



# FINAL ENVIRONMENTAL MANAGEMENT PROGRAM

## PROPOSED DEVELOPMENT OF THE NEW UNIVERSITY OF MPUMALANGA IN NELSPRUIT, MPUMALANGA PROVINCE.

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## ENVIRONMENTAL ASSESSMENT PRACTITIONER – EXPERTISE

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## EXECUTIVE SUMMARY

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The Department of Higher Education and Training (DHET) was formed in 2009 as a new Department with the responsibility of post-school systems. DHET has to expand the capacity of higher education, including universities. The annual growth of scholars that need to study at a higher university is 4.7% per year and current universities are already over enrolled. Government policy as stipulated in the Higher Education Act, Act 101 of 1997 determines through section 20 that the Minister by notice in the Gazette may establish a university which is required to deliver through this act teaching, research and community service. This new University is a national asset serving national interests.

In 2010 the Minister of Higher Education and Training appointed two task teams to investigate the feasibility and possibility models for the establishment of Universities in the Northern Cape and Mpumalanga Province. These are the two Provinces in South Africa that do not have universities at the moment. Stakeholders in the provinces were engaged, taking into account provincial and national needs and imperatives, recommendations on the type and size of the two universities were made including the possible sites for the institutions. Since November 2011, the Department of Higher Education and Training (DHET) has appointed a project management team to take forward the planning process under the guidance of a project steering committee, which includes academics from existing universities as well as representatives of the Premiers and of the National Institutes of Higher Education in the two Provinces. Academic work groups have been set up to flesh out the academic direction of each University. Technical work for the 2 universities started in October 2011 and Wits was appointed as project managers with a multi-disciplinary team that includes an architect, civil engineer, geotechnical engineer and urban planner.

The Mpumalanga University will be a comprehensive university (offering a combination of academic programmes usually offered by universities of technology and by traditional universities) with a maximum of 15 000 Fulltime Equivalent Students (FTE) of which a maximum of 60% of the students will be housed on on-campus residences. The University will open its doors to new students as from 2014 and will be operating from the main campus in Mbombela – Lowveld Agricultural College and a satellite campus at the former teachers training college at Siyabuswa. Siyabuswa College will offer a BEd in co-operation with the University of Johannesburg. The university will not offer any postgraduate studies in the short term, but with the presence of two centres of research excellence at the University, postgraduate studies will be introduced eventually.

The university has to be properly planned to ensure that the provision of staff and facilities match the growth in student numbers. An enrolment plan has been compiled which provides for the phased introduction of the different programmes. An annual intake of 120 FTE students for each of the qualification and an accelerated growth 6 years after the qualification had been introduced, will bring the university to its target of 15 000 students by 2024. The annual intake for the BEd students at Siyabuswa Campus, is assumed to be 100 FTE's per year and will grow to 368 FTE students in 2024. It is noted that the sum of 368 and 14 623 students by 2024 constitute the required 15000 FTE's of the university of which 11 402 students will be housed on on-campus residences. As a start-up position four faculties have been selected as a basis for the academic organizational structure, namely:

- Faculty of Science and Information Technology
- Faculty of Engineering and Applied Science
- Faculty of Humanities and Business Management
- Faculty of Agriculture.

The transformation of undeveloped, vacant or derelict land to institutional use outside urban area and where the total area to be transformed consist of more than 20ha is a listed activity according to the Environmental Impact Assessment (EIA) Regulations R543, 2010 and it must be adhered to in terms of Sections 24(2)(a) and 24(d) of the National Environmental Management Act (NEMA), Act no 107 of 1998. Most of the development will be on existing agricultural fields, but it would be necessary to clear an area of 1ha or more of vegetation where 75% of the vegetation constitutes of indigenous vegetation on the Lower campus.

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**ABBREVIATIONS:**

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BAR	Basic Assessment Report
BID	Background Information Document
DAFF	Department of Agriculture, Forestry and Fishery
DEA	Department of Environmental Affairs
DEDET	Department of Economic Development, Environment and Tourism
DWA&E	Department of Water Affairs and Environment
EA	Environmental Authorization
EAP	Environmental Assessment Practitioner
EAR	Environmental Audit Report
ECA	Environmental Conservation Act, Act No 73 of 1989
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Program
FET	Full-time equivalent Training
I&AP	Interested and Affected Parties
MLM	Mbombela Local Municipality
NEMA	National Environmental Management Act, Act No 107 of 1998
NEM:WA	National Environmental Management: Waste Act, Act No 59 of 2008.
NIHE	National Institute of Higher Learning
NMT	Non-Motorised Transport
PPP	Public Participation Process
SABS	South African Bureau of Standards
RoD	Record of Decision

It is assumed that all information received from the owner and specialists have been correct.

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# 1. INTRODUCTION

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The EMPr describes the methods and procedures to mitigate potential impacts and the monitoring thereof. It is however not a specification of the exact methods to be applied. The document aims to provide a guide towards the management, mitigation and monitoring of environmental impacts associated with the different phases of development in terms of the National Environmental Management Act - NEMA (Act 107 of 1998).

The proposed development of the University of Mpumalanga in Nelspruit was planned according to the principles of section 2 of NEMA, 107/1998 where people and their needs was placed at the forefront of its concern. The development will serve the public of Nelspruit, future students and staff of the University's physical, psychological, developmental, cultural and social interests equitably. Possible impacts were identified and will have minimum impact on the environment if mitigation measures are implemented. **Therefore the development will be socially, environmentally and economically sustainable.**

**Specialist assessments to determine possible impacts were evaluated and incorporated in the EMPr. The following specialist recommendations were included in the EMPr :**

- Heritage assessment
- Social-economic assessment
- Ecological assessment: Fauna, flora and wetlands
- Civil Engineering: roads, water provision, sewerage capacity and storm water management.
- Traffic assessment: vehicle and non-motorised traffic (mobility assessment on the campus).

# 2. OBJECTIVES OF THE EMPr

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The key objectives of an EMPr are to reduce or eliminate possible negative environmental impacts by giving due consideration to any potential impacts already identified in the Basic Assessment (BA) process and to ensure that the environment is protected during the construction and operational phases. When and if the quality of the environment can be improved, it should be investigated and implemented where possible. Minimal environmental impacts or damage during the construction and operational phase of the development can be achieved through the following:

- Prevent possible negative socio-economic impacts on the Nelspruit and surrounding communities,
- Prevent siltation in the stream between the Hill and Orchard Campus and Nels River,
- Reduce storm water impact on the banks of the stream and Nels River,
- Prevent degradation of wetlands,
- Soil conservation measures must be implemented,
- Protect trees listed on the RDL and/or in terms of the National Forest Act, Act no 84 of 1998,
- Mitigate visual impact,
- Keep as much as possible natural vegetation on natural / sensitive areas. Rehabilitate area with the planting of indigenous plants and trees,
- Improve biodiversity with indigenous gardens on the University's premises,
- Implement an integrated waste management plan,
- Promote reduce, re-use and recycling of waste,
- Final rehabilitation of area after construction is completed,
- Provide bulk infrastructure such as clean electricity, water and sewerage system without any negative impact on the rest of Nelspruit,
- Mitigate the impact of 4000 additional cars and 30 additional busses per day that will be additional to existing traffic in Nelspruit,
- Prevention of accidents with students that use bicycles or have to walk from their residence to and from different campuses.

