Margam Connection: Margam Substation Extension

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Prepared by: Laing O'Rourke
Version: For Information
Revision: P04
Reference: MARPT-LOR-XX-XX-PL-R-090009
Construction Environmental Management Plan
S5 – For review and acceptance
Security Classification: Public

Document Title: Margam Connection
Document Number: MARPT-LOR-XX-XX-PL-R-090009
Revision: P04

Rev	Author	Reviewed by	Approved by	Date approved	Reason for issue
P01	E.Hutchings	M.Wisdom	R.Jones	20.12.2024	First issue
P02	E.Hutchings	R.Jones	R.Skone	06.03.2025	General Update
P03	E.Hutchings	M.Wisdom	R.Jones	07.04.2025	Update following further information
P04	M.Wisdom	M.Wisdom	R.Jones	17/07/2025	Update following client feedback

This Environmental Management Plan is distributed to registered copy holders both within and outside the Company.

Where the need arises, unregistered copies of the Plan may be distributed, provided approval is obtained from the Project Leader.

This version of the Construction Environmental Management Plan has been issued to:

National Grid Electricity Transmission
Local Authority Planning Authority

For record purposes and circulation, issue and revision list will be held and maintained via the Document Control system.

Contents

Introduction

This Environmental & Energy Management Plan (EMP) describes the high-level processes followed to fulfil the requirements of the Laing O'Rourke Environmental and Energy Management Systems / ISO 14001 and 50001 standards. The context of the organisation and the scope of both Management Systems are addressed within the Laing O'Rourke integrated management system (iGMS).

Both Environmental and Energy Management within Laing O'Rourke is a Business wide issue and is part of the Group's Sustainability strategy - it does not start and stop at the gates of a construction site or office. It affects all our employees and crosses all departmental boundaries at all locations.

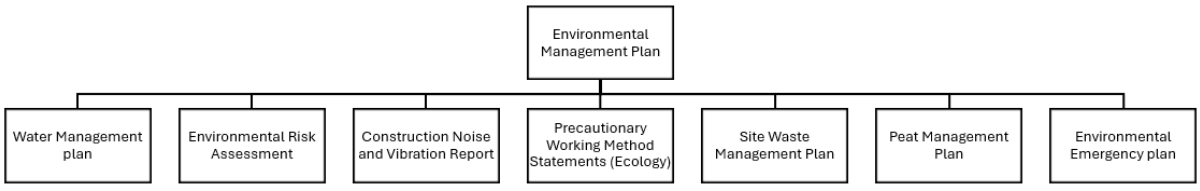
The sustainability philosophy adopted by Laing O'Rourke is to ensure that the environmental and energy impacts resulting from its operations are effectively controlled and minimised, to ensure compliance with all relevant legislation and other requirements and to continually improve its environmental and energy performance and processes.

1. Scope of Plan

This document is a summary of the main requirements of the ISO14001 and 50001 standards, Client and stakeholder obligation and location specific goals. The main operational controls sit as appendices to it, but are the critical and live aspects of the EMP.

This Environmental & Energy Management Plan (EMP) covers the environmental and energy impacts relating directly to the construction activity within the site boundary, but also within the local area that may be affected by the development/activity. The following documents all constitute the EMP, these are discussed in later sections, see Figure 1.

- Environmental Risk Assessment
- Site Waste Management Plan
- Construction Noise and Vibration Report
- Precautionary Working Method Statements (Ecology)
- Environmental Emergency Plan
- Water Management Plan
- Peat Management Plan



1.1 Scope of works

National Grid Electricity Transmission (NGET) has appointed Laing O'Rourke as the principal contractor for the delivery of a critical infrastructure project in South Wales. This project is being delivered through a two-stage, collaborative contract model, which includes the development, design, and planning phases ahead of the main construction works.

The Contract is a two-stage contract for a collaborative process to develop the project, including design and planning for construction before the main construction stage. The project includes the extension to the existing Margam 275kV substation which will be reconfigured with new GIS. Existing overhead line circuits and SGT HV connections will be modified and diverted to new bays within the GIS.

1.2 Planning – Margam Substation Extension

The proposed extension and reconfiguration of the Margam 275kV substation, including the installation of new Gas Insulated Switchgear (GIS) and associated modifications to overhead lines and transformer connections, will require formal planning consent.

This aspect of the project involves significant structural and electrical upgrades, which fall outside the scope of Permitted Development.

2. Environmental & Energy Policy

The Environmental and Energy Policy relevant to the Laing O'Rourke European Business are signed by the Chairman. Policies are held on the policy section of the Laing O'Rourke integrated management system iGMS and are available upon request.

The policies which currently include: the Environmental & Energy Policy and Sustainability Policy are available on iGMS. The Environmental & Energy Policy is displayed on noticeboards and communicated to staff and to those organisations working for or on behalf of Laing O'Rourke as appropriate. Any of the policies are available to external parties including the general public, on request.

3. Planning for environmental risks and opportunities

This Environmental & Energy Management Plan has been developed and will be implemented and maintained during all phases of the project including pre-construction phase (including design stage and enabling works); construction stage and post construction as appropriate.

Post-construction EMP activity will include: closing out actions related to the Resource Management Plan, recording and archiving any relevant documentation/calibration records; closing down of any permits acquired for the project; and ensuring lessons learned are captured centrally for discussion in the annual management review.

3.1 Environmental Aspects

The environmental aspects of our activities have initially been identified during design and bid stages and then are assessed against our activity/programme of works. To align with the rest of the business and to simplify, we do not refer to "aspects and impacts" in the traditional sense. Instead we use language our people understand i.e. "risk". These are recorded in the

Environmental Risk Assessment (ERA) which considers the specific risks and impacts associated with these works. The Environmental Risk Assessment is appended to this document; appendix A.

The **significant** environmental risks and energy issues associated with our activities are detailed table below.

Risk issue (Aspect/Impact)	Mitigation
Ecology – protected species and habitats	Habitats determined to be of high value are identified within the Margam Substation site. In addition to this, surveys have identified the presence of Nesting Birds, Reptiles, Water Vole and Badger. A consent is required from Natural Resource Wales for disturbance of Water vole, however Badger surveys have confirmed no interaction with proposed development. Reptiles shall be captured and relocated to designated hibernacula or displaced in accordance with an approved method statement.
Existing watercourses	Diversion of existing watercourses and watercourse crossings are required. Protection from pollution impacts are required. Runoff from construction areas should be managed to prevent pollution of nearby watercourses. This can be achieved through buffer zones, bunded refuelling areas, and regular water quality monitoring to ensure no contaminants enter existing drainage systems.
Groundwater	The groundwater table is at or near ground level and poses a potential environmental risk. Regulatory consent will be obtained, and all control measures outlined in this document must be strictly followed. Shallow groundwater has been identified across the site, increasing the risk of water ingress into excavations and foundations during construction. To mitigate this, appropriate dewatering and water control measures must be implemented to ensure safe and stable site conditions. All activities will be carried out under the necessary regulatory consents.
Peat	Peat is a naturally occurring carbon sink. Impacts arising from the works to peat shall be controlled via the Peat Management Plan.
Noise and vibration	Best practicable means shall be implemented to minimise noise and vibration impacts.

3.2 Legal and Other compliance obligations

All legal and contractual (client/planning) requirements are identified with appropriate controls and mitigation measures detailed. All permits, licences and consents that may be required during construction have been, and will continue to be, identified and applied for accordingly, ensuring that sufficient time is allowed. These are recorded in the project specific Licences, Permits and Exemptions Register.

A Group Environmental Legal Register is maintained and held on the LOR integrated management system. The Legal Register includes legislation that directly impacts our business, but also that that may be indirectly related (items we have no control over but may impact on the developments we work on) and legislation that may be of interest/provides context. Any significant changes to the Group register that may impact on the organisations operations will be communicated internally, through the HS&E Bulletin, Environmental Information Notes and leadership meetings where appropriate.

At this location, the key environmental legislation or legislation related issues that have been considered and addressed are predominantly around the following aspects:

- Water quality
- Air quality
- Waste
- Noise
- Ecology & habitats
- Land quality

3.3 Client /Planning Specific Requirements

Margam Substation Planning consent

The project between the Margam substation and the Tata site is subject to planning approval from Neath Port Talbot Council. Planning approval is a primary consent that will be discharged by National Grid Energy Transmission. A number of planning requirements will be required to be discharged. These are detailed below.

A planning conditions tracker is maintained within the LOR SharePoint system. Specific conditions relevant to the effective environmental management of the project are detailed below.

Planning application reference	tbc
Condition number and requirement	How this is addressed
This section will be updated upon receipt of planning conditions	

3.4 Stakeholders and Interested Parties (ISO14001 Clause 4.2)

At this location we have a number of local stakeholders and community groups that have an acute interest in the development and our business.

Stakeholder	Issues/Concerns/Goals	How they are addressed
Neath Port Talbot Council	Protection of the retained areas of ecological interest Planning consent approval body	Implementation of the CEMP and discharge of relevant conditions
NPT: SUDS Approval Board	Approval of matters relating to drainage	Obtain consent from the SAB for drainage design and ordinary watercourse consents where required
Natural Resource Wales	Prevention of pollution to surface and groundwater. Prevent impacts to the adjacent Margam Moors SSSI	Implementation of the CEMP Obtain necessary consents for ground and surface water measures.
Tata Steel	Land ownership and right of way	Landowner adjacent to the works.
BOC	Land ownership	Landowner adjacent to the works.
Local Residents	Logistics and transportation of plant and machinery, increase in traffic, prior notification	Communication to public through letter drops and other various forms to be confirmed with client and updated
Network Rail	The direct crossing of rail assets will be carried out in association with Horizontal Directional Drilling (HDD) works for the interconnection cable route.	Engagement in the Bridge and Asset Protection Agreement (BAPA) assessment is used to manage the risks associated with construction activities near rail infrastructure.

3.5 Objectives and Targets (ISO14001 Clause 6.2)

The project has developed specific environmental and energy objectives which align as appropriate with our environmental risk profile and any particular client/planning requirements. These are recorded in the Objectives and Targets table below which lists location specific or Client environmental and energy objectives and targets.

Objective	Actions	Responsibility	Evidence / Progress	Target/Time Constraint
Objectives/Targets				
Carbon Intensity	Determine the carbon baseline and set a reduction target	LOR – Carbon Manager	Carbon interface Tool	Update on completion of the detailed design
Landfill Diversion – 100% non-hazardous waste diverted from landfill		Construction Leader Sustainability Manager	Project Certainty / Enviro Dashboards	Monitor through project duration. Target to be met and maintained by end of project

Waste recycling – 80%		Construction Leader Sustainability Manager	Monthly environmental performance report	Reported monthly, project certainty metric provided monthly
Potable water use – target to be set m3/100k	Water minimisation consumption activities within ERA	Sustainability Manager	Project Certainty / Enviro Dashboards	Monitor through project duration. Target to be met and maintained by end of project
Timber Procurement	All timber must be from chain of custody certified sources (FSC, PEFC or GIB) or reclaimed.	Project Manager	Monthly environmental performance report	Reported monthly, Target to be achieve at PC.
Net Gain / Net Benefit	Net Gain / Benefit plan that mitigates the impacts of the scheme and delivers a minimum of 10% enhancement	Technical Lead Sustainability Manager	Sustainability Action Plan	

3.6 Energy Reduction – EnPI's, Target and Approach

3.6.1 EnPI and Reduction Target

The project has opted for an Energy Performance Indicator (EnPI) of kWh per 100k turnover.

