

EnviroSwift

Where nature meets development



Sheffield Manor
Stanger
4420

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Department of Water and Sanitation

Southern Life Building
10th Floor
88 Joe Slovo Street
Durban
4000
Tel: 031 336 2748
Email: mMoonsamycC@dws.gov.za

Attention: Ms C. Moonsamy

DWS RISK ASSESSMENT MATRIX APPLIED TO THE PROPOSED DEVELOPMENT OF THE HAMMERSDALE INDUSTRIAL ESTATE ON PORTION 4 OF THE FARM LOT A, STERK SPRUIT NO. 2627 KWAZULU NATAL.

The Risk Assessment Matrix as required in terms of GA 509 gazetted on the 26th of August 2016 has been completed by Louise Zdanow (SACNASP Reg. no. 114072). Please refer to signature at the bottom of this letter for contact details.

Summary of the proposed activities:

The proposed development (hereafter referred to as the development footprint) will be located on Portion 4 of the Farm Lot A, Sterk Spruit No. 2627 (Figure 1, 2 and 3). The development footprint is located approximately 1km to the east of Sibisi Road in Outer West Durban within the eThekweni Local Municipality, KwaZulu Natal. The proposed development related activities will entail the construction of 32 platforms within the already developed portions of the property, and the expansion of two platform areas into undeveloped areas. Internal roads will also be constructed in order to allow access to each of the platforms. The proposed end use of the development is light industry. This zoning prohibits extractive and noxious industrial activities. Furthermore, the proposed development will be an 'Eco Industrial Park' and strict measures will be implemented in order to ensure that the quality of stormwater leaving the site is acceptable¹.

¹ Strict measures are currently being developed by an unaffiliated party to ensure that the quality of stormwater leaving the development footprint is of an acceptable quality. These can be provided if required.



Figure 1: Development footprint in relation to surrounding areas (Google Earth, 2016).



Figure 2: Development footprint indicating the locality of the proposed expansion areas (Google Earth Pro, 2017).

