ENVIRONMENTAL MANAGEMENT PROGRAMME

EXPANSION OF INFRASTRUCTURE AT 25 LLEWELLYN ROAD RESULTING IN THE INFILLING & EXCAVATION OF MATERIAL WITHIN 100M OF THE HIGH-WATER MARK OF THE SEA, THE PLANTING OF VEGETATION ON A DUNE AND THE EXPANSION OF INFRASTRUCTURE WITHIN 32M OF A WATERCOURSE

KWADUKUZA MUNICIPALITY

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1.0. PROJECT DESCRIPTION

1.1. BACKGROUND

Monique Middleton owns the property described as Portion 358 (of 356) of Farm Lot 61 No. 1521, located at 25 Llewellyn Road, Sheffield Beach (29°29'09.86"S; 31°15'18.92"E). The property is within Ward 22 of the KwaDukuza Local Municipality, iLembe District. There is an existing structure on the property, which was partially constructed in 2005 / 2006. The building was never completed, and the property has remained vacant since construction ceased in 2006. Monique Middleton purchased the property in December 2020 and intends to demolish the existing structure and construct a new, private residential dwelling. The property is 1 600m^2 in extent and falls entirely within 100m of the high-water mark of the sea. A dysfunctional wetland has been delineated in the south-eastern portion of the property.

The infilling and excavation of material within 100m of the high-water mark of the sea and the expansion of the existing development footprint requires Environmental Authorisation from the Department of Economic Development, Tourism and Environmental Affairs (EDTEA) for the activities listed in Table 1 below.

Table 1: Listed and Specified Activities Triggered and Being Applied for.

Activity #	Relevant Listing Notice	Description of Listed Activity as Per the Project Description
18 (i)	Listing Notice 1 (GNR327) 04th December 2014 as amended.	Once construction is complete, an area of 470m^2 of dune will be landscaped and planted with indigenous vegetation.
19	Listing Notice 1 (GNR327) 04th December 2014 as amended.	A volume of 16m^3 of material will be excavated and infilled within the dysfunctional wetland [excavation of greywater reed bed (10m^3) and construction of fence (6m^3)].
19A (ii)	Listing Notice 1 (GNR327) 04th December 2014 as amended.	During construction, 168m^3 of material will be excavated and infilled within 100m of the high-water mark of the sea [construction of new residential dwelling foundations (100m^3), excavation for installation of services (42m^3) and construction of fence (6m^3)]. A further 20m^3 of previously dumped rubble and material within the dune environment will be removed.
54 (v) (e)	Listing Notice 1 (GNR327) 04th December 2014 as amended.	The existing development footprint will be expanded by 234m^2 [cobblestone driveway (195m^2), stilted swimming pool (5m^2), fence (12m^2) and service infrastructure (22m^2)]. The expansion of infrastructure will take place within 100m of the high-water mark of the sea.
23 (ii) (c) (d) (xi) (cc)	Listing Notice 3 (GNR324) 04th December 2014 as amended.	The existing development footprint will be expanded by 27m^2 within 32m of the dysfunctional wetland which extends along the eastern extent of the property [stilted swimming pool (5m^2) and service infrastructure (22m^2). The expansion of infrastructure within 32m of the watercourse will take place within 100m of the high-water mark of the sea.

1.2. DESCRIPTION OF ACTIVITY

The following activities are proposed (Figure 1):

- Demolition of existing residential infrastructure (540m^2)
- Construction of new residential dwelling including garages (443m^2)
- Construction of a cobblestone driveway (195m^2)
- Construction of a stilted swimming pool (5m^2)
- Construction of a wooden deck (113m^2)
- Construction of fence along eastern boundary (6m^3)
- Removal of previously dumped rubble and infill from the dune environment (20m^3).
- Landscaping of the dune (470m^2).
- Excavation of the dune to install services and construction of an artificial reed bed (42m^3).

During the construction of House Middleton, the existing development footprint will be expanded by 234m^2 within 100m inland of the high-water mark of the sea [cobblestone driveway (195m^2), stilted swimming pool (5m^2), fence (12m^2) and service infrastructure (22m^2)]. Infrastructure will be expanded by 27m^2 within 32m of a watercourse [stilted swimming pool (5m^2) and service infrastructure (22m^2)].

A volume of 168m^3 of material will be excavated and infilled within 100m of the high-water mark of the sea [construction of new residential dwelling foundations (100m^3), removal of previously dumped rubble on site (20m^3), excavation for installation of services (42m^3) and construction of fence (6m^3)]. A volume of 16m^3 of material will be excavated and infilled within the dysfunctional wetland [excavation of greywater reed bed (10m^3) and construction of fence (6m^3)]. Once construction is complete, an area of 470m^2 of dune will be landscaped and planted with indigenous vegetation.

Figure 1: Map Superimposing the Proposed Activity and Associated Infrastructure on the Environmentally Sensitivities of the Site.

1.3. ENVIRONMENTAL SENSITIVITIES

The following sensitive environmental features have been identified within the study area (refer to Figure 1):

- The coastal environment and sand sharing system associated with the nearby shoreline. Proposed House Middleton falls below the sand sharing system however all construction must be carried out in accordance with the methodology described in this EMPr.
- The Coastal Vulnerability Index suggests that the study area has a "*high*" erosion risk. This vulnerability index refers to the level of vulnerability that may arise on built structures as a result of both sea level rise, storm forced erosion and tidal inundation, or a combination of both.
- A dysfunctional wetland was identified in the eastern extent of the property. All infrastructure, apart from the fenceline along the eastern property boundary, must be constructed outside of the wetland. Despite the highly transformed nature of the wetland, the feature is still considered a unique ecological feature along the KZN coastline due to its proximity to the seashore, offering a "*dynamic and diverse habitat for various taxa*".
- The underlying geology is that of fill material and wind-blown silty sand, which is susceptible to erosion. The study area falls within a "*moderate*" palaeontological sensitive area. A Fossil Chance Find Protocol has been included in the EMPr.

The Applicant, Contractors and Staff on site must be made aware of the environmental sensitivities and associated restrictions. The restrictions must be clearly explained by the Environmental Control Officer (ECO) prior to construction commencing. An Environmental Awareness Plan has been prepared for Contractors working on site (section 5.0 of the EMPr). The Environmental Awareness Plan will form part of the Environmental Induction training prior to work commencing.

