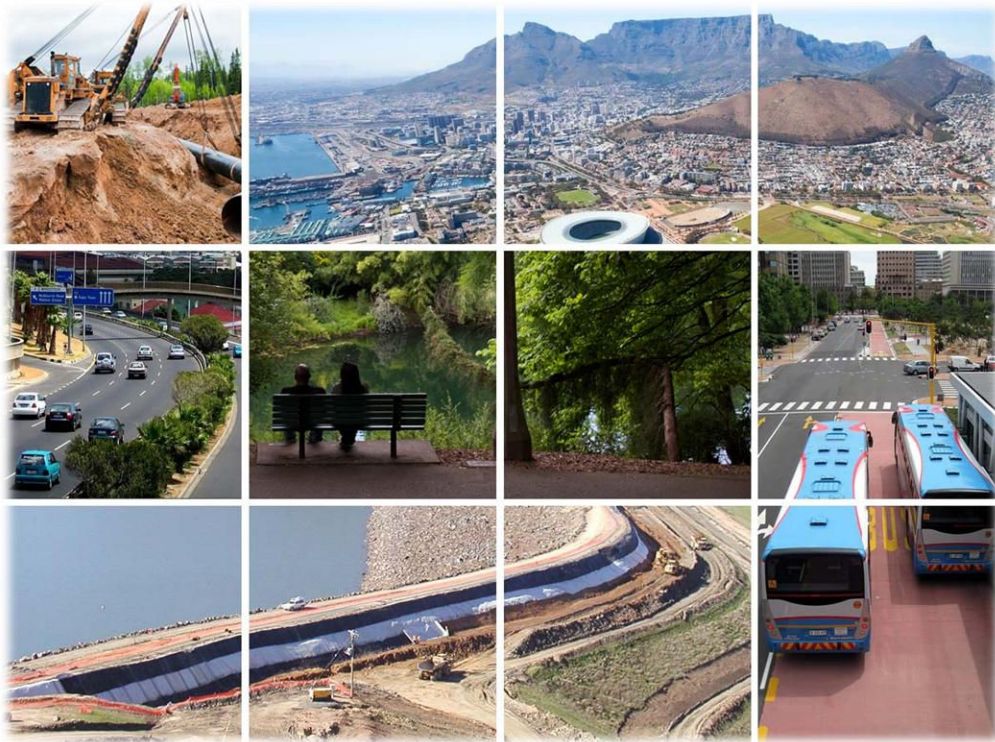


SCREENING NOISE REPORT

for the
**Olifants Management Model Programme Bulk Water
Supply Phase: Phase 2F, Limpopo Province**



Statement done for:

ZUTARI **NDODANA**
JOINT VENTURE

Prepared by:

 **EARES**
Enviro Acoustic Research

P.O. Box 2047, Garsfontein East, 0060
Tel: 012 – 004 0362, Fax: 086 – 621 0292, E-mail: info@eares.co.za

EXECUTIVE SUMMARY

INTRODUCTION

Enviro-Acoustic Research (EARES) was contracted by the Zutari Ndodana Joint Venture (ZNJV) to determine the potential noise impact on the surrounding environment due to the proposed Olifants Management Model Programme Bulk Raw Water Study Phase (OMMP-BRWSP) between Ga Mashishi and the Olifantspoort Water Treatment Works, Limpopo.

Because the online Department of Forestry, Fisheries and the Environment (DFFE) screening tool report does not identify noise as an environmental theme that requires further investigation for a pipeline development, this report considers the requirements of South African National Standards (SANS) 10328:2008 to assess whether noise is a potential issue of concern.

The SANS 10328:2008 guideline does allow for the assessment of noise impacts on the environment from a proposed activity using an administrative screening questionnaire. If the outcome of all the questions is negative, the planned development or activity is not likely to present a noise impact of significance, and a Screening report is deemed sufficient.

BRIEF PROJECT DESCRIPTION

Phase 2 of the OMMP-BRWSP is classified as a Strategic Integrated Project (SIP), consisting of various phases as defined below:

- Phase 2A: Construction of De Hoop Dam;
- Phase 2B: Pipeline from Flag Boshielo Dam to Pruissen near Mokopane (72 km);
- Phase 2B+: Raw water pipeline from Pruissen Reservoir to the proposed Sekuruwe Water Treatment Works (WTW), including offtakes to the proposed Mokopane WTW and two commercial user offtakes.
- Phase 2C: Pipeline from De Hoop Dam to Mooihoek;
- Phase 2D: Pipeline from Steelpoort to Mooihoek (24 km);
- Phase 2E: Pipeline from Mooihoek to Havercroft Junction (14 km);
- Phase 2F: Pipeline from Havercroft Junction to Olifantspoort (44 km);
- Phase 2G: Possible second pipeline parallel to Phase 2B;
- Phase 2H: Changes and additions to the current Phase 2H (Lebalelo Network);
and
- Phase 2I: Pipeline from the De Hoop Dam to the proposed Eskom Tubatse Pump-storage Hydroelectric Scheme.

This assessment specifically focusses on Phase 2F, the pipeline section between Ga Mashishi and the Olifantspoort Water Treatment Works (WTW). Phase 2F comprises approximately 44 km of pipeline intended to convey water to the Olifantspoort WTW, thereby augmenting the water supply to Polokwane and surrounding rural areas. The alignment of Phase 2F starts near Havercroft Junction, deviating from the R37 to take a more direct route to the Olifantspoort WTW, following existing gravel roads where possible.

The project scope includes:

- Development or widening of access and internal roads required for construction of the Phase 2F alignment; and
- Realignment of sections along the authorized 2017 pipeline alignment.

EXISTING AMBIENT SOUND LEVELS

Ambient sound levels were not measured for this project, it is also not deemed necessary to measure the ambient sound levels for a screening level report. It is expected that ambient sound levels will be low, typical of a rural noise district.

POTENTIAL NOISE-SENSITIVE RECEPTORS

There are a number of low-density residential areas scattered through the project area that could be considered noise-sensitive.

FINDINGS

Noises associated with the development of the pipeline project will mainly originate from construction activities associated with the installation of the required infrastructure. Limited noises may be associated with pumpstations, but, the management of noise from pump stations are adequately covered in report "*Design Criteria Memorandum*" with this screening noise report only focusing on the pipeline realignment and the access roads.

Noises associated with the construction phases will generally be limited to approximately 200 m from the construction activities and noises will be insignificant further than 200 m from such activities. The noises will however be very temporary and limited to the daytime period.

While noise levels will be high to very high within 200 m from such activities, the temporary nature of the daytime activities means that the significance of the noise impact is likely to be low to very low. Some receptors may be annoyed with the pipeline development process, though this might be due to a number of reasons, which could also include noise.

GENERAL MANAGEMENT MEASURES FOR NOISE

It is recommended that the project proponent consider a number of general management measures to ensure that noise annoyance with the project is minimised, which could include:

- If possible, construction camps should not be located within 200 m from communities (*that will reduce noise levels and reduce potential annoyance with the activities [the probability of a noise impact occurring]*);
- When selecting the equipment to be used for this project, the project proponent should consider the sound power levels and select the quietest equipment for the purpose (*that will reduce noise levels and reduce potential annoyance with the activities [the probability of a noise impact occurring]*);
- If possible, main construction activities (site clearing, excavation, pipelaying and trench backfilling) should be separated in time (different day) and space (at least 200 m from different activities) to minimise cumulative effects (*will reduce noise levels and reduce potential annoyance with the activities [the probability of a noise impact occurring]*);
- Receptors in the area should be notified when construction activities will take place, including details of the activities as well as the projected duration of the activities (*that will reduce the potential annoyance with the activities [the probability of a noise impact occurring]*);
- No construction activities should be permitted closer on Sundays (*will reduce noise levels and reduce potential annoyance with the activities [the probability of a noise impact occurring]*);
- No construction activities should take place during the night-time period in the communities (*will reduce potential annoyance with the project*);
- All employees and contractors should receive Health and Safety induction that includes an environmental awareness component about noise. This is to allow employees and contractors to assess the potential noise risks that activities pose to the surrounding environment (*will reduce potential annoyance with the project*);
- The project proponent must investigate any reasonable and valid noise complaint if registered by a receptor staying within 200 m from the location where construction activities are taking place. If noise complaints are registered, the project proponent should investigate the complaint and may implement routine noise monitoring (*will reduce potential annoyance with the project*);
- The project proponent must ensure that equipment is well maintained and fitted with the correct and appropriate noise abatement measures if available. Engine bay covers over heavy equipment could be pre-fitted with sound absorbing material. Heavy equipment that fully encloses the engine bay should be considered, ensuring

that the seam gap between the hood and vehicle body is minimised (*will reduce potential annoyance with the project*); and

- The project proponent should investigate the use of white-noise alarms instead of tonal reverse alarms on heavy vehicles operating on roads and on the project (*will reduce potential annoyance with the project*).

CONCLUSSIONS AND RECOMMENDATION

This Screening Noise Report assesses the potential acoustical implications associated with the development of the Phase 2F pipeline through a number of rural communities in Limpopo.

Noises associated with the construction phase will generally be limited to approximately 200 m from the construction activities and noises will be insignificant further than 200 m from such activities. The noises will however be very temporary and limited to the daytime period.

While noise levels will be high to very high within 200 m from such activities, the temporary nature of the daytime activities means that the significance of the noise impact is likely to be low to very low. Some receptors may be annoyed with the pipeline development process, though this might be due to a number of reasons, which could also include noise.

For the Phase 2F pipeline alignment project, it is the opinion of the author that noise will not be a fatal flaw, and further Scoping or other acoustical studies would not be required. It is therefore recommended that the Phase 2F pipeline alignment project be authorised (in terms of acoustics).