### 3. LEGAL REQUIREMENTS

Table 1: The legal requirements applicable to the development are:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
The Higher Education Act, Act No 101 of 1997.	Academic programmes to be offered.	Dept of Higher Education	1997
Promotion of administrative Justice Act, Act No 3 of 2000.	Academic programmes	Dept of Public Works	2000
Labour Relations Act, Act No 66 of 1995.	Labour disputes	Dept of Labour	1995
Planning and Development Act -	Development and construction of buildings for the university	Dept of rural Development	2010
National Environmental Management Act, Act No 107 of 1998.	Environmental Authorization	Dept of Environment	1998
National Heritage Resources Act, Act No 25 of 1999.	No heritage sites were found.	Dept of Arts and Culture	1999
Higher Education Act, Act No 101 of 1997.	Development of new universities.	DHET	1997
Constitution of the Republic of South Africa. Act No. 108 of 1996.	Rights of all persons involved.	Parliament	1996
National Water Act, Act No. 36 of 1998.	Consider possible impacts in water resources where bridges will be built and water usage in general.	D Water Affairs and Forestry	1998
National Environmental Management: Biodiversity Act, Act No 10 of 2004.	Consider possible impacts on the biodiversity of the area where construction will take place.	Department of Environment	2004
National Environment Conservation Act, Act No 73 of 1989.	Consider possible impacts on conservation for the specific area where development will take place.	Department of Environmental Affairs	1989
National Roads Act, Act No 7 of 1998.	Impact on R40 road	Department of Public works	1998
National Heritage Resources Act, Act No. 25 of 1999.	No heritage sites were found	Department of Arts and Culture	1999
Occupational Health and Safety Act, Act No 85 of 1993.	Health issues during construction of the university and of the students and staff of the university during the operational phase.	Department of Labour	1993
Promotion of Access to Information Act, Act No 2 of 2000.	All documentation have to be available for consideration by any I&AP	All Departments	2000
Electricity Regulation Act, Act No 4 of 2006.	Electricity supply for the university	Department of Environmental Affairs	2006
National Environment Management: Waste Act, Act No 59 of 2008.	Waste will be generated during construction and the operational phase.	Department of Environment	2008
EIA regulations as listed in Government Notices R543 and R544 (20 June 2010)	Activities that trigger listed activities have to be registered at DEA	Department of Environment	2010

The **Environmental Control Officer (ECO)** and the **Task Team For The Development/Contractor** shall note that the obligations imposed by the Environmental Management Program (EMPr) are legally binding in terms of legislation during preparation, construction and operational phase as described in the Basic Assessment Report. The EMPr informs and binds the **ECO** and the **Task Team For The Development/Contractor** to their duties, with particular reference to the prevention and mitigation of environmental impacts caused during the construction and operational phase.

## 4. ENVIRONMENTAL MANAGEMENT AND RESPONSIBILITIES

The recommendations within this document act as **guidelines** for environmental management. However, recommendations may be altered or added onto at the discretion of the **Task Team For The Development/Contractor** after consultations and discussions with all affected parties (i.e. the authorities, neighbours, Registered I&AP).

### 4.1 RESOURCE ALLOCATION AND DUTIES

To ensure that this EMP is implemented, the following staff resources will have to be made available:

#### 4.1.1 Environmental Control Officer (ECO)

The ECO has to be appointed by the applicant for the construction phase of the development. The ECO has the responsibility to ensure that the mitigation/rehabilitation measures and recommendations referred to in the authorization, dated 26/03/2014 are implemented and ensure compliance with the provisions of the EMP. The ECO have the following duties:

- **Monitor** the implementation of the EMP.
- **Advise** the **Task Team for the development** on environmental issues during the implementation of the EMP.
- Continuous **auditing** of the construction activities for the adherence to the EA conditions and EMP. Auditing / Site inspections have to be conducted on a monthly basis to notify and advise the **Task Team for the development and additional workers/sub-contractor** on environmental issues during development, preparation and construction phase.
- **Monthly auditing reports** have to be compiled and sent to DEA Compliance Section until the end of the construction phase.
- **Identify** problem areas as soon as possible and **provide action plans** to avoid further environmental damage.
- Review the **Task Team for the development proposal for impact and pollution control** measures and advise on their adequacy.
- **Report** significant environmental incidents to DEA and advise the **Task Team for the development** thereof during the development / construction phase.
- **Communication with the public during the construction phase** – receives and resolves problems or complaints.
- Make alterations to the EMP if necessary.

#### 4.1.2 Task Team For The Development

The **Task Team for the development/Contractor** has the responsibility for implementing the management measures contained in this document and the EA during the construction phase. The **Task Team for the development /Contractor** has the following duties:

- Inform MTPA, DEA and/or NDAFF should the removal of protected species, medical plants and “data deficient” plants species be required (**conditions 24**).
- Ensure that a Water Use Licence is obtained from the Department of Water Affairs (**condition 25**).
- All protected trees must be marked with GPS and necessary applications for the cutting, trimming or removal must be applied from the DAFF (**condition 26**).
- Best environmental practice to prevent degradation of the wetland (**condition 29**).
- Establish an effective **environmental control program**.
- Establish **routine management, liaison and reporting** systems and prepare management reports.
- **Monitor** environmental aspects and advise the **UNIVERSITY OF MPUMALANGA Management/staff** of actions required.
- **Manage** the staff to implement methods to prevent potential negative environmental impacts and recommend safeguards.
- **Site inspections** have to be conducted on a **daily basis** to notify and advise the **Contractor and ECO** on environmental issues.
- **Liaise** in collaboration with the ECO with adjacent and nearby Land owners.



- **A Complaint Register** must be kept at the **Office** of the **contractor**.

#### **4.2 PERFORMANCE**

The **Task Team for the development / Contractor and ECO** shall compile a monitoring and auditing plan, in order to ensure that all of the environmental management measures are implemented and are effective. The ECO shall review the Environmental Management Performance of the **Task Team for the development** on a regular basis. The **Task Team for the development / Contractor** shall be deemed not to have complied with the EMPr if:

- There is evidence of the contravention of any of the conditions of the EMPr.
- The **Task Team for the development / Contractor** fails to comply with corrective measures or other instructions by the ECO.
- The **Task Team for the development / Contractor** fails to respond to complaints from the public.
- The **Contractor or University Of Mpumalanga** staff and students are found poaching, removing natural vegetation, entering neighbouring areas or cause destruction due to unacceptable behaviour.

