




Annexure F: Environmental Management Plan

PROJECT STATUS

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|--|--|---|--|
| Title | Environmental Scoping Report for the: Subdivision, Permanent Closure and Rezoning of Erf 332 Onethindi Extension 1, Oniipa, Oshikoto Region | | |
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ABBREVIATIONS

| | |
|-------|--------------------------------------|
| AIDS | Acquired Immuno-Deficiency Syndrome |
| DR | Developer's Representative |
| EA | Environmental Assessment |
| ECC | Environmental Clearance Certificate |
| ECO | Environmental Control Officer |
| EIA | Environmental Impact Assessment |
| EMA | Environmental Management Act |
| EMP | Environmental Management Plan |
| GG | Government Gazette |
| GIS | Geographic Information System |
| GN | Government Notice |
| GPS | Global Positioning System |
| HIV | Human Immuno-deficiency Virus |
| I&APs | Interested and Affected Parties |
| NHCN | National Heritage Council of Namibia |
| Reg. | Regulation |
| S | Section |
| SPC | Stubenrauch Planning Consultants |
| TB | Tuberculosis |

1 INTRODUCTION

The Oniipa Town Council hereinafter referred to as the proponent intends to undertake the following activities:

- **Subdivision of Erf 332, Onethindi Extension 1 into Erf A, B and Remainder;**
- **Permanent Closure of Erf B/332 as Public Open Space;**
- **Amendment of Title Conditions of Erven B/332 from Public Open Space to Business.**

The above are listed activities in terms of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

An Environmental Management Plan (EMP) is one of the most important outputs of the EIA process as it synthesises all of the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. This EMP details the mitigation and monitoring actions to be implemented during the following phases of these developments:

- Operation and Maintenance – the period during which the services infrastructure will be fully functional and maintained.

The decommissioning of these developments is not envisaged; however in the event that this should be considered some recommendations have been outlined in **Table 4-3**.

2 PROPOSED DEVELOPMENT

Erf 332 is situated along the B1 road leading to Omuthiya in the neighbourhood of Onethindi Extension 1 within Oniipa town. The subject erf measures 2.4116 Hectares in extent. Please refer to below locality map (**Figure 1**).

