.1.2</td>
<td>Impact Assessment Phase Public Participation Activities</td>
<td>42</td>
</tr>
<tr>
<td>3.1.3</td>
<td>Compliance with Legal Requirements for Public Participation</td>
<td>44</td>
</tr>
</tbody>
</table>
4. DESCRIPTION OF THE PROPOSED PROJECT

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>The Cement Grinding Facility (CGF)</td>
<td>46</td>
</tr>
<tr>
<td>4.2</td>
<td>Utility Requirements</td>
<td>48</td>
</tr>
<tr>
<td>4.3</td>
<td>The Cement Grinding Facility Production Flow</td>
<td>52</td>
</tr>
<tr>
<td>4.4</td>
<td>Project Requirements and Specifications</td>
<td>54</td>
</tr>
<tr>
<td>4.4.1</td>
<td>Coega IDZ Requirements</td>
<td>54</td>
</tr>
<tr>
<td>4.4.2</td>
<td>Requirements for all Specialist Studies</td>
<td>55</td>
</tr>
<tr>
<td>4.4.3</td>
<td>Material Sources</td>
<td>57</td>
</tr>
<tr>
<td>4.4.4</td>
<td>Structures</td>
<td>57</td>
</tr>
<tr>
<td>4.4.5</td>
<td>Construction</td>
<td>58</td>
</tr>
<tr>
<td>4.4.6</td>
<td>Water Use Licence</td>
<td>59</td>
</tr>
</tbody>
</table>

5. EVALUATION OF ALTERNATIVES

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Identification and Assessment of Alternatives</td>
<td>60</td>
</tr>
<tr>
<td>5.2</td>
<td>Technology Alternatives</td>
<td>61</td>
</tr>
<tr>
<td>5.2.1</td>
<td>Alternative 1: The Preferred Option: Vertical Roller Mill</td>
<td>62</td>
</tr>
<tr>
<td>5.2.2</td>
<td>Alternative 2: Ball Mill</td>
<td>62</td>
</tr>
<tr>
<td>5.2.3</td>
<td>Alternative 3: Roller Press Ball Mill combination</td>
<td>63</td>
</tr>
<tr>
<td>5.3</td>
<td>Storage Alternatives</td>
<td>64</td>
</tr>
<tr>
<td>5.4</td>
<td>Process Alternatives</td>
<td>67</td>
</tr>
<tr>
<td>5.5</td>
<td>Transportation Alternatives</td>
<td>67</td>
</tr>
<tr>
<td>5.5.1</td>
<td>Bulk Truck</td>
<td>67</td>
</tr>
<tr>
<td>5.5.2</td>
<td>Rail Wagons</td>
<td>67</td>
</tr>
<tr>
<td>5.5.3</td>
<td>Conveyor system</td>
<td>67</td>
</tr>
<tr>
<td>5.6</td>
<td>No Go Option</td>
<td>68</td>
</tr>
</tbody>
</table>

6. THE AFFECTED ENVIRONMENT

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>General Description of the Region</td>
<td>74</td>
</tr>
<tr>
<td>6.2</td>
<td>Biophysical Environment</td>
<td>76</td>
</tr>
<tr>
<td>6.2.1</td>
<td>Location and Topography</td>
<td>76</td>
</tr>
<tr>
<td>6.2.2</td>
<td>Climate</td>
<td>76</td>
</tr>
<tr>
<td>6.2.3</td>
<td>Geology and Hydrology</td>
<td>77</td>
</tr>
<tr>
<td>6.2.4</td>
<td>Aquatic Environment</td>
<td>82</td>
</tr>
<tr>
<td>6.2.5</td>
<td>Fauna and Flora</td>
<td>82</td>
</tr>
<tr>
<td>6.2.6</td>
<td>Air Quality</td>
<td>86</td>
</tr>
<tr>
<td>6.3</td>
<td>Socio-economic Environment</td>
<td>87</td>
</tr>
<tr>
<td>6.3.1</td>
<td>Nearby Receptors</td>
<td>88</td>
</tr>
<tr>
<td>6.3.2</td>
<td>Baseline Demographical Processes</td>
<td>88</td>
</tr>
<tr>
<td>6.4</td>
<td>Tourism</td>
<td>90</td>
</tr>
<tr>
<td>6.5</td>
<td>Aesthetics</td>
<td>90</td>
</tr>
</tbody>
</table>
6.5.1 Topography 90
6.5.2 Vegetation Cover 90
6.5.3 Landscape Diversity 90
6.5.4 Visibility 90
6.6 Cultural Heritage Environment 91
6.6.1 History 91
6.6.2 Archaeology 91
6.7 Traffic Infrastructure 92
6.7.1 Existing Road Network 92

7. ASSESSMENT AND EVALUATION OF POTENTIAL IMPACTS AND RISKS OF THE PROJECT 94
7.1 Introduction 94
7.2 Methodology for Impact Significance Scoring 95
7.3 Mitigation 96
7.4 Impacts Identified through Specialist Studies 97
7.5 Impacts Identified through the Public Participation Process 98
7.5.1 Interested and Affected Parties that Responded 98
7.5.2 Summary of Comment and Issue Themes 98
7.5.3 Responses and Report Amendments 99
7.6 Assumptions, Uncertainties and Gaps in Knowledge 99
7.6.1 Environmental Impact Assessment Overall 99
7.6.2 Specialist Studies 99
7.6.3 GBFS Classification 100

8. IMPACT ASSESSMENT 102
8.1 Waste Pollution 102
8.1.1 General Waste 102
8.1.2 Hazardous Waste 102
8.1.3 Assessment and rating 102
8.2 Soil and Water Contamination 103
8.2.1 Assessment and Rating 103
8.2.2 Mitigation Options 105
8.3 Hydraulics and Storm water Control 106
8.3.1 Assessment and Rating 111
8.3.2 Mitigation Options 111
8.4 Impacts on Vegetation 111
8.4.1 Destruction of Vegetation 111
8.4.2 Dust Reduction 112
8.4.3 Invasive Alien Vegetation 113
8.5 Fauna 113
8.5.1 Assessment and Rating 113
8.5.2 Mitigation Options
8.6 Impacts on Air Quality
  8.6.1 Assessment and Rating
  8.6.2 Mitigation Options
8.7 Noise
  8.7.1 Assessment and Rating
  8.7.2 Mitigation Options
8.8 Impact on Tourism
8.9 Social Impacts and Issues
  8.9.1 Socio-economic Impacts from Changes to the Local Economy
  8.9.2 Change to Quality of Life of Local Residents
  8.9.3 Assessment and Rating
  8.9.4 Mitigation Options
8.10 Impacts to NMBM
  8.10.1 Impacts during Construction
  8.10.2 Impacts during Operation
8.11 Impacts on Cultural Heritage Resources
  8.11.1 Assessment and Rating
  8.11.2 Mitigation Recommendations
8.12 Impacts on Traffic Infrastructure
  8.12.1 Assessment and Rating
8.13 Cumulative Impacts
8.14 Environmental Management Programme

9. CONCLUSION AND RECOMMENDATIONS

9.1 Comparison of Alternatives
  9.1.1 Technology Alternative 1: The Preferred Option: Vertical Roller Mill
  9.1.2 Storage Alternatives
  9.1.3 Process Alternatives
  9.1.4 Transportation Alternatives
  9.1.5 No Go Option
9.2 Impact Statement
9.3 Findings vs. Motivation

9.4 Recommendations
  9.4.1 General
  9.4.2 Vegetation
  9.4.3 Aquatic
  9.4.4 Fauna and Avifauna
  9.4.5 Social
  9.4.6 Local Based Economic
  9.4.7 Visual
  9.4.8 Heritage
### TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Property Description for the Proposed CGF Site</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>Identified Listed Activities</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>Listed activities in terms of section 24 and 24(d) of the NEMA as per GN R544, and R545, published on the 18 June 2010</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Responsible Parties in EIA</td>
<td>21</td>
</tr>
<tr>
<td>5</td>
<td>GIBB EIA Team Members</td>
<td>22</td>
</tr>
<tr>
<td>6</td>
<td>Specialists Involved in the EIA Phase</td>
<td>24</td>
</tr>
<tr>
<td>7</td>
<td>Activities requiring Environmental Authorisation</td>
<td>27</td>
</tr>
<tr>
<td>8</td>
<td>Brief review of other relevant policies, legislation, guidelines and standards applicable to the proposed development</td>
<td>30</td>
</tr>
<tr>
<td>9</td>
<td>Summary of Applicable Local and Regional Guidelines and Development Plans</td>
<td>34</td>
</tr>
<tr>
<td>10</td>
<td>Media Notice Newspaper Details</td>
<td>40</td>
</tr>
<tr>
<td>11</td>
<td>Notice Board Details</td>
<td>40</td>
</tr>
<tr>
<td>12</td>
<td>Chronological List of Meetings</td>
<td>41</td>
</tr>
<tr>
<td>13</td>
<td>Location of NEMA Requirements within the Final EIR</td>
<td>44</td>
</tr>
<tr>
<td>14</td>
<td>Storage Requirements for Raw Materials</td>
<td>66</td>
</tr>
<tr>
<td>15</td>
<td>Production alternatives: 1, 2, 3 and 4</td>
<td>69</td>
</tr>
<tr>
<td>16</td>
<td>Resident Employment by Sector, Nelson Mandela Bay Municipality, Cacadu Region Eastern Cape, 2011.</td>
<td>89</td>
</tr>
<tr>
<td>17</td>
<td>Impacts Significance Scoring</td>
<td>96</td>
</tr>
<tr>
<td>18</td>
<td>Potential Impact Aspects Investigated by Specialists</td>
<td>97</td>
</tr>
<tr>
<td>19</td>
<td>Waste Pollution</td>
<td>103</td>
</tr>
<tr>
<td>20</td>
<td>Soil and Water Contamination</td>
<td>105</td>
</tr>
<tr>
<td>21</td>
<td>Soil and Water Contamination from Accidents on Site</td>
<td>105</td>
</tr>
<tr>
<td>22</td>
<td>Hydraulics and Storm water Control</td>
<td>111</td>
</tr>
<tr>
<td>23</td>
<td>Vegetation Impacts; Dust levels after construction will be reduced to a minimum</td>
<td>113</td>
</tr>
<tr>
<td>24</td>
<td>Impact on Fauna</td>
<td>114</td>
</tr>
<tr>
<td>25</td>
<td>Air Quality</td>
<td>116</td>
</tr>
<tr>
<td>26</td>
<td>Noise (Nuisance)</td>
<td>118</td>
</tr>
<tr>
<td>27</td>
<td>Social Impact and Issues: Increased Quality for Life for Some Local Residents in Medium to Long Term</td>
<td>120</td>
</tr>
<tr>
<td>28</td>
<td>Traffic Infrastructure Impact Rating</td>
<td>124</td>
</tr>
<tr>
<td>29</td>
<td>Impacts Significance Rating</td>
<td>129</td>
</tr>
<tr>
<td>30</td>
<td>Summary Table of Impact Significance Ratings as determined by Specialist Studies for the Construction Phase of the Preferred Option</td>
<td>129</td>
</tr>
<tr>
<td>31</td>
<td>Summary Table of Impact Significance Ratings as determined by Specialist Studies for the Operational Phase of the Preferred Option</td>
<td>130</td>
</tr>
</tbody>
</table>
Figure 1: Locality Map for the proposed development .................................................. 15
Figure 2: EIA Process Flow Diagram ........................................................................... 19
Figure 3: The Basic Cement Manufacturing Process ..................................................... 49
Figure 4: Coega Cement Project Plant Layout ................................................................. 50
Figure 5: Artistic Impression of OSHO Coega Cement ................................................... 51
Figure 6: Detailed Flow Chart for the proposed Cement Grinding Facility .................... 53
Figure 7: Vertical Roller Mill ........................................................................................ 58
Figure 8: Vertical Roller Mill ........................................................................................ 58
Figure 9: Vertical Roller Mill ........................................................................................ 62
Figure 10: Ball Mill ........................................................................................................ 63
Figure 11: Roller Press Ball Mill ..................................................................................... 64
Figure 12: Dust suppression Mechanism using steel mesh .......................................... 65
Figure 13: Dust Netting angled at the top ...................................................................... 65
Figure 14: GBFS Windbreak .......................................................................................... 65
Figure 15: Locality Map ................................................................................................. 74
Figure 16: Zoning of Coega Industrial Development Zone ........................................... 75
Figure 17: Lithology of the Coega IDZ ....................................................................... 78
Figure 18: Stratigraphy of the Coega IDZ .................................................................. 78
Figure 19: Catchment area of the Coega River in relation to the Coega IDZ ................. 81
Figure 20: Vegetation of the Coega IDZ ..................................................................... 85
Figure 21: Species of Special Concern occurring in the Coega IDZ ............................... 86
Figure 22: Amsterdam Plain Baseline AAQ Data, 2011 ............................................... 87
Figure 23: Existing Road Infrastructure Surrounding the Proposed OSHO Plant Site .... 92
Figure 24: Ranking Scales ............................................................................................ 95
Figure 25: Water process flow diagram of the OSHO Cement Processing Facility ........ 108
Figure 26: Proposed Storm Water Infrastructure ......................................................... 110
APPENDICES

Appendix A: Maps
Appendix B: Photographs
Appendix C: Layout Plan
Appendix D: Specialist Reports
  Appendix D1: Air Quality Impact Assessment
  Appendix D2: Traffic Impact Assessment
  Appendix D3: Storm Water Management Plan
Appendix E: Public Participation Documentation
  Appendix E1: Interested & Affected Parties Database
  Appendix E2: Media Notices
  Appendix E3: Issues and Response Report (IRR)
  Appendix E4: Authority Consultation
  Appendix E5: Minutes of Meetings
Appendix F: Environmental Management Programme
Appendix G: Details of EAP and Expertise
Appendix H: Specialist Declaration of Independence
Appendix I: Additional Information
  Appendix I1: SHESD 4.4.6.0.1 Standard Environmental Specifications for Construction
  Appendix I2: SHESD 4.4.6.0.2 Standard Occupational Health & Safety Specifications
  Appendix I3: SHESD 4.4.6.0.3 Standard Vegetation Specifications
  Appendix I4: SHESD 4.4.6.0.4 Construction Environmental Management Plan
  Appendix I5: SHESD 4.4.6.0.4.1 Guidelines for Contractors
  Appendix I6: SHESD 4.4.6.0.4.2 Guidelines for Engineers and SHE Coordinator
  Appendix I7: CDC-OP-GD-001 Coega IDZ Safety, Health & Environmental Requirements for Potential Tenants
  Appendix I8: GBFS MSDS
  Appendix I9: Eco Hopper Information
  Appendix I10: DWA Storm Water Management Guidelines
  Appendix I11: CDC Zone Labour Agreement
  Appendix I12: Position Papers for GBFS vs. Waste Argument
Appendix J: Document Control Sheet
### ACRONYMS & ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIA</td>
<td>Air Impact Assessment</td>
</tr>
<tr>
<td>BID</td>
<td>Background Information Document</td>
</tr>
<tr>
<td>CDC</td>
<td>Coega Development Project</td>
</tr>
<tr>
<td>CGF</td>
<td>Cement Grinding Facility</td>
</tr>
<tr>
<td>DEA</td>
<td>Department of Environmental Affairs</td>
</tr>
<tr>
<td>DEDEAT</td>
<td>Department of Economic Development, Environmental Affairs and Tourism</td>
</tr>
<tr>
<td>DM</td>
<td>District Municipity</td>
</tr>
<tr>
<td>DMA</td>
<td>Demarcated Management Area</td>
</tr>
<tr>
<td>DME</td>
<td>Department of Minerals and Energy (now DMR – Department of Mineral Resources)</td>
</tr>
<tr>
<td>DSR</td>
<td>Draft Scoping Report</td>
</tr>
<tr>
<td>DWA</td>
<td>Department of Water Affairs</td>
</tr>
<tr>
<td>ECO</td>
<td>Environmental Control Officer</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Authorisation</td>
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<tr>
<td>EAP</td>
<td>Environmental Assessment Practitioner</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>EIR</td>
<td>Environmental Impact Assessment Report</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental Management Programme</td>
</tr>
<tr>
<td>FSR</td>
<td>Final Scoping Report</td>
</tr>
<tr>
<td>GIBB</td>
<td>GIBB (Pty) Ltd</td>
</tr>
<tr>
<td>HIA</td>
<td>Heritage Impact Assessment</td>
</tr>
<tr>
<td>IAP</td>
<td>Invasive Alien Plant</td>
</tr>
<tr>
<td>I&amp;AP</td>
<td>Interested and Affected Party</td>
</tr>
<tr>
<td>IRR</td>
<td>Issues and Response Report</td>
</tr>
<tr>
<td>IDP</td>
<td>Integrated Development Plan</td>
</tr>
<tr>
<td>IMP</td>
<td>Integrated Management Plan</td>
</tr>
<tr>
<td>INR</td>
<td>Institute of Natural Resources</td>
</tr>
<tr>
<td>LM</td>
<td>Local Municipality</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>NEPAD</td>
<td>New Partnership for Africa’s Development</td>
</tr>
<tr>
<td>NMBM</td>
<td>Nelson Mandela Bay Municipality</td>
</tr>
<tr>
<td>OHS</td>
<td>Occupational Health and Safety</td>
</tr>
<tr>
<td>OSHO</td>
<td>OSHO Cement (Pty) Ltd</td>
</tr>
<tr>
<td>PCD</td>
<td>Pollution Control Dam</td>
</tr>
<tr>
<td>PLC</td>
<td>Project Liaison Committee</td>
</tr>
<tr>
<td>PPP</td>
<td>Public Participation Programme</td>
</tr>
<tr>
<td>ROD</td>
<td>Record of Decision</td>
</tr>
<tr>
<td>TIA</td>
<td>Traffic Impact Assessment</td>
</tr>
<tr>
<td>TOR</td>
<td>Terms of Reference</td>
</tr>
</tbody>
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1. INTRODUCTION AND BACKGROUND

OSHO Cement Pty Ltd (OSHO) proposes to develop a cement grinding facility (CGF) with associated infrastructure at the Coega Industrial Development Zone (IDZ), which is located within the Nelson Mandela Bay Municipality in Port Elizabeth.

The site identified for the CGF is approximately 11.5 ha in extent. The purpose of the CGF is to produce cement. It is anticipated that the CGF would produce 150 tons of cement per hour with storage facilities accommodating up to 20,000 tons of bulk cement and a combined capacity of 100,000 tons of clinker and GBFS.

In order for the proposed development to proceed, Environmental Authorisation is required from the DEDEAT. Environmental Authorisation is issued subsequent to the undertaking of an Environmental Impact Assessment (EIA).

OSHO, as the project proponent, has appointed GIBB (Pty) Ltd (GIBB) as the independent Environmental Assessment Practitioner (EAP) to undertake the EIA for the proposed development and construction and installation of associated infrastructure.

This Draft Environmental Impact Assessment Report (DEIR) constitutes the initiation of the second phase of the EIA, the Impact Assessment. The Impact Phase aims to:

- Investigate and gather information on the proposed site, in order to establish an understanding of the area;
- Establish how the proposed development activities will potentially impact on the environment;
- Identify the Interested and Affected Parties (I&APs) by undertaking a Public Participation Process (PPP). Note: An I&AP is a person that is interested and/or affected by the proposed development;
- Identify the significance and rating of potential environmental impacts through investigation and PPP; and
- Describe potential alternatives and mitigation measures.

This chapter provides background to the proposed project and the associated EIA process and outlines the purpose and details of the EIA application and the project team.

This report constitutes the Impact Assessment Phase of the EIA, the main purpose of which is to investigate and assess the potential impacts, determine the significance of each impact identified in the scoping phase of the EIA, and review the alternatives.

The EIA was informed by a number of specialist studies and guided through participation from interested and affected parties through a public consultation and participation process.

This chapter provides background to the Proposed Project, associated EIA process and legal requirements, outlines the purpose and structure of the Environmental Impact Assessment Report (EIR), and details of the EIA application and the project team.

1 Clinker and GBFS are raw materials used in the manufacture of cement.
1.1 Context of the Proposed Project

1.1.1 Project Description – OSHO Coega Cement Grinding Facility

The Environmental Impact Assessment Phase of the EIA process for the CGF was undertaken by GIBB during December 2012, and was conducted in terms of the provisions of the National Environmental Management Act, Act 107 of 1998. Acceptance of the Final Scoping Report (FSR) was issued by the Department of Economic Development, Environmental Affairs and Tourism: Cacadu region (DEDEAT) on 26 February 2013 (attached as Appendix E4). The authority acceptance of the FSR allowed the EIA phase to commence.

The OSHO CGF project will consist of two phases:

**Phase 1:** The Construction and development of all relevant infrastructure needed for the CGF. Phase 1 of the OSHO Coega CGF entails the finalisation of infrastructure design, and the construction thereof. The design of the CGF has been an on-going process from the start of the Environmental Authorisation Application process. OSHO will be implementing the principles of VASTHU for plant design and layout.

VASTHU is the ancient science of design, where matter, energy, space and time are considered and analysed when designing a production facility. It is the science of direction and deals with architectural and engineering needs of any structure. This is achieved through the combination of all 5 elements of nature and balancing these with man and material.

Adherence to the VASTHU design principles can lead to reduced energy consumption during operation, increased production, and an overall balanced production plant. The principles of VASTHU are universally applicable and relevant to most production plants.

**Phase 2:** The Operational phase where the cement will be produced through a series of processes and offered for sale, either in bulk or in pre-packed quantities.

1.2 Motivation for the Project

Nelson Mandela Bay is the economic powerhouse of the Eastern Cape Province, and has experienced a 10% increase in Gross Domestic Product (GDP) over the last five years (ECSECC, 2011). The Coega IDZ development, regarded as a keystone development in the Eastern Cape, arises from the National Government’s Growth, Employment and Redistribution (GEAR) strategy. It is one of the largest single infrastructure development projects undertaken in South Africa since 1994. When fully functional; the port is expected to become a significant catalyst to the economic growth of Nelson Mandela Bay and the region. Current and future investments at
Coega are expected to create more jobs and stimulate the economy. OSHO Cement aims to contribute to the growth of the IDZ and create employment as well as growing to become a significant player in the cement market as a sustainable, ideally located facility.

The Eastern Cape has been identified as a Key Development Region by the President in his State of the Nation address on the 14th of February 2013 and forms part of the National Development Plan. The proposed site of the OSHO Cement grinding plant is an 11.5ha piece of land situated within the Coega IDZ Base Metallurgical Cluster (Zone 5). The proposed development is ideally located for efficient and sustainable production of cement.

Eastern Cape is a province that has been identified as an area with the potential for high growth in cement usage. Currently the market has a capacity of 1000 000 tons annually. There is only one cement plant in the province, but its capacity is limited and the facility is aging and it is not cost effective to produce cement at the plant. Thus almost all cement in the Eastern Cape must be transported long distances by road, an expensive prospect for a high-volume, low-value product such as cement. OSHO will be able to sell cement at competitive prices for this reason.

The proposed development falls within the planning framework of Port Elizabeth. The Coega Industrial Development Zone has been set aside for industrial development. Services such as water and electricity would be provided by the Coega Development Corporation (CDC). The site location fulfills a list of stringent infrastructural requirements. Firstly, the site must be located close to an international port so that raw materials can be imported. The Port of Ngqura fulfills this requirement. Secondly, a stable 6kva electrical connection is needed. In addition, both road and rail transport are required in order to move raw materials to the site and cement out. Coega has an excellent infrastructural network in all of these regards.

Some of the advantages of this location include:

- The IDZ as an established heavy, medium and light industrial area, in terms of water, sewer and electricity.
- Fully serviced site, in terms of water, sewer and electricity.
- Fast-track construction of factories, warehouses and office complexes.
- Custom secure areas (CSA) for export oriented manufacturing companies.
- Existing logistics infrastructure, including road, sea, telecommunications and air links.
- An economic cluster centred on backward and forward integration.
- Customer-secure manufacturing and warehousing.
- Flexible lease and utility prices.
- A Strategically important location at the centre of east-west trade routes serving both the world and African markets.
- The IDZ is served by all the world’s major shipping and logistics companies.
- A modern, deep-water port with purpose-built container, bulk and break-bulk terminals.
- Availability of skilled labour within Nelson Mandela Metro managed by the CDC.

Furthermore the site selection and zoning committee of the IDZ has undertaken
extensive planning and consideration of the natural and developmental environment, when Coega IDZ was zoned. Through a series of focused Specialist studies on the ecology, heritage and practical urban planning the IDZ was then delineated into appropriate zones for each industrial sector. As such, areas of priority which required conservation were marked, and action was taken to ensure that these areas remain protected. An Open Space Management Plan (OSMP) has been implemented in this regard. The OSHO facility is proposed in Zone 5 which is an area carefully demarcated for such industry.

According to the Coega Development Corporation (CDC) the “The Open Space Management Plan (OSMP) for the Coega IDZ describes and maps sensitive areas that have been identified through environmental field work and studies over the years. Almost 20% of the 11 500ha Coega IDZ has been set aside as open space and is managed according to the guiding principles of the OSMP.

The objectives of the OSMP are to:

- Promote preservation of the environment where natural systems and/or specific habitats require it;
- Manage and preserve the cultural resources within the open spaces of Coega IDZ;
- Manage and preserve land for its aesthetic or passive recreational value, for active recreational use, and for its contribution to the quality of life of the tenants and the public;
- Meet recreation space demands as well as provide natural amenities for the Coega IDZ working population;
- Ensure proper management of open space areas;
- Ensure that linkages to outside open space areas are maintained;
- Use education to promote and accomplish the goals of the environmental vision for Coega IDZ;
- Address the social & cultural needs of workers and families if and where desired;
- Promote educational opportunities within the Coega IDZ and enhance the level of environmental awareness of the workers within the Coega IDZ; and
- Improve environmental quality by means of development guidelines to ensure the Coega IDZ can compete with other alternative locations on a global scale.”
1.3 Property Description and Location

Table 1: below outlines the property description for the proposed development and includes the municipal jurisdiction within which the development is bounded by.

Table 1: Property Description for the Proposed CGF Site

<table>
<thead>
<tr>
<th>Property Description</th>
<th>Coega Industrial Development Zone 5 (Metallurgical Zone)</th>
</tr>
</thead>
</table>
| Approximates Coordinates from Site Centre point | Latitude: 33°47'12.69"S  
Longitude: 25°39'3.12"E |
| Project Footprint    | 11.5ha                                                   |
| Municipality         | Nelson Mandela Bay Municipality                         |
| District Municipality| Cacadu District Municipality                            |
| Ownership            | Coega Development Corporation                          |
| Zoning               | Special Purposes                                        |
Refer to the locality map of the proposed site provided below in Figure 1.

