Prepared for
Samancor (Middelburg Ferrochrome)
Hendrina Road
Middelburg
1050

Prepared by
Knight Piésold Ltd.
4 De La Rey Road
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Project Number
RI 301-00183/40

SITE SENSITIVITY VERIFICATION REPORT
PROPOSED DECOMISSIONING OF CHROME DIRECT DUST (CDR) FACILITY

Rev	Description	Date
A	Issued in Draft	March 24, 2021
B	Issued in Final	June 11, 2021

Knight Piésold CONSULTING

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1.0 INTRODUCTION

The Samancor Middelburg Ferrochrome (MFC) facility, situated in Middelburg, Mpumalanga, was established in 1964 to produce Ferrochrome for use in the production of steel.

From 1990 to 2000, a process known as Chrome Direct Reduction (CDR) was undertaken, which produced a slimes waste. During this period, this waste was disposed of in the CDR slimes facility. This facility has been out of commission since the year 2000. Figure 1 provides an aerial view of the CDR facility in relation to the active MFC site.

MFC wishes to apply for the formal decommissioning / closure of this facility in line with legislation. There are no intentions to use the facility in the future.

A Basic Assessment (BA) process is being undertaken in terms of the National Environmental Management: Waste Act (No 59 of 2008) as amended. Table 1 provides the details of the waste management activity being applied for.

Table 1: NEM:WA activity requiring BA Process

Government Notice	Listing Number	Description
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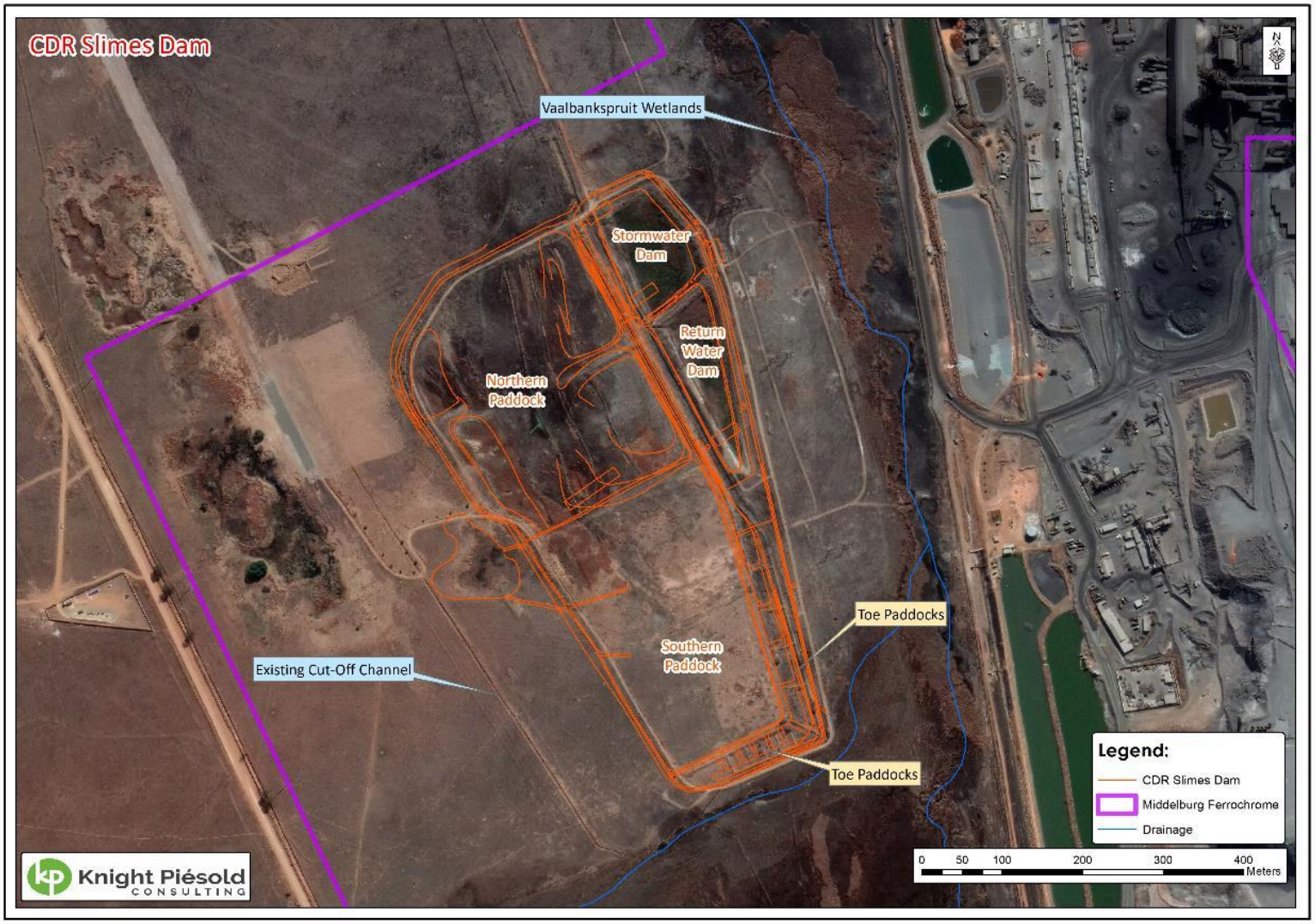

Figure 1: Aerial View of CDR Dump

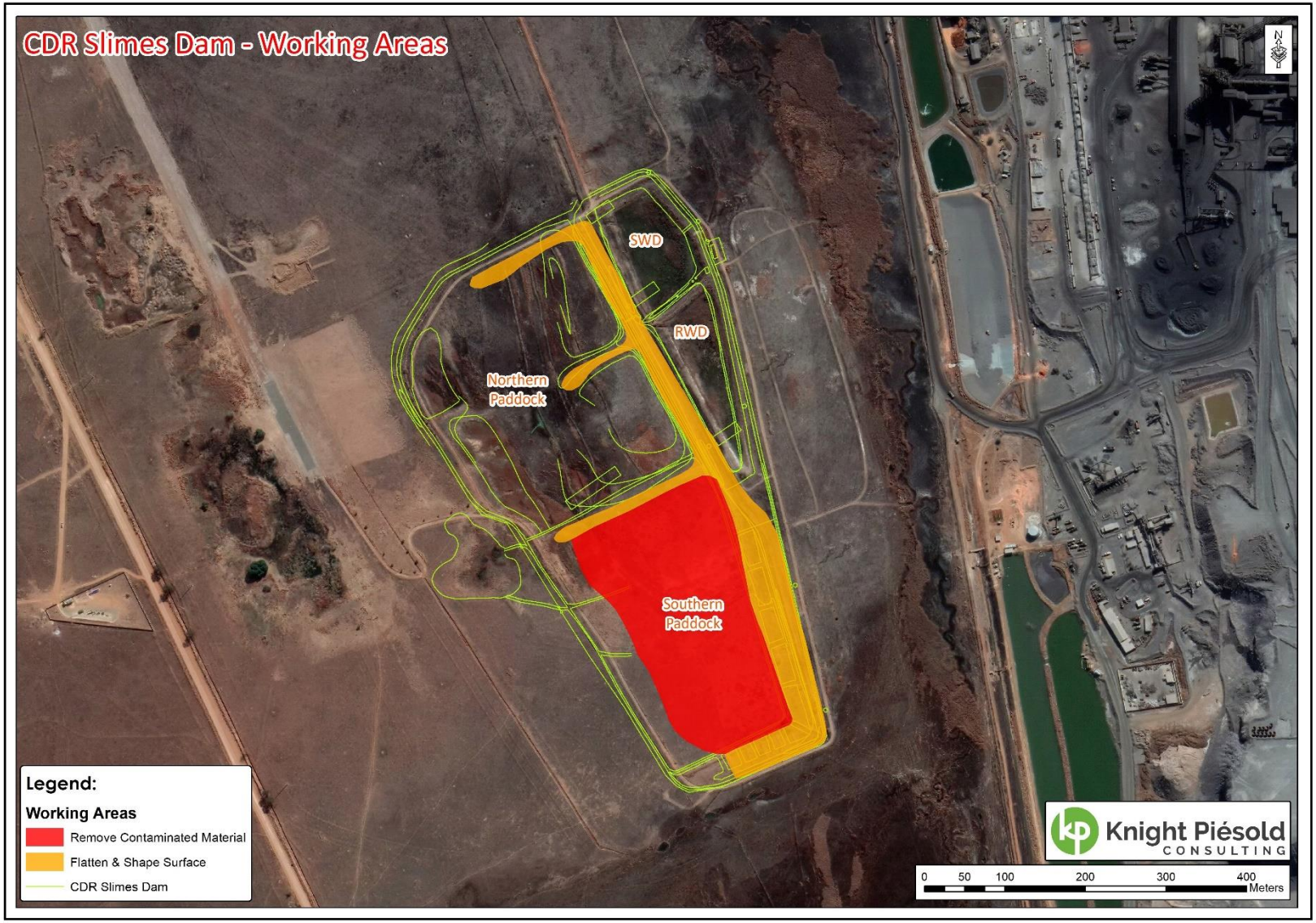

Figure 2: Earthworks proposed

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The CDR slimes facility consists of two paddocks, two pollution control dams (PCD's) consisting of a return water dam and a storm water dam, and toe paddocks to contain runoff from the outer slopes of the facility (refer to Figure 1). The toe paddocks are constructed around the east and south of the south paddock.

