

11 ENVIRONMENTAL MONITORING PLAN

Environmental Noise Measurement can be divided into two distinct categories, namely:

- Passive measuring – the registering of any complaints (reasonable and valid) regarding noise; and
- Active measuring – the measurement of noise levels at identified locations.

Environmental noise monitoring is recommended due to the medium significance for a noise impact for the unmitigated scenario and because the projected noise rating levels are more than 7 dBA higher than the rating level normally associated with a rural noise district. In addition, should a reasonable and valid noise complaint be registered it would be the responsibility of the developer to investigate this complaint as per the following sections. It is recommended that the noise investigation be done by an independent acoustic consultant.

While this section recommends a noise monitoring programme, it should be used as a guideline as site specific conditions may require that the monitoring locations, frequency or procedure be adapted.

11.1 MEASUREMENT LOCALITIES AND PROCEDURES

11.1.1 Measurement Localities

Ambient sound measurements should be collected in the winter period prior to the development of the WF at NSDs 18 and 33 (at least) over a 5 night period. Once operational, noise measurements should again be repeated over a 2 night period at the same receptors.

Additionally, noise measurements must be conducted at the location of the person that registered a valid and reasonable noise complaint. The measurement location should consider the direct surroundings to ensure that other sound sources cannot influence the reading. A second instrument must be deployed at a control point away from the potential noise source during the measurement period.

11.1.2 Measurement Frequencies

Once-off measurements prior to the development of the WF and again once the WF is operational.

Additional once-off measurements if and when a reasonable and valid noise complaint is registered. Results and feedback must be provided to the complainant. If required and recommended by an acoustic consultant, there may be follow-up measurements or a noise monitoring programme can be implemented.

11.1.3 Measurement Procedures

Ambient sound and noise measurements should be collected as defined in SANS 10103:2008. Due to the variability that naturally occurs in sound levels at most locations, it is recommended that semi-continuous measurements are conducted over a period of at least 2 night period (5 nights for the pre-construction measurements), covering at least a full day- (06:00 – 22:00) and night-time (22:00 – 06:00) period. Measurements should be collected in 10-minute bins defining the 10-minute descriptors such as $L_{Aeq,t}$ (National Noise Control Regulation requirement), $L_{A90,f}$ (background noise level as used internationally) and $L_{Aeq,f}$ (Noise level used to compare with IFC noise limit).

Pre-construction sound measurements should be analysed to develop noise level versus wind speed curves.

Spectral frequencies should also be measured to define the potential origin of noise. When a noise complaint is being investigated, measurements should be collected during a period or in conditions similar to when the receptor experienced the disturbing noise event.

11.2 RELEVANT STANDARD FOR NOISE MEASUREMENTS

Noise measurements must be conducted as required by the National Noise Control Regulations (GN R154 of 1992) and SANS 10103:2008. It should be noted that the SANS standard also refers to a number of other standards.

11.3 DATA CAPTURE PROTOCOLS

11.3.1 Measurement Technique

Noise measurements must be conducted as required by the National Noise Control Regulations (GN R154 of 1992) and SANS 10103:2008.

11.3.2 Variables to be analysed

Measurements should be collected in 10-minute bins defining the 10-minute descriptors such as $L_{Aeq,1}$ (National Noise Control Regulation requirement), $L_{A90,f}$ (background noise level as used internationally) and $L_{Aeq,f}$ (Noise level used to compare with IFC noise limit). Noise levels should be co-ordinated with the 10-m wind speed. Spectral frequencies should also be measured to define the potential origin of noise.

11.3.3 Database Entry and Backup

Data must be stored unmodified in the electronic file saved from the instrument. This file can be opened to extract the data to a spread sheet system to allow the processing of the data and to illustrate the data graphically. Data and information should be safeguarded from accidental deletion or corruption.

11.3.4 Feedback to Receptor

A measurement report must be compiled considering the requirements of the National Noise Control Regulations (GN R154 of 1992) and SANS 10103:2008. The facility must provide feedback to the potential noise-sensitive receptors using the channels and forums established in the area to allow interaction with stakeholders, alternatively in a written report.

11.4 STANDARD OPERATING PROCEDURES FOR REGISTERING A COMPLAINT

When a noise complaint is registered, the following information must be obtained:

- Full details (names, contact numbers, location) of the complainant;
- Date and approximate time when this non-compliance occurred;
- Description of the noise or event;
- Description of the conditions prevalent during the event (if possible).