Figure 1: Locality Map for the proposed development
1.4 Environmental Authorisation

1.4.1 EIA Process

This report represents the Draft Environmental Impact Assessment Report (Draft EIR) for the Proposed CGF, and has been prepared in accordance with the EIA Regulations published in Government Notice No. R544 and R545 published on 18 June 2010. These Regulations were published by the DEA under Section 24(5) read with Section 44 of the National Environmental Management Act 107 of 1998 (NEMA) to control activities which may have a detrimental effect on the environment.

NEMA, as amended, EIA Regulations (Government Notices No R543, R544 and R545) identify a number of “listed activities” for which authorisation is required. In order to obtain this authorisation, either a “Basic Assessment Process” or “Scoping and EIA Process” must be followed. Basic Assessments are typically required for activities that have less detrimental environmental impact, whilst the Scoping and EIA process is required for larger projects that typically have more significant detrimental impact on the environment. Table 2 identifies the activities, as listed in Government Notice No. R544 and R545 (18 June 2010 EIA Regulations), that have relevance to the Proposed Project. Both processes include a regulated Public Participation Process (PPP).

Table 2: Identified Listed Activities

<table>
<thead>
<tr>
<th>GN and Listing notice</th>
<th>Activity No (s):</th>
<th>Description of each listed activity as per project description:</th>
<th>Listed Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>545 Listing Notice 2</td>
<td>15</td>
<td>The construction and operation of a 150 ton/hour cement grinding plant with storage facilities accommodating 20,000 tons of bulk cement and 100,000 tons of clinker and other raw materials.</td>
<td>Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for: (i) linear development activities; or (ii) Agriculture or afforestation where activity 16 in this Schedule will apply.</td>
</tr>
<tr>
<td>545 Listing Notice 2</td>
<td>5</td>
<td>The construction and operation of a 150 ton/hour cement grinding plant with storage facilities accommodating 20,000 tons of bulk cement and</td>
<td>The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution 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 National Environmental Management: Waste Act, 2008</td>
</tr>
</tbody>
</table>
100,000 tons of clinker and other raw materials.

| Listing notice 2 | 26 | The construction and operation of a 150 ton/hour cement grinding plant with storage facilities accommodating 20,000 tons of bulk cement and 100,000 tons of clinker and other raw materials. |
| Listing notice 1 | 23 | The construction and operation of a 150 ton/hour cement grinding plant with storage facilities accommodating 20,000 tons of bulk cement and 100,000 tons of clinker and other raw materials. |
| Listing notice 1 | 13 | The construction of a diesel storage facility storing 495m³ of diesel above ground. |

(Act No. 59 of 2008) in which case that Act will apply.

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 such commencement requires basic assessment in terms of Notice of No. R544 of 2010

The transformation of undeveloped, vacant or derelict land to -
(i) residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or
(ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; except where such transformation takes place -
(i) for linear activities.
(ii) for purposes of agriculture or afforestation, in which case Activity 16 of Notice No. R.545 applies

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 meters;

Note: The OSHO CGF at Coega IDZ is administered by the NMBM, a Provincial Authority; the EIA must be submitted to the Department of Economic Development, Environmental Affairs and Tourism: Cacadu Region.

This Environmental Authorisation process commenced with the Environmental Scoping Phase. The aim of Scoping Phase was to determine the issues, concerns and queries of Interested and Affected Parties (IAPs), potential impacts, potential alternatives, specialist studies required, and the scope of the Impact Assessment Phase. Following submission of an Environmental Scoping Report and associated Plan of Study for the Impact Assessment Phase to the DEDEAT, and subsequent approval thereof (26 February 2013), the Impact Assessment Phase was initiated. The prescribed PPP runs concurrently with both Phases. A flow diagram of the EIA process is shown in Figure 2 below.

The Impact Assessment Phase focuses on the investigation and evaluation of the impacts, issues and alternatives identified during the Scoping Phase. Where necessary those impacts or issues that required detailed assessment are investigated
further. All identified impacts are assessed and rated in terms of their environmental impact significance. Appropriate mitigation measures and recommendations are also formulated to minimise the potential negative environmental impacts.

The Impact Assessment Phase thus comprises the actual assessment of potential impacts and the compilation of a comprehensive DRAFT EIR. The Impact Assessment Phase also includes the compilation of a Draft Environmental Management Programme (EMP) for the design, construction and operational phases of the project.

Objectives of the Impact Assessment Phase and Report are to:

- Provide a detailed description of the proposed activity and the need and desirability of the project.
- Provide a description of the property on which the activity is to be undertaken and the environment that may be affected by the activity.
- Outline the PPP undertaken.
- Discuss the alternatives of the project, including any benefits and negative impacts the alternatives may have on the environment and community.
- Provide an indication of the methodology used in determining the significance of the potential environmental impacts.
- Evaluate the impacts and provide mitigation measures.
- Provide a summary of findings and recommendation of any specialist report.
1.4.2 Air Emissions License

The proposed development of the CGF includes the construction and operation of a 150 ton/hour cement grinding plant with storage facilities accommodating 20,000 tons of bulk cement and 100,000 tons of clinker and GBFS on the 11.5ha site. As such, in terms of the National Environmental Management Air Quality Act (Act No. 39 of 2004) (NEM: AQA) GN 33064 an Air Emissions License (AEL) is required.

The competent authority issuing the AEL is the Nelson Mandela Bay Municipality (NMBM). As such, GIBB has submitted an application to the NMBM for an AEL (refer to Appendix E4) for the proposed development of the CGF. Furthermore the application for the AEL includes consultation with the Provincial Air Quality Officer.

The proposed development triggers the following listed activities in terms of (NEM: AQA) GN 33064.
Table 3: Listed activities in terms of section 24 and 24(d) of the NEMA as per GN R544, and R545, published on the 18 June 2010

<table>
<thead>
<tr>
<th>Activity No (s):</th>
<th>Description of each listed activity as per project description:</th>
<th>Listed Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.3</td>
<td>The construction and operation of a 150 ton/hour cement grinding plant with storage facilities accommodating 20,000 tons of bulk cement and 100,000 tons of clinker and other raw materials.</td>
<td>The production and cooling of Portland cement clinker; grinding and blending of clinker to produce finished cement where (Conventional fuels and raw material).</td>
</tr>
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</table>

1.4.3 Water Use License

OSHO proposes the construction of a storm water retention dam of less than 50 000m$^3$ capacity as part of the site storm water management plan. The water collected in this dam will then be utilised for irrigation and de-dusting purposes, and will ensure adherence and compliance to the irrigation guidelines.

A water use license, storm water management plan and water balance will be undertaken by Groundwater Consulting Services (GCS) (Pty) Ltd.
### 1.5 Responsible Parties

<table>
<thead>
<tr>
<th>DEDEAT CASE OFFICER</th>
<th>PROONENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Economic Development, Environmental Affairs and Tourism</td>
<td>OSHO Cement (Pty) Ltd</td>
</tr>
<tr>
<td>Mr. Andries Struwig Assistant Manager: EIM</td>
<td>Ms Danielle Welgemoed Assistant Project Manager</td>
</tr>
<tr>
<td>P/Bag X5001 Greenacres 6057</td>
<td>P.O. Box 151 Sunninghill 2157</td>
</tr>
<tr>
<td>Tel: 041 508 5840 Fax: 041 508 5895 Email: <a href="mailto:andries.struwig@deaet.eca">andries.struwig@deaet.eca</a>. gov.za</td>
<td>Tel: 011 653 1740 Fax: 011 318 0922 Email: <a href="mailto:danielle@oshoventures.com">danielle@oshoventures.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROJECT ENGINEERS</th>
<th>ENVIRONMENTAL ASSESSMENT PRACTITIONER</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHO Cement (Pty) Ltd</td>
<td>GIBB (Pty) Ltd</td>
</tr>
<tr>
<td>Mr Ed Volek General Manager</td>
<td>Dr Urishanie Govender General Manager: Environment</td>
</tr>
<tr>
<td>P.O. Box 151 Sunninghill 2157</td>
<td>14 Eglin Rd Sunninghill Gauteng 2191</td>
</tr>
<tr>
<td>Tel: 011 653 1740 Fax: 011 318 0922 Email: <a href="mailto:edvolek@oshoventures.com">edvolek@oshoventures.com</a></td>
<td>Tel: 011 519 4701 Fax: 011 807 5670 Email: <a href="mailto:ugovender@gibb.co.za">ugovender@gibb.co.za</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AEL CASE OFFICER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nelson Mandela Bay Municipality</td>
</tr>
<tr>
<td>Mr Patric Nodwele Snr. Environmental Health Practitioner Air Pollution &amp; Noise Control</td>
</tr>
<tr>
<td>PO Box 11 Port Elizabeth 6000</td>
</tr>
<tr>
<td>Tel 041 506 5216 Fax 041 585 7261 Email: <a href="mailto:pnodwele@mandelametro.gov.za">pnodwele@mandelametro.gov.za</a></td>
</tr>
</tbody>
</table>
1.5.1 GIBB EIA Team

The EIA team comprises the following members from GIBB:

**Table 5: GIBB EIA Team Members**

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urishanie Govender</td>
<td>General Manager: Environmental</td>
</tr>
<tr>
<td>Sukendrie Paras</td>
<td>Project Manager and Senior Environmental Scientist</td>
</tr>
<tr>
<td>Alecia Barnard</td>
<td>Candidate Environmental Scientist</td>
</tr>
</tbody>
</table>

The expertise of the Environmental Scientists who carried out the EIA is summarised below, whilst detailed CVs are provided in Appendix G.

**Dr Urishanie Govender** has extensive experience in providing leadership on sustainability assessments and corporate environmental compliance. She was directly involved in public participation; environmental impact assessments and environmental authorisations with four years’ experience at senior management level in government and more than five years within industry. Dr Govender led several environmental projects in South Africa; Zimbabwe and Botswana including water and emission licensing and infrastructure upgrades. She developed an integrated systems framework for safety; health; environment and quality management to enable legal compliance during project feasibility and efficient implementation of management controls post authorisations. Her experience also includes establishing appropriate air emissions management framework to meet the requirements for point; fugitive and ambient emissions reporting.

**Sukendrie Paras** is an Environmental Scientist with 8 years experience specialising in Waste Management, Compliance Monitoring and compilation of Environmental Impact Assessments (EIAs) and Environmental Management Programmes (EMPs) related to Infrastructure and Industrial Projects. She has worked on the rehabilitation and closure of unlined waste facilities and provided input into waste landfill design and Industrial waste minimization strategies. She has also worked on a number of Industrial Facility EIA’s, including the PPC Jupiter Slag Mill BA, the Goldfields Beatrix Mine Co-generation Facility EIA, and the Necsa SAFARI-2 Reactor EIA.

**Alecia Barnard** is a candidate Environmental Scientist with 18 months experience in Environmental Compliance Monitoring and compilation of Environmental Management Programmes (EMPs), as well as Public Participation documents compilation. Alecia has worked on the Beatrix Mine Co-Generation Facility EIA, and compiled the water use license and IRR for the Transnet Section 24G Moreletaspruit Gabions Construction project.

GIBB is a multi-disciplinary engineering and environmental consultancy organisation whose environmental division comprises over 25 highly qualified and experienced environmental professionals. GIBB’s Environmental Division has a proven track record in the planning, co-ordination, management and execution of a wide range of environmental projects (CV’s are attached in Appendix G). Key areas of expertise include:

**Environmental Sciences:**
Environmental advisory services
Environmental policy and corporate reporting
Sustainability assessments
Environmental management systems
Environmental liability and risk assessment
Integrated development planning
Strategic environmental assessments
Environmental impact assessments
Public consultation
Environmental management programmes
Environmental training, monitoring and auditing
Environmental permit and regulatory compliance management

Environmental Engineering:

- Environmental monitoring protocols
- Hazardous waste management
- Integrated waste management plans
- Landfill management and operation plans
- Landfill planning, development, design, construction and closure
- Monitoring and environmental permit and regulatory compliance management
- Permitting of landfill sites
- Pollution prevention
- Risk assessment
- Waste minimisation and recycling

1.5.2 Specialists

It was recognised early in the technical component of the Scoping Phase that there was insufficient information available (inadequate, out-dated or unavailable information) on certain aspects of the local and regional environment in order to make an accurate contextualisation of the study area, and identify potential environmental impacts. Specialists were therefore appointed to research and describe the various aspects and, based on their investigations, identify and describe related potential environmental issues and impacts that could occur as a result of the construction and operation of the CGF. The specialist studies and details of the appointed specialists are provided in Table 6.

A Storm Water Management Plan to address the issues related to storm water and management thereof will be commissioned during the Draft EIR phase. The specialist will be appointed during the DEIR phase and the findings will be published in the Final EIR along with the Storm Water Management Plan (SWMP). The recommendations of the SWMP will be considered for formulation as part of the Environmental Management Plan.
### Table 6: Specialists Involved in the EIA Phase

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality Impact Assessment</td>
<td>WardKarlson Consulting</td>
</tr>
<tr>
<td></td>
<td>Marc Blanche</td>
</tr>
<tr>
<td>Traffic Impact Assessment</td>
<td>Aurecon</td>
</tr>
<tr>
<td></td>
<td>Rishaal Sahadew</td>
</tr>
<tr>
<td>Storm Water Management</td>
<td>Groundwater Consulting Services (GCS)</td>
</tr>
</tbody>
</table>
2. LEGAL FRAMEWORK

This chapter details applicable legal provisions and aims to provide a review of relevant national and provincial legislation and regulations, and policy documents, which are applicable to (or have implications for) the proposed development and operation of the CGF.

One of the main focus areas of this section is on the provisions of the National Environmental Management Act, Act No. 107 of 1998 (NEMA). NEMA is the primary South African framework legislation governing the requirements for Environmental Impact Assessment.

This chapter also describes other legislation relevant to constitutional and administrative legal precepts in South African law, as well as environmental legislation of specific relevance inter alia to the control of cement manufacture installations, biodiversity, waste management and air pollution.

2.1 Legislative, Policy, Planning and Guideline Context

The legislative framework applicable to this project is diverse and consists of a number of Acts and Regulations which must be complied with. A summary of the key environmental legislation and relevant policies and/or guidelines is provided in the following sections:


NEMA\(^2\) is the most significant single piece of legislation dealing with environmental management in South Africa. The stated purpose of NEMA is, amongst other things, “to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state...”\(^3\)

NEMA takes the form of “framework” legislation. It establishes a set of 18 principles which apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and -

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\(^2\) NEMA applies throughout the territory of the Republic of South Africa which effectively means that it applies throughout the terrestrial area of the Republic and seaward beyond the low-water mark, to the outer extent of the territorial waters (which extend for 12 nautical miles from the low-water mark or specifically demarcated baselines – see the provisions of the Maritime Zones Act, 15 of 1994 in this regard).

\(^3\) Long title of NEMA. Section 239 of the Constitution defines an "organ of state" as:
(a) any department of state or administration in the national, provincial or local sphere of government; or
(b) any other functionary or institution-
(i) exercising a power or performing a function in terms of the Constitution or a provincial constitution; or
(ii) exercising a public power or performing a public function in terms of any legislation,
but does not include a court or a judicial officer.
a) shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination.

b) serve as the general framework within which environmental management and implementation plans must be formulated.

c) serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment.

d) serve as principles by reference to which a conciliator appointed under this Act must make recommendations.

e) guide the interpretation, administration and implementation of this Act, and any other law concerned with the protection or management of the environment.\(^4\)

The following principles contained in section 2 of NEMA are of particular relevance in that they potentially impact on any decision that may be taken by organs of state in relation to the authorisation of the construction of electricity transmission infrastructure in South Africa:

- “Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.”\(^5\)
- “Development must be socially, environmentally and economically sustainable.”\(^6\)
- “Sustainable development requires the consideration of all relevant factors including the following:
  
  (i) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied.
  
  (ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied.
  
  (iii) that the disturbance of landscapes and sites that constitute the nation’s cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied.
  
  (iv) that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.
  
  (v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource.
  
  (vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised.
  
  (vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.

\(^4\)Section 2(1) of NEMA.
\(^5\)Section 2(2) of NEMA.
\(^6\)Section 2(3) of NEMA.
(viii) that negative impacts on the environment and on people’s environmental rights are anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.\(^7\)

- “The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.\(^6\)

- “The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.\(^9\)

- “There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.”\(^10\)

- “Global and international responsibilities relating to the environment must be discharged in the national interest.”\(^11\)

NEMA also contains provisions on the creation of environmental management plans (programmes) and environmental implementation plans and stipulates the respective organs of state responsible for doing so, as well as what such management and implementation plans are to include.\(^12\)

Chapter 5 of NEMA, entitled “Integrated Environmental Management” establishes the environmental impact assessment regime in South Africa. Since 3 July 2006, the procedural and substantive requirements for undertaking EIAs in South Africa have been regulated in terms of the provisions contained in section 24 of NEMA and the NEMA EIA Regulations.\(^13\) The NEMA EIA Regulations identify lists of activities which require either “basic assessment”\(^14\) or “scoping and environmental impact assessment”\(^15\); and prescribe the procedural and substantive requirements for the undertaking of EIAs and the issue of environmental authorisations.

Activities identified in terms of section 24(2)(a) and (d) of NEMA, which may not commence without environmental authorisation from the competent authority and in respect of which the investigation, assessment and communication of potential impact of such activities must follow the procedure as described in regulations 22 to 26 of the NEMA EIA Regulations. If the activity is listed in GN R. 544, GN R. 545 and GN R. 546, an applicant applies for authorisation either by undertaking a basic assessment or a scoping and EIA process, respectively.

Activities that apply to the proposed development are detailed in Table 7 below.

**Table 7: Activities requiring Environmental Authorisation**

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\(^7\)Section 2(4)(a) of NEMA.

\(^8\)Section 2(4)(f) of NEMA.

\(^9\)Section 2(4)(i) of NEMA.

\(^10\)Section 2(4)(l) of NEMA.

\(^11\)Section 2(4)(n) of NEMA.

\(^12\)Chapter 3 of NEMA (Sections 11-16).

\(^13\)Published respectively in Government Notices R544, 545 and 546 in *Government Gazette* dated 2 August 2010, as amended.


\(^15\)GN R545 in *Government Gazette* dated 2 August 2010.
<table>
<thead>
<tr>
<th>GN</th>
<th>Activity No(s):</th>
<th>Listed Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>545</td>
<td>15</td>
<td>Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for: (i) linear development activities; or (ii) agriculture or afforestation where activity 16 in this Schedule will apply.</td>
</tr>
<tr>
<td>545</td>
<td>5</td>
<td>The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution 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 National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.</td>
</tr>
<tr>
<td>545</td>
<td>26</td>
<td>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 such commencement requires basic assessment in terms of Notice of No. R544 of 2010</td>
</tr>
<tr>
<td>544</td>
<td>23</td>
<td>The transformation of undeveloped, vacant or derelict land to - (i) residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; except where such transformation takes place - (i) for linear activities. (ii) for purposes of agriculture or afforestation, in which case Activity 16 of Notice No. R.545 applies</td>
</tr>
<tr>
<td>544</td>
<td>13</td>
<td>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;</td>
</tr>
</tbody>
</table>

### 2.1.2 Department of Environmental Affairs and Tourism Integrated Environmental Management Guideline Series (2010)

The DEA has developed a series of guidelines to assist environmental assessment practitioners, potential applicants and interested and affected parties in understanding the roles, responsibilities and Regulations associates with the EIA process. The 2010 series currently includes:

- Guideline 3: General guide to the EIA Regulations;
- Guideline 4: Public participation;
- Guideline 5: Assessment of alternatives and impacts; and
- Guideline 6: Environmental management frameworks.
2.1.3 Other Acts/ Regulations/ Policies/ Guidelines Relevant to the Project

Several other Acts, Plans, Policies and Guidelines have also informed the project. **Table 8** below provides a brief review of other relevant policies, legislation, guidelines and standards applicable to the proposed development. A more detailed review of legislative requirements applicable to the proposed project has been included in the Impact Assessment Phase.
Table 8: Brief review of other relevant policies, legislation, guidelines and standards applicable to the proposed development

<table>
<thead>
<tr>
<th>Legislation</th>
<th>Details/Applicable Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National Legislation</strong></td>
<td></td>
</tr>
<tr>
<td>The Constitution of the Republic of South Africa (Act 108 of 1996)</td>
<td>The Constitution of the Republic of South Africa is the supreme law of South Africa and is the statute against which all other law (both statutory instruments and the common law) must be measured. To the extent that other laws conflict with the Constitution, they are as a general rule invalid, subject to the provisions of the limitations clause contained in section 36.</td>
</tr>
<tr>
<td></td>
<td>- The Bill of Rights forms the cornerstone upon which the constitutional dispensation in South Africa is built. It applies to all law, and binds the legislature, the executive, the judiciary and all organs of state. (Chapter 2, Section 7 – 39);</td>
</tr>
<tr>
<td></td>
<td>- Environmental Rights i.e. “Everyone has the right to an environment which is not harmful to their health or well-being; and to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures (Section 24);</td>
</tr>
<tr>
<td></td>
<td>- Rights to Freedom of Movement and Residence (Section 22);</td>
</tr>
<tr>
<td></td>
<td>- Property rights (Section 25);</td>
</tr>
<tr>
<td></td>
<td>- The Right of Access to Information (Section 32);</td>
</tr>
<tr>
<td></td>
<td>- The Right to Just Administrative Action (Section 33);</td>
</tr>
<tr>
<td></td>
<td>- Enforcement of Rights (Section 38 of the Constitution);</td>
</tr>
<tr>
<td></td>
<td>- Limitations of Rights (Section 36);</td>
</tr>
<tr>
<td></td>
<td>- Provincial Competence (Section 44 and 104); and</td>
</tr>
<tr>
<td></td>
<td>- Local Authority Competence (Section 44, 104, 154, 156 and Part B of Schedule 4 and Part B of Schedule 5).</td>
</tr>
<tr>
<td>National Energy Act (Act 34 of 2008)</td>
<td>The Act is aimed to ensure that diverse energy resources are available, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, taking into account environmental management requirements and interactions amongst economic sectors.</td>
</tr>
<tr>
<td></td>
<td>- The Act also provides for energy planning, increased generation and consumption of renewable energies, contingency energy supply, holding of strategic energy feedstock’s and carriers, adequate investment in, appropriate upkeep and access to energy infrastructure.</td>
</tr>
<tr>
<td></td>
<td>- The act also establishes an institution to be responsible for promotion of efficient generation and consumption of energy and energy research; and to provide for all matters connected</td>
</tr>
<tr>
<td>Act / Act No.</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| The Promotion of Administrative Justice Act (Act 3 of 2000) | - Definitions (Section 1);  
- Procedural Fairness (Section 3, 4 and 6);  
- Right to Reasons for Decisions (Section 5); and  
- Judicial Review (Section 6 and 8). |
| Promotion of Access to Information Act (Act 2 of 2000) | - The purpose of the Promotion of Access to Information Act ("PAIA") is to give effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights, and to provide for matters connected therewith. |
| National Heritage Resources Act (Act No. 25 of 1999) | - Stipulates assessment criteria and categories of heritage resources according to their significance (Section 7);  
- Provides for the protection of all archaeological and Paleontological sites, and meteorites (Section 35);  
- Provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority (Section 36);  
- List activities which require developers to notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development (Section 38); and  
- Requires the compilation of a conservation management plan as well as a permit from SAHRA for the presentation of archaeological sites as part of tourism attraction (Section 44). |
| National Environmental Management: Biodiversity Act (Act No. 10 of 2004) | - Provides for the MEC or Minister to list ecosystems which are threatened and in need of protection (Section 52) (none published as yet);  
- Provides for the MEC or Minister to identify any process or activity in such a listed ecosystem as a threatening process (Section 53) (none published as yet);  
- A list of threatened and protected species has been published in terms of Section 56(1), Government Gazette 29657; and  
- Three government notices have been published, i.e. GN R150 (commencement of Threatened and Protected Species Regulations, 2007), GN R 151 (Lists of critically endangered, vulnerable and protected species) and GN R 152 (Threatened or Protected Species Regulations). |
<p>| National Environmental | - The Act reforms the law regulating air quality in South Africa by providing reasonable |</p>
<table>
<thead>
<tr>
<th>Act/Act No</th>
<th>Measures and Regulations</th>
</tr>
</thead>
</table>
| **Air Quality Act (Act No 39 of 2004)** | measures for the prevention of pollution and ecological degradation, such as national norms and standards regulating air quality monitoring, management and control by all spheres of government, as well as specific air quality measures which will be regulated by virtue of an atmospheric emissions licensing system.  
  - Emissions Licences: No person may conduct an activity so listed without a provisional atmospheric emission licence. A list of activities requiring an emissions licence has recently been promulgated.  
  - Measures in respect of dust control (Section 32) (no regulations promulgated as yet); and  
  - Measures to control noise (Section 34). (No regulations promulgated as yet). |
| **Conservation of Agricultural Resources Act (Act No. 43 of 1983)** |  
  - Prohibition of the spreading of weeds (Section 5);  
  - Classification of categories of weeds and invader plants (Regulation 15 of GN R1048) and restrictions in terms of where these species may occur; and  
  - Requirement and methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048). |
| **National Water Act (Act No 36 of 1998)** |  
  - National Government is the public trustee of the Nation’s water resources (Section 3);  
  - Entitlement to use water (Section 4);  
  - Duty of Care to prevent and remedy the effects of pollution to water resources (Section 19);  
  - Procedures to be followed in the event of an emergency incident which may impact on a water resource (Section 20);  
  - Definition of Water Use (Section 21);  
  - Requirements for registration of water use (Section 26 and Section 34); and  
  - Definition of offences in terms of the Act (Section 151). |
| **Waste Act (Act No 59 of 2008)** |  
  - Waste Management Measures; and  
  - Regulations and schedules. |
| **National Forests Act (Act No. 84 of 1998)** |  
  - Protected Trees; and  
  - Forests. |
  - Measures for the control of substances and certain electronic products which may be toxic, corrosive, irritant, strongly sensitizing or flammable in nature which may cause injury or ill-health to or death of humans.  
  - The Act divides the substances or products into groups in relation to the degree of danger and makes provision for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products. |
Municipal by-laws

This chapter, which considers the potentially relevant national and provincial environmental legislative dimension of the project, does not include discussion on relevant municipal by-laws. However, it is possible that certain municipal by-laws will be relevant to the project and these will be discussed further during the impact assessment phase of the EIA.