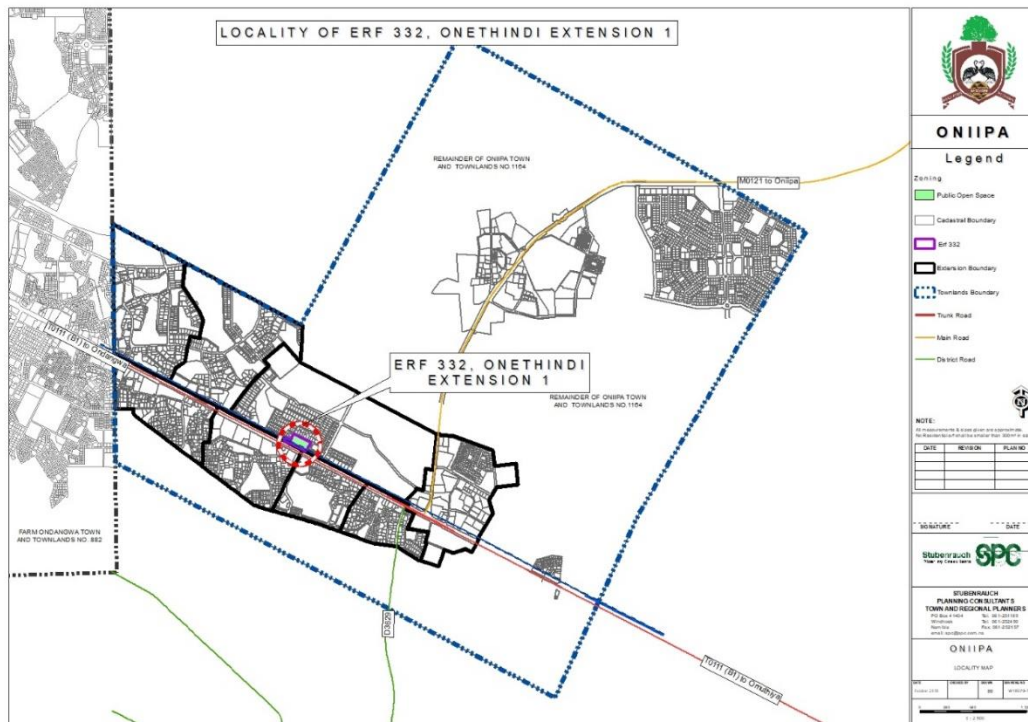


Figure 1: Locality of proposed development in Oniipa

The proponent aims to subdivide Erf 332 Onethindi Extension 1 into Erven A/332, B/332 and Remainder as depicted in **Figure 2** below. Erf 332, Onethindi Extension 1 is currently owned by the Oniipa Town Council. The erf however accommodates JSN Automotive Groups business in the form of a car garage. The proposed subdivision will enable the permanent closure of proposed Erf B/332 as a Public Open Space thus enabling JSN Automotive Group to purchase Erf B/332 from the Town Council to continue their operations.

The proponent further aims to Amend 332 of the Title Conditions of proposed Erf B/332, Onethindi Extension 1 from Public Open Space to Business. Oniipa Town Council does not currently have a Town Planning Scheme, therefore the tile conditions for the subject erf need to be amended in order to change the zoning of the erf.



Figure 2: Subdivision of Erf 332, Onethindi Extension 1 into Erven A, B and Remainder

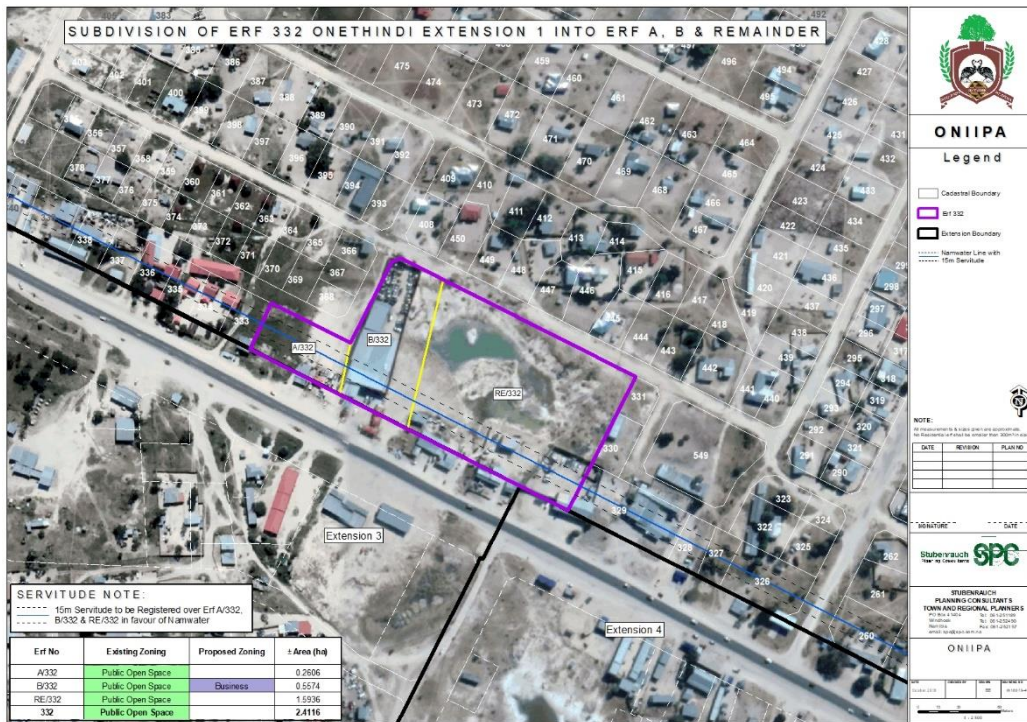


Figure 3: Aerial Map of the Subdivision of Erf 332, Onethindi Extension 1 into Erven A, B and Remainder

3 ROLES AND RESPONSIBILITIES

The proponent (Oniipa Town Council) is ultimately responsible for the implementation of the EMP, throughout the project life cycle. The proponent will delegate this responsibility as the project progresses through its life cycle. The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals:

- Council’s Representative;
- Environmental Control Officer; and
- Contractor (Operations and Maintenance).