1.4. IMPACT MANAGEMENT OUTCOMES

Considering the type of activity and the environmental sensitivities associated with the site, impact management actions were formulated during the Environmental Impact Assessment to avoid, manage and mitigate risks that were identified for the different phases of the activity including planning and design, pre-construction activities, construction activities, rehabilitation / post-construction and operational activities (where applicable). Impact management actions are in place to achieve the following impact management outcomes:

Table 2: Impact Management Outcomes

Primary Impact Management Outcome: *To create a sustainable development by preventing construction activities from impacting the sand sharing system and nearby watercourse while improving the current biodiversity within the currently dysfunctional wetland system.*		
#	**Impact Management Outcome**	**Measures in Place to Achieve Outcome**
1	To avoid unnecessary encroachment of construction activities into the sand sharing system and adjacent wetland.	An independent ECO must clearly demarcate the No Go area in the front of the existing structure, below the infill material but above the wetland environment (see location of shade cloth fence in Figure 1). Only designated staff, who have received the necessary environmental induction training may enter this No Go area during the removal of alien vegetation, landscaping of the dune and construction of the reed bed and fence. Measures to prevent and manage encroachment into the dune / coastal environment have been included under section 4.3 of the EMPr.
2	To avoid unnecessary disturbance (direct or indirect) to the wetland, which is an important feature for bioremediation and water attenuation.	The preferred Technology Alternative (Technology Alternative 2) must be authorised to reduce excavation activities in the wetland. The wetland and dune seaward of the infilled material must be demarcated and treated as a No Go area during construction of the house. Other measures to prevent and manage construction in close proximity to this sensitive area have been included under section 4.3 of the EMPr.

3	Ensure dune stability during and following the establishment of the services, fence and removal of alien vegetation.	Only designated staff, who have received the necessary environmental induction training may enter demarcated No Go area associated with the wetland. No heavy machinery is permitted seaward of the shade cloth fence. Indigenous coastal vegetation must be re-introduced back onto the property during landscaping to improve the overall habitat on site. Measures to manage construction have been included under section 4.3 of the EMPr.
4	Establishment of a split soakaway system to reduce the volume of treated blackwater seeping onto the dune and scarp environment.	The preferred Technology Alternative (Technology Alternative 2) for House Middleton must be authorised: construction of a split soakaway system with a French drain (blackwater) and reed bed (greywater).

2.0. LEGISLATION

Table 3 provides a list of legislation and municipal planning frameworks which are applicable to the activity. The holder of the Environmental Authorisation and Contractors working on site must be aware of the legal requirements and address non-compliances when they arise.

Table 3: Legislation Applicable to The Expansion of Infrastructure at 25 Llewelyn Road, Sheffield Beach.

Legislation	Acronym	Comment
National Environmental Management Act (Act No. 107 of 1998 as amended).	NEMA	NEMA provides environmental management principles that are applicable across South Africa to fulfil section 24 of the Constitution, which is the right to "*an environment that is not harmful to their health or wellbeing*". Section 24 of NEMA defines the activities requiring Environmental Authorisation and the processes to be followed to obtain Environmental Authorisation (published in the Environmental Impact Assessment Regulations, 2014 as amended). This application triggers activities listed in Listing Notices 1 & 3 of the Environmental Impact Assessment Regulations, 2014 as amended. A Basic Assessment process is therefore underway to obtain Environmental Authorisation prior to any activities commencing.
DEA (2017), Public Participation guideline in terms of NEMA EIA Regulations, DEA, Pretoria, South Africa.	-	To give effect to section 2 (4)(f) and (o) of NEMA, adequate and appropriate opportunity for public participation in decisions that may affect the environment is required. NEMA requires that any person conducting public participation take into account any relevant guidelines applicable to the public participation process as contemplated in section 24J of NEMA. The public participation conducted as part of the Basic Assessment process complies with the NEMA EIA Regulations and has considered the relevant guidelines.
DEA (2017), Guideline on Need and Desirability, DEA, Pretoria, South Africa.	-	This guideline contains information on best practice and how to meet the requirements prescribed by NEMA when considering the need and desirability of a development. The need and desirability of the project has considered the list of questions outlined in the Need & Desirability Guidelines.
National Environmental Management: Waste Act (Act No. 59 of 2008 as amended).	NEM: WA	NEM: WA provides measures to protect health and the environment of South Africa by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. There are no activities proposed that will trigger a Waste Management License however measures have been provided in the EMPr to ensure that waste management is compliant with the requirements of NEM: WA.
National Environmental Management Biodiversity Act (Act No. 10 of 2004).	NEM: BA	To manage and conserve South Africa's Biodiversity and protect species and ecosystems that warrant national protection. The proposed development does not require any specific permissions in terms of NEM:BA however the landowner must comply with the requirements of the Alien and Invasive Species Regulations (2020) which have been published in terms of section 97(1) of NEM:BA. These regulations categorise invasive species and outlines the way these species must be controlled by landowners.

		Section 52 of NEMBA allows for the publication of a national list of ecosystems that are threatened and in need of protection. The property is located within the Northern Coastal Grasslands Ecosystem which has been identified as "critically endangered" by the South African National Biodiversity Institute (SANBI). The vegetation on site has however been completely transformed disturbance and supports a high level of alien invasive species.
National Environmental Management: Air Quality Act (Act No. 39 of 2004).	NEM: AQA	Regulates air quality to protect the environment by providing measures to prevent pollution and ecological degradation and for securing ecologically sustainable development. There are no activities on site that will trigger an Air Emissions License however measures have been provided in the EMPr to ensure that air quality is managed in line with the requirements of NEM: AQA.
National Water Act (Act No. 36 of 1998) (as amended).	NWA	Provides for fundamental reform of the law relating to water resources. A natural spring originates near the north-western corner of the property. Infrastructure will be constructed within 100m of the spring potentially triggering a section 21(c) & (i) Water Use Authorisation. Provided that the houses connect to the sewer reticulation network, a section 21(g) water use can be avoided. The EAP is to request a pre-application meeting with the Department of Water and Sanitation (DWS) to confirm whether a Water Use Authorisation application is necessary on a previously developed site.
National Forests Act (Act No. 84 of 1998).	NFA	To conserve and protect natural forests and woodlands as well as ensuring development with principles of sustainable management. The Department of Forestry Fisheries and Environment (DFFE) governs the removal, disturbance, cutting or damaging of protected tree species and natural forests. There are no natural forests on site. The specialist did not identify any protected species within the site area..
Integrated Coastal Management Amendment Act (Act No. 36 of 2014).	ICMAA	Establishes an integrated coastal and estuarine management system to promote the conservation of coastal environment and maintain natural attributes of coastal landscapes and seascapes. Sound coastal management principles are presented in the ICMAA which are applicable to this application. The Coastal Vulnerability Index shows the site to have a "*high*" vulnerability. All infrastructure proposed falls within 100m of the high-water mark of the sea and therefore the layout needs to be "*economically justifiable and ecologically sustainable*", which is a requirement of the ICMAA.
Best Practises for Coastal Development in KwaZulu-Natal (2021)[1]	-	Recognises the interrelationships between coastal users and ecosystems. The Provincial Coastal Management Programme (PCMP) sets out objectives to ensure coastal development occurs in a manner that is appropriate, adaptive and systems-based. As a PCMP output, EDTEA produced this Guideline on best practises to be adopted for development along the coast. This development is classified as a private project in terms of these guidelines and adheres to the principles of development planning provided in this document.
National Heritage Resources Act (Act No. 25 of 1999).	NHRA	For the management of national heritage resources and to nurture and conserve heritage resources so that they may be bequeathed to future generations. The existing house is not a heritage feature (i.e. it is younger than 60 years). No structures with heritage or archaeological value are located on site. The property falls within a "*moderately*" sensitive palaeontological (i.e. fossils) area. A Desktop Palaeontological Impact Assessment was therefore carried out and a Fossil Chance Find Protocol included in the EMPr.
iLembe District Municipality Integrated Development Plan (2020 – 2021 Review)	iLembe IDP	Provided that the construction is carried out in a sustainable manner, the activities proposed at 25 Llewellyn Road are in line with the iLembe District Vision outlined in section 1.2 of the iLembe IDP. This vision is "*By 2030 iLembe District Municipality will be a sustainable people-centred economic hub providing excellent service and quality of life*".
KwaDukuza Local Municipality Spatial Development Framework (2017 – 2022)	KDM SDF	The proposed development is compliant with the existing property zoning parameters with no special consent required. The project is therefore in line with the KDM SDF for the area.

