
APPENDIX F: ENVIRONMENTAL SCREENING REPORT

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

EIA Reference number: To Be Issued

Project name: Vardocube Irrigation Project

Project title: Vardocube Irrigation Project

Date screening report generated: 15/10/2020 14:07:50

Applicant: Vardocube (Pty) Ltd.

Compiler: ABS-Africa (Pty) Ltd.

Compiler signature:

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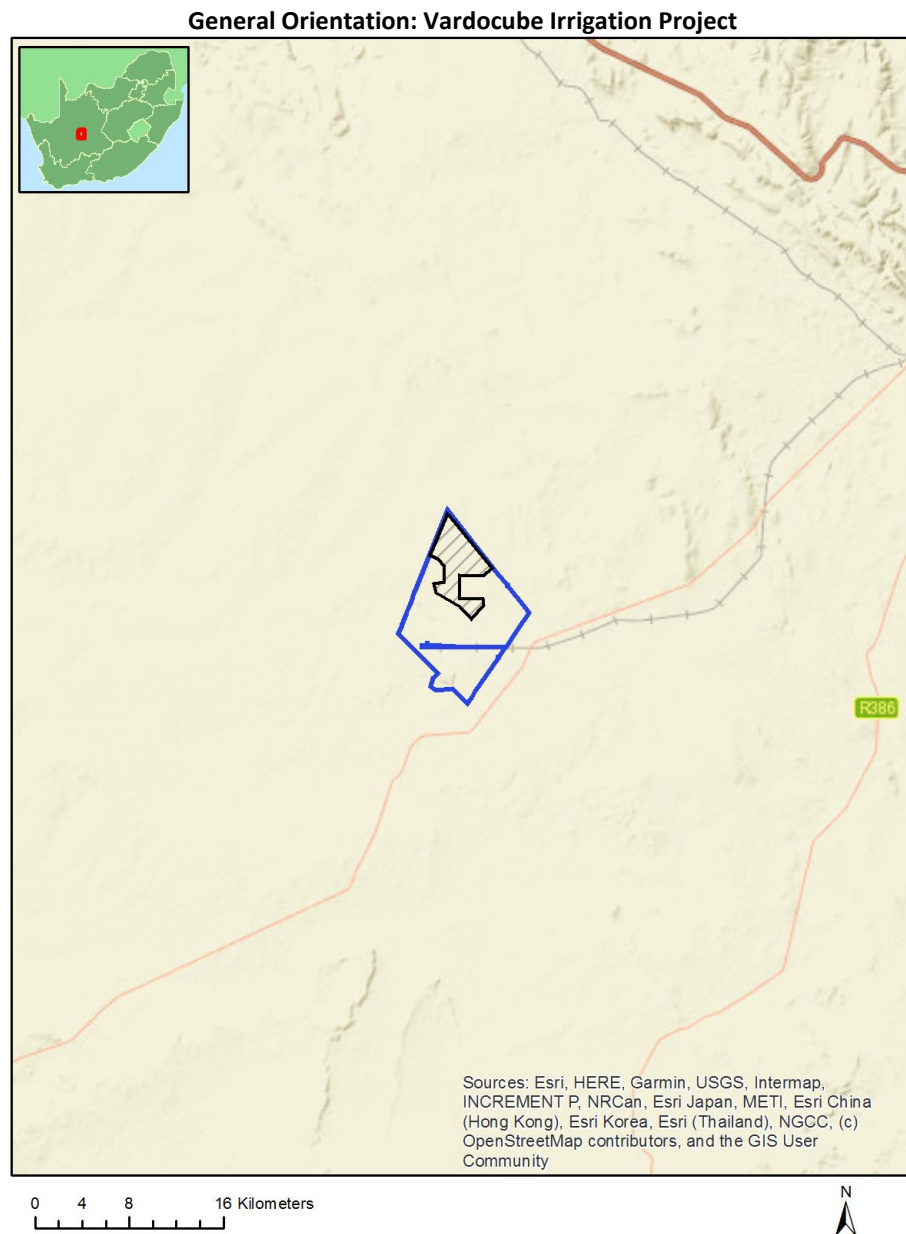


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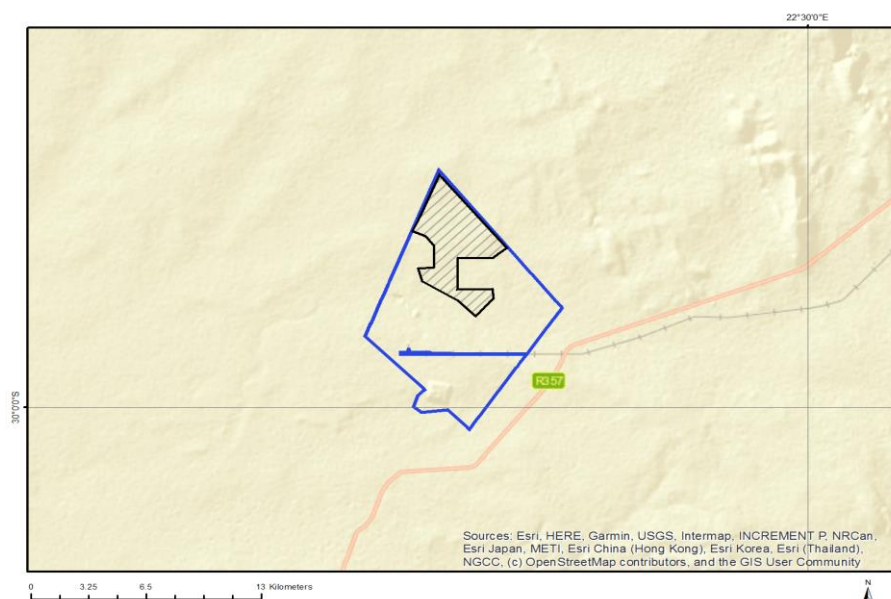
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Proposed Project Location