Only the south paddock was used during the operational phase of the facility and CDR Slimes did not cover the full footprint of the paddock. It is estimated that there is 120 000 m^3 of CDR Slimes in the southern paddock. At an estimated density of 1,8 t/m^3 this equates to 216 000 tonnes.

The impoundment walls of the two paddocks are earthfill walls with a maximum height of 5 m and crest width of approximately 4 m.

Shortly after cessation of deposition into the south paddock, a 150mm thick capping layer of soil was placed over the CDR Slimes. This capping layer is now sparsely vegetated with grass.

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3.0 SENSITIVITY VERIFICATION PER THEME

Table 2 provides a summary of the results of the Screening Report generated.

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Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agricultural		X		
Animal Species		X		
Aquatic Biodiversity				X
Civil Aviation		X		
Defence				X
Paleontology		X		
Plant Species			X	
Terrestrial Biodiversity	X			

In the sections below, each theme will be discussed in terms of the sensitivity rating generated, the land use on site and activities proposed in order to inform specialist studies to be undertaken.

3.1 AGRICULTURE

The CDR slimes facility is located within an active industrial area owned by the applicant. It cannot be used for agricultural purposes while the overall site is still operational. The objective of the decommissioning and rehabilitation of this site is to remove the environmental risk posed by this non-operational facility and return it to a state that is as natural as possible.

We therefore do not recommend undertaking an agricultural specialist study for this area.

3.2 AQUATIC BIODIVERSITY

MFC operations may have an impact on the Vaalbankspruit as it is part of the drainage system. In order to determine this potential impact, aquatic bio-monitoring is undertaken during the dry and wet season at the upstream and downstream monitoring points of the Vaalbankspruit, relative to the MFC operations (Figure 3). This bi-annual aquatic biomonitoring is also used to determine any trends and seasonal variation on the receiving aquatic environment.

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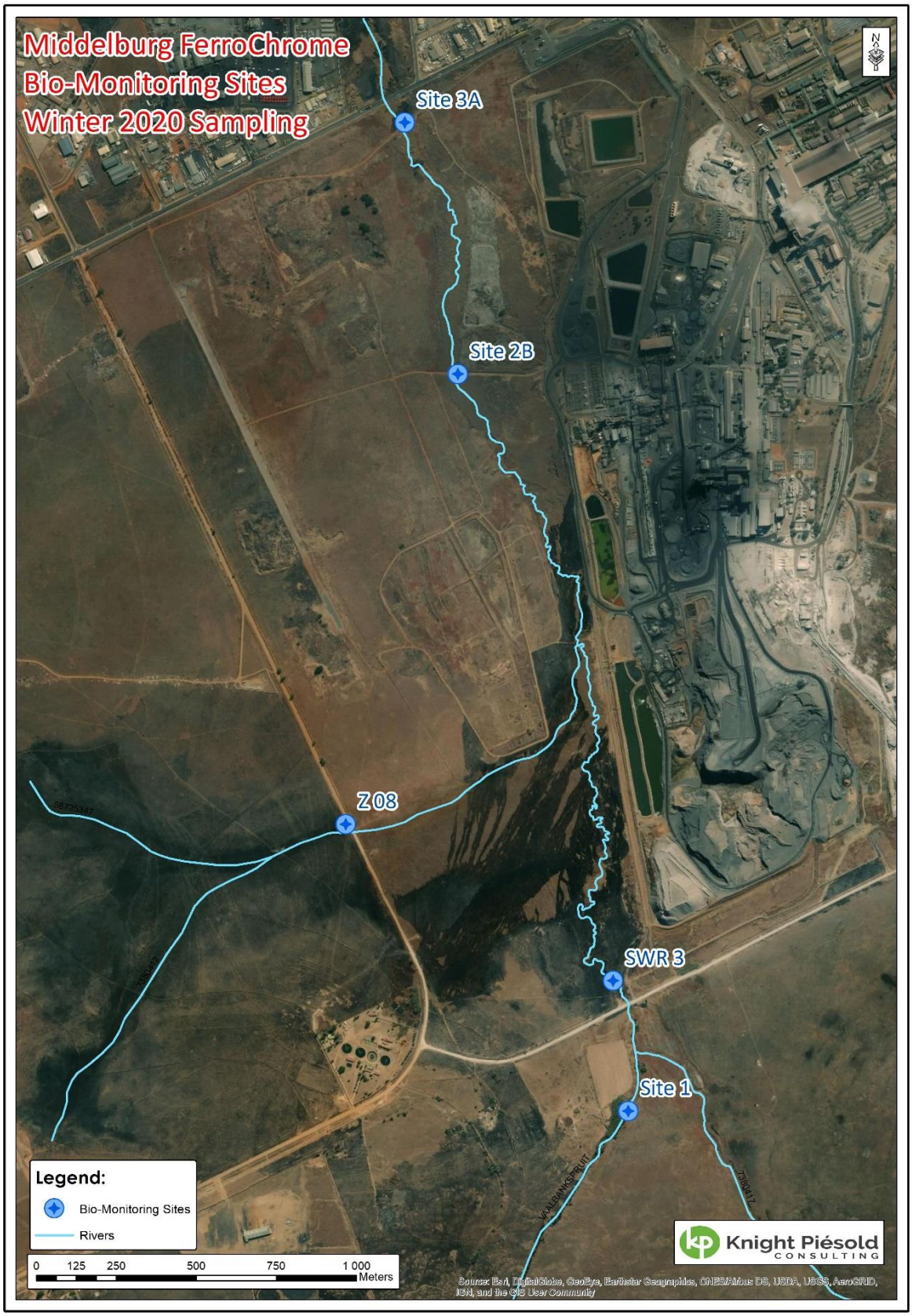

Figure 3: Locality of the Aquatic Bio-monitoring Sites

3.3 CIVIL AVIATION

The proposed decommissioning activities will not have an impact on civil aviation installations, as it will not include any telecommunications / no-fly zones. The Civil Aviation Authority will be included in the Database of Interested and Affected Parties (IAPs).

We therefore do not recommend undertaking a Civil Aviation Compliance Statement.

3.4 PALEANTOLOGICAL

The proposed decommissioning activities will not have an impact on the palaeontology of the area. The area is already disturbed. No new areas will be disturbed. The trucks will make use of the existing roads.

A heritage exemption from the South African Heritage Resources Agency (SAHRA) was obtained.

3.5 DEFENCE

The defence theme was rated as having a low sensitivity. In terms of the procedures, no further action is required.

3.6 BIODIVERSITY AND ANIMAL SPECIES

Figure 4 provides an overlay of the CDR facility onto the Mpumalanga Biodiversity Sector Plan. It shows that the area adjacent to the CDR facility is of irreplaceable Critical Biodiversity Areas (CBAs). The CDR areas is highly disturbed. The objective of the decommissioning and rehabilitation of this site is to remove the potential environmental risk posed by this non-operational facility and return it to a state that is as natural as possible.

A suite of ecology specialist studies were undertaken in 2012 by Yggdrasil Scientific Services & Galago Environmental. These are:

- Galago Environmental (2012). Mammal Habitat Assessment of Samancor Middelburg Ferrochrome Terrain.
- Yggdrasil Scientific Services (2012). Plant Ecologcical Report for the closure of the slimes dam (Samancor)
- Galago Environmental (2012). Avifaunal Habitat Assessment of Samancor Middelburg Ferrochrome Terrain.
- Galago Environmental (2012). Herpetofaunal Habitat Assessment of Samancor Middelburg Ferrochrome Terrain.
- Galago Environmental (2012). Aquatic Ecology Report for the closure of the slimes dam (Samancor)

It is recommended that these specialist studies be utilised for the BAR and supplemented with the latest monitoring information from the site.