[1] Bundy, S., Goble, B., Parak, O. and Bodasing, M. "*Best Practises for Coastal Development in KwaZulu-Natal*" KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs, Pietermaritzburg (2021).

3.0. MONITORING REQUIREMENTS

As per the findings of the Environmental Impact Assessment, the holders of the Environmental Authorisation are responsible for appointing an independent Environmental Control Officer (ECO) to monitor the implementation of the impact management actions. Table 4 provides a summary of the monitoring requirements to ensure effective implementation of the EMPr. It is noted that the mitigation measures listed in the EMPr as well as the Conditions of the Environmental Authorisation must be adhered to.

The appointed ECO must have the following skills:

- Knowledge and understanding of constructing on coastal environments.
- Knowledge of good practise environmental management standards.
- Understanding of the legal context of the activity including the Duty of Care and Polluter Pays principles.
- At least 2 years' experience in the ECO field.

Table 4: Monitoring Requirements for House Middleton.

Method of Monitoring	• Site inspection by ECO to monitor the implementation of the EMPr and conditions of the EA during construction and the post-construction audit. • Visual inspections & photographs for record keeping purposes.
Frequency of Monitoring	• The ECO must audit the construction period monthly. • One monthly report per house summarising the findings of the audits must be submitted to the landowner, Contractor and EDTEA: Compliance and Enforcement. • One post-construction audit by ECO.
Mechanism for Monitoring Compliance	• Written monthly audit reports to be submitted by the ECO after the site inspection to the Holder of Environmental Authorisation, Contractor and EDTEA: Compliance, Monitoring & Enforcement.
Program for Reporting on Compliance	• Prior to the Contractor commencing with construction, environmental induction training must be carried out in accordance with the Environmental Awareness Plan in section 5.0. • The register in section 6.0 must be signed by all Primary Contractors working on the site. • The roles and responsibilities of the individuals involved must be determined and the line of communication outlined by the ECO in the audit reports. • Any non-compliances with the EMPr identified during the site inspection must be reported to the relevant Contractor, who must rectify the non-compliance immediately or within a reasonable timeframe as agreed upon with the ECO. • An Environmental Audit Report, compliant with Appendix 7 of the NEMA EIA Regulations 2014 as amended, must be compiled by the ECO for each of the proposed houses and submitted to the relevant parties as listed above. • Prior to construction commencing on site, the holder of the Environmental Authorisation must have an agreement with the Primary Contractors working on site as to what remedial actions must be taken should environmental damage arise on the site as a result of actions by the Contractor.

4.0. IMPACT MANAGEMENT ACTIONS

Mitigation measures provided in the tables below have been formulated during the Environmental Impact Assessment process to ensure that the expansion of infrastructure at 25 Llewelyn Road is a sustainable development, as contemplated in the principles of NEMA. The actions aim to:

(i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; and
(ii) Comply with any prescribed environmental management standards or practices.

The tables below indicate the persons who will be responsible for the implementation of the mitigation measures / actions. Abbreviations provided below:

- Independent Environmental Control Officer *ECO*
- Engineer *ENG*
- Holder of Environmental Authorisation *DEV*
- Architect *ARC*
- Contractor *CON*
- Landscaper *LAND*

4.1. PLANNING & DESIGN

The planning and design phase for House Middleton is nearly complete. The holder of the Environmental Authorisation must ensure that the mitigation measures provided in Table 5 are carried through to the final design.

Table 5: Impact Management Actions to be Adhered to During the Planning & Design Phases of House Middleton.

Aspect	Impact	Mitigation / Actions	Responsible Person	Compliant (Yes / No)
Installation of split soakaway system resulting in excavation & infilling of material within 100m of the high-water mark & within dysfunctional wetland.	**Excavation of material in front of existing structure increasing erosion potential and impacting on sensitive environmental areas (i.e. coast and wetland).**	• All services must be located as per the preferred Technology Alternative shown in Figure 1 (i.e. no structures constructed within the delineated wetland).	ENG	
Expansion of residential infrastructure at	**Change and impacts on surface and subsurface hydrology due to the discharge of stormwater and wastewater**	The discharge of eutrophic water from the septic tank soakaway (i.e. blackwater system) will have an impact on surface and sub surface flows. This impact is likely to be on faunal and floral diversity present on the dune and wetland, particularly species within the beach-scarp environment. The significance of this impact has been		

25 Llewellyn Road.	**treatment system – Technology Alternative 2 (SDP, 2022).**	reduced using the preferred Technology Alternative for stormwater and sewage disposal. • Stormwater must be collated and discharged into two stormwater spreaders located on either side of the property. Stormwater will serve to reinstate the wetland environment. • A split soakaway system must be implemented to separate greywater from blackwater. Greywater must be discharged into a reed bed for phytoremediation and blackwater must be discharged to a septic tank and French drain system. • All infrastructure must be located outside of the wetland environment. The reed bed is located within the wetland to reinstate wetland hydrology. • Rainwater must be allowed to percolate on site underneath any decking. This will promote stormwater infiltration and groundwater recharge.	ENG ARC	
	Cumulative impact on the sand sharing system in Sheffield Beach, including changes to the coastal fauna and faunal ethos (SDP, 2022).	• The use of external lighting should be confined to areas around the built structures. Specifically, no spotlights must be directed onto the beach.	ARC	
Disposal of sewage at 25 Llewellyn Road.	**Cumulative impact on the surface and sub-surface hydrology in Sheffield Beach, including changes to the coastal fauna and faunal ethos (SDP, 2022).**	The alteration of the surface and sub-surface hydrology associated with septic tanks in this area has resulted in algal growth that "*is likely to be attributable to eutrophication of the discharge waters arising from the terrestrial wetland environments fringing the beach*"[2]. • The use of a split soakaway sewage disposal system must be implemented to improve the quality of water discharged from the property. • An artificial reedbed must be established for phytoremediation of greywater. • Greywater must pass through a grease trap prior to discharge of the water into the reed bed. • The septic tank must be placed distally from both the wetland and coastal environment. • The French Drain system must be established outside of the wetland. • The applicant must only use appropriate detergents and chemicals that are approved for septic tanks.	ENG DEV	

[2] Section 6.0 of the SDP "*Ecological Impact Assessment"* (March 2022).