Orientation map 1: General location



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	SLIMES DAM	154	0	29°59'43.37S	22°18'43.63E	Farm
2	VOGELSTRUIS BUIT	104	0	29°57'1.82S	22°19'17.33E	Farm
3	VOGELSTRUIS BUIT	104	16	29°55'38.68S	22°18'25.65E	Farm Portion
4	VOGELSTRUIS BUIT	104	21	29°55'6.91S	22°18'15.99E	Farm Portion
5	VOGELSTRUIS BUIT	104	26	29°56'54.02S	22°17'46.98E	Farm Portion
6	VOGELSTRUIS BUIT	104	6	29°57'30.98S	22°18'4.38E	Farm Portion
7	VOGELSTRUIS BUIT	104	20	29°55'27.22S	22°18'30.79E	Farm Portion
8	VOGELSTRUIS BUIT	104	25	29°57'27.42S	22°17'38.35E	Farm Portion
9	VOGELSTRUIS BUIT	104	14	29°55'16.46S	22°18'25.55E	Farm Portion
10	VOGELSTRUIS BUIT	104	5	29°57'36.54S	22°18'0.86E	Farm Portion
11	VOGELSTRUIS BUIT	104	19	29°55'26.41S	22°18'30.8E	Farm Portion
12	VOGELSTRUIS BUIT	104	18	29°55'25.6S	22°18'30.81E	Farm Portion
13	VOGELSTRUIS BUIT	104	1	29°56'47.42S	22°19'32.08E	Farm Portion
14	SLIMES DAM	154	0	29°59'43.37S	22°18'43.63E	Farm Portion
15	VOGELSTRUIS BUIT	104	17	29°55'22.8S	22°18'18.24E	Farm Portion

Development footprint¹ vertices:

Footprint	Latitude	Longitude
1	29°53'6.85S	22°18'47.82E
1	29°53'9.39S	22°18'50.23E
1	29°55'17.15S	22°20'51.1E
1	29°55'35.86S	22°20'24.49E
1	29°55'35S	22°19'21.3E
1	29°56'31.2S	22°19'20.55E
1	29°56'30.65S	22°20'24.14E
1	29°56'46.61S	22°20'26.49E
1	29°57'18.22S	22°19'53.97E
1	29°56'50.29S	22°19'20.6E
1	29°56'16.82S	22°18'15.87E
1	29°55'53.88S	22°18'9.53E
1	29°55'51.6S	22°18'38.42E
1	29°55'13.44S	22°18'38.46E
1	29°54'56.32S	22°18'22.74E
1	29°54'47.22S	22°17'58.79E
1	29°54'26.28S	22°18'9.82E
1	29°53'6.85S	22°18'47.82E

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	12/12/20/2320	Solar PV	Approved	12.1
2	12/12/20/1722	Solar PV	Approved	0
3	14/12/16/3/3/1/454	Solar PV	Approved	1.9
4	12/12/20/2503	Solar PV	Approved	3.9
5	14/12/16/3/3/2/766	Solar PV	Approved	6.2
6	14/12/16/3/3/2/579	Solar PV	Approved	10.7
7	14/12/16/3/3/2/767	Solar PV	Approved	6.2
8	12/12/20/2501	Solar PV	Approved	6.2
9	14/12/16/3/3/2/765	Solar PV	Approved	6.2
10	12/12/20/2320/2	Solar PV	Approved	15.3
11	14/12/16/3/3/2/579/1	Solar PV	Approved	10.7
12	12/12/20/2502	Solar PV	Approved	0
13	12/12/20/2320/4	Solar PV	Approved	12.1
14	12/12/20/2320/5	Solar PV	Approved	12.1

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

¹ “development footprint”, means the area within the site on which the development will take place and includes 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 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 footprint as well as the most environmental sensitive features on the footprint based on the footprint sensitivity screening results for the application classification that was selected. The application classification selected for this report is:

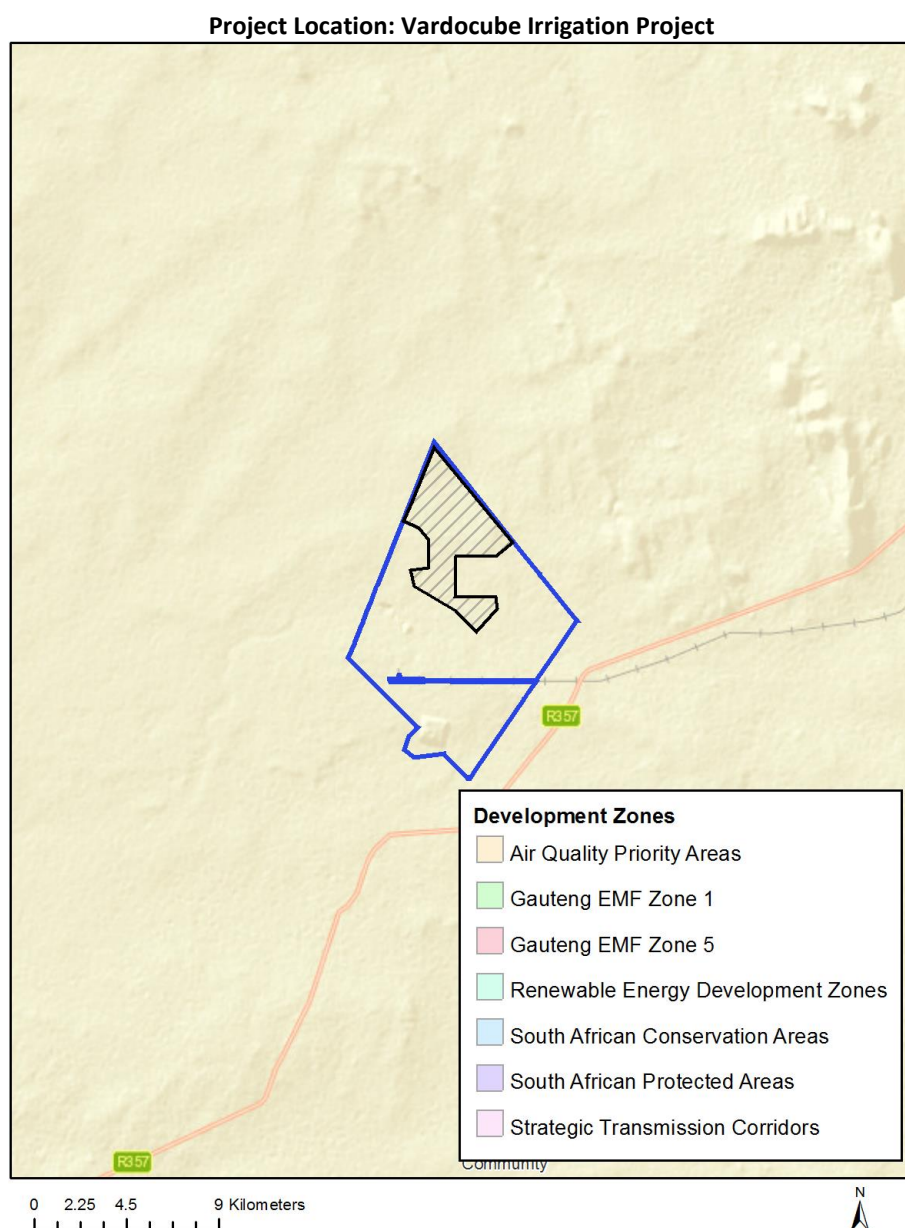
Transformation of land | Indigenous vegetation | Transformation of land - Indigenous vegetation.

Relevant development incentives, restrictions, exclusions or prohibitions

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

No intersection with any development zones found.

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 footprint 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	
Aquatic Biodiversity Theme				

Archaeological and Cultural Heritage Theme		X		
Defence Theme				X
Paleontology Theme			X	
Plant Species 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 footprint situation.

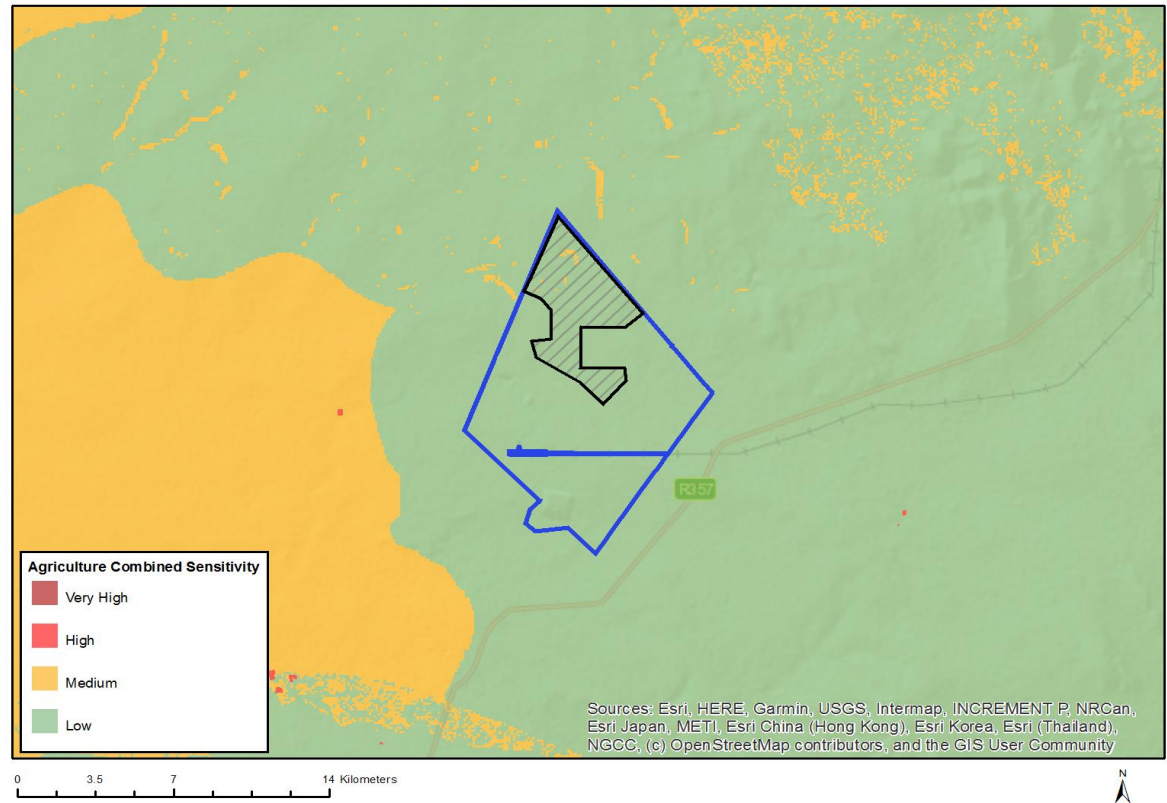
N o	Special ist assess ment	Assessment Protocol
1	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_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	Avian Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Avifauna_Assessment_Protocols.pdf
7	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Plant	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Assessment_Protocols.pdf