Advice from the Carbon Trust suggests that a saving of 5-10% can be achieved through the implementation of an awareness campaign but this was not particular to a construction project that changes on a daily basis. After a review of the SEUs, 2.5 - 5% has been assessed as appropriately stretching reduction target range, to be realised by the end of the project. The baseline period against which this reduction target will be measured covers the first 3 months following the site's connection to the electricity grid.

The energy reduction target is based on total estimated savings from the following specific planned action(s) for this project. Performance will be monitored and measured based on the metric above.

The energy reduction target will be established prior to the commencement of works.

Specific Target	How it will be Monitored/Measured	How will it be Achieved	Time-frame
TBC	TBC	TBC	TBC
TBC	TBC	TBC	TBC

3.6.2 Methodology

A review of all current energy-using equipment on site and the planned large consumers (Significant Energy Use, SEU) will be undertaken at the point of completion of the EnMS Site Energy Review Checklist. The following schedules and programmes will be used to identify the appropriate SEUs to target areas for possible energy reduction:.

- A plant location report (issued monthly) which details all plant onsite (appendix location TBD) – this will be reviewed on a six monthly basis
- Supply Chain tracking document (e.g. TORPS Schedule) – much of the works completed by our supply chain is carried out on site using the project's energy, and therefore play an important role in achieving our reduction target; the responsibility for which is communicated in our sub-contractor package information and at our pre-start meetings
- Projected labour supply information

The following people will be involved in the review:

Name	Role	Name	Role
Robert Jones	Project Manager		
TBC	Construction Manager		
TBC	Sustainability Manager		

3.6.3 Energy Review Outputs

The Energy review will include:

- Location-specific considerations/opportunities
- Allocation of responsibilities where EAPs (Energy Action Plans) have been instigated – listed in next section
- Any other actions to be undertaken to keep energy use as low as possible

Effectiveness of this EAP and how performance is developing (positively or negatively) is evaluated during the six monthly review of energy performance and the Energy Review Checklist. Progress will be monitored as part of the mandatory KPI monitoring.

4. Implementation and Operation

4.1 Roles and Responsibilities

The European Hub Director has overall accountability for the effectiveness of the Environmental and Energy Management Systems. Day to day responsibility has been delegated to the Head of Sustainability (Europe) and Environmental Sustainability Leader (Europe).

The European Environmental Sustainability Leader will ensure that effective environmental sustainability management is provided, staffed by competent personnel and ensure that each Business operates within the Group Policies. The Head of Sustainability reports to the executive board.

The Project Leader is accountable for the Environmental and Energy Management Plan and its implementation, but day to day maintenance of the EMP documentation and any reports will be carried out by the appointed Environmental Sustainability Advisor.

The environmental and energy management structure and main personnel with key EMP responsibilities are listed in the table below.

Role	Name	Contact details
Project Director	Richard Skone	rskone@laingorourke.com
Project Manager	David Shakeshaft	dshakeshaft@laingorourke.com
Site Manager	Lee Williams	leewilliams@laingorourke.com
Sustainability Manager	tbc	
Logistics Manager	Rob Carter	rcarter@selectplanthire.com
Project Technical Lead	Jonathan Lee	jolee@laingorourke.com
Health & Safety Manager	Gareth Williams	garwilliams@laingorourke.com
Carbon Lead	Monisha Anandan	manandan@laingorourke.com

4.2 *Competency* (ISO14001 Clause 7.2, 7.3)

Staff will be appointed to roles with responsibilities for managing environmental and energy issues based on their knowledge, training and experience of the relevant topic area.

Environmental and energy management training courses will be offered to the staff as required to complete their roles. The primary objectives of training are to ensure that:

i. personnel are fully aware of the Environmental & Energy Policy and their respective roles and responsibilities;
ii. personnel are fully aware of the potential environmental and energy impact of their work and associated environmental and energy issues;
iii. individually and collectively, personnel are committed to the provision of a sound environmental and energy performance;
iv. activities of personnel do not expose and Laing O'Rourke company to criticism or legal/financial liability;
v. effective communication in respect of environmental and energy issues exists within the corporate body;
vi. the potential consequences of not complying with the EMS, EnMS and legal requirements.

Whilst the training pattern adopted is holistic in application, i.e. from managers to operatives, to be effective in ensuring environmental and energy performance improvements it must be targeted, i.e. relevant and appropriate to the receiving individual/group, in form, depth and content.

Significant environmental and/or energy risks are communicated during induction

Site operatives and staff will attend additional specific environmental and/or energy presentations/ raining as identified by the Environmental Advisor and Project Manager.

Relevant Environmental and Energy Efficiency Toolbox Talks (TBTs) will be given to site operatives (including subcontractors) and emergency incident training shall be undertaken

At this location records of all environmental and energy-related training including Spill Drill/Emergency condition drills will be maintained on the LOR project SharePoint.

5. Communication

Internal Communication:

The Environmental and Energy Management Systems are communicated through the Laing O'Rourke's management system. Internal communication shall include:

- Significant risks and opportunities
- Environmental incidents, hazards, near misses and complaints
- Changes to the Environmental and Energy Management System
- Audit Results and Trends
- Results of Management Review
- Objectives and Target Results
- Receiving, distributing and responding to communications from interested parties

These will be communicated via HS&E or Environmental meetings on site or through Information Notes or HS&E Learning Bulletins, email communications, relevant Yammer groups; and site visits, inspections or audits.

In addition environmental and energy issues are communicated through a variety of means. Environmental Risk Assessment engagement; collective insights, inductions, tool box talks, Daily Activity Briefings, weekly progress meetings and sub-contractor tender meetings, will all be used on the Project on a regular basis to communicate and discuss the environmental and energy aspects and impacts on the project. Communications from Group or Business Unit environmental and energy leadership will be passed on to site staff/operatives through postings on notice boards, email and face to face meetings as appropriate.

Good and best environmental and energy management practice shall be captured and communicated on site and into the functional lead as a driver for continuous improvement.

5.1.1 External Communication:

All Laing O'Rourke companies will engage with all relevant stakeholders to ensure effective communication with regards its operations. For example, local residents that may be affected by construction works could be notified by letter drops, newsletters or through a project specific website.

Communication with environmental regulators and all enforcement visits or letters shall be formally recorded on the LOR sustainability reporting tool.

The Laing O'Rourke Group has taken the decision not to communicate externally regarding its significant environmental and energy aspects, unless there is a legal requirement to do so.

Laing O'Rourke, with the client's approval, aims to deliver relevant information to all stakeholders through various communication methods. These options will be presented to the client, and upon formal agreement, this section will be updated to reflect the finalised communication strategy. The proposed communication methods include:

- **Public consultation**, including meetings and workshops:
- **Digital engagement** via websites and social media

- **Informational materials**, such as letter/leaflet drops
- **Community partnership** through collaboration with local vendors
- **Public displays** and information notice boards
- **A feedback mechanism** providing clear channels for queries and responses.

5.1.2 Contact by the Media

In the event of any contact being made any member of the media [e.g. press, radio or television], immediate reference should be made to:

Laing O'Rourke press office
Anchor Boulevard
Dartford
DA2 6SN
pressoffice@laingorourke.com

+44 (0) 20 8720 6631

6. Documented Information (ISO14001 Clause 7.5)

The main documents that form this Environmental & Energy Management Plan (EMP) include:

- ERA – Environmental Risk Assessment
- EAP – Energy Action Plan
- RMP – Resource Management Plan
- Licences, Permits and Exemptions Register
- Checklist – EnMS Site Energy Review
- Construction Noise and Vibration Report
- Precautionary Working Method Statements (Ecology)
- Peat Management Plan

These are held electronically in an Environmental Management File on the project SharePoint site.

Other documentation that relates to environmental sustainability matters may be produced and will be held in paper and/or electronic format as available includes:

- Environmental Emergency and Contingency Plan
- Actual Licences, Permits, Exemptions or Consents (NRW/Welsh Water/Local Authority/waste contractor)
- Responsible sourcing certification
- Equipment calibration certificates
- Product EPDs (Environmental Product Declarations)
- Test results or monitoring (e.g. water/ground/air)
- Surveys and reports (e.g. ecology, noise, air quality)
- Audit or Inspection (internal or external)
- Client or Project Dashboards /Monitoring reports
- Waste transfer notes

Where it applies, physical waste transfer notes are held by the project Office Manager. Electronic copies of the waste transfer notices/consignment notes are held on the project SharePoint.

6.1 *Control of Documents*

This Environmental & Energy Management Plan shall be reviewed and updated as and when required (e.g. responsibility changes) or as a minimum, annually. The Environmental Risk Assessment (ERA) and Resource Management Plan (RMP) will be reviewed and updated (as necessary).

Licence and permit requirements shall be identified and monitoring implemented against these. Expiry dates should be reviewed and appropriate measures implemented to ensure required permits and licences do not expire.

6.2 *Control of Records*

All records related to this the EMP and environmental and energy management processes will be identified, maintained, controlled and disposed in accordance with the processes within the Environmental Management section of iGMS.
The EMP, supporting plans, documentation, environmental training records are held within the project SharePoint folder. Data relating to water use, waste, and energy use along with incidents will be recorded via the LOR environmental reporting portal. Physical waste tickets will be held by the project Office Manager and electronic copies retained on the project SharePoint.

The types of EMP related records kept will include but are not be limited to: –

- Information on applicable environmental and energy legislation or other requirements
- Inspection and test reports (e.g. water/air quality/noise)
- Inspection, measuring and test equipment maintenance and calibration
- Records of any visits from enforcing bodies or interest parties (environmentally related)
- Environmental management plan and file including associated documentation and data
- Environmental consents and permits
- Information on emergency preparedness and response
- Information on significant environmental and/or energy aspects
- Incident reports
- Pertinent contractor and supplier information
- Audit results
- Management review
- Complaints
- Training
- Process Information
- Product Information
- Waste management records
- Energy management records

7. Operational Control

The Laing O'Rourke Project Leader will ensure that appropriate environmental and energy controls are fully implemented. In particular, they will:

i. Ensure the project is designed and programmed, where possible, with a view to having minimum effect on the environment and energy consumption during construction and after completion of project;
ii. Ensure that environmental and energy management requirements are controlled through appropriate risk assessments, method statements, and work instructions including those of organisations working on behalf of any Laing O'Rourke company;
iii. Ensure that procured material minimises harm to the environment and ensures safe movement;
iv. Ensure that materials are stored to prevent pollution;
v. Encourage all project personnel (including consultants and sub-contractors) to recycle material, to conserve energy and water, to reduce waste and to protect / enhance biodiversity.
vi. Ensure site-specific operational and maintenance controls, records and procedures for any significant energy-consuming equipment provided by third party suppliers are maintained locally where provided, and shared with the Energy Management Team upon request.

Where evidence of company operational and maintenance planning procedures are required further guidance and information is available on our iGMS.

7.1 Documented Procedures

The main documented procedures for Environmental and Energy Management are as follows:

- **EMP** – EMP Summary document (this document)
- **ERA** – Environmental Risk Assessment
- **SWMP** –Site Waste Management Plan
- Licences, Permits and Exemptions Register
- Construction Noise and Vibration Plan
- Precautionary Working Method Statements (Ecology)
- Peat Management Plan
- Water Management Plan

Further guidance is available in the Environmental Management Manual and the Energy Management Manual.

7.1.1 Environmental Risk Assessment

This procedure is completed to identify environmental aspects and their impacts.

A risk rating is assigned before any control measures or mitigation have been considered and then once these measures have been applied as residual risk rating remains. These are assigned as Red for high risk, Amber for medium risk and Green for low or minimal risk. Not all residual risk will revert to Green. Anything remaining at Amber once all reasonable mitigation has been applied, will need particular care and attention and therefore actions relating to items like this will require more consideration by Supervision.