3.1 COUNCIL’S REPRESENTATIVE

The Oniipa Town Council should assign the responsibility of managing all aspects of these developments for all development phases (including all contracts for work outsourced) to a designated member of staff, referred to in this EMP as the Council’s representative (CR). The Oniipa Town Council may decide to assign this role to one person for the full duration of these developments, or may assign a different CR to each of the development phases – i.e. one for the planning and design phase, one for the construction phase and one for the operation and maintenance phase. The CR’s responsibilities are as follows:

Table 3-1 Responsibilities of CR

| Responsibility | Project Phase |
|---|--|
| Making sure that the necessary approvals and permissions laid out in Table 4-1 are obtained/adhered to. | <ul style="list-style-type: none"> • Throughout the lifecycle of these developments |
| Making sure that the relevant provisions detailed in Table 4-2 Table 4-1 are addressed during planning and design phase. | <ul style="list-style-type: none"> • Operation and maintenance |
| Monitoring the implementation of the EMP monthly. | <ul style="list-style-type: none"> • Operation and maintenance |
| Suspending/evicting individuals and/or equipment not complying with the EMP | <ul style="list-style-type: none"> • Operation and maintenance |
| Issuing fines for contravening EMP provisions | <ul style="list-style-type: none"> • Operation and maintenance |

3.2 ENVIRONMENTAL CONTROL OFFICER

The CR should assign the responsibility of overseeing the implementation of the whole EMP on the ground during the operation and maintenance phases to an independent external consultant, referred to in this EMP as the Environmental Control Officer (ECO). The CR/Oniipa Town Council may decide to assign this role to one person for both phases, or may assign a different ECO for each phase. The ECO will have the following responsibilities during the construction and operation and maintenance phases of these developments:

- Management and facilitation of communication between the Oniipa Town Council, CR, the contractors, and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting site inspections (recommended minimum frequency is monthly) of all construction and/or infrastructure maintenance areas with respect to the implementation of this EMP (audit the implementation of the EMP);
- Assisting the Contractor in finding solutions with respect to matters pertaining to the implementation of this EMP;
- Advising the CR on the removal of person(s) and/or equipment not complying with the provisions of this EMP;
- Making recommendations to the CR with respect to the issuing of fines for contraventions of the EMP; and
- Undertaking an annual review and bi-annual audit of the EMP and recommending additions and/or changes to this document.

3.3 CONTRACTOR

Contractors appointed by the Oniipa Town Council are automatically responsible for implementing all provisions contained within the relevant chapters of this EMP. Contractors will be responsible for the implementation of this EMP applicable to any work outsourced to subcontractors. In order to ensure effective environmental management, the aforementioned chapters should be included in the applicable contracts for outsourced operation and maintenance work.

The tables in the following chapter (**Chapter 4**) detail the management measures associated with the roles and responsibilities that have been laid out in this chapter.

4 MANAGEMENT ACTIONS

The aim of the management actions in this chapter of the EMP is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

The following tables provide the management actions recommended to manage the potential impacts rated in the scoping-level EA conducted for these developments. These management actions have been organised temporally according to project phase:

- Applicable legislation (**Table 4-1**);
- Operation and maintenance phase management actions (**Table 4-2**); and
- Decommissioning phase management actions (**Table 4-3**).

The proponent should assess these **commitments** in detail and should acknowledge their commitment to the specific management actions detailed in the tables below.

4.1 ASSUMPTIONS AND LIMITATIONS

This EMP has been drafted with the acknowledgment of the following assumptions and limitations:

- This EMP has been drafted based on the scoping-level Environmental Assessment (EA) conducted for the intended development. SPC will not be held responsible for the potential consequences that may result from any alterations to the above-mentioned layout.

4.2 APPLICABLE LEGISLATION

Legal provisions that have relevance to various aspects of these developments are listed in **Table 4-1** below.

