Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
Aspect: Topography																											
Drilling & borehole casings	Localised dips in topography if boreholes collapse after material is replaced.	GNR983 – Activity 20	Decommissioning, Closure	Neg	1	1	5	3	10	3	30	Y	-	**REMEDY** Drilling areas should be inspected and if dips are observed the areas should be levelled and graded to prevent pooling.	Restore natural catchment drainage patterns as far as possible.	1	1	2	3	7	1	7	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	1. Drilled sites will be inspected once after substantial rainfall has occurred in the area.	1. Inspect drilled sites for localised dipping in topography or pooling of water.	1. Environmental manager	1. Once-off inspection of drilled boreholes after substantial rainfall.
Rehabilitation of boreholes	Topographical nature of the area restored.		Operation, Decommissioning	Pos	2	1	5	1	9	4	36	N	-	**REMEDY** Rehabilitation must be on-going as soon as drilling results are completed.	Restore natural catchment drainage patterns as far as possible. Restore land to arable land use.	2	1	5	1	9	4	36	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	1. Drilled sites will be inspected once after substantial rainfall has occurred in the area.	1. Inspect drilled sites for localised dipping in topography or pooling of water.	1. Environmental manager	1. Once-off inspection of drilled borehole sites after substantial rainfall.
Aspect: Geology																											
Drilling	Cracks and disruption to geological layers.	GNR983 – Activity 20	Operation, Decommissioning	Neg	1	1	2	1	5	5	25	N	Low	Nature of prospecting activities. **CONTROL** Invasive prospecting must only be undertaken once data from non-invasive techniques has been assessed. Then, it should proceed as per standard industry practice with initially fewer boreholes to verify non-invasive prospecting data, and then only completing more extensive drilling in areas indicting adequate resources.	Necessary to obtain resource data required for a MRA.	1	1	2	1	5	5	25	Prospecting will be carried out in line with MPRDA regulations. General duty of care in terms of NEMA.	1. Sign-off of drilling plans or amendments to these plans must be obtained from the environmental manager before any activities or changes to activities takes place for the duration of prospecting operations.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans.	1. Environmental manager and site manager	1. Once-off sign-off of drilling plans or amendments to these plans before any activities take place for the duration of prospecting operations.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
Aspect: Soil & Land Capability																											
Access routes & Drilling	Potential for compaction of soils. Cracks and disruption of geological layers. Potential hydrocarbon contamination of soils		Operation, Decommissioning	Neg	1	1	2	3	7	2	14	Y	Low	**REMEDY** Rip any compacted and polluted soils. **CONTROL** Vehicles, machinery & equipment must remain on roads and farm tracks as far as possible. Where not possible, routes must be properly planned to reduce disruption to soil as far as possible. Invasive prospecting must only be undertaken once data from non-invasive techniques has been assessed. Then it should proceed as per standard industry practice with initially fewer boreholes to very non-invasive prospecting data, and then only completing more extensive drilling in areas indicating adequate resources.	Reduce compaction of soil and retain existing arable land capability.	1	1	1	1	4	3	12	CARA, NEMA and MPRDA regulations regarding soil amelioration. General duty of care in terms of NEMA.	1. Sign-off of off-road route plans or amendments to these plans must be obtained from the environmental manger before off-road activities take place for the duration of prospecting operations. 2. Once off inspection will be completed of routes and prospecting sites immediately after activity in the area has ceased and area is rehabilitated for the duration of prospecting operations.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans. 2. Inspect all routes and prospecting sites for compacted soils.	1. Environmental manager and site manager 2. Environmental manager	1. Once-off sign-off of route plans or amendments to these plans before any activities take place for the duration of prospecting operations. 2. Once off inspection of routes and prospecting sites after activity in the area has ceased.
Access routes	Potential hydrocarbon contamination. Dust impacts Impact on wetlands and streams		Operation, Decommissioning	Neg	4	2	2	3	11	3	33	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately.	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	1	2	1	3	7	2	14	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
														Ripping of compacted soils Rehabilitating and repairing any damage. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect potential leaks. Dust alleviation by spraying and limiting speeds on dirt roads. Preventing activities within 100m of streams and wetlands, unless authorisation is obtained to do so.								operating requirements. General duty of care in terms of NEMA.	commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and drilling areas will be conducted as long as vehicles and machinery are active in these areas.	risks of leaks. 2. Ensure area is clear of hydrocarbon spills.		maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.