	Species Assessment	/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 footprint 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

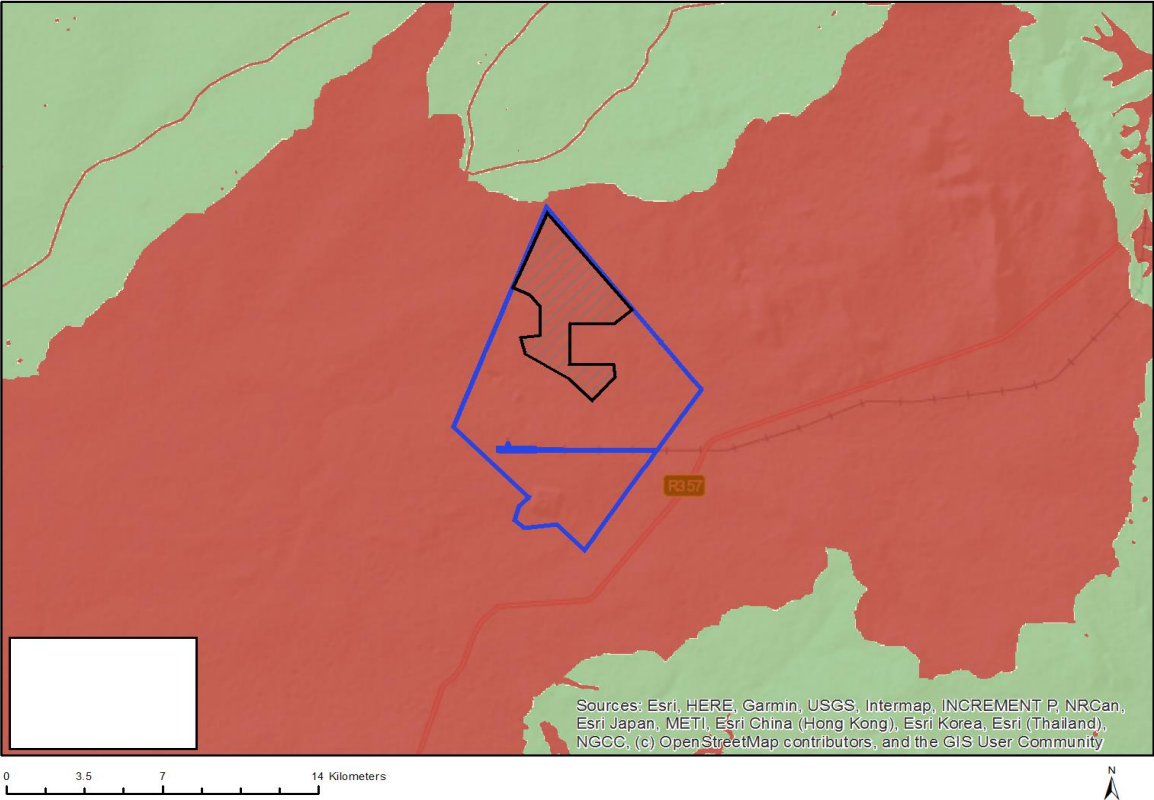


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	
Medium	

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

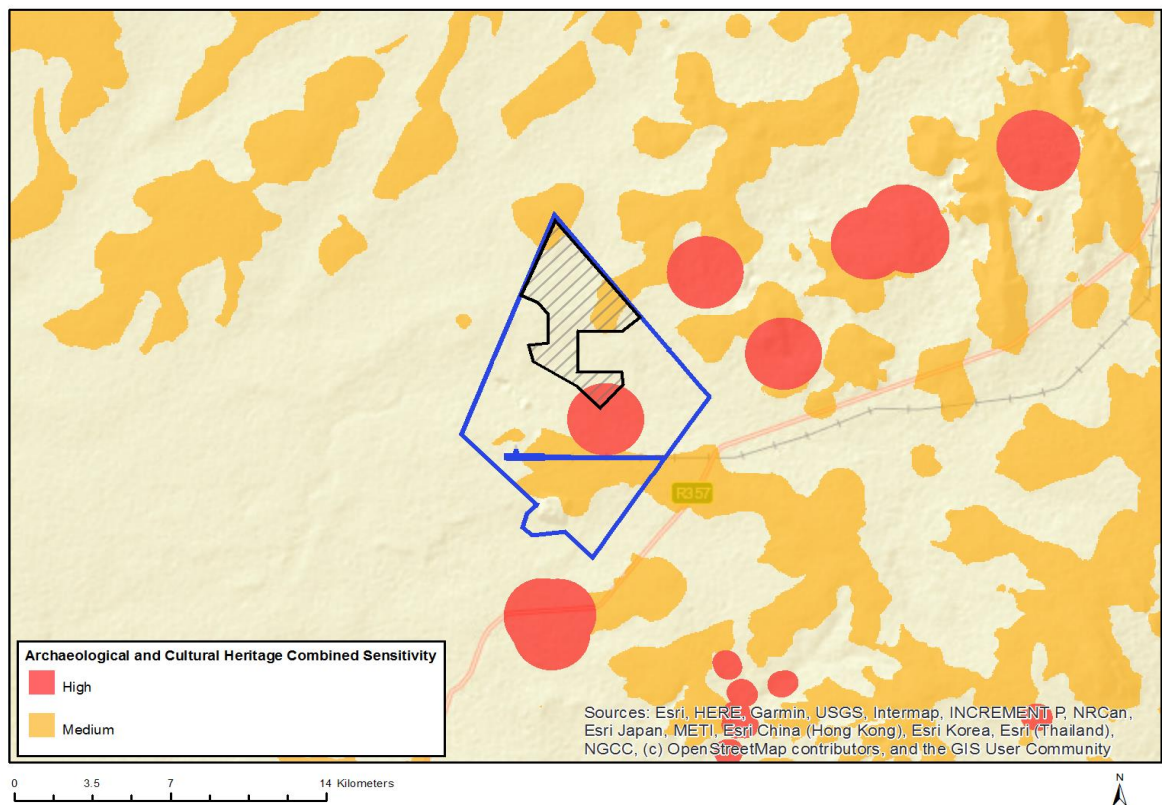