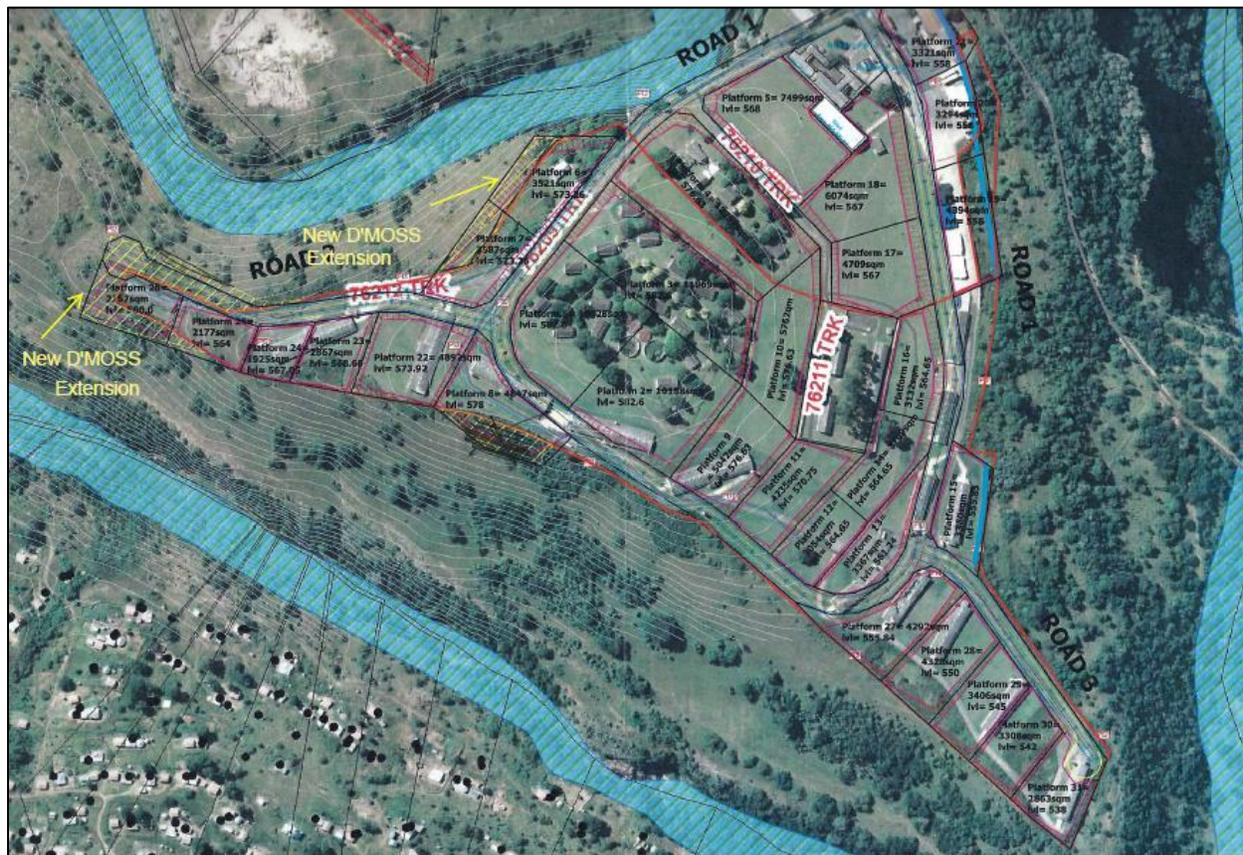


Figure 3: Proposed development layout.

Key findings made during the Freshwater Assessment (Extracted from EnviroSwift KZN, 2018).

The development footprint falls within the North Eastern Coastal Belt Ecoregion, within the Mvoti to Umzimkulu Water Management Area (WMA) and within the Mgeni sub-Water Management Area (sub-WMA) as defined by the National Freshwater Ecosystem Priority Areas project (NFEPA, 2011). The quaternary catchment indicated for the development footprint is U60C.

No wetlands are indicated within the development footprint or within areas directly adjacent to the development footprint by the NFEPA project². However, the Sterkspruit River flows around the proposed development footprint. The Sterkspruit River is a perennial river which is indicated to fall within a Category C Present Ecological State (PES) (moderately modified).

The development footprint and surrounding areas have been indicated as 'available' by the Freshwater Systematic Conservation Plan for KZN (KZN FSCP, 2007). Areas indicated as 'available' are untransformed biodiversity areas which have no specific conservation priority. However, the Sterkspruit River and its associated riparian habitat have been included in the Durban Metropolitan Open Space System (D'MOSS) as freshwater wetland habitat³. Furthermore, a small portion of the western boundary of the development footprint will be located within the 1:100 year floodline of the Sterkspruit River as indicated by D'MOSS.

² It should be noted that the NFEPA Map is not spatially accurate to 1:10 000 or less (i.e. it is not a fine-scale or accurate map of the freshwater features in South Africa). A field survey was therefore required in order to confirm the presence or absence of wetland features.

³ According to Clause 10 of the Durban Scheme, "no person shall, within a D'MOSS controlled area (as defined in clause 1) develop any land, or excavate or level any site, or remove any natural vegetation from, or erect any structure of any nature whatsoever, dump on or in or carry out any work upon such site without having first obtained the prior approval of the Council in terms of this sub-clause". According to the Durban scheme, no approval can be given if development will materially and/or temporarily degrade, destroy, or negatively impact on the integrity of the biodiversity and/or environmental goods and services found or generated within a development area.

The proposed development footprint is located on a hilltop on the inner bend of the Sterkspruit River, with its western boundary located directly adjacent to the river. The portion of the Sterkspruit River associated with the proposed development footprint can be classified as an upper foothill river characterized by a moderately steep, cobble-bed and mixed bedrock-cobble bed channel, with plane bed, pool-riffle and pool-rapid reach types.

A channelled valley bottom wetland has developed on the banks of the Sterkspruit River. This wetland is fed by water inputs from the river as well as from the adjacent valley side slopes. The wetland is dominated by obligate⁴ and facultative⁵ wetland species including *Cyperus dives* (Giant Sedge), *Sporobolus pyramidalis* (Cats-tail dropseed), *Cyperus esculentus* (Yellow Nutsedge), *Centella asiatica* (Asiatic Pennywort), *Stenotaphrum secundatum* (Buffalo Grass), *Pycneus polystachyos* (Bunchy Flat Sedge), *Kylinga* sp. and *Miscanthus capensis* (Daba Grass).

Both the Sterkspruit River and the channelled valley bottom wetland have been impacted on as a result of industrial and urban activities within the catchment. The release of return flows from the Hammersdale Waste Water Treatment Works (WWTW) and the runoff of contaminants in stormwater runoff from the catchment has impacted on the hydrology and water quality of the features. Disturbance of the features has also resulted in the proliferation of alien and invasive species.