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Drilling	Potential hydrocarbon contamination. Potential for compaction of soil. Habitat Loss and Degradation Potential Dust impacts Loss of heritage sites	GNR983 – Activity 20	Operation Decommissioning	Neg	3	2	2	3	10	3	30	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. Ripping compacted soils. Ceasing and rehabilitating any illegal activity. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect potential leaks. Planning drill sites properly to avoid sensitive areas Remaining on designated roads/routes/ prospecting areas. Use of biodegradable lubricants.	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	2	2	3	9	2	18	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and drilling areas will be conducted as long as vehicles and machinery are active in these areas.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
Ablution facility (portable toilets)	Potential contamination of soil with sewage		Operation	Neg	2	2	1	1	6	2	12	Y	Low	**REMEDY** Inspect and repair / replace damaged toilets as needed, and ensure no leaks are occurring. **CONTROL** The portable toilets will be managed by a reputable contractor, emptied on a regular basis as needed. Toilets will be maintained in hygienic state.	Reduced bacterial contamination on neighbouring areas.	1	1	1	1	4	1	4	General duty of care in terms of NEMA & NWA.	1. Weekly inspections of portable toilet facilities for the duration of prospecting activities.	1. Ensure portable toilet facilities are in proper working condition, not overflowing or leaking and hygienic.	1. Prospecting manager	1. Weekly inspections of portable toilet facilities for the duration of prospecting activities.
Rehabilitation of boreholes	Soil replacement and revegetation.		Operation, Decommissioning, Closure	Pos	2	1	5	1	9	4	36	N	-	**REMEDY** Rehabilitation must be on-going as soon as drilling results are completed.	Restore natural catchment drainage patterns as far as possible. Restore land to arable land use.	2	1	5	1	9	4	36	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	Soil will be preserved in its natural state as far as possible or treated where necessary. Drilled sites will be inspected once after substantial rainfall has occurred in the area.	1. Ensure responsible material and soil handling and replacement. 2. Inspect drilled sites for localised dipping in topography or pooling of water.	1. Environmental manager along with the contracting prospecting manager 2. Environmental manager	1. Monthly once invasive prospecting commences for the duration of prospecting. 2. Once-off for drilled borehole sites after substantial rainfall.
General prospecting activities	Potential contamination of soil with indiscriminately dumped waste or littering. Introduction of alien and invasive species that may establish around the site. Impacts on wetlands, fauna and flora.	GNR983 – Activity 20	Operation	Neg	3	1	2	3	9	2	18	Y	Low	**REMEDY** Inspect and clear all litter and waste. Provide bins on site Contracting necessary reputable contractors for the removal and disposal of general waste at a licensed facility. Removal of alien and invasive species that	Attain "cradle to grave" management of waste on site.	1	1	2	1	5	2	10	General duty of care in terms of NEMA. Littering and dumping is prohibited in terms of NEM: WA and CARA.	1. Monthly visual inspection of the active prospecting areas for illegal dumping of waste and littering will commence as soon as any prospecting contractors comes to site and continue for the life of prospecting operations.	1. Ensure no illegal littering and dumping of waste.	1. Environmental manager	1. Monthly visual inspection of the active prospecting areas for littering for the duration of prospecting operations.

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														may establish around the property or site. **CONTROL** Waste should be collected and report to the relevant waste stream at the PA. Maintain wetlands and buffer zones as ecological corridors and refuges. Do not hinder, harm or trap animals.												
Temporary core/equipment store and site office; comprising of shade and seating for meals may be established. Staff will be accommodated in town.	Potential for compaction of soil Potential for hydrocarbon contamination of soil. Potential contamination of soil with indiscriminately dumped water or littering. Disturbance/ damage to vegetation and animals		Operation and Decommissioning	**Neg**	2	1	2	1	6	2	12	y	low	**REMEDY** Ripping up compaction of soil Clearing of litter waste and waste water CONTROL Collecting waste for disposal at a licensed landfill site. Maintaining wetlands and buffer zones as ecological corridors and refuges.	Reduce compaction of soil and retain existing grazing land capability.	1	1	2	1	5	2	10	CARA, NEMA and MPRDA regulations regarding soil amelioration. General duty of care in terms of NEMA.	1. Once off inspection will be completed after activity in the area has ceased and area is rehabilitated for the duration of prospecting operations.	1. Ensure sensitive sites are avoided or that necessary authorisations / permits are obtained where these cannot be avoided through sign-off of all onsite activity plans. 2. Inspect all sites for compacted soils.	1. Environmental manager and site manager 2. Environmental manager	1. Once off inspection will be completed after activity in the area has ceased and area is rehabilitated for the duration of prospecting operations.
Hydrocarbon Storage	Potential hydrocarbon contamination of soil and potential fire outbreaks should open fires come into contact with these hydrocarbons	GNR983 – Activity 20	Operation, Decommissioning	**Neg**	3	1	2	2	8	2	16	Y	low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	1	1	1	5	2	10	General duty of care in terms of NEMA	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration

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														will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to collect potential leaks. Provide fire extinguishers for the site. **STOP** No open fires will be allowed on site, designated smoking areas will be allocated.											inspection of the storage area 3. Daily inspection of the site to ensure there are no open fires 4. Daily inspection of fire extinguishers.		of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the storage area 3. Daily inspection of fire extinguishers
Aspect: Surface Water & Associated Wetlands & Aquatic Ecosystems																											
Access routes	Potential hydrocarbon contamination through contaminated runoff. Potential disturbance to wetlands and buffer zones if activity proceeds indiscriminately. Potential hydrocarbon contamination through contaminate run off.		Operation, Decommissioning	Neg	5	2	2	3	12	3	36	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the equipment to	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	2	2	3	9	1	9	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and drilling areas will be conducted as long as vehicles and machinery are active in these areas.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.

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														collect potential leaks. Every person in control of a mine or activity must take reasonable measures to take effective measures to minimise the flow of any surface water or floodwater into mine workings, opencast workings, other workings or subterranean caverns, through cracked or fissured formations, subsided ground, sinkholes, outcrop excavations, adits, entrances or any other openings.														
Drilling	Potential hydrocarbon contamination through contaminated runoff. Potential disturbance to wetlands and buffers.	GNR983 – Activity 20	Operation Decommissioning	Neg	5	2	3	5	15	4	60	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	4	2	2	3	11	1	11	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and drilling areas will be conducted as long as vehicles and machinery	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.

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														unavoidable, drip trays will be placed under the equipment to collect potential leaks. Every person in control of a mine or activity must take reasonable measures to take effective measures to minimise the flow of any surface water or floodwater into mine workings, opencast workings, other workings or subterranean caverns, through cracked or fissured formations, subsided ground, sinkholes, outcrop excavations, adits, entrances or any other openings.												are active in these areas.			
Drilling	Irresponsible use of water and water wastage.	GNR983 – Activity 9	Operation	Neg	4	1	2	1	8	1	8	Y	Low	**CONTROL** Saving water initiatives will be included in environmental awareness training and induction. Utilise water on site responsibly.	Utilise water responsibly.	2	1	2	1	6	1	6	NWA General duty of care in terms of NEMA.	1. Include water conservation in all environmental awareness training / induction.	1. Reduce water wastage.	1. Environmental manager	1. Include water conservation in all environmental awareness training / induction.

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Ablution facility (portable toilets)	Potential contamination of surface water bodies with sewage.		Operation	Neg	2	2	1	1	6	2	12	Y	Low	**REMEDY** Inspect and repair / replace damaged toilets as needed, and ensure no leaks are occurring. **CONTROL** The portable toilets will be managed by a reputable contractor, emptied on a regular basis as needed. Toilets will be maintained in hygienic state.	Reduced bacterial contamination on neighbouring areas.	1	1	1	1	4	1	4	General duty of care in terms of NEMA & NWA.	1. Weekly inspections of portable toilet facilities.	1. Ensure portable toilet facilities are in proper working condition, not overflowing or leaking and hygienic.	1. Prospecting manager	1. Weekly inspections of portable toilet facilities for the duration of prospecting activities.
Rehabilitation of boreholes	Soil replacement and revegetation will reduce potential silt loading.		Operation, Decommissioning, Closure	Pos	2	2	2	3	9	2	18	N	-	**REMEDY** Rehabilitation must be on-going as soon as drilling results are completed.	Restore natural catchment drainage patterns as far as possible. Restore land to arable land use.	2	2	2	3	9	2	18	NEMA & MPRDA principals and regulations regarding environmental protection and rehabilitation requirements.	1. Soil will be preserved in its natural state as far as possible or treated where necessary. 2. Drilled sites will be inspected once after substantial rainfall has occurred in the area.	1. Ensure responsible material and soil handling and replacement. 2. Inspect drilled sites for localised dipping in topography or pooling of water.	1. Environmental manager along with the contracting prospecting manager 2. Environmental manager	1. Monthly once invasive prospecting commences for the duration of prospecting. 2. Once-off for drilled borehole sites after substantial rainfall.
General prospecting activities	Potential contamination of surface water features with indiscriminately dumped waste or littering.	GNR983 – Activity 20	Operation	Neg	3	1	2	3	9	2	18	Y	Low	REMEDY Inspect and clear all litter and waste. CONTROL Waste should be collected and report to the relevant waste stream at the PA.	Attain "cradle to grave" management of waste on site.	1	1	2	1	5	2	10	General duty of care in terms of NEMA. Littering and dumping is prohibited in terms of NEM: WA and CARA.	1. Monthly visual inspection of the active prospecting areas for illegal dumping of waste and littering will commence as soon as any prospecting contractors comes to site and continue for the life of prospecting operations.	1. Ensure no illegal littering and dumping of waste.	1. Environmental manager	1. Monthly visual inspection of the active prospecting areas for littering for the duration of prospecting operations.

