

GCRE: Construction of Earthworks

Noise Monitoring and Management Action Plan

Global Centre for Rail Excellence (GCRE)

21 April 2023

2022/JULY/03

Notice

This document and its contents have been prepared and are intended solely as information for Global Centre for Rail Excellence (GCRE) and use in relation to the noise monitoring and management action plan for construction of earthworks only.

Atkins Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 15 pages including the cover.

Document history

Document title: Noise Monitoring and Management Action Plan

Document reference: 2022/JULY/03

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Draft for comments	AR	HM	HM	HLA	08/08/22
2.0	Issued to the client	AR	HM	HM	HLA	17/08/22
3.0	Issued to the client	AR	HM	HM	HLA	01/09/22
4.0	Issued to the client	HM			HLA	21/04/23

Client signoff

Client	GCRE
Project	GCRE: Construction of Earthworks
Job number	5209796
Client signature/date	

Contents

Chapter	Page
Executive Summary	4
1. Introduction	5
1.1. Purpose and Scope	5
1.2. Relevant Legislation	5
2. Management of Site Activities	6
2.1. Main Roles and Responsibilities	6
2.2. Working Hours	6
2.3. Consultation	7
3. Noise Control Strategy	8
3.1. Generic Noise Control Measures	8
3.2. Specific Noise Control Measures	9
4. Noise Monitoring and Noise Exceedance Management	10
4.1. Noise Monitoring Methodology	10
4.2. Noise Monitoring Equipment	11
4.3. Trigger Action Levels	11
4.4. Complaint Management	12
5. Conclusion	14

Tables

Table 2-1 - Noise management roles and responsibilities	6
Table 4-2 - Construction noise limits at the nearest NSRs	11
Table 4-3 - Noise trigger alert notification protocol	12
Table 4-4 - Noise complaint protocol	13

Executive Summary

The present document represents the Noise Monitoring and Management Action Plan (NMMAP) as specified by Planning Condition n.6 of 20/0738/FUL (Powys County Council) and n.5 of P2020/0362 (Neath Port Talbot Council) for the Nant Helen Complementary Restoration Earthworks.

The NMMAP presents how the site activities will be managed in relation to noise control and mitigation measures for the activities relating to the construction of the earthworks.

Main roles, responsibilities, committed working hours and consultation methodology has been specified in Section 2. The noise control strategy has been set out, which include the Best Practicable Means (BPM) to be implemented to control the noise emitted from the work activities and minimise as far as reasonably practicable the impact of construction noise to the nearest residential receptors.

It has been specified that a noise monitoring will be undertaken during the construction of the Project with the purpose to enable on-going and proactive management of adverse effects, to demonstrate compliance with the pre-defined trigger values and to monitor compliance with the BPM.

Finally, the NMMAP defines the protocol to be followed in the event of noise complaints.

This document will be updated as required to ensure that the noise monitoring and control measures are reviewed throughout the Project, taking on board feedbacks from Stakeholders as the work progresses.

1. Introduction

In July 2020 a Full Planning Permission has been approved for the Nant Helen Complementary Restoration Earthworks to create 2 looped landform platforms within the Global Centre for Rail Excellence (GCRE), located at the Nant Helen surface mine and Onllwyn coal washery at the head of the Dulais and Tawe valleys.

On behalf of GCRE, Walters Group has commissioned Atkins part of SNC-Lavalin group to complete a Noise Monitoring and Management Action Plan (NMMAP) as specified by Planning Condition. n.6 of 20/0738/FUL (Powys County Council) and n.5 of P2020/0362 (Neath Port Talbot Council).

1.1. Purpose and Scope

The purpose of this NMMAP is to set out all the requirements, controls and mitigation measures in relation to noise and to ensure that the construction of the Project is carried out in compliance with the applicable noise requirements.

The content of this NMMAP is as follows:

- Section 2 defines how the site activities will be managed on site, identifies roles and responsibilities at project and site-specific levels and specifies working hours and public consultation methodology
- Section 3 presents the noise control strategy to mitigate the noise caused by the construction of the Project.
- Section 4 specifies the noise monitoring methodology and the necessary measures to maintain compliance for the duration of the construction. This Section also provides the procedures and recommendations for addressing complaints made regarding noise.
- Section 5 summarises the main requirements, controls and mitigation measures outlined in this NMMAP.