4.2. PRE-CONSTRUCTION

The following actions must be undertaken prior to construction commencing on site.

Table 6: Impact Management Actions to be Adhered to During the Pre-Construction Phase of House Middleton.

Aspect	Impact	Mitigation / Actions	Responsible Person	Compliant (Yes / No)
Demolition of infrastructure at 25 Llewellyn Road.	**Heavy vehicles operating on site encroaching into sensitive environmental areas (i.e. front of dune and adjacent watercourse).**	• Prior to demolition commencing, the Contractor must undergo environmental induction training prior (see Environmental Awareness Plan under section 5.0 of the EMPr). • Induction training must include the identification and demarcation of sensitive areas. • A temporary fence must be erected on site prior to demolition commencing (drawn in purple in Figure 1). The fence must be erected along the edge of the embankment, below the infill material but above the wetland environment.	CON	
	Demolition activities becoming a nuisance to surrounding residents (dust, noise & vibrations).	• The Contractor must inform neighbours of demolition activities at least one week prior to demolition commencing. • The use of explosives and blasting must be avoided, and manual or mechanical demolition alternatives utilised.	CON	
Earthworks resulting in infilling & excavation of material within 100m of the high-water mark of the sea & within 32m of a watercourse during the expansion of infrastructure at 25 Llewellyn Road.	**Indirect impact on the adjacent beach and wetland environment during construction.**	• Prior to any work commencing on site, the applicant must appoint an independent Environmental Control Officer (ECO). • All Primary Contractors on site must undergo environmental induction training prior to work commencing (see Environmental Awareness Plan under section 5.0 of the EMPr). • Environmental induction training must include: - An indication of the location of the environmentally sensitive area, which includes the wetland and fore dune in front of the house. - The importance of these environmentally sensitive areas. - Restrictions associated with this area. - Contingency measures if the environmentally sensitive areas are disturbed.	DEV CON ECO	

4.3. CONSTRUCTION

The following mitigation measures must be adhered to during the entire construction phase.

Table 7: Impact Management Actions to be Adhered to During Construction of House Middleton.

Aspect	Impact	Mitigation / Actions	Responsible Person	Compliant (Yes / No)
Demolition of infrastructure at 25 Llewellyn Road.	**Heavy vehicles operating on site encroaching into sensitive environmental areas (i.e. front of dune and adjacent watercourse).**	• No vehicles, machinery, personnel, or material associated with the demolition phase is permitted beyond the temporary fence drawn in purple in Figure 1 (i.e. No Go area).	CON	
	Incorrect disposal of waste and rubble.	• Where possible, reuse building material from the demolished structure to reduce the volume of rubble for dumping (engineer to advise). • Excess rubble must be removed off site unless permission has been obtained from the engineer that rubble can be used as fill material. • All waste material / rubble must be disposed of at a licensed landfill site. Proof of safe disposal must be provided to the ECO and retained for record keeping purposes.	CON	
	Demolition activities becoming a nuisance to surrounding residents (dust, noise & vibrations).	• Water suppression methods must be utilised to reduce and manage dust during demolition. • Activity on site must be limited to normal construction working hours (07:00 – 17:00). • All machinery and vehicles must be fitted with the appropriate noise muffling devices and must be maintained to ensure that vehicles do not produce excessive noise.	CON	
Earthworks resulting in the infilling and excavation of material within 100m inland of the high-water mark of the sea and within 32m of a watercourse	**Soil erosion resulting in wash away down frontal dune and damage to adjacent coastal environment.**	As per the Geotechnical Report[3], the following recommendations must be adhered to: • Cut slopes in soil must be restricted to a slope batter of 1:2 (26°) and to a height of not greater than 1.5 metres where retaining walls are not provided. Engineered fill slopes restricted to a slope batter of 1:1.5 (34°) provided that the edge of fills are over constructed and thereafter trimmed back to the required position. • In accordance with the NHBRC guidelines for geotechnical investigations, the site class designation for the proposed new house with associated structures	ENG & CON	

[3] Syncline Geotechnical Engineering "Report to Craig & Nicky Middleton on the Results of a Geotechnical Investigation for Proposed Additions and Alterations to an Existing Dwelling on PTN 358 of 356 of Lot 61 No. 1521 at 25 Llewelyn Road in Sheffield Beach, KwaDukuza Municipality" Report Reference: SGE-118-2021.REP01 (November 2021).

during the expansion of infrastructure at 25 Llewellyn Road.		is P-C/C1. The NHBRC foundation recommendations for this type of site class must be adhered to. • The foundations for the house and associated structures must be placed at a depth of 1.2 to 1.5m below EGL on Medium Dense soil consistency. No foundations are to be placed on the upper loose, sandy layer. Reinforced Concrete (RC) Strip Footings (1000mm wide x 250mm thick) or Spread Footings can be considered for the proposed additions and alterations. • The bottom of the trenches/bases be compacted with a heavy rammer or similar to limit settlement, prior to casting of concrete for foundations. • Should the foundation loads be moderate to high, and design bearing pressures generally greater than 100kPa for the proposed additions and alterations, then piled foundations are considered a more feasible option. Pressure Grouted Continuous Flight Auger (CFA) piles would be best suited for the foundation loads anticipated. In addition, a detailed pile design must be carried out by the piling contractor. As per the Architecture designs, the following recommendations must be adhered to: • All paved areas to fall to sumps or to be graded to fall on site stormwater system. • All downpipes to discharge into site stormwater system. Further to the above, the following measures are required to prevent soil erosion on site: • Vegetation must remain in place wherever possible and for as long as possible during earthworks. • Sound management of surface water runoff from exposed surfaces must be put in place early in the construction phase (i.e. establishment of subsoil drains, cut off drains down steeper slopes and placement of sandbags and/or bidim in areas of preferential surface flow). • Should an area of erosion be noticed on site, this must be addressed immediately, and the area stabilised to prevent further erosion. • The ECO must check the site's drainage system during construction to ensure that the water flow is unobstructed and controlled.	CON CON CON CON ECO	
	Erosion resulting in material washing into the nearby watercourse reducing functionality.	• A shade cloth / silt fence must be erected long the edge of the embankment which drops down to the wetland (purple in Figure 10). • This silt fence must be maintained throughout the construction period to ensure that it prevents silt and construction material from washing into the wetland / seep.	CON	