On 9 June 2021, the DFFE requested that a full wetland study be undertaken. This study has been prepared and included in the submission.

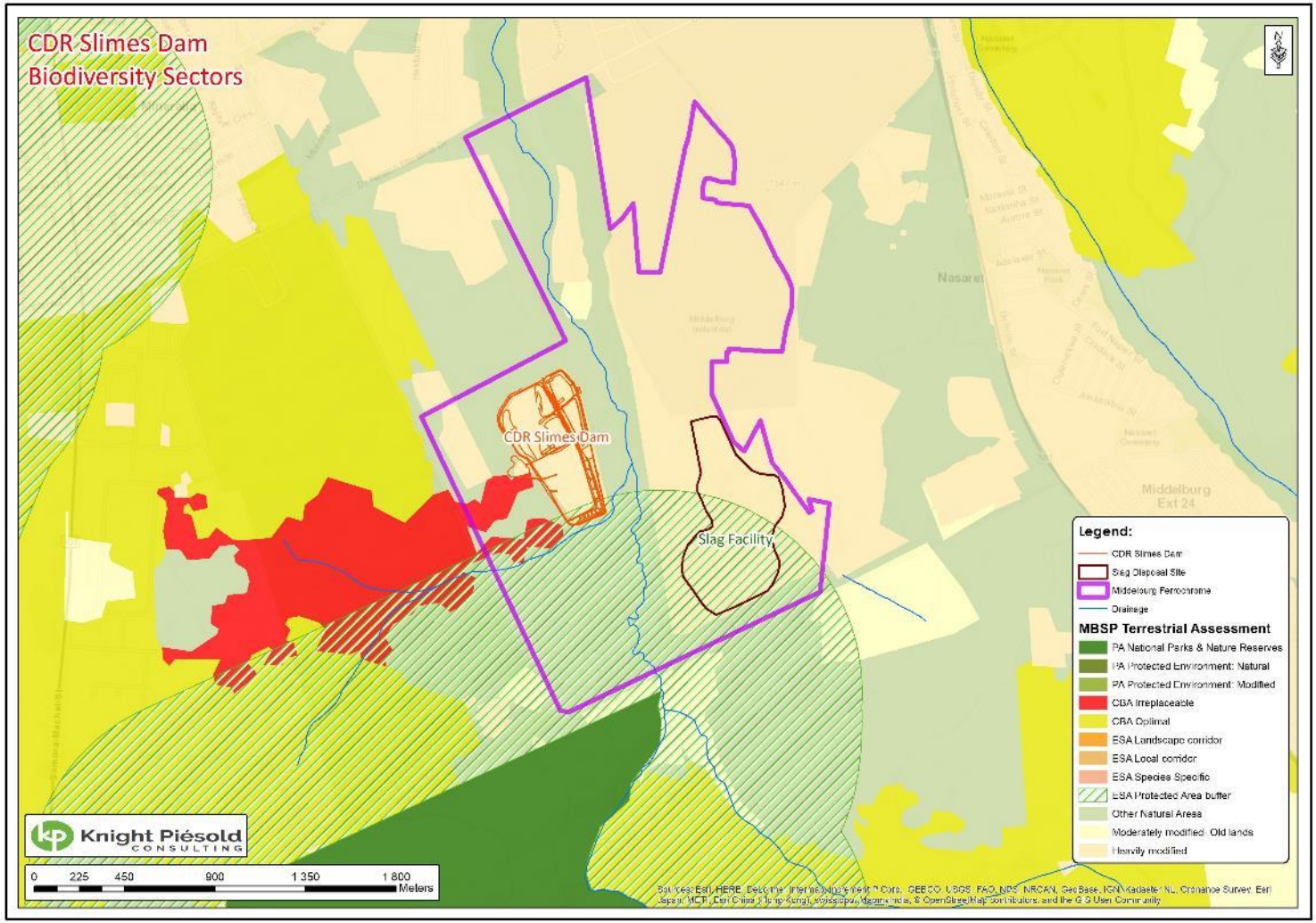

Figure 4: CDR Facility in Relation to Mpumalanga Biodiversity Sector Plan

4.0 PHOTOGRAPHS

Photographs of the site are provided in Plate 1 to Plate 3.

Plate 1: View from on-top of CDR facility, looking east over the Vaalbankspruit (taken January 2019)

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Plate 2: Side view of CDR facility near Return Water Dam, looking south west (taken January 2019)

Plate 3: Waste material of CDR facility (taken October 2019 as part of waste assessment studies)

5.0 CONCLUSION

This site sensitivity verification report has been undertaken in terms of GN 320 of March 2020 to provide more information about the site sensitivities, current land use as well as proposed activities to inform what specialist studies should be included.

It is our recommendation that the specialist studies available will be sufficient and can be supplanted with the latest monitoring information.

A full wetland study has been undertaken and is included in the submission.

6.0 CERIFICATION

This report was prepared and reviewed by the undersigned.

Prepared: 

Tania Oosthuizen, EAPASA, *Pr. Sci. Nat.*
Senior Environmental Scientist

Reviewed: 

Neal Neervoort, *Pr. Sci. Nat.*
Senior Environmental Scientist

Approval that this document adheres to Knight Piésold Quality Systems: T.M.O

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION OR FOR A PART TWO AMENDMENT OF AN ENVIRONMENTAL AUTHORISATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number:

Project name: MFC

Project title: CDR Closure

Date screening report generated: 20/10/2020 19:11:21

Applicant: Samancor Middelburg Ferrochrome

Compiler: Knight Piesold

Compiler signature: .....