Morné de Jager

Enviro-Acoustic Research cc

2025/04/02

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Author:

M. de Jager (B. Ing (Chem); PriSci Nat, 117253; SAIOSH, 72765282)

Review:

Johan Maré (MSc. Microbiology: PriSci Nat, 400092/91)

Date:

November 2024

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APPENDICES

Appendix A	Glossary of Acoustic Terms, Definitions and General Information
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GLOSSARY OF ABBREVIATIONS

AZSL	Acceptable Zone Sound Level (Rating Level)
dB	Decibel
DFFE	Department of Forestry, Fisheries and the Environment
EARES	Enviro-Acoustic Research cc
ECA	Environment Conservation Act, 1989 (Act No 78 of 1989)
EIA	Environmental Impact Assessment
EMPR	Environmental Management Programme

ENIA	Environmental Noise Impact Assessment
ENPAT	Environmental Potential Atlas
EP	Equator Principle
EPFI	Equator Principle Financial Institutions
Etc.	etcetera / and so forth
f	fast setting, see Appendix A
GG	Government Gazette
GNR	Government Notice Regulation
Hz	Hertz
i	Impulse setting, see Appendix A
I&AP(s)	Interested and Affected Party(ies)
i.e.	that is
IEC	International Electrotechnical Commission
IFC	International Finance Corporation
In/sec	inches per second
Kg/m ²	kilogram per square metres
km/h	kilometres per hour
L _{A10}	See Appendix A
L _{A90}	See Appendix A
L _{Aeq}	See Appendix A
L _{Amax}	See Appendix A
L _{Amin}	See Appendix A
m	Metres
m/s	Metres per second
m ²	Square metre
m ³	Cubic metre
mamsl	Metre above mean sea level
mm	millimetre
OMMP-BRWSP	Olifants Management Model Programme Bulk Raw Water Study Phase
NCR	Noise Control Regulations (under Section 25 of the ECA)
NEMA	National Environmental Management Act, 1998 (Act No 107 of 1998)
NGO	Non-government Organisation
NR	Noise Reduction
NSD	Noise-Sensitive Development
NSR	Noise-Sensitive Receptors
p/d	per day
PPE	Personal Protective Equipment
PPP	Public Participation Process

Rpm	Revolutions per minute
RSA	Republic of South Africa
RWD	Return Water Dam
SABS	South African Bureau of Standards
SANS	South African National Standards
SIP	Strategic Integrated Project
t	Time
TOR	Terms of Reference
WHO	World Health Organisation
WTW	Water Treatment Works

1 THE AUTHOR

The Author, Morné de Jager, started his career in the mining industry as a bursar Learner Official (JCI, Randfontein), working in the mining industry, doing various mining related courses (Blasting, Rock Mechanics, Surveying, Sampling, Safety and Health [Ventilation, noise, illumination etc] and Metallurgy. He did work in both underground (Coal, Gold and Platinum) as well as opencast (Coal) for 4 years. He changed course from Mining Engineering to Chemical Engineering after his second year of his studies at the University of Pretoria.

After graduation he worked as a Water Pollution Control Officer at the Department of Water Affairs and Forestry for two years (first year seconded from Wates, Meiring and Barnard), where duties included the perusal (evaluation, commenting and recommendation) of various regulatory required documents (such as Environmental Management Programmes (EMPRs), Water Licence Applications and Environmental Impact Assessments (EIAs)), auditing of licence conditions as well as the compilation of Technical Documents.

Since leaving the Department of Water Affairs, Morné has been in private consulting for the last 20 years, managing various projects for the mining and industrial sector, private developers, business, other environmental consulting firms as well as the Department of Water Affairs. During that period he has been involved in various projects, either as specialist, consultant, trainer or project manager, successfully completing these projects within budget and timeframe. During that period he gradually moved towards environmental acoustics, focusing on this field exclusively since 2007.

He has been interested in acoustics as from school days, doing projects mainly related to loudspeaker design. Interest in the matter brought him into the field of Environmental Noise Measurement, Prediction and Control. He has been doing work in this field for the past 13 years, and was involved with the following projects in the last few years:

Wind Energy Facilities

Full Environmental Noise Impact Assessments for - Bannf (Vidigenix), iNca Gouda (Aurecon SA), Isivunguvungu (Aurecon), De Aar (Aurecon), Kokerboom 1 (Aurecon), Kokerboom 2 (Aurecon), Kokerboom 3 (Aurecon), Kangnas (Aurecon), Plateau East and West (Aurecon), Wolf (Aurecon), Outeniqua (Aurecon), Umsinde Emoyeni (ARCUS), Komsberg (ARCUS), Karee (ARCUS), Kolkies (ARCUS), San Kraal (ARCUS), Phezukomoya (ARCUS), Canyon Springs (Canyon Springs), Perdekraal (ERM), Scarlet Ibis (CESNET), Albany (CESNET), Sutherland (CSIR), Kap Vley (CSIR), Kuruman (CSIR), Rietrug (CSIR), Sutherland 2 (CSIR), Perdekraal (ERM), Teekloof (Mainstream), Eskom Aberdene (SE), Dorper (SE), Spreeukloof (SE), Loperberg (SE), Penhoek Pass (SE), Amakhala Emoyeni (SE), Zen (Savannah Environmental – SE), Goereesoe (SE), Springfontein (SE), Garob (SE), Project Blue (SE), ESKOM Kleinsee (SE), Namas (SE), Zonnequa (SE), Walker Bay (SE), Oyster Bay (SE), Hidden Valley (SE), Deep River (SE), Tsitsikamma (SE), AB (SE), West Coast One (SE), Hopefield II (SE), Namakwa Sands (SE), VentuSA Gouda (SE), Dorper (SE), Klipheuwel (SE), INCA

Swellendam (SE), Cookhouse (SE), Iziduli (SE), Msenge (SE), Cookhouse II (SE), Rhebokfontein (SE), Suurplaat (SE), Karoo Renewables (SE), Koningaas (SE), Spitskop (SE), Castle (SE), Khai Ma (SE), Poortjies (SE), Korana (SE), IE Moorreesburg (SE), Gunstfontein (SE), Boulders (SE), Vredenburg (Terramanzi), Loeriesfontein (SiVEST), Rhenosterberg (SiVEST), Noupoot (SiVEST), Prieska (SiVEST), Dwarsrug (SiVEST), Graskoppies (SiVEST), Philco (SiVEST), Hartebeest Leegte (SiVEST), Ithemba (SiVEST), !Xha Boom (SiVEST), Spitskop West (Terramanzi), Haga Haga (Terramanzi), Vredenburg (Terramanzi), Msenge Emoyeni (Windlab), Wobben (IWP), Trakas (SiVEST), Beaufort West (SiVEST), Pienaarspoort 1 and 2 (SE), Mphepo Zambia (SLR), Koup 1 (SiVEST), Koup 2 (SiVEST), Hamlet (SE), Aeoulus (SE), Ripponn (SE), Redding (SE), Wind Garden (SE), Fronteer (SE), Hendrina North (Cabanga), Hendrina South (Cabanga), Hoogland Northern Cluster (SLR), Hoogland Southern Cluster (SLR), Jessa M, S and Z cluster of Wind Farms (SLR), Heuweltjies (SiVEST), Kraaltjies (SiVEST), Patatskloof (SiVEST), Bergriver (SE), Overberg (Arcus), Newcastle North (CESNET), Newcastle South (CESNET), Ngxwabangu (CESNET), Taaibos North (CESNET), Taaibos South (CESNET), Soutrivier North (CESNET), Soutrivier South (CESNET), Soutrivier Central (CESNET), Soyuz 1 (AEP/CESNET), Soyuz 2 (AEP/CESNET), Soyuz 3 (AEP/CESNET), Soyuz 4 (AEP/CESNET), Soyuz 5 (AEP/CESNET), Soyuz 6 (AEP/CESNET), Kaladokhwe 1 (AEP/CSIR), FE Red Sands North East (Enviro-Insight), FE Red Sands South West (Enviro-Insight), FE Red Sands North West (Enviro-Insight), FE Red Sands South East (Enviro-Insight), FE De Rust North (Enviro-Insight), FE De Rust South (Enviro-Insight), Springbok (SE), Aberdene 1 (AEP/SE), Aberdene 2 (AEP/SE), Aberdene 3 (AEP/SE), Ezelsjacht (SLR), Amsterdam (Rochdale, Emvelo, Sheepmoor) (ERM); Loxton 1, 2 & 3 (ARCUS); Kariaga 1, 2, 3 & 4 (EnviroAGRI); Hugo & Khoe (ERM); Taaibosch Puts Cluster (Khoemana, Gorachouqua) (JAWS); Eland (Praxos); Houmoed (Enviro-Insight); Stinkputs (Enviro-Insight); Zuurfontein (Enviro-Insight); Karoo Cluster (1, 2, 3) (SES), Tango (Savannah), Kudu (Savannah), Angora (Savannah), Oryx (Savannah)

Mining and Industry

Full Environmental Noise Impact Assessments for – Delft Sand (AGES), BECSA – Middelburg (Golder Associates), Kromkrans Colliery (Geovicon Environmental), SASOL Borrow Pits Project (JMA Consulting), Lesego Platinum (AGES), Tweefontein Colliery (Cleanstream Environmental), Evraz Vametco Mine and Plant (JMA), Goedehoop Colliery (Geovicon), Hakra Project (Prescali Environmental), Der Brochen Platinum Project (J9 Environment), Brandbach Sand (AGES), Verkeerdepan Extension (CleanStream Environmental), Dwaalboom Limestone (AGES), Jagdlust Chrome (MENCO), WPB Coal (MENCO), Landau Expansion (CleanStream Environmental), Otjikoto Gold (AurexGold), Klipfontein Colliery (MENCO), Imbabala Coal (MENCO), ATCOM East Expansion (Jones and Wagner), IPP Waterberg Power Station (SE), Kangra Coal (ERM), Schoongesicht (CleanStream Environmental), EastPlats (CleanStream Environmental), Chapudi Coal (Jacana Environmental), Generaal Coal (JE), Mopane Coal (JE), Glencore Boshhoek Chrome (JMA), Langpan Chrome (PE), Vlakpoort Chrome (PE), Sekoko Coal (SE), Frankford Power (REMIG), Strahrae Coal (Ferret Mining), Transalloys Power Station (Savannah), Pan Palladum Smelter, Iron and PGM Complex (Prescali Environmental), Fumani Gold (AGES), Leiden Coal (EIMS), Colenso Coal and Power Station (SiVEST/EcoPartners), Klippoortjie Coal (Gudani), Rietspruit Crushers (MENCO), Assen Iron (Tshikovha), Transalloys (SE), ESKOM Ankerlig (SE), Nooitgedacht Titano Project (EcoPartners), Algoa Oil Well (EIMS), Spitskop Chrome (EMAssistance), Vlakfontein South (Gudani), Leandra Coal (Jacana), Grazvalley and Zoetveld (Prescali), Tjate Chrome (Prescali), Langpan Chromite (Prescali), Vereeniging Recycling (Pro Roof), Meyerton Recycling (Pro Roof), Hammanskraal Billeting Plant 1 and 2 (Unica), Development of Altona Furnace, Limpopo Province (Prescali Environmental), Haakdoornndrift Opencast at Amandelbult Platinum (Aurecon), Landau Dragline relocation (Aurecon), Stuart Coal Opencast (CleanStream Environmental), Tetra4 Gas Field Development (EIMS), Kao Diamonds – Tipping Village Relocation (EIMS), Royal Sheba project (Cabanga), Kao Diamonds – West Valley Tailings Deposit (EIMS), Uppington Special Economic Zone (EOH), Arcellor Mittal CCGT Project near Saldanha (ERM), Malawi Sugar Mill Project (ERM), Proposed Mooifontein Colliery (Geovicon Environmental), Goedehoop North Residue Deposit Expansion (Geovicon Environmental), Mutsho 600MW Coal-Fired Power Plant (Jacana Environmentals), Tshivhaso Coal-Fired Power Plant (Savannah Environmental), Doornhoek Fluorspar Project (Exigo), Royal Sheba Project (Cabanga Environmental), Rietkol Silica (Jacana), Gruisfontein Colliery (Jacana), Lehlabile Colliery (Jaco-K