#### **4.3 REPORTING**

A copy of the Environmental Authorization/Record of Decision (EA/RoD) and the EMPr must at all times be available to all relevant staff as well as general public (**condition 37**). The **Task Team for the development, the contractors** and sub-contractors should be acquainted with the contents thereof.

The **complaint's register** have to be on site and all complaints recorded. Complaints shall be investigated, corrective action implemented and feedback given to the complainant on the issues raised within 24 hours.

The ECO shall conduct **compliance audits once per month** and compile a summary in terms of the EMPr. The reports have to be compiled, summarized and sent to the Directorate: Compliance Monitoring at the Department of Environmental Affairs on a quarterly basis until the end of the construction phase. Reports must be available on request to the Public and I&AP.

## 5. ENVIRONMENTAL IMPACTS

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The proposed establishment of a new university will have positive and negative environmental impacts. The positive impacts on the environment have been identified and will be used to enhance the benefits for the local community. The negative impacts have been identified and measures will be proposed to minimize the adverse impacts on the receiving environment. These mitigation measures will be tabled in an Environmental Management Program (EMPr).

### 5.1 KEY ISSUES IDENTIFIED

Some of the areas are highly disturbed and the impact will be of no significance. The presence of exotic, invader plants have an impact on the biodiversity of this area. Special care has to be taken to protect vegetation listed on the Red Data species list if found during bush clearing. Key issues identified within the proposed project were:

- Social issues
- Environment: Soil, Flora, Fauna & Wetlands
- Sewerage management on the property
- Waste management – Eco Waste Centre – Recycling and storage
- Traffic

Possible key environmental issues identified by the EAP and the I&AP is summarized in **Table 3**. The issues are assessed before mitigation measures.

### 5.2. ASSESSMENT OF SIGNIFICANCE

#### 5.2.1. Identification of impacts

The following was done to determine possible impacts:

- determine the current environmental conditions (i.e. baseline) against which to assess impacts;
- determine the future changes in the receiving environment baseline if the project does not proceed;
- an understanding of the proposed activity in sufficient detail; and
- all findings from assessed documents, previous and adjusted layout plan was taken into account.

The classification of an issue as a '**key issue**' was done after the assessment of the specialist reports and does not necessarily imply that an impact of high significance will result. After mitigation measures, it is possible that a **key issue** may turn out to have an impact of **low** or **no** significance.

#### 5.2.2 Assessment of impacts

The methodology for assessing impacts and assigning significance to the key issues is according to "Guideline 5: Assessment of alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006" published by DEAT in June 2006.

Table 2: The description and prediction of the impacts include the following components

<b>Nature of impact</b>	<b>Describes the type of effect that a proposed activity would have on the environment (“what would be affected and how?”)</b>	
	Indicates whether the impact is direct, indirect or cumulative;	
	Indicates whether the impact occurs during the construction, operations Or decommissioning phases of the project.	
<b>Magnitude / Intensity of the impact</b>	<b>Low</b>	where no or minimum environmental functions and processes are affected
	<b>Medium</b>	where the environment continues to function but in a modified manner
	<b>High</b>	where environmental functions and processes are altered such that they temporarily or permanently cease
<b>Extent / location</b>	<b>whether the impact would be site specific and limited to the immediate area of the development site</b>	
	<b>Local</b>	limited to within approximately 5km of the site
	<b>Regional</b>	Limited to the region
	<b>National/ international</b>	National impact
<b>Duration</b>	<b>the lifetime of the impact, whether the impact is permanent or reversible</b>	
	<b>Short term</b>	(0 – 5 years),
	<b>Medium term</b>	(5 – 15 years),
	<b>Long term</b>	(>15 years but where the impacts would cease after the operation of the site); and/or whether the impact is intermittent or continuous.
<b>Probability</b>	<b>Probability considers the likelihood of the impact occurring</b>	
	<b>Improbable</b>	low likelihood
	<b>Probable</b>	distinct possibility
	<b>Highly probable</b>	most likely
	<b>Definite</b>	impact would occur regardless of prevention measures (more than 90% sure of the impact)
<b>Significance</b>	<b>Based on a synthesis of the above predictions, the significance of the impact shall be evaluated as follows:</b>	
	<b>Low</b>	Where the impact would not have an influence on the decision or require to be significantly accommodated in the project design.
	<b>Medium</b>	Where it could have an influence on the environment which would require modification of the project design or alternative mitigation.
	<b>High</b>	Where it could have a ‘no-go’ implication for the project unless effective measures are taken to avoid or mitigate the impact.

The degree of confidence with respect to the assessment of significance in the prediction of the impacts is high based on the availability of information available. The significance of impacts was evaluated **before** mitigation was suggested (“as predicted” impacts). Most impacts will be mitigated and will have a low impact after mitigation. The predicted impacts before mitigation was analysed and summarised in **Table 3**. Also summarised in the table, is if the impacts will be positive or negative.

### 5.3 MANAGEMENT ACTIONS AND MONITORING

The following was done to suggest management and monitoring actions of possible impacts:

- Where negative impacts are identified, mitigation objectives and mitigation actions (i.e. ways of avoiding or reducing negative impacts) is set. Where no mitigation is feasible, this will be stated and the reasons given.
- Where positive impacts are identified, actions to enhance the benefit will be recommended.
- Quantifiable standards for measuring the effectiveness of mitigation and enhancement will be set. In addition, monitoring and review programmes will be recommended in order to assess the effectiveness of mitigation.

The suggested management actions to mitigate possible negative impacts are summarised in **Table 4**

Table 3: Assessment of predicted impacts before mitigation measurements are applied.

Key Issue	Summary Nature of predicted impact	Planning / Construction/ Operational Phase	Direct / indirect / cumulative	Magnitude / intensity	Extent / location	Duration	Probability	Significance	Status
<b>Geology and soils</b>	Sandy-clay soils – Spillage of hazardous substances, Ground water pollution Erosion possibility	Construction Operational	Indirect	Low	Local	Short-term	Probable	Low	Negative
<b>Flora: Sensitive Vegetation comm.</b>	Fragmentation of sensitive plant communities. Degradation of rocky area vegetation	Construction	Direct	Medium	Local	Short-term	Probable	Medium	Negative
<b>Flora: Invader &amp; exotic species</b>	<b>Removal</b> of invader and exotic plant species that reduce available space for indigenous plant species.	Construction Operational	Indirect	Med/High	Local	Long-term	Definite	High	Positive
<b>Flora: Protected plant spp</b>	Destruction of protected plant species.	Construction	Direct	Med	Local	Short-term	Probable	Medium	Negative
<b>Flora: Riparian vegetation</b>	Degradation of vegetation Impact of storm water from development on riparian vegetation.	Construction Operational	Direct & cumulative	Med/High	Local	Short-term	Definite	Medium	Negative
<b>Fauna</b>	Reduce habitat & biodiversity of indigenous animal species.	Construction Operational	Indirect	Medium	Local	Long term	Probable	Medium	Negative
<b>Wetlands</b>	Destruction of wetland – storm water Contamination of water resources Sedimentation of wetlands/water courses	Construction Operational	Direct & cumulative	Medium	Local	Short-term	Probable	High	Negative
<b>Surface water - River</b> • Storm water management • Water resource contamination & quality.	Possible soil erosion because of storm water. Sedimentation of water courses / wetlands.	Construction	Direct & cumulative	Medium	Local & Regional	Long-term	Probable	Medium	Negative
	Negative impact of storm water from the Proposed University	Operational	Direct	High	Local & Regional	Long-term	Probable	Medium	Negative
<b>Waste management</b>	<ul style="list-style-type: none"> <li>Negative impact on the sensitive plant communities.</li> <li>Health implications.</li> <li>Deterioration of wetlands</li> </ul>	Construction Operational	Direct	Low	Local	Long-term	Probable	Low	Negative
<b>Sewerage management</b>	<ul style="list-style-type: none"> <li>Leakages of pipes on development area.</li> </ul>	Operational	Indirect	Low	Local	Long term	Probable	Low	Negative