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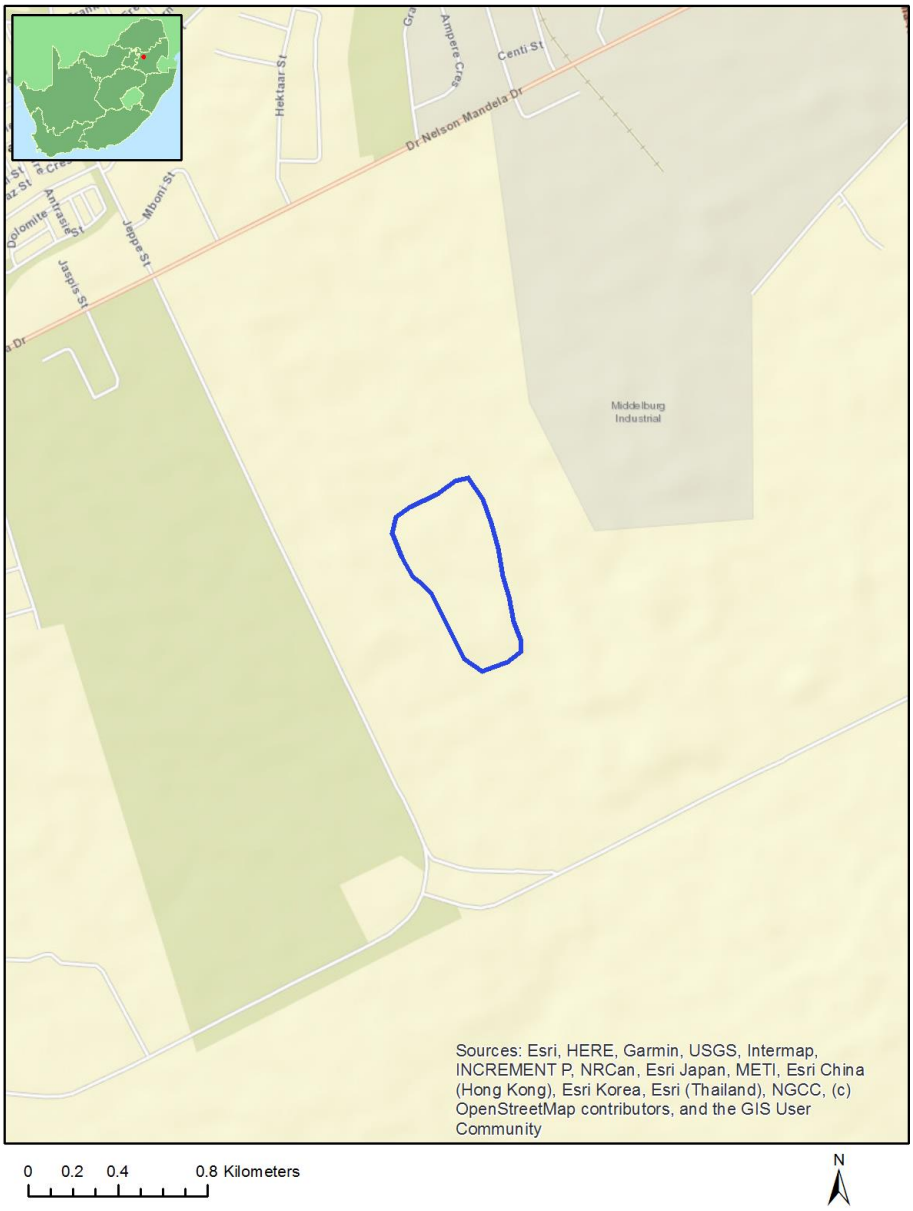
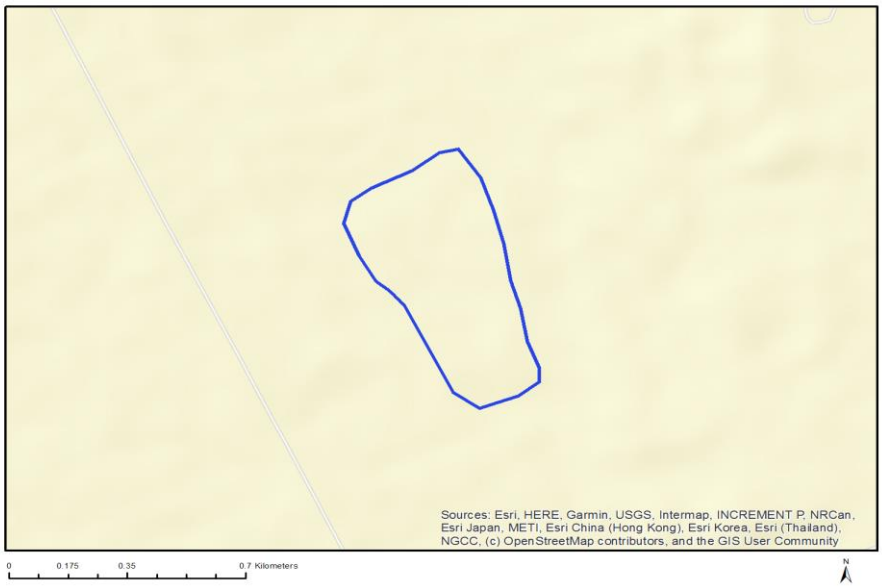
Proposed Project Location

Orientation map 1: General location

General Orientation: MFC



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	MIDDELBURG TOWN AND TOWNLANDS	287	0	25°46'29.31S	29°27'20.04E	Farm
2	MIDDELBURG TOWN AND TOWNLANDS	287	380	25°48'32.14S	29°29'15.2E	Farm Portion
3	MIDDELBURG TOWN AND TOWNLANDS	287	27	25°48'9.4S	29°27'47.44E	Farm Portion

Development footprint[1] vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	14/12/16/3/3/2/759	Solar PV	Approved	20.5

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental Management Frameworks relevant to the application

Environmental Management Framework	LINK
Olifants EMF	https://screening.environment.gov.za/ScreeningDownloads/EMF/Zone_46,_67,_78,_80,_92,_103,_122,_129.pdf

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is:
Any activities within or close to a watercourse|Any activities within or close to a watercourse.

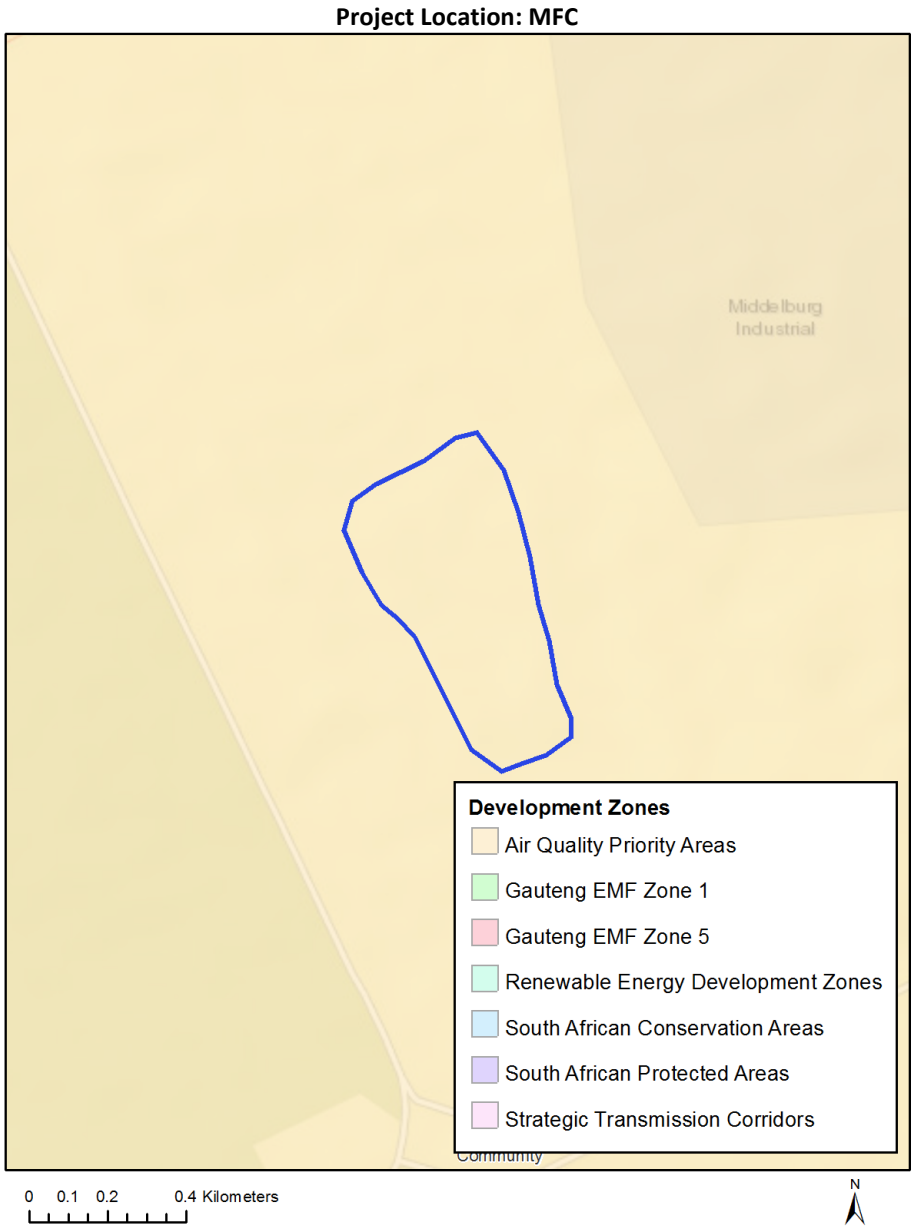
Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication

Strategic Transmission Corridor-International corridor	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/GNR_350_of_13_April_2017.pdf
Air Quality-Highveld Priority Area	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/HIGHVELD_PRIORITY_AREA_AQMP.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme		X		
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