Policy and Planning Context

| National Spatial Biodiversity Assessment ("NSBA") | • The NSBA establishes protection and conservation priority status for terrestrial, inland water, estuarine and marine ecosystems at a 1:250,000 scale nationally and suggested implementation options for priority areas. It provides the national context for development of biodiversity plans at the sub-national and local scale. |
| Draft National Strategy for Sustainable Development | • The (draft) National Strategy notes that the nation’s biodiversity provides critical ecosystem services on which socio-economic systems depend. Although still in development, the final product is set to be used by government and stakeholders to enhance South Africa’s long term planning capacity. It would specifically influence national and provincial development strategies. |
2.2 Local and Regional Integrated Development Plans

There are numerous planning frameworks, initiatives and documents that have been devised for the Coega IDZ. These guidelines include noise requirements, air pollution requirements, preferred supplier lists, etc. All these will be discussed in the following section; however special attention will be given to sections that apply to the OSHO CGF.

Table 9: Summary of Applicable Local and Regional Guidelines and Development Plans

<table>
<thead>
<tr>
<th>Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coega IDZ: Safety, Health and Environmental Requirements</td>
</tr>
<tr>
<td>Standard Environmental Specifications for Construction</td>
</tr>
<tr>
<td>Standard Operational Health and Safety Specifications</td>
</tr>
<tr>
<td>Standard Vegetation Specifications for Construction</td>
</tr>
<tr>
<td>Compilation Document for Construction EMP</td>
</tr>
<tr>
<td>Construction EMP: Contractor guidelines</td>
</tr>
<tr>
<td>Guidelines for Engineers and Engineer’s S.H.E coordinator</td>
</tr>
<tr>
<td>Eastern Cape Integrated Development Report</td>
</tr>
</tbody>
</table>

2.2.1 Noise Requirements

Nelson Mandela Bay Municipality (NMBM) – Noise Control By-law

**[2] Principles and objectives**

(1) The municipality, aware of the Constitutional right of every person to an environment that is not harmful to his or her health or well-being adopts this by-law with the aim of protecting and promoting the health and well-being of all people in the Nelson Mandela Bay Metropolitan area by providing, in conjunction with applicable laws, a legal and administrative framework within which the municipality can develop and manage its obligations.

(2) In the implementation and enforcement of this by-law, the municipality may take into consideration the realities of the Nelson Mandela Bay Metropolitan area, the different customs, cultures, circumstances, geographical areas, kinds of property levels of development and conventions and the municipality may use the devices provided for in this by-law, including the application of different norms, standards and guidelines and the granting of exemptions.
The CDC also has Noise Guidelines as given in the EIA for the Change in Land Use of the Core Development Area of the IDZ. The principle used is that the noise measured on the boundary of an investor’s site must not exceed 70 decibels during the day and 60 decibels at night.

2.2.2 Air pollution requirements

Nelson Mandela Bay Municipality (NMBM) – Air pollution Control By-law

[2] Application, principles and objectives

(1) The purpose and objectives of this by-law is:

(a) to give effect to the right contained in section 24 of the Constitution of the Republic of South Africa, 1996 by controlling air pollution within the area of the municipality’s jurisdiction; and
(b) to ensure that air pollution is avoided, or where it cannot be altogether avoided, is minimized and remedied.

(ii) The municipality, aware of the Constitutional right of every person to an environment that is not harmful to his or her health or well-being adopts this by-law with the aim of protecting and promoting the health and well-being of all people in the Nelson Mandela Bay Metropolitan area by providing, in conjunction with applicable laws, a legal and administrative framework within which the municipality can develop and manage its obligations.

[3] Duty to take care

(1) Any person who is wholly or partially responsible for causing air pollution or creating a risk of air pollution occurring must take all reasonable measures:

(a) to prevent any potential air pollution from occurring; and
(b) to mitigate and, as far as reasonably possible, to remedy any air pollution that has occurred.

(2) The municipality may monitor the impact and effectiveness of the measures taken in terms of subsection (1) and, if necessary, issue instructions to a person contemplated in subsection (1) with regard to specific measures to be undertaken.

(3) The municipality may direct any person who fails to take the measures required under subsection (1) –

(a) to investigate, evaluate and assess the impact of specific activities and report thereon;
(b) to commence taking effective control measures to abate the air pollution before a given date;
(c) to diligently continue with those measures; and
(d) to complete the measures before a specified reasonable date.

(4) Should a person fail to comply, or inadequately comply, with a directive under subsection (3), the municipality may take reasonable measures to remedy the situation.

(5) If any person fails to take the measures required of him or her under subsection (1) or (2), the municipality may recover all reasonable costs incurred as a result of it acting under subsection (4) from any or all of the following persons –

(a) any person who is or was responsible for, or who directly or indirectly contributed to, the air pollution or the potential air pollution;
(b) the owner of the land at the time when the air pollution or the potential for air pollution occurred, or that owner’s successor in title;
(c) the person in control of the land or any person who has or had a right to use the land at the time when –
(i) the activity or the process in question is or was performed or undertaken; or
(iii) the situation came about; or
(a) any person who negligently failed to prevent –
(i) the activity or the process being performed or undertaken; or
(ii) the situation from coming about.
(6) If more than one person is liable under subsection (5), the liability may be apportioned among the persons concerned according to the degree to which each was responsible for the harm to the environment resulting from their respective failures to take the measures required under subsection (1), (2) and (3);

[6] Installation of fuel-burning equipment
(1) No person shall install, alter, extend or replace any fuel-burning equipment on any premises without the prior written authorization of the municipality, which may only be given after consideration of the relevant plans and specifications.
(2) Any fuel-burning equipment installed, altered, extended or replaced on premises in accordance with plans and specifications submitted to and approved, for the purposes of this section, by the municipality shall be presumed until the contrary is proved to comply with the provisions of subsection (1).
(3) Where fuel-burning equipment has been installed, altered, extended or replaced on premises in contravention of subsection (1):
(a) the owner and occupier of the premises and the installer of the fuel-burning equipment shall be guilty of an offence;
(b) the municipality may, on written notice to the owner and occupier of the premises, order the removal of the fuel-burning equipment from the premises at the expense of the owner and operator and within the period stated in the notice.

(1) No person shall use or operate any fuel-burning equipment on any premises contrary to the authorization referred to in section 6.
(2) Where fuel-burning equipment has been used or operated on the premises in contravention of subsection (1):
(a) the owner and occupier of the premises and the operator of the fuel-burning equipment shall each be guilty of an offence;
(b) The municipality may on written notice to the owner and occupier of the premises:
(i) revoke its authorization under section 6; and
(ii) order the removal of the fuel-burning equipment from the premises at the expense of the owner and operator and within the period stated in the notice.

[10] Monitoring and sampling
(1) An occupier or owner of premises, and the operator of any fuel-burning equipment, who is required to install air pollution measuring equipment in terms of section 9(1) must:
(a) record all monitoring and sampling results and keep a copy of this record for at least four years after obtaining the results;
(b) if requested to do so by an authorised person, produce the record of the monitoring and sampling results for inspection;
(c) if requested to do so by an authorised person, provide a written report (in a form and by a date specified by the authorised person) of part or all of the information in the record of the monitoring and sampling results; and
(d) ensure that the air pollution measuring equipment is calibrated at least once per year or at intervals as specified by the manufacturer of the equipment and provide records of such calibration on request by the authorised person.
3. PUBLIC PARTICIPATION PROCESS

Public participation is the involvement of all parties who potentially have an interest in a development or project, or may be affected by it, directly or indirectly. The process ensures an open, participatory approach to the study, the purpose of which is to ensure that all the impacts are identified and that the decision-making process is undertaken in an informed, transparent and accountable manner.

The objectives of public participation in an EIA are to provide sufficient and accessible information to stakeholders in an objective manner to assist them to:

During the Scoping Phase:

- Raise issues of concern and suggestions for enhanced benefits;
- Verify that their issues have been recorded;
- Assist in commenting on feasible alternatives; and
- Contribute relevant local information and knowledge to the environmental assessment.

During the EIA Phase:

- Contribute relevant local information and knowledge to the environmental assessment;
- Verify that their issues have been considered in the environmental investigations; and
- Comment on the findings of the environmental assessment.

During the Decision-making Phase:

- Be notified of the decision by the competent environmental authority on whether or not the project may proceed, and provide the opportunity for appeal.

3.1.1 Scoping Phase Public Participation

The PPP undertaken for this project was undertaken in compliance with Chapter 6, Regulation 56 of the EIA Regulations related to PPPs.

a) Register of IAPs

As part of the requirements for NEMA EIA Regulation 57, GIBB has developed, maintained and is constantly updating an electronic I&AP Register for the project which includes role players, key stakeholders and the general public. Appendix E1 contains a copy of the latest I&AP Register.

GIBB contacted all parties on the register either telephonically, or through email, in the early stages of the Scoping Phase PPP to invite them to register as IAPs for the proposed project.
b) **Notification of Key Stakeholders**

At the commencement of the EIA, GIBB identified and provided written notification to key stakeholders including municipal authorities, government departments and conservation organisations that have jurisdiction over, or potential interest in, the proposed activity.

GIBB also convened one key stakeholder focus group meeting (ELC Meeting) with the key stakeholders listed below:

- Department of Economic Development, Environmental Affairs and Tourism: Cacadu Region (DEDEAT)
- Local Municipality (Cacadu District Municipality)
- Municipality (Nelson Mandela Bay Municipality)
- The Department of Energy
- The Department of Water Affairs
- South African Heritage Resources Agency
- The Transnet National Port Authority
- Motherwell Councillors Forum
- Coega Development Cooperation
- Department of Minerals
- Department of Transport
- DEDEAT (Air Quality Office)
- Department of Environmental Affairs (DEA)

c) **Landowner Notification**

In terms of the EIA Regulations, all landowners within a 100m radius of the proposed development area must be notified of the project. As such, the following landowners surrounding the proposed development were notified of the project via telephone, email and meetings:

- Coega IDZ; and
- Transnet National Port Authority (TNPA)

d) **Media Notices**

Media Notices, advertising the availability of the Draft Scoping Report, were placed in the two newspapers listed in Table 10. These two newspapers are representative of the community, and have high circulation numbers.
### Table 10: Media Notice Newspaper Details

<table>
<thead>
<tr>
<th>Newspaper</th>
<th>Publication Date</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Herald</td>
<td>26/09/2012</td>
<td>English</td>
</tr>
<tr>
<td>PE Express</td>
<td>26/09/2012</td>
<td>Afrikaans</td>
</tr>
</tbody>
</table>

**Appendix E2** contains copies of the media notices in both languages.

It was, however, further recognised that mechanisms other than media notices would be more effective in informing IAPs of the Proposed Project.

e) **Notice Boards**

Notices detailing the scope of the project and the EIA Process, as well as invitation to register as IAPs, were placed on the electronic notice board in the CDC reception building.

This e-notice was designed to the specification in Section 56 (3) of the NEMA EIA Regulations, 2006. A copy of the notice is attached in **Appendix E2**.

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC Reception</td>
<td>A cyclic recurring screen on the electronic notice board. An advertisement in both Afrikaans and English was placed on the CDC E-notice board for a predetermined time span.</td>
</tr>
</tbody>
</table>

f) **Background Information Document**

No Background Information Document (BID), for the project was distributed. However, the advertisements in the two local newspapers and the email notifications to all Identified and Registered I&AP’s that were sent, are deemed sufficient.

g) **Coega Environmental Liaison Committee Meeting**

The proposed CGF was discussed at the Environmental Liaison Committee Meeting (ELC) Meeting. The ELC constitutes government authorities and two of the landowners (CDC & Transnet National Port Authority (TNPA). The issues around the proposed CGF and associated infrastructure were discussed at the ELC (Environmental Liaison Committee) which is a body that meets every quarter. The objectives of the ELC are to:

- To facilitate proper communication and co-operation between all government departments;
- To advise on environmental permitting requirements/aspects and reviewing documentation relating to permitting in order to meet legal requirements;
• Guide the CDC and TNPA to meet the permitting requirements of various government departments;
• To streamline permitting process for the CDC and potential investors for all environmental related permits;
• To provide a platform where all relevant officials can agree on timing and schedule of various decision making nodes; and
• To ensure that the CDC, TNPA and tenants understand and comply with the various departments requirements.

It was at these meetings held on 22 November 2012 and 14 February 2013 that the ELC members were informed and given the opportunity to comment on the proposed facility. GIBB presented the progress of this EIA and solicited comments from the forum. The EAP will present all new and relevant information on the Draft/ Final EIA reports at a future ELC meeting, should they be held within the timeframes of these phases.

Table 12: Chronological List of Meetings

<table>
<thead>
<tr>
<th>Date</th>
<th>Organisation</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>22/11/2012</td>
<td>ELC</td>
<td>NMMBU Development, Environmental Affairs, and Tourism</td>
</tr>
<tr>
<td>14/02/2013</td>
<td>ELC</td>
<td>NMMBU Development, Environmental Affairs, and Tourism</td>
</tr>
</tbody>
</table>

h) Interested and Affected Parties and Stakeholder Comments

NEMA EIA Regulation 58 entitles registered IAPs to comment, in writing, on all written submissions made to the competent authority as part of the environmental authorisation, and to raise any issues or concerns which they believe may be of significance to the consideration of the application. Copies of all comments and issues raised during the PPP were consolidated into an Issues and Response Report (IRR) attached as Appendix E3, which summarises each comment/issue received and provides a response. All comments received in response to the FSR are included in Appendix E3 and were incorporated into the IRR prior to submission of the Draft EIA to the DEDEAT. All comments received after submission will also captured into the IRR and included in Appendix E3.

Comments made at the various meetings held with key stakeholders were recorded in the minutes of each meeting (Appendix E5) and have been included as part of the IRR. Comments received from authorities on the Final Scoping Report (FSR) are included in Appendix E4.

i) Compilation of the Draft Scoping Report and Public Review

The Draft Environmental Scoping Report (DSR) was compiled in accordance with the requirements of the NEMA EIA Regulations, 2006. The DSR was submitted for public review from 01 October 2012 to 12 November 2012 (40 days,
excluding public holidays) at the public venues listed below. Registered IAPs were informed of the availability of the DSR for review by media notices placed in local newspapers.

- Main Public Library, Market Square, Govan Mbeki Avenue, Port Elizabeth
- Nelson Mandela Bay Municipality, Govan Mbeki street, Port Elizabeth

Electronic copies of the Report were made available on CD on request. GIBB did not receive any written or telephonic requests for the DSR during that phase of the project.

As noted above, any comments received on the Draft Scoping Report or any new comments or issues raised during, or as a result of the Stakeholder Information Sharing Meeting, were recorded in the IRR (Appendix E3) and addressed in the Draft Environmental Impact Assessment Report (Draft EIR).

j) **Compilation and distribution of the Final Scoping Report**

The FSR was compiled and included appropriate amendments before being submitted to the DEDEAT for review. IAPs were informed that any further comments on the FSR would be addressed in the Draft Environmental Impact Assessment Report (DEIR). The FSR, including the Plan of Study for the EIA received approval from the DEDEAT on 26 February 2013.

### 3.1.2 Impact Assessment Phase Public Participation Activities

PPP engagement in the Impact Assessment Phase will encompass providing detailed information on the identified impacts and their assessment, as well the result and findings of specialist studies commissioned. It is important that IAPs are kept abreast of the project progress, assisted with their comment submissions, and gathering their comments on the Draft Environmental Impact Assessment Report (Draft EIR) during the public review period currently running.

a) **Public Review of the DRAFT EIR and Draft EMP**

The EIA Guidelines specify that stakeholders must have the opportunity to verify that their issues have been captured and assessed, before the Final Environmental Impact Assessment Report (Final EIR) will be approved by the competent authority (DEDEAT). This Draft EIR aims to provide this opportunity and has been written in a way which makes it accessible to stakeholders in terms of language level and general coherence.

The Draft EIR and Draft EMP will be made available through the procedure as that followed for the release of the FSR, whereby:

- This Draft Environmental Impact Assessment Report will be made available for review, for a period of 40 days (excluding public holidays) from 17 April 2013 to 29 May 2013 and the availability of the report will again be advertised in The Herald and the PE Express Newspapers (Appendix E2).

- Hardcopies of the report will be availed at the following public locations:
b) Public Open Day

The Public Open Day is scheduled for approximately 3 weeks after the release of the Draft EIR, to present the findings of the Impact Assessment phase to the public, and to offer the public an opportunity to discuss the findings of the report and clarify any outstanding issues. The intention is to assist IAPs in making informed comments on the Draft EIR. Attendees were requested to document their comments on comment sheets provided or send comments in writing (e.g. via e-mail).

An open day and public meeting is tentatively scheduled for 15 May 2013. The venue is not confirmed as yet; however, it will most likely be hosted at the CDC offices, as it is central and close to the site. All relevant information on the Public meeting will be published as soon as it becomes available. The day will comprise of two components, the first being the “Open Day” where posters which explain the various components of the EIA will be displayed. The intention is to provide an informal environment in which IAPs could, in their own time during the course of the morning, study the posters and learn about the project, and discuss their issues and concerns one-on-one with the project team and the technical specialists. The other component will be a set meeting where all parties involved present a brief description of the project.

Minutes and details of the public open day and the attendance register will be incorporated into the Final EIR.

c) Key Stakeholder (Authority Consultation) Meeting

Further Stakeholder meetings will be held on request. It is anticipated that the EAP will present the findings of the Specialist studies at the next ELC Meeting to be held at DEDEAT in Port Elizabeth in May 2013.

d) Issues and Response Report

As in the Scoping Phase, an IRR is included in the Draft EIR on IAPs comments received on the Final Scoping Report prior to submission to the DEDEAT of the Draft EIR. The IRR, as included in Appendix E3 contains responses to each comment or query raised, and references where the issues have been dealt with in the assessment and associated report.
e) **Announcement of the Availability of the Draft EIR and Draft EMP**

With the comments from IAPs now incorporated into the Draft EIR, and the report amended where necessary, the Draft EIR and Draft EMP is submitted to the DEDEAT for review and comment. All registered IAPs will be notified via email or post of the submission. Electronic copies of the Draft EIR will be made available on the GIBB projects website should the IAPs wish to review the documents submitted to the DEDEAT. The IAPs will be informed that any comments they may have on the Draft EIR, must be submitted to the EAP (GIBB) for incorporation into the Final EIR.

f) **Announcement of Authority's Decision**

Based on the contributions by the stakeholders and the impact assessment results, the decision of the authority on the EIA application will be advertised either through posted letters or emailed to all registered IAPs.

### 3.1.3 Compliance with Legal Requirements for Public Participation

In terms of legal requirements, a crucial objective of the EIR is to satisfy the requirements of Sections 32, 33 and 34 of the NEMA EIA Regulations, 2006. These sections regulate and prescribe the content of the EIA Report, and specify the type of supporting information that must accompany the submission of the report to the authorities. An overview of where the requirements are addressed in this report is presented in Table 7.

**Table 13: Location of NEMA Requirements within the Final EIR**

<table>
<thead>
<tr>
<th>Regulation 32 Subsection</th>
<th>Requirement for EIA Report</th>
<th>Location in EIA Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (a)(i)</td>
<td>EAP who compiled the report</td>
<td>Chapter 1.6</td>
</tr>
<tr>
<td>2 (a)(ii)</td>
<td>Expertise of the EAP undertaking the EIA</td>
<td>Chapter 1.6</td>
</tr>
<tr>
<td>2 (b)</td>
<td>Detailed description of the proposed activity</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>2 (c)</td>
<td>Description of the property on which the activity is to be undertaken and the location of the activity on the property</td>
<td>Chapter 1.3</td>
</tr>
<tr>
<td>2 (d)</td>
<td>Description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>2 (e)</td>
<td>Details of the public participation process</td>
<td>Chapter 1.5</td>
</tr>
<tr>
<td>2 (e)(i)</td>
<td>Steps undertaken in accordance with the plan of study</td>
<td>Chapter 3.6</td>
</tr>
<tr>
<td>2 (e)(ii)</td>
<td>List of persons, organisations and organs of state that were registered as interested and affected parties</td>
<td>Appendix E1</td>
</tr>
<tr>
<td>2 (e)(iii)</td>
<td>A summary of comments received from, and a summary of issues raised by registered interested and affected parties, the date of receipt of these comments and the response of the EAP to those comments</td>
<td>Appendix E3</td>
</tr>
<tr>
<td>2 (e)(iv)</td>
<td>Copies of any representation, objections and comments received from registered interested and affected parties</td>
<td>Appendix E3</td>
</tr>
<tr>
<td>2 (f)</td>
<td>Description of the need and desirability of the proposed activity and identified potential alternatives to the proposed activity including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity.</td>
<td>Chapter 1.2</td>
</tr>
<tr>
<td>2 (g)</td>
<td>An indication of the methodology used in determining the significance of potential environmental impacts</td>
<td>Chapter 7.2</td>
</tr>
<tr>
<td>2 (h)</td>
<td>A description and comparative assessment of all alternatives identified during the EIA process</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>2 (i)</td>
<td>Summary of the findings and recommendations of any specialist report or report on specialised processes</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>2 (j)</td>
<td>Description of all environmental issues that were identified during the EIA process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>2 (k)</td>
<td>Assessment of each identified potentially significant impact</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>2 (k)(i)</td>
<td>Cumulative impacts</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>2 (k)(ii)</td>
<td>Nature of the impacts</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>2 (k)(iii)</td>
<td>Extent and duration of the impacts</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>2 (k)(iv)</td>
<td>Probability of the impact occurring</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>2 (k)(v)</td>
<td>Degree to which the impact can be reversed</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>2 (k)(vi)</td>
<td>Degree to which the impact may cause irreplaceable loss of resources</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>2 (k)(vii)</td>
<td>Degree to which the impact can be mitigated</td>
<td>Chapter 8.15</td>
</tr>
<tr>
<td>2 (l)</td>
<td>Description of any assumptions, uncertainties and gaps in knowledge</td>
<td>Chapter 7.6</td>
</tr>
<tr>
<td>2 (m)</td>
<td>Opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation</td>
<td>Chapter 9.5</td>
</tr>
<tr>
<td>2 (n)(i)</td>
<td>Summary of the key findings of the EIA</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>2 (n)(ii)</td>
<td>Comparative assessment of the positive and negative implications of the proposed activity</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>2 (o)</td>
<td>Draft Environmental Management Programme that complies with Regulation 35</td>
<td>Appendix F</td>
</tr>
<tr>
<td>2 (p)</td>
<td>Copies of any specialist reports and reports on specialised processes complying with Regulation 33</td>
<td>Appendix D</td>
</tr>
</tbody>
</table>
4. DESCRIPTION OF THE PROPOSED PROJECT

4.1 The Cement Grinding Facility (CGF)

An orthodox cement grinding station has been chosen as the preferred method for this project. All technology within the current concept has been tried and tested and has been locally applied. Local representation can be found for all equipment required to fulfil this current concept. In short, from a technological point of view, a safe path has been selected.

The proposed development entails utilising clinker and other raw materials (e.g. GBFS, gypsum and limestone/secondary extender) most of which will be imported. This material would be milled and mixed in certain combinations to form different grades of cement for the construction industry. The GBFS to be used in the process is GBFS generated in parallel to steel in the steel making process.

In order to conceptualise the complex cement production process, it is important to first understand each component of the proposed facility. The proposed development will consist of the following infrastructure:

- **Mill Complex & Blending Facility:** The mill complex comprises of the actual mill, the laboratory, the Stores and the Workshop. At this stage there are three potential options for the proposed mill, as outlined below:

  - **Option 1: Vertical Roller Mill:** The vertical roller mill consists of horizontal rollers running over a grooved rotating table. The large particles are forced between the rollers and the table and fractured into far smaller particles in the process. The ground particles are lifted by an air current sweeping through the mill into an integrated separator above the mill. The separator returns insufficiently ground particles back to the grinding table and releases the fine ones to a down-stream bag filter where they are separated from the dust laden air.

  - **Option 2: Ball mill:** A ball mill is a horizontally rotating tube typically filled with round steel balls known as grinding media. The materials to be ground are passed from one end of the tube (the feed end) to the other. En-route these particles are crushed by falling balls and thus get reduced to a fine powder. On exiting the mill, the ground cement transported to an air separator which separates the coarse particles from the fine particles. The course particles are returned to the mill for re-processing. The fine particles are taken to a bag filter which separates the fine particles from the dust laden air.

  - **Option 3: Roller press ball mill combination:** The roller press ball mill combination is very similar to a ball mill with one difference. Prior to entering the ball mill material is passed through two rotating rollers which press incoming material and fracture it to a smaller particles size. This material then proceeds through the ball mill in the same fashion as described above.
• **Lab:** A fully functioning laboratory is required to test for cement quality as well as to perform other operational tasks associated with cement manufacture.

<table>
<thead>
<tr>
<th></th>
<th>Area (m²)</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab</td>
<td>300</td>
<td>4</td>
</tr>
</tbody>
</table>

• **Workshop:** The workshop area would be utilised for general maintenance servicing the mill and all other mechanical components on the facility.

<table>
<thead>
<tr>
<th></th>
<th>Area (m²)</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop</td>
<td>~1000</td>
<td>10</td>
</tr>
</tbody>
</table>

• **Stores and Stockpiles:** Ground cement is stored in silos. This could consist of a single silo with multiple compartments or of a number of individual single compartment silos. The main transport points conveying material from the mill to the silo is equipped with filters to minimize dust generation. Refer to the table below detailing the raw materials that are to be stored on site.

<table>
<thead>
<tr>
<th>Raw Material Stores</th>
<th>Storage Method</th>
<th>Quantity (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>Silos</td>
<td>~ 20,000</td>
</tr>
<tr>
<td>Clinker</td>
<td>Closed Structure</td>
<td></td>
</tr>
<tr>
<td>GBFS</td>
<td>Dust netting/steel mesh to enclose the stockpile on three sides</td>
<td>&lt; 100,000</td>
</tr>
<tr>
<td>Gypsum</td>
<td>Bonded Open Structure/ Closed Structure</td>
<td></td>
</tr>
<tr>
<td>Limestone/secondary extender</td>
<td>Closed Structure</td>
<td>~ 20,000</td>
</tr>
</tbody>
</table>

• **Cooling Tower:** A cooling tower is utilised to cool water from the mill which would be used to cool the bearings in the mill. The water would circulate from the mill to the cooling tower and back to the mill in a closed circuit, and therefore there will be no discharge. The water in circulation is estimated at 32310 m³ per annum.