The NMMAP will be implemented at all times and updated as required throughout the construction of the Project.

1.2. Relevant Legislation

The relevant documents considered for developing criteria and guideline limits for this Project are provided in the following references:

- Noise and Soundscape Action Plan 2018 to 2023 for Wales, which is the central noise policy document in Wales and states the Welsh Government's expectation that public bodies should follow Well-being of Future Generations (Wales) Act 2015 (WFG Act) statements when carrying out noise and soundscape management.
- The Control of Pollution Act 1974 (CoPA), which set out the framework for the legislative control of construction noise and on any given site. The Act refers to approved Codes of Practice, which include BS 5228 Part 1¹. The document also defines the Best Practicable Means (BPM) to apply during construction works to minimise the noise arising from the construction activities as far as reasonably practicable.

¹ BS 5228 Part 1::2009+A1:2014 – Code of Practice for Noise and Vibration Control on Construction and Open Sites. Part 1: Noise.

2. Management of Site Activities

This section defines how the noise control will be managed on site. It identifies the roles and responsibilities and sets out the permitted working hours to minimise noise impact to the nearest sensitive receptor. It also specifies how consultation with the local authority and the community engagement will be implemented.

2.1. Main Roles and Responsibilities

It is recognised that all those participating in the delivery of the Project have a role to play in the minimisation and mitigation of noise impacts. However, it is also recognised that certain key roles within construction teams will play a more active role in ensuring the noise requirements and mitigation measures are implemented. The key noise management roles and responsibilities are shown in Table 2-1.

Table 2-1 - Noise management roles and responsibilities

Role	Responsibility
Project Manager (Client)	Review results of noise audits at monthly progress meetings. Ensure satisfactory close out of any complaints and any rectification measures are implemented.
Project Manager (Contractor)	Ensure all works are carried out with mitigation controls set out in this document, including strict adherence to site specific working hours. Examine results of regular noise audits, and any noise monitoring data at weekly progress meetings to ensure no exceedance. Examine the outcomes of any noise complaints and ensure rectification measures have been put in place. Approve Working Methods and accompanying noise assessments including both permanent and temporary works. Support any measures to mitigate noise as far as reasonably practicable.
Site Agent (Contractor)	Ensure all works are carried out with mitigation controls set out in this document. Incorporate requirements of this document within Working Methods and ensure appropriate noise assessments are undertaken. Undertake regular site noise audits to ensure adherence to agreed working methods and examine any other noise monitoring data. Undertake site inductions to all new starters and brief on site noise rules.
Works Manager (Contractor)	Ensure correct modern plant is mobilised to site. Ensure Works Briefings on working methods and noise restrictions are given to supervising foreman. Ensure working hours are adhered to.
General Foremen (Contractor)	Carry out Works Briefings to workforce on approved Method Statements and any specific noise restrictions. Ensure all works are carried out in accordance with approved Method Statements and noise assessments. Ensure all plant is in good working order and switched off when not in use. Report any defects in plant to supervisor.
Health and Safety Manager (Contractor)	Provide specific training in relation to noise management to all levels of staff.
Stakeholder Manager (Contractor)	Liaise with stakeholders and advise on progress of the works through regular meetings, letter drops and updates on site notice boards. Be available to answer any stakeholder concerns. To log and investigate any noise complaints and report outcomes to Project Manager and Client. Attend meetings with regulatory bodies.

2.2. Working Hours

Normal working hours are noted as being daytime 06:00 to 22:00 Monday to Friday excluding Bank/Public Holidays and 07:00 to 13:00 on Saturdays, as per planning condition.

Reduced hours have been set by Planning Condition n.23 (20/0738/FUL) and n.21 (P2020/0362) for those works related to the construction of the northern embankment only, where works shall be stopped at 18:00 Monday to Friday.

2.3. Consultation

Consultation will be carried out with the environmental health departments of the local authorities regarding the management of noise prior and during the construction of the Project.

The consultation management will be delegated to a dedicated Stakeholder Manager, who will attend resident meetings, update letter drops and notice boards and meetings with the environmental health officer (EHO).

The Stakeholder Manager will ensure the local residents and other affected parties are informed prior to the start of the site operations and kept informed of the progress of the works, including when and where the noisiest activities will be taking place and how long they are expected to last.

The Stakeholder Manager will also be responsible for complaint management, including investigation of any complaints and discussion of any concerns with stakeholders. Details of how complaints are to be made and how they will be processed is provided in Section 4.4. below.