Key Issue	Nature of predicted impact	Planning / Construction/ Operational Phase	Direct / indirect / cumulative	Magnitude / intensity	Extent / location	Duration	Probability	Significance	Status
	<ul style="list-style-type: none"> <li>Negative impact on wetland</li> </ul>								
<b>Socio-economic</b>	<ul style="list-style-type: none"> <li>Temporary job creation for construction workers.</li> <li>Economic improvement of Nelspruit</li> </ul>	Construction Operational	Direct	High	Local	Long-term	Definite	High	Positive
<b>Safety of workers</b>	<ul style="list-style-type: none"> <li>A low risk of pollution related illnesses.</li> <li>Injuries on site.</li> </ul>	Construction Operational	Direct	Medium	Local	Short term	Probable	Low	Negative

Table 4: Suggested management actions to mitigate possible negative impacts during construction and operational phase.

Issue	Nature of impact	MITIGATION MEASURES & MANAGEMENT ACTIONS	MONITORING OF IMPACTS
<b>Geology and soils</b>	<ul style="list-style-type: none"> <li>Spillage of hazardous substances.</li> <li>Ground water pollution.</li> <li>Erosion</li> </ul>	<ul style="list-style-type: none"> <li>Remove contaminated soil – take to registered hazardous waste site or treat soil if possible.</li> <li>Repair leakages at the plant immediately.</li> <li>Cut and fill areas and other soil stabilization works must be constructed for foundations on the gentle slope.</li> <li>Sandbags have to be used to prevent erosion during rainy season.</li> <li>Prevent the unnecessary removal of vegetation and leaving soil barren.</li> <li>De-bushed areas have to be covered with plants or paved within 7 days.</li> <li>Re-vegetation of indigenous plants in open areas.</li> </ul>	<ul style="list-style-type: none"> <li>Daily monitoring of construction area</li> <li>Daily monitoring of plant during operational phase</li> <li>Manager/responsible person has to monitor daily for possible impacts of pollution (Waste and spills).</li> </ul>
<b>Flora: Sensitive Vegetation community</b>	<ul style="list-style-type: none"> <li>Endemic or near endemic vegetation and important taxa in this vegetation type could be impacted.</li> <li>Fragmentation of vegetation community.</li> <li>Invading of alien plants if not controlled.</li> </ul>	<ul style="list-style-type: none"> <li>No open fires.</li> <li>Formalise access roads.</li> <li>Vegetation rehabilitation plan to be implemented.</li> <li>Be aware of protected plant species.</li> <li>Indigenous plants can be planted next to the fence to ensure increased biodiversity in and around the site.</li> <li>No harvesting of any vegetation resources by construction workers or staff is allowed.</li> <li>Alien plants have to be removed regularly</li> </ul>	<ul style="list-style-type: none"> <li>Final layout plan has to be used for the positioning of the associated structures.</li> <li>ECO has to approve the final position of the associated structures.</li> <li>Manager/responsible official has to monitor protected and invader plant species on a monthly base.</li> <li>Quarterly audit reports have to be submitted to the DEDET during construction phase.</li> </ul>

Issue	Nature of impact	MITIGATION MEASURES & MANAGEMENT ACTIONS	MONITORING OF IMPACTS
<b>Flora: Invader exotic &amp; indigenous plant spp.</b>	Removal of invader and exotic species that reduce the space and water availability of indigenous plant species.	A program to control all listed invasive exotic and indigenous plant species	Monthly inspection by the Manager/responsible person to verify that no new exotic or indigenous invader species occur on the property.
<b>Flora: Protected plant spp</b>	Destruction of protected plant species.	<ul style="list-style-type: none"> <li>Be aware of the protected plant species, protected by <b>National Forest Act, 1998 (Act No 84 of 1998)</b> and <b>National Environmental Management: Biodiversity Act (Act no 10 of 2004)</b>.</li> <li>Apply for necessary permits at the relevant Departments to remove protected plant species.</li> <li>Use protected tree species and endemic plants in landscape plan.</li> </ul>	<ul style="list-style-type: none"> <li>The ECO has to confirm that no protected plant species will be affected.</li> <li>Regular surveys to monitor protected species.</li> <li>Re-vegetation of protected plant spp listed for the area.</li> </ul>
<b>Flora: Riparian vegetation</b>	Alteration of banks of river at the Storm water outlet.	<ul style="list-style-type: none"> <li>Regular monitoring of storm water structures in the stream.</li> <li>Repair banks of stream with gabions if it is impacted.</li> <li>Sensitive and protected plants can be re-vegetated.</li> <li>Removal of invader spp on the banks of the stream.</li> </ul>	<ul style="list-style-type: none"> <li>Manager/responsible person has to monitor daily for possible impacts of pollution (Waste and spills).</li> <li>ECO has to provide a re-vegetation plan.</li> </ul>
<b>Fauna</b>	Biodiversity of indigenous animal species can reduce because of habitat loss.	<ul style="list-style-type: none"> <li>Establishment of indigenous vegetation between dams and on the edge of the site has to be upgraded and managed regularly.</li> </ul>	<ul style="list-style-type: none"> <li>ECO has to monitor construction phase.</li> </ul>
<b>Air quality - Dust suppression</b>	Dust from trucks on road	<ul style="list-style-type: none"> <li>Regular spraying of water in dry periods of the year.</li> <li>The contractor should employ appropriate measures for dust suppression during construction.</li> <li>Construction vehicles must be inspected for good working conditions and not be the source of excessive fumes.</li> </ul>	<ul style="list-style-type: none"> <li>Manager/responsible person has to monitor dust pollution during dry months.</li> </ul>
<b>Noise pollution</b>	Noise from trucks on road	<ul style="list-style-type: none"> <li>No excessive revving of truck engines.</li> <li>Truck drivers must drive 30 km/h or slower on gravel road.</li> <li>Water roads during dry periods (winter).</li> </ul>	Drivers have to be trained to ensure save and slow driving on the gravel road.
<b>Visual</b>	The University would be visible from the R40, commercial area and other developments in the area.	<ul style="list-style-type: none"> <li>Cut and fill areas and other soil stabilisation works must be constructed to blend in with the natural environment.</li> <li>Re-vegetation of indigenous tree species to improve the visual impact.</li> </ul>	Monitor development according to the approved layout plan and RoD.
<b>Storm water management</b>	<ul style="list-style-type: none"> <li>Possible soil erosion because of storm water.</li> <li>Surface water contamination.</li> </ul>	<ul style="list-style-type: none"> <li>Water runoff during the rainy season may cause erosion</li> <li>Storm water will be controlled and managed to follow natural watercourses and/or channels with road reserves to prevent erosion and damage to other properties</li> <li>Overland surface run off will be controlled by means of</li> </ul>	<ul style="list-style-type: none"> <li>Final storm water management plan has to be implemented.</li> </ul>