Table 4-1: Legislation applicable to proposed development

| LEGISLATION/POLICIES | RELEVANT PROVISIONS | RELEVANCE TO PROJECT |
|---|---|--|
| The Constitution of the Republic of Namibia as Amended | <p>Article 91 (c) provides for duty to guard against “the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia.”</p> <p>Article 95(l) deals with the “maintenance of ecosystems, essential ecological processes and biological diversity” and sustainable use of the country’s natural resources.</p> | Sustainable development should be at the forefront of this development. |
| Environmental Management Act No. 7 of 2007 (EMA) | <p>Section 2 outlines the objective of the Act and the means to achieve that.</p> <p>Section 3 details the principle of Environmental Management</p> | The development should be informed by the EMA. |
| EIA Regulations GN 28, 29, and 30 of EMA (2012) | <p>GN 29 Identifies and lists certain activities that cannot be undertaken without an environmental clearance certificate.</p> <p>GN 30 provides the regulations governing the environmental assessment (EA) process.</p> | <p>Activity 5.1 (d) Land Use and Development Activities</p> <p>The rezoning of land from use for nature conservation or zoned open space to any other land use.</p> |
| Convention on Biological Diversity (1992) | Article 1 lists the conservation of biological diversity amongst the objectives of the convention. | The project should consider the impact it will have on the biodiversity of the area. |
| Draft Procedures and Guidelines for conducting EIAs and compiling EMPs (2008) | Part 1, Stage 8 of the guidelines states that if a proposal is likely to affect people, certain guidelines should be considered by the proponent in the scoping process. | The EA process should incorporate the aspects outlined in the guidelines. |
| Namibia Vision 2030 | Vision 2030 states that the solitude, silence and natural beauty that many areas in Namibia provide are becoming sought after commodities and must be regarded as valuable natural assets. | Care should be taken that the development does not lead to the degradation of the natural beauty of the area. |
| Water Act No. 54 of 1956 | Section 23(1) deals with the prohibition of pollution of | The pollution of water resources should be avoided during |

| LEGISLATION/POLICIES | RELEVANT PROVISIONS | RELEVANCE TO PROJECT |
|--|---|---|
| | underground and surface water bodies. | construction and operation of the development. |
| The Ministry of Environment and Tourism (MET) Policy on HIV & AIDS | MET has recently developed a policy on HIV and AIDS. In addition, it has also initiated a programme aimed at mainstreaming HIV and gender issues into environmental impact assessments. | The proponent and its contractor have to adhere to the guidelines provided to manage the aspects of HIV/AIDS. Experience with construction projects has shown that a significant risk is created when migrant construction workers interact with local communities. |
| Township and Division of Land Ordinance 11 of 1963 | The Townships and Division of Land Ordinance regulates subdivisions of portions of land falling within a Local Authority area | In terms of Section 19 such applications are to be submitted to NAMPAB and Townships Board respectively. |
| Local Authorities Act No. 23 of 1992 | The Local Authorities Act prescribes the manner in which a town or municipality should be managed by the Town or Municipal Council. | The development must comply with provisions of the Local Authorities Act. |
| Labour Act no. 11 of 2007 | Chapter 2 details the fundamental rights and protections. Chapter 3 deals with the basic conditions of employment. | Given the employment opportunities presented by the development, compliance with the labour law is essential. |
| National Heritage Act No. 27 of 2004 | The Act is aimed at protecting, conserving and registering places and objects of heritage significance. | All protected heritage resources (e.g. human remains etc.) discovered, need to be reported immediately to the National Heritage Council (NHC) and require a permit from the NHC before they may be relocated. |
| Roads Ordinance 17 of 1972 | <ul style="list-style-type: none"> • Section 3.1 deals with width of proclaimed roads and road reserve boundaries • Section 27.1 is concerned with the control of traffic on urban trunk and main roads • Section 36.1 regulates rails, tracks, bridges, wires, cables, subways or culverts across or under proclaimed roads • Section 37.1 deals with Infringements and obstructions | Adhere to all applicable provisions of the Roads Ordinance. |