3. Noise Control Strategy

To minimise the noise from the construction of the Project at the nearby noise sensitive receptors, BPMs will be applied during the construction works.

BPMs, as defined in Section 72 of the Control of Pollution Act 1979, are ‘*means reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications.*’ The Control of Pollution Act 1979 refers to BS 5228 Part 1 and Part 2, as being relevant for the purpose of determining the BPM to apply.

3.1. Generic Noise Control Measures

The measures listed below will be applied to control and minimise as far as reasonably practicable the levels of noise to which operators and nearby sensitive receptors will be exposed. Based on BS 5228 Part 1 recommendations, measures to control the noise are divided between those intended to control the noise at the source and those applied across the site to minimise the spread of noise.

3.1.1. Control At Source

Noise control measures at the source will focus on reducing the noise of equipment used on site and will be as follows:

- All plant and equipment will comply with the noise limit and noise marking requirements prescribed by the “Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001”.
- All plant, equipment and noise control measures applied to plant and equipment will be maintained in good and efficient working order and operated such that noise emissions are minimised as far as reasonably practicable. As far as reasonably practicable, any plant, equipment or items fitted with noise control equipment found to be defective will not be operated until repaired.
- Noise from reversing alarms from vehicles will be controlled and limited as far as possible through the following means: designing the site layout to limit the need for reversing vehicles; the use of banksmen for traffic management at site entrance gates and within site footprint; reversing alarms incorporating directional sounders, broadband signals self-adjusting output sounders or flashing warning lights and setting reversing alarms to the minimum output noise level required for health and safety compliance.
- Vehicles and mechanical plant employed for any activity associated with the construction works will, where reasonably practicable, be fitted with effective exhaust silencers and shall be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable.
- Whenever used, all percussion tools shall be fitted with appropriate mufflers or dampers of the type recommended by the manufacturers.
- Unnecessary revving of engines will be avoided, and equipment switched off when not in use.
- Static noise emitting equipment operating continuously (generators, compressors etc) will be screened or housed within suitable acoustic enclosure, where appropriate.
- All generators shall be super-silenced units. Where reasonably practicable, other fixed items of construction plant should be electrically powered in preference to diesel or petrol driven.
- Internal haul routes will be kept well maintained and avoid steep gradients.
- Materials will be lowered whenever practicable and will not be dropped.

3.1.2. Control Across Site

Control measures to minimise the spread of noise from site will be as follows:

- Strict adherence to the site-specific construction working hours set out in Section 2.2.
- All personnel on site will undergo site specific inductions and briefings, to include noise control measures.
- Noisy plant or equipment shall be sited as far away as possible from noise sensitive receptors. Wherever practicable, the use of barriers in the form of acoustic enclosures or barriers will be employed.

- Where practicable, loading and unloading will be carried out away from noise-sensitive receptors.
- A programme of site inspections and noise monitoring will be carried out to assess whether BPM are being employed in the control of noise, to investigate any noise complaints or incidents.
- A programme of community liaison will be carried out, including notification of works and details of the complaints process as detailed in Section 4.4.

3.2. Specific Noise Control Measures

One specific noise control measure, in form of a 5m screen fence at the Northern Embankment, was proposed in the Environmental Statement (ES), Section 10: to mitigate the impact of noise from the construction site to the nearest sensitive receptor (NSR) in Abercraf, Powys. Planning Condition n.7 of 20/0738/FUL refers to this fence and specifies that *'prior to the commencement of construction of the northern embankment the proposed 5m screen fence shall be constructed [...] providing a minimum of 5dB attenuation of noise'*.

Since the production of the ES, the design and the construction methodology for the Northern Embankment – including plant selection – has been amended. Therefore, an up-to-date construction noise assessment to re-evaluate the impact to the nearest NSRs was undertaken.

As the new design of the Northern Embankment is slightly steeper than the previous design, construction activity has moved further from the nearest NSR. This change to the design, in addition to amendments to the construction methodology and plant selection, have been assessed to bring the predicted noise levels at the nearest receptor below the threshold for potential significant effects, according to BS 5228.

Therefore, in place of the 5m screen fence, acoustic blankets are to be installed along 200m of the 2.1m site boundary fence, where the construction works are closest to the NSR, in order to provide additional noise reduction.