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Hydrocarbon Storage	Potential hydrocarbon contamination through contaminated runoff.	GNR983 – Activity 20	Operation, Decommissioning		3	1	2	2	8	3	24	Y	Moderate to Low	REMEDY Clearing any spills. Ceasing and rehabilitating any illegal activity. Rehabilitating and repairing any damage. Inspection and immediate action. Allowance must be made to manage storm water during construction. Every person in control of a mine or activity must take reasonable measures to take effective measures to minimise the flow of any surface water or floodwater into mine workings, opencast workings, other workings or subterranean caverns, through cracked or fissured formations, subsided ground, sinkholes, outcrop excavations, adits, entrances or any other openings.	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	1	1	1	5	2	10	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the storage area.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of storage area
Aspect: Groundwater																											
Drilling	Cracks and disruption to aquifers.	GNR983 – Activity 20	Operation, Decommissioning	Neg	3	2	2	3	10	1	10	N	Low	Nature of prospecting activities. **CONTROL** Invasive prospecting must only be undertaken once data from non-	Necessary to obtain resource data necessary for a MRA.	2	2	2	3	9	1	9	Prospecting will be carried out in line with MPRDA regulations. General duty of care in terms of NEMA.	-	No monitoring required	-	-

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														invasive techniques has been assessed. Then, it should proceed as per standard industry practice with initially fewer boreholes to verify non-invasive prospecting data, and then only completing more extensive drilling in areas indicting adequate resources. Planning invasive prospecting sites properly to avoid sensitive features.														
Access routes & Drilling	Potential hydrocarbon contamination seeping to the groundwater environment.	GNR983 – Activity 20	Operation, Decommissioning	Neg	3	2	2	3	10	1	10	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be discontinued until repairs are made. Vehicles will not be parked over bare ground; where unavoidable, drip trays will be placed under the	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	1	1	1	1	4	1	4	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time. 2. Daily inspection of the active routes and drilling areas will be conducted as long as vehicles and machinery are active in these areas.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of active routes and drilling areas.

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														equipment to collect potential leaks.													
General prospecting activities	Potential contamination of groundwater through seepage from indiscriminately dumped waste or litter.	GNR983 – Activity 20	Operation	Neg	3	1	2	1	7	2	14	Y	Low	**REMEDY** Inspect and clear all litter and waste. **CONTROL** Waste should be collected and report to the relevant waste stream at the PA.	Attain "cradle to grave" management of waste on site.	1	1	2	1	5	2	10	General duty of care in terms of NEMA. Littering and dumping is prohibited in terms of NEM: WA and CARA.	1. Monthly visual inspection of the active prospecting areas for illegal dumping of waste and littering will commence as soon as any prospecting contractors comes to site and continue for the life of prospecting operations.	1. Ensure no illegal littering and dumping of waste.	1. Environmental manager	1. Monthly visual inspection of the active prospecting areas for littering for the duration of prospecting operations.
Hydrocarbon Storage	Potential hydrocarbon contamination to groundwater	GNR983 – Activity 20	Operation, Decommissioning		3	2	3	2	10	2	20	Y	Low	**REMEDY** Spill kits must be available on site and personnel trained to utilise these to clear spills immediately. **CONTROL** All vehicles on site will be up-to-date with their service and maintenance plans. The use of persistently leaky vehicles will be	Vehicles, machinery and equipment maintained within operational specification and legislative requirements.	2	1	2	1	6	2	12	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all vehicles as soon as prospecting operations commence for the duration of prospecting operations to ensure maintenance is scheduled in time.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks. 2. Ensure area is clear of hydrocarbon spills.	1. Site manager in conjunction with prospecting manager 2. Site manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations. 2. Daily inspection of hydrocarbon