Issue	Nature of impact	MITIGATION MEASURES & MANAGEMENT ACTIONS	MONITORING OF IMPACTS
<b>Water resource contamination &amp; quality</b>	<ul style="list-style-type: none"> <li>Spills and or leakages from parking area for construction vehicles.</li> <li>Contaminated storm water from the University may affect the environment negatively if waste is not properly managed.</li> </ul>	<p>stone/concrete lined surface canals and field inlets.</p> <p><u>Spills &amp; leakage from parking area for construction vehicles.</u></p> <ul style="list-style-type: none"> <li>Construction vehicles shall be kept in a good working condition to avoid fuel and /or oil leaks.</li> <li>Under no circumstance shall vehicle maintenance take place within the site.</li> <li>Manually cleaning / removing of spilled area have to be a daily activity.</li> <li>Any spills &amp; leakages of any chemicals, fuel, diesel or any hazardous material discovered, must be cleaned immediately in an appropriate manner and the affected soil should be removed with the spilled material as hazardous waste.</li> <li>Affected and/or polluted areas must be treated with a neutralizing agent to neutralize the active polluting materials.</li> <li>Cleaned up areas must be re-vegetated as soon as possible to reduce risk of soil erosion from denuded areas.</li> <li>Proposed buildings are located far from the 1:100 flood lines and drainage areas.</li> </ul>	<ul style="list-style-type: none"> <li>Regular monitoring of parking and servicing area.</li> <li>Check open storm water drains on a regular basis in rainy season.</li> <li>Adhere to the regulations on the National Environmental Management Waste Act (50/2008) and the National Water Act (36/1998).</li> <li>Borehole monitoring system.</li> <li>Monthly effluent monitoring.</li> <li>Quality of groundwater should be maintained during the lifespan of the production unit.</li> </ul>
<b>Waste management</b>	<ul style="list-style-type: none"> <li>Negative impact on the sensitive plant communities.</li> <li>Health implications.</li> </ul>	<ul style="list-style-type: none"> <li>Wasted pave bricks or concrete may not be discarded into vegetation/ open field. Keep the proposed development Area neat and tidy at all times.</li> <li>No waste materials shall be disposed of in open veld in the surrounding area.</li> <li>Unmanaged dumping should be avoided.</li> <li>Do not dump waste of any nature into drainage lines and or in the stream areas.</li> <li>There has to be a dedicated storage area for the general waste.</li> <li>The storage area of the general and recycled waste has to be neat and tidy.</li> <li>Waste has to be removed on a weekly base.</li> <li>Spilled oil and diesel (hazardous contaminated items) has to be removed the same day when collected.</li> </ul>	<ul style="list-style-type: none"> <li>Regular inspection to ensure that no illegal dumping of waste on adjacent properties takes place.</li> <li>Regular monitoring for waste in and around the stream / riparian area.</li> <li>Remove recycled waste on a regular basis to prevent fire hazard.</li> <li>Prevent the blowing of papers in the area.</li> </ul>
<b>Socio-economic</b>	<ul style="list-style-type: none"> <li>Job creation for construction workers.</li> <li>Permanent jobs academic &amp;</li> </ul>	Employ only local people if at all possible during the construction phase.	No monitoring



Issue	Nature of impact	MITIGATION MEASURES & MANAGEMENT ACTIONS	MONITORING OF IMPACTS
	administration.		
<b>Safety of workers</b>	Injuries on site.	<p><u>During the construction phase:</u></p> <ul style="list-style-type: none"> <li>• The construction manager of the proposed development must keep a first aid kit and the telephone numbers of local emergency services in prominent positions at the staff quarters and site offices. All personnel must be made aware of these locations.</li> <li>• Ensure that the handling of equipment and material is supervised and adequately instructed.</li> </ul>	<ul style="list-style-type: none"> <li>• Keep records of injuries.</li> </ul>

## 6. ENVIRONMENTAL MANAGEMENT MEASURES

### 6.1 Description of the proposed development

The development of the New University of Mpumalanga involve the construction of facilities to accommodate 15 000 students and 1250 staff. This includes the upgrading of existing facilities and the construction of new facilities such as lecture rooms, hostels, residences, administration buildings and sport facilities over a period of 10 years. Most of the new buildings will be constructed on existing agricultural fields between existing buildings of the Agricultural College or next to the sport fields. An Eco-waste site to store general waste temporary and to recover recyclable waste will be constructed near the sport facilities on the Lower campus. The existing road network on the campus and the D752 will be upgraded. An evaluated circle will be constructed to link the R40 with the D752. The existing electricity infrastructure will be enough but 3 new substations have to be constructed.

There will be three (3) campuses namely:

- **Hill Campus** will be between the stream and the R40 on portion 31 of the farm Boshrand 283 JT. It will consist of a park, residence, academic and administration buildings. The Hill and Orchard campus will be linked with a bridge over the wetland. This is an existing bridge that has to be upgraded and expanded. A footbridge will be constructed to connect the Hill Campus and the Riverside Mall. The bridge will be constructed over the Nelsriver and underneath the bridge of the N4.
- **Orchard Campus** will be west of the stream on portion 32 of the farm Boschrand 286 JT. The Orchard Campus will have buildings with a mixture used, residences for students, administration buildings and sport facilities.
- **Lower Campus** will consist of a mixture of residents, administration & academic as well as Sport fields and sport facilities. The Eco-waste centre to recycle at source will be on the Lower Campus/portion 36 of the farm Friedenheim 282 JT.