		• Should erosion of the embankment occur, the disturbed area must be rehabilitated in collaboration with the ECO. • No storage of material must take place along the boundary of the silt fence. • The preferred position for the material storage area is westward of the structure (i.e., near the entrance to the property).		
	Heavy construction machinery and equipment working near the frontal dune and wetland resulting in indirect impacts and sedimentation.	• A shade cloth fence must be erected across the front of the property below the infill material, but above the wetland environment (purple in Figure 1). The area seaward of the shade cloth must be treated as a No-Go area for construction vehicles and machinery. • The only personnel permitted seaward of the shade cloth fence is staff establishing the greywater reed bed system, conducting alien vegetation clearance and / or landscaping of the dune. • During the construction of new infrastructure on the existing platform, heavy construction machinery and equipment are not permitted near the front of the property where the bank starts to slope down to the beach. • All construction machinery / equipment on site must be in good working order to ensure there are no leaks.	CON	
	Indirect impact on the adjacent beach and wetland environment during construction.	• Any excess material excavated from site must either be: - Removed from site completely; or - Used as fill material on site behind the new houses (i.e., not near the front of the property where the bank slopes down to the beach). • All cement mixing must take place on plastic sheets and must be contained to prevent cement / concrete from entering the wetland, dune and/or nearby beach environment.	CON	
Installation of the split soakaway system resulting in the excavation and infilling of material within 100m inland of the high-water mark of the sea and within the dysfunctional wetland (Technology Alt. 2).	**Excavation of material in front of existing structure increasing erosion potential and impacting on sensitive environmental areas (i.e. coast and wetland).**	• Cleared areas may not be left exposed for long periods of time and must be re-vegetated as soon as the drainage system is completed. • Care must be taken to ensure that when closing excavated areas, soil is compacted sufficiently and left so that the level of the excavated area is slightly higher than the surrounding land, to allow settling. Should soil settle below the level of the surrounding land, it will leave a depression along which water will travel and this could create a focal point for erosion. • The shade cloth / silt fence, erected below the infilled material but above the wetland on the embankment, must be maintained during the construction phase (purple in Figure 1). The embankment and watercourse must be treated as a No-Go area, unless to: - Remove the infilled material - Clear alien vegetation from the wetland and frontal dune - Landscape the dune to create a reed bed.	CON	

		• All excavation activities associated with the greywater reed bed must be carried out by hand. • Material excavated out of the reed bank must be retained and used on site for rehabilitation / landscaping purposes. • The reed bed must be 10m^2 in size and must be planted with vetiver grass to stabilise the area.		
Expansion of infrastructure by 27m^2 within 32m of the dysfunctional wetland.	**Construction activities encroaching down the embankment into the watercourse resulting in sedimentation and reduced functionality.**	The wetland lies on the lower portion of the property below all infrastructure. There is a vegetated bank landward of the wetland, which will be cleared, and previously infilled material removed. Construction activities must be managed as follows: • The shade cloth / silt fence, erected below the infilled material but above the wetland on the embankment, must be maintained during the construction phase (indicated in purple in Figure 1). • Heavy construction machinery and equipment is not permitted beyond the shade cloth fence. • No cement mixing to take place adjacent to the shade cloth fence. This is to prevent spillage into the watercourse. • The site camp and staff eating area must not be located seaward of the existing structure. • When the fence is erected along the eastern property boundary (yellow in Figure 1), this must be done in collaboration with the ECO to ensure that minimal impact occurs on the wetland and/or dune environment. The following is applicable to the fence construction: - All work on the fence must be carried out by hand. - No cement mixing to be carried out in wetland. - Fencing erected along the eastern boundary, within wetland, must be designed to be low impact (e.g. "ClearVu "or palisade fencing). • Once the fence is complete, the ECO must inspect the area and ensure there is no litter, wetland soil compaction or other disturbances. The Contractor must otherwise be informed and rectify the disturbance, as per the ECO recommendations.	CON CON & ECO ECO	
Site Camp	**Incorrect placement of the site camp indirectly impacting environmentally sensitive areas (coastal environment and adjacent watercourse).**	• The site camp must not be located on the eastern side of the property where the gradient drops down steeply towards the beach. • The site camp must not be located in the north-western corner of the property. • The site camp must be located on a flat portion of land and must include a parking area for vehicles. • Signage is to be erected outside site camp indicating relevant contact details of responsible person in case of complaints or emergencies after hours.	CON	

Record Keeping	**Proof of safe disposal & sustainably sourced material.**	The following documents must be retained on site for auditing purposes: • Environmental Authorisation • Environmental Management Program • Environmental Audits for the site • A full inventory of all hazardous materials must be retained on site with the respective Material Safety Data Sheets • Safe disposal slips for waste (general, hazardous and chemical toilets) • Proof of raw material sourcing (i.e. building sand, gravel etc.) • Environmental training registers • Record of incidents on site, including photographs (if applicable) • Any other permits, licenses or approvals that may be applicable to the site.	CON	
Vehicles & Equipment	**Disturbance to areas adjacent to construction site and contamination of environment.**	• Major vehicle servicing is not permitted on site. Only emergency / minor repair work is permitted. • A drip tray must be used to capture any spills during emergency / minor repair work. • No vehicles are permitted within the sensitive No-Go areas illustrated in Figure 1.	CON	
Material Storage Areas & Stockpiles	**Sedimentation risk.**	• Material stockpiles must not exceed 2m in height, must be covered, or grassed to prevent erosion caused by exposure to heavy wind or rain. • Stockpiling of material must not take place on steep slopes where there is an opportunity for material to wash into the surrounding environment / down the frontal dune.	CON	
Waste Management	**General waste becoming a nuisance on site and blowing into environmentally sensitive areas / neighbouring properties.**	• All waste generated on site must be disposed of in the designated waste management area. • The waste management area must not be located seaward of the existing structure. • General waste must be removed from site on a weekly basis to ensure there is no build-up of waste in the waste management area. • All waste must be stored under cover to prevent rain ingress and/or waste from being blown around site, onto the beach, into the watercourse or into adjacent residential properties. • No waste must be buried or burnt on site.	CON	
	Greywater / hydrocarbons or chemicals storage and use on site having the potential to pollute the adjacent beach	• Potentially hazardous substances[4] to be stored in a fenced off area that is undercover to prevent contamination of rainwater. • All potentially hazardous substances must be stored, in a bunded area (110% capacity of largest container) with an impermeable surface to prevent soil contamination during handling.	CON	