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity

Sensitivity Features:

Sensitivity	Feature(s)
	Wetlands and Estuaries
	Freshwater ecosystem priority area quinary catchments

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

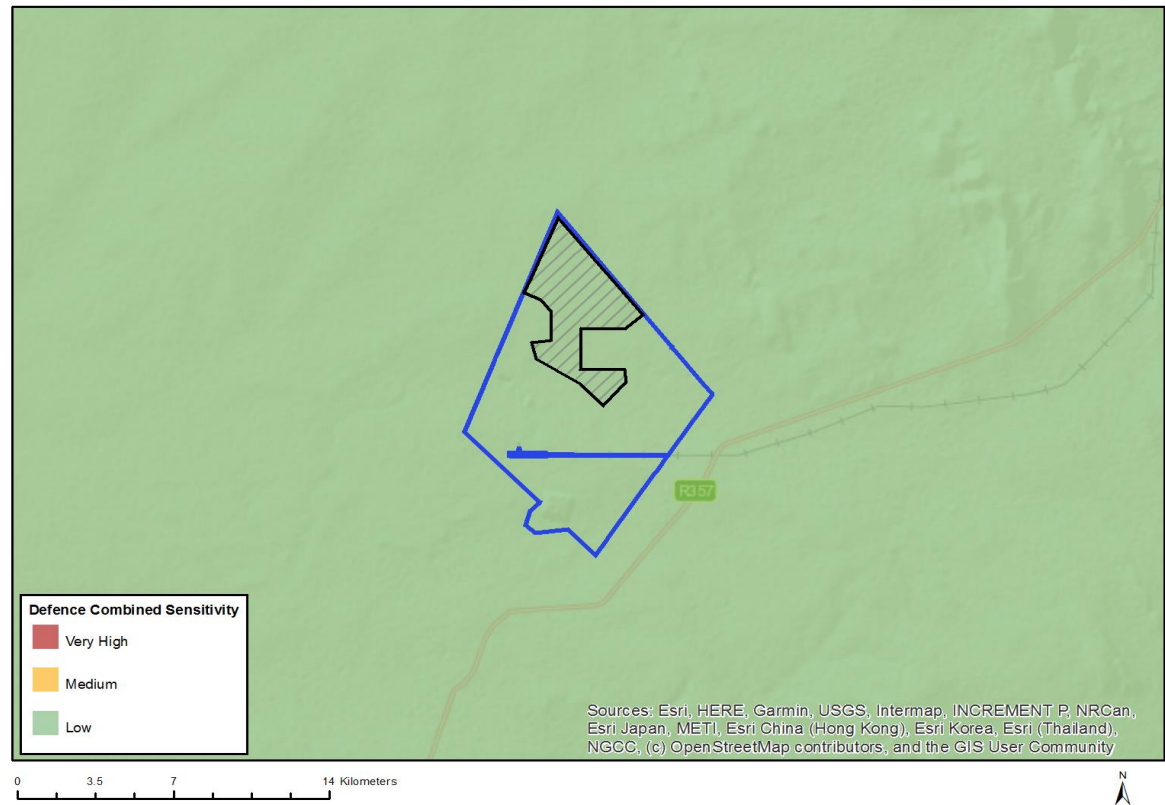


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 500 m of a heritage site
Medium	Mountain or ridge