	Consulting), Bloemendal Colliery (Enviro-Insight), Rondevly Colliery (REC), Welgedacht Colliery (REC), Kalabasfontein Extension (EIMS), Waltloo Power Generation Project (EScience), Buffalo Colliery (Marang), Balgarthen Colliery (Rayten), Kusipongo Block C (Rayten), Zandheuvel (Exigo), NamPower Walvis Bay (GPT), Eloff Phase 3 (EIMS), Dunbar (Enviro-Insight), Smokey Hills (Prescali), Bierspruit (Aurecon), ECM Lannex (Prescali), ECM Tweefontein (Prescali), Smokey Hills (Prescali), Dalyshe (Digby Wells), Eland Platinum Mine (JEMS), Tweefontein (Prescali), Lannex (Prescali), Salene Manganese (Prescali), Baberton Gas to Power (Rayten), SISHEN Expansion (Shangoni), Goedgevonden EMP Amendment (Jacana), Rietkol Amendment (Jacana), Vlaktefontein Bunker Project (Gudani), Vlaktefontein West Project (Gudani), Vygenhoek Platinum (EMAssistance), Lesego Amendment (OMI Solutions), Mpenyisi Gas to Power (Nsovo), Basani Gas to Power (Nsovo), Newlands Gas to Power (Savannah), Sudor Coal (JacoK), Nooitgedacht Titanomanganese (Ikwezi), Inyanda Project (JacoK), Ermelo Project (Zyntha), (Schurvekop Coal (Cabanga), Vlaktefontein Coal (EMAssistance), Zandheuvel (Jacana), Zondagsvlei Coal (Zyntha), Sereti Witbank South (Zyntha), Bright Alloys (Phakani), Gold One (Prime Resources), Consol Nigel (Zitholele), Hendrina Green Hydrogen and Ammonia project (Enertrag/WSP), Kegakilwe Diamonds (Gudani), Naudesbank (Zyntha), Brackenfell Data Centre (Linspace), Springfield & Redan (MENCO), Somkhele Project (Ophondweni, Emamahleni, Mahujini) (MENCO), Beta Gold (OMIsolutions), Rietfontein Gold (OMIsolutions), Bright Alloys Smelter (Phakani), Sweet Sensations Sand (Digby Wells), Anglo Motlhotlo (Digby Wells), Soufflet Malt (RHDHV), Braamspruit Coal (Shangoni), Southern Sphere Project (Shangoni), Renoster 1 (SRK)
Urban, Roads and Railway	K220 Road Extension (Urbansmart), Boskop Road (MTO), Sekoko Mining (AGES), Davel-Swaziland-Richards Bay Rail Link (Aurecon), Moloto Transport Corridor Status Quo Report and Pre-Feasibility (SiVEST), Postmasburg Housing Development (SE), Tshwane Rapid Transport Project, Phase 1 and 2 (NRM Consulting/City of Tshwane), Transnet Apies-river Bridge Upgrade (Transnet), Gautrain Due-diligence (SiVest), N2 Piet Retief (SANRAL), Atterbury Extension, CoT (Bokomoso Environmental), Riverfarm Development (Terramanzi), Conakry to Kindia Toll Road (Rayten), Sutherland Road Project (Veers Group), Sassalemba Project (Enviro-Insight), Barra da Donde Angola (Enviro-Insight), Musina-Makhado SEZ (Gudani), Highbury Depot (AGES Limpopo), Mokopane project (AGES Limpopo), Deerpark Filling Station (AGES Limpopo), Highlands Estate (NALI), IPHC Wonderpark (Magoda), Busstop7,
Airport	Oudtshoorn Noise Monitoring (AGES), Sandton Heliport (Alpine Aviation), Tete Airport Scoping (Aurecon)
Noise monitoring and Audit Reports	Peerboom Colliery (EcoPartners), Thabametsi (Digby Wells), Doxa Deo (Doxa Deo), Harties Dredging (Rand Water), Xstrata Coal – Witbank Regional (Xstrata), Sephaku Delmas (AGES), Amakhala Emoyeni WEF (Windlab Developments), Oyster Bay WEF (Renewable Energy Systems), Tsitsikamma WEF Ambient Sound Level study (Cennergi and SE), Hopefield WEF (Umoya), Wesley WEF (Innowind), Ncora WEF (Innowind), Boschmanspoort (Jones and Wagner), Nqamakwe WEF (Innowind), Hopefield WEF Noise Analysis (Umoya), Dassiesfontein WEF Noise Analysis (BioTherm), Transnet Noise Analysis (Aurecon), Jeffries Bay Wind Farm (Globeleq), Sephaku Aganang (Exigo), Sephaku Delmas (Exigo), Beira Audit (BP/GPT), Nacala Audit (BP/GPT), NATREF (Nemai), Rappa Resources (Rayten), Measurement Report for Sephaku Delmas (Ages), Measurement Report for Sephaku Aganang (Ages), Bank of Botswana measurements (Linspace), Skukuza Noise Measurements (Concor), Development noise measurement protocol for Mamba Cement (Exigo), Measurement Report for Mamba Cement (Exigo), Measurement Report for Nokeng Fluorspar (Exigo), Tsitsikamma Community Wind Farm Pre-operation sound measurements (Cennergi), Waainek WEF Operational Noise Measurements (Innowind), Sedibeng Brewery Noise Measurements (MENCO), Tsitsikamma Community Wind Farm Operational noise measurements (Cennergi), Noupoot Wind Farm Operational noise measurements (Mainstream), Twisdraai Colliery (Lefatshe Minerals), SASOL Prospecting (Lefatshe Minerals), South32 Klipspruit (Rayten), Sibanye Stillwater Kroondal (Rayten), Rooiberg Asphalt (Rooiberg Asphalt), SASOL Shondoni (Lefatshe), SASOL Twisdraai (Lefatshe), Anglo Mototolo (Exigo), Heineken Inyaniga (AECOM), Glencore Izimbiwa (Cleanstream), Glencore Impunzi (Cleanstream), Black Chrome Mine (Prescali) Sibanye Stillwater Ezulwini (Aurecon), Sibanye Stillwater Beatrix (Aurecon), Bank of

Project Modelling and Consulting	Botshwana (Linspace), Lakeside (Linspace), Skukuza (SiVest), Rietvlei Colliery (Jacok Consulting), TCTA – Mokolo Project (GIBB), Various (Linspace), Sulzer Hydromining (Sulzer), WCO WEF (Aurora), Great Kei (EDF-Renewables), Elands Platinum (JEMS), Hartebeest WEF (juwi), Mamba Cement (TMCC), Booyens (MDTE), West Rand (MDTE), Devland (MDTE), Zandheuveld (Jacana), Glencore (Kroondal, Rhovan, Rietvlei, Waterval-West, Helena, Lion Smelter, Magareng, Thorncliffe, Boshoeck, Rustenburg Smelter, Wonderkop) (JMA), McDonalds Albert Street (Linspace), Waterfall Data Centre (Linspace), Zondereinde (Linspace), Copper Sunset Sands (Digby Wells), Exxaro Lephalale (Digby Wells), Tawana Mining (Tawana Mining),
Small Noise Impact Assessments	JW Angola Urban Development (Rayten), Mooi-Mgeni Hydro Project (Rayten), Consmodder (Rayten), Samrand Data Centre (Rayten), Luculus Road (Rayten), Atlanta Weir (Rayten), Beestekraal Weir (Rayten), Paul Hugo Weir (Rayten), Newcastle Coal Mine (Rayten), Boldman Coal (Rayten), Worcester N1 Upgrade (Rayten), Angola Railway Project (Rayten), Nekkes Road Project (Rayten), George N2 Bypass Road (Rayten), Vanmag project (Rayten), N2 Bypass Borrowpits (Rayten), TCTA AMD Project Baseline (AECOM), NATREF (Nemai Consulting), Christian Life Church (UrbanSmart), Kosmosdale (UrbanSmart), Louwlandia K220 (UrbanSmart), Richards Bay Port Expansion (AECOM), Babalegi Steel Recycling (AGES), Safika Slag Milling Plant (AGES), Arcelor Mittal WEF (Aurecon), RVM Hydroplant (Aurecon), Grootvlei PS Oil Storage (SiVEST), Rhenosterberg WEF, (SiVEST), Concerto Estate (BPTrust), Ekuseni Youth Centre (MENCO), Kranskop Industrial Park (Cape South Developments), Pretoria Central Mosque (Noman Shaikh), Soshanguve Development (Maluleke Investments), Seshego-D Waste Disposal (Envirocellence), Zambesi Safari Equipment (Owner), Noise Annoyance Assessment due to the Operation of the Gautrain (Thornhill and Lakeside Residential Estate), Upington Solar (SE), Ilangaletu Solar (SE), Pofadder Solar (SE), Flagging Trees WEF (SE), Uyekraal WEF (SE), Ruuki Power Station (SE), Richards Bay Port Expansion 2 (AECOM), Babalegi Steel Recycling (AGES), Safika Ladium (AGES), Safika Cement Isando (AGES), RareCo (SE), Struisbaai WEF (SE), Perdekraal WEF (ERM), Kotula Tsatsi Energy (SE), Olievenhoutbosch Township (Nali), , HDMS Project (AECOM), Quarry extensions near Ermelo (Rietspruit Crushers), Proposed uMzimkhulu Landfill in KZN (nZingwe Consultancy), Linksfield Residential Development (Bokomoso Environmental), Rooihuiskraal Ext. Residential Development, CoT (Plandev Town Planners), Floating Power Plant and LNG Import Facility, Richards Bay (ERM), Floating Power Plant project, Saldanha (ERM), Vopak Growth 4 project (ERM), Elandspoort Ext 3 Residential Development (Gibb Engineering), Tiegerpoort Wedding Venue (Henwood Environmental), Monavoni Development (Marindzini), Rezoning of Portion 1 (Primo Properties), Tswaing Mega City (Makole), Mabopane Church (EP Architects), ERGO Soweto Cluster (Kongiwe), Fabio Chains (Marang), GIDZ JMP (Marang), Temple Complex (KWP Create), Germiston Metals (Dorean), Sebenza Metals (Dorean), Malmesbury Abattoir Expansion (Roelcor), Mogalakwena PV Project (Zutari), Serengeti PV Review (Zutari), Nyakallo PV (GCS), Robinson Deep (IQS), Zonnebloem (Zyntha), Forzando North (Cabanga), Tumelo (Cabanga), Daggafontein projects (Kongiwe), Genesis Steyn PV (Kongiwe), ERGO Soweto Cluster (Kongiwe), Kriel PV (NALA), Mhlabatshane project (NEMAI), Coega G2P (Nsovo), Cape Roan Desalination Project (Rayten), AJCOR (Rayten), Swartfontein PV (Savannah)