The **Energy Action Plan** is contained within the ERA document and identifies any opportunities or risks to reduce energy consumption.

7.1.1.1 Licences, Permits & Exemptions

A consents register (e.g. pollution control, exemption certificates, discharge, works near watercourses, random licence checks etc.) will be maintained. A monthly review will be undertaken to identify compliance and ensure any expiration dates are captured early.

7.1.1.2 EnMS Six Monthly Review

This is used to record the review required of progress against EAPs and energy related objectives. This is submitted to the Energy Management Team on a six monthly basis.

7.1.1.3 Construction Noise and Vibration Plan

These set out requirements expected through different stages of the project and also different times of year. It will include any baseline data and methods to be used to monitor and record exceedance, complaints or conversely, best practice.

7.1.1.4 Precautionary Working Method Statements

These set out requirements to control the impact of the construction works on sensitive ecological receptors. This document will identify any relevant ecological consents and licences and methods of work to minimise the impact of the scheme on sensitive ecological receptors.

7.1.1.5 Peat Management Plan

The peat management plan identifies how the project will manage known interfaces with peat across the scheme including steps taken to remove impacts on peat and mitigate any impacts that cannot be avoided.

7.1.1.6 Water Management Plan

The water management plan will identify how the project shall be managed to reduce the risk of surface water runoff and drainage systems causing flooding to off-site areas and stakeholder, and protect the quality of surface water and groundwater, ensuring risk identification, evaluation and mitigation to both surface water drainage and the management of dewatering of excavations.

7.1.2 Operational Site Hours

Construction activities are expected to take place during the following assumed working hours:

- Monday to Friday: 07:00 – 19:00
- Saturday: 07:00 – 13:00
- Sunday and Bank Holidays: No works anticipated

All site operatives will be required to comply with these working hours. Any variation will be managed internally to minimise disruption to the surrounding area

8. Environmental and Ecological Challenges: Constraints and Mitigation Strategies

The current footprint for the new development presents several critical aspects regarding potential ecological impacts resulting from the necessary construction activities. These important considerations have been highlighted through recent engagements with the local authority, specifically Neath Port Talbot Council, as well as findings from early and prior site investigations.

Challenge	Description
Interface with adjacent statutory and non-statutory designated sites	The project is located near the Margam Moors and the Eglwys Nunydd Reservoir, which are designated as Site of Special Scientific Interest (SSSI) due to their significant biological features. The project location is also designated as a site of Important Nature Conservation at Local Authority level.
Interface with existing protected species	Legally protected species present within the proposed development footprint include common reptiles, breeding birds (including potential for wintering birds), Badger, Fish, Invertebrates, and Bats.
Interface with ecologically valuable habitats	Impacted ecological habitats may pose challenges to the Margam Moors and the established peat features throughout the development, as well as to the irreplaceable habitats highlighted by local authorities.
Existing Watercourses / groundwaters	Notably, several watercourses have been identified in the area, including Mother Ditch and several small brooks/reens, which require consideration. Groundwater levels throughout the footprint vary in depth.
Geo-Environmental considerations	Ground investigations have identified coal seams below 85 m and significant peat displacement, highlighting geological risks. Shallow groundwater and seepage across the site pose challenges for excavation and foundation works. Asbestos was found at shallow depths, requiring careful handling, while slight hydrocarbon odours suggest possible contamination. Elevated methane levels near the proposed substation present a potential explosive hazard that will require further assessment and mitigation.

Other environmental issues identified include:

- Pollution or damage from the previous land uses on surface and groundwater resources and important geological/ecological sites
- Pollution or damage from proposed construction activities on surface and groundwater resources and important geological/ecological sites
- Potential disruption of groundwater flows within underlying aquifers
- Waste generated during the construction of the proposed development.
- Notable increase for noise and vibration for construction of the development.
- Temporary diversions of Public Rights of Way (PRoW)

- Transversing of privately owned land for associated cabling activities
- UXO aspect here

8.1 Statutory and non-statutory designated sites.

The proposed development site lies within land designated by the local authority as a Site of Importance for Nature Conservation (SINC), recognised for its high ecological value and irreplaceable habitats. To the south of the site are statutory designated areas, including Margam Moors Site of Special Scientific Interest (SSSI) and Eglwys Nunydd Reservoir. No direct interaction or linear relationship with the SSSI or reservoir is anticipated.

The site is also in proximity to several sensitive ecological receptors, including statutory sites (Margam Moors SSSI and Eglwys Nunydd Reservoir SSSI) and non-statutory sites (Neath Port Talbot Watercourses SINC, Eglwys Nunydd SINC, and Junction 38 Wetland Complex SINC). These areas support diverse habitats and species and may be impacted by construction activities through disturbance, pollution, or habitat loss.

Key risks identified include:

- Indirect impacts from lighting, noise, and air pollution.
- Potential surface water contamination and habitat disturbance.
- Temporary loss of priority habitats such as open mosaic and coastal floodplain grazing marsh.
- Disturbance to protected species including reptiles, birds, bats, and invertebrates.
- Spread of invasive species (e.g. Japanese Knotweed).

8.1.1 Mitigation Strategy

Embedded Measures:

- Controlled working hours to reduce light and noise disturbance.
- Directional lighting design to protect nocturnal species.
- Pollution prevention via bunded refuelling areas and spill response protocols.
- Buffer zones (minimum 6m) around watercourses.
- Sustainable Drainage Systems (SuDS) and dust suppression.
- Appointment of an Ecological Clerk of Works (ECoW) to oversee sensitive activities.
- Toolbox talks and ecological awareness training for site staff.
- Precautionary working methods for species protection (e.g. phased vegetation clearance).

8.2 Protected Species and Habitat Management

Current studies indicate that the site and surrounding areas have the potential to support several protected fauna and flora species, including:

- Breeding birds (including wintering birds)
- Common lizards
- Water voles
- Badger
- Bats
- Invertebrates

Given that activities involving certain protected species are regulated by Protected Species Licences and tailored management plans, specific method statements and detailed plans will be developed for each protected species as needed. These documents will outline

control and mitigation measures to ensure compliance with regulatory requirements and protect the identified species.

8.2.1 Nesting Birds Mitigation Strategy

Please refer to section 8.2.7 for details on the pre-construction walkover and precautionary working method statements and license works

All wild birds, their nests, and eggs are protected under the Wildlife and Countryside Act 1981. Therefore, all site clearance and tree felling activities will be scheduled to occur outside the bird nesting season, which runs from March 1st to August 31st. Where this timing is not feasible due to other constraints, each specific area will be inspected by an ecologist. If nesting birds are confirmed or suspected, no vegetation removal will take place.

All site clearance and tree felling will be conducted in accordance with approved method statements and under the supervision of the Ecological Clerk of Works (ECoW).

Breeding bird surveys have been conducted of the site which have confirmed the presence of successful breeding pairs of Schedule 1 protected species.

- Breeding Bird Survey Report, November 2024, 331201497, (prepared by Stantec for National Grid)

8.2.1.1 Wintering Birds

A Wintering Birds Survey undertaken in March 2025 has concluded the following findings.

- Species Recorded: A total of 40 species were recorded during field surveys from October 2024 to February 2025, with 20 of these being species of principal importance and/or conservation concern.
- Notable Species: This includes two Schedule 1 species, one EC Birds Directive Annex 1 species, seven species defined by Section 7 of the Environment (Wales) Act 2016, five species on the BOCC 4 Wales Red List, and fifteen species on the BOCC 4 Wales Amber List.
- Wintering Bird Assemblage: The wintering bird assemblage within and near the site is of local importance, featuring common species expected in similar habitats. The Cetti's warbler population, with a peak count of 10, is of county-level importance.
- Habitat Use: Passerines were more numerous in denser scrub and areas bordering broadleaf woodland. Species like Cetti's warbler, water rail, and moorhen were found near standing water, while snipe used swamp and marshy grassland habitats. Buzzard, little egret, and three gull species were observed flying over the site without interacting with it.

Mitigation Measures:

- Potential Impact: The removal of reedbed could impact these species.
- Ecological Watching Brief: To minimise impact, an ecological watching brief is recommended. This involves having ecologists on-site during construction to monitor and mitigate any potential harm to wildlife.
- Additional Measures: Further mitigation strategies may include habitat enhancement plans and additional landscape planting to support the affected species.

8.2.2 Common Lizards Mitigation Strategy

Wales is home to six native terrestrial reptile species, including various snakes and lizards, all of which have experienced population declines due to habitat loss. Under Schedule 5 of the

Wildlife and Countryside Act 1981 (as amended), all British reptiles are protected from intentional killing, injury, and sale. This legislation makes it illegal to:

- Disturb reptiles while they occupy places of shelter or protection.
- Obstruct access to these places.

Currently, there is a significant presence of common lizards across the development area, as outlined in survey reports. Laing O'Rourke in association with RSK have developed a reptile mitigation and method statement strategy that shall be employed throughout the delivery phase of the development.

Reptile Survey Report, July 2025, 331201497 V2 (prepared by Stantec for National Grid)

Best practice guidelines will be implemented during enabling works and throughout the development:

- Install temporary, secure reptile fencing to prevent reptiles from entering hazardous areas.
- Displace reptiles by making habitats unsuitable, such as by cutting vegetation in stages during the active season (March – September)
- Create links to other habitats.
- Develop new habitats.
- Enhance existing habitats.

8.2.3 Water Vole Mitigation Strategy

Please refer to section 8.2.7 for details on the pre-construction walkover and precautionary working method statements and license works

Under Section 9 of the Wildlife and Countryside Act 1981 (as amended), it is illegal to:

- Intentionally kill, injure, or take any wild water vole.
- Intentionally or recklessly damage or destroy any structure or place that a wild water vole uses for shelter or protection.
- Intentionally or recklessly disturb any water vole while it occupies a structure or place used for that purpose.
- Intentionally or recklessly obstruct access to any structure or place that a wild water vole uses for shelter or protection.

Ecological survey report provided by Stantec to Laing O'Rourke (Water Vole and Otter Report, 331201497, November 2024) has confirmed the presence of water voles within the footprint of the proposed development. Current survey data from April and September 2024 includes:

- April: Confirmation of feeding remains only.
- September: Confirmation of feeding remains and burrows.

Laing O'Rourke (LOR) has appointed RSK to assist with technical matters related to water vole licensing with the regulator.

Laing O'Rourke, in conjunction with RSK, successfully obtained a licence from Natural Resources Wales to disturb while occupying a structure or place, and to damage, destroy, or obstruct access to any structure or place used by wild animals listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), for the purpose of conserving wild animals. This licence will enable the necessary mitigation works to be carried out to ensure that all aspects of Water Vole presence are addressed in accordance with the Water Vole Licence Method Statement MARPT-RSK-XX-XX-PL-R-090001.

8.2.4 Aquatic Mitigation

Please refer to section 8.2.7 for details on the pre-construction walkover and precautionary working method statements and license works

Within the Preliminary Ecological Appraisal (PEA) report produced by Stantec (reference 331201497, December 2024), section 4.4.58 outlines the suitability of the upper Mother Ditch as a habitat for European eels. Due to the habitat enhancement requirements outlined in the water vole licence, as specified in section 8.2.3 of this document, the Local Planning Authority has specifically requested that, should certain works take place within the upper Mother Ditch, a precautionary working method statement (PWMS) be implemented. This PWMS should include, but is not limited to, ecological watching and fish rescue.