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

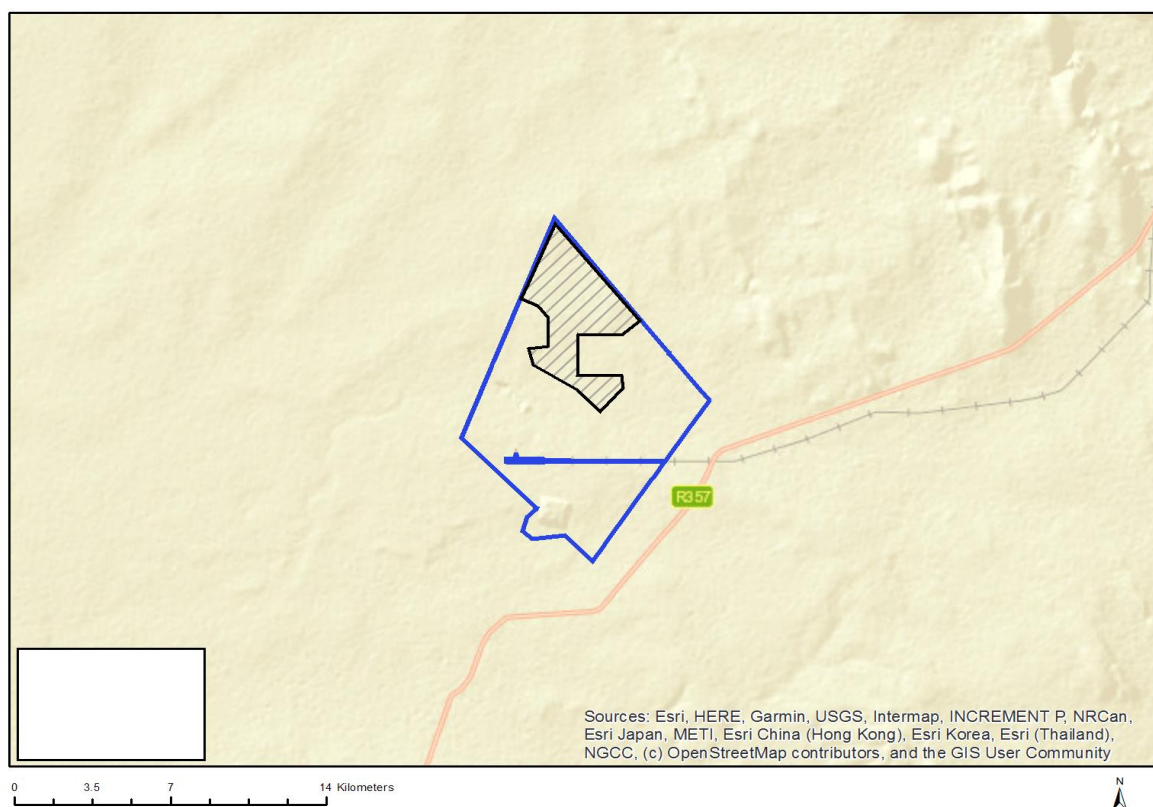


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

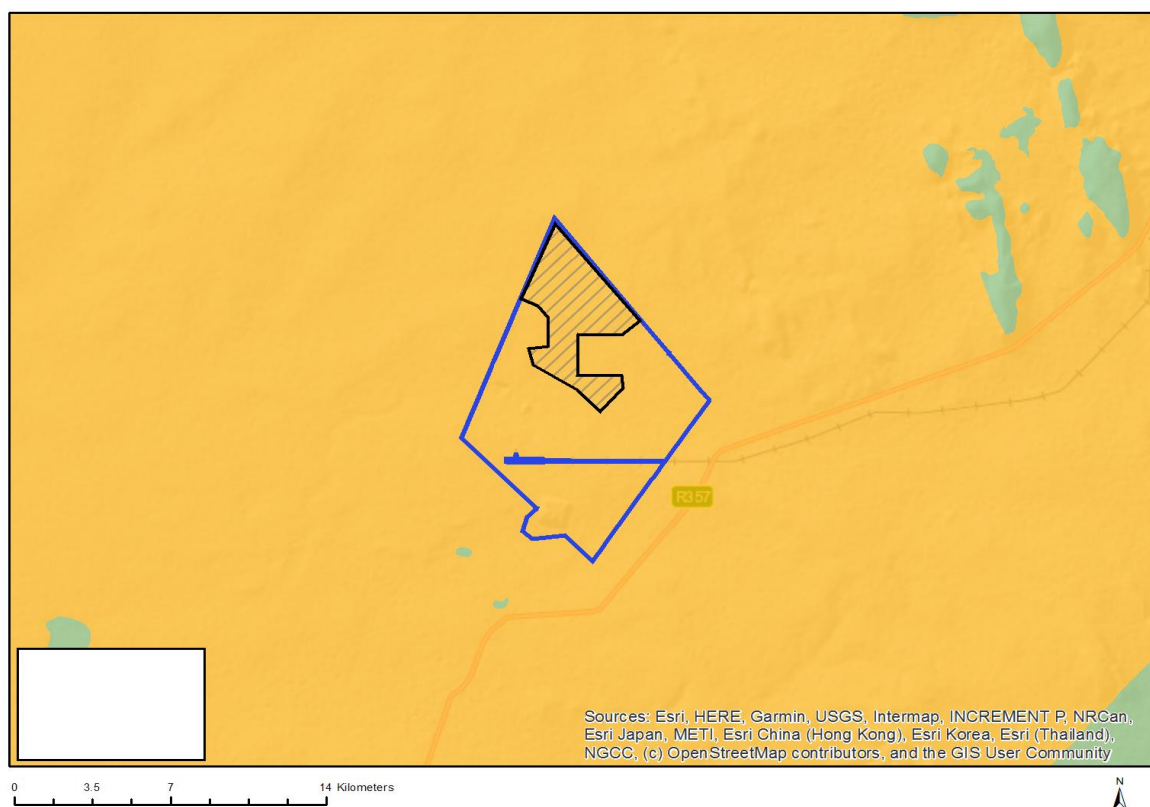


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
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 44

APPENDIX G: IMPACT ASSESSMENT MATRIX

SOILS								
Project Activity		Soils	Likelihood		Consequence			Significance Rating
Establishment of surface pipeline. Assembling of linear draglines. Traffic	Phase of Project	Construction Phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
	Impact Classification	Direct Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Disturbance, compaction	1	3	2	2	1	20
			Significance Post-Mitigation					
			1	2	1	2	1	12
Project Activity		Soils	Likelihood		Consequence			Significance Rating
Continued Activities. Irrigation. Wheel tracks. Traffic	Phase of Project	Resulting Impact from Activity	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
	Impact Classification	Cumulative. Direct	Significance Pre-Mitigation					
	Resulting Impact from Activity	Waterlogging, surface water run-off, compaction, seepage, contamination and soil capping	4	4	2	3	2	56
			Significance Post-Mitigation					
			2	2	2	2	3	28
Project Activity		Soils	Likelihood		Consequence			Significance Rating
Rehabilitation of wheel tracks, reseeding of disturbed soil removal of surface irrigation equipment, Traffic	Phase of Project	Closure	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
	Impact Classification	Direct	Significance Pre-Mitigation					
	Resulting Impact from Activity	Improved biomass, less erosion, improved seedbank	3	3	3	2	3	48
			Significance Post-Mitigation					

			4	4	3	3	3	72
LAND CAPABILITY AND LAND USE								
Project Activity		Soils	Likelihood		Consequence			Significance Rating
Establishment of surface pipeline. Assembling of linear draglines and irrigation	Phase of Project	Preparation, Construction and operational phases	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
	Impact Classification	Secondary Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Waterlogging, surface water run-off, compaction and soil capping	1	2	2	2	1	15