Contact details for the Author are:

Author:	Morné de Jager
Company:	Enviro-Acoustic Research cc
Website:	http://www.eares.co.za
Email:	morne@eares.co.za
Office number:	012 004 0362
Mobile number:	082 565 4059

2 DECLARATION OF INDEPENDENCE

I, Morné de Jager declare that:

- I act as the independent specialist on this project;
- I will perform the work relating to this specialist study in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the National Environmental Management Act (107 of 1998), the Environmental Impact Assessment Regulations of 2014, and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing this project;
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014.



Signature of the Specialist:

Name of company:

Enviro-Acoustic Research cc

Date:

2025 – 04 – 02

3 INTRODUCTION

3.1 INTRODUCTION AND PURPOSE

Enviro-Acoustic Research (EARES) was contracted by the Zutari Ndodana Joint Venture (ZNJV) to determine the potential noise impact on the surrounding environment due to the proposed Olifants Management Model Programme Bulk Raw Water Study Phase (OMMP-BRWSP) between Ga Mashishi and the Olifantspoort Water Treatment Works (WTW), Limpopo.

Because the online Department of Forestry, Fisheries and the Environment (DFFE) screening tool report does not identify noise as an environmental theme that requires further investigation for a pipeline development, this report considers the requirements of South African National Standards (SANS) 10328:2008 to assess whether noise is a potential issue of concern.

The SANS 10328:2008 guideline does allow for the assessment of noise impacts on the environment from a proposed activity using an administrative screening questionnaire. If the outcome of all the questions is negative, the planned development or activity is not likely to present a noise impact of significance, and a Screening report is deemed sufficient.

3.2 BRIEF PROJECT DESCRIPTION

Phase 2 of the OMMP-BRWSP is classified as a Strategic Integrated Project (SIP), consisting of various phases as defined below:

- Phase 2A: Construction of De Hoop Dam;
- Phase 2B: Pipeline from Flag Boshielo Dam to Pruissen near Mokopane (72 km);
- Phase 2B+: Raw water pipeline from Pruissen Reservoir to the proposed Sekuruwe WTW, including offtakes to the proposed Mokopane WTW and two commercial user offtakes.
- Phase 2C: Pipeline from De Hoop Dam to Mooihoek;
- Phase 2D: Pipeline from Steelpoort to Mooihoek (24 km);
- Phase 2E: Pipeline from Mooihoek to Havercroft Junction (14 km);
- Phase 2F: Pipeline from Havercroft Junction to Olifantspoort (44 km);
- Phase 2G: Possible second pipeline parallel to Phase 2B;
- Phase 2H: Changes and additions to the current Phase 2H (Lebalelo Network); and
- Phase 2I: Pipeline from the De Hoop Dam to the proposed Eskom Tubatse Pump-storage Hydroelectric Scheme.

This assessment specifically focusses on Phase 2F, the pipeline section between between Ga Mashishi and the Olifantspoort WTW, with the regional location of the pipeline alignment illustrated in **Figure 3-1**. Phase 2F comprises approximately 44 km of pipeline intended to

convey water to the Olifantspoort WTW, thereby augmenting the water supply to Polokwane and surrounding rural areas. The alignment of Phase 2F starts near Havercroft Junction, deviating from the R37 to take a more direct route to the Olifantspoort WTW, following existing gravel roads where possible.

The project scope includes:

- Development or widening of access and internal roads required for construction of the Phase 2F alignment; and
- Realignment of sections along the authorized 2017 pipeline alignment.

3.3 POTENTIAL NOISE-GENERATING ACTIVITIES

Noises associated with a pipeline development project (including the construction of access roads) are generally limited to the construction phase, with the most common noise-generating activities including:

1. Site Preparation and Clearing

- **Hauling of equipment:** The delivery of construction equipment to the project area using flatbed trucks or trailers.
- **Construction of temporary access roads:** Bulldozers, graders, and other vehicles may be used to build access roads for construction equipment (or upgrade existing roads).
- **Construction camps and laydown areas:** The use of bulldozers, graders and rollers to develop locations to develop the construction camps and material laydown areas.
- **Clearing vegetation:** Use of chainsaws, bulldozers, and other heavy machinery at various locations.
- **Grading:** Bulldozers and graders used for levelling the ground.

2. Trenching and Excavation

- **Trenching operations:** Excavators, trenchers, and backhoes creating the trench for the pipeline.
- **Rock breaking:** Depending on the underlying ground conditions, it may be required to break large boulders using rock breaking equipment.
- **Rock blasting:** In areas where the pipeline route encounters hard rock, blasting may be required, which can produce significant noise levels.

3. Transportation and Delivery of Materials

- **Hauling of construction materials:** Trucks, dump trucks, and other heavy vehicles transporting materials like pipe sections, gravel to the site, with trucks or tractor/trailers removing vegetation, rocks and excess material from the site.

- **Loading and unloading:** Cranes and forklifts used to load and unload materials, such as large pipe segments.

4. Pipe Laying

- **Pipe handling:** Moving and positioning large pipe segments using cranes or other lifting devices for joining/fitting.
- **Pipe fitting and joining:** The process of welding pipe segments together and cutting pipes can generate substantial noise from machinery and the welding equipment itself.
- **Hydrostatic testing:** High-pressure water testing of the pipeline to check for leaks, which may involve pumps and compressors.

5. Trenching and Backfilling

- **Backfilling the trench:** After the pipeline is laid, earth-moving equipment such as bulldozers, backhoes and compactors are used to backfill the trench and compact the ground surface.

6. Testing and Commissioning

- **Pipeline pressure testing:** High-pressure pumps used during testing of the pipeline.
- **Flushing and purging:** If required, high-pressure air or other materials may be used for flushing or purging the pipeline.

7. Post-Construction Activities

- **Rehabilitation of disturbed areas:** Use of vehicles, machinery, and equipment for post-construction inspections, repairs, and maintenance.
- **Dismantling temporary facilities:** The removal of temporary construction equipment and facilities may involve activities such as dismantling structures and hauling away debris.

The operation of pipelines, particularly those with pump stations, can generate ongoing noise from compressors, pumps, and valves, depending on the pipeline's design and the location of pumpstations in relation to the closest Noise-Sensitive Receptors (NSR). Noise from the pump stations were however anticipated and addressed in the Design Criteria Memorandum (Report No: 01-1-05-05, Dated July 2010).

Noise design requirements and criteria were covered in **section 4.2.2** of the Design Criteria Memorandum, and included:

- Pump stations should not be sited closer than 300 metres (m) to houses or within 200 m of schools.

- As the internal noise levels in the pump stations are high, the buildings housing the pumps should be adequately designed to limit the transmission of the pump generated noise and other internal equipment noise to the outside of the building. Insertion losses for the building of at least 30dBA must be achieved.
- Where there are external sources of noise such as ventilation intake fans, appropriate measures will need to be taken. Typical measures such as the following should be taken:
 - Fan intakes to be low mounted (preferably ground mounted).
 - Fans to have a low sound power output.
 - Fan intakes to be effectively screened off by an appropriately designed noise attenuation barrier (wall) with an insertion loss capability of at least 20dBA.

Compliance with these criteria would minimise potential noise risks associated with such operational noises and this screening report will not consider potential operational noises.

3.4 CONCEPTUAL NOISE LEVELS

Pipeline development activities does generate significant noise, which can be generalised as follows:

- Noise levels will be very high at distances within 50 m from active construction activities. Noise levels will exceed 65 dBA at times, and community members directly influenced by the pipeline development (receptors that must be relocated, or receptors indirectly influenced) would have a negative sentiment which may manifest as noise complaints;
- Noise levels will be high to very high at distances 50 – 100 m from active construction activities. Noise levels will mostly range between 60 – 65 dBA, and community members indirectly influenced by the pipeline development could have a negative sentiment which may manifest as noise complaints (because neighbours staying directly on the proposed realignment area that was moved, dust generated due to construction activities, influx of workers from different areas, etc.);
- Noise levels will be high to very high at distances 100 – 200 m from active construction activities. Noise levels will mostly range between 50 – 60 dBA, and community members indirectly influenced by the pipeline development (neighbours had to relocate, dust, influx of workers from different areas) could have a negative sentiment which may manifest as noise complaints;
- Noise levels will be low to high at distances further than 200 m from active construction activities, with noise levels generally being less than 50 dBA. Community members indirectly influenced by the pipeline development (neighbours had to relocate, dust, influx of workers from different areas) could have a negative sentiment.

3.5 PROJECT LOCATION

The project area spans Fetakgomo Tubatse and the Lepelle-Nkumpi local municipalities, located within the Sekhukhune and Capricorn District Municipalities respectively. The regional location of the proposed project is illustrated in **Figure 3-1**.

The area is further described in terms of environmental components that may contribute to or change the sound character in the area.

3.5.1 Topography

The pipeline will mostly be located in a localized valley between low mountains, with a number of parallel hills and lowlands. The surrounding area is heavily modified due to anthropogenic activities (mining, agriculture and urban development).

3.5.2 Roads and Railway Lines

The pipeline leads from the relative busy R37, through an area with a rural to sub-urban developmental character. Roads in this area are unpaved roads with relative low traffic volumes.