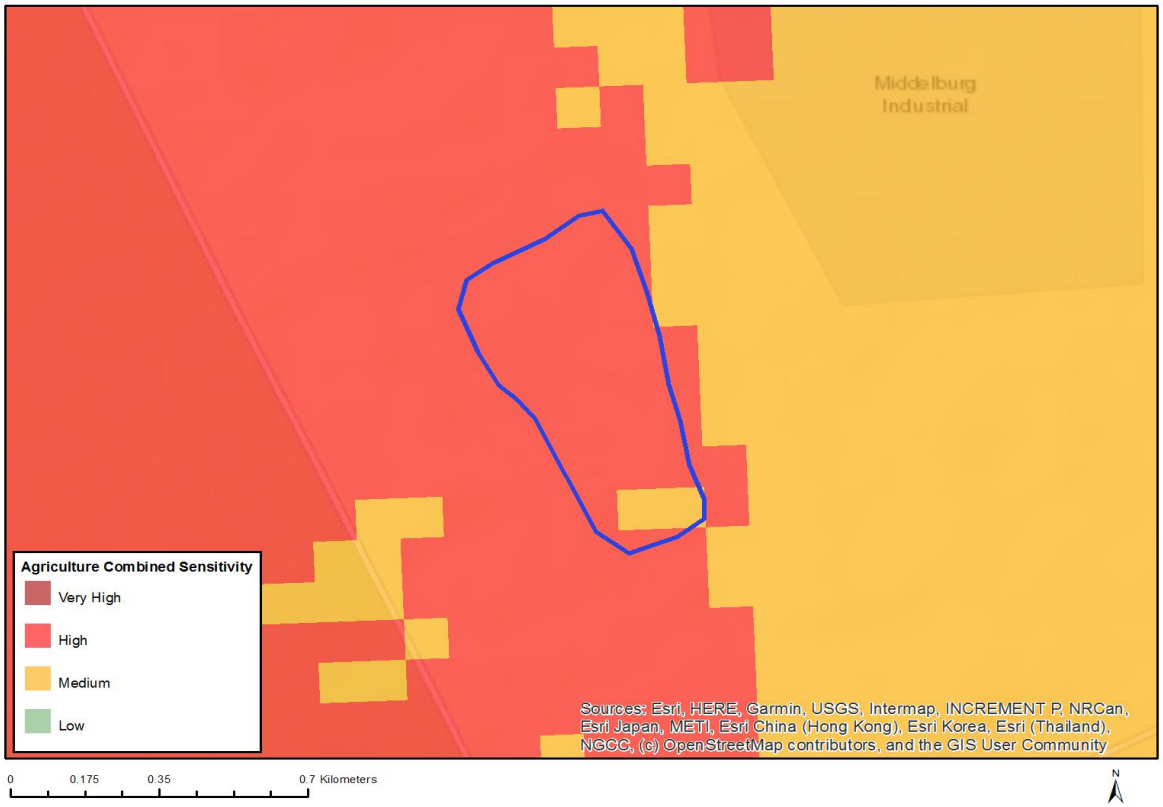
No	Specialist assessment	Assessment Protocol
1	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf

5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
6	Hydrology Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
7	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
9	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

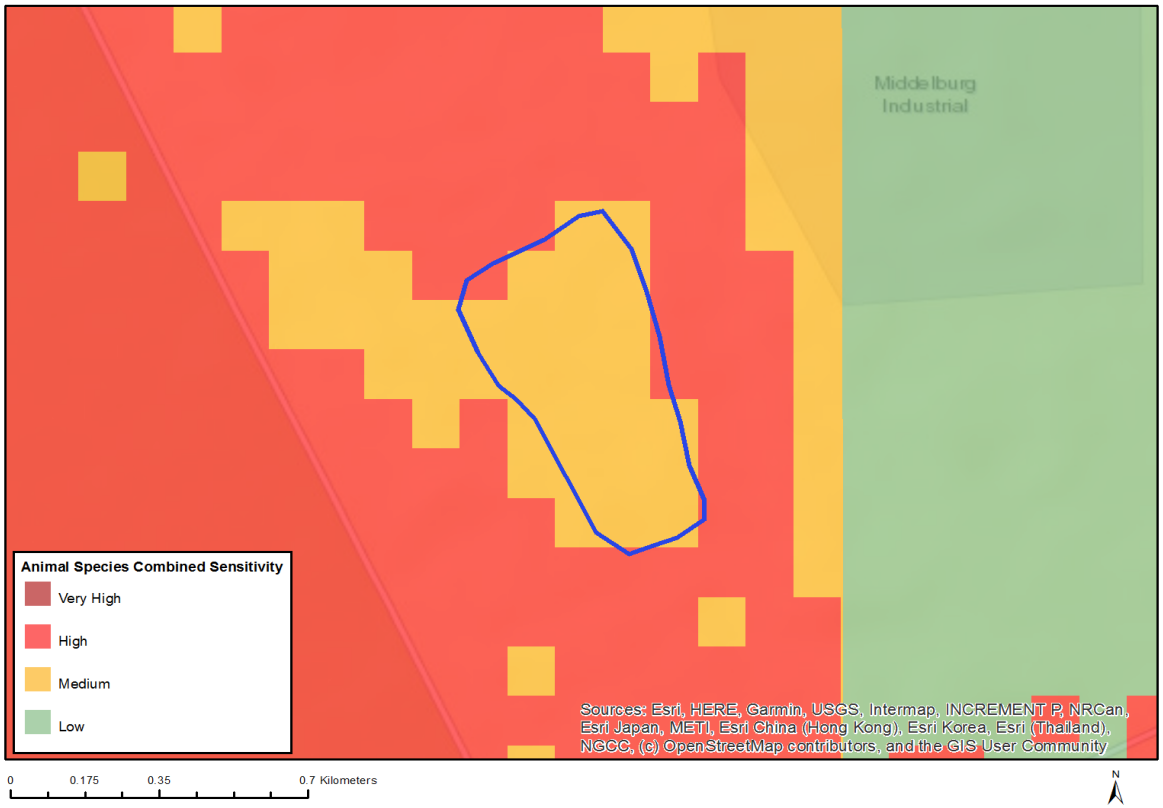


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Circus ranivorus
High	Aves-Tyto capensis
Medium	Sensitive species 7
Medium	Mammalia-Hydrictis maculicollis

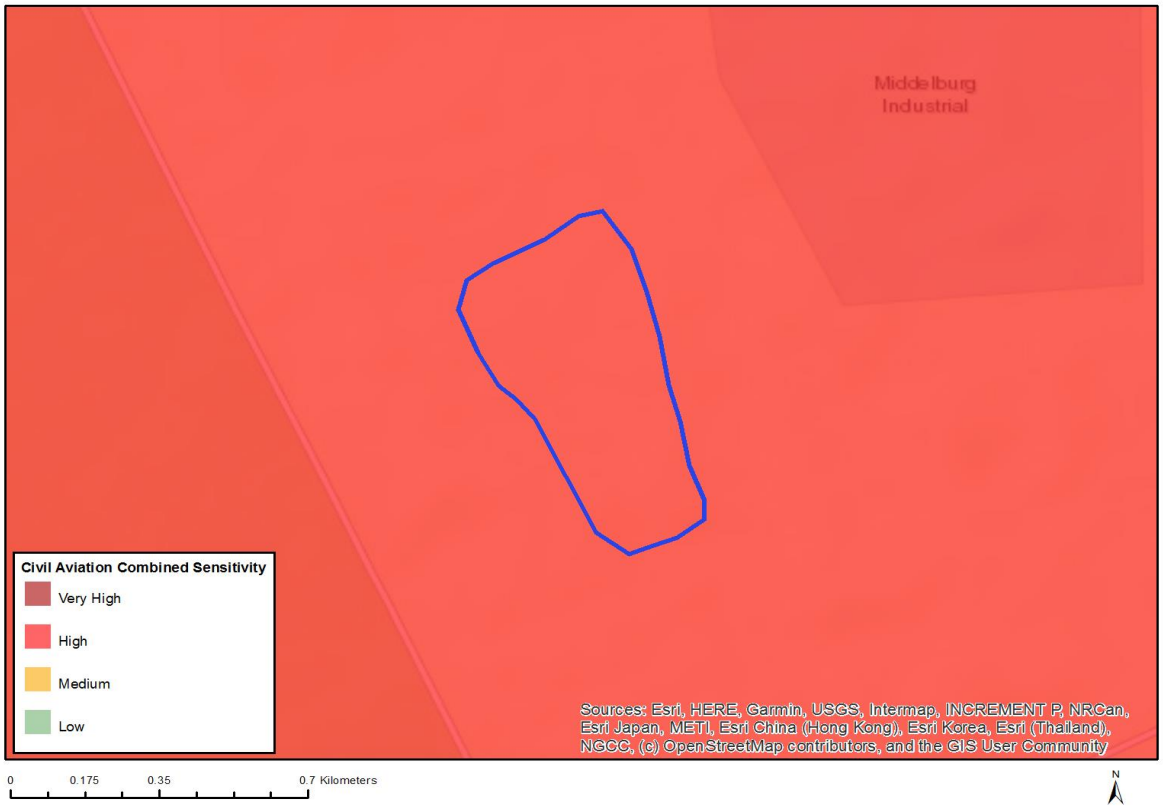
MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome

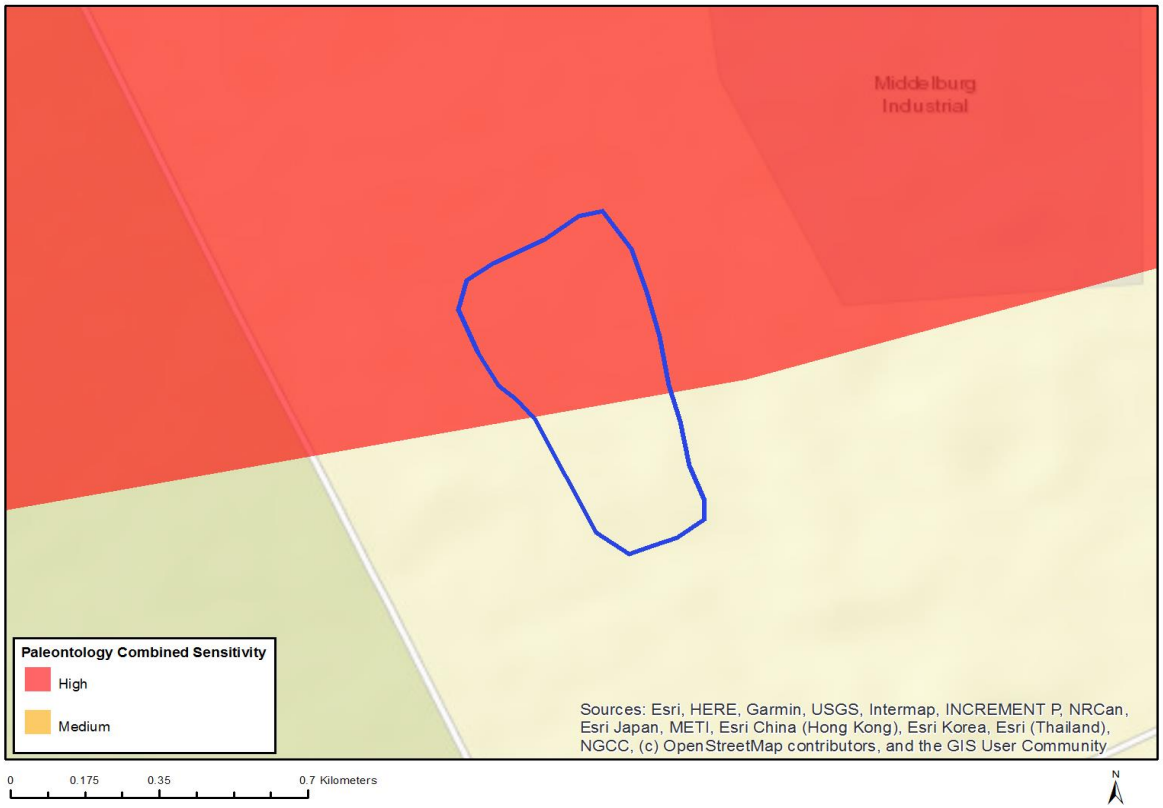
MAP OF RELATIVE DEFENCE THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

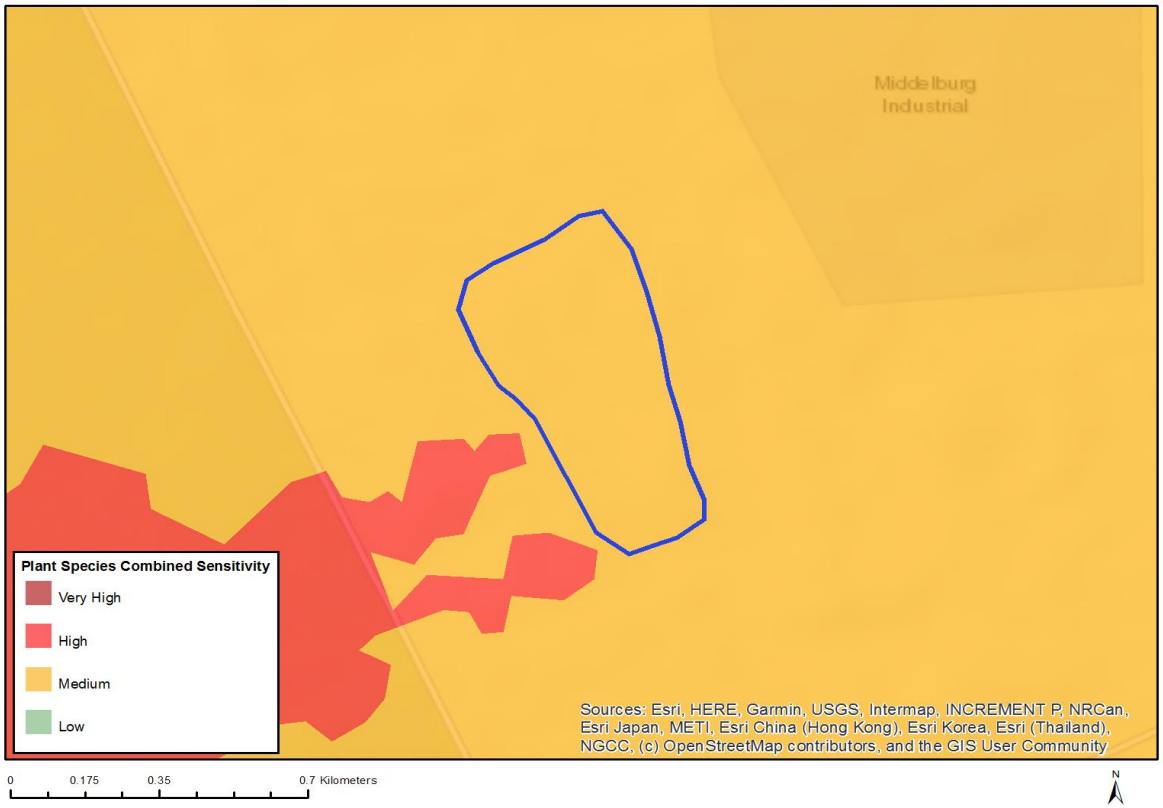


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Rock units with a high paleontological sensitivity
Medium	Rock units with a medium paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Sensitive species 411
Medium	Sensitive species 275
Medium	Sensitive species 647
Medium	Brachycorythis conica subsp. transvaalensis
Medium	Sensitive species 54

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Focus Areas for land-based protected areas expansion
Very High	Vulnerable ecosystem

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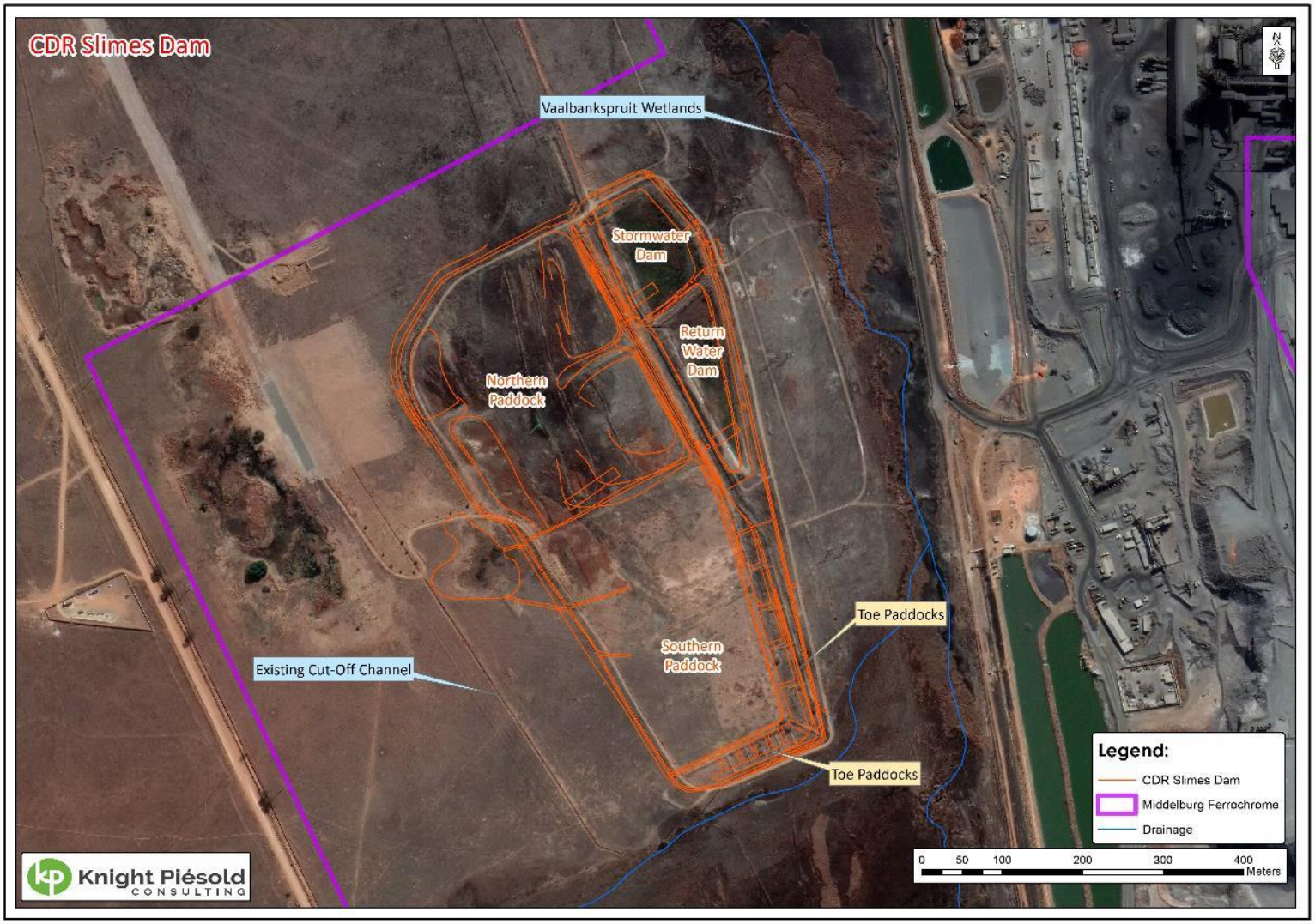