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
																											storage area
Aspect: Flora & Fauna																											
General prospecting activities	Alien invasive encroachment.	GNR983 – Activity 20	Operation, Decommissioning, Closure	Neg	4	2	5	3	14	2	28	Y	Mod	**REMEDY** Remove alien and invasive species that may establish around prospecting sites, using mechanical methods in preference to chemical methods where viable. **CONTROL** Clear all vehicles coming to site of any vegetative material to prevent introduction and spread of potential alien and invasive species. Compile and implement an alien and invasive species management plan for areas disturbed by prospecting.	Alien and invasive species managed with the view to eradicate species.	3	1	5	3	12	1	12	Alien and invasive species managed in terms of CARA and NEM: BA.	1. Removal of alien and invasive species should commence during operation and be on-going for the life of prospecting. Area must be generally inspected every 6 months and areas where plants were removed must also be revisited to remove any new saplings. The frequency will depend on the type of species.	1. Control alien and invasive species listed under CARA, NEM: BA, NFA and NCNCA.	1. Environmental manager	1. Alien and invasive management to commence during operation for the duration of prospecting. Area must be generally inspected every 6 months but will depend on the type of species.
General prospecting activities	Alienation of, and disturbance to, animals.		Operation, Decommissioning	Neg	4	3	3	3	13	3	39	Y	Moderate to Low	**CONTROL** By maintaining wetlands and buffer zones, ecological corridors are maintained for animals to take refuge. Do not hinder, harm, or trap animals. Noise control measures will	Reduce impact to neighbouring areas, which will provide refuge for animals.	3	2	2	2	9	2	18	General duty of care in terms of NEMA.	1. Monthly inspections will be made of nearby wetlands, rivers and associated buffer zones to ensure these are not degraded or impacted by prospecting activities.	1. Ensure surrounding flora and fauna are undisturbed.	1. Environmental manager	1. Monthly inspections of wetlands, rivers and associated buffer zones for the duration of prospecting.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
														be considered.													
General prospecting activities	Destruction of natural vegetation and protected species.		Operation	Neg	5	5	5	5	20	2	40	Y	Moderate to Low	**REMEDY** Report any incidences regarding damage to protected species to the relevant authority. **CONTROL** Maintain wetlands, rivers and associated buffer zones where such species are most likely to occur. Survey prospecting sites in areas with natural vegetation (area is largely under agricultural and no need for such surveys in old agricultural lands) for any protected species known in the region and either keep species in situ with 50m buffer zone to prevent inadvertent damage to these species or obtain permits to remove / destroy protected species. **STOP** Protected species must not be removed or destroyed without the	Preservation of protected species.	4	1	5	3	13	2	26	Protected species will be managed in accordance with NEM:BA and associated regulations. General duty of care in terms of NEMA, NFA and NCNCA.	1. Permits and relocation of species will occur once-off before any invasive prospecting activity commences in the area where needed. 2. Monthly inspections of wetland and riverine buffer zones and demarcations of these zones where they are near to prospecting sites for the life of prospecting activities. 3. Flora surveys will be completed once off in prospecting sites in areas with natural vegetation prior to any invasive prospecting in these areas.	1. Ensure permits are in place before destroying or relocating protected species if needed where needed. 2. Maintain wetland and riverine no-go areas to maintain ecological corridors. 3. Survey prospecting sites in areas with natural vegetation for protected species.	1. Environmental manager 2. Environmental manager 3. Environmental manager	1. Once-off relocation of protected species before any invasive prospecting once the permits are obtained. 2. Monthly inspections of wetlands, rivers and associated buffer zones for the duration of prospecting. 3. Once-off survey for protected species prior to any invasive prospecting activities.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
														necessary permits under NEM:BA.													
General Prospecting Activities	Potential disturbance to vegetation Potential Alienation of, and disturbance to, animals		Operation, Decommissioning and Closure	Neg	4	3	3	3	13	3	39	Y	Moderate to Low	**REMEDY** Relocating protected species for which permits are obtained rather than destroying species. CONTROL Maintaining wetlands and buffer zones as ecological corridors and refuges. Do not hinder, harm or trap animals.	Reduce impact to neighbouring areas, which will provide refuge for animals.	2	1	2	1	6	2	12	General duty of care in terms of NEMA, NFA and NCNCA.	1. Monthly inspections will be made of wetlands, rivers and associated buffer zones to ensure these are not degraded or impacted by prospecting activities.	1. Ensure surrounding flora and fauna are undisturbed.	1. Environmental Manager	1. Monthly inspections of wetlands, rivers and associated buffer zones for the duration of prospecting.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
General Prospecting Activities	Fire hazards which could destroy vegetation and fragment habitat for fauna		Operation, Decommissioning and Closure	Neg	3	2	2	2	9	1	9	Y		**CONTROL** Ensuring fire extinguishers are available on site and staff members are trained on their use. **STOP** No open fires will be allowed on site. Smoking areas will be designated.	To prevent vegetation loss and habitant fragmentation.	3	2	2	1	8	1	8	General duty of care in terms of NEMA, NFA and NCNCA.	1.Daily inspection of site to ensure there no open fires and designated smoking areas are used for smoking.	1. Ensure surrounding flora and fauna are undisturbed.	1. Environmental Manager	Monthly reporting on compliance to this condition.
Access Routes	Potential damage of any red data flora, via use of unauthorised off road routes		Operation, Decommissioning and Closure	Neg	2	2	3	2	9	2	18			**CONTROL** Surveying any off-road routes prior to use to prevent damage to red data plants	To prevent any loss of red data species	2	2	3	2	9	1	9	General duty of care in terms of NEMA, NFA and NCNCA.	1.One off Inspection of routes prior to use and taking photographic evidence of vegetation present, for rehabilitation purposes.	1.Ensure that red data species are undisturbed.	1.Environmental Manager	Monthly reporting on compliance to this condition.
Aspect: Air Quality																											