• **Weighbridge:** A Weighbridge is a mechanised bridge that accurately measures the mass of product on vehicles.

• **General Buildings:** The proposed facility would comprise of administrative building(s). The office buildings would be utilised for general administrative and plant management functions. Refer to the building dimensions below.

<table>
<thead>
<tr>
<th></th>
<th>Area (m²)</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guard house</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Admin Building(s)</td>
<td>~ 1000</td>
<td></td>
</tr>
</tbody>
</table>

• **Bagging and Palletising Shed:** The finished product is stored in the main storage silos. Thereafter the cement is transported to the packing and palletising plant. In the packing plant, a packer accepts cement feed and puts it into bags. These bags may be loaded directly onto flat-bed trucks. Optionally they may be palletized and covered by plastic. The palletising process entails stacking approximately 20 bags (1 ton) onto wooden or plastic pallets. Pallets
are stored in a warehouse which also covers the packing and palletizing units. Some fully packed pallets may be stored outside on an open concrete slab. Pallets are also loaded onto flatbed trucks using a forklift truck. Refer to the building dimensions below.

<table>
<thead>
<tr>
<th>Building</th>
<th>Area (m²)</th>
<th>Height (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing/bagging &amp; palletising plant</td>
<td>1800</td>
<td>8</td>
</tr>
</tbody>
</table>

The cement manufacturing process has been summarised in the flow diagram noted in Figure 3.

### 4.2 Utility Requirements

The CGF is anticipated to require the following utilities:

<table>
<thead>
<tr>
<th>Utility</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw water</td>
<td>17.25 kl/day</td>
</tr>
<tr>
<td>Potable water</td>
<td>18.0 kl/day</td>
</tr>
<tr>
<td>Sewage</td>
<td>13.0 kl/day</td>
</tr>
<tr>
<td>Electricity</td>
<td>11.11 MVA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Utility</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Water</td>
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<tr>
<td>Process</td>
<td>10% of time 48kl/day</td>
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<tr>
<td>Garden</td>
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<tr>
<td>Ablution</td>
<td>13.5</td>
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<td>Process</td>
<td>4.5</td>
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<tr>
<td>Other</td>
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<td>Total</td>
<td>18.0 kl/day</td>
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<td>Process</td>
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<td>Ablution</td>
<td>13.0</td>
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<tr>
<td>Other</td>
<td>0</td>
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<tr>
<td>Total</td>
<td>13.0</td>
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</table>
The Cement Manufacturing process commences by sourcing and storing the raw material referred to as **Cement Feedstock (Clinker & GBFS, Gypsum & Limestone/secondary extender and Cement Additives)**. The quality of cement produced is dependent on the combination (cement recipe) of the various feedstocks. This proposed development aims to use the following feedstock as described below.

### Clinker & Slag
- Clinker & slag are received in tipper trucks and moved to a receiving hopper.
- From here they are removed using vibrating feeders and then fed via belt conveyors into storage.
- From the clinker store, clinker is extracted onto a belt conveyor which transports the material to the mill day bin.

### Gypsum
- Gypsum is received in tipper trucks.
- This is fed into a common tipper bin.
- From the bin, the material is extracted with vibrating feeder and fed onto a tripper conveyor.
- Thereafter it is routed to the correct stockpile.

### Other Extenders
- The extenders are removed from the stockpile using a front end loader.
- They are then transported by belt conveyor to the relevant day bin.

All materials used for **cement feedstock** are extracted from their respective day bins using **weigh feeders**. The weigh feeders proportion the feed stocks into the **mill** (where the cement feedstock is mixed according to a recipe and ground to the appropriate particle size). The grinding mill is equipped with grinding and classifying processes. The spent air from the mill is cleaned by a process scale **bag filter**.

### Ground Cement
- The cement from the mill filter is lifted to the cement storage silo by bucket elevator. An airslide and distributor system located on top of the silos route the material to the correct silo. The silo is selected according to product type.

### Packaging
- Each of the silos are emptied individually.
- The emptying is achieved by an **airpad aeration system** which allows rapid and virtually complete extraction of the cement.
- The cement is transported to bulk loading lanes, alternatively it will be transported to the packing plant. Provision has been made for bulk rail outloading in future.

### Final Cement Product
- The cement is then ready to be sold as either bulk or bags for use by various consumers.

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**Figure 3: The Basic Cement Manufacturing Process**
Figure 4: Coega Cement Project Plant Layout
Figure 5: Artistic Impression of OSHO Coega Cement
4.3 The Cement Grinding Facility Production Flow

The Flow Chart below illustrates the process to be implemented at the site:

- Approximately 320,000 tons of clinker per annum will be imported via the Port of Ngqura and transported by road using bulk trucks to the plant.
- The incoming clinker will be fed into a feed hopper.
- The clinker will be transported to the clinker storage section (Silo) by conveyor.
- Cement additives such as GBFS, limestone/secondary extender and gypsum (380 000 tons per annum) will be imported or sourced locally and transported to the plant via road bulk trucks. The cement additives would be stored in open silos.
- The incoming material will be stockpiled and fed into the grinding plant with a front end loader.
- The incoming materials will first be fed into separate dosing bins from where it will be fed to the grinding mill according to the desired proportions.
- The ground cement will be collected via a bag house filter system from where it will be transported into cement silo storage.
- A portion of the cement will be extracted from the silo to be packed with an automated packer and palletizer configuration. Cement will also be extracted in bulk form and loaded into dry bulk road tanker trucks.
Figure 6: Detailed Flow Chart for the proposed Cement Grinding Facility
4.4 Project Requirements and Specifications

4.4.1 Coega IDZ Requirements

The Coega IDZ requires the following steps to be followed in terms of OSHO’s activities within the development zone.

1. **Initial Considerations**: Investors are required to complete an environmental questionnaire, in order to determine the compatibility of the proposed activity with IDZ SHE principles. After compatibility has been determined a possible site can be chosen.

2. **Environmental due diligence**: The due diligence is to determine the pre-development environmental state of the particular area in the IDZ. This should be conducted by an independent party and the results should be incorporated in the rehabilitation requirements to be determined between OSHO and the CDC.

3. **Design and construction phase**: there are two plans that need to be compiled in this phase:

   i. **The Construction environmental plan**: This plan needs to comply with the “standard environmental specifications” (Appendix I) which set out the environmental requirements, objectives and targets to which OSHO must comply. It also has to comply with the vegetation regulations relevant to the IDZ as set out in the “standard vegetation specifications” (Appendix I).

   ii. **The construction health and safety plan**: This plan (Attached as Appendix I) needs to adhere to all the requirements set out in the standard health and safety specifications. These specifications cover requirements to assist in eliminating and mitigating incidents and injuries related to the planned activity. These requirements set out all legal compliance, hazard identification and risk control measures. It should be noted that OSHO is required to ensure provisions of the standard health and safety specifications are applied both on site and in respect of all off site activities relating to the project.

4. **Operation phase**: prior to the operational phase OSHO needs to develop an Operational Environmental Management Plan (OEMP). Operation will have to comply with this plan, and the annual audits that the CDC will conduct will look at compliance to this plan. The OEMP will need to include the following:
   i. Waste management plan
   ii. Storm water management plan
   iii. Resource management plan
   iv. Air quality management plan
   v. Vector control
   vi. Management of hazardous substances plan
   vii. Alien vegetation management plan
   viii. Noise management plan
6. Closure phase: Prior to closure OSHO needs to develop a closure and rehabilitation plan that the CDC is satisfied with. The CDC may also require a rehabilitation fund to be established prior to the closure of operations.

4.4.2 Requirements for all Specialist Studies

a) General Terms of Reference for all Specialist Studies

In April 2006, the Department of Environmental Affairs and Tourism (DEAT), now known as the Department of Environment Affairs (DEA) issued guidelines for involving specialists in EIA processes. The specialists were instructed to make themselves aware of these guidelines and amendments thereof, as well as any other guidelines, codes, standards, or applicable legislation relative to their field of expertise, and utilised them to more precisely determine methods and approaches to their specialist studies and referenced compliance with the above-mentioned requirements accordingly. Specialists were also expected to consider best practise when undertaking their study.

The following General Terms of Reference applied to each of the specialist studies:

- Attend a one day site visit;
- Design and undertake the specialist study in accordance with the specifications provided;
- Describe the baseline conditions that exist in the study area and identify any sensitive areas that would need special consideration;
- Provide an outline of the approach used in the study;
- Assessment of all project alternatives including the no-go alternative;
- Identify, assess and evaluate the possible impacts of the proposed CGF facility and associated infrastructure during all development phases (construction and operation) of the proposed project;
- Identify and assess any cumulative impacts arising from the proposed project;
- Determine the significance of assessed impacts according to the methodology provided by the Environmental Assessment Practitioner (EAP) and provide a revised significance rating of assessed impacts after the implementation of mitigation measures;
- Undertake field surveys, as appropriate to the requirements of the particular specialist study;
- Identify areas where integration of studies with other specialists would ensure a better assessment and coordinate with other specialists in this regard;
- Apply the precautionary principle in the assessment of impacts, in particular where there is major uncertainty, low levels of confidence in predictions and poor data or information;
- Recommend practicable mitigation measures to minimise or eliminate negative impacts and/or enhance potential project benefits;
- Recommend appropriate auditing, monitoring and review measures;
- Compile all information into a stand-alone report according to the format provided by GIBB; and
• All specialist studies must take cognisance of and comply with the relevant guideline documents applicable to that specialist study.

b) Specific Terms of Reference

Specialists appointed to undertake the investigations for the impact assessment phase are required to assess direct, indirect and cumulative impacts related to the proposed development. The specific Terms of Reference for all specialist studies are presented below:

(i) Air Quality Assessment

The impact assessment requires the following four main tasks:

• Establishment of the baseline;
• Determine the predicted impact;
• Determine the cumulative impact; and
• Development of Mitigation and Air Quality Management Plans (AQMP).

Establishing the baseline includes the following enabling outputs:

1. A general description of the region's climatology;
2. A description of local meteorological parameters, important for the prediction of future air pollution impacts;
3. A general description of the dispersion potential;
4. A description of the current air quality in the area;
5. A list of other sources of air pollution that may contribute to the area of impact;
6. The identification of sensitive receptors (e.g. residential areas); and
7. A legal (pertaining to air pollution) review.

Note: The Air Quality Assessment would consider all emissions relating to the proposed facility including Traffic emissions and all sources occurring from any component for the proposed CGF. Furthermore the aforementioned terms of reference would be amended in consultation with the provincial air quality officer.

(ii) Traffic Impact Assessment

The Traffic Impact assessment assessed and supplied for following:

• Determined the base traffic conditions;
• Determine traffic generation of the potential CGF;
• Determine site traffic distribution;
• Estimate future traffic conditions; and
• Considerations and recommendations.
(iii) Storm Water Management Assessment

The Storm Water Management Assessment will include a water balance and assessment of the existing hydrological conditions on site, as well as developing adequate mitigation measures for storm water control and the prevention of contamination. The scope of work for the specialist is outlined below:

Hydrological Analysis
- Meteorological analysis
- Catchment delineation
- Mean Annual Runoff Modeling
- Calculation of peak floods

Storm Water Management Plan
- Delineation of contaminated and uncontaminated (clean and dirty) catchments
- Client to supply a final facility plan and infrastructure map / layout
- Determination of impact of all infrastructure on the Mean Annual Runoff
- Determine the storm water flows and volumes (1:50 and 1:100 year events) for both clean and dirty water areas.

4.4.3 Material Sources

Construction materials for the CGF will be sourced internationally and locally. OSHO has already identified a few potential suppliers, however supply contracts will only be finalised and signed as soon as project approval and Environmental Authorisation is granted. The final decision for supply of raw materials sourced both locally and internationally will be based on quality of product feasible pricing. OSHO is committed to investing in local companies and will keep this in mind when deciding on which suppliers they are going to use.

4.4.4 Structures

The preferred alternative and the grinding technology decided upon is the Vertical Roller mill. Refer to Figure 6 for a visual representation.
4.4.5 Construction

Issues highlighted to date that will need to be managed during the construction phase include:

- Occupational Health and Safety (OHS);
- Traffic Management;
- Disposal / spoiling of construction and operational materials; and
- Storm water management.

The above and other related issues will be highlighted in the project specification and Environmental Management Programme (EMP) compiled for the construction phase. The contractor will be required to complete risk assessments for every phase of work carried out, and submit method statements for approval before construction.
can commence. All environmental issues will be managed by the Environmental Control Officer (ECO) appointed for the duration of the construction.

The on-site geotechnical engineer will manage every cut and fill on the project to ensure that the contractor conforms to the design. Should the in-situ material in the cuttings vary in any way from the geotechnical report, it will be the responsibility of the geotechnical engineer to alter the design in order to manage the variance.

The reinstatement of all the cuttings and fill embankments will be done in conformance with the recommended procedures as laid out in the EMP. The EMP will be compiled as part of the Impact Assessment Phase Draft Environmental Impact Report (Draft EIR), and will then be made available to IAP’s for review and comment.

4.4.6 Water Use Licence

Water use is defined broadly, and includes the storage of water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation. Depending on the nature of the activity, water use must be licensed by the Department of Water Affairs (DWA) in compliance with the National Water Act 56 of 1998.

OSHO will be using CDC supplied water for the operation of the plant. The municipal water will be used in the administration building, workshops, and cooling plant. The water for the grinder will be recycled storm water. OSHO plans to start collecting storm water as soon as possible, even during construction. The storm water will be collected in bunded canals and stored in a constructed and lined attenuation pond of 4 500 m³.
5. EVALUATION OF ALTERNATIVES

5.1 Identification and Assessment of Alternatives

The DEDEAT Guidelines Series\textsuperscript{16} notes the consideration of alternatives as one of the most critical elements of the environmental assessment process and is required in terms of Regulation 32(f) of GN R543. Its role is to provide a framework for sound decision-making based on the principles of sustainable development. The search for alternatives should be well documented, and should take into account the views of stakeholders. Key criteria for consideration when identifying alternatives are that they should be: “practicable”, “feasible”, “relevant”, “reasonable” and “viable”. The Guideline further notes that although a range of alternatives may exist for a project, they are not all necessarily appropriate for each project under consideration and that the range of categories of alternatives to be evaluated should be considered along with the “no-go” alternative.

The different categories of alternatives that can be identified include: (1) activity alternatives; (2) location alternatives; (3) process alternatives; (4) demand alternatives; (5) scheduling alternatives; (6) input alternatives; (7) routing alternatives; (8) site layout alternatives; (9) scale alternatives; and (10) design alternatives.

Assessment of alternatives should include a comprehensive comparison of all potential impacts, direct, indirect and cumulative, on the environment. The goal of evaluating alternatives is to find the most effective way of meeting the need and purpose of the proposal, either through enhancing the environmental benefits of the proposed activity, or through reducing or avoiding potentially significant negative impacts.

Consideration of alternative activities is a critical element of both EIAs and SEAs. Identification should take place during the scoping phase and should facilitate input from all stakeholders. Evaluation should focus on a few preferred alternatives and should include a comprehensive comparison of all potential impacts, including biophysical, social and economic aspects.

Key issues to consider when identifying alternatives are that:

- Alternatives to most proposals exist;
- The need for and purpose of a development activity must be clearly identified to facilitate the identification of appropriate and feasible alternatives;
- The appropriate development response is identified from a range of possible options;
- The selection is based on a comprehensive and participatory assessment of the full range of options; and
- Social and environmental aspects are accorded the same significance as economic and financial factors in the assessment process.

\textsuperscript{16} DEA&DP NEMA EIA Regulations Guideline and Information Document Series Guideline on Alternatives (18 June 2010)
\textsuperscript{17} DEAT (2004) Criteria for determining Alternatives in EIA, Integrated Environmental Management, Information Series 11, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
• The assessment and evaluation of alternatives continues through all stages of the project.

In order to give effect to the general objectives of integrated environmental management laid down in Chapter 5 of the National Environment Management Act 107 of 1998 (NEMA), the potential impact on the environment of listed activities must be considered, investigated, assessed and reported on to the competent authority. The procedures for the investigation, assessment and communication of the potential impact of activities must, inter alia, include with respect to every application for an Environmental Authorisation –

(a) An investigation of the environment likely to be significantly affected by the proposed activity and alternatives thereto.
(b) An investigation of the potential impact of the activity and its alternatives on the environment and assessment of the significance of that potential impact.
(c) An investigation of mitigation measures to keep adverse impacts to a minimum, as well as the option of not implementing the activity.

It is clear from the above that the consideration of alternatives is an integral part of the EIA process.

5.2 Technology Alternatives

In terms of the EIA Regulations published in Government Notice R543 of 18 June 2010 and in terms of Section 24 (5) of the National Environmental Management Act (Act No. 107 of 1998), feasible and reasonable alternatives have to be considered within the environmental scoping phase. All identified, feasible and reasonable alternatives are required to be identified in terms of social, biophysical, economic and technical factors.

A key challenge of the EIA process therefore is the consideration of alternatives. Most guidelines use terms such as ‘reasonable’, ‘practicable’, ‘feasible’ or ‘viable’ to define the range of alternatives that should be considered. Essentially there are two types of alternatives:

• Incrementally different (modifications) alternatives to the Project; and
• Fundamentally (totally) different alternatives to the Project.

Fundamentally different alternatives are usually assessed at a strategic level and EIA practitioners recognise the limitations of project-specific EIAs to address fundamentally different alternatives.

In terms of incrementally different alternatives, the EIA Regulations define these in relation to a proposed activity, as “different means of meeting the general purpose and requirements of the activity, and which may include alternatives to:

• the property on which or location where it is proposed to undertake the activity;

18In terms of the EIA Regulations published in Government Notice R543 of 18 June 2010 in terms of Section 24 (5) of the National Environmental Management Act (Act No. 107 of 1998), the definition of “alternatives” in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity which may include: (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.
• the type of activity to be undertaken;
• the design or layout of the activity;
• the technology to be used in the activity; and
• the operational aspects of the activity."

At this stage of the EIA process (Draft Environmental Impact Report), Design, technological and operational activities are in the process of being defined further. The scoping phase has identified four alternative design options for the mill. Note that the type of mill used will determine other infrastructure required on site.

It is however not possible to identify alternative sites, or alternative site layouts. The CDC requires a certain site layout, and CDC guidelines indicate that only a specific percentage of the site is allowed to be covered by infrastructure. OSHO also designed the site in such a manner to allow for future extension, as well as for the most efficient road access. OSHO also requested their engineers to design the site in such a manner that will allow the installation and use of the planned rail infrastructure that will link the site directly to the harbour.

5.2.1 Alternative 1: The Preferred Option: Vertical Roller Mill

The vertical roller mill consists of horizontal rollers running over a grooved rotating table. The large particles are forced between the rollers and the table and fractured into far smaller particles in the process. The ground particles are lifted by an air current sweeping through the mill into an integrated separator above the mill. The separator returns insufficiently ground particles back to the grinding table and releases the fine ones to a down-stream bag filter where they are separated from the dust laden air. Refer to Appendix C1 for vertical roller mill layout.

5.2.2 Alternative 2: Ball Mill

A ball mill is a horizontally rotating tube typically filled with round steel balls known as grinding media. The materials to be ground are passed from one end of the tube (the feed end) to the other. En-route these particles are crushed by falling balls and thus
get reduced to a fine powder. On exiting the mill, the ground cement transported to an air separator which separates the course particles from the fine particles. The course particles are returned to the mill for re-processing. The fine particles are taken to a bag filter which separates the fine particles from the dust laden air. Refer to Appendix C2 for ball mill layout.

![Figure 10: Ball Mill](image)

5.2.3 Alternative 3: Roller Press Ball Mill combination

The roller press ball mill combination is very similar to a ball mill with one difference. Prior to entering the ball mill material is passed through two rotating rollers which press incoming material and fracture it to a smaller particles size. This material then proceeds through the ball mill in the same fashion as described above. Refer to Appendix C3 for roller press ball mill layout.
5.3 Storage Alternatives

The most feasible raw material storage alternatives include open stockpiling, enclosed storage sheds, storage sheds enclosed on three sides, and dust-netting on three sides, as per CDC guideline requirements.

OSHO has investigated the types of storage facilities to construct. These include design alternatives, as well as material (building material, e.g. corrugated roof sheet vs. dome type roof). Table 14 indicates the preferred storage facility designs.

The option to store GBFS in a completely enclosed shed is not preferred, as this will result in logistical problems in terms of offloading from large trucks. OSHO has therefore investigated alternative materials for enclosure, which includes dust netting.

The option for the use of dust netting includes:

1. Utilising dust netting/steel mesh to enclose the stockpile on three sides with the opening away from the prevailing wind direction.

2. Utilising dust netting/steel mesh to enclose the stockpile on three sides with the opening away from the prevailing wind direction with an additional windbreak(trees) on the outside of the netting or mesh.

That is, in keeping with the CDC regulations, one side will remain open, to allow for ease of materials handling. The netting/mesh will be at an angle at the top in order to "manipulate" the wind away from stockpile (Figure ).
When the steel windbreak and dust suppression net is used as the wind shelter, the perforated net ensures certain aperture opening ratio and the wind can pass through the wall.

The mechanism for dust suppression management through steel mesh netting is illustrated in Figure 12 below.

![Wind pressure diagram](image1)

**Figure 12: Dust suppression Mechanism using steel mesh**

![Wind speed diagram](image2)

**Figure 13: Dust Netting angled at the top**

![GBFS Windbreak](image3)

**Figure 14: GBFS Windbreak**
The advanced windbreak and dust suppression net can effectively control the dust pollution of bulk material in the open air, it is widely used in the coal and stock yards of port terminals, thermal power plant and other manufacture plants of coal, coke (fuel), steel, cement and others.

The steel windbreak, dust suppression system mechanism is directly related to the dust drift, diffusion and deposition of the bulk yard. A steel windbreak and dust suppression wall can control and improve the airflow field of the bulk yard, by reducing the wind speed and turbulence intensity. When a strong wind meets the net, only part of it can pass through, so the mechanical energy weakens and converts to low speed airflow. At the same time, the large-scale and high-strength vortex of this part of the wind is attenuated to small-scale and weak intensity vortex. When the wind of low speed and turbulence intensity passes the bulk yard, the new airflow field of the yard area is formed, coming with low wind speed gradient, low-speed rotation, weak vorticity and turbulence intensity reducing the dust diffusion in the lower place of the bulk yard.

The GBFS is also deemed to have a high moisture content due the chemical and physical properties of the GBFS, and it is anticipated that the uncovered storage of GBFS will not significantly contribute to lowering ambient air quality by fugitive emissions. This will be addressed by the Air Quality Impact Assessment report compiled (Appendix D1).

**Table 14: Storage Requirements for Raw Materials**

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<th>Raw Material Stores</th>
<th>Storage Method</th>
<th>Quantity (tons)</th>
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<tbody>
<tr>
<td>Cement</td>
<td>Silos</td>
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<tr>
<td>Clinker</td>
<td>Covered Steel Dome Type Shed (74 m diameter)</td>
<td>~500,000</td>
</tr>
<tr>
<td>GBFS</td>
<td>60m x 140m Lined with impermeable material waterproof open storage yard with bunds along the boundary (as per CDC regulations to be enclosed on three sides with opening facing away from the prevailing wind direction); the walls will be high enough to contain upset weather/rain conditions.</td>
<td>~500,000</td>
</tr>
<tr>
<td>Gypsum</td>
<td>Prefab Covered Steel Shed Size: 30m wide x 50 m long x 10 m high</td>
<td>~10,000</td>
</tr>
<tr>
<td>Limestone/secondary extender</td>
<td>Prefab Covered Steel Shed Size: 30m wide x 50 m long x 10 m high</td>
<td>~10,000</td>
</tr>
<tr>
<td>GBFS Feeding Shed</td>
<td>Prefab Covered Steel Shed Size: 40m wide x 40 m long x 10 m high.</td>
<td></td>
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5.4 Process Alternatives

OSH O have investigated process alternatives at the proposed cement grinding facility. These include:

- Grinding of clinker only, or
- Grinding of GBFS and clinker.

The preferred alternative to grind both GBFS and clinker is the most economically viable option, as the use of alternative extender material, in place of natural extenders such as limestone/secondary extender reduces the demand on non-renewable natural resources. Grinding clinker only also limits the type and grade of product the plant will be able to produce, as clinker only produces Portland cement, which is high quality cement used for construction of skyscrapers. This high quality cement is also more expensive and limits the market that OSHO aims to target in terms of supplying cement in the Eastern Cape.

5.5 Transportation Alternatives

Alternatives for transportation of raw materials from the harbour to the cement grinding facility include road transportation via covered bulk trucks, rail wagons and conveyor systems.

5.5.1 Bulk Truck
Transportation via bulk trucks is the preferred alternative at this stage of the project, as it is the easiest and most feasible means of transporting material to the storage facility.

5.5.2 Rail Wagons
Material can be loaded onto rail wagons at the port and transported to site, as there is existing rail infrastructure available. This alternative is not preferred, as it would mean double handling of material from offloading the rail wagon into bulk trucks to the storage facility. The double handling could also exacerbate fugitive dust emissions, which leads to lowering the ambient air quality.

5.5.3 Conveyor system
While the option to construct a conveyor system that links the proposed cement grinding facility to the port for the transportation of raw materials has been investigated, it is not anticipated that this option is viable at this phase of the project. Future phases of the project aim to implement both a conveyor and road transport system.
5.6 No Go Option

The No Go alternative assesses the possibility of not developing the proposed project. Table 15 evaluates the No-Go Alternative against the Technology alternatives investigated.