The River Index of Habitat Integrity Assessment (IHIA) was used to assess the PES of the portions of the Sterkspruit River associated with the development footprint. The overall PES score calculated for the Sterkspruit River falls within Category C (moderately modified - A loss and change of natural habitat and biota has occurred but the basic ecosystem functions are still predominantly unchanged).

The WET-Health tool⁶ was used to assess the PES of the channelled valley bottom wetland. The overall PES score calculated falls within Category D (largely modified: a large change in ecosystem processes and loss of natural habitat and biota has occurred).

The Sterkspruit River is considered to be of a high Ecological Importance and Sensitivity (EIS) (delineations that are considered to be unique on a national scale due to biodiversity. These rivers may be sensitive to flow modifications but in some cases, may have a substantial capacity for use); and the channelled valley bottom wetland is considered to be of a moderate EIS (wetlands that are considered to be ecologically important and sensitive on a provincial or local scale. The biodiversity of these systems is not usually sensitive to flow and habitat modifications. They play a small role in moderating the quantity and quality of water of major rivers).

For the Recommended Ecological Category (REC) it is recommended that the PES categories of the Sterkspruit River and the channelled valley bottom wetlands is maintained. This can be achieved through the strict implementation of the mitigation measures as listed within the freshwater assessment report (EnviroSwift KZN, 2018). The implementation of these mitigation measures will reduce the disturbance of the habitat associated with the river and wetland as a result of the edge effects of development, and as a result of an increase in stormwater runoff into the feature from the development footprint area.

The Buffer Zone Guidelines for Rivers, Wetlands and Estuaries⁷ was utilised in order to determine an appropriate buffer area for the river and wetland. Factors such as the type of development as well as the PES and EIS were considered during the calculation of the buffer. A buffer area of 23m was calculated for the Sterkspruit River for the construction phase of the development and was applied from the edge of the riparian zone of the river. A buffer of 20m was calculated for the channelled valley bottom wetland for the construction phase of the development, however, this buffer area is covered by the 23m riparian buffer zone.

⁴ Almost always grow in wetlands (> 99% of occurrences).

⁵ Usually grow in wetlands (67-99% of occurrences) but occasionally are found in non-wetland areas

⁶ Macfarlane *et. al.* 2010

⁷ Macfarlane and Bredin, 2016

Should the mitigation measures as listed within the freshwater assessment report (EnviroSwift KZN, 2018) be strictly implemented, development related activities will not extend into the riparian habitat of the Sterkspruit River or into the channelled valley bottom wetland, and disturbance to freshwater habitat will be of a very low significance. The PES and EIS of the river and channelled valley bottom wetland are therefore not likely to be significantly impacted should development prove feasible.