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
Access routes	Generation of dust on gravel roads.		Operation, Decommissioning	Neg	4	2	2	1	9	5	45	Y	Low	**CONTROL** Manage dust through water carts and wetting of gravel roads if and when required. Establish speed limits that will effectively reduce dust generation on roads.	Dust fallout will be managed to not exceed 600mg/m2/day.	2	1	2	1	6	3	18	Dust fallout will be managed to not exceed 600mg/m2/day. Dust regulations as per NEM:AQA.	1. Sporadic visual inspection of billowing dust clouds from prospecting areas throughout prospecting operations.	1. Visual inspection for billowing dust clouds.	1. Environmental manager	1. Sporadic visual inspection of billowing dust clouds from prospecting areas throughout prospecting operations.
Access routes & Drilling	Emissions into the atmosphere through use of diesel powered equipment, machinery and vehicles.		Operation, Decommissioning	Neg	2	2	2	1	7	5	35	Y	Low	**CONTROL** Machinery and equipment will be regularly serviced to ensure they are in proper working condition and to reduce risk of excessive emissions.	Keep equipment, machinery and vehicles operating within their manufacturing specifications.	1	1	2	1	5	5	25	SANS / SABS / SA legislative requirements regarding vehicle and equipment maintenance and operating requirements. General duty of care in terms of NEMA.	1. Weekly inspection of all service and maintenance plans for all equipment and machinery as soon as equipment is brought to site for the duration of prospecting operations to ensure maintenance is scheduled in time.	1. Ensure vehicles are within operation specifications to prevent excessive noise, emission and reduce risks of leaks.	1. Site manager in conjunction with prospecting manager	1. Weekly inspection of all vehicle and equipment service and maintenance log books for the duration of prospecting operations.
Aspect: Noise																											
Access routes & Drilling	Increased noise levels.		Operation, Decommissioning	Neg	4	2	2	1	9	4	36	Y	-	**CONTROL** Machinery and equipment will be regularly serviced. Noise control measures will be considered such as soundproofing of point sources, use of silencers, using strobe lights rather than beepers where feasible and where this won't compromise safety of people on	Prevent nuisance noise to nearby land owners / users	2	2	2	1	7	4	28	Environmental noise managed to SANS 10103:2004 levels.	-	-	-	-