It is anticipated that should this project not receive environmental authorisation and not be allowed to go ahead, there will be a negative impact on the potential for employment and job opportunities, as well as a gap in the market for the supply of cement. Further impacts to the economy would include the lack of stimulation of competition in the Eastern Cape cement market.
### Table 15: Production alternatives: 1, 2, 3 and 4

<table>
<thead>
<tr>
<th>ALTERNATIVE NUMBER</th>
<th>DESCRIPTION</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Technology</td>
<td>Storage</td>
<td>Process</td>
<td>Transport</td>
<td>No-go</td>
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<td></td>
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<tr>
<td>PROS</td>
<td>PROS</td>
<td>PROS</td>
<td>PROS</td>
<td>PROS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREFERRED OPTION</td>
<td>Vertical Roller Mill</td>
<td>Dust netting/mesh enclosing the stockpile on three sides</td>
<td>Grinding of GBFS and clinker</td>
<td>Bulk trucking</td>
<td>Not proceeding with the proposed activity</td>
<td></td>
</tr>
<tr>
<td>Impact of Alternative on Coega IDZ</td>
<td>• Less noise</td>
<td>• Allow for ease of materials handling</td>
<td>• Most economically viable option</td>
<td>• Easiest and most feasible means of transporting material to the storage facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Less emissions</td>
<td>• Netting/mesh will be at an angle at the top of the stockpile in order to “manipulate” the wind away from stockpile</td>
<td>• Perforated net ensures a certain aperture opening ratio, allowing the wind to pass through the wall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact of Alternative on Environment</td>
<td>• Reduced fuel consumption</td>
<td>• Effectively control the dust pollution of bulk material in the open air</td>
<td>• Reduces the demand on non-renewable natural resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Low impact on air</td>
<td>• Reduce the wind speed and turbulence intensity</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>ALTERNATIVE</td>
<td>Ball Mill</td>
<td>Dust netting/mesh</td>
<td>Grinding of clinker only</td>
<td>Rail Wagons</td>
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<tr>
<td>Impact of Alternative on Coega IDZ</td>
<td>Cheaper Less maintenance</td>
<td>Enclosing the stockpile on three sides with additional windbreak(trees) on the outside of the netting or mesh</td>
<td>Grinding of clinker only</td>
<td>Rail Wagons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact of Alternative on Environment</td>
<td>Cheaper Less maintenance</td>
<td>Allow for ease of materials handling</td>
<td>Limits the type and grade of product the plant will be able to produce</td>
<td>Existing rail infrastructure available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact of Alternative on Environment</td>
<td>Roller Press and Ball Mill combination</td>
<td>Effectively control the dust pollution of bulk material in the open air</td>
<td>Rollers</td>
<td>Roller Press and Ball Mill combination</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Impact of Alternative on Environment

- Effectively control the dust pollution of bulk material in the open air
- Reduce the wind speed and turbulence intensity

### Impact of Alternative on Coega IDZ

- Links the proposed cement grinding facility to the port
<table>
<thead>
<tr>
<th>ALTERNATIVE</th>
<th>NO GO: Retain Status Quo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Reduced number of vehicles</td>
</tr>
<tr>
<td></td>
<td>• Reduced noise</td>
</tr>
<tr>
<td></td>
<td>• Increased air quality</td>
</tr>
<tr>
<td></td>
<td>• No air pollution</td>
</tr>
<tr>
<td></td>
<td>• No noise pollution</td>
</tr>
</tbody>
</table>

...
<table>
<thead>
<tr>
<th>ALTERNATIVE NUMBER</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>Technology</td>
<td>Storage</td>
<td>Process</td>
<td>Transport</td>
<td>No-go</td>
</tr>
<tr>
<td>CONS</td>
<td>CONS</td>
<td>CONS</td>
<td>CONS</td>
<td>CONS</td>
<td>CONS</td>
</tr>
<tr>
<td>PREFERRED OPTION</td>
<td>Vertical Roller Mill</td>
<td>Dust netting/mesh enclosing the stockpile on three sides</td>
<td>Grinding of GBFS and clinker</td>
<td>Preferred Option: Bulk truck</td>
<td>Not proceeding with the proposed activity</td>
</tr>
</tbody>
</table>

Impact of Alternative on Coega IDZ
- Negative impact on the potential for employment and job opportunities
- Cause a gap in the market for the supply of cement
- Lack of stimulation of competition in the Eastern Cape cement market

Impact of Alternative on Environment
<table>
<thead>
<tr>
<th><strong>ALTERNATIVE</strong></th>
<th>Ball Mill</th>
<th>Dust netting/mesh enclosing the stockpile on three sides with additional windbreak(trees) on the outside of the netting or mesh</th>
<th>Grinding of clinker only</th>
<th>Rail Wagons</th>
</tr>
</thead>
</table>
| Impact of Alternative on Coega IDZ |           | • Limits the type and grade of product the plant will be able to produce  
• Cement is more expensive and limits the market that OSHO aims to target in terms of supplying cement in the Eastern Cape |                          |              |
| Impact of Alternative on Environment |           |                                                                                             |                          | Double handling of material from offloading the rail wagon into bulk trucks to the storage facility |
| **ALTERNATIVE**                | Roller Press and Ball Mill combination |                                                                                             | Conveyor System          |             |
| Impact of Alternative on Coega IDZ |           |                                                                                             |                          |              |
| Impact of Alternative on Environment |           |                                                                                             |                          |              |

**Impact of Alternative on Environment**

- Double handling could also exacerbate fugitive dust emissions
6. THE AFFECTED ENVIRONMENT

6.1 General Description of the Region

The Coega Project consists of an Industrial Development Zone and a deep water port situated in the Eastern Cape Province, along the north-eastern coastline of Algoa Bay, approximately 20 km from the Port Elizabeth city centre. The Coega IDZ is located within the municipal boundaries of the Nelson Mandela Bay Municipality which is the largest metropolitan area within the Eastern Cape.

Figure 15: Locality Map
The Coega Industrial Area is situated at the eastern point of entry to the city of Port Elizabeth along the N2 National Road (Figure 11). It is located in close proximity to sensitive areas of the Indian Ocean and the Addo Elephant National Park. The Coega IDZ is approximately 11 400 ha in extent and is divided into two main portions, the Core Development Area (CDA), which includes the Port of Ngqura and administrative infrastructure, and the Eastern portion of the Coega IDZ, east of the Coega River. The IDZ is further bisected by the N2 National Road running through the centre of the IDZ. Access to the Coega IDZ is therefore gained from the N2 through the Neptune interchange providing access to IDZ areas north and south of the N2. The cement grinding facility is proposed to be located within Zone 5 of the Coega Industrial Development Zone (IDZ) (Figure 12).

Figure 16: Zoning of Coega Industrial Development Zone
6.2 Biophysical Environment

6.2.1 Location and Topography

The Eastern Cape Province contains a wide variety of landscapes, from the stark Karoo (the semi desert region of the central interior) to mountain ranges and gentle hills rolling down to the sea. The climate and topography gives rise to a great diversity of vegetation types and habitats in the region. The mountainous area on the northern border forms part of the Great Escarpment. With another part of the escarpment located just north of Bisho, Somerset East and Graaff-Reinet. In the south of the province the Cape Folded Mountains originated between East London and Port Elizabeth and continue westward into the Western Cape. Like KwaZulu-Natal, the Eastern Cape is characterized by a large number of short, deeply incised rivers flowing parallel to each other.

The most significant river is the Coega River; it is a relatively small river that has formed a floodplain valley of approximately 400m – 1000m wide.

In terms of the geotechnical environment the eastern portion of the Coega IDZ can be broadly subdivided into four topographical regions based on their underlying geology. These are coastal dunes abutting the land-ocean interface of the IDZ, rising to an elevation of 70m above mean sea level (amsl), a wave-cut plateau between the Coega and Sundays River valleys at an elevation of 50m to 80m amsl, the valley side slopes of these two rivers and the Coega River flood plain. The majority of the eastern portion of the Coega IDZ thus is situated on the wave-cut plateau, known locally as the Grassridge Terrace land facet.

This land facet is characterised by low palaeo beach ridges extending roughly parallel to the coast. The plateau is sloping very gentle in a southerly to south westerly direction. The drainage of the plateau area is largely towards the Coega River to the west south west, though several blind-ending drainage depressions have formed in the swales (low lying areas) between the ridges. Natural ponding therefore occur in the drainage depressions after prolonged periods of heavy rain, creating naturally wet, saturated areas. The aquifer underlying the IDZ is made up of sandstones and quartzites of the Table Mountain group and Cretaceous formations from the Uitenhage group.

6.2.2 Climate

The Coega region is primarily a spring and autumn rainfall area, and receives an average of 620mm of rain. Temperature in the Coega area ranges from 25°C in summer to 12°C in winter. The area also experiences strong winds from the west and west-south-west throughout the year. This phenomenon is strengthened by the day-night cooling and heating between the ocean and land surface results in onshore winds at day and offshore winds at night. These climate effects will need to be taken into special consideration when designing the storage facilities of the raw materials for the plant.
6.2.3 Geology and Hydrology

a) Geology

The Coega IDZ is underlain by sedimentary strata of the Table Mountain, Uitenhage and Algoa Groups (Figure 10). The area is dominated by the Alexandria and Sundays River Formation (Algoa Group). The Coega River Flood Plain and coastal dune areas are dominated by alluvial calcrite and sedimentary rock.

The land-ocean interface in the Coega IDZ is characterised by a transgressive dune system consisting of a number of active dune fields. The dominant dune type in the active dune fields are transverse dunes. These dunes are oriented transversely to the dominant south-westerly wind. Further, a longitudinal dune pattern is superimposed on the transverse dune pattern, which are generally vegetated and are oriented parallel to the dominant wind direction. Another component characteristic of the coastal dune system along the IDZ coastline is the existence of a mobile dune belt about 200 to 300 metres wide. This mobile dune belt migrates in a north-eastward direction, mainly because of dominant wind activity.
Figure 17: Lithology of the Coega IDZ

The bedrock below a large proportion of the study area is situated on the cretaceous-age siltstones and sandstones of the Sundays River Formation (See Figure 13 above).

<table>
<thead>
<tr>
<th>Group</th>
<th>Formation</th>
<th>Lithology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algoa</td>
<td>Scheltn Hoek</td>
<td>Aeolian sand, soil horizons, middens</td>
</tr>
<tr>
<td></td>
<td>Salnova</td>
<td>Marine and sediment calcareous sand / sandstone, silt / siltstone, gravel / conglomerate, shelly limestone, coquinite</td>
</tr>
<tr>
<td></td>
<td>Nanaga</td>
<td>Aeolianite, calcareous sandstone, sand</td>
</tr>
<tr>
<td></td>
<td>Alexandria</td>
<td>Calcareous marine / estuarine / lagoon sandstone, conglomerate, coquinite</td>
</tr>
<tr>
<td>Ulitenhage</td>
<td>Sundays River</td>
<td>Grey mudstone, siltstone, sandstone</td>
</tr>
<tr>
<td></td>
<td>Kirkwood</td>
<td>Reddish and greenish mudstone, sandstone, conglomerate</td>
</tr>
<tr>
<td>Table Mountain</td>
<td>Peninsular</td>
<td>Quartzitic sandstone</td>
</tr>
</tbody>
</table>

Figure 18: Stratigraphy of the Coega IDZ
The siltstone and sandstone formations are, in turn, overlain by a range of different lithologies including calcareous marine, estuarine or lagoonal sandstones, conglomerates and coquinite (shell fragments strongly consolidated) of the Alexandria Formation. On the palaeo beach ridges, the sediments near the surface have been extensively calcretised. Dissolution of the calcrete along zones of preferential percolation has led to the formation of gravel filled solution features some of which have been re-calcretised. In the depressions between the ridges, much of the calcrete has been leached out and the soils tend to be more finely grained. Exposed siltstones and sandstones (Sundays River FM) are found on the side slopes of the Coega River and in the sidewalls of the several brick quarries on the eastern side of the river and generally show signs of weathering. The findings of the CDC JV (2009) site investigation and assessment are summarised in Table 1.

The Coega Fault extends from west of Groendal dam eastwards towards the coast, dipping at between 30° and 60° for about 120km. It is a normal tensional fault, with a vertical southward throw of 500m to 100m.

b) Hydrology

Surface water

The Coega catchment is approximately 45km long, 15km wide and has a total area of about 550km² (Figure 15). The land-use in the catchment area is mainly agriculture with a fair amount of natural subtropical thicket vegetation. The Coega River, which is a relatively small sand-bed river, is the most significant surface water feature associated with the IDZ, but the possibility that there are small temporary wetland areas associated with the coastal dunes exists. The Coega River classification, based on preliminary river classification guidelines range from moderately modified (i.e. C classification) in the upper reaches to critically modified (i.e. F classification) in the lower reaches at the salt works. Except for the estuary and associated salt works, the river is mostly located outside the Core Development Area (Outside of zone 5). The southern portion of the designated IDZ is underlain at depth by an artesian aquifer formed by sandstones and quartzites of the Table Mountain Group. Confining this aquifer is a succession of eastward-thickening Cretaceous formations (Uitenhage Group) up to 1200m thick near the coast.

Surface runoff accumulates in the Coega River floodplain and several naturally low-lying areas on the plateau in the eastern portion of the IDZ. These low-lying areas remain wet most parts of the year creating natural wetlands. Development of some of these areas into storm water retention or detention ponds will be constrained by the fauna and flora present at these wetlands areas. The annual runoff from catchment areas generally ranges between 5 and 20% of the total annual precipitation in the catchment areas, depending on the land use practices in the catchment areas.

Wet areas are also present in the dune slacks in the south and south-eastern portion of the IDZ East. Most of these areas are continually wet and marshy, but some slacks contain fresh water some periods of the year and are sparsely vegetated.
In general, the water is mildly acidic due to oxidation of pyrite in the Table Mountain Group, but overall, the water quality can be considered as moderate to good.
Figure 19: Catchment area of the Coega River in relation to the Coega IDZ
Ground water
The southern portion of the IDZ is underlain by an artesian aquifer, the Coega Ridge Aquifer. This aquifer is characterised by sandstones and quartzites of the Table Mountain Group. It is confined near the coast by a series of Cretaceous formations. Groundwater in the aquifer flows in an easterly direction and the pH is slightly acidic due to the oxidation of pyrite in the table Mountain Group. This aquifer is further protected by an aquiclude. No groundwater from this aquifer is utilised in the Coega IDZ to date, but groundwater is used for agricultural purposes in the surrounding areas. Water from this aquifer is also of potable quality. Groundwater levels in the IDZ are generally shallow, ranging from 3 to 5 m below the surface. In most of the study area, excluding the alluvial areas along the Coega River flood plain, the permanent water table is below the rockhead.

Shallow groundwater, however, has a high natural salinity and total dissolved solute content. It is therefore dominated by sodium and chloride ions and naturally occurring traces of Magnesium, Potassium, Phosphorus, Iron, Manganese and Aluminium have been found. To date the surface water and shallow ground water has not been utilised due to the poor quality of the water.

6.2.4 Aquatic Environment
There will be no impact on the Aquatic Environment. No water will be pumped or collected from a wetland or aquatic ecosystem. All storm water will be collected, to reduce soil erosion, as well as to reduce the possibility of contaminated surface water infiltrating subsoil and resulting in ground water pollution. The storm water will be contained, recycled and used in the grinding process.

6.2.5 Fauna and Flora
The impact on fauna and flora will be minimal as OSHO proposes to establish a garden zone on the borders of the site. The garden zones will be populated with indigenous fast growing species. The garden zones will serve two purposes:

1) Serving as a safe haven to fauna and avifauna on site. Providing them with a safe area to nest, forage and pro-create.
2) The second purpose of the garden zones will be to serve as a windbreak against the prevailing wind direction, as well as to add to the aesthetic value of the site.

Flora
The dominant vegetation covering the proposed development area is the Succulent Thicket (See Figure 16 below). Species found within the canopy is widespread Subtropical Affinity Species. In addition succulents and geophytes are found in the understory with certain endemic species.

- **Succulent Thicket**: A dense, spiny vegetation type unique to this region.
• **Canopy Species**: Subtropical Affinity Species (Widespread over the development area)

• **Understory Species**: Succulents and geophytes noted on site are of aroid Affinities. Certain localised species are also endemic to the area.

The vegetation types of the IDZ area can be broadly divided into:

- Dune vegetation
- Inland vegetation types.

Dune vegetation can be divided into five different communities, which include pioneer dune communities, dune field communities, dune thicket communities, dune fynbos communities and alien communities. Although this vegetation has few vulnerable or endemic species, its conservation is important in terms of its unique role in stabilising dunes and creating dune habitats.

The dominant inland vegetation type is Succulent Thicket, which is in an almost pristine state. It is important to note that more than 30 Eastern Cape endemic species are found in the IDZ area. The most important of these are the endangered *Orthopterum coegana* and two unusual growth forms of *Euphorbia polygona* and *Haworthia translucens*, which are endemic to Coega Kop, and *Aloe Bowiea*, a small endangered grass aloe known from only a few sites in the region is also present.

As such certain portions of the vegetation of the area are of high conservation importance. Certain areas of both dune and inland vegetation are invaded by alien plant species. The most common invader species is *Acacia cyclops* (rooikrans), which was used in the past to stabilise the dunes, and presently forms large monospecific stands in areas throughout the IDZ. There are several other aliens present that pose a threat to the flora of this area.

Zone 5 has been extensively investigated ecologically over a period of years, and fauna and flora in the area has been mapped. The full species lists are available and as such no further ecological assessment would be required in the proposed development area.

**Fauna**

The lack of pristine terrestrial habitats in the Coega region has severely impacted the terrestrial fauna in the Coega area. Anthropogenic impacts are the main cause of the dwindling faunal numbers, particularly the loss of vegetation, alien plant invasion and various industrial developments in the area.

The diversity of terrestrial fauna has been much reduced in comparison with its original state in the Coega area. The vast majority of mammals present in the study area are small or medium-sized. The pygmy hairy-footed gerbil (*Gerbillurus paeba exilis*) is endemic to the coastal regions of Algoa Bay and is one of the 63 mammal species known or expected to occur in the Coega IDZ. The gerbil is common in foredune and dune thicket habitat in the Coega region. Thirteen of the 63 species are Red Data Book (RDB) species (4
vulnerable, 5 rare and 4 intermediate species). Five of these RDB species are medium to large in size, occupying relatively large ranges.

The Coega area also has a diverse avifauna because of its varied habitats. Over 150 bird species are resident or common to the area, with most diversity occurring in the thicket. The coastal area does however support a range of specialised avifauna.

A range of terrestrial, estuarine and marine birds of conservation importance are found in significant numbers in the Coega area. The Roseate tern (Sterna dougalli), Damara tern (Sterna balaenarum), Cape gannet (Morus capensis) and the African penguin (Spheniscus demersus) are either endangered or vulnerable, while the Caspian tern (Hydroprogne caspia), Chestnutbanded plover (Charadrius pallidus), Cape cormorant (Phalocrocorax capensis) and the Greater (Phoeniconaias ruber) and Lesser flamingos (Phoeniconaias minor) are near threatened. Roseate terns have been observed roosting in the dunes within the Coega IDZ.

Other bird species of notable conservation concern include the Whitefronted plover (Charadrius marginatus), African black oyster catcher (Haematopus moquini), Martial eagle (Polemaetus bellicosus), Stanley’s bustard (Neotis denhami), African marsh harrier (Circus ranivorus), secretary bird (Sagittarius serpentarius) and the blue crane (Anthropoides paradisea). No breeding populations of these species have been recorded in the Coega IDZ, but this does not preclude them from occurring within the study area.

The Eastern Cape supports nearly a third (approximately 133 species) of the reptile species recorded in South Africa, with more than half of the Eastern Cape’s endemic reptile species occur in the Algoa Bay area. A total of 63 reptile species are believed to occur within the Coega IDZ. The majority of these are found in Succulent Thicket and riverine habitats.

Figure 17 indicates the locations of species of special concern (SSC) in the Coega IDZ. These species generally occur along the coastal dune belt and along the riverine and adjacent thicket of the Coega River estuary.

Only a few reptile species occur in the coastal dunes and estuarine habitats. More than a third of the species are described as relatively tolerant of disturbed environments, provided that migration corridors of suitable habitat are maintained to link pristine habitats. Twenty two reptiles are of special concern and include five endemic species (two of which may also be endangered), four endangered sea turtles, eight species listed with CITES, one rare species and four species at the periphery of their range. Fourteen of these species of special concern are confirmed as occurring on or within 2 km of the Coega IDZ (CES 2001).

The avifauna species that do currently inhabit the site will be able to move into and habituate the garden zones that will be established on site as soon as construction commences.
Figure 20: Vegetation of the Coega IDZ

It is important to note that none of the Critical Biodiversity Areas or Ecological Support Areas falls within Zone 5 of the IDZ (See Figure 19 below).
6.2.6 Air Quality

Historical meteorological and AAQ data from Amsterdam Plain, a monitoring station located within the Coega IDZ, has been provided to WKC by the CDC. This data is summarised within the table below and regarded as the ‘baseline’ or pre-development condition for the Coega IDZ (See Figure 20 below).
Monitoring data suggests a relatively unpolluted airshed in and around the IDZ, with NO\textsubscript{2} and SO\textsubscript{2} concentrations typical of a rural environment. Elevated levels of PM have been recorded on an annual basis; however these are likely to be natural in origin, given the absence of other criteria pollutants normally associated with combustion sources.

### 6.3 Socio-economic Environment

Even though there are no residents within the Coega IDZ, any industrial development will have indirect socio-economic impacts on the municipal area and its population.

The Nelson Mandela Bay Municipality is situated in the Eastern Cape Province. This is the second largest province within South Africa, and covers approximately 14% of South Africa’s total land area. In terms of population the province ranks third largest with about 6 million residents. The current employment stats available from Stats SA indicate that 28.25% of the population are unemployed, 32.64% are employed and 39.11% are not economically active. This however can be seen as a major advantage to investors as there is a large available labour force.

Job creation in this province is a major priority, and government and municipality will welcome any job creation opportunity that will help reduce the unemployment rate as well as the local community’s reliance on government for grants. The development of industry in a localised area aims to promote the local economy and job creation. This can only be viewed as a positive socio economic aspect for the establishment of the proposed facility.
6.3.1 Nearby Receptors

Identified receptors for the site include:

- The residents in the town of Motherwell (~6km west of the proposed development site).
- The residents in the town of Colchester/ Sunday’s River (~20km North East of the proposed development site).
- The industrial manufacturers situated in the neighbouring vicinity (Markman Industrial and Coega IDZ).
- The Coega Main Office (~2km South East of the proposed development site).
- The Port of Ngqura (~4km South East of the proposed development site).
- The Addo National Elephant Park (AENP) (~40km north of the proposed development site). As well as the southern gate to the AENP located to the east of the IDZ.

6.3.2 Baseline Demographical Processes

According to the NMBM Integrated Development Plan, 2008 (IDP, 2008), Nelson Mandela Bay has a population of about 1.1 million people, and covers an area of 1 950 square kilometres. Port Elizabeth, which forms part of the NMBM, is South Africa’s second oldest city and is also the commercial capital of the Eastern Cape. Uitenhage and Despatch also form a part of the NMBM.

52% of the NMBM population are female and 37% are below the age of 20, highlighting the importance of education, job creation and youth programmes. Decades of distorted development in the city has manifested in highly skewed distribution of income and wealth. The unemployment rate among the economically active sector of the community is 15 - 28% (IDP, 2008).

Although the unemployment rate in Nelson Mandela Bay has shown a steady decline since 1994, it remains higher than the national average for South Africa. These statistics show a predominantly black population, with low incomes, and high levels of unemployment. However, the levels of employment in the NMBM are higher than for the province generally, as are the incomes.

The NMBM continues to provide relief to impoverished households through its Assistance to the Poor Scheme, increasing its monthly contribution from 6kl of water to 8kl of water and from 50kWh of electricity to 75kWh of electricity respectively in 2007 (IDP 2008). 93 111 households receive free basic water, sanitation and refuse removal services, while 94 823 households receive free electricity every month. Job creation is a priority, given the need to increase the prosperity of the community and ensure a more equitable distribution of wealth among residents. Consequently the Municipality has called on all local stakeholders and social partners to make a contribution to the economic growth and development of the area.

The CDC has developed a zone labour agreement for the IDZ. The agreement stipulates the following compulsory management activities relevant to the proposed CGF:
“All construction activities in the Coega IDZ and at the Port of Ngqura require full compliance to the Coega Zone Labour Agreement (the Coega ZLA);

The Coega ZLA was negotiated between the Construction Industry Employer Associations and the Construction Industry Trade Unions and concluded on 25 September 2002. This agreement was subsequently endorsed by both the Coega Development Corporation and Transnet National Ports Authority for application on all construction sites within the confines of the Coega IDZ and the Port of Ngqura;

In order to maximise local labour opportunities, preference for employment in Civils and Building Task Grades A to D (Annexure H1 of the Coega ZLA) and MEI Category 1 to 3 (Annexure H2 of the Coega ZLA) shall be given to local candidates residing in Nelson Mandela Bay who are in possession of appropriate qualifications, skills or experience in the construction or contracting industries.

Recruitment of all additional local labour shall only take place through the Recruitment & Induction Centre provided by the Coega Development Corporation.

Contractors will be entitled to staff a project on the IDZ with seconded labour for core skills in categories other than those referred to here above, through the Secondment approval process as managed by the Recruitment & Induction Centre provided by the Coega Development Corporation.

The wage schedules to the Coega ZLA are updated annually to reflect Industry wage increases granted. Annexure H1 is based on the SAFCEC–NUM Agreement which is typically affected from 01 September annually, whilst the Annexure H2 increases negotiated through the Metal & Engineering Industries Bargaining Council, which is typically effected from 01 July annually.”

Refer to the Zone Labour Agreement in Appendix I.

Table 16: Resident Employment by Sector, Nelson Mandela Bay Municipality, Cacadu Region Eastern Cape, 2011.

<table>
<thead>
<tr>
<th>NMBM</th>
<th>Sector</th>
<th>%</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>0</td>
<td>571</td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>1</td>
<td>1116</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>1</td>
<td>3263</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>6</td>
<td>15730</td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td>6</td>
<td>16866</td>
<td></td>
</tr>
<tr>
<td>Households</td>
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<td>27668</td>
<td></td>
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<tr>
<td>Finance</td>
<td>10</td>
<td>28185</td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>20</td>
<td>55515</td>
<td></td>
</tr>
<tr>
<td>Trade</td>
<td>21</td>
<td>56424</td>
<td></td>
</tr>
<tr>
<td>Community Services</td>
<td>25</td>
<td>68102</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>100</td>
<td>245772</td>
<td></td>
</tr>
</tbody>
</table>
6.4 Tourism

The proposed Cement grinding facility will have no impact on tourism. The Coega IDZ is a demarcated industrial zone, and not a major tourist attraction.

6.5 Aesthetics

6.5.1 Topography

Zone 5 in the Coega IDZ that was allocated to OSHO is adjacent to Neptune Road. The site is relatively flat, with a gentle slope in the direction of Neptune Road.