During ongoing site works and visual inspections, Laing O'Rourke has identified the presence of three-spined stickleback (*Gasterosteus aculeatus*) within existing ditch networks. Consequently, any works affecting these ditch networks shall be undertaken in accordance with the aquatic mitigation measures outlined in the PWMS, ensuring protection of aquatic species and minimising ecological disturbance.

Below is an outline of the general practices and management measures to be deployed when works are likely to interact with the upper Mother Ditch.:

- Capture: Use appropriate methods (such as hand nets, seines, or electrofishing) to gently capture fish with minimal injury or stress. Ensure that fish are handled as little as possible and avoid exposure to extreme conditions.
- Temporary Holding: Place captured fish in suitable holding tanks with adequate oxygen, proper water temperature, and water quality monitoring. Provide shelter within the tanks to reduce stress and maintain healthy conditions.
- Relocation: Transport the fish to a nearby, safe habitat that is ecologically suitable for their species. Ensure the relocation area is free from construction-related risks (e.g., pollutants or sediment runoff) and provides optimal conditions for fish survival and adaptation.

8.2.5 Precautionary Working Method Statements and Licenses

The documents below outline specific measures and protocols to avoid or minimise potential negative impacts on the environment and local wildlife during construction or development activities. These are typically required when there are ecological considerations, such as the presence of protected species, habitats, or sensitive ecosystems. It is primarily the responsibility of the Local Planning Authority and relevant regulatory bodies, to instruct the need for a precautionary working method statement when ecological considerations are identified within a development project.

Species	Document Title / Reference	Coverage
Reptile	MARPT-RSK-XX-XX-PL-R-090010	Margam Substation
Aquatic	MARPT-RSK-01-XX-PL-R-090019	Margam Substation (Upper-Mother Ditch)
Water Vole	MARPT-RSK-01-XX-MS-R-090001	Margam Substation

8.3 Habitat Management and Earthworks Constraints & Mitigation

The current footprint for the new development presents several critical considerations regarding the potential for habitat management and earthworks activities necessary for construction. These aspects have been highlighted in recent Ground Investigation reports, specifically the Geotechnical Desk Study: Margam FEED (30004240-BHK-XX-XX-RP-C-0003).

Challenge	Description
Interface with valuable habitats	Impacted ecological habitats may pose challenges to the Margam Moors and the established peat features throughout the development, as well as to the irreplaceable habitats highlighted by local authorities.
Interface geology aspects referring to coal mining – seams	Envirocheck report obtained for the desk study, show Morfa Colliery including Abbot Pit and Grange Pit to the north of the proposed TATA Substation. Further Coal Risk Assessment compiled.
Potential for discovery of contaminated lands	It is considered due to the locality and nature of the site for development in relation to Port Talbot Steel works ground contamination is likely.

8.3.1 Peat Management

Peat has been identified across the proposed development site at varying depths. In Wales, Natural Resources Wales (NRW), as the regulator, manages peatlands under the National Peatland Action Programme, which focuses on restoration efforts aimed at supporting biodiversity and combating climate change. Key priorities of the programme include:

- Erosion and drainage prevention
- Sustainable management
- Afforested peatland restoration (where applicable)
- Protection of high-carbon peatlands
- Ongoing monitoring

To ensure compliance and effective management, Laing O'Rourke has appointed RSK to support the development of a Peat Management Plan (PMP) for the entire construction phase. This plan aims to identify and implement best practices to ensure that peatlands and peat deposits across the development are either undisturbed or managed appropriately.

The Peat Management Plan will serve as a framework for the construction process, aiming to minimise or mitigate the impacts on identified peat hotspots. The plan will include the following key components:

- Peat Surveys: Detailed mapping of peat depths and quality
- Impact Mitigation: Strategies to reduce the impact of construction activities on peatlands.
- Excavation and Storage: Guidelines for peat extraction, storage, and potential reuse
- Restoration: Plans to restore disturbed areas and maintain ecological balance post-construction

This approach ensures that peat management is integrated throughout the construction phase to meet environmental and regulatory requirements.

Document	Document Title / Reference	Coverage
Outline Peat Management Plan	MARPT-RSK-XX-XX-PL-R-090009	Margam Substation
Peat Management Plan	MARPT-RSK-01-XX-PL-R-090024	Margam Substation

8.3.2 Invasive Non-Native Species (INNS)

It is understood that, at present, there are no known sources of Invasive Non-Native Species (INNS) within the development parcel of land. However, INNS have been identified outside the development area, and therefore, careful consideration must be given when ground-disturbing methods are employed. To prevent the spread of INNS, the following methodology shall be followed if any invasive species are suspected:

INNS Mitigation Methodology:

1. Check, Clean, and Dry: Inspect, clean, and thoroughly dry all equipment before moving it across different areas of the site to prevent the transfer of potential INNS.
2. Dedicated Equipment: Use separate equipment for each site or ensure equipment is thoroughly cleaned between sites to avoid cross-contamination.
3. Limit Soil/Water Movement: Avoid the movement of contaminated soil or water to other areas to prevent the spread of invasive species.
4. Control Site Access: Limit access to sensitive areas to prevent the accidental spread of INNS from outside the development site.
5. Early Detection: Continuously monitor the site for the presence of new invasive species and rapidly address any findings to mitigate their spread.
6. Proper Waste Disposal: Safely dispose of any invasive materials in accordance with appropriate protocols to prevent their reintroduction or spread.
7. Biosecurity Training: Provide biosecurity training for staff to ensure awareness of and compliance with the necessary protocols for preventing the spread of INNS.
8. Waterway Precautions: For water-related projects, install barriers to prevent the spread of aquatic species, ensuring they are contained within designated areas.

By adhering to these protocols, the risk of spreading INNS during construction activities will be minimised, helping to protect local ecosystems and biodiversity.

8.3.3 Arboriculture Assessment

An Arboricultural Impact Assessment (250715-1.2-AIA-MS-MW) was undertaken to support the proposed extension of the Margam Substation. A total of 49 individual trees and 39 tree groups were surveyed, the majority of which are low-quality (Category C) Goat Willows and associated species. Laing O'Rourke has reviewed the tree constraints plans and provided input on the construction methodology and confirmed the final substation footprint. This input has informed the identification of specific trees and groups requiring removal or coppicing to facilitate development—comprising 5 trees, 9 groups, and 3 partial groups for removal, and 4 trees, 2 groups, and 1 partial group for coppicing to encourage regeneration. Additionally, Laing O'Rourke has provided access and egress requirements along Cefn Gwrgan Road, which necessitate targeted pruning works to accommodate vehicle movements.

Where trees are identified for retention suitable protection fencing will be installed in line with BS:5738 Trees in relation to design, demolition and construction. Fencing will be monitored and corrective actions will be instigated where required.

8.3.4 Coal Mining Risk Assessment

A comprehensive Coal Mining Risk Assessment (CMRA) has been undertaken for the proposed GIS substation.

The shallowest recorded worked seam—the Five Foot seam—lies at approximately 85 metres below ground level, providing sufficient bedrock cover to mitigate the risk of vertical void migration. While no shallow mine workings or mine entries are recorded within 100 metres of the substation sites, three mine entries have been identified in the wider area, one of which has been confirmed through physical investigation. The potential for unrecorded shallow workings and mine gas migration remains a residual concern.

The overall coal mining risk to the development is classified as low, with a moderate residual risk due to the possibility of unrecorded features. Targeted intrusive investigations are recommended to assess the presence and condition of shallow seams and mine entries. A ground gas risk assessment is also advised to ensure safe construction and occupation. Laing O'Rourke has engaged proactively with the Coal Authority, who have confirmed the requirement for drilling permits. Ongoing consultation will be necessary to agree on any mitigation or treatment strategies, ensuring regulatory compliance and safe development practices.

- BakerHicks Coal Mining Risk Assessment: Coal Mining Risk Assessment for GIS Substations at Tata Steel, Port Talbot, 16 September 2024

8.3.5 Earthworks Controls and Mitigation

Excavation will be a significant component of the development. These activities will involve substantial ground disturbance and excavation. To minimise environmental impact, the following best practices will be implemented on-site:

- Erosion control (to prevent runoff) is more effective than sediment control in reducing water pollution.
- Minimise disturbed areas: Preserve natural vegetation as much as possible, and avoid disturbing topsoil or other layers unless absolutely necessary.
- Phase works: Where feasible, avoid breaking new ground unless required. This will help reduce the total quantity of runoff requiring management at any given time.
- Install drainage and runoff controls: Implement drainage systems, sediment traps, ditches, and other runoff controls before starting site clearance and earthworks.
- Limit exposure of bare ground: Reduce the size and duration of exposed bare ground to minimise erosion risk.
- Prevent runoff from entering the site: Divert clean runoff around the site and into surface water drains, while managing site runoff appropriately.
- Maintain control measures: Ensure that appropriate erosion and sediment control measures are installed and maintained throughout the project.
- Ongoing monitoring: Regularly monitor and maintain erosion and sediment control measures to ensure continued effectiveness.

Materials to be stockpiled on-site, such as residue soils from excavations, have the potential to pollute both water and air through the generation of silt and dust. Stockpiles can cause dust pollution when dry materials are windblown or create silt runoff during wet weather. To mitigate these risks, best available techniques (BAT) will be followed when handling and stockpiling materials:

- Location: Stockpiles should be placed away from watercourses, ditches, and drains to prevent contamination.
- Ground conditions: Ideally, stockpiles should be located on level ground. If this is not possible, ensure that the slope is stable.
- Runoff control: Prevent any stockpile runoff from entering drains, ditches, or watercourses.
- Contaminated materials: Stockpile contaminated material on an impermeable surface within a bunded area, at least 10 meters away from any watercourse. These stockpiles should be covered to prevent runoff.
- Disposal: Any contaminated runoff from stockpiles must be contained and disposed of in accordance with legal requirements.

During dry weather, additional measures will be taken to prevent dust and material loss:

- Dust control: To prevent stockpiles from drying out and generating dust, cover or dampen down materials as needed.
- Height control: Ensure stockpiles do not exceed the height of the site boundary, preventing the possibility of windblown dust escaping.

Further controls and mitigation measures for silt-laden runoff are detailed in the Water Management Plan.

8.3.6 Continuous Flight Auger (CFA) / Auger Displacement Piles (ADP)

Laing O'Rourke, as part of the development works, will undertake piling activities to provide structural foundation support and integrity.
Laing O'Rourke will utilise a combination of piling techniques, including:

- **Continuous Flight Auger (CFA) piling**: A low-vibration method where a continuous auger is drilled into the ground and concrete is pumped through the hollow stem as the auger is withdrawn. This technique is well-suited to sensitive ground conditions and urban environments.
- **Displacement Auger Piling (DAP)**: A method that laterally displaces soil rather than removing it, reducing spoil generation and ground disturbance. It is particularly effective in soft or unstable soils and helps maintain ground integrity.

Mitigation measures will include controlling water through a designed and permitted discharge system, with any remaining water within the pile managed in accordance with the Water Management Plan.

8.3.7 Discovery of Contaminated Land

This section will be updated upon receipt of formal Land Contamination Surveys.