With the implementation of the acoustic blankets along the site boundary fence, the predicted construction noise levels at the nearest NSRs comply with existing PCC Planning Condition n.25 (20/0738/FUL) and Neath Port Talbot County Borough Council (NPTBCBC) n.23 (P2020/0362).

4. Noise Monitoring and Noise Exceedance Management

Noise monitoring will be undertaken during the construction works. The purpose of the monitoring is to enable on-going and proactive management of adverse effects, to demonstrate compliance with the pre-defined trigger values and to help ensure effective BPM are implemented.

The present section also sets out the actions to be taken in the event of measured exceedances of pre-defined trigger levels and the protocol to be followed in the event of noise complaints.

4.1. Noise Monitoring Methodology

Unattended noise monitoring will be undertaken at nearest sensitive residential building(s) or at representative location(s) with similar construction noise exposure as the nearest sensitive residential building(s).

The noise monitor(s) will be left on site and measure continuous noise levels during the period the receptor has the potential to be impacted by construction noise. At least one unattended noise monitor will be installed in the area, however the final numbers and locations will be discussed and agreed with the local authority.

The location where an unattended noise monitor is proposed to be installed is at the NSR1 as shown in Figure 4-1. All other NSRs are further away from the works (<450m) with lower predicted construction noise levels.

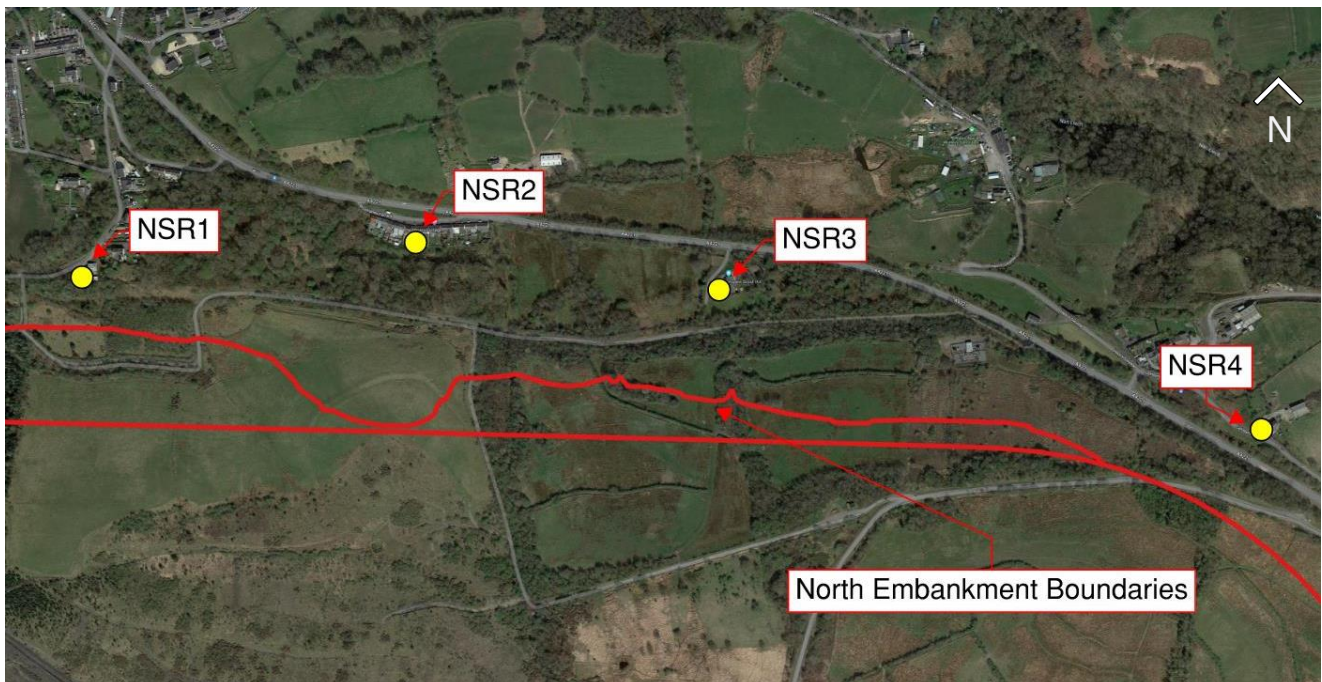


Figure 4-1 - Site location and nearest NSRs plan

Measurement data and audio data will be remotely accessible to enable on-demand interrogation and prompt response to any potential adverse effect. Audio data will be recorded when noise thresholds are exceeded and instant email and/or text alerts will be sent to designed recipients. Noise thresholds and management of trigger level exceedances are presented in Section 4.3 below.