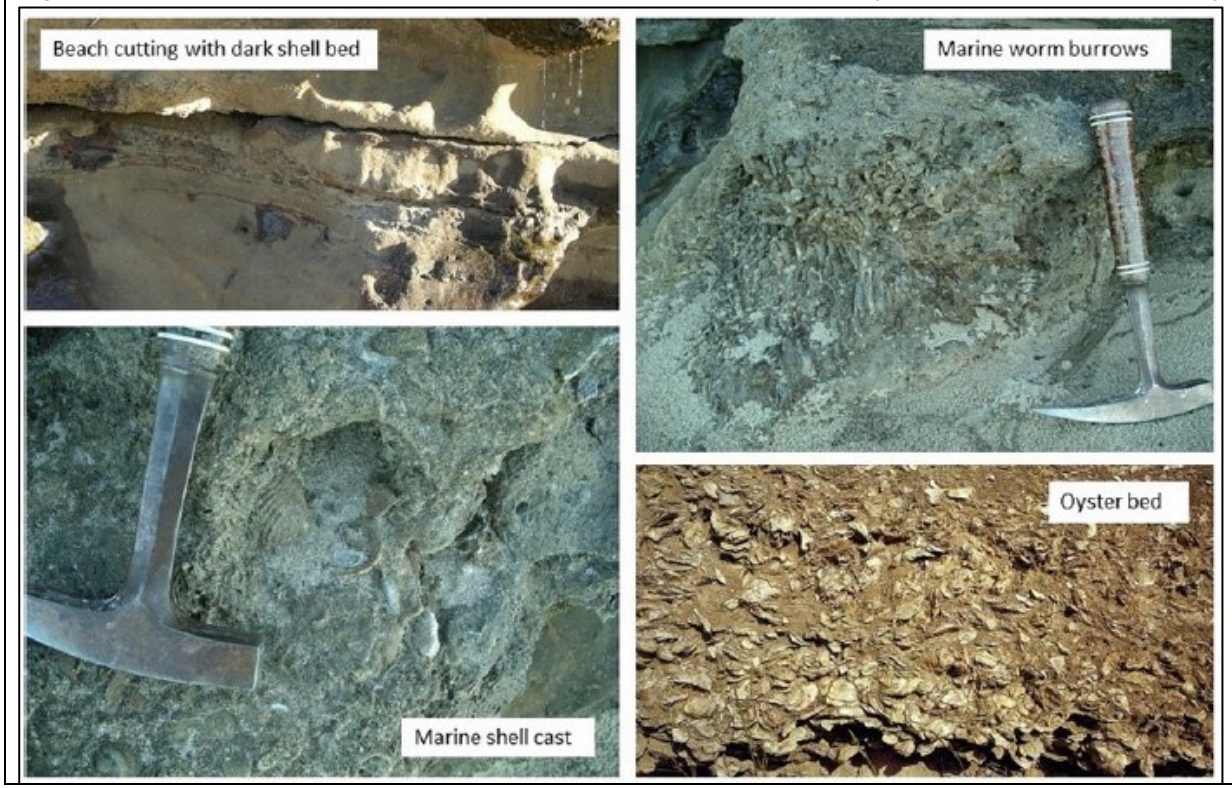
[4] Hazardous substances refer to substances scheduled in the Hazardous Substances Act (1973) and Hazardous Chemical Substances Regulations (1995) and include paint, oils, fuels, solvents, pesticides.

	environment or nearby watercourse.	• No bulk storage of fuel on site (>30m^3). • Decanting of potentially hazardous substances must be carried out within the confines of a drip tray / similar or using a hand pump. • Hazardous waste must be disposed of at a registered hazardous landfill site. • Proof of safe disposal must be kept on site for record keeping purposes. • Cement mixing must take place on a hard surface that is protected from stormwater runoff.		
	Construction staff using the surrounding environment as ablutions.	• Ablution facilities must be accessible to all construction workers. • No pit latrines are permitted on site. • Toilets must be located within the property boundaries. • Toilets must not be located seaward of the existing structure. • Staff must use the toilets provided and must not use any other areas on site as toilet facilities. • On-site toilets will be provided for domestic purposes during construction phase. • Toilets must be screened from the neighbours as far as is practically possible. • Ablution facilities must be kept in a clean state.	CON	
Spills & Incidents	**Hydrocarbons or other liquids / chemicals contaminating the surrounding environment.**	• The ECO's environmental toolbox talk must include a spill response procedure and incident reporting so all staff know how to clean up minor and major spills (included in the Environmental Awareness Plan; section 4.0 of the EMPr). • Drip trays must be available near the hazardous storage area and where hazardous materials are being used on the site. • A Spill Kit / similar must be available near the hazardous storage area. • No vehicles or equipment must be washed on site.	CON	
Dust & Emissions	**Dust & emissions becoming a nuisance on site and to surrounding residents.**	• During high winds, dust supressing must take place using water carts / hose to prevent excessive dust on site. • Any fine materials stockpiled on site must be covered to prevent dust from being blown around. • Material transported to site on the back of trucks must be covered, • A complaints register must be maintained on site and any complaints received addressed timeously. • A shade cloth fence / other screening techniques must be used to reduce dust from entering other properties. • All construction vehicles and equipment must be well maintained to reduce emissions generated on site.	CON	
Noise	**Noise becoming a nuisance on site and to nearby residents.**	• All construction vehicles must be well maintained to reduce noise on site. • All construction vehicles and equipment must be fitted with standard silencers. • No construction vehicles or machinery to operate outside of construction working hours (07:00 – 17:00).	CON	