6.5.2 Vegetation Cover

The site falls in the Albany Thicket Biome, and the vegetation is made up of the Coega Bontveld. The Coega Bontveld is characterised by a mixture of Fynbos, grassland, succulent Karoo and thicket bush clumps.

Domestic stock grazing in the areas as well as local residents removing plant material has resulted in degradation of the area; this degradation is however not regarded as extensive. The majority of the Coega IDZ area appears to be in an ecologically healthy condition.

To explain the vegetation cover in layman’s terms, it can be said that all the vegetation is lower than average knee-height. There are no trees on the site.

6.5.3 Landscape Diversity

The diversity on the site is relatively low, with little variation in vegetation cover and soil type.

6.5.4 Visibility

The site is located in the South Western corner of the Coega IDZ, facing toward the Motherwell community in the far South West. The site will also be potentially visible from the N2 national highway along the South African Coastline, running from Cape Town through Port Elizabeth to Durban.
6.6  Cultural Heritage Environment

6.6.1 History

A Phase 1 Archaeological Heritage Impact Assessment for Zone 5 was conducted by Dr Johan Binneman on behalf of Eastern Cape Heritage Consultants.

The aforementioned report concluded that “Large areas have been cleared of the dense vegetation which covers most of Zone 5. Although this provided a window to the investigation, it is unknown if any/how many archaeological sites/materials were destroyed. However, possible archaeological sites such as shell middens, human remains and other archaeological material may be exposed after the top soil is removed, or when trenches are dug in the calcrete”.

Cognisant of the above study, no further assessment for heritage resources would be required considering the area being of low cultural significance, however considering the potential of uncovering possible archaeological sites. The environmental management plan of the proposed CGF would outline procedures required in the event that any heritage resources are identified during site clearance for the proposed development.

6.6.2  Archaeology

Early Stone Age (approximately 250 000 - million years old) stone tools are found throughout the area. Large hand-axes were reported from Coega Kop and were also collected from the banks and gravels of the Coega and between the N2 national road and the salt works (Albany Museum collections). One of South Africa’s most important Earlier Stone Age finds and excavations (Deacon 1970) was conducted a few kilometres west of the surveyed area, at Amanzi Springs. In a series of spring deposits a large number of stone tools were found in situ to a depth of 3-4 metres. Wood and seed material preserved in the spring deposits, possibly dating to between 250 000 to 800 000 years old.

Middle Stone Age (125 000 - 30 000 years ago) and Later Stone Age (30 000 years ago to historical times) stone tools are also found in the gravels and along the banks of the Coega River. These stone artefacts, like the Earlier Stone Age hand-axes are in secondary context with no other associated archaeological material. Occurrences of fossil bone remains and Middle Stone Age stone tools were also reported south of Coega Kop (Gess, 1969). During excavations the remains were found in the surface limestone, but the bulk of the bone remains were found some 1-1, 5 metres below the surface. The excavations exposed a large number and variety of bones, teeth and horn corns. The bone remains included warthog, leopard, hyena, rhinoceros and ten different antelope species. A radiocarbon date of greater than 37 000 years was obtained for the site.

The majority of archaeological sites found in the wider region date from the past 10 000 years (called the Later Stone Age) and are associated with the campsites of San hunter-gatherers and Khoi pastoralists. Some 2 000 years ago Khoi pastoralists occupied the region and lived mainly in small settlements. They were the first food producers in South Africa and introduced domesticated animals (sheep, goat and cattle) and ceramic vessels to southern Africa. These sites are poorly preserved and difficult to find because they are in the open veld and often covered by vegetation.
and soil. Sometimes these sites are only represented by a few stone tools and fragments of bone.

Most of the proposed area for development is situated within 5 km from the coast and falls within the maximum distance shell middens are expected to be found from the beach (Binneman 2001, 2005). Many middens, ceramic pot shards (from Later Stone Age Khoi pastoralist origin - last 2000 years) and other archaeological material, mainly of the Holocene Later Stone Age (last 8000 years) are located in the shifting sand dunes along the coast. Human remains have also been found in the dunes along the coast.

Apart from the stone tools no other visible archaeological sites/material were found during the investigation. Although sites/material may be covered by soil and vegetation, it is unlikely that any other archaeological sites/material would be located during development (apart from the stone tools already mentioned).

6.7 Traffic Infrastructure

6.7.1 Existing Road Network

The existing road infrastructure surrounding the proposed OSHO Plant site is illustrated in Figure 21 below.

![Existing Road Infrastructure Surrounding the Proposed OSHO Plant Site](image_url)
a) R102
The R102 is an arterial road into Port Elizabeth providing access to the CBD, industrial and residential areas. As such, it conveys moderate volumes of traffic throughout the day. The R102 falls under the jurisdiction of the Eastern Cape Department of Transport. The R102 is a rural two way, two lane highway with one lane in each direction, approximately 3.8m in width. The speed limit on this road is 100km/h. The R102 has a paved surface that is in a fair condition. There are public transport facilities located along this road. No pedestrians were observed along the R102 but there is a 1.8m verge located on the east side of the road to accommodate any pedestrians, should the need arise.

b) Neptune Road
Neptune Road is the main access road into the Coega Industrial Development Zone that provides a link from the R102 to the Port. Neptune Road traverses the proposed site in a southeast-northwest direction. Neptune Road is a four lane dual carriageway road with two lanes in each direction. Neptune Road has a median approximately 2.4m in width while the lanes are approximately 3.8 metres in width. Neptune Road has a paved surface that is in excellent condition. Neptune Road has wide verges on both sides of the road, 1.8m in width. No pedestrians were observed on this road. The speed limit on Neptune Road is 70km/h.

c) Cable Road
Cable Road is an access road in the Coega Industrial Development Zone that links the surrounding factories and warehouses to Neptune Road. Cable Road is located just to the west of the proposed site. Cable Road is a two-way, four lane road with two 3.8m lanes in each direction. Currently, the road adjacent to Cable Road is vacant. As such, this road conveys little or no traffic for most of the day.

d) Existing Pedestrian and Cyclist Activity
There were no pedestrians or cyclists observed on the surrounding road network during the site visit.

e) Existing Road Safety Conditions
The observed road safety conditions within the study area are generally acceptable. The observed vehicle speeds and driver behaviour within the study area are generally good. No inherent road safety hazards were observed on the road network within the study area.
7. ASSESSMENT AND EVALUATION OF POTENTIAL IMPACTS AND RISKS OF THE PROJECT

7.1 Introduction

In terms of Regulation 32 of the 2006 EIA Regulations and Regulation 31 of the 2010 EIA Regulations, which describes how impacts must be assessed, sub-regulation 2(k) and 2(l) respectively states that the Environmental Impact Assessment Report (EIR) must include an assessment of each identified potentially significant impact, including cumulative impacts and consider:

- The nature of the impact;
- The extent and duration of the impact;
- The probability of the impact occurring;
- The degree to which the impact can be reversed;
- The degree to which the impact may cause irreplaceable loss of resources; and
- The degree to which the impact can be mitigated.

Therefore subsequent to the identification and description of key issues and potential impacts during the Scoping Phase, it was necessary to evaluate how the impacts will affect the surrounding environment. The potential impacts have thus been assessed in order to determine their significance, and to define mitigation or management measures to address the identified impacts.

Environmental impacts can be defined as the consequences of an activity on environmental resources. The environmental impacts relating to the Construction and Operation of the Cement Grinding Facility relate to changes affected on the biophysical, social, economic, visual and cultural aspects of the proposed site. Significant impacts can lead to drastic changes in the status quo of the environment which can be direct, indirect or cumulative. Direct impacts are changes that result from direct interactions between the environment and project activities. Indirect impacts result from interactions between the environment and direct impacts. Cumulative impacts result from interactions between the environment and direct impacts. Cumulative impacts are an accumulation of changes to the environment caused by project activities.

Where appropriate and applicable, all impacts identified during the Scoping Process, have been assessed in this Impact Assessment Report in terms of the probability of occurrence and the magnitude and extent (spatial and temporal) of the impacts. The results of the evaluation, and the significance of the impacts, have provided an indication as to how the impact must be managed, mitigated and monitored. Where the methodology described below could not be applied, the relevant specialists (e.g., Heritage Specialist) have used methodologies prescribed by the applicable legislation or used their experience and knowledge to assign at a minimum, a low, moderate or high significance rating to the impacts under review (e.g., holistic economic).
7.2 Methodology for Impact Significance Scoring

The significance (quantification) of potential environmental impacts identified during the scoping phase and the specialist investigations have been determined using a ranking scale, based on the following (terminology has been taken from the Guideline Documentation on EIA Regulations, of the Department of Environmental Affairs and Tourism, April 1998):

- **Occurrence**
  - Probability of occurrence (how likely is it that the impact may occur?)
  - Duration of occurrence (how long may it last?)

- **Severity**
  - Magnitude (severity) of impact (will the impact be of high, moderate or low severity?)
  - Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?)

Each of these factors has been assessed for each potential impact using the following ranking scales:

<table>
<thead>
<tr>
<th>Probability</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - very improbable (probably will not happen)</td>
<td>1 - of a very short duration (0–1 years)</td>
</tr>
<tr>
<td>2 - improbable (some possibility, but low likelihood)</td>
<td>2 - of a short duration (2-5 years)</td>
</tr>
<tr>
<td>3 - probable (distinct possibility)</td>
<td>3 - medium-term (5–15 years)</td>
</tr>
<tr>
<td>4 - highly probable (most likely)</td>
<td>4 - long term (&gt; 15 years)</td>
</tr>
<tr>
<td>5 - definite (impact will occur regardless of any prevention measures)</td>
<td>5 - permanent</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extent</th>
<th>Magnitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - limited to the site</td>
<td>0 - small and will have no effect on the environment</td>
</tr>
<tr>
<td>2 - limited to the local area</td>
<td>2 - minor and will not result in an impact on environmental processes</td>
</tr>
<tr>
<td>3 - limited to the region</td>
<td>4 - low and will cause a slight impact on environmental processes</td>
</tr>
<tr>
<td>4 - will be national</td>
<td>6 - moderate and will result in environmental processes continuing but in a modified way</td>
</tr>
<tr>
<td>5 - will be international</td>
<td>8 - high (environmental processes are altered to the extent that they temporarily cease)</td>
</tr>
<tr>
<td></td>
<td>10 - very high and results in complete destruction of patterns and permanent cessation of environmental processes</td>
</tr>
</tbody>
</table>

**Figure 24: Ranking Scales**

The environmental significance of each potential impact has been assessed using the following formula:
Significance Points (SP) = (Magnitude + Duration + Extent) x Probability

The maximum value is 100 Significance Points (SP). Potential environmental impacts were rated as high, moderate or low significance on the basis detailed below and are applicable to both negative and positive impacts with positive impacts denoted with [+] as shown in Table 16.

Table 17: Impacts Significance Scoring

<table>
<thead>
<tr>
<th>SP</th>
<th>-ve Rating</th>
<th>Definition</th>
<th>+ve Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>NO IMPACT</td>
<td>A potential concern or impact, which, upon evaluation, is NO IMPACT</td>
<td>LOW</td>
</tr>
<tr>
<td></td>
<td>LOW</td>
<td>found to have no significant impact</td>
<td></td>
</tr>
<tr>
<td>&lt;30</td>
<td>VERY LOW</td>
<td>Impacts will be localised and temporary. Impacts result in LOW</td>
<td>[+]VERY LOW</td>
</tr>
<tr>
<td></td>
<td>– LOW</td>
<td>minor alterations to the environment and can easily be LOW</td>
<td>LOW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>alleviated by the implementation of effective mitigation measures.</td>
<td></td>
</tr>
<tr>
<td>31-60</td>
<td>MODERATE</td>
<td>Impacts of moderate magnitude locally to regionally in the [+]MODERATE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>short term. The impact results in medium alterations to the MODERATE</td>
<td>environment and can be reduced or eliminated by the implementation of effective mitigation measures.</td>
</tr>
<tr>
<td>&gt;60</td>
<td>HIGH</td>
<td>Impacts of high magnitude locally for longer than 6 years [+]HIGH</td>
<td>and/or regionally and beyond. The impact results in major HIGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>alterations to the environment even if effective mitigation measures are implemented and will have an influence on HIGH</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>decision-making.</td>
<td></td>
</tr>
</tbody>
</table>

7.3 Mitigation

The significance of an impact gives one an indication of what mitigation measures need to be taken in order to control negative impacts and reduce environmental damage during the construction and operational phases. Mitigation measures are often modelled on natural controls found in ecosystems and incorporated into the project design.

Where applicable, each impact has been assessed and rated both without and with mitigation to reflect how the application of mitigation measures can change the environmental significance of an impact.

A site specific Environmental Management Programme (EMP) has been compiled and forms a part of this document. The EMP specifies the methods and procedures for managing the environmental aspects of the proposed activity. The purpose of the
EMP is to control the impacts of construction and operational activities. The effective implementation of an EMP will ensure that the required works are conducted in an environmentally sound manner, and that the potential negative impacts of construction and operational activities are minimised and/or prevented.

The draft EMP document details the responsibilities and authority of the various parties involved in the project. It contains Environmental Specifications, to which the Contractor and Operator are required to adhere throughout the duration of the construction and operational phases. The draft EMP will cover impacts that have been identified in the EIA Process and which could potentially arise during the construction and/or operation of the road.

The general consensus from the Specialists were that with a thoroughly thought out and effective mitigation and monitoring plan the impacts that might arise during construction and operation can be managed.

7.4 Impacts Identified through Specialist Studies

A broad range of potential environmental impacts and issues were identified and described during the Scoping Process. Many of these can be grouped into ‘over-arching’ impact aspects which are cumulatively significant, and therefore warrant the need for specialist investigation and assessment as part of the Impact Assessment Phase of the project. The consolidated significant issues relevant to the Construction and Operation of the CGF, and their respective specialist studies are tabulated below:

Table 18: Potential Impact Aspects Investigated by Specialists

<table>
<thead>
<tr>
<th>Impact on:</th>
<th>Specialist Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality</td>
<td>Air Pollution, Emissions</td>
</tr>
<tr>
<td>Traffic Congestion</td>
<td>Increased amount of vehicles during the construction phase and operational phase.</td>
</tr>
<tr>
<td>Storm Water Management</td>
<td>Storm water management, on-site water balance, storm water retention dam design, Water Use License</td>
</tr>
</tbody>
</table>

Furthermore, all studies were intentionally undertaken independent of the others so as not to influence the independence, methodologies and findings of each of the assessments. As such, some of the common components (e.g., data sources and numbers) vary depending on the sources obtained and used by the individual specialists. For the purposes of this assessment and for consistency through the assessment chapter, where relevant, the summaries are limited to the No-go Alternative and the preferred or proposed option.
7.5 Impacts Identified through the Public Participation Process

Following the publication of the Final Scoping Report (FSR), GIBB received written submissions from Interested and Affected Parties (IAPs) (refer to Appendix E). A number of issues were raised, and were dealt with as valid and useful information to consider going forward.

GIBB collated and summarised the post Final Scoping Report written submissions and associated comments and issues raised, as well as the response to these into a separate Issues and Response Report (IRR) (refer to Appendix E3). In doing so, GIBB carefully studied and considered all the comments and issues raised and strived to provide accurate and informative responses. Due to the complexity of some of the issues raised GIBB consulted with the team of specialists and the project engineers where necessary.

GIBB values the comments raised and took time to effectively understand the issues and to answer and respond to these issues as comprehensively as possible.

7.5.1 Interested and Affected Parties that Responded

The following IAPs responded in writing on the Final Scoping Report:

- Ms. Nevashni Govender – Environmental Specialist, AfriSam (South Africa) (Pty) Ltd
- Dr Paul Martin – Independent Environmental Control Officer for the Coega IDZ and local resident

7.5.2 Summary of Comment and Issue Themes

The comments and queries received from the Registered I&AP’s on the Final Scoping Report (FSR), as well as those contained in the approval letter for the FSR received by DEDEAT on 26 February 2013, were analysed and considered in this Draft EIA. The proponent advised GIBB on some of the comments and queries, as they were related to design and infrastructure. A brief list of the issues raised is outlined below, however the full Issues and Response Report is attached in Appendix E3

- Air Quality
- Air Emissions
- Air Monitoring
- Storm water Management
- Waste Management License
- Cement Storage facilities
- Raw material storage facilities
- Future production expansion
- Traffic impact Assessment
- Background Impact Document Distribution
- Project Alternatives
- Cooling tower and Water use
7.5.3 Responses and Report Amendments

Details on GIBB’s responses to the comments and issues raised by IAPs on the Final Scoping Report (FSR) are provided in the IRR (Appendix E3). These responses either refer to the relevant sections in the FSR where the issues were discussed and/or addressed or provide comments for further clarification. GIBB’s responses to issues and concerns raised by several IAPs in common are provided in the IRR.

7.6 Assumptions, Uncertainties and Gaps in Knowledge

7.6.1 Environmental Impact Assessment Overall

a) Assumptions

The proposed development will have an overall positive impact on the environment and area. However, this will be the case if the potential air pollution impacts are managed and mitigated in the appropriate manner.

b) Uncertainties

No real uncertainties exist. However, the possibility of discovering an Archaeological site under topsoil exists.

7.6.2 Specialist Studies

a) Air Quality

Assumptions

Baseline conditions include:

- Meteorological data particularly prevailing wind direction and strength, rain falls and temperature. Additionally, in relation to extreme situations like storms and draughts their occurrence and duration;

- Existing air quality particularly dust loading and existing sources of air emissions in the area

- Risk of inversion.

Existing air quality cannot be determined with any precision without sampling over an extended period. This is rarely practicable and a descriptive approach based on prevailing weather conditions and identification of the main local emission sources affecting air quality, e.g. road traffic, major heavy industries with stacks, is often a better approach. The most appropriate approach to atmospheric impacts is generally to prevent them at source. Most likely these
data may be obtained from either the local airport or the local meteorological institute or department.

b) Traffic Impact Assessment

Assumptions

- The increased number of vehicles both during construction and operation is relatively small. The increased traffic on Neptune road will not severely impact any other tenants in the IDZ. However, as the IDZ is gradually filling up, the increased number of vehicles might have a cumulative impact in future.

Uncertainties

- The extent of the impact of the increased number of vehicles; can only really be studied once the CGF is in full operational phase.

c) Storm Water Management

Assumptions

- The distance dirty storm water will need to travel will be kept as short as possible and absorbed as fast as possible.
- The quality of storm water will be suitable for application in wetting of roads for dust suppression, and for irrigation in plant gardens.

Uncertainties

- The capacity of the storm water retention dam will be sufficient to prevent overflows during storm and flood events.

7.6.3 GBFS Classification

According to the UK Environment Agency, Blast Furnace GBFS (BFS) “is produced in parallel with hot iron in a blast furnace. The production process of the iron is adapted to ensure that the slag has the requisite technical qualities. A technical choice is made at the start of the production process that determines the type of slag that is produced. Moreover, use of the slag is certain in a number of clearly defined end uses, and demand is high. BF slag can be used directly at the end of the production process, without further processing that is an integral part of this production process. This material can therefore be considered to fall outside of the definition of waste”.

The proponent therefore deems slag/GBFS to be a product, and plans to import slag/GBFS material from an international supplier, and has received the relevant and requisite Material Safety Data Sheet (MSDS), which suppliers also indicate that the slag/GBFS is deemed/classified as a product and not a waste.

Approximately 8 shipments per year of between ± 25- 40 000T of GBFS will be purchased, and this material will be offloaded in closed bulk trucks to site. The transfer of material from the ship into the bulk truck will be via Eco Hoppers, which are a closed transfer system.
A legal opinion has been sought regarding the definition of waste and the classification of GBFS as a waste in terms of South African environmental legislation. This legal opinion, the supplier MSDS and the research papers used to support the argument of GBFS not being considered a waste are appended to this report in Appendix I.

Furthermore, future phases of the project will investigate alternative sources and types of GBFS material that can be used in the cement making process. Should any of these GBFSs trigger a listed activity and requirement for a license, then OSHO will undertake that licensing process as a separate process to this EIA.
8. IMPACT ASSESSMENT

The proposed development of the Cement Grinding Facility will produce a range of ‘generic’ impacts common to all Cement Mill related projects that involve construction and which require on-going maintenance post construction. These potential impacts are considered ‘screened’ impacts as they did not undergo specific specialist investigation and assessment. The consideration of these potential impacts as ‘generic’ and ‘common’ does not however, reduce their importance and significance, particularly considering the physical and ecological context of the environment within which the development is proposed. These impacts are in fact well understood and can confidently be effectively managed and mitigated through the implementation of strict procedures and practices contained in the EMP, thereby significantly reducing their potential environmental impact.

The proposed development of the Cement Grinding Facility will also produce a number of impacts which have specifically been identified and assessed by the EAP and the specialist team appointed to the project. As such the following section discusses both screened and other identified impacts.

8.1 Waste Pollution

The proposed development does not trigger an activity requiring a waste licence in terms of the provisions of the requirements of the National Environmental Management: Waste Act (NEM: WA), Nr 59 of 2008.

8.1.1 General Waste
Waste generated at the facility will constitute general packaging waste and general office and food waste that will be removed by a contracted waste removals company, and disposed of at a licensed waste disposal facility. That is, general waste on site at any given time will not exceed 100 m³ or be stored on site for more than 90 days.

Further, all raw materials into the process, particularly Blast Furnace GBFS, are deemed by the supplier and the proponent as non-hazardous materials and not waste, of which storage of such will not require a waste management license to be acquired in terms of the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEMWA).

8.1.2 Hazardous Waste
It is not anticipated that the plant will exceed the 80 m³ threshold for storage of waste oils generation from energy generators, and/or chemicals that may be required for maintenance purposes. A waste management license has therefore not been applied for.

8.1.3 Assessment and rating
It is anticipated that there will be minimal general food and packaging waste generated during construction phase, as well as during the operational phase. The proponent should investigate a waste separation at source system so that the potential for implementing recycling programmes for the general packaging waste such as paper, plastic and glass will be much easier.
During construction phase, there may be oil spills from construction vehicles or waste oil storage containers. The rating of such an incident is elaborated in table 18.

### Table 19: Waste Pollution

<table>
<thead>
<tr>
<th></th>
<th>Construction</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With Mitigation</td>
<td>Without Mitigation</td>
</tr>
<tr>
<td>Probability</td>
<td>Improbable (some possibility, but low likelihood)</td>
<td>Improbable (some possibility, but low likelihood)</td>
</tr>
<tr>
<td>Duration</td>
<td>Of a very short duration (0–1 years)</td>
<td>Of a very short duration (0–1 years)</td>
</tr>
<tr>
<td>Magnitude</td>
<td>Minor and will not result in an impact on processes</td>
<td>Low and will cause a slight impact on processes</td>
</tr>
<tr>
<td>Extent</td>
<td>Limited to the site</td>
<td>Limited to the local area</td>
</tr>
<tr>
<td>Significance</td>
<td>Low</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

8.2 Soil and Water Contamination

Soil contamination may occur during the Construction Phase of the development as a result of improper management and use, disposal or spillage of hazardous materials and substances such as fuel, oil, solvents, cement and the like. Furthermore, solid waste material generated during construction may cause soil contamination if not correctly disposed of or while stored for disposal.

During the Operational Phase of the project, spills and leaks (oil, brake fluid, petrol) from vehicles travelling the on-site can leach into the surrounding soils.

Soil contamination could result in water contamination if the contaminants in the soils reach sub-surface water bodies and groundwater, and are then transported into the river system. Water contamination could also occur if spilled products on hard surfaces are washed by rainwater into the storm water system, where they would then be discharged into the surrounding environment.

At any stage in the process from spillage to storm water discharge, contaminants have the potential to impact negatively on the ecological function of the surrounding terrestrial and aquatic environment. Depending on the volume spilled, concentration and toxicity these systems may be placed under stress, resulting in impacted or altered ecological processes and/or possible organism/species mortality.

8.2.1 Assessment and Rating

During construction the risk of contamination is higher due to use of potentially hazardous materials in the construction process. Hazardous substances that are spilled onto the site through construction activities and not cleaned up can leach into the soil, resulting in soil contamination and further entering the groundwater system.
from which contaminants are easily dispersed and can negatively impact on the downstream environment. Soil contamination occurring during the Construction Phase would likely only impact the site and immediate area in the short term.

During operation of the CGF development, pollutants could be spilled onto the exposed ground from vehicles, e.g., leaking engines and accidents, which would more than likely be washed off the road into the surrounding environment through the storm water drainage and discharge system, resulting in surface and groundwater contamination.

Soil and water contamination can have significant consequences for local ecosystems, as even small amounts of contaminate can alter the soil and water chemistry and affect the sensitive micro-organisms and plant species that inhabit these environments. The effect of this can be damaging to individual species and populations and, if severe, to entire ecosystems.

Hazardous substances such as hydrocarbons spilled onto the site/road follow similar flow paths, but have much greater ecological impacts than other less dangerous contaminants. The degree of pollution will vary depending on the concentration entering and discharging from the storm water system.

**Construction**
The potential for soil and water contamination to occur during the construction phase of the project is high, even with mitigation. Due to the fact that the construction phase is short lived the extent of the impact will be low and locally based. The impact will have a **Moderate Negative** impact without mitigation and a **Low Negative** impact with mitigation.

**Operation**
The potential for soil and water contamination to occur during the operational phase of the project is fairly high although the extent and magnitude of the contamination will be low and small respectively. The impact will thus have a **Low Negative** impact with or without mitigation.

**Exceptional Cases**
In exceptional cases, in either the construction or operational phases, if large enough quantities of pollutants were spilt (e.g., a fuel or oil carrying vehicle overturns and spills its load onto the affected site), the magnitude of the potential impact would be significant, the extent of the impact would be far-reaching and would probably last for many years. As such, the impact significance would be expected to be high (with or without mitigation). However, the probability of such an event occurring during either phase is low, thus the potential impact would be reduced in significance, although the significance rating would probably be higher for the construction phase.