### 6.2 Development Aspects

The development aspects are divided into the planning and design, preparation & construction, operational and decommissioning phases and are as follows:

#### 6.2.1 Planning and Design Phase

The **Task Team for the development** is responsible for the following aspects:

- The commitment to a conservation approach during the planning phase;
- Environmental friendly, sustainable urbanization, layout and design plans. Sustainable urbanization involves a combination of strategies and elements that together can produce more energy-efficient, liveable communities. It includes the design, mobility, connectivity, climate & energy and economy.
- Socio-economic impact on Nelspruit.
- Develop a code of good conduct for construction workers in consultation with the local municipality.
- Economic advice and management.
- Increase of traffic has to be mitigated to be acceptable for the community of Nelspruit.
- Planning of the aesthetic quality to ensure minimal visual impact of the site.
- Landscaping plans to improve biodiversity in the area.
- The layout plan of the University must have a minimal impact on the vegetation and removal of trees.
- The necessary plant destruction permits must be obtained from the regulating authorities prior to construction **(condition 24)** ;
- Ensure that a Water Use Licence is obtained from the Department of Water Affairs **(condition 25)**.
- A specialist must assist the surveyor to ensure that the above recommendations are followed.
- Protect trees that are listed on the RDL and/or in terms of the National Forest Act, Act no 84 of 1998,
- On-going alien vegetation clearing on and around the proposed site must be implemented **(condition 32)**
- Mitigate visual impact,

- Provide bulk infrastructure such as clean electricity, water and sewerage system without any negative impact on the rest of Nelspruit,
- Mitigate the impact of 4000 additional cars and 30 additional busses per day that will be additional to existing traffic in Nelspruit,
- Prevention of accidents with students that use bicycles or have to walk from their residence to and from different campuses,
- The **University** should establish a Recruitment/Labour Desk before construction start.
- The employment selection process should seek to promote gender equality and the employment of woman wherever possible.
- The need to implement a training and skills development program for locals prior to the commencement of the construction phase should be investigated. The aim should be to maximize the number of locals employed during the construction phase.

### 6.2.2 Site preparation & construction Phase

The members of the **Task Team for the development** are responsible for the following aspects:

- The applicant must be committed to a conservation approach of practice and the actual footprint of construction/disturbance must be kept to a minimum;
- As much of the natural environment as possible must be conserved (minimal construction of access roads and bush clearing). Improve biodiversity with indigenous gardens on the University's premises,
- Site establishment and preparation –storage area for construction equipment.
- The construction site must be clearly demarcated and clear signage must be erected (**condition 30**)
- Potable water must not be used to suppress dust during construction phase (**condition 31**),
- The use of generators of site must include the use of drip trays (**condition 34**).
- Construction vehicles and machineries must be cleaned, maintained and monitored regularly to reduce environmental impacts caused by fuel spillage (**condition 35**)
- Site preparation – removal of vegetation and levelling of terrain.
- Concrete mixing on site during construction must be conducted on plastic sheeting in order to avoid permanent soil contamination and to facilitate clean-up of the site (**condition 33**),
- Soil conservation measures must be implemented (**condition 27**).
- Waste management of additional construction material.
- Rehabilitation areas must be cordoned off as no-go areas (**condition 28**).
- Rehabilitation, landscaping and planting of vegetation on the site
- Rehabilitate area with the planting of indigenous plants and trees,
- Prevent degradation of wetlands (**condition 29**).
- Preventative erosion control measures to be put in place.
- Prevent siltation in the stream between the Hill and Orchard Campus and Nels River,
- Reduce storm water impact on the banks of the stream and Nels River,
- On-going alien vegetation clearing on and around the proposed site must be implemented (**condition 32**)
- Relocation of important species, identification and demarcation of specimens and sub-habitats not to be disturbed will have to be done beforehand by a specialist;
- Important species (fauna as well as flora) that will be threatened by the development must be relocated to safer habitats by suitable specialists;
- Final rehabilitation of area after construction is completed,

### 6.2.3 Operational Phase

**University Of Mpumalanga Management/staff** staff/officials is responsible for the following aspects:

- Operations associated with the infrastructure of the university must have minimum impact on the environment.
- Prevention of ground water & stream pollution.
- Prevent the deterioration of the fauna and flora on the proposed 3 Campuses of the University.
- On-going alien vegetation clearing on and around the proposed site must be implemented (**condition 32**)
- Plan to remove minimal vegetation and cut only the necessary trees.

- Implement an integrated waste management plan (**condition 36**)
- Promote reduce, re-use and recycling of waste (**condition 36**),
- Ensure good air quality by managing traffic in and around the university
- Prevent noise pollution.
- Mitigate visual impact.
- Provide healthy environment to students, staff of the university and neighbouring residents.
- Final rehabilitation with indigenous vegetation of area after construction is completed.
- Maintenance staff of gardens must be educated with regards to the importance of biodiversity;
- The operational phase must be monitored by **University Of Mpumalanga Management/staff** staff/officials to ensure that adequate mitigation measures are in place and to take reactive measures in places where impacts pose problems.

#### **6.2.4 Decommissioning Phase**

**Task Team for the development** is responsible for the demolishing of the buildings.

#### **6.3 Environmental Management Programme**

The following table forms the basis of this EMPr for planning, preparation and operational phases of the project. The EMPr should guide the **Task Team for the development** and it should be implemented as an auditing list during the preparation/construction and operational phase. Daily compliance with the EMPr should be monitored by the **Task Team for the development**. The ECO should conduct compliance audits on a monthly basis and summarize the reports to report quarterly to DEA till the final construction and rehabilitation of construction site is completed.

<b>6.3.1 PLANNING AND DESIGN PHASE</b>
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ASPECT/IMPACT	MITIGATION MEASURE	RESPONSIBILITY	FREQUENCY
<b>Layout and Design</b>	<ul style="list-style-type: none"> <li>○ The layout and design of the Mpumalanga University and all associated infrastructure must comply with the conditions as described in the BAR and the EA/RoD.</li> <li>○ The proponent must be committed to a conservation approach during the planning phase.</li> </ul>	<b>Task team for the development</b>	<b>Start of project</b>
<b>Land uses</b>	<ul style="list-style-type: none"> <li>○ The different neighbouring land owners have to be accommodated in the planning of the <b>UNIVERSITY OF MPUMALANGA.</b></li> </ul>	<b>Task team for the development</b>	<b>Start of project</b>
<b>Socio-economic:</b>	<ul style="list-style-type: none"> <li>○ Job opportunity.</li> <li>○ Population influx.</li> <li>○ Business opportunities – Create business areas.</li> <li>○ Traffic and safety hazards.</li> <li>○ Service and community development.</li> <li>○ Code of conduct for staff and students.</li> </ul>	<b>Task team for the development</b>	<b>Start of project</b>
<b>Job opportunities</b>	<ul style="list-style-type: none"> <li>○ Local first policy for low skilled jobs.</li> <li>○ Establish a Recruitment/Labour Desk for the construction phase.</li> <li>○ Develop a code of good conduct for the construction phase.</li> <li>○ Implement a training and skills development programme for locals – maximise the number of local employment.</li> <li>○ Database of local firms that qualify as potential service providers (construction, catering, security, recycling of waste and waste collection).</li> <li>○ Dismissal procedures have to be in place before appointing staff. Dismissal procedures have to be according to Labour laws.</li> </ul>	<b>Task team for the development</b>	<b>Start of project</b>
<b>Traffic</b>	<ul style="list-style-type: none"> <li>○ Increase of traffic in and around the university.</li> <li>○ Congestion of traffic at crossings of roads.</li> <li>○ Reduce air pollution directly associated to the traffic in and around the university.</li> <li>○ Save crossings for pedestrians.</li> <li>○ Save walkways for pedestrians and cyclists.</li> <li>○ Enough parking for students, staff and visitors of the university.</li> </ul>	<b>Task team for the development</b>	<b>Start of project</b>