		• Neighbours to be advised prior to work being done outside the above times. • A complaints register must be maintained on site and any complaints received addressed timeously.		
Alien Invasive Vegetation	**Proliferation of exotic species on site and within adjacent dune environment.**	Construction activities, primarily vegetation clearance, typically provides an opportunity for the proliferation of exotic species within the disturbed area. The establishment and spread of alien invasive species within the disturbance footprint must be managed throughout the construction phase by the Contractor. • The "*Eradication of Alien Invasive Plant*" Management Plan must be implemented on site during construction (section 5.4.2 of the EMPr). This Management Plan includes a list of common alien invasive plant species anticipated on site, identification photographs and eradication measures. • Alien invasive species must not be permitted to establish on site or on the fore dune. • *Sphagneticola trilobata* has been noted to occur within the wetland environment. This category 1b invasive species must be removed by law. Removal should be done by hand pulling to avoid impacts on the dune and wetland.	CON	
Cultural / Heritage	**Items of historical, archaeological or cultural significance destroyed or disturbed during excavations.**	• During earthworks, should any objects with historical, archaeological or cultural significance be uncovered, all work in this area must cease and the heritage authority, AMAFA, notified. • Objects with historical, archaeological or cultural significance must not be destroyed or removed from site without prior permission from AMAFA. • Should any human remains be discovered, all work in this area must cease and the South African Police contacted for further direction.	CON	
Palaeontological / Fossils	**Fossils destroyed or disturbed during excavations.**	• During earthworks, the following procedure must be adhered to if fossils are discovered (see photographs provided below for examples of the type of fossils that could be found on the site): - When excavations begin the rocks must be given a cursory inspection by the ECO or designated person. Any fossiliferous material (shells, plants, insects, bone, coal – see Figure 2) must be put aside in a protected place. This way construction activities will not be interrupted. - Photographs of similar fossil plants must be provided to the developer to assist in recognizing the fossil plants in the shales and mudstones (see below). - Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. - If there is any possible fossil material found then a qualified palaeontologist, must visit the site to inspect the selected material.	CON & ECO	

		- Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits. - If no good fossil material is recovered then no site inspections by the palaeontologist will not be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils. - If no fossils are found and the excavations have finished then no further monitoring is required.		

Figure 2: Trace Fossils and Fossils that Could be Trapped in the Dune Sand (source: Prof. Marion Bamford).



4.4. REHABILITATION / LANDSCAPING / POST CONSTRUCTION

Once construction is complete on site, the Contractor and ECO must ensure that the mitigation measures listed in the table below are adhered to. This will ensure that there will be no residual impacts on the environment remaining once construction is complete.

Table 8: Impact Management Actions to be Adhered to Once Construction is Complete.

Aspect	Impact	Mitigation / Actions	Responsible Person	Compliant (Yes / No)
Landscaping of 470m^2 of dune.	**Change or loss of habitat associated with the clearance of indigenous dune vegetation from within the critically endangered Northern Coastal Grasslands ecosystem (SDP, 2022).**	The loss of this vegetation is of negligible significance from a species diversity perspective; however, it is the stabilising function provided by the dune vegetation and the phytoremediation function of the wetland which needs to be maintained: • All activities associated with landscaping must be carried out by hand to avoid large volumes of soil being excavated on site. • Landscaping within the wetland must be limited to the removal of alien vegetation and the planting of indigenous coastal species. • The applicant must engage with a coastal specialist or a landscaper with coastal knowledge prior to commencing with planting. • The landscaper must avoid excessive excavation of the dune and trampling of the dune and wetland environment. • Only the minimal number of staff are permitted within the dune cordon and wetland. All staff working on these environmentally sensitive areas must have undergone environmental induction training so that the disturbance footprint is minimised. • Only indigenous species may be used for the reed bed, such as *Typha spp.* and *Vetiveria spp*. • All landscaping must be confined within the property boundaries.	DEV & LAND	
Post-Construction Audit	**To ensure the site is stable and there are no outstanding environmental non-compliances that need to be corrected by the Contractor.**	• The ECO must carry out a post-construction inspection of the site once construction is complete. • Clearance from the ECO must be obtained to ensure there are no outstanding environmental non-compliances prior to the Contractor vacating the site. • The following areas must be audited by the ECO in the post-construction inspection: - No waste / litter remaining on site; - There is no evidence of spills or building rubble remaining on site; - There are no left over building material remaining on site; - All exposed surfaces have been rehabilitated / landscaped to prevent sediment wash away; - Stormwater management has been formalised; - There is no evidence of erosion; and	CON & ECO	

		• No environmentally sensitive areas, indicated in Figure 1, have been damaged. If damage is evident, rehabilitation measures must be prescribed by the ECO and carried out by the Contractor.		

4.5. OPERATION

Provided that the above mitigation measures /actions are adhered to, the operational phase will have a low impact on the surrounding environment. Table 9 provides mitigation measures which are ongoing through-out the lifespan of the project.

Table 9: Impact Management Actions to be Adhered to During the Operational Phase of House Middleton.

Aspect	Impact	Mitigation / Actions	Responsible Person	Compliant (Yes / No)
Disposal of sewage at 25 Llewellyn Road.	**Cumulative impact on the surface and sub-surface hydrology in Sheffield Beach, including changes to the coastal fauna and faunal ethos (SDP, 2022).**	The alteration of the surface and sub-surface hydrology associated with septic tanks in this area has resulted in algal growth that "*is likely to be attributable to eutrophication of the discharge waters arising from the terrestrial wetland environments fringing the beach*"[5]. • As recommended by the engineer, the septic tank must be serviced / cleaned every 5 years.	DEV	

[5] Section 6.0 of the SDP "*Ecological Impact Assessment"* (March 2022).

5.0. ENVIRONMENTAL AWARENESS PLAN

This Environmental Awareness Plan describes the manner in which the holder of the Environmental Authorisation must inform all Contractors and employees of the environmental risk which may result from their work; and that the risks must be dealt with to avoid pollution or the degradation of the environment.

5.1. INDUCTION

All Primary Contractors working at 25 Llewelyn Road must receive a copy of the Environmental Awareness Plan and sign the register attached stating that they have received a copy of the EMPr and are aware of the environmental risks. Contact details for the Environmental Control Officer (ECO) are provided below if Contractors require any clarification or assistance with the demarcation of sensitive areas (shown in Figure 1).

Table 10: Important Contact Information.

Designation	Company	Contact Person	Contact Details (to be completed on site)
Holder of the Environmental Authorisation	-	Monique Middleton	
Environmental Assessment Practitioner	Confluence Strategic Development	Stephanie Denison	
Environmental Control Officer			
Coastal Specialist	SDP Ecological & Environmental Services	Simon Bundy	
Consulting Engineer	Syncline	Sundras Pather	

5.2. ENVIRONMENTALLY SENSITIVE AREAS

Please refer to section 1.3 of the EMPr and Figure 1, which provides a description of the environmentally sensitive areas associated with the property. These areas must be demarcated and avoided during construction. Contractors must be aware of the primary Impact Management Outcome, which is ***to create a sustainable development by preventing construction activities from impacting the sand sharing system and nearby watercourse while improving the current biodiversity within the currently dysfunctional wetland system.***

5.3. BASIC ENVIRONMENTAL TRAINING POINTS

All staff working on site must receive basic environmental training, which includes the items listed below. Please note that the ECO must be available to conduct environmental training should the Contractor prefer.