Assuming the probability of such accidents occurring is low, the potential impact of soil and water contamination on the environment during construction is considered to be of **Moderate Negative** significance without mitigation, and a **Low Negative** impact with mitigation. Soil and water contamination during operation is calculated as having the same significance impact ratings.
### Table 20: Soil and Water Contamination

<table>
<thead>
<tr>
<th>Probability</th>
<th>Construction Without Mitigation</th>
<th>Operation Without Mitigation</th>
<th>Construction With Mitigation</th>
<th>Operation With Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability</td>
<td>Definite (impact will occur regardless of any prevention measures)</td>
<td>Improbable (some possibility, but low likelihood)</td>
<td>Definite (impact will occur regardless of any prevention measures)</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>Of a very short duration (0–1 years)</td>
<td>Permanent</td>
<td>Permanent</td>
<td>Permanent</td>
</tr>
<tr>
<td>Magnitude</td>
<td>Minor and will not result in an impact on processes</td>
<td>Low and will cause a slight impact on processes</td>
<td>Minor and will not result in an impact on processes</td>
<td>Low and will cause a slight impact on processes</td>
</tr>
<tr>
<td>Extent</td>
<td>Limited to the site</td>
<td>Limited to the local area</td>
<td>Limited to the site</td>
<td>Limited to the site</td>
</tr>
<tr>
<td>Significance</td>
<td>Low</td>
<td>Moderate</td>
<td>Low</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

However, this risk increases in exceptional instances, such as when there are accidents on site which release large volumes of fuels/oils and other hazardous substances that enter the storm water system, contaminate the storm water and discharge into the environment. The probability of such accidents occurring during construction is higher than during operation with a higher magnitude of impact, particularly considering the larger construction vehicles carrying potentially hazardous construction materials. The significance rating of soil and water contamination occurring from such an accident is calculated as **High Negative without mitigation** during construction and **Moderate Negative with mitigation**. During operation, response times to such incidents would be longer and as such, the potential for contamination to occur remains similar to construction, even if the magnitude (related to contaminant and volume) of the impact was lower. Having the right mitigation plans in place, such as emergency clean-up plans, is key to minimising the potential impact and ensuring effective rehabilitation.

### Table 21: Soil and Water Contamination from Accidents on Site

<table>
<thead>
<tr>
<th>Probability</th>
<th>Construction Without Mitigation</th>
<th>Operation Without Mitigation</th>
<th>Construction With Mitigation</th>
<th>Operation With Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability</td>
<td>Definite (impact will occur regardless of any prevention measures)</td>
<td>Definite (impact will occur regardless of any prevention measures)</td>
<td>Definite (impact will occur regardless of any prevention measures)</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>Of a short duration (2-5 years)</td>
<td>Of a short duration (2-5 years)</td>
<td>Of a short duration (2-5 years)</td>
<td></td>
</tr>
<tr>
<td>Magnitude</td>
<td>Moderate and will result in processes continuing but in a modified way</td>
<td>High (processes are altered to the extent that they temporarily cease)</td>
<td>Moderate and will result in processes continuing but in a modified way</td>
<td>High (processes are altered to the extent that they temporarily cease)</td>
</tr>
<tr>
<td>Extent</td>
<td>Limited to the local area</td>
<td>Limited to the region</td>
<td>Limited to the local area</td>
<td>Limited to the region</td>
</tr>
<tr>
<td>Significance</td>
<td>Moderate</td>
<td>High</td>
<td>Moderate</td>
<td>High</td>
</tr>
</tbody>
</table>

### 8.2.2 Mitigation Options

Good environmental management practices must be followed to prevent potential contamination of soil and water resources. Typical mitigation measures should include the following:
• Safeguard hazardous substances from being stolen, vandalised, catching fire or spilling on open ground.

• Ensure storage areas are bunded to contain any leaks or spills during construction.

• Ensure that maintenance activities are undertaken in such a manner that the potential for spillage of hazardous substances is minimised.

• Install appropriate waste collection and disposal procedures and facilities.

• Adhere to all requirements of the Occupational Health and Safety Act 85 of 1993 and associated Regulations, and any amendments thereto, that are relevant for management of hazardous substances.

• Ensure the appropriate Emergency procedures and protocols are in place to be able to react quickly and effectively to accidents and to large spills during both construction and operation.

• Implement the EMP which covers the abovementioned mitigation measures appropriately.

The general mitigation measures for protection of water resources include the recommendations for protection of soil as provided in the EMP, and are therefore not repeated here. The following additional mitigation measures must be applied during the construction phase of the new road:

• Develop and implement a construction storm water management plan to ensure that all storm water collected on site is managed to minimise potential contamination.

• Provide for the contouring of the site after construction to ensure free flow of runoff and to prevent ponding of water.

8.3 Hydraulics and Storm water Control

Storm water systems which modify natural water flow paths have the potential to cause modifications of both surface and groundwater flows, which can have severe implications for adjacent aquatic systems in terms of their natural hydrological flow regimes. If not properly managed, water flows and particularly peak storm flows can cause unnaturally high water contributions to rivers and wetlands. The contribution of additional quantities of surface runoff over a much shorter period of time exacerbates the issues attributed to physical damage to aquatic ecosystems, i.e., increased erosion, sedimentation and damage to vegetation.

A storm water management plan has been commissioned (Appendix I), in order to adequately design the control measures required for efficient storm water management on site. A storm water retention or pollution control dam (PCD) is planned to be a part of this system, and will have a capacity of less than 50 000 m³. A water use license for the storage of water on site will be acquired as per the requirements of Section 21 of the National Water Act (Act No. 36 of 1998).

The storm water discharge volumes from road and working surfaces may increase as the hard surface has no capacity to absorb water, which may impact on the river systems as more water will be discharged than currently occurs (refer to Figure ).
However, there is currently no storm water system in place on the Coega IDZ-5 site and run off is thus not controlled, causing significant erosion.

Two main catchments of concern were identified based on the infrastructural plan of the project site. One clean water and one dirty water catchment. No detailed topographical survey was available. Based on 5m contour data it is clear that polluted water from the GBFSS and Cement Processing Plant area can flow into the clean natural water outside the perimeter of the project site and could pollute the natural system.

Dirty water catchment 1 was delineated according to natural topography as well as manmade infrastructure. This catchment will drain all the water in that specific area towards the specific collection point, as proposed, to the PCD. This can only occur under the condition that the general slope of the whole project site is changed so that water can drain towards the east side of the project site.

The proposed channels and canals will form the pathways along which this dirty water will be routed towards the collection point (PCD). All proposed dirty water infrastructure should be lined and designed against a 1:50 year flood event. These areas are indicated in green on Figure . Clean water sub-catchments are thus areas where natural clean rain water will drain freely into the natural environment. These areas are indicated in blue on Figure .
Figure 25: Water process flow diagram of the OSHO Cement Processing Facility
The proposed storm water management plan that will consist of bunded canals and pipes will direct all storm water to a dedicated storm water collection attenuation pond or pollution control dam (PCD), where the water will be filtered by gravitational pull and recycled into the grinding process. Water flow will be down slope, thus not requiring any pumps, etc. to be installed to manage storm water. The proposed storm water management plan will ensure that surface flow is reduced to a minimum, thus reducing the amount of erosion on-site. The design will also control discharge volumes and speeds, and will minimise the potential for erosion at the discharge points. Overall the proposed storm water plan will, have a positive impact on the environment and will also reduce the operational costs of the CGF.

The following is a short summary of the proposed SWM measures (Figure):

- Create a PCD with sufficient size (4 300m3) in the eastern corner (GN704);
- Construct 2 drains/berms at the south western and south eastern portion within catchment 1 in order to direct all dirty water to the PCD (D1 and D2);
- Construct two clean water berms. One at the northern and one eastern portion to keep clean water runoff out of the project area (B1 and B2).
- Construct two culverts. One culvert at the end of the clean water berm at the western portion of the project area (E1).to diverts clean water under the road. The second under the access road to divert the water from dirty water drain D1 to dirty water drain D2 into the PCD (E2).
Figure 26: Proposed Storm Water Infrastructure
8.3.1 Assessment and Rating

The Construction Phase of the CGF development Project should initially have a low potential impact on storm water flow. During the early stages of construction, storm water will continue to follow into natural flow paths, until such time as the storm water system redirects water flow into the intended storm water channels.

During construction the impact of hydraulics and storm water control is calculated to have a Moderately Negative significance rating without mitigation and a Low Negative rating if mitigation is implemented. For the operational phase, the impact is anticipated to have a Low Negative significance rating.

<table>
<thead>
<tr>
<th>Table 22: Hydraulics and Storm water Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
</tr>
<tr>
<td>With Mitigation</td>
</tr>
<tr>
<td>Probability</td>
</tr>
<tr>
<td>Probable (distinct possibility)</td>
</tr>
<tr>
<td>Duration</td>
</tr>
<tr>
<td>Magnitude impact on processes</td>
</tr>
<tr>
<td>Minor and will not result in processes</td>
</tr>
<tr>
<td>Magnitude impact on processes</td>
</tr>
<tr>
<td>Extent Limited to the site</td>
</tr>
<tr>
<td>Significance</td>
</tr>
<tr>
<td>Low</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Low</td>
</tr>
</tbody>
</table>

8.3.2 Mitigation Options

Mitigation measures will be implemented on site to manage storm water and recycling it for use as a resource in the grinding process. The storm water will be directed to bunded canals and pipes that will direct it to the storm water collection attenuation pond, where it will be filtered and recycled into the grinding process as a resource. The collected storm water will thus aid OSHO to lower their operational costs and reducing their demand for water from the local municipality.

8.4 Impacts on Vegetation

The site is located within an industrial development zone. The Coega IDZ conducted a number of specialist studies for all the zones within the IDZ. As such a Vegetation Impact Assessment was not conducted for the proposed Cement Grinding Facility (this project), but this assessment will draw on the information available from the Coega Development Corporation.

8.4.1 Destruction of Vegetation

No endangered or protected vegetation was identified on site. Coega IDZ has a list of plants that needs to be removed if found on site to the CDC nursery.

The list of plants includes the following:
• Aloe striata
• Haworthia translucens
• Cyrtanthus clavatus
• Cyrtanthus spiralis
• Bergeranthus addoensis
• Bergeranthus longisepalus
• Bergeranthus scapiger
• Trichodiadema bulbosum
• Cotyledon orbiculata var. flanaganii
• Euphorbia globosa
• Euphorbia meloformis
• Euphorbia stellata
• Ceropegia dubia

The CDC requires that a botanical specialist is called onto site to make a final site inspection two weeks prior to commencement of construction, and to identify which individual plants need to be removed and relocation to the CDC nursery.

The Cement Grinding Facility will implement positive vegetation-related benefits. The garden zones to be developed at the plant will be populated with fast growing indigenous species, which aims to provide habitat or nesting ground for small vertebrates and invertebrates, as well as avifauna.

8.4.2 Dust Reduction

a) Impact Description

The garden zones will serve as wind breaks in the prevailing wind direction. The wind breaks will thus reduce dust, and air pollution.

b) Assessment and Rating

The positive impact related to dust reduction has been assessed as being of Moderate Positive significance.
Table 23: Vegetation Impacts; Dust levels after construction will be reduced to a minimum

<table>
<thead>
<tr>
<th>Operations</th>
<th>Probability</th>
<th>Duration</th>
<th>Magnitude</th>
<th>Extent</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Definite</td>
<td>Lifespan</td>
<td>Moderate</td>
<td>Limited to the local area</td>
<td>[+]Moderate</td>
</tr>
</tbody>
</table>

8.4.3 Invasive Alien Vegetation

a) Impact Description

The site will be inspected on a regular basis to identify possible invasive vegetation, and to remove these plants.

b) Assessment and Rating

The positive impact related to removal and control of alien plant infestation has been assessed as being of Moderate Positive significance if a comprehensive IAP programme is implemented.

8.5 Fauna

The fauna on the Coega IDZ Zone 5 site allocated to OSHO is scarce. Many animal species were hunted to extinction in the past and the modified industrial environment within the Coega IDZ is not a hospitable habitat for faunal species to feed and pro-create.

Yet the development and operation of the Cement Grinding Facility in the Coega IDZ could disturb or harm faunal species inhabiting the site. During the construction phase of the project, fauna can be harmed directly through construction activities and poaching by construction workers. Indirectly, fauna can be affected through loss of habitat, disturbance and damage to nesting and foraging sites. During the operational phase traffic disturbance may potentially deter faunal species from moving through or inhabiting the area.

8.5.1 Assessment and Rating

All construction activities will be undertaken within the allocated construction site, and involve few impacts on the fauna. However, faunal diversity in the area remains high, although there are low numbers of threatened, sensitive and endemic species. Fauna occurring on the site could be disturbed or killed by construction activities and short term loss of habitat. Small fauna species, especially burrowing species and those that have nests on the site, could be severely affected by construction activities. Larger and more mobile species, such as birds, baboons and antelope, will leave the area when disturbed and move into the surrounding mountains. Thus, it is unlikely that they would suffer any long-term effect that they have not already experienced.
The envisaged impacts during the operational stage of the CGF development are disturbance and displacement of local fauna to the surrounding areas due to the increase in vehicles and noise generated. Fauna species currently feeding and nesting in the area may not return after construction if the vehicle traffic increases substantially, as is predicted. However, there are numerous cases where fauna become habituated to vehicles and roads, some even thriving in the environment, and do not move away.

It is anticipated that the proposed development will have a Moderate Negative impact without mitigation and Low Negative impact with mitigation. During operation of the Cement Grinding Facility, the impact on Fauna is likely to be of Low Negative significance.

It is important to note that the proposed development will have no impact on any Aquatic ecosystem in the area. The site is not located within 500m of any watercourse or aquatic system.

### Table 24: Impact on Fauna

<table>
<thead>
<tr>
<th></th>
<th>Construction</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With Mitigation</td>
<td>Without Mitigation</td>
</tr>
<tr>
<td>Probability</td>
<td>Probable (distinct possibility)</td>
<td>Probable (distinct possibility)</td>
</tr>
<tr>
<td>Duration</td>
<td>Of a short duration (2-5 years)</td>
<td>Of a short duration (2-5 years)</td>
</tr>
<tr>
<td>Magnitude</td>
<td>moderate and will result in</td>
<td>high (processes are altered</td>
</tr>
<tr>
<td></td>
<td>processes continuing but in a</td>
<td>to the extent that they</td>
</tr>
<tr>
<td></td>
<td>modified way</td>
<td>temporarily cease)</td>
</tr>
<tr>
<td>Extent</td>
<td>Limited to the site</td>
<td>Limited to the site</td>
</tr>
<tr>
<td>Significance</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low</td>
</tr>
</tbody>
</table>

#### 8.5.2 Mitigation Options

In addition to the mitigation measures identified, the following mitigation measures are recommended:

- Selected workers should be given training by the CDC on the possible fauna that may be encountered in the Coega IDZ designated area.
- These trained workers should then undertake search and recovery in each area where construction is to be initiated to look for signs of nest, burrows, etc., of any animals living in the area, and trap and remove them to another location as directed by the CDC.
8.6 Impacts on Air Quality

The proposed facility would emit a certain level of emissions into the atmosphere from the milling and packaging processes. Fugitive emissions affect ambient air quality, and are not generated from point sources or direct emissions, but rather from materials handling, vehicle entrained dust, etc. This was investigated further in the Air Quality Impact Assessment Report (Appendix D1). As such the following potential impacts have been identified for further investigation.

- Crushing of raw material such as Limestone/secondary extender, gypsum and clinker may have fugitive emissions.
- Raw materials handling has the potential for emissions (including offloading of material at the port and on site).
- Packaging and dispatch of cement has the potential to contribute to poor air quality.

The air quality in the vicinity of CGF development could be affected by the proposed construction and operation of the development in two ways:

- Dust generation associated with construction, excavation and operational activities
- Crushing of raw materials.

Dust is primarily generated during clearing of vegetation, earthmoving activities and vehicles on site travelling on the gravel roads. Soil stockpiles on site are also dust generators, as the loose material is easily erodible in a high wind area such as the Proposed Project area. Fugitive dust generation can also result from materials handling activities at both the proposed OSHO facility, as well as at the Port during offloading of material for transport to the plant.

All motorised vehicles emit exhaust gases which pollute the air and affect the air quality around and within the affected area. During the construction phase emissions will be primarily from the exhaust of construction plant machinery and large material delivery vehicles.

Both dust and vehicle emissions can potentially have an impact on human health if inhaled for extended periods. In the context of this project, the impact is more related to irritation of the respiratory system when inhaled and the associated nuisance factor.

8.6.1 Assessment and Rating

In assessing the potential impact related to the project, it was identified that dust generation during construction and operation could affect plant reproduction, hinder growth or cause the death of plants. How much dust will be produced is difficult to measure as the levels of dust generated are dependent on the time of year, the intensity of the activity and the prevailing winds at the time of construction. The impact of dust also depends on the wind direction and the relative locations of dust sources and receptors.
Dust may be generated during construction of and in the operation of a cement manufacturing plant. During construction dust most often arises from vehicle movements on unsealed roads and from earthmoving operations using construction plant such as excavators. During operation of a Cement Grinding Facility (CGF) dust particles may be emitted from the following processes/activities:

- Grinding and blending operations
- Raw material storage
- Packing
- Transport between the processes
- Transport to and from the site

Data programmes modelling the dispersion can be an efficient tool when predicting the future impact from cement manufacturing plants. In order to estimate ground level concentrations for each study pollutant, an atmospheric dispersion modelling study has been undertaken using USEPA AERMOD (Version 7). AERMOD is a straight-line, steady-state Gaussian plume model that can model the dispersion of pollutants over rural and urban areas, flat and complex terrain. AERMOD considers surface and elevated releases, and multiple sources (including, point, area and volume sources) to determine ground level pollutant concentrations at specified receptor points.

Considering the location of the CGF development (open, expansive environment with high winds and regular rainfall), dispersion of the fumes and dust during both the construction and operation of the upgrade is expected to be relatively swift and efficient, with little opportunity to be a nuisance or impedance to the environment or road users. During the construction phase, when impacts to air quality will be at their highest, the air quality impact significance rating is calculated as Low Negative with or without mitigation. Operational values indicate an impact significance of Low Negative.

<table>
<thead>
<tr>
<th>Table 25: Air Quality</th>
<th>Construction</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>With Mitigation</strong></td>
<td><strong>Without Mitigation</strong></td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>Definite (impact will occur</td>
<td>Definite (impact will occur</td>
</tr>
<tr>
<td></td>
<td>regardless of any prevention</td>
<td>regardless of any prevention</td>
</tr>
<tr>
<td></td>
<td>measures)</td>
<td>measures)</td>
</tr>
<tr>
<td>Duration</td>
<td>Of a short duration (2-5 years)</td>
<td>Of a short duration (2-5 years)</td>
</tr>
<tr>
<td>Magnitude</td>
<td>Minor and will not result in</td>
<td>Minor and will not result in</td>
</tr>
<tr>
<td></td>
<td>an impact on processes</td>
<td>an impact on processes</td>
</tr>
<tr>
<td>Extent</td>
<td>Limited to the site</td>
<td>Limited to the site</td>
</tr>
<tr>
<td>Significance</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Low Negative
8.6.2 Mitigation Options

- OSHO intends implementing the use of Eco Hoppers to mitigate against fugitive dust generated at the port during offloading of raw materials. A brochure explaining how the Eco Hopper functions is attached to this report as Appendix I.
- Control dust arising from construction operations and activities, through regular spraying of working/exposed areas. The source of the water is proposed to be storm water. This will however be confirmed within the Final EIR which will be made available for public review.
- Avoid the excavation, handling and transport of erodible materials under high wind conditions.
- Soil stockpiles shall be wetted and/or sheltered from the wind, as required.
- All plant machinery must be maintained in good working order to ensure efficient burning of fuel to minimise emissions.
- No fires outside of the permitted and designated area within the construction camp allowed.
- Mitigation measures for the air pollution are more broadly discussed in the Environmental Management Plan. Refer to Appendix F.
- However, basic housekeeping procedures during construction will have a major impact on the potential impact of air pollution. Dust suppression through water sprayers are a good mitigation measures to implement to reduce the impacts of air pollution.

8.7 Noise

The potential sources of noise associated with a development need to be identified; these are likely to include:

- Construction noise (e.g. blasting, pile driving, compressors, etc.)
- Operation noise (e.g. vehicle movements and from operation of the conveyors, the mills and grinders and packing machinery, both within and outside the factory).

A Mill Noise Level Report developed for both the proposed Coega and Empangeni Cement Grinding Facilities has been undertaken. This study indicates that OSHO’s preferred technology alternative of the Vertical Roller Mill will have a lower noise impact compared to a Ball Mill and Roller Press Ball Mill. Current CDC guidelines also indicate that noise on site should not exceed 70 dBA on the boundary of the investor’s site during the day and 60dBA at night.

Identified receptors for the site include:

- The residents in the town of Motherwell (~6km west of the proposed development site).
- The residents in the town of Colchester/Sunday’s River (~20km North East of the proposed development site).
- The industrial manufacturers situated in the neighbouring vicinity (Markman Industrial and Coega IDZ)
- The Coega Main Office (~2km South East of the proposed development site.)
- The Port of Ngqura (~4km South East of the proposed development site.)
- The Addo National Elephant Park (AENP) (~40km north of the proposed development site). As well as the southern gate to the AENP located to the east of the IDZ.

In the event of a significant future impact for particular receptors and resources, an assessment will need to be made of:

- Baseline conditions (including relevant meteorological and topographical factors, and existing major sources of noise);
- Proposed working hours during construction and operation;
- Where these impacts will be most important (e.g. housing areas and sensitive natural areas).
- Data programmes modelling the noise level can help predicting the future impacts.

8.7.1 Assessment and Rating

Application of the impact significance ratings for noise (nuisance) impacts suggests that during construction without mitigation, the rating for noise will be Moderate Negative with or without mitigation. During operation, the anticipated noise impact significance rating is calculated as Low Negative. It should be noted that these ratings are calculated assuming a 0 base level.

<table>
<thead>
<tr>
<th>Table 26: Noise (Nuisance)</th>
<th>Construction</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With Mitigation</td>
<td>Without Mitigation</td>
</tr>
<tr>
<td>Probability</td>
<td>Definite (impact will occur regardless of any prevention measures)</td>
<td>Definite (impact will occur regardless of any prevention measures)</td>
</tr>
<tr>
<td>Duration</td>
<td>Of a short duration (2-5 years)</td>
<td>Of a short duration (2-5 years)</td>
</tr>
<tr>
<td>Magnitude</td>
<td>Low and will cause a slight impact on processes</td>
<td>Low and will cause a slight impact on processes</td>
</tr>
<tr>
<td>Extent</td>
<td>Limited to the site</td>
<td>Limited to the site</td>
</tr>
<tr>
<td>Significance</td>
<td>Moderate</td>
<td>Low</td>
</tr>
</tbody>
</table>
8.7.2 Mitigation Options

The following mitigation measures should be put in place to reduce the severity of noise impacts:

- The speed limit imposed should not be exceeded. Where opportunities exist to exceed the limit, measures should be put in place to reduce speeds.
- Noise barriers could be erected at the sections of the construction site where noise is likely to reverberate.
- The noise buffering capabilities/capacities of the natural topography should be taking into consideration during the design phase.
- During construction keep noise levels within acceptable limits in compliance with all relevant guidelines and regulations.
- All vehicles and machinery shall be fitted with appropriate silencing technology that shall be properly maintained.
- If the reverse warning beeping of heavy earthmoving vehicles can be changed, they must be set at such a level that the beeping sound does not create a nuisance.
- The use of all plant and machinery shall be appropriate to the task required in order to reduce noise levels and/or environmental damage.
- The Contractor should endeavour to keep noise generating activities to a minimum.
- The Contractor should warn any local communities and/or residents that could be disturbed by noise generating activities, such as blasting, well in advance and shall keep such activities to a minimum.
- The Contractor should be responsible for compliance with the relevant legislation with respect to noise.

8.8 Impact on Tourism

The Coega IDZ is a demarcated industrial zone, and there is no tourism attraction located near Zone 5. The proposed development will thus have no impact on tourism.

8.9 Social Impacts and Issues

The proposed development and operation of a Cement Grinding Facility on Coega IDZ Zone 5 will have a moderate positive impact on the surrounding social environment. The number of jobs created both during construction and operation, will result in cash injection and potential further investment into the Nelson Mandela Bay Municipality.
8.9.1 Socio-economic Impacts from Changes to the Local Economy

a) Impact Description

(i) Job Creation

An estimated 20 to 25 skilled jobs and 320 unskilled jobs are anticipated to be created directly by the construction activities of the cement grinding facility, and 79 permanent and 90 casual positions created during the operational phase of the plant. As far as reasonably possible, OSHO has committed to source labour locally.

There will be a long term benefit, and creation of jobs by the CGF. Unskilled labourers will also be trained and educated on how to use the various technologies and machinery on site.

b) Quality of Services and Infrastructure

All services needed on site will be provided and delivered to the boundary of the site by the CDC. Infrastructure is already in place and in a good condition.

8.9.2 Change to Quality of Life of Local Residents

Quality of life is influenced by the level of enjoyment and fulfilment derived by individuals from the life they live within their local economic, cultural, social, and environmental conditions, and is often closely associated with the sense of place.

The increased number of jobs created both during construction and operation will add to the quality of life on residents in the NMBM.

8.9.3 Assessment and Rating

There are potential benefits for quality of life associated with the number of potential jobs that will be created.

The change to quality of life for local residents has been assessed as being of Moderate Positive.

Table 27: Social Impact and Issues: Increased Quality for Life for Some Local Residents in Medium to Long Term

<table>
<thead>
<tr>
<th></th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With Mitigation</td>
</tr>
<tr>
<td>Probability</td>
<td>Very Improbable</td>
</tr>
<tr>
<td>Duration</td>
<td>Lifespan</td>
</tr>
<tr>
<td>Magnitude</td>
<td>Moderate</td>
</tr>
<tr>
<td>Extent</td>
<td>Limited to the local area</td>
</tr>
<tr>
<td>Significance</td>
<td>Low</td>
</tr>
</tbody>
</table>
8.9.4 Mitigation Options

As with impacts to sense of place, the impacts to quality of life cannot easily be regained through mitigation. Mitigation could be attempted through offsets, for example maximising socio-economic benefits to the affected communities during the construction phase through jobs and economic spin offs.

Mitigation measures could also be put into place during the construction phase to ensure careful management and planning of operations to minimise potential impacts to services and infrastructure and crime and security.

8.10 Impacts to NMBM

The proposed development and operation of Cement Grinding Facility, it is likely to impact on the residents of the NMBM in the following ways:

- The biggest impact of the proposed development will be the creation of jobs.

8.10.1 Impacts during Construction

The only real impact during construction will be the increased number of construction vehicles on the road, as well senior staff from OSHO and designers staying in Hotels.