| LEGISLATION/POLICIES | RELEVANT PROVISIONS | RELEVANCE TO PROJECT |
|--|--|---|
| | on and interference with proclaimed roads. | |
| Public and Environmental Health Act of 2015 | This Act (GG 5740) provides a framework for a structured uniform public and environmental health system in Namibia. It covers notification, prevention and control of diseases and sexually transmitted infections; maternal, ante-natal and neo-natal care; water and food supplies; infant nutrition; waste management; health nuisances; public and environmental health planning and reporting. It repeals the Public Health Act 36 of 1919 (SA GG 979). | Contractors and users of the proposed development are to comply with these legal requirements. |
| Nature Conservation Ordinance no. 4 of 1975 | Chapter 6 provides for legislation regarding the protection of indigenous plants | Indigenous and protected plants must be managed within the legal confines. |
| Water Quality Guidelines for Drinking Water and Wastewater Treatment | Details specific quantities in terms of water quality determinants, which wastewater should be treated to before being discharged into the environment | These guidelines are to be applied when dealing with water and waste treatment |
| Environmental Assessment Policy of Namibia (1995) | The Policy seeks to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT is broadly interpreted to include biophysical, social, economic, cultural, historical and political components. | This EIA considers this term of Environment. |
| Water Resources Management Act No. 11 of 2013 | Part 12 deals with the control and protection of groundwater | The pollution of water resources should be avoided during construction and operation of the development. Should water need to |

| LEGISLATION/POLICIES | RELEVANT PROVISIONS | RELEVANCE TO PROJECT |
|--|--|---|
| | Part 13 deals with water pollution control | be abstracted, a water abstraction permit will be required from the Ministry of Water, Agriculture and Forestry. |
| Forest Act 12 of 2001 and Forest Regulations of 2015 | To provide for the establishment of a Forestry Council and the appointment of certain officials; to consolidate the laws relating to the management and use of forests and forest produce; to provide for the protection of the environment and the control and management of forest fires; to repeal the Preservation of Bees and Honey Proclamation, 1923 (Proclamation No. 1 of 1923), Preservation of Trees and Forests Ordinance, 1952 (Ordinance No. 37 of 1952) and the Forest Act, 1968 (Act No. 72 of 1968); and to deal with incidental matters. | Protected tree and plant species as per the Forest Act No 12 of 2001 and Forest Regulations of 2015 may not be removed without a permit from the Ministry of Agriculture, Water and Forestry. |
| Atmospheric Pollution Prevention Ordinance No 45 of 1965 | Part II - control of noxious or offensive gases, Part III - atmospheric pollution by smoke, Part IV - dust control, and | The development should consider the provisions outlined in the act. The proponent should apply for an Air Emissions permit from the Ministry of Health and Social Services (if needed). |

| LEGISLATION/POLICIES | RELEVANT PROVISIONS | RELEVANCE TO PROJECT |
|--|--|---|
| | Part V - air pollution by fumes emitted by vehicles. | |
| Hazardous Substance Ordinance 14 of 1974 | To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith. | The handling, usage and storage of hazardous substances on site should be carefully controlled according to this Ordinance. |
| Soil Conservation Act No 76 of 1969 | Act to consolidate and amend the law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources | The proposed activity should ensure that soil erosion and soil pollution is avoided during construction and operation. |

4.3 OPERATION AND MAINTENANCE PHASE

The management actions included in **Table 4-2** below apply during the operation and maintenance phase of these developments.

Table 4-2: Operation and maintenance management actions

| Environmental Feature | Impact | Management Actions | Person Responsible |
|-----------------------|--|--|------------------------|
| EMP training | Lack of EMP awareness and the implications thereof | All contractors appointed for maintenance work on the respective street must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work. | Contractor |
| Water | Surface and groundwater contamination | <ul style="list-style-type: none"> • Ensure that surface run-off water accumulating on-site are channeled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment. • A no-go buffer area of at least 15 m should be allocated to any water bodies in the area. • No dumping of waste products of any kind in or in close proximity to any surface water bodies. • Contaminated runoff from the various operational activities should be prevented from entering any surface or ground water bodies. • Ensure that surface water accumulating on-site are channeled and captured through a proper storm water management system to be treated in an appropriate manner before disposal into the environment. | Proponent, Contractor, |