ASPECT/IMPACT	MITIGATION MEASURE	RESPONSIBILITY	FREQUENCY
<b>Bulk services: Water provision Sewerage management Waste management Storm water plan and erosion management</b>	<ul style="list-style-type: none"> <li>○ <b>Clean water</b> has to be available at all time to the university.</li> <li>○ Development planned to be developed for the university have to be connected to the main <b>sewer system</b>.</li> <li>○ A system to separate <b>grey and black water</b>.</li> <li>○ <b>Sewerage</b> from the university has to be accommodated at the existing WWTP.</li> <li>○ <b>Waste has to be stored</b> on a dedicated area – Eco-waste Centre.</li> <li>○ <b>Waste has to be removed</b> on a regular basis to a permitted waste site.</li> <li>○ <b>Storm water management</b> design must be in such a manner that no erosion is caused.</li> <li>○ <b>Water harvesting</b> / capturing of water from roofs – reduce storm water impact.</li> <li>○ Plan <b>to prevent erosion</b> by only removing vegetation 1 week before construction started</li> <li>○ Prepare a <b>landscaping plan</b> to plant fast growing indigenous trees to mitigate possible erosion impact.</li> </ul>	<p style="text-align: center;"><b>Task team for the development</b></p>	<p style="text-align: center;"><b>Start of project</b></p>
<b>Protected plant spp, sensitive habitat</b>	<ul style="list-style-type: none"> <li>○ The removal of vegetation has to be planned in such a manner that it is only removed on the proposed development areas and associated infrastructure.</li> <li>○ Obtain permission from the ECO to proceed with the clearing of vegetation from the development area. <b>No protected trees may be removed without the permits from the DAFF if protected tree species are located.</b></li> <li>○ Plan to translocate protected/sensitive plant species to similar habitats (See list of possible plant spp that could be found on the site and Vegetation Assessment, A Eysell, September 2013 and Wetland Assessment, A Bootsma, September 2013).</li> <li>○ Sensitive habitats must be avoided.</li> <li>○ Landscaping plan for university must be planned with indigenous vegetation.</li> </ul>	<p style="text-align: center;"><b>Task team for the development</b></p>	<p style="text-align: center;"><b>Start of project</b></p>

**6.3.2 THE PREPARATION & CONSTRUCTION PHASE**

ASPECT/IMPACT	MITIGATION MEASURE	RESPONSIBILITY	FREQUENCY
<b>Site establishment</b>	Inform the STAFF/CONTRACTORS of: <ul style="list-style-type: none"> <li>○ All staff must be committed to a conservation approach of practice.</li> <li>○ The requirements of EMPr.</li> <li>○ That no vegetation may be removed before permission from the ECO.</li> <li>○ Locate site office and storage area for the CONSTRUCTION material.</li> <li>○ A complaint register have to be available to the public at all times.</li> </ul>	<b>Task team for the development, Contractor &amp; ECO.</b>	<b>Start of project</b>
<b>Site preparation</b>	<ul style="list-style-type: none"> <li>○ Keep actual footprint of construction site to the minimum.</li> <li>○ If vegetation has to be removed, it has to be handled according to the EA conditions and Landscaping plan. It has to be re-vegetated in similar habitats where protected plants can be established.</li> <li>○ The levelling or excavation of the constructed areas has to be environmental friendly.</li> <li>○ If sites of cultural significance or heritage importance are discovered during the site preparation period the work must cease immediately. The area must be secured and an archaeologist should be contacted. Site preparation may proceed in the area once agreed to mitigation measures that have been implemented and approved by the Heritage Resources Agency.</li> </ul>	<b>Task team for the development, Contractor &amp; ECO.</b>	<b>On going</b>
<b>Storm and runoff water management</b>	<ul style="list-style-type: none"> <li>○ Vegetation may only be removed on the demarcated construction areas to prevent the rush down of run-off water during a storm event.</li> <li>○ Construction of infrastructure has to be started within a week (1 week) after the removal of plants to limit duration that soils are exposed. Storm water has to be managed and channelled on the construction site during site preparation to prevent erosion.</li> <li>○ Prevent the discharge of polluted water or water containing suspended materials into seepage or drainage areas.</li> <li>○ Prevent antiseptic liquids entering storm water channels. Antiseptic liquids should be handled and stored in a safe place.</li> <li>○ Sandbags have to be used to prevent water run off to the stream.</li> <li>○ The re-vegetation of constructed area with indigenous plants has to start immediately after construction.</li> </ul>	<b>Task team for the development, Contractor &amp; ECO</b>	<b>On going</b>

ASPECT/IMPACT	MITIGATION MEASURE	RESPONSIBILITY	FREQUENCY
<b>Waste management:</b>	<ul style="list-style-type: none"> <li>○ Keep the construction area, construction offices and other facilities free of domestic waste.</li> <li>○ A dedicated storage area has to be provided for general waste.</li> <li>○ Ensure that no illegal dumping of waste on adjacent properties take place.</li> <li>○ Do not dump waste of any nature into storm water systems.</li> </ul>	<b>Task team for the development/ Contractor</b>	<b>On going</b>
<b>Access</b>	<ul style="list-style-type: none"> <li>○ Make use of existing access roads.</li> </ul>	<b>Task team for the development, Contractor &amp; ECO</b>	<b>On going</b>
<b>Flora</b>	<ul style="list-style-type: none"> <li>○ Be aware of any medical or protected plant species.</li> <li>○ Replant trees that have to be removed in a similar habitat. <ul style="list-style-type: none"> <li>○ Plant yearly additional indigenous trees in the area.</li> </ul> </li> <li>○ Remove alien invader species.</li> </ul>	<b>Task team for the development, Contractor &amp; ECO</b>	<b>On going</b>
<b>Fauna</b>	<ul style="list-style-type: none"> <li>○ Avoid sensitive areas such as rocky outcrops, wetlands, forests areas.</li> <li>○ Removal of large trees has to be restricted to the minimum.</li> <li>○ Construct owl nests to control mice if needed..</li> </ul>	<b>Task team for the development, Contractor &amp; ECO</b>	<b>On going</b>
<b>Air quality</b>	<ul style="list-style-type: none"> <li>○ Access dirt roads should be sprinkled with water using water tanks.</li> <li>○ Vehicles have to drive slowly to create less dust.</li> </ul>	<b>Task team for the development, Contractor &amp; ECO</b>	<b>On going</b>
<b>Noise pollution</b>	<ul style="list-style-type: none"> <li>○ Regular servicing of vehicles to prevent high pitched roars</li> <li>○ Construction workers should be alerted not to scream or hoot at the public or near residential areas.</li> </ul>	<b>Task team for the development, Contractor &amp; ECO</b>	<b>On going</b>
<b>Social &amp; Health Aspects. Safety and security</b>	<ul style="list-style-type: none"> <li>○ The <b>Task Team For The Development/ contractor</b> must comply with the National building Regulations and Building Act (Act no 103 of 1997).</li> <li>○ The <b>Task Team For The Development/ Contractor</b> must comply with the Occupational Health and Safety Act, 1993 (Act no. 85 of 1993).</li> <li>○ Health and Safety officer have to be on site during working hours.</li> <li>○ Ensure that the handling of equipment and material is supervised and adequately instructed.</li> <li>○ Ensure that construction vehicles are under control of competent personnel.</li> </ul>	<b>Task team for the development, Contractor &amp; ECO</b>	<b>On going</b>