3.5.3 Surrounding Land Use

The pipeline mostly would run through an area with a rural to urban developmental character, with low-density residential activities as well as subsistence farming.

3.5.4 Ground conditions and vegetation

The area falls within the Savanna biome, with the natural vegetation type being “*Mixed Bushveld*”¹. Most of the natural veld has been disturbed by anthropogenic activities (agricultural and residential activities), with areas with significant erosion.

3.5.5 Ambient Sound Levels

Ambient sound levels were not measured for this project, it is also not deemed necessary to measure the ambient sound levels for a screening level report. It is expected that ambient sound levels will be low, typical of a rural noise district.

3.5.6 Potential Sensitive Areas

There are a number of low-density residential areas scattered through the project area that could be considered noise-sensitive. These areas are illustrated on **Figure 3-2**.

¹ Van Riet, W. Claassen, P. van Rensburg, J. van Viegen & L. du Plessis, “*Environmental Potential Atlas for South Africa*”, Pretoria, 1998.

3.6 TERMS OF REFERENCE

Construction noises could affect the surrounding soundscape, with the potential significance of the noise impact depending upon:

- the existing environmental noise level (or the ambient sound level);
- the character of, as well as the noise levels associated with the noise sources;
- the number of noise sources and the duration that receptors will be impacted by elevated noises;
- the time (day/night) that the noise generating activities may take place;
- the number of, and potential sensitivities of NSR in the area;
- prior knowledge of receptors with construction activities and the general sentiment of the community with the project;
- how construction activities will influence the quality of life, movements and daily events on a day-to-day basis (socio-political issues, socio-economic issues, public perception on the benefits of the community, fears about dangers to receptors [dust, their children, their animals], etc); and
- the distance between the noise-generating activities and the closest NSR.

The online DFFE screening tool report does not identify noise as a theme that needs to be investigated for a pipeline development project, therefore the screening requirements as per SANS 10328:2008 will be applicable to this study. Government Notice Regulation (GNR) 320 of 2020 in addition exclude activities for which noise impacts are associated with construction, but noise levels return to the pre-project ambient sound levels with the completion of construction activities.

As construction activities may still impact on receptors, this assessment will consider the requirements of SANS 10328:2008 (Edition 3). This standard specifies the methodology to assess the noise impacts on the environment due to a proposed activity that might impact on the environment. The standard also stipulates the minimum requirements to be investigated for screening purposes that can be used to assess the potential acoustical implications of a project.

These minimum requirements are:

- a) Identification and description of the noise sources and noise-sensitive developments associated with the development that has to be investigated;
- b) Identification and description of the noise sources and noise-sensitive developments in the target area that could affect the development (or that could be affected by the development) that has to be investigated;
- c) Identification, with the assistance of all interested or affected parties, and description of all the noise sources and noise-sensitive developments associated with the development,

or located within the target area, that are to be excluded from the investigation. The reason(s) for the exclusion shall be stated; and

- d) A reference to this standard regarding the method of investigation.

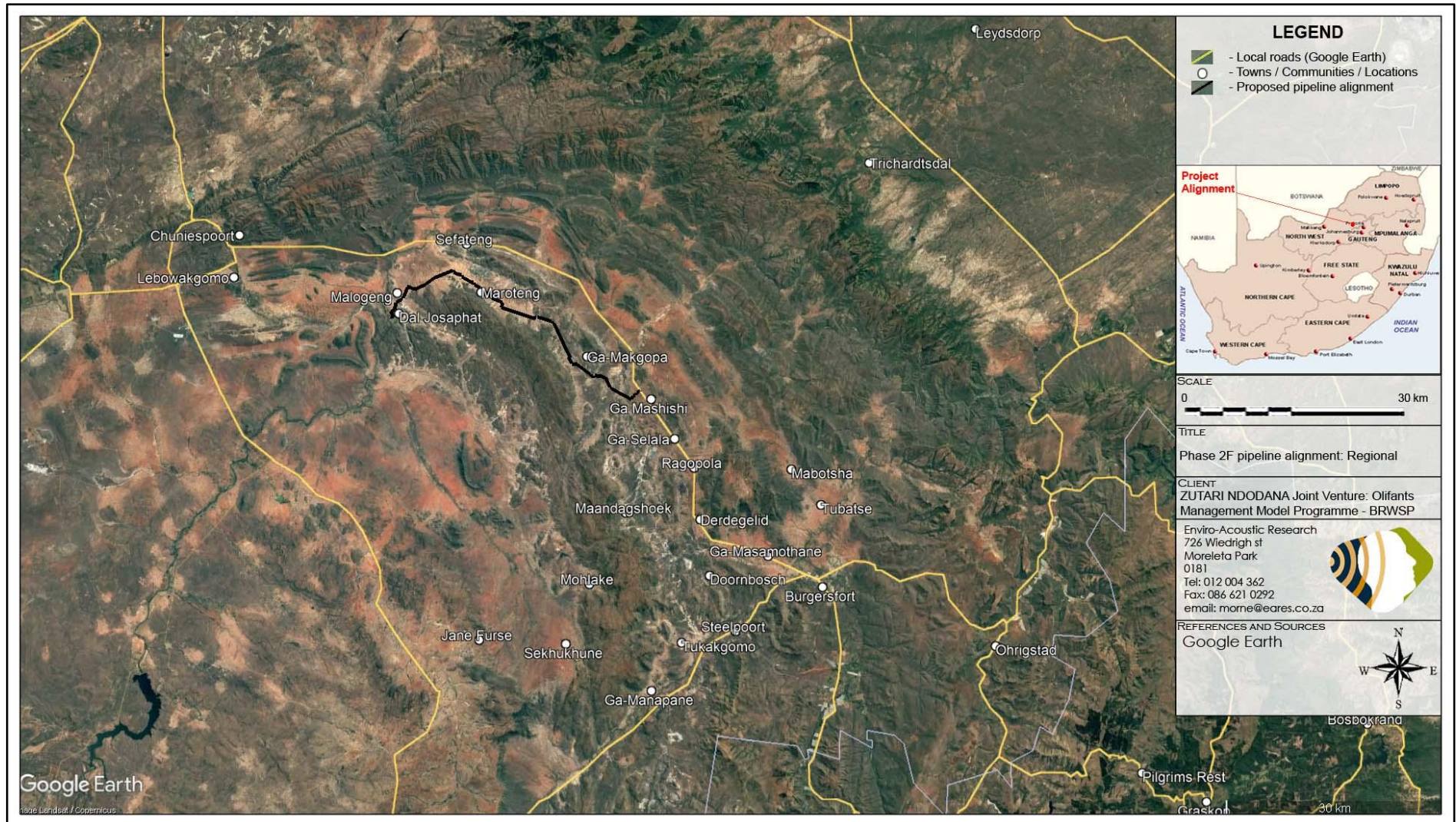


Figure 3-1: Regional Alignment for the OMMP-BRWSP: Phase 2F project



Figure 3-2: OMMP-BRWSP: Phase 2F project and closest noise-sensitive areas

4 LEGAL CONTEXT, POLICIES AND GUIDELINES

Legal policies, guidelines (National and International) are provided in this section for reference purpose.

4.1 THE REPUBLIC OF SOUTH AFRICA CONSTITUTION, 1996 (“THE CONSTITUTION”)

The environmental rights contained in section 24 of the Constitution provide that everyone is entitled to an environment that is not harmful to his or her well-being. In the context of noise, this requires a determination of what level of noise is harmful to well-being. The general approach of the common law is to define an acceptable level of noise as that which the reasonable person can be expected to tolerate in the particular circumstances. The subjectivity of this approach can be problematic which has led to the development of noise standards (see **Section 4.4**).

“Noise pollution” is specifically included in Part B of Schedule 5 of the Constitution, which means that noise pollution control is a local authority competence, provided that the local authority concerned has the capacity to carry out this function.

4.2 THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998)

The National Environmental Management Act (“NEMA”) defines “pollution” to include any change in the environment, including noise. A duty therefore arises under section 28 of NEMA to take reasonable measures while establishing and operating any facility to prevent noise pollution occurring. NEMA sets out measures which may be regarded as reasonable. They include the following measures:

1. to investigate, assess and evaluate the impact on the environment;
2. to inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment;
3. to cease, modify or control any act, activity or process causing the pollution or degradation;
4. to contain or prevent the movement of the pollution or degradation;
5. to eliminate any source of the pollution or degradation; and
6. to remedy the effects of the pollution or degradation.

In addition, a number of regulations have been promulgated as the Environmental Impact Assessment (EIA) Regulations (GNR 982 of December 2014 as gazetted in Government

Notice (GN) 38282, subsequently amended in 2017 and 2021) in terms of this Act. It defines minimum information requirements for specialist reports, with GN 43110 (20 March 2020) updating the minimum requirements for reporting.

4.3 THE ENVIRONMENT CONSERVATION ACT (ACT 73 OF 1989)

The Environment Conservation Act ("ECA") allows the Minister of Environmental Affairs and Tourism ("now the Ministry of Water and Environmental Affairs") to make regulations regarding noise, among other concerns. See also section 4.3.1. While most sections of this Acts have been repealed with the promulgation of the NEMA, Section 25 of this Act is still in effect.

4.3.1 National Noise Control Regulations (NCR) (GN R154 of 1992)

The National Noise Control Regulations (NCR) (GN R154 1992) defines:

'ambient sound level' means the reading on an integrating impulse sound level meter taken at a measuring point in the absence of any alleged disturbing noise at the end of a total period of at least 10 minutes, after such meter had been put into operation;

"controlled area" as:

a piece of land designated by a local authority where, in the case of—

a) road transport noise in the vicinity of a road-

- i. the reading on an integrating impulse sound level meter, taken outdoors at the end of a period extending from 06:00 to 24:00 while such meter is in operation, exceeds 65 dBA; or
- ii. the equivalent continuous "A"-weighted sound pressure level at a height of at least 1,2 meters, but not more than 1,4 meters, above the ground for a period extending from 06:00 to 24:00 as calculated in accordance with SABS 0210-1986, titled: "Code of Practice for calculating and predicting road traffic noise", published under Government Notice No. 358 of 20 February 1987, and projected for a period of 15 years following the date on which the local authority has made such designation, exceeds 65 dBA;

c) industrial noise in the vicinity of an industry-

- i. the reading on an integrating impulse sound level meter, taken outdoors at the end of a period of 24 hours while such meter is in operation meter is in operation, exceeds 61 dBA; or
- ii. the calculated outdoor equivalent continuous "A"-weighted sound pressure level at a height of at least 1,2 meters, but not more than 1,4 meters, above the ground for a period e, exceeds 61 dBA.