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
														site. Ensure regular communication with nearby I&APs to ensure work schedules are communicated to them and that they are aware that noise will be generated and over what period this may affect them.														
Aspect: Archaeological Heritage																											
Drilling	Localised minor disturbance of archaeological material		Prospecting only	Neg	1	1	5	4	11	1	11	Y	-	**REMEDY** Keep drilling areas away from granite boulder outcrops. 50m buffer is suggested	No disturbance of archaeological material	1	1	2	3	7	1	7	NHRA (section 38)	Duration of drilling	Inspect drill sites to ensure that they are clear of granite outcrops	Environmental Manager	n/a
Access Route	Potential damage of heritage sites via use of unauthorised off road routes		Operation an decommissioning	Neg	2	2	2	5	11	2	22	Y	-	**REMEDY** Surveying any off-road routes prior to use to prevent damage to heritage sites	No disturbance of archaeological material	2	2	2	5	11	1	11	NHRA (section 38)				
Aspect: Visual Aesthetic																											
Moving of equipment and drilling	Localised visual impact as equipment move from point to point drilling	GNR983 – Activity 20	Operation, Decommissioning	Neg	1	1	2	1	5	2	10	Y	-	REMEDY Keep drilling activities away from residential buildings	No visual impact for farmers and farm dwellers.	1	1	2	1	5	1	5	General duty of care in terms of NEMA.	Duration of drilling	Ensure prospecting occurs 50m away from residential areas.	Environmental Manager	n/a
Aspect: Land Use																											
Existing land uses may continue				Neut																							
Aspect: Traffic & Safety																											

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Access routes	Increased potential for road incidences. Road degradation.		Operation, Decommissioning	Neg	3	2	1	5	11	3	33	Y	-	**REMEDY** Grade farm roads that have been extensively damaged due to use by prospecting team. **CONTROL** Speed limits will be established on the dirt road. Drivers, contractors and visitors will enforce speed limits. Intersections with main tarred roads will be clearly sign-posted. Vehicles. Machinery will be in road-worthy condition with reflective strips and clean and visible to other road users.	High safety standards on site with reduced safety risks.	2	2	1	5	10	2	20	Operations will comply with MHSA and Regulations. Vehicles will be serviced and maintained in road worthy condition.	1. Monthly inspections will be undertaken of all farm roads and intersections with public roads from the onset of operations throughout the prospecting operations. 2. Speed inspections will be undertaken sporadically on site throughout prospecting operations.	1. Maintain roads and intersections with public roads to reduce road incidences. 2. Ensure that on-site speed limits are enforced to reduce dust generation and road incidences.	1. Site manager 2. Site manager	1. Monthly inspections of all farm roads and intersections from the onset of operations for the duration of prospecting operations. 2. Sporadic speed inspections for the duration of prospecting operations.
Aspect: Socio-economic, Health & Safety																											
General prospecting activities	Potential for more employment & multiplier effect.		Operation	Pos	3	2	2	1	8	5	40	N	-	**CONTROL** Contractors, service providers should initially be sought locally and only regionally if skills are not available.	Fair and equitable employment.	3	2	2	1	8	5	40	Operations will comply with MHSA and Regulations.	-	No monitoring required	-	-
General prospecting activities	Potential for loss of equipment through theft and employees trespassing on farm properties and stealing		Operation, Decommissioning	Neg	2	2	2	1	7	2	14	Y	low	**CONTROL** Contractors, service providers should initially be sought locally and only regionally if skills are not available. Staff should be housed in Ladysmith town as it is approx. 30km from site.	No loss of equipment or livestock due to theft.	2	2	2	1	7	1	7	Operations will comply with MHSA and Regulations.	During operations	Complaints register should be available on site	Environmental manager	Monthly. Reporting of theft to the SAPS should be done immediately the crime has been committed.

Activity	Impact	Scheduled Activities	Applicable Mine Phase	STATUS	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PROBABILITY	SIGNIFICANCE (pre-mitigation)	Mitigation	Degree of loss of resource	Mitigation	Standard to be achieved	Magnitude	Extent	Duration	Reversibility	CONSEQUENCE	PRO BABILITY	SIGNIFICANCE (post-mitigation)	Compliance with standards	Time periods for implementation	Functional requirements for monitoring	Roles & responsibilities	Frequency for monitoring and reporting
														Security should be provided at the site office to prevent theft.													