### 6.3.3 OPERATIONAL PHASE

ASPECT/IMPACT	MITIGATION MEASURE	RESPONSIBILITY	FREQUENCY
<b>Ecological impact</b>	<ul style="list-style-type: none"> <li>○ Removal of alien invasive species and regular monitoring thereof.</li> <li>○ All pristine areas outside the proposed development areas have to be protected at all time.</li> <li>○ Biodiversity can improve by planting indigenous vegetation in the gardens of the university.</li> </ul>	<b>Task Team For the Development/contractor</b>	<b>On going</b>
<b>Wetland impact</b>	<ul style="list-style-type: none"> <li>○ Prevent degradation of wetlands.</li> <li>○ Remove alien vegetation in the wetlands on a regular basis.</li> <li>○ Prevent waste entering wetlands.</li> <li>○ Prevent siltation of wetlands</li> </ul>	<b>Task Team For the Development/contractor</b>	<b>On going</b>
<b>Solid Waste management</b>	<ul style="list-style-type: none"> <li>○ Ensure that no illegal dumping of waste on the adjacent properties take place.</li> <li>○ Do not dump waste of any nature into drainage lines, stream or pristine natural areas.</li> <li>○ Dedicate storage areas for general and recycled waste has to be neat and tidy.</li> <li>○ Remove recycled waste on a regular basis to prevent fire hazard.</li> </ul>	<b>Task Team For the Development/contractor</b>	<b>On going</b>
<b>Social impact</b>	<ul style="list-style-type: none"> <li>○ Workers have to be provided with a code of conduct to address the required standards in terms of the universities standards.</li> <li>○ Dismissal procedures have to be in place before appointing staff. Dismissal procedures have to be according to Labour laws.</li> </ul>	<b>Task Team For the Development/contractor</b>	<b>On going</b>

### 6.3.4 DECOMMISSIONING/CLOSING PHASE

ASPECT/IMPACT	MITIGATION MEASURE	RESPONSIBILITY	FREQUENCY
<b>Construction</b>	Demolishing of associated structures and buildings.	<b>Department of Higher Education.</b>	<b>End of project</b>

This document acts as a guideline for the Management of **Task Team for the development**, the appointed ECO and relevant staff members of **UNIVERSITY OF MPUMALANGA**. The content should be implemented as an auditing list and compliance should be monitored.

## **7. IMPLEMENTATION OF EMPR**

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### **7.1 TRAINING AND AWARENESS**

DHET has to advise/train staff on a regular basis to manage the university, to monitor potential impacts and to mitigate negative impacts where possible. Operators and contractors have to be informed to work according to the EMPr.

### **7.2 DOCUMENTATIONS AND RECORD KEEPING**

A **copy of the Environmental Authorization/Record of Decision (EA/RoD)** and the EMPr must at all times be available and all relevant staff, contractors and sub-contractors should be acquainted with the contents thereof.

The **Complaint Register** has to be on site and all complaints have to be recorded. Complaints shall be investigated, corrective action implemented and feedback given to the complainant on the issues raised, within 24 hours.

### **7.3 REPORTING**

All records related to the implementation of this management plan (site instruction book, method statement diary and monthly auditing – App A) must be kept together in an office where it is safe and can be retrieved easily. These records should be kept for 2 years and should at any time be available for security by any relevant authorities.

The ECO shall conduct compliance audits **once a month** and compile written **environmental auditing reports** in terms of the EMPr. Reports must be available on request to the Public and I&AP.

Operators have to report immediately to the supervisors of any malfunction.

### **7.4 STAKEHOLDER ENGAGEMENT**

Stakeholders have the opportunity to comment on the impacts and management actions described in the BA Report and EMPr. An Environmental Monitoring Committee may be established by the management of the University, in the implementation of the EMPr and can provide a forum for stakeholder engagement. During the operational phase, stakeholders should have an opportunity to provide inputs into the revisions of the EMPr as well as the design of corrective actions where appropriate. The main benefit of involving stakeholders in the EMPr is to include local knowledge and to ensure that the EMPr addresses aspects of the project that could be a source of social risks. Stakeholders need to understand that their safety, health and environment are not being compromised. They should be kept informed so that no uncertainty exists in this regard.

### **7.5 AUDITS**

Procedures should be developed by the project manager for conducting EMPr audits and should incorporate processes for the scheduling and reporting as well as timing and frequency of the audits. **External audits** should be scheduled and conducted by competent auditors, properly recorded and corrective actions should be verified. The manager is responsible for scheduling and ensuring execution of the audits as well as for the verification of the implementation of corrective action.

## **7.6 RESPONDING TO NON-COMPLIANCE**

The ECO shall review the Environmental Management Performance of the Contractor on a regular basis and shall compile a monitoring and auditing plan, in order to ensure that all of the environmental management measures are implemented and are effective. The Contractor shall be deemed not to have complied with the EMPr if:

- There is evidence of the contravention of any of the conditions of the EMPr.
- The Contractor fails to comply with corrective measures or other instructions by the ECO.
- The contractor fails to respond to complaints from the public.
- Employees of the contractor are found illegally removing vegetation, entering neighbouring areas or cause destruction due to unacceptable behaviour.

## **7.7 TRANSFER OF EMPr REQUIREMENTS TO THE CONTRACTOR, SUB-CONTRACTOR AND OTHER I&AP**

Responsibilities have to be transferred legally to operators and contractors. The EMPr has to be part of tender documents, job descriptions and/or appointment letters. Non-compliance should be the responsibility of the person in control of the operation.

## **7.8 MANAGEMENT, REVIEW AND REVISION OF THE EMPr**

EMPr should be dynamic, flexible and subject to periodic review. The extent to which the EMPr should be reviewed will vary depending on the impacts and variation of the process. Regular review will be required if some of the processes has to be stopped and some others has to be modified. Conditions under which the EMPr would require revision include:

- Change in legislation
- Occurrence of unanticipated impacts or impacts of greater intensity, extend and significance than predicted.
- Inadequate mitigation measures and secondary impacts that occur as a result of the mitigation measures.

Senior management is responsible for a review of the EMPr and the implementation to ensure that the EMPr remains effective and appropriate.

## 8. REFERENCES

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