"disturbing noise" as:

noise level which exceeds the zone sound level or, if no zone sound level has been designated, a noise level which exceeds the ambient sound level at the same measuring point by 7 dBA or more.

"zone sound level" as:

a derived dBA value determined indirectly by means of a series of measurements, calculations or table readings and designated by a local authority for an area. This is the same as the Rating Level as defined in SANS 10103.

In addition:

In terms of Regulation 2 -

"A local authority may –

(a) establish a new township unless the lay-out plan concerned, if required by a local authority, indicates in accordance with the specifications of the local authority, the existing and future sources of noise, with concomitant dBA values which are foreseen in the township for a period of 15 years following the date on which the erection of the buildings in and around the township commences;

(c): "if a noise emanating from a building, premises, vehicle, recreational vehicle or street is a disturbing noise or noise nuisance, or may in the opinion of the local authority concerned be a disturbing noise or noise nuisance, instruct in writing the person causing such noise or who is responsible therefor, or the owner or occupant of such building or premises from which or from where such noise emanates or may emanate, or all such persons, to discontinue or cause to be discontinued such noise, or to take steps to lower the level of the noise to a level conforming to the requirements of these Regulations within the period stipulated in the instruction: Provided that the provisions of this paragraph shall not apply in respect of a disturbing noise or noise nuisance caused by rail vehicles or aircraft which are not used as recreational vehicles;

(d): before changes are made to existing facilities or existing uses of land or buildings, or before new buildings are erected, in writing require that noise impact assessments or tests are conducted to the satisfaction of that local authority by the owner, developer, tenant or occupant of the facilities, land or buildings or that, for the purposes of regulation 3(b) or (f) designate a controlled area in its area of jurisdiction or amend or cancel an existing controlled area by notice in the Official Gazette concerned.

In terms of Regulation 4 of the NCR:

"No person shall make, produce or cause a disturbing noise, or allow it to be made, produced or caused by any person, machine, device or apparatus or any combination thereof".

General prohibition

3. No person shall -

(c) make changes to existing facilities or existing uses of land or buildings or erect new buildings, if it shall in the opinion of a local authority house or cause activities which shall, after such change or erection, cause a disturbing noise, unless precautionary measures to prevent the disturbing noise have been taken to the satisfaction of the local authority;

Clause 7.(1) however exempts noise of the following activities, namely -

"The provisions of these regulations shall not apply, if -

- (a) the emission of sound is for the purposes of warning people of a dangerous situation;*
- (b) the emission of sound takes place during an emergency."*

4.4 NOISE STANDARDS

There are a few South African Bureau of Standards scientific standards (SABS) relevant to noise from developments, industry and roads. They are:

- SANS 10103:2008. 'The measurement and rating of environmental noise with respect to annoyance and to speech communication'.
- SANS 10210:2004. 'Calculating and predicting road traffic noise'.
- SANS 10328:2008. 'Methods for environmental noise impact assessments'.
- SANS 10357:2004. 'The calculation of sound propagation by the Concave method';
- SANS 10181:2003. 'The Measurement of Noise Emitted by Road Vehicles when Stationary'; and
- SANS 10205:2003. 'The Measurement of Noise Emitted by Motor Vehicles in Motion'.

The relevant standards use the equivalent continuous rating level as a basis for determining what is acceptable. The levels may take single event noise into account, but single event noise by itself does not determine whether noise levels are acceptable for land use purposes. With regards to SANS 10103:2008, the recommendations are likely to inform decisions by authorities, but non-compliance with the standard will not necessarily render an activity unlawful *per se*.

It must be noted that SANS 10103:2008 does stipulate *"for industries legitimately operating in an industrial district during the entire 24 h day/night cycle, $L_{Req,d} = L_{Req,n} = 70$ dBA can be considered as typical and normal"*.

With regards to SANS 10103:2008:

- the recommended noise rating levels are likely to inform decisions by authorities, but non-compliance with the standard will not necessarily render an activity unlawful *per se*; and
- does stipulate *"for industries legitimately operating in an industrial district during the entire 24 h day/night cycle, $L_{Req,d} = L_{Req,n} = 70$ dBA can be considered as typical and normal"*.

The SANS 10328:2008 guideline covers various issues with regards to noise studies, including, amongst others:

- identifying issues that could have acoustics implications in section 5;
- a screening process to investigate potential acoustical implications in section 6;
- a process to assess a potential noise impact on a scoping level in section 7; and
- procedures to investigate and assess the environmental noise impact from a future project in section 8.

The SANS 10328:2008 recommends that the procedures provided in clause 6 to clause 8 in this guideline be followed if:

- a) An application, in respect of any if the activities identified in terms of the current relevant national legislation and noise sources (defined in clauses 3.17 and 3.18), or the issues listed in clause 5, is made to the relevant authority;
- b) An application for a noise-sensitive development (in terms of clause 3.16) is made to the relevant authority;
- c) An application for a change in land use is made to the relevant authority; or
- d) An environmental noise impact investigation is requested by an applicant or any interested or affected party.

4.5 INTERNATIONAL GUIDELINES

While a number of international guidelines and standards exists, those selected below are used by numerous countries for environmental noise management. **It should be noted that these guidelines remain in this report only for reference purpose.**

4.5.1 Guidelines for Community Noise (WHO, 1999)

The World Health Organization's (WHO) document on the *Guidelines for Community Noise* is the outcome of the WHO- expert task force meeting held in London, United Kingdom, in April 1999. It is based on the document entitled "Community Noise" that was prepared for the WHO and published in 1995 by the Stockholm University and Karolinska Institute. The scope of WHO's effort to derive guidelines for community noise is to consolidate actual scientific knowledge on the health impacts of community noise and to provide guidance to environmental health authorities and professionals trying to protect people from the harmful effects of noise in non-industrial environments.

Guidance on the health effects of noise exposure of the population has already been given in an early publication of the series of Environmental Health Criteria. The health risk to humans from exposure to environmental noise was evaluated and guidelines values derived. The issue of noise control and health protection was briefly addressed. The document uses the L_{Aeq} and $L_{A,max}$ noise descriptors to define noise levels. It should be noted that a follow-up document focusing on Night-time Noise Guidelines for Europe (WHO, 2009).

4.5.2 European Parliament Directive 2000/14/EC (2000)

Directive 2000/14/EC, adopted by the European Parliament and the Council in May 2000, addresses the environmental noise emissions from outdoor equipment. The directive's requirements became applicable starting 3 January 2002. It established sound power limits for equipment used in suburban or urban environments.

Non-compliance with these regulations could lead to the prohibition of affected products from being placed on the European Union (EU) market. The directive covers a broad range of equipment, including compaction machinery, bulldozers, dumpers, excavators, and others. This directive also would include various equipment typically used during construction activities.

As a result, manufacturers have increasingly focused on reducing noise emissions from their products to ensure continued market access across EU member states.

4.5.3 IFC: General Environmental Health and Safety (EHS) Guidelines – Environmental Noise Management (2007)

These guidelines are applicable to noise created beyond the property boundaries of a development that conforms to the Equator Principle. It states that noise prevention and mitigation measures should be applied where predicted or measured noise impacts from a

project facility or operations exceed the applicable noise level guideline at the most sensitive point of reception. The preferred method for controlling noise from stationary sources is to implement noise control measures at the source. It goes as far as to propose methods for the prevention and control of noise emissions.

It sets noise level guidelines (see **Table 4-1**) as well as highlighting the certain monitoring requirements pre- and post-development. It adds another criterion in that the existing background ambient noise level should not rise by more than 3 dBA. This criterion will effectively sterilize large areas of any development. It is, therefore, the considered opinion that this criterion was introduced to address cases where the existing ambient noise level is already at, or in excess of the recommended limits.

Table 4-1: IFC Table 7.1-Noise Level Guidelines

Receptor-type	One hour L_{Aeq} (dBA)	
	Daytime 07:00 - 22:00	Night-time 22:00 - 07:00
Residential; institutional; educational	55	45
Industrial; commercial	70	70

The document uses the $L_{Aeq,1hr}$ noise descriptors to define noise levels. It does not determine the detection period but refers to the International Electrotechnical Commission (IEC) standards, which requires the fast detector setting on the Sound Level Meter during measurements for Europe.

5 METHODOLOGY: SCREENING QUESTIONNAIRE

As the exact noise rating levels from the proposed pipeline development will not be calculated, the potential acoustical implications would be evaluated as recommended by SANS 10328:2008. Clause 5.4 of SANS 10103 provide potential examples of situations that could have acoustical implications.

SANS 10328 does provide examples of potential activities that could have acoustical implications in clause 5.4, though these examples mainly relate to the establishment of a noise source near noise-sensitive receptors, or, if residential or noise sensitive activities (such as a school or medical facilities) will be established in the vicinity of a noise source (roads, mines, industry etc.).

The need for a full noise assessment will be evaluated using Clause 6 of SANS 10328:2008 as summarized in **Table 5-1**. This evaluation would be relevant for both the construction and operational phases.

