

APPENDIX J:

Assessment of Impacts

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES/ REMARKS	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION					
		M	D	S	P	TOTAL	SP		M	D	S	P	TOTAL	SP
ISSUES RELATED TO FLORA														
Loss of natural vegetation	<p>Pre-construction phase: Demarcation of servitude, Establishment of site camps, Establishment of crusher plants</p> <p>Construction phase: Earthworks</p>	4	2	2	2	16	L	<ul style="list-style-type: none"> Mitigation measures in EMPr. Contain construction impacts to as narrow an area as possible, preferably to within the servitude. Rehabilitate disturbed areas as soon as possible. Avoid translocating topsoil from one site to another. A permit is required for any protected trees that will be affected by the proposed project. 	4	5	1	1	10	L
Spread of alien vegetation	<p>Pre-construction phase: Demarcation of servitude, Transportation of material to site.</p> <p>Construction phase: Clearing and rehabilitation of site.</p>	6	2	2	3	30	M	<ul style="list-style-type: none"> Mitigation measures in EMPr. Control declared weeds and alien invasive plants before seeding. 	0	5	1	2	16	L

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES/ REMARKS	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION					
		M	D	S	P	TOTAL	SP		M	D	S	P	TOTAL	SP
ISSUES RELATED TO DUST														
Dust from the site machinery and trucks on the dust roads	<p>Pre-construction phase: Transport of material to site, Movement of machinery, Establishment of site camps;</p> <p>Construction phase: Earthworks Crushing</p>	6	2	2	4	40	M	<ul style="list-style-type: none"> Mitigation measures in EMPr. Dust levels must be kept to a minimum by the implementation of dust suppression measures where appropriate; Water used for dust suppression must be used in quantities small enough not to generate run-off and result in soil erosion; Although mitigation is easily achieved through the spraying of the road surfaces with water, this is not necessarily the best method, especially in the areas where water resources are scarce or over-exploited. Other methods are the use of bounding chemicals that can be sprayed on temporary road surfaces; Mitigation action such as the reduction of vehicle speed and proper signage during construction could also be implemented. 	4	2	2	2	16	L
ISSUES RELATED TO FAUNA														
Loss of habitat of animal species	<p>Construction</p> <p>Post Construction</p>	4	2	2	2	16	L	<ul style="list-style-type: none"> Mitigation measures in EMPr. Contain construction impacts to as narrow an area as possible Rehabilitate disturbed areas as soon as possible. 	0	5	1	2	16	L

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES/ REMARKS	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION					
		M	D	S	P	TOTAL	SP		M	D	S	P	TOTAL	SP
AQUATIC ISSUES														
Stream impeding or impounding	Construction phase: Construction within the riparian zone may lead to flow reductions in a downstream direction and inundation in an upstream direction.	2	2	8	4	48	M	<ul style="list-style-type: none"> Mitigation measures in EMPr. No support structures should be constructed within the active stream channel. During construction all building materials should be kept out of the riparian or wetland zones. 	1	2	2	2	10	L
Siltation and erosion	Construction phase: Obstacles in the riparian zone obstructing flow and causing a buildup of sediment. Erosion caused by stormwater runoff causing siltation in a downstream direction.	2	2	8	4	48	M	<ul style="list-style-type: none"> Mitigation measures in EMPr. No support structures should be constructed within the riparian or wetland zones. During construction all building materials should be kept out of the riparian or wetland zones. 	1	2	2	2	10	L
NOISE														
Noise pollution	Pre-construction phase: Transport of material to site, Movement of machinery, Establishment of site camps; Construction phase: Blasting, Earthworks, Hauling, Crushing Construction of the site office and infrastructure. Operational phase: Traffic on N11	6	2	2	4	40	M	<ul style="list-style-type: none"> Mitigation measures in EMPr. Construction work during working hours only or as per contract documentation; Vehicles to comply with the IFC Health and Safety Regulations During working hours only. Blasting must be as per a blasting specification. 	6	2	2	3	30	L