			Significance Post-Mitigation					
			1	2	1	2	1	12

Project Activity		Soils	Likelihood		Consequence			Significance Rating
Rehabilitation of wheel tracks, reseeding of disturbed soil removal of surface irrigation equipment. Traffic	Phase of Project	Preparation -Post-Closure Phases	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	
	Impact Classification	Cumulative Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Improved biomass, less erosion, improved seedbank	2	3	3	2	3	40
			Significance Post-Mitigation					
			2	4	4	2	3	54

WETLAND SOILS								
Project Activity		Soil Erosion	Likelihood		Consequence			
All construction phase activities	Phase of Project	All phases of project	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Secondary & Cumulative Impact	Significance Pre-Mitigation					
			2	2	2	2	2	24

	Resulting Impact from Activity	Conservation buffer zones (100 m) designated to the wetland units is sufficient to negate erosion impacts.	Significance Post-Mitigation					
			1	1	1	1	1	6

AIR QUALITY								
Project Activity	Air Quality		Likelihood		Consequence			
PM10 and PM2.5 Concentrations as a result of Construction of the Irrigation area	Phase of Project	Construction Phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Direct Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Impact on human health	3	3	2	3	1	36
			Significance Post- Mitigation					
			3	1	3	2	1	24

Project Activity	Air Quality		Likelihood		Consequence			
Dust Fallout rates as a result of Construction of the Irrigation area	Phase of Project	Construction Phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Direct Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Nuisance impact	3	3	2	2	1	30
			Significance Post- Mitigation					
			3	1	2	2	1	20

ECOLOGICAL SENSITIVE HABITAT (WETLAND UNITS)

Project Activity	Ecologically sensitive habitat (wetland units)		Likelihood		Consequence			
All construction phase activities	Phase of Project	Construction phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Direct Impact	Significance Pre-Mitigation					
			3	2	2	2	2	30