8.10.2 Impacts during Operation

The impacts during Operation will be the increased number of delivery vehicles going to and from the site. Another impact that will come from the start of operation is the increased flow of money in the local economy. OSHO is planning to employ approximately 100 full staff members that will work on an eight hour shift cycle.

8.11 Impacts on Cultural Heritage Resources

In fulfilment of the requirements of the National Heritage Resources Act 25 of 1999 (NHRA) and also to inform the EIA, the CDC commissioned a Phase 1 Archaeological Heritage Impact Assessment for Zone 5, which was conducted by Dr Johan Binneman on behalf of Eastern Cape Heritage Consultants.

The objective of the study was to undertake a detailed site survey and gain an overall understanding of the heritage sensitivities of the Coega IDZ zone 5 within which the Cement Grinding Facility would be developed and indicate how, if any, heritage resources may be impacted or enhanced through development activities. The study was conducted using the following approach:

The aforementioned report concluded that “Large areas have been cleared of the dense vegetation which covers most of Zone 5. Nevertheless, it would appear that in general the proposed area for development is of low cultural sensitivity. It is unlikely
that any archaeological sites/material would be located during development (apart from the stone tools already mentioned). However, possible archaeological sites such as shell middens, human remains and other archaeological material may be exposed after the top soil is removed, or when trenches are dug in the calcrete”.

The HIA focussed on identifying potential impacts on physical cultural properties, including historical and archaeological resources, as well as intangible (living) heritage associated with the Coega IDZ and surrounds. For the purpose of the HIA, the project area was approached as a coherent Cultural Landscape, which facilitated the HIA to draw informative conclusions and effective recommendations. The cultural landscape is thus seen as a geographic area, encompassing both natural and cultural resources associated with prehistoric, historic and contemporary events that are significant in the local history of the area.

8.11.1 Assessment and Rating

Cognisant of the above study, no further assessment for heritage resources would be required considering the area being of low cultural significance, however considering the potential of uncovering possible archaeological sites. The environmental management plan of the proposed CGF would outline procedures required in the event that any heritage resources are identified during site clearance for the proposed development.

8.11.2 Mitigation Recommendations

- It is strongly recommended that the construction contractor aim to minimise the project’s footprint on the landscape, particularly the road side scarring and ensuring that the upgrade utilizes the existing road servitude.
- Construction camps during construction phase should be approved as part of the project EMP and monitored to ensure that no archaeological or historic sites will be affected.

8.12 Impacts on Traffic Infrastructure

- The increased number of vehicles both during construction and operation is relatively small. The increased traffic on Neptune road will not severely impact any other tenants in the IDZ. However, as the IDZ is gradually filling up, the increased number of vehicles might have a cumulative impact in future.

The construction and operations of the proposed production facilities will generate additional traffic on the surrounding road network within the study area. The existing road network is operating at well below its capacity during the AM and PM commuter peak periods. As such, the road network has sufficient capacity to handle the low volume of additional traffic that will be generated by the proposed construction and operations of the new OSHO Cement Plant.

- A new access intersection is proposed off the unnamed road between Cable Road and Neptune Road that will provide direct access to the new plant. This
new access intersection will not impinge on the efficiency of the intersecting road.

- The additional traffic that will be generated by the constructional and the operational activities of the proposed production facilities will have a minimal impact on the existing space available for pedestrians and cyclists. There were no pedestrians observed on the surrounding network. The additional traffic volumes will not create any conflict.

8.12.1 Assessment and Rating

The construction and operations of the new proposed OSHO Cement facility will have a negligible impact on the surrounding road network.

Given the low overall rating of this impact for both the construction and operational phases, no mitigation measures are required as the project will generate very low volumes of traffic which will not adversely impact on the existing levels of service on the surrounding road network.
Table 28: Traffic Infrastructure Impact Rating

<table>
<thead>
<tr>
<th></th>
<th>Construction With Mitigation</th>
<th>Construction Without Mitigation</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Probability</strong></td>
<td>Definite (impact will occur</td>
<td>Definite (impact will occur</td>
<td>Probable (distinct possibility)</td>
</tr>
<tr>
<td></td>
<td>regardless of any prevention</td>
<td>regardless of any prevention</td>
<td></td>
</tr>
<tr>
<td></td>
<td>measures)</td>
<td>measures)</td>
<td></td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>Of a short duration (2-5</td>
<td>Of a short duration (2-5 years)</td>
<td>Permanent</td>
</tr>
<tr>
<td></td>
<td>years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Magnitude</strong></td>
<td>Low and will cause a slight</td>
<td>Low and will cause a slight</td>
<td>Minor and will not result in an</td>
</tr>
<tr>
<td></td>
<td>impact on processes</td>
<td>impact on processes</td>
<td>impact on processes</td>
</tr>
<tr>
<td><strong>Extent</strong></td>
<td>Limited to the site</td>
<td>Limited to the site</td>
<td>Limited to the site</td>
</tr>
<tr>
<td><strong>Significance</strong></td>
<td>Moderate</td>
<td>Moderate</td>
<td>Low</td>
</tr>
</tbody>
</table>

8.13 Cumulative Impacts

In terms of Regulation 29 of the EIA Regulations which describes the contents of an Environmental Impact Assessment Report, sub-regulation (f) states that the report must contain “a description and assessment of environmental issues and potential impacts, including cumulative impacts that have been identified.” The NEMA EIA Regulations define ‘cumulative impact’ as follows: “in relation to an activity, means the impact of an activity that, in itself, may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.” These activities may be past, present or future.

- While the proposed activity will be taking place in an area zoned for industrial development, the cumulative impacts have been considered in terms of the air quality and traffic impacts of the activity. The incremental change in air quality as a result of the proposed CGF has been assessed and determined to have a low negative impact (with mitigation) on the entire IDZ. Traffic impacts are also considered to be low, as existing traffic infrastructure in the IDZ is designed for heavy machinery and increased traffic (deliveries etc.).

- The cumulative environmental impacts of the CGF are considered to be low-medium, as per the findings of the specialist studies.
8.14 Environmental Management Programme

The purpose of the Environmental Management Programme (EMP) is to control the impacts of construction and operational activities. The effective implementation of an EMP will ensure that the required works are conducted in an environmentally sound manner, and that the potential negative impacts of construction and operational activities are minimised and/or prevented.

The Draft EMP document attached as Appendix F, details the responsibilities and authority of the various parties involved in the project, and contains Environmental Specifications to which the Contractor and Operator are required to adhere, throughout the duration of the construction and operational phases. The Draft EMP will cover impacts that have been identified in the EIA Process and which could potentially arise during the construction and/or operation of the Cement Grinding Facility and includes project and site specific recommendations from the specialist studies. The Draft EMP will cover the following aspects:

- Project background information
- Identification/listing of project and operational activities
- Implementation and operational instructions
- Roles and responsibilities of parties with regard to environmental management
- Environmental training and awareness material for construction staff
- Environmental specifications, e.g., protection of biodiversity and sensitive environments, rehabilitation, public safety and perceptions, traffic control, material and waste management, litter, containment and disposal of hazardous substances (e.g., paints, waste oils) etc.
- Measurement of compliance with the EMP.

Education of the labour force is also an important component of the Programme as through understanding and awareness, the construction workers not only reduce their destructive habits but practice basic environmental protection. In this way, confidence in the mitigated impact rating as determined for each impact, can be improved. The monitoring and auditing of the construction and operational phases of the project against the EMP further ensures that where impacts or non-compliances are identified, they are documented and corrective measures implemented immediately to stop or prevent further impacts from occurring.
9. CONCLUSION AND RECOMMENDATIONS

OSHO Cement (Pty) Ltd (OSHO) proposes to develop a cement grinding facility (CGF) with associated infrastructure at the Coega Industrial Development Zone (IDZ), which is located within the Nelson Mandela Bay Municipality, Port Elizabeth.

The site identified for the CGF is approximately 11.5 ha in extent. The purpose of the CGF is to produce cement. It is anticipated that the CGF would produce 150 tons of cement per hour with storage facilities accommodating up to 20,000 tons of cement and a combined capacity of 100,000 tons of clinker and GBFS. In order for the proposed development to proceed, Environmental Authorisation is required from the Department of Economic Development, Environmental Affairs and Tourism: Cacadu Region (DEDEAT). Environmental Authorisation is issued subsequent to the undertaking of an Environmental Impact Assessment (EIA).

OSHO Cement, as the project proponent, has appointed GIBB (Pty) Ltd (GIBB) as the independent Environmental Assessment Practitioner (EAP) to undertake the EIA for the proposed development and construction and installation of associated infrastructure.

This Environmental Impact Assessment Report (EIR) constitutes the culmination of the first phase of the EIA: the Scoping Phase. The Scoping Phase aimed to:

- Investigate and gather information on the proposed site, in order to establish an understanding of the area;
- Establish how the proposed development activities will potentially impact on the environment;
- Identify the Interested and Affected Parties (IAPs) by undertaking a Public Participation Process (PPP). Note: An I&AP is a person that is interested and/or affected by the proposed development;
- Identify potential environmental impacts through investigation and PPP; and
- Describe potential alternatives.
9.1 Comparison of Alternatives

9.1.1 Technology Alternative

The vertical roller mill consists of horizontal rollers running over a grooved rotating table. The large particles are forced between the rollers and the table and fractured into far smaller particles in the process. The ground particles are lifted by an air current sweeping through the mill into an integrated separator above the mill. The separator returns insufficiently ground particles back to the grinding table and releases the fine ones to a down-stream bag filter where they are separated from the dust laden air. Refer to Appendix C for vertical roller mill layout.

The Vertical Roller Mill is the preferred alternative based on the following reasons:

- More Fuel efficient
- Less Noise produced during use

The other alternatives are more cost effective, in other words cheaper to purchase and operate, but OSHO decided to go with the more environmentally friendly and green conscience alternative.

9.1.2 Storage Alternatives

The option to store GBFS in a completely enclosed shed is not preferred, as this will result in logistical problems in terms of offloading from large trucks. OSHO has therefore investigated alternative materials for enclosure, which includes dust netting. The option for the use of dust netting includes:

- Utilising dust netting/steel mesh to enclose the stockpile on three sides with the opening away from the prevailing wind direction.

- Utilising dust netting/steel mesh to enclose the stockpile on three sides with the opening away from the prevailing wind direction with an additional windbreak(trees) on the outside of the netting or mesh.

9.1.3 Process Alternatives

The preferred alternative to grind both GBFS and clinker is the most economically viable option, as the use of alternative extender material, in place of natural extenders such as limestone/secondary extender reduces the demand on non-renewable natural resources. Grinding clinker only also limits the type and grade of product the plant will be able to produce, as clinker only produces Portland cement, which is high quality cement used for construction of skyscrapers. This high quality cement is also more expensive and limits the market that OSHO aims to target in terms of supplying cement in the Eastern Cape.
9.1.4 Transportation Alternatives

Transportation via bulk trucks is the preferred alternative at this stage of the project, as it is the easiest and most feasible means of transporting material to the storage facility. Transportation via rail wagons is not preferred as it would mean double handling of the material will take place as well as exacerbate fugitive dust emissions being released into the air. As far as the conveyor system is concerned, it is not anticipated that this option is viable at this point in time at this phase of the project but will be considered in future phases of the project for implementation.

9.1.5 No Go Option

The No Go alternative assesses the possibility of not developing the proposed project and commencing with the associated activities. It has been identified that if the proposed project and associated activities do not proceed, it will have a negative impact on the potential for employment and job opportunities as well as result in a lack of stimulation of competition in the Eastern Cape cement market.

9.2 Impact Statement

The impact significance ratings generated for the impacts assessed by the EAP and specialists in the sections above, have been summarised into the two tables for the construction and operational phases, presented below for comparative purposes. The impacts and associated ratings are presented as either construction or operation phase impacts, with or without the application of mitigation measures. The main objective of the integration process is to provide a holistic evaluation of the potential biological, physical, social, economic, heritage and visual impacts of the CGF development and operation.

NOTE: While a standardised impact rating method was prescribed, some of the specialist studies used alternative rating methodologies or systems, which were more appropriate to the specific field and therefore more accurately reflected the true significance rating. These studies included the Traffic Impact Assessment, the Air Quality Impact Assessment and the Cultural Heritage Impact Assessment.

In the case of the Regional and International Scale Economic Impact Assessment, the significance rating is based on a comparative assessment of the Proposed Project vs. a) the status quo situation.
Table 22 reflects the impact significance rating system used in the impact assessment, while Table 23 (Construction Phase), Table 24 (Operational Phase) and the subsections below provide a summary description of the various environmental impact studies and assessments, as well as the cumulative impacts.

**Table 29: Impacts Significance Rating**

<table>
<thead>
<tr>
<th>SP</th>
<th>-ve Rating</th>
<th>Definition</th>
<th>+ve Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>NO IMPACT LOW</td>
<td>A potential concern or impact, which, upon evaluation, is found to have no significant impact</td>
<td>NO IMPACT LOW</td>
</tr>
<tr>
<td>&lt;30</td>
<td>VERY LOW - LOW</td>
<td>Impacts will be localised and temporary. Impacts result in minor alterations to the environment and can easily be alleviated by the implementation of effective mitigation measures.</td>
<td>[+]&amp;VERY LOW - LOW</td>
</tr>
<tr>
<td>31-60</td>
<td>MODERATE</td>
<td>Impacts of moderate magnitude locally to regionally in the short term. The impact results in medium alterations to the environment and can be reduced or eliminated by the implementation of effective mitigation measures.</td>
<td>[+]&amp;MODERATE</td>
</tr>
<tr>
<td>&gt;60</td>
<td>HIGH</td>
<td>Impacts of high magnitude locally for longer than 6 years and/or regionally and beyond. The impact results in major alterations to the environment even if effective mitigation measures are implemented and will have an influence on decision-making.</td>
<td>[+]&amp;HIGH</td>
</tr>
</tbody>
</table>

**Table 30: Summary Table of Impact Significance Ratings as determined by Specialist Studies for the Construction Phase of the Preferred Option**

<table>
<thead>
<tr>
<th>Impact</th>
<th>Impact Significance Rating</th>
<th>Without mitigation</th>
<th>With mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Pollution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General waste generated by construction and operational activities</td>
<td>Low</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Soil and Water Contamination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials management</td>
<td>Low</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Hydraulics and Storm Water Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runoff and soil erosion</td>
<td>Moderate</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Vegetation Impacts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss or fragmentation of indigenous natural vegetation</td>
<td>Moderate</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Fauna</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Habitat disruption</td>
<td>Moderate</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Avifaunal Impacts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destruction &amp; Degradation of Avifaunal Habitats</td>
<td>Moderate</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Disturbance of Avifaunal Species</td>
<td>Low</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Impacts on Aquatic Environment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sedimentation</td>
<td>High</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Modified Water Chemistry</td>
<td>Low</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Modified Hydrology</td>
<td>Moderate</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Physical Destruction of Habitat</td>
<td>Low</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Erosion</td>
<td>High</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Air Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dust generation from materials handling, crushing and milling operations</td>
<td>Low</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Reduced air quality</td>
<td>Low</td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>
### Noise
- Construction activities and equipment: Moderate → Moderate

### Impact on Tourism
- Industry impact on tourism: Low → Low

### Social Impacts
- Reduction in Quality for Life for Some Local Residents in Short to Medium Term: Low → Low
- Improved Socio-Economic Conditions for Residents in the NMBM: High → High

### Impacts to NMBM
- Increased job creation: Moderate → Moderate
- Increased traffic volumes from delivery vehicles: Moderate → Low

### Local Scale Economic Impacts
- Construction: Direct Construction Impacts: Moderate → Moderate
- Construction: Secondary Construction Impacts: Moderate → Moderate

### Cultural Heritage Impacts
- Natural resources: Medium → Low

### Impacts on Traffic Infrastructure
- Traffic congestion: Moderate → Low

---

**Table 31: Summary Table of Impact Significance Ratings as determined by Specialist Studies for the Operational Phase of the Preferred Option**

<table>
<thead>
<tr>
<th>Impact</th>
<th>Impact Significance Rating</th>
<th>Without mitigation</th>
<th>With mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil and Water Contamination</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials Management</td>
<td>Moderate → Low</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Vegetation Impacts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss or fragmentation of indigenous natural vegetation</td>
<td>Moderate → Low</td>
<td>Moderate → Low</td>
<td></td>
</tr>
<tr>
<td>Hydraulics and Storm water Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sedimentation</td>
<td>High → High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modified Water Chemistry</td>
<td>Low → Low</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Modified Hydrology</td>
<td>Moderate → Moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Destruction of Habitat</td>
<td></td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Loss of biodiversity</td>
<td>Low → Low</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Avifaunal Impacts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bird Mortalities due to noise and air-pollution</td>
<td>Moderate → Low</td>
<td>Moderate → Low</td>
<td></td>
</tr>
<tr>
<td>Social Impacts &amp; Issues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduction in Quality for Life for Some Local Residents in Short to Medium Term</td>
<td>Low → Low</td>
<td>Moderate → Low</td>
<td></td>
</tr>
<tr>
<td>Improved Socio-Economic Conditions for Residents in the NMBM</td>
<td>High → High</td>
<td>High → High</td>
<td></td>
</tr>
<tr>
<td>Local Scale Economic Impacts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>Moderate → High</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Indirect economic stimuli</td>
<td>High → High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Regional and International Scale Economic Impacts</td>
<td>vs. status quo vs. no go</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>High → Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Direct construction impacts</td>
<td>High → High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Employment</td>
<td>High → Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Payment to low-income households</td>
<td></td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Net impact</td>
<td>High → Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Visual / Aesthetic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without mitigation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With mitigation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetics</td>
<td>High → High</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

---
### 9.3 Findings vs. Motivation

In determining whether or not the proposed development should receive environmental approval, one needs to bare the project motivation in mind, and based on the completed assessment, review the findings against the motivation to determine whether or not the project is justified.

The motivation for the authorisation to develop and operate a CGF in Coega IDZ, zone 5, includes the following considerations:

- The development and operation of a CGF in Coega IDZ zone 5 will have no overall negative impact on the site, or on the surrounding environment.

The EIA identified that the CGF will have a positive impact on the environment. All storm water will be collected in bunded canals and pipes, and recycled into the grinding process. This thus reduces soil erosion on-site. Possible Air pollution will be counter-acted by planting a series of wind-breaks along the edge of the site in the path of the prevailing winds. These trees and shrubs will be fast growing indigenous species, which will also benefit bird, insect and amphibian species. Furthermore, vegetation cleared can be held in the Coega Nursery and used in landscaping or directly transplanted into the proposed garden zones.

The economic benefit of the proposed CGF is far reaching, the biggest benefit being the number of jobs created. During construction approximately 350 temporary jobs will be created and during the operational phase approximately 250 permanent jobs will be created. The creation of permanent jobs will have a broad-based positive impact on the surrounding area, and boost the economy of Motherwell and Port Elizabeth.

In terms of the EIA findings, if the proposed CGF is constructed, these economic and environmental benefits can be realised - provided the recommendations of the project team and specialists are implemented.

<table>
<thead>
<tr>
<th>CGF operational Impacts</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Pollution</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Soil and Water Contamination</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Impact on Fauna</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Noise (Nuisance Impact)</td>
<td>Moderate</td>
<td>Low</td>
</tr>
</tbody>
</table>
9.4 Recommendations

The following recommendations should be considered in the DEDEA’s review of the EIA for the proposed development and operation of a CGF. The list excludes those that have been incorporated into the EMP.

9.4.1 General

- Activities which trigger additional listed activities not assessed in this EIA should be subject to additional environmental investigation.
- Where it is practical from a facility design perspective, the mitigation measures specific to the approved alignments prescribed by the specialists should be implemented.
- In terms of design, measures should be incorporated to allow for the retention of existing natural, aesthetic and cultural features where appropriate.
- OSHO should commit to a timeframe in which to build the CGF. This should be communicated to all registered IAPs such that forward planning on their behalf can continue in anticipation of the completion.
- The Draft EMP included in this submission should be updated and approved by a suitably qualified EAP prior to any construction commencing.
- The EMP must include the conditions of authorisation, as well as any other statutory conditions, and should include those mitigation measures that are specific to the approved project.
- Environmental training should be carried out at regular intervals to keep the contractor up to date with the latest EMP updates, working area specific recommendations and precautions as construction work commences.
- The EMP should guide and advise the contractor on environmental training of labourers.

9.4.2 Vegetation

- Plant rescue work must be planned well in advance of construction to ensure that the summer months are utilised to the maximum for growing rescued material.
- A plant rescue plan must proceed well in advance of construction, with careful removal of plants, topsoil (removed as sods) and collection of seed and natural mulch from the adjacent grassland under supervision of the CDC and the ECO.
- Seed collection may need to take place considerably earlier dependent on the time of year when construction takes place, and the time since last flowering. As previously mentioned the existing indigenous vegetation on site being removed can be held in the Coega Nursery and used in landscaping or directly transplanted into the proposed garden zones.
9.4.3 Aquatic

- Appropriate measures must be put in place to minimise erosion and the amount of sediment entering rivers and wetlands, particularly during the construction phase when the risk of such impacts will be high.
- It is important that the well vegetated buffer areas surrounding aquatic systems are maintained.
- The length of time for which bare soil surfaces remain exposed to the elements needs to be limited. Immediate steps should be put in place to provide temporary cover/ protection and ultimately to vegetate such areas as soon as possible.
- During both construction and operation, it is important that any accidental spills of fuels, construction materials, chemicals, effluents or other harmful substances are reported and acted upon immediately. Effective remediation and clean-up strategies and procedures need to be implemented.
- Construction camps, equipment storage sites, batching plants and ablution facilities serving the construction phase should be sited a reasonable distance away from aquatic systems. Suitable buffer distances would need to be informed by a detailed site assessment for each individual situation.
- Where aquatic ecosystems are impacted by construction activities, necessary action needs to be taken to fully rehabilitate the sites.
- An appropriate storm water management plan must be designed and implemented during the operation phase, to control significant changes in hydrology to receiving aquatic systems.

9.4.4 Fauna and Avifauna

- Care needs to be taken during the construction phase to limit the footprint of road construction as far as possible, especially during the establishment of construction camps, haul roads and tracks needed for construction purposes.
- Minimise the presence of attractive bird perch and breeding sites within the road reserve to reduce mortalities.

9.4.5 Social

- Maximise socio-economic benefits to the affected communities during the construction phase through jobs and economic spin-offs.
- Maximise the purchase of materials and equipment from local suppliers.
- Maximise employment opportunities for local people through preferential employment strategies.
- Implement skills development and training programmes to assist unskilled workers employed during the construction phase in setting themselves up as SMMEs, or to be in a better position to seek employment in other sectors, once the CGF construction is completed.
- Consult with local residents’ associations to develop management procedures to manage worker villages and the expectations around employment opportunities, in order to minimise safety and security concerns and risks.
• Consult with local authorities on the planning and siting of the construction workers’ villages, and the supply of services to these villages (e.g., water, solid waste disposal, etc.).

• Implement measures during the construction phase to ensure careful management and planning of operations to minimise potential impacts to services and infrastructure, and crime and security.

9.4.6 Local Based Economic

• Ensure the rapid implementation of the project (no delays or “stops & starts”).

9.4.7 Visual

• All existing large trees that fall outside the construction area must be retained. These will assist in softening the forms of the structures and obscure views to them.

9.4.8 Heritage

• Ensure that if any signs of an archaeological valuable site are found, the necessary specialists are called in to assess the situation.

9.4.9 Waste Pollution

• Ensure appropriate and effective waste management plans are compiled for both the construction and operational phases of the project.

• Each plan should also provide extensive detail and instruction on rehabilitation after an incident.

9.4.10 Soil and Water Contamination

• Ensure that maintenance activities are undertaken in such a manner that the potential for spillage of hazardous substances is minimised.

• Install appropriate waste collection and disposal procedures and facilities.

• Adhere to all requirements of the Occupational Health and Safety Act and associated Regulations, and any amendments thereto, that are relevant for management of hazardous substances.

• Develop and implement a construction storm water management plan to ensure that all storm water collected on site is managed to minimise potential contamination.

9.4.11 Air Quality

• During construction the Site needs to be wetted and shade cloth used to reduce fugitive dust emissions.
• After construction and during operation OSHO will establish windbreaks and
gardens along the site borders in the path of the prevailing winds, to minimise
dust storms, which in-directly reduces air-pollution.

9.4.12 Noise

• Coega IDZ Zone 5 is situation within an industrial demarcated area. There will
thus be ambient noise, both during construction and operation. The proponent
will adhere to CDC noise level guidelines and requirements.

9.5 Recommendation of the Environmental Assessment Practitioner

It is the recommendation of GIBB that the project, as proposed by OSHO, to develop
and operate a Cement Grinding Facility, be granted Environmental Authorisation
subject to implementation of the recommendations provided in the EIR. This
recommendation is based on GIBB’s understanding of the project scope, familiarity
with the issues and concerns, insight into the historic, current and future
environmental impacts, and experience in undertaking EIAs. GIBB could find no fatal
flaws in the Proponents preferred Construction and Operational methods and thus
recommends that the Proposed Project to develop and operate a Cement Grinding
Facility be authorised.
10. WAY FORWARD

The way forward, entails making the Draft Environmental Impact Assessment (DEIR) available for public and stakeholder review and comment. Comments received will then be incorporated into the Final Environmental Impact Assessment Report (FEIR).

The FEIR will then be made available for public review, and then submitted to the DEDEAT for consideration. The Department will, after reviewing the content of the report notify the EAP and proponent of the decision. This decision must then be communicated to all registered stakeholders within the stipulated timeframe together with the details of the appeal process.
11. REFERENCES

Statistics South Africa: 28 March-1 April 2005

Coega Development Corporation: Coega industrial Development Zone, Eastern Cape

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Coastal & Environmental Services (Pty) Ltd; Environmental Impact Assessment for
the rezoning of the core development area from agriculture to special purposes


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National Energy Act (Act 34 of 2008)

The Promotion of Administrative Justice Act (Act 3 of 2000)

Environmental Conservation Act (Act 73 of 1989)

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

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

National Environmental Management: Air Quality Act (Act No 39 of 2004)

Conservation of Agricultural Resources Act (Act No. 43 of 1983)

National Water Act (Act No 36 of 1998)

Waste Act (Act No 59 of 2008)

National Forests Act (Act No. 84 of 1998)

Hazardous Substances Act, 1973 (Act No. 115 of 1973)

National Spatial Biodiversity Assessment (“NSBA”)

Draft National Strategy for Sustainable Development