Based on the progress of the works and measured noise levels, any long-term unattended monitoring will be reviewed on a monthly basis to determine if the unattended monitoring is still required. If the unattended noise monitoring is deemed to be no longer necessary, the pausing of the monitoring will be discussed and agreed with the local authority prior to ceasing the monitoring.

In addition, supplementary attended measurements will be undertaken to review or investigate exceedances of the trigger level and complaints as appropriate. These surveys will be carried out in locations representative of the sensitive receptors and will check for compliance with the threshold noise levels presented below in Section 4.3, aim to identify any specific activity/plant causing high noise levels and investigate that BPMs as specified in this document are implemented.

4.2. Noise Monitoring Equipment

All noise monitoring will be undertaken using equipment meeting the requirements for a 'Class 1' instrument, or better, as defined in BS EN 61672-1 and BS EN 61672-2. All noise equipment to be used on this Project for noise measurements shall have a valid calibration certificate indicating the equipment has been calibrated by a certified calibration laboratory within one year of operation and meet the requirements described below.

The unattended noise monitor must be capable of the following:

- Uploading measurement data on a weekly basis.
- Sending automated email and/or text alerts when threshold levels are exceeded.
- Measuring octave band sound levels, L_{90} , L_{10} , L_{max} , L_{min} , L_{eq} .

The unattended noise monitor(s) will be field calibrated before, once every 30 days and after the measurement campaign. Should the calibration results deviate by more than 0.5 dB from the specified calibration level or deviate more than 0.5 dB from the prior calibration result, the unit will be checked and if required replaced.

The microphone(s) will be installed at 1.5m above the ground level and will be equipped with a windscreen. The microphone will be installed in free-field conditions at least 3.5m from reflecting surfaces such as building facades or structures.

Equipment and data will undergo regular checks to enable early identification of equipment faults. Faults will be logged and resolved within 72 hours where practicable.

Attended noise monitors will be required to adhere to the same requirements listed above. Field calibration will be undertaken before and after the attended noise measurements.

4.3. Trigger Action Levels

The trigger action levels have been derived to provide numerical threshold above which a series of prescribed and agreed actions will be initiated.

The existing Planning Conditions n.25 (Powys County Council) and n.23 (Neath Port Talbot Council) stipulates noise limits at the four NSRs, as shown in Table 4-1.

Table 4-1 - Construction noise limits at the nearest NSRs

Receptor Location*	Threshold Values $L_{Aeq,1hr}$, dB
NSR1	61
NSR2	57
NSR3	60
NSR4	54

* NSR locations as shown in Figure 4-1.

To prevent the exceedance of the noise criteria given above and the arise of potential significant adverse impacts to the receptors, an alert notification protocol is specified. This protocol will also enable a prompt response to minimise the noise impact to the receptors.

Table 4-2 outline the "traffic light" alert notification protocol to be followed in the event of a noise exceedance. The alert notification protocol will be set as follows:

- Amber alert will be sent when the amber trigger $L_{Aeq,1hr}$ level in Table 4-2 is exceeded. The amber alert notifies that work is approaching the Threshold Value in Table 4-1. Under amber alert, work shall continue whilst an investigation of the reasons for the potential exceedance is carried out.
- Red alert will be sent when the red trigger $L_{Aeq,1hr}$ level in Table 4-2 is exceeded. The red alert notifies that the Threshold Value in Table 4-1 is exceeded. Under red alert regime, the works considered primarily responsible for the exceedance shall cease whilst an urgent investigation of the reasons for the exceedance is carried out.

When an alert is triggered, the appropriate steps will be taken to resolve any issue, minimise the noise impact and, if practicable, put in place measures to avoid a recurrence, as detailed in the table below.