Table 5-1: Questions for Noise Screening (Clause 6, SANS 10328:2008)

Question	Answer	Comment
Does the planned linear source (arterial road, planned arterial road reserve, or a main line railway line) at any position along the route pass within 1 000 m from an area which is developed or zoned for residential purposes?	No	Not relevant
Does the planned linear source (suburban road, planned suburban road reserve where only two lanes of traffic will be present at an average speed limit not exceeding 60 km/h, or a suburban electric traction railway line) at any position along the route pass within 500 m from an area which is developed or zoned for residential purposes?	No	Not relevant
Does the planned development of a residential area or a piece of land zoned for residential purposes fall within 1 000 m from a planned linear source (arterial road, planned arterial road reserve, or a main line railway line)?	No	Not relevant
Does the planned development of a residential area or a piece of land zoned for residential purposes fall within 500 m from a planned linear source (suburban road, planned suburban road reserve where only two lanes of traffic will be present at an average speed limit not exceeding 60 km/h, or a suburban electric traction railway line)?	No	Not relevant
Does a planned industrial development or a building housing a plant fall within a distance of 1 000 m from an already developed residential area or land zoned for residential purposes?	No	Not relevant

Question	Answer	Comment
Does a piece of land to be developed for residential purposes or land to be zoned for residential purposes fall within 1 000 m from an already developed industrial area or a building housing plant?	No	Not relevant
Does planned light industrial development or a building(s) housing workshops fall within a distance of 500 m from an already developed residential area or land zoned for residential purposes?	No	Not relevant
Does a piece of land to be developed for residential purposes or land to be zoned for residential purposes fall within 500 m from an already developed light industrial development or a building(s) housing workshops?	No	Not relevant
Does a piece of land to be developed for residential purposes or land to be zoned for residential purposes fall within 2 000 m from an existing wind generator farm?	No	Not relevant
Does a piece of land to be developed as a wind generator farm fall within 2 000 m from a piece of land to be developed for residential purposes or land to be zoned for residential purposes?	No	Not relevant
Does a piece of land to be developed for residential purposes or land to be zoned for residential purposes fall within 2 000 m from a low frequency source (e.g. low speed ventilation fans or low speed diesel engines)?	No	Not relevant
Does an activity containing a low frequency source (e.g. low speed ventilation fans or low speed diesel engines) to be developed fall within 2 000 m from a piece of land to be developed for residential purposes or land use to be zoned for residential purposes?	No	Not relevant
Will the planned repaving of a suburban street be provided with normal, non-sound absorptive bitumen or cement concrete paving?	No	Not relevant
Where an aircraft landing strip, heliport, hoverport or airport is planned, or is to be altered, will this planned activity be such that the calculated appropriate limit noise contour for the full planned use of the activity fall inside the boundaries of any residential area or any piece of land zoned for residential purposes?	No	Not relevant
Where a residential area is planned or a piece of land is to be zoned for residential purposes, will the evaluated appropriate limit noise contour for the full planned use of an aircraft landing strip, heliport, hoverport or airport fall inside the boundaries of the residential area or the piece of land zoned for residential purposes?	No	Not relevant

6 POTENTIAL SIGNIFICANCE OF THE NOISE IMPACT

Noises associated with the development of the pipeline project will mainly originate from construction activities associated with the installation of the required infrastructure. Limited noises may be associated with pumpstations, but, the management of noise from pump stations are adequately covered in report “*Design Criteria Memorandum*”.

Noises associated with the construction phases will generally be limited to approximately 200 m from the construction activities and noise levels will be insignificant further than 200 m from such activities. The noises will however be very temporary and limited to the daytime period.

While noise levels will be high to very high within 200 m from such activities, the temporary nature of the daytime activities means that the significance of the noise impact is likely to be low to very low. Some receptors may be annoyed with the pipeline development process, though this might be due to a number of reasons, which could also include noise.

It is recommended that the project proponent consider a number of general management measures to ensure that noise annoyance with the project is minimised, which could include:

- If possible, construction camps should not be located within 200 m from communities (*that will reduce noise levels and reduce potential annoyance with the activities [the probability of a noise impact occurring]*);
- When selecting the equipment to be used for this project, the project proponent should consider the sound power levels and select the quietest equipment for the purpose (*that will reduce noise levels and reduce potential annoyance with the activities [the probability of a noise impact occurring]*);
- If possible, main construction activities (site clearing, excavation, pipelaying and trench backfilling) should be separated in time (different day) and space (at least 200 m from different activities) to minimise cumulative effects (*will reduce noise levels and reduce potential annoyance with the activities [the probability of a noise impact occurring]*);
- Receptors in the area should be notified when construction activities will take place, including details of the activities as well as the projected duration of the activities (*that will reduce the potential annoyance with the activities [the probability of a noise impact occurring]*);
- No construction activities should be permitted closer on Sundays (*will reduce noise levels and reduce potential annoyance with the activities [the probability of a noise impact occurring]*);

- No construction activities should take place during the night-time period in the communities (*will reduce potential annoyance with the project*);
- All employees and contractors should receive Health and Safety induction that includes an environmental awareness component about noise. This is to allow employees and contractors to the potential noise risks that activities pose to the surrounding environment (*will reduce potential annoyance with the project*);
- The project proponent must investigate any reasonable and valid noise complaint if registered by a receptor staying within 200 m from location where construction activities are taking place. If noise complaints are registered, the project proponent should investigate the complaint and could implement routine noise monitoring (*will reduce potential annoyance with the project*);
- The project proponent must ensure that equipment is well maintained and fitted with the correct and appropriate noise abatement measures if available. Engine bay covers over heavy equipment could be pre-fitted with sound absorbing material. Heavy equipment that fully encloses the engine bay should be considered, ensuring that the seam gap between the hood and vehicle body is minimised (*will reduce potential annoyance with the project*); and
- The project proponent should investigate the use of white-noise alarms instead of tonal reverse alarms on heavy vehicles operating on roads and on the project (*will reduce potential annoyance with the project*).

7 CONCLUSIONS AND RECOMMENDATION

This Screening Noise Report assesses the potential acoustical implications associated with the development of the Phase 2F pipeline through a number rural communities in Limpopo.

Noises associated with the construction phases will generally be limited to approximately 200 m from the construction activities and noises will be insignificant further than 200 m from such activities. The noises will however be very temporary and limited to the daytime period.

While noise levels will be high to very high within 200 m from such activities, the temporary nature of the daytime activities means that the significance of the noise impact is likely to be low to very low. Some receptors may be annoyed with the pipeline development process, though this might be due to a number of reasons, which could also include noise.

For the Phase 2F pipeline alignment project, it is the opinion of the author that noise will not be a fatal flaw, and further Scoping or other acoustical studies would not be required. It is therefore recommended that the Phase 2F pipeline alignment project be authorized (in terms of acoustics).

8 REFERENCES

In this report reference was made to the following documentation:

1. Audiology Today, 2010: *Wind-Turbine Noise – What Audiologists should know*
2. Hassall, 2021: *Environmental Noise Report – Proposed PV Power Plant, Mogalakwena Mine – Draft Report*. JH Consulting, Northriding
3. Minnesota Department of Health, 2009: *Public Health Impacts of Wind Farms*
4. Renewable Energy Research Laboratory, 2006: *Wind Turbine Acoustic Noise*
5. SANS 10103:2008. 'The measurement and rating of environmental noise with respect to annoyance and to speech communication'.
6. SANS 10210:2004. 'Calculating and predicting road traffic noise'.
7. SANS 10328:2008. 'Methods for environmental noise impact assessments'.
8. SANS 10357:2004 The calculation of sound propagation by the Concave method'.

APPENDIX A

Glossary of Acoustic Terms, Definitions and General Information

<i>1/3-Octave Band</i>	A filter with a bandwidth of one-third of an octave representing four semitones, or notes on the musical scale. This relationship is applied to both the width of the band, and the centre frequency of the band. See also definition of octave band.
<i>A – Weighting</i>	An internationally standardised frequency weighting that approximates the frequency response of the human ear and gives an objective reading that therefore agrees with the subjective human response to that sound.
<i>Air Absorption</i>	The phenomena of attenuation of sound waves with distance propagated in air, due to dissipative interaction within the gas molecules.
<i>Alternatives</i>	A possible course of action, in place of another, that would meet the same purpose and need (of proposal). Alternatives can refer to any of the following, but are not limited hereto: alternative sites for development, alternative site layouts, alternative designs, alternative processes and materials. In Integrated Environmental Management the so-called “no go” alternative refers to the option of not allowing the development and may also require investigation in certain circumstances.
<i>Ambient</i>	The conditions surrounding an organism or area.
<i>Ambient Noise</i>	The all-encompassing sound at a point being composed of sounds from many sources both near and far. It includes the noise from the noise source under investigation.
<i>Ambient Sound</i>	The all-encompassing sound at a point being composite of sounds from near and far.
<i>Ambient Sound Level</i>	Means the reading on an integrating impulse sound level meter taken at a measuring point in the absence of any alleged disturbing noise at the end of a total period of at least 10 minutes after such a meter was put into operation. In this report the term Background Ambient Sound Level will be used.
<i>Amplitude Modulated Sound</i>	A sound that noticeably fluctuates in loudness over time.
<i>Anthropogenic</i>	Human impact on the environment or anthropogenic impact on the environment includes impacts on <u>biophysical environments</u> , biodiversity and other resources
<i>Applicant</i>	Any person who applies for an authorisation to undertake a listed activity or to cause such activity in terms of the relevant environmental legislation.
<i>Assessment</i>	The process of collecting, organising, analysing, interpreting and communicating data that is relevant to some decision.
<i>Attenuation</i>	Term used to indicate reduction of noise or vibration, by whatever method necessary, usually expressed in decibels.
<i>Audible frequency Range</i>	Generally assumed to be the range from about 20 Hz to 20,000 Hz, the range of frequencies that our ears perceive as sound.
<i>Ambient Sound Level</i>	The level of the ambient sound indicated on a sound level meter in the absence of the sound under investigation (e.g. sound from a particular noise source or sound generated for test purposes). Ambient sound level as per NCR.
<i>Best Practices</i>	A best practice is a method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark. In addition, a "best" practice can evolve to become better as improvements are discovered.
<i>Broadband Noise</i>	Spectrum consisting of a large number of frequency components, none of which is individually dominant.
<i>C-Weighting</i>	This is an international standard filter, which can be applied to a pressure signal or to a <i>SPL</i> or <i>PWL</i> spectrum, and which is essentially a pass-band filter in the frequency range of approximately 63 to 4000 Hz. This filter provides a more constant, flatter, frequency response, providing significantly less adjustment than the A-scale filter for frequencies less than 1000 Hz.
<i>dB(A)</i>	Sound Pressure Level in decibel that has been A-weighted, or filtered, to match the response of the human ear.