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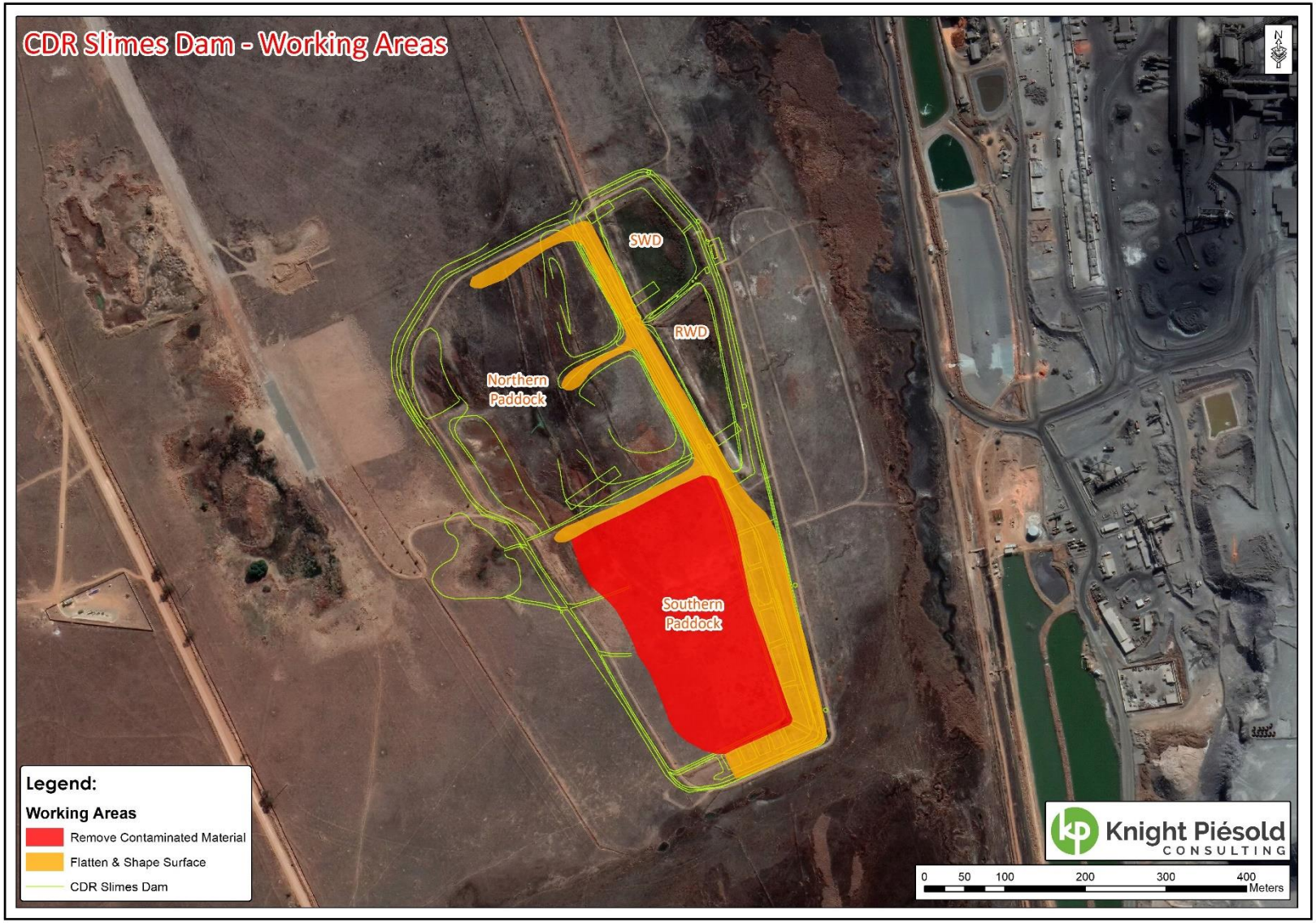

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MFC operations may have an impact on the Vaalbankspruit as it is part of the drainage system. In order to determine this potential impact, aquatic bio-monitoring is undertaken during the dry and wet season at the upstream and downstream monitoring points of the Vaalbankspruit, relative to the MFC operations (Figure 3). This bi-annual aquatic biomonitoring is also used to determine any trends and seasonal variation on the receiving aquatic environment.

The biomonitoring points are appropriately located so as to assess the impact that the CDR facility may have. The latest bio-monitoring results will be included in the BAR as well as a compliance statement from an Aquatic Specialist.