| Environmental Feature | Impact | Management Actions | Person Responsible |
|-----------------------|--------------------------|---|------------------------|
| | | <ul style="list-style-type: none"> Disposal of waste from the various activities should be properly managed | |
| Aesthetics | Visual impacts | <p>The proponent should consult with a view to incorporate the relevant local/national/international development guidelines which addresses the following:</p> <ul style="list-style-type: none"> The incorporation of indigenous vegetation into street development. To mark the area with appropriate road warning signs (e.g. the road curves to the left/right) | Proponent |
| Health and Safety | Safety around work sites | <ul style="list-style-type: none"> Provide for a first aid kit and a properly trained person to apply first aid when necessary. A wellness program should be initiated to raise awareness on health issues, especially the impact of sexually transmitted diseases as described above. Restrict unauthorised access to the site and implement access control measures. Staff and visitors to the site must be fully aware of all health and safety measures and emergency procedures. The owner and staff must comply with all applicable occupational health and safety requirements. <p>The workforce should be provided with all necessary Personal Protective Equipment where appropriate.</p> | Proponent, Contractor, |

| Environmental Feature | Impact | Management Actions | Person Responsible |
|-----------------------|---|--|------------------------|
| Municipal Services | Waterline Servitude | <ul style="list-style-type: none"> • Namwater is to be consulted prior to any construction taking place on site. | Proponent, Contractor, |
| General Waste | Environmental degradation, Visual impact and soil contamination | <ul style="list-style-type: none"> • A sufficient number of waste bins should be placed around the site for the soft refuse. • A sufficient number of skip containers for the heavy waste and rubble should be provided for around the site. • Solid waste will be collected and disposed of at an appropriate local land fill or an alternative approved site, in consultation with the local authority. • Hazardous waste should be disposed at an appropriate facility that is able to receive such waste. • Recycling of waste should be considered and practiced as far as possible. | Proponent, Contractor, |
| Hazardous Substances | Contamination of surface and groundwater sources. | <ul style="list-style-type: none"> • Storage of the hazardous substances in a bunded area, with a volume of 120 % of the largest single storage container or 25 % of the total storage containers whichever is greater. • Refuel vehicles in designated areas that have a protective surface covering and utilise drip trays for stationary plant. • All vehicles and equipment on site should be provided with a drip tray. • All vehicles should be maintained regularly to prevent oil leakages. | Proponent, Contractor, |

| Environmental Feature | Impact | Management Actions | Person Responsible |
|-----------------------|-----------------------------|---|------------------------|
| | | <ul style="list-style-type: none"> Maintenance and washing of vehicles should take place only at a designated workshop area. | |
| Noise | Nuisance impacts | <ul style="list-style-type: none"> Do not allow commercial activities that generate excessive noise levels. Continuous monitoring of noise levels should be conducted to make sure the noise levels does not exceed acceptable limits. Work hours should be restricted to between 08h00 and 17h00 where equipment, power tools and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents within the 500 m radius should be given 1 week’s written notice. | Proponent, Contractor, |
| Emissions | Nuisance and health impacts | <ul style="list-style-type: none"> Manage activities that generate emissions. | Proponent, Contractor, |

4.4 DECOMMISSIONING PHASE

The decommissioning of these developments is not foreseen as the intended development is envisaged to be permanent. In the event that this development is decommissioned the following management actions should apply.

Table 4-3: Decommissioning phase management actions

| Environmental Feature | Impact | Management Actions | Responsible Person |
|-----------------------------------|---|--|--------------------|
| EMP training | Lack of EMP awareness and the implications thereof. | All construction workers are to undergo EMP training that should include as a minimum the following: <ul style="list-style-type: none"> • Explanation of the importance of complying with the EMP. • Discussion of the potential environmental impacts of construction activities. • Employees’ roles and responsibilities, including emergency preparedness. • Explanation of the mitigation measures that must be implemented when particular work groups carry out their respective activities. | Contractor, CR |
| Lay-down areas and materials camp | Loss of biodiversity | Suitable locations for the contractors lay-down areas and materials camp should be identified with the assistance of the CR and the following should be considered in selecting these sites: <ul style="list-style-type: none"> • The areas designated for the services infrastructure should be used as far possible. • Second option should be degraded land. • Avoid sensitive areas (e.g. rivers/drainage lines). | Contractor and CR |