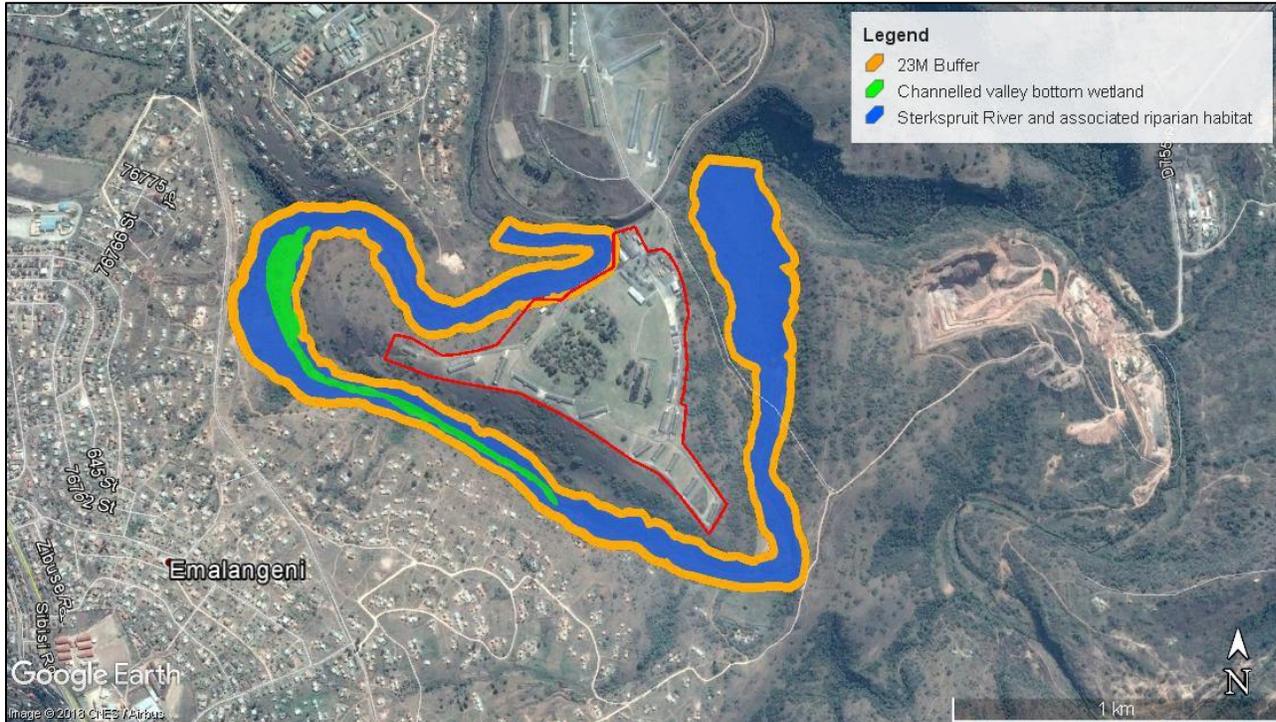


Figure 4: Watercourse delineation indicating the 23m buffer area associated with the Sterkspruit River⁸ (Google Earth Pro, 2017).

Risk Assessment

A brief summary of the approach is provided below with reference to the completed Risk Assessment Matrix provided as well as the freshwater assessment specialist report completed by EnviroSwift KZN (2018).

Summary of the reasoning behind the most noteworthy ratings:

- The development footprint is located within 500m of a channelled valley bottom wetland and a small portion of the western boundary of the development footprint is located within the 1:100 year floodline of the Sterkspruit River. The proposed development activities will therefore fall within the regulated area of a watercourse.
- No development related activities will take place within the riparian habitat of the Sterkspruit River or within the channelled valley bottom wetland and no freshwater habitat will therefore be lost as a result of development. The only impacts relevant to the proposed development are therefore possible edge effects and possible impacts as a result of stormwater runoff and water quality impairment.
- The riparian and wetland areas as well as their associated buffer zones will be designated as no-go areas. Only essential development related activities will be permitted within the buffer zone of the riparian habitat located directly adjacent to the western boundary of the development footprint.

⁸ The 20m buffer of the channelled valley bottom wetland is covered by the 23m buffer of the Sterkspruit River.
Risk Assessment: Portion 4 of the Farm Lot A, Sterk Spruit No. 2627

The development related activity proposed within the buffer area is the upgrade of an existing internal roadway within the property and the development of a portion of a platform area.

- The risk assessment takes the current degraded condition of the riparian habitat located directly adjacent to the western boundary of the development footprint into consideration when determining the severity of the activity. The portion of riparian habitat which may be disturbed has already been degraded as a result of historical development of the internal roadway and outbuildings and is currently invaded by alien and invasive vegetation.
- Water and municipal sewer connections and lines associated with the proposed development will only traverse the Sterkspruit River via an existing roadway across the river. The river and associated riparian habitat will not be disturbed as a result.
- A stormwater management plan will be developed in order to ensure that the volumes of stormwater runoff from the development footprint do not increase from the pre-development to the post-development scenario.
- All risks have been assessed assuming that strict measures will be implemented in order to ensure that the quality of stormwater leaving the site is acceptable⁹.
- All risks have been assessed assuming that all mitigation measures stipulated within the freshwater assessment report (EnviroSwift KZN, 2018) will be implemented. Should these mitigation measures be strictly adhered to, the impact to the Sterkspruit River and associated riparian habitat as well as to the channelled valley bottom wetland will remain low to very low (negative).
- The duration score selected within the risk assessment matrix is considered representative of an aspect which will not result in a change in status of the PES and EIS of adjacent freshwater habitat¹⁰.
- The precautionary principle was applied where any level of uncertainty was encountered.

A LOW risk class was obtained for all impacts assessed. Please refer to the Risk Assessment Matrix provided.

Please do not hesitate to contact me should there be any aspect of the Risk Assessment you would like to discuss.

Regards
Louise Zdanow
louise@envirosswift.co.za
076 725 5657

⁹ Strict measures are currently being developed by an unaffiliated party to ensure that the quality of stormwater leaving the development footprint is of an acceptable quality. These can be provided if required.

¹⁰ Provided that mitigation measures as listed within the freshwater assessment report (EnviroSwift KZN, 2018) are strictly adhered to.