Embedded within the Geotechnical Desk Study: *Margam FEED (30004240-BHK-XX-XX-RP-C-0003)* provided to Laing O'Rourke, Section 2.6 outlines the land quality desk study, which includes an Envirocheck report. This report offers insights into industrial land use and potential contaminative processes within 500 meters of the proposed development. As the development is divided into three areas, the following findings for each aspect have been concluded thus far:

8.3.7.1 Development – Margam Substation

The site designated for the Margam Substation is currently undeveloped. It is noted that the Tata Steel plant is situated to the west, separated by the Network Railway, which runs to the north-south. Should any contamination be identified on this site, it is likely to be associated with

historical railway development. Laing O'Rourke's Designer has produced the following Ground Investigation Report which includes contaminated land MARPT-BHK-01-XX-RP-G-090001 – Margam Ground Investigation Report, states the comprehensive soil and groundwater testing results demonstrate that the development area is environmentally safe for commercial use. The absence of asbestos, the acceptable levels of Total Petroleum Hydrocarbons, and the non-detectable or minimal leachate concentrations collectively indicate that there are no significant contamination concerns. Therefore, the site is deemed suitable for the proposed commercial development without posing any environmental risks to Controlled Waters..

8.3.8 Archaeology / Heritage

This section will be updated upon receipt of further information from the Local Planning Authority and HEDBA.

8.3.8.1 Margam Substation

The Historic Environment Desk-Based Assessment (HEDBA) conducted by Stantec *(Margam, Port Talbot, National Grid Upgrade Works – Substation Extension, Historic Environment Desk Based Study, 331201497, July 2025)* for the proposed substation extension at Margam, identified a landscape with limited direct heritage constraints but notable archaeological potential. While no designated heritage assets are located within or immediately adjacent to the site, several significant assets, including scheduled monuments, listed buildings, and registered historic landscapes, exist in the surrounding area. The site for development comprises marshy ground and reedbeds, underlain by peat deposits of varying thickness. It is noted within the report that peat layers are of particular interest due to their potential to preserve buried archaeological and paleoenvironmental remains dating to the early Prehistoric period. The assessment incorporated desk-based research and a site walkover, confirming the absence of visible archaeological features but highlighting the site's sensitivity due to its geological and environmental context.

Laing O'Rourke at present await further clarification from the client regarding conclusion of the report which currently states the below, to determine next steps, however general mitigation is included for proceeding unless otherwise advised.

8.3.9 UXO

A UXO study has been completed for the land associated with the proposed development, and a report has been compiled by Zetica UXO, titled UXO Desk Study and Risk Assessment P14160-24-R1. The study identified a historical firing range, the Margam Sands Range Complex, dating back to 1939. However, the study found no records indicating any bombing activities associated with the range complex that would encroach on the development site's land parcels. As a result, the parcels of land making up the site development are considered to present a low UXO hazard level. The report also includes recommendations for precautionary measures to be undertaken during the construction phase to ensure safety.

Proposed Works	UXO Risk	Recommended Mitigation
Excavations	Low	UXO awareness briefing – an UXO awareness briefing is prudent for staff involved in excavations
Boreholes/Piling	Low	Proceed with works

8.4 Materials Management

A Materials Management Plan has been developed to support early works with a focus on robust testing and compliance protocols. Laing O'Rourke will engage with the Local Planning Authority to agree the process for acceptance. The Materials Management Plan (MMP) outlines the procedures and controls for managing excavated, imported, and reused materials across the Margam Connection project. The plan ensures environmental compliance, minimises waste, and supports sustainable construction practices.

Key components include:

- Site Characterisation: Ground investigations confirm low contamination risk at the Margam site, with naturally occurring peat and soft soils requiring sensitive handling.
- Excavation and Stockpiling: Topsoil and subsoil will be stripped, tested, and stockpiled with segregation based on material quality. Reuse will be prioritised where compliant with UK screening levels.
- Imported Materials: All temporary works materials (e.g., for haul roads and piling platforms) will be sourced from certified suppliers. Testing protocols include Certificates of Conformity, spot sampling, and compliance with SHW Series 600 and environmental standards.
- Reuse Strategy: Materials will be classified for reuse or disposal based on contamination screening. Suitable materials may be reused for landscaping, general fill, or temporary works.
- Storage and Controls: Stockpiles will be managed to prevent erosion, dust, and runoff, with monitoring aligned to DEFRA's Code of Practice for Soil Handling.
- Documentation and Tracking: Materials Transfer Notes and a centralised Materials Tracker will ensure full traceability of material movements, testing, and compliance records.

Refer to Appendix F: Materials Management Plan

8.5 Nuisance Compliance

8.5.1 Noise and Vibration

The construction phase of the project may introduce additional sources of noise and vibration, including construction activities and the operation of construction traffic, plant, and equipment. To assess and manage these impacts, Laing O'Rourke appointed RSK Acoustics to undertake detailed construction noise assessments for the Margam Substation works:

- XX-PL-R-090016 – Construction Noise and Vibration Assessment for Substation Extension

The report includes baseline noise surveys, predictive modelling, and mitigation recommendations in accordance with BS 5228. As a result, Appendix E Noise And Vibration Plan has been updated to reflect the findings and recommendations of these assessments, ensuring that noise and vibration control measures are robust, site-specific, and aligned with best practice. Further updates to Appendix E will be made as required, following ongoing consultation with Neath Port Talbot Council and other relevant stakeholders.

8.5.2 Air Quality Management (Delivery Phase)

Construction activities, including demolition, excavation, ground works, cutting, material storage, and the movement of vehicles both on-site and on local roads, can contribute to fugitive dust emissions throughout the construction phase. These emissions may arise from the disturbance of dust particles on-site and the re-suspension of dust from highway surfaces due to vehicle traffic.

Appendix D outlines measures for managing dust on-site during construction and will be updated in the detailed Construction Environmental Management Plan (CEMP).

8.5.3 Lighting Impact

During the construction phase of the development, it is anticipated that temporary lighting will be required to ensure the safety of personnel working on-site. Laing O'Rourke will provide temporary lighting at welfare and working locations. Although lighting is not a permanent design element for the construction phase, the best available techniques will be implemented to avoid light glare and minimise other associated impacts.

Lighting Mitigation Measures:

- Use of Appropriately Designed Luminaires: Only luminaires specifically designed for the required task will be used to ensure adequate lighting without excess spill.
- Minimisation of Light Break-Out Above the Horizontal: Lighting will be designed to reduce light spill above the horizontal by using 'low cut-off' and 'full cut-off' lighting systems.
- Louvres and Shields: Where appropriate, louvres and shields will be employed to prevent undesirable light break-out and minimize light pollution.
- Visual Screening: Visual screening measures, such as on-site spoil or hoardings, will be used to shield construction lighting from sensitive visual receptors.
- Reducing Lighting Levels Outside Working Hours: Lighting levels will be reduced to suitable levels during non-working hours to maintain safety and security. Lighting will be dimmed when not required for operational purposes. Security lighting will be kept to the minimum necessary for protection.
- Automated Lighting Controls: Automated systems will be used to switch lights on and off according to activity and ambient light levels. Where appropriate, infrared floodlighting and CCTV systems may be considered to reduce the need for visible lighting outside working hours.
- Directional Lighting: Construction lighting will be directed to ensure that it does not intrude outside the immediate working area. Lighting will be designed and installed to minimize intrusion onto sensitive habitats, such as hedgerows, mature trees, and woodlands.
- Appropriate Number of Lighting Units: Sufficient lighting units will be used to avoid the need for large, tall lighting fixtures, which could create wide, unnecessary light spill over large areas.

These measures will be implemented to reduce the environmental and visual impact of temporary lighting during construction, ensuring compliance with both safety requirements and environmental sensitivities.

9. Water Management Mitigation Strategy

As part of this overarching document, a separate Water Management Plan (WMP) will be developed to address all key aspects of mitigating both surface and groundwater, including drilling waters. The WMP will detail the necessary controls and consents required to meet regulatory discharge requirements.

MARPT-LOR-XX-XX-PL-R-090011 – Surface Water Management Plan

Laing O'Rourke (LOR) has received a Phase 2 Geo-environmental Investigation report (315531-R03), February 2025, along with the Margam Ground Investigation Report (MARPT-BHK-01-XX-RP-G-090001).

Borehole and trial pit investigations have revealed significant groundwater conditions that must be managed during construction. Artesian conditions were observed in several boreholes, indicating groundwater under pressure that rises above the struck level. Sub-artesian conditions were also noted, where water rises but does not reach the surface.

Near-surface water was found in multiple boreholes, and water was present at shallow depths in trial pits, particularly in made ground. These findings highlight the need for effective dewatering and water management systems to mitigate the risk of water ingress during excavation and construction.

Groundwater at depths ranging from 0 to 11 meters below ground level (bgl) with high seepage potential was identified across the cable route. This indicates that groundwater is highly likely to be encountered during excavation works, especially since the development site contains various bodies of surface water. Additionally, it is noted that the Jacobs report from 2009 indicated groundwater values exceeded the EQS values for lead, zinc, and ammonia.

LOR will engage a specialist water management consultant to assist with the management of surface and groundwater controls and has initiated communications with the Lead Local Flood Authority to consult on water crossings and diversions and to obtain SUDS Approval Body (SAB) consent.

This consultation aims to obtain the necessary consents for both the temporary and permanent phases, in accordance with the Margam Drainage Report (MARPT-BHK-01-XX-RP-C-000001). Laing O'Rourke will be responsible for all secondary consents.

- Ordinary Watercourse Consent
- Sustainable Urban Drainage Systems
- Ground water abstraction
- Surface water discharge

Further information is detailed within the Surface Water Management Plan MARPT-LOR-XX-XX-PL-R-090011

9.1 Flood Risk

9.1.1.1 Margam Substation

Flood risk during construction will be managed in accordance with the Water Management Plan. A Flood Screening Study (Ref: *MARPT-BHK-01-XX-RP-C-000003*), prepared by BakerHicks and SLR, identified several potential flood sources:

- Fluvial (rivers and surface waters)
- Groundwater
- Sewers
- Reservoirs, canals, and other artificial sources

The assessment concluded that the site is potentially at risk from multiple sources, with fluvial flooding being the most significant concern. The Geotechnical Desk Study: Margam FEED also highlights a likelihood of flooding during construction.

According to Natural Resources Wales' Flood Map for Planning, the site falls within:
- Flood Zone 2: 0.1%–1% annual chance of flooding (including climate change)
- Flood Zone 3: >1% annual chance of flooding (including climate change)

Regulatory Engagement:
Laing O'Rourke has consulted with Natural Resources Wales, who confirmed that a Flood Risk Activity Permit (FRAP) is not required for the proposed works.
- *Email Ref: FRAP enquiry; National Grid – Margam Substation extension, 04.09.2024*

10. Emergency Preparedness and Response

It is recommended that the Environmental Emergency Plan be read in conjunction with this chapter, as the plan outlines the emergency response procedures that site operatives must follow in the event of an environmental incident. Additionally, the plan highlights the key principles of avoidance to prevent such incidents from occurring in the first place.

All Environmental and/or Energy-Related incidents, however small, will be recorded on the Laing O'Rourke sustainability reporting tool. They will also be reported to the client as required.

Site plans indicating the location of drainage and also of spill kits will be kept in the Environmental Management File, but where risk is significant, will also be displayed as appropriate on the noticeboards on site with the Fire & Emergency plans.

It is imperative that the emergency response is tested. Training how to deal with spills is not the same as testing the effectiveness of the planned response. As a minimum, spill drills (other types of drill could be simulated) will be carried out at least annually if no incidents have occurred on site in the interim period.

11. Checking & Compliance

11.1 Monitoring & Measurement

This document identifies how the applicable environmental and energy aspects of the project will be monitored (e.g. visual inspection, tests or reports, metering) and the frequency that such monitoring will be undertaken.

All operations and activities having a significant impact on the environment and energy performance are regularly monitored and measured.