<i>Decibel (db)</i>	A logarithmic scale for sound corresponding to a multiple of 10 of the threshold of hearing. Decibels for sound levels in air are referenced to an atmospheric pressure of 20 μ Pa.
<i>Diffraction</i>	The process whereby an acoustic wave is disturbed and its energy redistributed in space as a result of an obstacle in its path, Reflection and refraction are special cases of diffraction.
<i>Direction of Propagation</i>	The direction of flow of energy associated with a wave.
<i>Disturbing noise</i>	Means a noise level that exceeds the zone sound level or, if no zone sound level has been designated, a noise level that exceeds the ambient sound level at the same measuring point by 7 dBA or more.
<i>Echolocation</i>	Echo locating animals emit calls out to the environment and listen to the <u>echoes</u> of those calls that return from various objects near them. They use these echoes to locate and identify the objects. Echolocation is used for <u>navigation</u> and for foraging (or hunting) in various environments.
<i>Environment</i>	The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group; these circumstances include biophysical, social, economic, historical, cultural and political aspects.
<i>Environmental Control Officer</i>	Independent Officer employed by the applicant to ensure the implementation of the Environmental Management Plan (EMP) and manages any further environmental issues that may arise.
<i>Environmental impact</i>	A change resulting from the effect of an activity on the environment, whether desirable or undesirable. Impacts may be the direct consequence of an organisation's activities or may be indirectly caused by them.
<i>Environmental Impact Assessment</i>	An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of any proposed project, plan, programme or policy that requires authorisation of permission by law and that may significantly affect the environment. The EIA includes an evaluation of alternatives, as well as recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures for enhancing the positive aspects of the proposal, and environmental management and monitoring measures.
<i>Environmental issue</i>	A concern felt by one or more parties about some existing, potential or perceived environmental impact.
<i>Equivalent continuous A-weighted sound exposure level ($L_{Aeq,T}$)</i>	The value of the average A-weighted sound pressure level measured continuously within a reference time interval T , which have the same mean-square sound pressure as a sound under consideration for which the level varies with time.
<i>Equivalent continuous A-weighted rating level ($L_{Req,T}$)</i>	The Equivalent continuous A-weighted sound exposure level ($L_{Aeq,T}$) to which various adjustments has been added. More commonly used as ($L_{Req,d}$) over a time interval 06:00 – 22:00 ($T=16$ hours) and ($L_{Req,n}$) over a time interval of 22:00 – 06:00 ($T=8$ hours). It is a calculated value.
<i>F (fast) time weighting</i>	(1) Averaging detection time used in sound level metre. (2) Fast setting has a time constant of 125 milliseconds and provides a fast reacting display response allowing the user to follow and measure not too rapidly fluctuating sound.
<i>Footprint area</i>	Area to be used for the construction of the proposed development, which does not include the total study area.
<i>Free Field Condition</i>	An environment where there is no reflective surfaces.
<i>Frequency</i>	The rate of oscillation of a sound, measured in units of Hertz (Hz) or kiloHertz (kHz). One hundred Hz is a rate of one hundred times per second. The frequency of a sound is the property perceived as pitch: a low-frequency sound (such as a bass note) oscillates at a relatively slow rate, and a high-frequency sound (such as a treble note) oscillates at a relatively high rate.

<i>Green field</i>	A parcel of land not previously developed beyond that of agriculture or forestry use; virgin land. The opposite of Greenfield is Brownfield, which is a site previously developed and used by an enterprise, especially for a manufacturing or processing operation. The term Brownfield suggests that an investigation should be made to determine if environmental damage exists.
<i>G-Weighting</i>	An International Standard filter used to represent the infrasonic components of a sound spectrum.
<i>Harmonics</i>	Any of a series of musical tones for which the frequencies are integral multiples of the frequency of a fundamental tone.
<i>I (impulse) time weighting</i>	(1) Averaging detection time used in sound level metre as per South African standards and Regulations. (2) Impulse setting has a time constant of 35 milliseconds when the signal is increasing (sound pressure level rising) and a time constant of 1,500 milliseconds while the signal is decreasing.
<i>Impulsive sound</i>	A sound characterized by brief excursions of sound pressure (transient signal) that significantly exceed the ambient sound level.
<i>Infrasound</i>	Sound with a frequency content below the threshold of hearing, generally held to be about 20 Hz. Infrasonic sound with sufficiently large amplitude can be perceived, and is both heard and felt as vibration. Natural sources of infrasound are waves, thunder and wind.
<i>Integrated Development Plan</i>	A participatory planning process aimed at developing a strategic development plan to guide and inform all planning, budgeting, management and decision-making in a Local Authority, in terms of the requirements of Chapter 5 of the Municipal Systems Act, 2000 (Act 32 of 2000).
<i>Integrated Environmental Management</i>	IEM provides an integrated approach for environmental assessment, management, and decision-making and to promote sustainable development and the equitable use of resources. Principles underlying IEM provide for a democratic, participatory, holistic, sustainable, equitable and accountable approach.
<i>Interested and affected parties</i>	Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public.
<i>Key issue</i>	An issue raised during the Scoping process that has not received an adequate response and that requires further investigation before it can be resolved.
<i>Listed activities</i>	Development actions that is likely to result in significant environmental impacts as identified by the delegated authority (formerly the Minister of Environmental Affairs and Tourism) in terms of Section 21 of the Environment Conservation Act.
<i>L_{AMin} and L_{AMax}</i>	Is the RMS (root mean squared) minimum or maximum level of a noise source.
<i>Loudness</i>	The attribute of an auditory sensation that describes the listener's ranking of sound in terms of its audibility.
<i>Magnitude of impact</i>	Magnitude of impact means the combination of the intensity, duration and extent of an impact occurring.
<i>Masking</i>	The raising of a listener's threshold of hearing for a given sound due to the presence of another sound.
<i>Mitigation</i>	To cause to become less harsh or hostile.
<i>Natural Sounds</i>	Are sounds produced by natural sources in their normal baseline.
<i>Negative impact</i>	A change that reduces the quality of the environment (for example, by reducing species diversity and the reproductive capacity of the ecosystem, by damaging health, or by causing nuisance).
<i>Noise</i>	a. Sound that a listener does not wish to hear (unwanted sounds). b. Sound from sources other than the one emitting the sound it is desired to receive, measure or record. c. A class of sound of an erratic, intermittent or statistically random nature.
<i>Noise Level</i>	The term used in lieu of sound level when the sound concerned is being measured or ranked for its undesirability in the contextual circumstances.

<i>Noise-sensitive development</i>	developments that could be influenced by noise such as: a) districts (see table 2 of SANS 10103:2008) 1. rural districts, 2. suburban districts with little road traffic, 3. urban districts, 4. urban districts with some workshops, with business premises, and with main roads, 5. central business districts, and 6. industrial districts; b) educational, residential, office and health care buildings and their surroundings; c) churches and their surroundings; d) auditoriums and concert halls and their surroundings; e) recreational areas; and f) nature reserves. In this report Noise-sensitive developments is also referred to as a Potential Sensitive Receptor
<i>Octave Band</i>	A filter with a bandwidth of one octave, or twelve semi-tones on the musical scale representing a doubling of frequency.
<i>Positive impact</i>	A change that improves the quality of life of affected people or the quality of the environment.
<i>Property</i>	Any piece of land indicated on a diagram or general plan approved by the Surveyor-General intended for registration as a separate unit in terms of the Deeds Registries Act and includes an erf, a site and a farm portion as well as the buildings erected thereon
<i>Public Participation Process</i>	A process of involving the public in order to identify needs, address concerns, choose options, plan and monitor in terms of a proposed project, programme or development
<i>Reflection</i>	Redirection of sound waves.
<i>Refraction</i>	Change in direction of sound waves caused by changes in the sound wave velocity, typically when sound wave propagates in a medium of different density.
<i>Reverberant Sound</i>	The sound in an enclosure which results from repeated reflections from the boundaries.
<i>Reverberation</i>	The persistence, after emission of a sound has stopped, of a sound field within an enclosure.
<i>Significant Impact</i>	An impact can be deemed significant if consultation with the relevant authorities and other interested and affected parties, on the context and intensity of its effects, provides reasonable grounds for mitigating measures to be included in the environmental management report. The onus will be on the applicant to include the relevant authorities and other interested and affected parties in the consultation process. Present and potential future, cumulative and synergistic effects should all be taken into account.
<i>S (slow) time weighting</i>	(1) Averaging times used in sound level metre. (2) Time constant of one [1] second that gives a slower response which helps average out the display fluctuations.
<i>Sound Level</i>	The level of the frequency and time weighted sound pressure as determined by a sound level meter, i.e. A-weighted sound level.
<i>Sound Power</i>	Of a source, the total sound energy radiated per unit time.
<i>Sound Pressure Level (SPL)</i>	Of a sound, 20 times the logarithm to the base 10 of the ratio of the RMS sound pressure level to the reference sound pressure level. International values for the reference sound pressure level are 20 micropascals in air and 100 millipascals in water. SPL is reported as L_p in dB (not weighted) or in various other weightings.
<i>Study area</i>	Refers to the entire study area encompassing all the alternative routes as indicated on the study area map.
<i>Sustainable Development</i>	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of "needs", in particular the essential needs of the

		world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and the future needs (Brundtland Commission, 1987).
<i>Tone</i>		Noise can be described as tonal if it contains a noticeable or discrete, continuous note. This includes noises such as hums, hisses, screeches, drones, etc. and any such subjective description is open to discussion and contradiction when reported.
<i>Zone of Potential Influence</i>		The area defined as the radius about an object, or objects beyond which the noise impact will be insignificant.
<i>Zone Sound Level</i>		Means a derived dBA value determined indirectly by means of a series of measurements, calculations or table readings and designated by a local authority for an area. This is similar to the Rating Level as defined in SANS 10103:2008.

End of Report



forestry, fisheries & the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9000, Fax: +27 86 625 1042

SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

De Jager, M. (2024): *“Screening Noise Report for the Olifants Management Model Programme Bulk Water Supply Phase: Phase 2F, Limpopo Province”*. Enviro-Acoustic Research CC, Pretoria

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.dffe.gov.za/documents/forms>.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with ‘the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020’, where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Environmental Noise Impact Assessment
Specialist Company Name	Enviro-Acoustic Research CC
Specialist Name	Morné de Jager
Specialist Identity Number	711221 5062 080
Specialist Qualifications:	B. Ing (Chemical)
Professional affiliation/registration:	De Jager: SAIOSH, 72765282; SACNASP, 117253
Physical address:	726 Wiedrigh Street, Moreleta Park, Pretoria, 0181
Postal address:	PO Box 2047, Garsfontein East, Pretoria, 0060
Postal address	
Telephone	012 004 0362
Cell phone	082 565 4059
E-mail	morne@eares.co.za

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, **Morné de Jager** declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. “the Protocols”) and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
 - any decision to be taken with respect to the application by the competent authority; and;
 - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.



Signature of the Specialist

Enviro-Acoustic Research CC

Name of Company:

14 Nov 2024

Date

SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Morné de Jager, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

Enviro-Acoustic Research CC

Name of Company

14 Nov 2024

Date

Commissioner of Oaths

MJ MILLARD

Ex Officio

Professional Accountant (SA)

Membership no: 8916

P.O. Box 90803, Garsfontein, Pretoria, 0040



Signature of the Commissioner of Oaths

14 Nov 2024

Date