Table 4-2 - Noise trigger alert notification protocol

$L_{Aeq,1hr}$, dB during working hours	Alert	Action
$58 < x \leq 61$ (3 dB below the Threshold Values in Table 4-1 up to the Threshold Values in Table 4-1)	Amber	After an email and/or text of amber alert has been received, the Contractor will continue works whilst an investigation of the reasons for the potential exceedance is carried out. In details the below steps will be followed: - Investigation to confirm that the alert was caused by construction activities. - If caused by construction noise, notify the Works Manager of the trigger alert. - Verify that all the BPM are in place and there is no faulty equipment. - On site staff will be notified to proceed with caution.
$x > 61$ (above the Threshold Values in Table 4-1)	Red	After an email and/or text of red alert has been received, the Contractor will temporarily stop the works considered responsible for the exceedance whilst an urgent investigation of the reasons for the exceedance is carried out. In details the below steps will be followed: - Investigation to confirm that the alert was caused by construction activities. - If caused by construction noise, notify the Works Manager of the trigger alert and temporarily stop the works considered responsible for the exceedance. - Verify that all BPM are in place and there is no faulty equipment. - If possible, any further reasonably practicable mitigations that would perceptibly reduce the noise should be implemented as quickly as reasonably practicable before the work recommences. - On site staff will be notified to proceed with caution.

In the event the daytime noise criterion in Table 4-1 is exceeded, the following actions will be required:

- Review the noise data and in the event of an observed exceedance due to the construction activities, a notification the local authority will be sent.
- Verify that all the BPM were and are in place.
- Temporarily stop or significantly reduce the construction activities until any further reasonably practicable mitigations that would perceptibly reduce the noise have been implemented as quickly as reasonably practicable before the work recommences.

Additional short term attended monitoring, as described in Section 4.1, could be undertaken in order to confirm if the exceedance is a result of ongoing construction activities.

4.4. Complaint Management

The procedure for the management of complaints outlined in this subsection is concerned only with complaints received related to the construction activities.

As previous stated, a Stakeholder Manager will be responsible for complaint management, reception and investigation of any complaints and discussion of any concerns with stakeholders.

All complaints will be made to a dedicated phone number and, after being recorded and logged, an initial investigation will be completed as soon as practicable.

The complaint protocol to be followed in the event of a received noise complaint is outlined in Table 4-3 below. The Stakeholder Manager will maintain a log of all complaints received, subsequent actions taken to investigate the complaint and any necessary actions which have been put in place to rectify the situation.

Table 4-3 - Noise complaint protocol

Complaint Type	Investigation	Required Action
Complaint, no exceedance	Review noise data and provide comment/proof of no exceedance upon request.	Document the complainant with the results of the investigation.
Multiple complaints, no exceedance	Review noise data and provide comment/proof of no exceedance upon request. Review noise control measure in place and BPM in attempt to find solutions to reduce noise complaints.	Document the complainant with the results of the investigation. Provide information about BPM in place.
Complaint, with exceedance	Review noise data and provide comment/proof of exceedance upon request. Review noise control measure in place and BPM in attempt to find solutions to reduce noise complaints. Follow exceedance protocol depending on type and magnitude of the exceedance.	Document the complainant with the results of the investigation. Provide information about BPM in place and any potential additional mitigation measure to be included to resolve the exceedance.
Multiple complaints, with exceedance	Review noise data and provide comment/proof of exceedance upon request. Review noise control measure in place and BPM in attempt to find solutions to reduce noise complaints. Follow exceedance protocol depending on type and magnitude of the exceedance.	Document the complainant with the results of the investigation. Provide information about BPM in place and any potential additional mitigation measure to be included to resolve the exceedance.

5. Conclusion

The present document represents the Noise Monitoring and Management Action Plan (NMMAP) as specified by Planning Condition n.6 of 20/0738/FUL (Powys County Council) and n.5 of P2020/0362 (Neath Port Talbot Council) for the Nant Helen Complementary Restoration Earthworks.

The NMMAP presents how the site activities will be managed in relation to noise control and mitigation measures. Main roles, responsibilities, committed working hours and consultation methodology has been specified.

The noise control strategy has been set out, which include the BPM to be implemented to control the noise emitted from the work activities and minimised the impact of construction noise to the nearest residential receptors.

It has been specified that noise monitoring will be undertaken during the construction of the Project with the purpose to enable on-going and proactive management of adverse effects, to demonstrate compliance with the pre-defined trigger values and to monitor compliance with the BPM.

Finally, the NMMAP defines the protocol to be followed in the event of noise complaints.

Anna Rovigatti
Atkins Limited
Nova North
11 Bressenden Place
Westminster
London
SW1E 5BY

© Atkins Limited except where stated otherwise