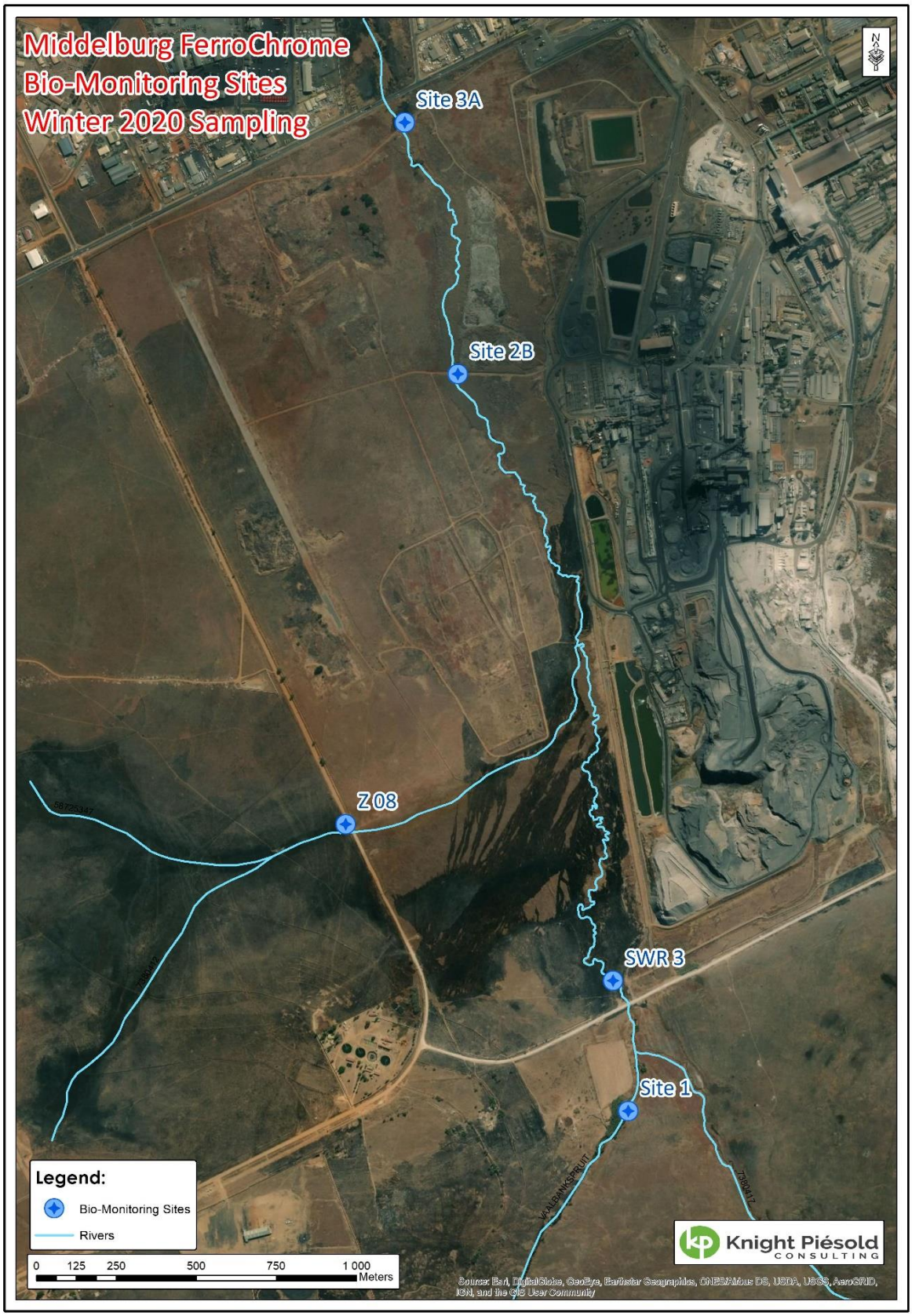

Figure 3: Locality of the Aquatic Bio-monitoring Sites

3.3 CIVIL AVIATION

The proposed decommissioning activities will not have an impact on civil aviation installations, as it will not include any telecommunications / no-fly zones. The Civil Aviation Authority will be included in the Database of Interested and Affected Parties (IAPs).

We therefore do not recommend undertaking a Civil Aviation Compliance Statement.

3.4 PALEANTOLOGICAL

The proposed decommissioning activities will not have an impact on the palaeontology of the area. The area is already disturbed. No new areas will be disturbed. The trucks will make use of the existing roads.

A heritage exemption from the South African Heritage Resources Agency (SAHRA) was obtained.

3.5 DEFENCE

The defence theme was rated as having a low sensitivity. In terms of the procedures, no further action is required.

3.6 BIODIVERSITY AND ANIMAL SPECIES

Figure 4 provides an overlay of the CDR facility onto the Mpumalanga Biodiversity Sector Plan. It shows that the area adjacent to the CDR facility is of irreplaceable Critical Biodiversity Areas (CBAs). The CDR areas is highly disturbed. The objective of the decommissioning and rehabilitation of this site is to remove the potential environmental risk posed by this non-operational facility and return it to a state that is as natural as possible.

A suite of ecology specialist studies were undertaken in 2012 by Yggdrasil Scientific Services & Galago Environmental. These are:

- Galago Environmental (2012). Mammal Habitat Assessment of Samancor Middelburg Ferrochrome Terrain.
- Yggdrasil Scientific Services (2012). Plant Ecologcical Report for the closure of the slimes dam (Samancor)
- Galago Environmental (2012). Avifaunal Habitat Assessment of Samancor Middelburg Ferrochrome Terrain.
- Galago Environmental (2012). Herpetofaunal Habitat Assessment of Samancor Middelburg Ferrochrome Terrain.
- Galago Environmental (2012). Aquatic Ecology Report for the closure of the slimes dam (Samancor)

It is recommended that these specialist studies be utilised for the BAR and supplemented with the latest monitoring information from the site.

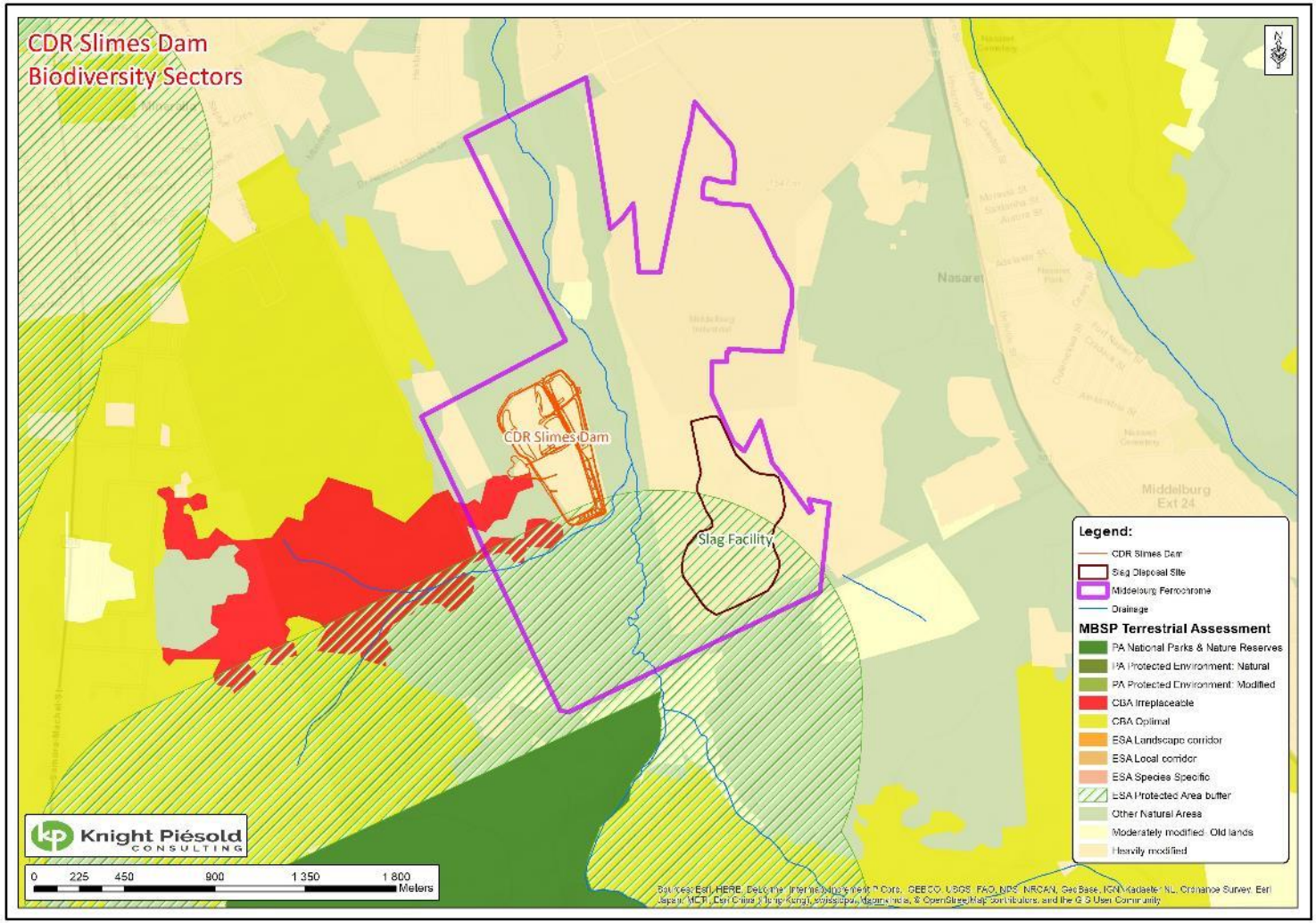

Figure 4: CDR Facility in Relation to Mpumalanga Biodiversity Sector Plan

4.0 PHOTOGRAPHS

Photographs of the site are provided in Plate 1 to Plate 3.

Plate 1: View from on-top of CDR facility, looking east over the Vaalbankspruit (taken January 2019)

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Plate 2: Side view of CDR facility near Return Water Dam, looking south west (taken January 2019)

Plate 3: Waste material of CDR facility (taken October 2019 as part of waste assessment studies)

5.0 CONCLUSION

This site sensitivity verification report has been undertaken in terms of GN 320 of March 2020 to provide more information about the site sensitivities, current land use as well as proposed activities to inform what specialist studies should be included.

It is our recommendation that the specialist studies available will be sufficient and can be supplanted with the latest monitoring information.

6.0 CERIFICATION

This report was prepared and reviewed by the undersigned.

Prepared: 

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Approval that this document adheres to Knight Piésold Quality Systems: T.M.O