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES/ REMARKS	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION					
		M	D	S	P	TOTAL	SP		M	D	S	P	TOTAL	SP
ISSUES RELATED TO SOIL														
Increased soil erosion, increased in silt load and sedimentation	<p>Pre-construction phase: Vegetation and topsoil stripping, Establishment of construction camps</p> <p>Construction phase: Earthworks</p>	6	2	2	4	40	M	<ul style="list-style-type: none"> Mitigation measures in EMPr. Erosion along access and temporary roads must be controlled by appropriate erosion control techniques that have been incorporated into the EMPr; Topsoil stockpiles must be stored, shaped and sited so that they do not interfere with the flow of water to cause damming or erosion, or be eroded by water; All presently eroded areas within the Road Reserve must be rehabilitated to a state comparable to the surrounding area. The specifications as per the EMPr should be complied with. 	2	3	2	2	14	L
Compaction of soil by heavy machinery	<p>Pre-construction phase: Vegetation and topsoil stripping</p> <p>Construction phase: Earthworks</p>	6	2	2	4	40	M	<ul style="list-style-type: none"> Mitigation measures in EMPr. Construction must remain within the Road Reserve. If necessary, soil must be ripped in areas that need to be rehabilitated. Construction near riverine areas must preferably occur during the dry season. 	4	2	2	2	16	L
Soil contamination / pollution	Pre-construction and construction phases	8	2	2	4	48	M	<ul style="list-style-type: none"> Contractors must ensure provision and proper utilisation, maintenance and disposal of ablution facilities. No waste of any form must be introduced into the environment. 	4	2	2	3	24	L

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES/ REMARKS	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION					
		M	D	S	P	TOTAL	SP		M	D	S	P	TOTAL	SP
								<p>All waste material must be contained and disposed of appropriately off-site;</p> <ul style="list-style-type: none"> • Proper storage facilities must be provided for the storage of fuels, oils, grease, chemicals and any hazardous materials used during the construction and upgrading of the road; • Bund walls must surround all containers carrying substances that may pollute the soil. • Workshop and maintenance areas must be sited on impermeable surfaces, so that there are no opportunities for contaminated run-off to reach the soil; • Gravel excavated that cannot be used in the construction of the road is spoiled in borrow pits and used for rehabilitation purposes. • Concrete must only be mixed on an impermeable surface. 						

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES/ REMARKS	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION					
		M	D	S	P	TOTAL	SP		M	D	S	P	TOTAL	SP
HERITAGE ISSUES														
Possible heritage sites, Paleontological material or graves affected or uncovered	Construction phase	6	5	1	5	60	H	<ul style="list-style-type: none"> Mitigation measures in EMPr. Archaeological and palaeontological material, by its very nature, occurs below ground. The contractor should therefore keep in mind that sites might be exposed during the construction work. If anything is noticed, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an archaeologist is available. The archaeologist should then investigate and evaluate the find; Should a grave be uncovered, the correct procedure, i.e. notification of intent to relocate them, consultation with descendants and permit application, should then be followed in relocating the graves. If any of the graves are older than 60 years, they can only be exhumed by an archaeologist. Graves of victims of conflict requires additional permits from SAHRA before they can be relocated; Any mitigation measures applied by an archaeologist or palaeontologist, in the sense of excavation and documentation, 	6	5	1	2	24	L

POTENTIAL ENVIRONMENTAL IMPACT	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION						RECOMMENDED MITIGATION MEASURES/ REMARKS	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION						
		M	D	S	P	TOTAL	SP		M	D	S	P	TOTAL	SP	
								should be published in order to bring this information into the public domain.							
CONSTRUCTION RELATED															
Pollution of fuels, gas and cement, waste management, water supply, sewage management, fires	Construction phase	8	2	3	3	39	M	<ul style="list-style-type: none"> Measures included in EMPr. No dumping should take place in or near the construction site. All spills should be immediately cleaned up and treated accordingly. No fires will be permitted on site. Appropriate toilet facilities must be provided for the duration of the proposed development. 	8	2	3	2	26	L	