- Context of House Middleton and the applicability of the EA and EMPr.
- The location of environmentally sensitive features (Figure 1).
- Restrictions associated with the environmentally sensitive features.
- Waste management (general & hazardous).
- No cement mixing directly on exposed soil outside of construction footprint.
- Management of hazardous substances (paint, oil, drip trays, spills etc.).
- Sanitation (i.e. the use of toilets).
- Nuisance to neighbouring properties.

5.4. PROCEDURES FOR HANDLING ENVIRONMENTAL RISKS

All construction staff working on House Middleton must be aware of the procedures listed below.

5.4.1. SPILL RESPONSE[6]

In the event of a spillage, the following procedure must be adhered to so that there is minimal impact on the surrounding environment. Diesel and oil are the most likely hydrocarbons that will be spilled on the site.

1. **ASSESS** THE RISK
    - WHAT was spilled; and
    - HOW MUCH was spilled.

2. SELECT THE RELEVANT PERSONAL PROTECTIVE EQUIPMENT **(PPE)**

3. **CONFINE** THE SPILL
    - Block, Divert away from sensitive environmental areas and confine spill.
    - Use absorbents or boom in Spill Kit
    - Stop the flow of the spill.

4. **STOP** THE SOURCE

5. EVALUATE THE SPILL AND IMPLEMENT APPROPRIATE **CLEAN UP**
    - Re-assess the spill and decide on most appropriate method of clean up.
    - Absorb spill using materials in Spill Kit or soil / wood chips.
    - Using a broom, rag or other material, scrub the impacted area or using a spade, dig out the contaminated soil.

6. **DECONTAMINATE**
    - All PPE must be removed and disposed of as hazardous waste if contaminated.
    - All rags / materials used during the clean up as well as the actual spilled material must be disposed of as hazardous waste.

7. **REPORT**ING
    - Responsible person to determine if the spill constitutes an “incident”, see definition below.
    - All incidents must be reported as per the procedure outlined in section 5.4.3.

[6] Seven Step Spill Procedure Accessed from Border Hazmat: Specialised Environmental Cleaning (http://borderhazmat.co.za/7-step-spill-procedure/). Accessed on 12th March 2021.

5.4.2. ERADICATION OF ALIEN INVASIVE PLANTS

Alien Invasive Plant (AIP) species rapidly establish in disturbed areas due to the lack of competition from other indigenous species. AIP species rapidly colonise and area and can spread to other areas outside of the development footprint. It is therefore important for construction staff to receive some training on how to identify and remove AIPs before they become a nuisance and negatively impact the rehabilitation efforts underway within the study area. The list below can also be used by the landowners when eradicating AIP species during the operational phase of the development.

Notes:

- *Mechanical removal of AIPs (i.e. hand pulling / slashing) is preferred above chemical control.*
- *All mixes given as a percentage (ml per 100 l water/diesel).*
- *Apply methods either by species or by area i.e. multiple areas, one species or one area, multiple species.*
- *Autumn and winter - basal stem and cut stump treatments, no foliar spraying.*
- *Spring and summer - foliar spraying can be done on suitable plants. Rule of thumb - don't spray anyting over 1.5 m tall. Spray during the morning (8 am to 11 am) during calm conditions.*
- *NB PPE when spraying - rubber gloves, goggles, respirator, apron/chemical overall, rubber boots.*
- *NEVER use diesel for foliar application.*
- *If in doubt, check the herbicide label.*
- *Follow up treatment/clearance is essential for effective AIP management.*

Table 11: AIP species likely to be associated with 25 Llewelyn Road.

Scientific Name	Common Name	Identification Image	Scientific Name	Common Name	Identification Image
Chromolaena odorata.	Chromolaena		*Ricinis communis*	Castor Oil	

Cardiospermum grandiflorum	Balloon Vine		*Tithonia diversifolia*	Mexican Sunflower	
Solanum mauritianum	Bugweed		*Sisal americana*	Sisal	

5.4.3. REPORTING OF ENVIRONMENTAL INCIDENTS

Definitions

"Incident" as defined in NEMA	An unexpected, sudden and uncontrolled release of a hazardous substance, including from a major emission, fire or explosion, that causes, has caused or may cause significant harm to the environment, human life or property.
"Incident" as defined in NWA	Incident or accident in which a substance- (i) pollutes or has the potential to pollute a water resource: or (ii) has or is likely to have. a detrimental effect on a water resource.
"*responsible person*" as defined in NEMA & NWA	Includes any person who- (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident; or (iii) was in control of any hazardous substance involved in the incident at the time of the incident.
"*relevant authority*" as defined in NEMA	(i) a municipality with jurisdiction over the area in which an incident occurs; (ii) a provincial head of Department or any other provincial official designated for that purpose by the MEC in a province in which an incident occurs; (iii) the Director-General; (iv) any other Director-General of a national department.

Procedure should an *incident*, as defined above, occur on site:

The responsible person or, where the incident occurred in the course of that person's employment, his or her employer	Complete an Emergency Incident Report (template provided in Appendix 2). The report must be sent to the following personnel within 14 days of the incident occurring. (i) the Director-General of the Department of Environmental Affairs; (ii) the Director-General of the Department of Water & Sanitation; (iii) the South African Police Services and the relevant fire prevention service; (iv) the relevant provincial head of department or municipality; (v) The relevant catchment management agency, if applicable; and All persons whose health may be affected by the incident.
The responsible person or, where the incident occurred in the course of that person's employment, his or her employer, must, as soon as reasonably practicable after knowledge of the incident-	(i) Take all reasonable measures to contain and minimise the effects of the incident, including its effects on the environment and any risks posed by the incident to the health, safety and property of persons; (ii) Undertake clean-up procedures; (iii) Remedy the effects of the incident; (iv) Assess the immediate and long-term effects of the incident on the environment and public health;

Should the responsible person fail to comply, or inadequately comply with a directive received by a relevant authority, there be uncertainty as to who the responsible person is; or there be an immediate risk of serious danger to the public or potentially serious detriment to the environment, a relevant authority may take the measures it considers necessary to contain and minimise the effects of the incident; undertake clean-up procedures; and remedy the effects of the incident. A relevant authority may claim reimbursement of all reasonable costs incurred by it in terms of subsection (8) from every responsible person jointly and severally.

6.0. RECEIPT OF ENVIRONMENTAL MANAGEMENT PROGRAMME & ACKNOWLEDGEMENT OF ENVIRONMENTAL RISKS

By signing this register, I confirm that I have received a copy of the Environmental Management Programme (EMPr) prepared by Confluence Strategic Development (Pty) Ltd and dated July 2022. I am aware of the environmental sensitivities of the site as shown in Figure 1 of the EMPr.

COMPANY	NAME	CONTACT DETAILS	AREA OF WORK	SIGN

APPENDIX 1

EMERGENCY INCIDENT REPORT TEMPLATE