Any equipment used to monitor or measure shall be checked and calibrated to ensure results are reliable. Records of maintenance and calibration shall be retained and kept in the Environmental Management folder on the server.

Minimum Inspection/Monitoring/Activity

Activity	Weekly	Monthly	Quarterly	6 Month	Annually	As & when required
Waste data monitoring		X				
Water benchmark monitoring		X				
Energy consumption monitoring		X				
Environmental Inspections	X					
Environmental Incidents						X
Review of permits, licences and legislation			X			
Review of permit monitoring requirements		X				
EMS Audit and EnMS Audit (carried out by HO Team / Lead Auditors)					X	
Noise Monitoring						X
Dust/Air Quality Monitoring						X
Calibration Certification					X	
Environmental NCR's (to be reviewed to maintain corrective action)						X
Waste procedure re-briefs (WTN completion/checking AND mgmt.))			X			
Sub-contractor Environmental Audits/Info gathering						X
ESG Target Tracking (incl Sustainable Procurement)		X				

11.2 Visit by Statutory Bodies / Interested Parties

During the lifetime of the project there may be a number of visits from statutory bodies including water authorities, Natural Resource Wales, local authorities, HSE etc. Some visits will be scheduled and part of ongoing monitoring against consents or permits. Other visits may be a response to a perhaps a concern from that body or in response to a complaint from the public or another party.

All visits, both unscheduled (responsive= Incident Reporting) and scheduled (monitoring = Visits) will be recorded on LOR's Environmental Reporting Tool. All records/documents/emails relating to these visits will be retained with the record of attendance on the project SharePoint.

11.3 Evaluation of Legal Compliance

The Laing O'Rourke group Legal Register is maintained and held on the EMS. On this project legal compliance is evidenced through fulfilment of the permitting, consents and licence (and sometimes planning conditions) requirements applicable, as well as testing and related records and inspection/audit. Permits applicable to particular activities should be referenced in the ERA and RMP as applicable. Evaluation is carried out at:

Operational level:

- Regular or mandatory inspections and/or tours as defined in the monitoring routine above.
- The monitoring and testing that is required to comply with any consents or permits and related record keeping (e.g. ph testing, notch gauge readings, noise monitoring, meter readings)
- Potentially audit or inspection of the location or of any supply chain that contribute to compliance with consents, licences or permits.
- External visits from issuing bodies or contractual parties (e.g. water authorities, local authorities, EA, Client etc.

Function or Business Unit level:

- Audits, in accordance with the EMS and EnMS
- Management Review in accordance with the iGMS and Environmental/Energy Management review processes.

All records of evaluation will be maintained, controlled and disposed of in accordance with EMS and EnMS requirements.

The validity of environmental licences and permits within Wales can be verified from the Public Register which can be accessed from the Natural Resources Wales website:

Natural Resources Wales / Check for a permit, licence or exemption (Public Register)

11.4 Non-Conformance, Corrective & Preventative Action

Non-conformances can be raised as part of any internal or external inspection, audit or informal visit or tour in order to raise the profile and importance of a particularly significant environmentally or energy related issue on site.

All environmental and energy non-conformances raised during an Internal EMS/EnMS Audit or external accredited audit body (e.g. BSI/Achilles) will be closed out within good time (generally no later than one month). Failure to comply with the timescales for closing out actions will be notified to the Environmental Sustainability Leader with persistent issues being reported to the Head of Sustainability and Operations Leader.

Environmental incidents (events) are recorded on the LOR Environmental Reporting Tool database. The categorisation of environmental incidents is:

11.4.1 PC1 (Potential Class 1)

An environmental event which could have caused major (as defined in Class 1 event) property, ecological, watercourse, land or reputational damage as determined by the central Environmental Sustainability Leadership team. It is subject to a full investigation. Examples: to overcome pump failure pumping (temporarily) heavily silty water into drain as assumed to be sewer but found to be overflow pipe to river

11.4.2 Class 1 - Major Event

Caused actual major environmental impact requiring clean up or substantive action or a legislation breach. It is likely that the event has resulted in involvement with an environmental regulator and may result in prosecution. The impact from a category 1 incident is likely to extend beyond the boundaries of a project and may generate interest from the press as well as regulators. e.g. diesel or large silt discharge into river. A full investigation involving all relevant parties is required and will be recorded against the record on the LOR sustainability reporting tool.

11.4.3 Class 2 - Significant Event

Caused actual significant environmental impact with more limited clean up/action; possible legislative breach. It is an incident that impacts the environment and requires remedial action beyond the site boundaries or is a significant 'non compliance' with the EMS, environmental permits e.g. Section 61, ecological licensing. A full investigation involving all relevant parties is required and will be recorded against the record on the LOR sustainability reporting tool.

11.4.4 Class 3 – Minor Event

Caused actual localised impacts that can readily be controlled by site operatives and site management, e.g. small spills and leaks that do not contaminate the ground, surface water or groundwater. (examples: hydraulic hose burst on tarmac; noise complaint where no restrictions)

PC1s, Category 1 & 2 incidents are communicated to Environmental Sustainability Leader and will be investigated, actions assigned and close out required.

In the event of a significant pollution incident, it is essential that the Project Leader and Environmental Sustainability Leader be informed immediately, so that they can contact the relevant regulator if required.

12. Internal Audit

The number of internal audits against the Environmental and Energy Management Systems implementation depends (see EMS/EnMS Manuals) on the risk, size and duration of the project. The Central Environmental Sustainability team ensures that all projects are at least annually audited against the EMS and EnMS (where applicable).

The Environmental Sustainability Assurance Lead has supplied an audit schedule identifying the locations provisional auditing dates. All environmental and energy audits are carried out in accordance with the EMS and EnMS audit process.

Results of audit are shared with the project team and any significant findings (positive or negative) and best practice shared with the Sustainability or BU Leadership as appropriate.

13. Management Review

It is the responsibility of the Environmental Sustainability Leader to ensure that the effectiveness of the environmental and energy management systems is reviewed so that they continue to reflect accurately the organisation and environmental and energy management practices as applied to all Laing O'Rourke businesses.

Management Reviews will be carried out in the group headquarters and communicated out as appropriate.

Results of these reviews will be analysed by the Central Environmental Sustainability and Energy Management teams and any resulting actions or amendments to the EMS, EnMS or related policy or procedures will then be signed off by the Environmental Sustainability Leader on an annual basis.

Actions arising from Management Review will be communicated to projects as appropriate as they may affect or require changes to the EMP and related objectives, targets or controls measures.

APPENDICES

APPENDIX A - ENVIRONMENTAL RISK ASSESSMENT

Environmental Risk Assessment

Margam Connection - Margam Substation

Prepared by:	Elliot Hutchings
Job Title:	Senior Environmental Advisor

Senior Leader:	Matthew Wisdom
Job Title:	Senior Environmental Manager

Current Activities Applicable *(equivalent to the tab completion)*

Design	Live	Drainage	N/A yet	M&E	N/A yet	Vetter	N/A to project
Procurement	Live	Groundworks	N/A yet	Commissioning	N/A yet	Glazing	N/A to project
Site Establishment	N/A yet	Substructure	N/A yet	Fit Out	N/A yet		
Demolition	N/A yet	Superstructure	N/A yet	Hard Landscape	N/A yet		
Piling	N/A yet	Roofing	N/A yet	Soft Landscape	N/A yet		
Earthworks	N/A yet	Logistics	Live	Tunnelling	N/A to project		

The contract is a two-stage, collaborative process to develop the project, including design and planning for construction before the main construction phase. The development will establish a new 33kV connection to TATA Steel UK from a new 275/33kV substation at TATA Steel UK Ltd, along with an associated cable interconnector route linking both substations. The new substation, owned and operated by NGET, will be named Port Talbot 275kV. Additionally, the existing Margam 275kV substation will be extended and reconfigured with new GIS, while existing overhead line circuits and SGT HV connections will be modified and diverted to new bays within the GIS.

Rev	Date	Brief Summary of actions/updates
A	03.12.24	Initial register development, Design, Procurement, Site Establishment and Delivery Phase aspects
B	28.01.25	Ongoing updates across ERA
C	29.07.2025	Update to reflect Margam requirements
D		
E		
F		
G		
H		
I		
J		

Risk Rating (RR) = Likelihood (L) x Severity (S)
The higher the risk rating value, the increasing liklihood of the activity causing environmental harm, a legal breach and/or the increasing

Likelihood (L) of the activity causing environmental harm	
1	**Rare**
2	**Unlikely**
3	**Possible**
4	**Likely**
5	**Certain**

Severity (S)	
1	**Insignificant/Positive** - Impacts either have a positive effect on the environment or are too small to have any significant effect
2	**Minor** - Noticeable damage to the environment, but the effects are very short lasting. All damage is easily repairable
3	**Moderate** - Significant damage to the environment, but the effects are short lasting. All damage is repairable
4	**Major** - Severe environmental damage, but the effects are non-permanent
5	**Severe** - Damage to the environment is both severe and permanent/long term

Condition Definitions	Normal	Standard hours, expected seasonal weather
	Abnormal	unexpected out of hours; overun of works; extreme weather conditions, contamination of delivered
	Emergency	spill, fire, flood

Environmental Risk Assessment -	Design						

For Design - considerations will be addressed within Design Team Meeting minutes and mitigation will be evidenced in the design drawings and specifications

Sub-Activity	Associated Hazards / Risks	Potential Impacts (effects)	Risk Rating	Control Measures / Mitigation / Good Practice Measures	Opportunities (additional measures)	Residual Risk Rating	Owner (s)	References /Permits	Location on site
Carbon Management	The use of standardised concrete within the delivery stages of development	High carbon footprint, potential for resource depletion, and limited flexibility in adapting to specific project needs.	20	Reviewing concrete specifications for the use of low-carbon concrete to ensure that these materials meet required performance standards while minimising environmental impact	Utilise low carbon concrete (concrete zero standard) LMR 18	10	Technical to ensure compliance for each disipline		
	Fuel usage (Diesel)	Diesel in construction and transportation contributes to environmental impacts such as air pollution, greenhouse gas emissions, and soil contamination, all of which contribute to climate change and degrade local ecosystems.	16	Efficient fuel usage is essential for reducing operational costs and minimizing environmental impact in industrial and construction processes.	Utilise HVO fuels - significant reduction in greenhouse gas emissions, lower particulate matter emissions, and a smaller carbon footprint due to its renewable nature LMR 25	8			
	Use of virgin raw materials / material resourcing	Climate change, ethical and economic (international and local)	16	Where practicable, factor in high recycled content or the reuse of materials across markets, such as structural steels, to promote sustainability and reduce environmental impact.	Opptioneering for engagement with the supply chain for reusable steel involves exploring and identifying viable sources, partnerships, and processes that prioritise the recovery and repurposing of steel, ultimately fostering a circular economy and reducing resource consumption	6			
Resource Management	Generation of excess waste materials	Landfill, costs, segregation, hazardous waste, carbon output	16	Implementation of a site waste management plan to control and capture waste generation, identify appropriate waste removal processes, and eliminate excess waste production.	Utilisation of local supplies to reduce the carbon footprint, along with the implementation of waste recording practices for better waste management and tracking.	6			
	Excessive use of imported fill materials contributing to increased environmental impact and resource	Costs, climate change, resource depletion	20	Implementation of material reuse and recycling of site-won materials, along with efficient design optimisation to minimize the need for imports.	Local supply chain, use of recycled materials, implementation of MMP	6			
	Excessive material usage from construction activities leading to increased waste generation and resource inefficiency.	Waste Generation, Costs	16	Utilisation of accurate material estimation, considering just-in-time delivery, coupled with careful and efficient material handling, and the use of modular and prefabricated components.	Utilisation of LoR specialist supply Select & Explore Manufacturing	6			
Natural Environment	Loss of biodiversity and negative impacts on ecological systems due to construction activities and environmental degradation.	Damage to ecological receptors	25	Integrating sustainable site selection, habitat preservation, native landscaping, green infrastructure, and biodiversity monitoring into the construction design to minimise ecological impact and promote environmental resilience.		10			
	Potential for fugitive emissions from construction and operational activities, contributing to air pollution and environmental degradation.	Pollution, climate change, local receptor change, legal	16	Implementing dust control, low-emission equipment, sustainable materials, efficient site management, and renewable energy solutions to minimise fugitive emissions and reduce air pollution throughout construction and operations.	Implementation of CEMP and icooperation within design input, use of sustainable action tool for optimisation	6			
	Excess carbon generation due to inefficient processes, excessive energy consumption, and high-emission activities contributing to environmental impact and climate change.	Climate change	16	Designing energy-efficient buildings with low-carbon materials, renewable energy integration, optimised construction processes, and sustainable transport to minimise carbon generation and environmental impact		4			
Wider Sustainability	Lack of supply chain awareness regarding carbon emissions, leading to missed opportunities for reducing environmental impact and	Cost implication; Climate Change;	12	Integrating early supply chain collaboration, carbon tracking tools, and sustainable design practices to reduce carbon emissions in construction	Opportunities lie in adopting innovative materials, energy-efficient systems, circular design, and collaborative supply chain practices to reduce carbon emissions in construction	4			
	Misunderstanding of the social value aspects of the project, resulting in missed opportunities to enhance community benefits and contribute to long-term social well-being.	Cost implication; Climate Change;	12	Integrating community engagement, clear social value goals, inclusive design, and local economic support to enhance long-term social well-being in construction projects as well as local community during period of construction, such as oppitunities for works etc		4			