| Environmental Feature | Impact | Management Actions | Responsible Person |
|------------------------------|--|---|--------------------|
| Hazardous waste | Contamination of surface and groundwater sources. | <ul style="list-style-type: none"> • All heavy construction vehicles and equipment on site should be provided with a drip tray. • All heavy construction vehicles should be maintained regularly to prevent oil leakages. • Maintenance and washing of construction vehicles should take place only at a designated workshop area. | Contractor |
| Water, Sewage and grey water | Contamination of surface and groundwater sources and water wasting | <ul style="list-style-type: none"> • The wash water (grey water) collected from the cleaning of equipment on-site should not be left standing for long periods of time as this promotes parasite and bacterial proliferation. • Grey water should be recycled: <ul style="list-style-type: none"> ○ Used for dust suppression; ○ Used to water a vegetable garden, or to support a small nursery; ○ Used (reused) to clean equipment. • Grey water that is not recycled should be removed on a regular basis. • No dumping of waste products of any kind in or in close proximity to water bodies. • Heavy construction vehicles should be kept out of any water bodies and the movement of construction vehicles should be limited where possible to the existing roads and tracks. • Ensure that oil/ fuel spillages from construction vehicles and machinery | Contractor |

| Environmental Feature | Impact | Management Actions | Responsible Person |
|-----------------------|--------------------------------------|---|--------------------|
| | | <p>are minimised and that where these occur, that they are appropriately dealt with.</p> <ul style="list-style-type: none"> • Drip trays must be placed underneath construction vehicles when not in use to contain all oil that might be leaking from these vehicles. • Contaminated runoff from the construction sites should be prevented from entering the surface and ground water bodies. • All materials on the construction site should be properly stored. • Disposal of waste from the sites should be properly managed and taken to the designated landfill site in Oniipa. • Construction workers should be given ablution facilities at the construction sites that are located at least 30 m away from any surface water and ground water resources and should be regularly serviced. • Washing of personnel or any equipment should not be allowed on site. Should it be necessary to wash construction equipment these should be done at an area properly suited and prepared to receive and contain polluted waters. | |
| General waste | Visual impact and soil contamination | <ul style="list-style-type: none"> • The construction site should be kept tidy at all times. • All domestic and general construction waste produced on a daily basis should be cleaned and contained daily. • No waste may be buried or burned. | Contractor |

| Environmental Feature | Impact | Management Actions | Responsible Person |
|-----------------------|--|---|--------------------|
| | | <ul style="list-style-type: none"> • Waste containers (bins) should be emptied regularly and removed from site to a recognised (municipal) waste disposal site. • All recyclable waste needs to be taken to the nearest recycling depot where practical. • A sufficient number of separate bins for hazardous and domestic/general waste must be provided on site. These should be clearly marked as such. • Construction labourers should be sensitised to dispose of waste in a responsible manner and not to litter. • No waste may remain on site after the completion of the project. | |
| Topsoil | Loss of topsoil and associated opportunity costs | <ul style="list-style-type: none"> • When excavations are carried out, topsoil¹ should be stockpiled in a demarcated area. • Stockpiled topsoil should be used to rehabilitate post-construction degraded areas and/or other nearby degraded areas if such an area is located a reasonable distance from the stockpile. | Contractor |
| Rehabilitation | Visual impact | <ul style="list-style-type: none"> • Upon completion of the construction phase consultations should be held with the local community/property owner(s) regarding the post-construction use of remaining excavated areas (if applicable). • In the event that no post-construction uses are requested, all excavated/degraded areas need to be rehabilitated as follows: | Contractor, CR |

¹ Topsoil is defined here as the top 150mm of surface material, which accounts for the seedbank.