	Resulting Impact from Activity	Destruction of wetland habitat due to irrigation	Significance Post-Mitigation					
			1	1	1	1	1	6
Project Activity	Ecologically sensitive habitat (wetland units)		Likelihood		Consequence			
Destruction of wetland habitat due to irrigation	Phase of Project	Construction/Operations phases	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Secondary Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Destruction of wetland habitat due to irrigation	3	2	2	2	2	30
			Significance Post-Mitigation					
			1	1	1	1	1	6
Project Activity	Ecologically sensitive habitat (wetland units)		Likelihood		Consequence			
Vegetation alteration due to increased water source	Phase of Project	All phases of the project	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Secondary & Cumulative Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Disturbances that induce invasion of exotic flora	4	4	2	2	4	64
			Significance Post-Mitigation					
			4	4	1	2	4	56
<u>WATER QUALITY</u>								
Project Activity	Surface Water Resources		Likelihood		Consequence			
Construction phase activities and routine irrigation	Phase of Project	All phases of the project	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Direct, Secondary & Cumulative Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Surface water runoff could transport increased silts and sediments into wetland	4	4	2	2	5	72
			Significance Post-Mitigation					

		areas; Increased salinity of the wetland soils could occur through evaporation of poor-quality irrigation water.	1	1	2	1	1	8
SURFACE WATER								
Project Activity	Surface Water Resources		Likelihood		Consequence			
Construction phase activities and routine irrigation	Phase of Project	All phases of the project	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Direct, Secondary & Cumulative Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Surface water contamination due to hydrocarbon spills.	4	3	3	2	1	42
			Significance Post-Mitigation					
			4	1	1	2	1	20
FLORA								
Project Activity	Flora		Likelihood		Consequence			
Irrigation of vegetated plains through mine dewatering	Phase of Project	Preparation, Construction and Operational Phases	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Direct Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Degradation of Natural Habitat of Moderate Ecological Importance	3	4	4	2	5	77
			Significance Post- Mitigation					
			3	4	4	2	5	77
Project Activity	Flora		Likelihood		Consequence			
Clearing of vegetation for construction of infrastructure	Phase of Project	Preparation, Construction and Operational Phases	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating

	Impact Classification	Direct Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Loss of Plant Species of Conservation Concern	5	5	3	2	5	100
			Significance Post- Mitigation					
			3	3	3	2	5	60
Project Activity	Flora		Likelihood		Consequence			
Clearing of vegetation for construction of infrastructure	Phase of Project	Preparation, Construction and Operational Phases	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Direct Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Introduction/proliferation of alien invasive species	4	4	4	3	5	96
			Significance Post- Mitigation					
			3	3	2	2	5	54
Project Activity	Flora		Likelihood		Consequence			
Clearing of vegetation for construction of infrastructure	Phase of Project	Preparation, Construction and Operational Phases	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Indirect Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Increased utilisation of plant resources as a result of an influx of people into the study area	3	3	3	3	5	66
			Significance Post- Mitigation					
			2	2	1	2	4	28
FAUNA								
Project Activity		Fauna	Likelihood		Consequence			
Construction/ Operation activities (Disturbances, vegetation Clearing, Accidents, Access Roads)	Phase of Project	Construction - Closure Phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Direct Impact	Significance Pre-Mitigation					
		Loss of Faunal Habitat	5	5	3	2	5	100

	Resulting Impact from Activity		Significance Post-Mitigation						
			4	4	2	2	5	72	
Project Activity		Fauna	Likelihood		Consequence				
All staff activities that take place outdoors	Phase of Project	Construction and Operational Phases	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating	
	Impact Classification	Indirect Impact	Significance Pre-Mitigation						
	Resulting Impact from Activity	Illegal utilisation of animal resources as a result of an influx of people into the study area	4	4	4	3	5	96	
			Significance Post-Mitigation						
			2	2	2	3	5	40	
ARCHAEOLOGY AND CULTURAL RESOURCES									
Project Activity		Archaeology & Cultural Heritage	Likelihood		Consequence				
In regard to Archaeological Scatters, disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects.	Phase of Project	Construction phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating	
	Impact Classification	Direct Impact	Significance Pre-Mitigation						
	Resulting Impact from Activity	Disturbance/Loss of Significant Archaeological or Cultural Heritage Sites/Remains	1	1	2	1	5	16	
			Significance Post-Mitigation						
			1	1	2	1	5	16	
Project Activity		Archaeology & Cultural Heritage	Likelihood		Consequence			Significance Rating	
In regard to Archaeological Sites, disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects.	Phase of Project	Construction phase	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration		
	Impact Classification	Direct Impact	Significance Pre-Mitigation						
	Resulting Impact from Activity	Disturbance/Loss of Significant Archaeological or Cultural Heritage Sites/Remains	3	1	3	1	5		36
			Significance Post-Mitigation						
			1	1	2	1	5	16	

GROUNDWATER

Project Activity	Groundwater		Likelihood		Consequence			
Construction phase activities and routine irrigation	Phase of Project	All phases of the project	Frequency of Activity	Frequency of Impact	Severity	Spatial Scope	Duration	Significance Rating
	Impact Classification	Direct, Secondary & Cumulative Impact	Significance Pre-Mitigation					
	Resulting Impact from Activity	Groundwater contamination due to hydrocarbon spills.	4	3	3	2	1	42
			Significance Post-Mitigation					
			4	1	1	2	1	20



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