Environmental Risk Assessment - Procurement

For Procurement - considerations will be evidenced within tender documentation, SWMP process, start up meeting minutes and supply chain audit

Sub-Activity	Associated Hazards / Risks	Potential Impacts (effects)	Risk Rating	Control Measures / Mitigation / Good Practice Measures	Opportunities (additional measures)	Residual Risk Rating	Owner (s)	References /Permits	Location on site
Supply Chain Distribution	Supply chain disruptions may lead to significant delays in project completion.	Delays, increased costs, supply chain relationship	10	Developing contingency plans, securing alternative suppliers, and optimising lead time management, Identified long lead items at early stage, early engagement with all supply	Implementation of Procurement Stratergy	4			
	Financial instability of the supplier could result in delays or inability to fulfill contract obligations	Project delay, cost implications, supply shortages	10	Conducting thorough financial assessments, diversifying suppliers, and establishing performance bonds, Identification of key suppliers and packages, Robust onboarding process for new supply chain (A56)	Use of specialist in house CHt, Select Plant, Expanded, Explore Identification of key partners in the main contract	2			
Environmental	Sustainable procurement practices ensure the sourcing of goods and services that minimise environmental impact.	Resource depletion, raised carbon footprint, supply shortage	10	Prioritise sourcing low-carbon, recycled, and renewable materials to reduce environmental impact, sourcing locally to reduce transportation emissions	SB Targets, Balacne score cards, Procuerment stratergy, Scoping templates allow for corisponig scopes (SV, Sus, Env, Carb), Off site manufacturing oppitunities (DfMA)	4			
	Unforeseen environmental events, like floods or wildfires, could impact transportation and logistics for procured items.	Project delay, cost implications, supply shortages, contractual	16	Diversifying suppliers, and developing robust contingency plans, Robust reactive supply chain	Implementation of Environmental Management, Design Management, and Logistics Management at the site level can effectively mitigate the impact of unforeseen environmental events, ensuring continuity and resilience in procurement and project execution.	6			

Environmental Risk Assessment				Construction Activities					
Sub-Activity	**Associated Hazards / Risks**	**Potential Impacts (effects)**	**Risk Rating**	**Control Measures /Mitigation -** (Minimum Requirements) Method statement considerations	**Opportunities** (additional measures)	**Residual Risk Rating**	**Owner (s)**	**References /Permits**	**Location on site**
All	**Emergency Conditions - all activities**								
	Major spill/drop outside boundary	Ground or surface water pollution, Local traffic disruption; public nuisance;	25	Refer to Logistics Plan/Traffic Management Plan, Environmental Emergency Plan, Water Management Plan emergency contractor spill response	NA	1	Project Leader		
	Major Spill/escape of material inside boundary	Ground or surface water pollution, creation of waste	25	Refer to Environmental Emergency Plan and Water management plan, spill control and emergency contractor spill response	NA	1	Environmental Leader		
	Fire on site	Damage to materials leading to waste, contaminants on slabs and potentially in drainage systems, fire waters	25	Refer to Fire and Emergency Plan and/or Environmental Emergency Plan: place drainage covers or drainage bunds if safe to do so; notify relevant authorities	NA	1	Construction Manager		
	Flooding (from major weather event, Resivour, Streams and Groundwater)	Potential ingress into surface water drains of pollutants, ground or surface water pollution, impact to species and habitats	25	Subscribe to weather alerts and flood risk alerts. Refer to Environmental Emergency Plan. Move plant and materials outside flood zone. Compliance with Bespoke Flood Risk Activity Permits. Ensure ditch networks are free from obstructions. Effective monitoring of ground water stationary	NA	10	Construction Manager		
Construction Activities	**Normal Conditions**								
	Potential generation of excessive dust (All), Emissions to air from combustion (engines, generators, fire)	Impacts on air quality and nuisance, fugative emission	16	As dictated by site conditions; regularly damp down un-surfaced haul routes and working areas in dry conditions. Install hard surfaces (compacted crushed aggregate or the like) to long term / temp haul routes; which will be regularly damped down with mobile bowser All vehicles transporting loose or potentially dust generating materials to and from working areas on the public highways are fully sheeted. Mist cannons should be deployed where required, such as during excavation works, moisture control works, dampening down of stockpiles.		5	Construction Manager		
		Impacts on air quality and nuisance	16	Vehicles and equipment will be maintained through a programme of routine servicing by the contractor's repair and maintenance team. Use of HVO Fuels for emission reduction Electric vehicles will be have potential for procurement where possible to reduce emissions.		5			
	Noise and Vibration	Nuisance disruption Legal Breach section 60/61	12	Selection of Equipment: Use quieter and modern equipment Equipment Selection: Choose equipment with lower vibration emissions Agreement of working hours in accordance with BS 5228		4	Construction Manager		
	Light pollution from operation of plant and machinery on-site	Ecological and Nuisance disruption	15	Reduce amount of plant/machinery with lighting on during dark hours where deemed safe Light shall be directed downwards and away (using shields, baffles, cowls etc.) from all residential properties and ecological sensitive areas		5	Construction Manage		
	Generation of Waste	Landfill, costs, segregation, hazardous waste	16	Controlled storage and use of materials, including re-use of off cuts if possible (timber and metals) Waste skips shall be provided at site with signage to dictate which segregated waste type belongs in each skip Hazardous waste will be segregated and containment provided on site		4	All Staff and co		
	Water Environment	Pollution of waters for surface and ground, damage to ecological aspects of site, contamination of aquafers, excess use of waters, prosecution under regulator powers	20	Minimise wastewater generation through recirculation of drilling water as much as possible Abstraction and discharge consent for controlling of ground/surface waters No hazardous substances will be permanently stored within 10m of watercourses / drainage Dedicated refuelling Stations with adequate spill kit provision Secondary containment and bunding will be installed around the container storing the oil to catch any oil that leaks in the event of damage or failure		10	Construction Manager		
	Vegetation strip and topsoils removal	Pollution of waters, damage to ecological receptors	16	Approved drainage strategy in place. That of vegetation required for removal only unless agreed by planning Works conducted under ecological watch		4	Construction Manager & Environmental Leader		
	Use of CoSHH	Contamination of waters and ground	16	Suitable site storage which is bunded 110% of overall capacity Temporary storage all substances to be bunded at site and returned to main storage Substitution of hazardous materials for more environmentally friendly		4	Constructio n Manager		
	Earthworks including excavations, aggregate use and muck away	Contamination of waters with silt, muck on highways and public roads	16	Temporary drainage designed in advance of works, cut of trench, toe batters, silt traps Dewatering of excavations via permit to pump and consent for abstraction and discharge Rumble road / Wheel wash system for cleaning tread of muck away process Management in line with Peat Management Plan Installation of mitigation measures on works perimeter i.e. silt netting		6	Construction Manager		
	Pile foundations	Soil and water contamination, along with peat disturbance.	20	Utilisation of alternative piling methods, such as displacement piling or pre cast driven Closed loop drilling fluid management system and FRAC out procedure	Develop Water Management Plan	6	Construction		
	Abnormal Conditions								
	Potential discovery of ecology present at location, such as flora and fauna (i.e. invasive or protected species, small mammals, ground nesting birds)	Ecological Impacts and legislation impacts	16	Enabling works to be conducted in presence of ECoW Species licensing to obtain before commencement of works Written and agreed methods of statements for specific work activities	Engagement with regulators	4	Environmental Leader		
	Ground Conditions and Excavations	Discovery of contaminated materials, pollution of waterways and ground waters	16	In the event of contaminated material the work will be stopped immediately and advice will be sought from Construction Manager & Environmental Leader Temporary drainage designed in advance of works Where required permit to pump issued for control of water ingress Stockpiled materials to be capped/sealed		4	Construction Manager & Environmental Leader		
	Spillages to ground or to waters from accidental or breakdown	Direct impact on ground and water quality, generation of hazardous waste, potential prosecution from regulators	16	Regular maintenance of plant and machinery including small tools Hazardous materials to be stored within containment 110% bund capacity on non-permeable grounds No storage or refuelling of plant within 10m of watercourse Operators trained and brief on the Environmental Emergency Plan		5	Construction Manager & Environmental Leader		
	Unsurveyed Archaeology	Cost and programme implications	16	Consult with specialist and conduct surveys of area		2	Project Manager		
	Unsurveyed UXO	Explosion, damage, fires, costs, disposal and disruption	16	Teams trained on identification of UXO All excavations to be under watch of appointed persons Contact specialist for further works where required		2	Project Manager		
	Utility Strike	Explosion, damage, fires, costs, disposal and disruption	16	Setting out survey and GPR survey conducted for identification Plans sought from LA and utility undertakers Following of LOR buried services procedure		4	Burried service Co-ord		