| Environmental Feature | Impact | Management Actions | Responsible Person |
|-----------------------|------------------------|---|--------------------|
| | | <ul style="list-style-type: none"> ○ Excavated areas may only be backfilled with clean or inert fill. No material of hazardous nature (e.g. sand removed with an oil spill) may be dumped as backfill. ○ Rehabilitated excavated areas need to match the contours of the existing landscape. ○ The rehabilitated area should not be higher (or lower) than nearby drainage channels. This ensures the efficiency of revegetation and reduces the chances of potential erosion. ○ Topsoil is to be spread across excavated areas evenly. ○ Deep ripping of areas to be rehabilitated is required, not just simple scarification, so as to enable rip lines to hold water after heavy rainfall. ○ Ripping should be done along slopes, not up and down a slope, which could lead to enhanced erosion. | |
| Road safety | Injury or loss of life | <ul style="list-style-type: none"> ● Demarcate roads to be used by construction vehicles clearly. ● Off-road driving should not be allowed. ● All vehicles that transport materials to and from the site must be roadworthy. ● Drivers that transport materials should have a valid driver's license and should adhere to all traffic rules. | Contractor |

| Environmental Feature | Impact | Management Actions | Responsible Person |
|--------------------------|---|--|--------------------|
| | | <ul style="list-style-type: none"> • Loads upon vehicles should be properly secured to avoid items falling off the vehicle. | |
| Safety around work sites | Injury or loss of life | <ul style="list-style-type: none"> • Excavations should be left open for the shortest time possible. • Excavate short lengths of trenches and box areas for services or foundations in a manner that will not leave the trench unattended for more than 24 hours. • Demarcate excavated areas and topsoil stockpiles with danger tape. • All building materials and equipment are to be stored only within set out and demarcated work areas. • Only road construction personnel will be allowed within these work areas. • Comply with all waste related management actions stated above in this table. | Contractor |
| Ablutions | Non-compliance with Health and Safety Regulations | <ul style="list-style-type: none"> • Separate toilets should be available for men and women and should clearly be indicated as such. • Portable toilets (i.e. easily transportable) should be available at every construction site: <ul style="list-style-type: none"> ○ 1 toilet for every 15 females. ○ 1 toilet for every 30 males. ○ Sewage needs to be removed on a regular basis to an approved (municipal) sewage disposal site in Oniipa. | Contractor |

| Environmental Feature | Impact | Management Actions | Responsible Person |
|---------------------------|------------------------|--|--------------------|
| | | <ul style="list-style-type: none"> ○ Alternatively, sewage may be pumped into sealable containers and stored until it can be removed. ○ Workers responsible for cleaning the toilets should be provided with environmentally friendly detergents, latex gloves and masks. | |
| Open fires | Injury or loss of life | <ul style="list-style-type: none"> ● No open fires may be made anywhere on site. | Contractor |
| General health and safety | Injury or loss of life | <ul style="list-style-type: none"> ● A fully stocked first aid kit should permanently be available on-site as well as an adequately trained member of staff capable of administering first aid. ● All workers should have access to the relevant personal protective equipment (PPE). ● Sufficient potable water reserves should be available to workers at all times. ● No person should be allowed to smoke close to fuel storage facilities or portable toilets (if toilets are chemical toilets – the chemicals are flammable). ● No workers should be allowed to drink alcohol during work hours. ● No workers should be allowed on site if under the influence of alcohol. ● Building rubble and domestic waste should be stored in skips. ● Condoms should be accessible/available to all construction workers. ● Access to Antiretroviral medication should be facilitated. | Contractor |

| Environmental Feature | Impact | Management Actions | Responsible Person |
|-----------------------|-----------------------------|---|--------------------|
| Dust | Nuisance and health impacts | <ul style="list-style-type: none"> • A watering truck should be used on gravel roads with the heaviest vehicle movement especially during dry and windy conditions. However, due consideration should be given to water restrictions during times of drought. • The use of waterless dust suppression means (e.g. lignosulphonate products such as Dustex) should be considered. • Cover any stockpiles with plastic to minimise windblown dust. • Dust protection masks should be provided to workers if they complain about dust. | Contractor |
| Noise | Nuisance impacts | Work hours should be restricted to between 08h00 and 17h00 where construction involving the use of heavy equipment, power tools and the movement of heavy vehicles is less than 500 m from residential areas. If an exception to this provision is required, all residents within the 500 m radius should be given 1 week’s written notice. | Contractor |

4.5 CONCLUSION

The actions included in this report aim to assist in the management, mitigation or avoidance of negative impacts on the environment that may result from the proposed activities. Should the measures recommended in this EMP be implemented and monitored, SPC is confident that the risks identified in the DESR can be reduced to acceptable levels.