Environmental Risk Assessment				Site Set Up & Establishment					
Sub-Activity	**Associated Hazards / Risks**	**Potential Impacts (effects)**	**Risk Rating**	**Control Measures /Mitigation -** (Minimum Requirements) Method statement considerations	**Opportunities** (additional measures)	**Residual Risk Rating**	**Owner (s)**	**References /Permits**	**Location on site**
All	**Emergency Conditions - all activities**								
	Major spill/drop outside boundary	Ground or surface water pollution, Local traffic disruption; public nuisance; waste materials; delay to programme	25	Refer to Logistics Plan/Traffic Management Plan, Environmental Emergency Plan, Water Management Plan emergecny contractor spill response	NA	1	Project Leader		
	Major Spill/escape of material inside boundary	Ground or surface water pollution, creation of waste materials; delay to programme	25	Refer to Environmental Emergency Plan and Water management plan, spill control and emergecny contractor spill response	NA	1	Environmental Leader		
	Fire on site	Damage to materials leading to waste, contaminants on slabs and potentially in drainage systems, fire waters	25	Refer to Fire and Emergency Plan and/or Environmental Emergency Plan: place drainage covers or drainage bunds if safe to do so; notify relevant authorities	NA	1	Construction Manager		
	Flooding (from major weather event or river / canal / sea incident)	Potential ingress into surface water drains of pollutants, ground or surface water pollution, impact to species and habitats	25	Material storage and refuelling areas outside of flood zone and/or over 10m from top of bank of river, whichever is greater. Subscribe to weather alerts and flood risk alerts. Refer to Environmental Emergency Plan. Move plant and materials outside flood zone. Compliance with Bespoke Flood Risk Activity Permits.	NA	10			
Office & Welfare Ordering and Installation	**Normal Conditions**								
	Connection/commissioning of water mains for offices and welfare. Remote working location water delivery, storage, use and disposal of water (drinking, flushing, cleaning, foul)	Foul water for shall be tanked from site, there are no live sevices within the area, exisiting substation operates on septic tank.	16	Encourage sustainable water use throughout welfare and offices to minimise water demand.	Potenital for connection with LA	4	All Staff		
		Where mains are not yet connected element of tanked potable water is utilised to site. Potenital for private connection with National Grid supply		Temporary connection to a private water network (through Nationa Grid)					
	Procurement, use and disposal of office consumables (paper, ink, other stationary and electrical equipment)	Disposal of hazardous waste from ink, batteries. Disposal of recyclable office waste. Disposal of non-recyclable office waste. Disposal of WEEE waste.	12	Procure and install efficient technology and ensure programmes such as releasing printing is switched on.	Early engagement with procurment	4			
				Disposal in line with site waste management plan and welsh legilation for office management 2024.					
				Encourage sustainable use of office consumables e.g. do not print when possible.					
	Transport								
	Installation, operation and maintenance of equipment (refrigeration, air conditioning and fire protection systems) containing fluorinated greenhouse gases (F Gases)	Lack of maintenance / servicing of refrigeration, air conditioning and fire protection systems resulting in the release of F Gases into the atmosphere	12	Design in natural ventilation where possible to minimise the use of mechanical ventilation.	NA	4			
	Abnormal Conditions								
	Connection/commissioning of water mains for offices and welfare. Remote working location water delivery, storage, use and disposal of water (drinking, flushing, cleaning, foul)	Contamination of water supply during construction / connection / delivery of water to office / welfare locations	16	Procure and install water efficient equipment such as taps (flow rate) and toilets (flush volume).	Potenital for connection with LA	4	All Staff		
		Difficulty of supply of water due to delivery problems, or supplier water shortage		Permanent connection to a private water network (through National Grid)					
	Procurement, use and disposal of office consumables (paper, ink, other stationary and electrical equipment)	Significant disposal of office wastes, i.e. due to office demobilisation	12	Remove all single use products from offices and welfare such as single use cups and paper towels.	Early engagement with procurment	4			
	Fire affecting office or welfare unit	Minor fire causing limited damage to office and/or welfare structures. Associated waste and potential contamination of underlying ground/water	12	Maintenance / servicing of refrigeration, air conditioning and fire protection systems		4	Construction Manager		

APPENDIX C - LICENCES, PERMITS AND EXEMPTIONS

The consents register is a live document and is available upon request.

APPENDIX D - AIR QUALITY MANAGEMENT PLAN

In accordance with applicable local, regional, and national legislation, construction activities for the development will adhere to key objectives aimed at managing the impact on air quality. The primary objectives are as follows:

- Ensure Early and Continuous Collaboration: Engage with both the client and local authorities from the outset to ensure effective communication and compliance with regulations.
- Minimise Air Quality Impact: Implement construction methodologies that follow the latest best practices and legal requirements to reduce the impact on local air quality.
- Monitor Effectively: Undertake suitable air quality and dust monitoring to ensure the proper implementation of control measures.
- Record and Address Complaints: Document any complaints related to dust or air quality, along with the necessary corrective actions or measures taken.

All work will adhere to recent best practice guidelines and relevant legislation, including:

- Institute of Air Quality Management Guidance
- The Air Quality Standards Regulations 2010
- Pollution and Control – Construction Site Handbook, April 2018

To reduce environmental impact, the following mitigation measures will be planned and implemented:

- Site Layout: Where practicable, machinery and dust-generating activities will be located away from sensitive receptors, such as residential areas.
- Dust Barriers: Hoardings or other barriers will be erected around the site perimeter, where necessary, to prevent dust dispersion.
- Water Management: A water management system will be put in place to control dust, including the use of rainwater harvesting, mechanical storage units, and standpipe draw-offs.
- Appropriately Sized Equipment: Construction plant will be chosen based on the required tasks, with preference given to non-diesel equipment where feasible.

By adopting these measures, the project will minimise its impact on local air quality and ensure compliance with the latest air quality standards.

APPENDIX E - NOISE AND VIBRATION PLAN

BS 5228 provides foundational guidance on noise and vibration control during construction. In addition to these standards, Laing O'Rourke will implement further controls based on site-specific assessments to ensure minimal impact on sensitive receptors, including residential areas and ecological sites such as SSSIs.

BS 5228 provides guidance on noise and vibration controls during construction. Below is an outline of the noise and vibration mitigation measures Laing O'Rourke will implement during the construction phase of the development:

Noise Mitigation

1. Selection of Equipment: Use quieter, modern equipment with noise suppression features (e.g., acoustic enclosures, electric-powered units). Preference will be given to low-noise models and equipment verified against BS 5228 reference levels.
2. Barriers and Enclosures: Install acoustic barriers and temporary hoarding, especially near sensitive receptors and SSSI boundaries. Barriers will be sound-absorbing and positioned close to noise sources to maximize effectiveness.
3. Timing of Works: Schedule high-impact activities during daytime hours. Night-time and weekend works (e.g., HDD and cable pulling) will be limited to essential operations only, with additional controls in place such as acoustic screening and reduced plant usage..
4. Site Layout: Strategically position noisy equipment and activities away from sensitive receptors. Layouts will be designed to minimize reversing and orient noise-emitting equipment away from receptors.
5. Training and Awareness: All site operatives will receive environmental briefings and training on noise-sensitive operations. Toolbox talks and shift briefings will reinforce best practices.
6. Monitoring and Reporting: Real-time noise monitoring will be conducted during critical phases (e.g., night-time HDD works). Data will be reviewed regularly, and methodologies adjusted to maintain compliance. Monitoring results will be shared with stakeholders and used to inform community engagement.
7. Ecological Considerations: For works near SSSIs, additional ecological monitoring may be undertaken. Seasonal constraints will be considered to avoid disturbance during breeding or migration periods. Temporary relocation of avifauna within SSSI zones will be supported by habitat-sensitive planning.

Vibration Mitigation

1. Equipment Selection: Choose equipment with lower vibration emissions, such as hydraulic equipment over impact or vibratory tools, to minimise vibration levels.
2. Minimising Vibration-Intensive Work: Reduce vibration by adopting non-percussive techniques or quieter, less vibration-intensive methods wherever possible.
3. Isolating Sensitive Structures: For vibration-sensitive structures, implement isolation measures or temporary damping materials to minimize vibration transmission.
4. Distance from Sensitive Receptors: Position vibration-intensive equipment as far away from sensitive structures as possible to reduce the potential for damage or disruption.

5. Monitoring and Measurement: Conduct pre-work surveys to establish baseline vibration levels. Regularly monitor vibration levels during construction to ensure they stay within prescribed limits.
6. Communication and Advance Notification: Inform nearby residents and businesses about upcoming vibration activities in advance, helping them prepare for any potential disruption.

By implementing these measures, Laing O'Rourke aims to minimise the impact of noise and vibration on the surrounding environment and community throughout the construction phase.

APPENDIX F - Materials Management Plan

Margam Connection: Margam Substation

Materials Management Plan

Prepared by: Laing O'Rourke
Version: For Information
Revision: P01
Reference:
Materials Management Plan
S5 – For review and acceptance
Security Classification: Public

Rev	Author	Reviewed by	Approved by	Date approved	Reason for issue
P01	E.Hutchings	M.Wisdom	R.Jones	17-07-2025	First issue

Contents

1. Introduction

National Grid Electricity Transmission (NGET) has appointed Laing O'Rourke as the principal contractor for the delivery of a critical infrastructure project in South Wales. This project is being delivered through a two-stage, collaborative contract model, which includes the development, design, and planning phases ahead of the main construction works.

The development includes works to the existing Margam 275kV substation which will be extended and reconfigured. This will involve the installation of new Gas Insulated Switchgear (GIS), along with the modification and diversion of existing overhead line circuits and Super Grid Transformer (SGT) high-voltage connections into newly constructed GIS bays.

2. Site Background

2.1.1 Margam

The proposed Margam Substation site is located on undeveloped low-lying marshland and woodland in Margam, Port Talbot, and is currently characterised by natural vegetation, drainage ditches, and no prior built development—indicative of a greenfield setting. A comprehensive ground investigation was undertaken by Geotechnics Ltd between July and September 2024 to inform the detailed design phase. This included boreholes, trial pits, in-situ testing, and laboratory analysis. The investigation confirmed the presence of soft, compressible Tidal Flat Deposits (including peat), underlain by glacial and coal measure formations, with shallow groundwater and artesian conditions observed. Contamination assessment revealed no significant risks to human health or controlled waters. While minor visual and olfactory indicators of contamination were noted in isolated made ground areas, laboratory testing of 42 soil samples showed no exceedances of commercial land use screening criteria, and no asbestos was detected. One localised exceedance of total petroleum hydrocarbons (TPH) was identified but remained below risk thresholds. Overall, the site is considered to pose low environmental risk, with no remediation required for general soils, supporting its classification as a largely uncontaminated, undeveloped site.

3. Purpose

This plan provides a summary of the current UK generic soil screening levels used in land contamination assessments for both commercial, residential and public open land use. It specifically covers the following standards and guidelines:

- Suitable for Use Levels (S4ULs)
- Category 4 Screening Levels (C4SLs)
- Land Quality Management (LQM) guidance
- Environmental Quality Standards (EQS)
- Drinking Water Standards

These screening values are used to assess whether concentrations of specific substances in soil may pose a risk to human health or the environment, particularly through potential impacts on controlled waters. Exceeding a screening level does not confirm harm but indicates the need for further investigation or potential remediation.

All engineering aspects of certification and conformance shall be conducted in accordance with the processes outlined in the MARPT-LOR-XX-XX-PL-R-090005 Project Quality Plan.

4. Responsibilities

The table below identifies the individuals responsible for overseeing the project works and ensuring compliance with the requirements set out in this document, in accordance with current UK regulations and industry standards.

Name	Role	Email
Richard Skone	Project Director	RSkone@laingorourke.com
Robert Jones	Project Leader	R.Jones@laingorourke.com
Lee Williams	Construction Manager	LeeWilliams@laingorourke.com
Ali Sehat	Technical Lead	Asehat@laingorourke.com
TBC	Sustainability Manager	TBC
Gareth Williams	H&S Manager	garwilliams@laingorourke.com
Jordan Riseley	Project Engineer	JRiseley@laingorourke.com

5. Scope of Works – Topsoil Strip, Excavation, and Stockpiling

This section outlines the scope of activities related to the excavation, handling, and assessment of topsoil and associated materials during the initial phases of construction.

Material Types Covered.

- Excavated topsoil and subsoil
- Imported fill materials (haul roads temporary)
- Recycled aggregates
- Temporarily stockpiled materials

Activities Included

- Topsoil Strip and Excavation: Removal of topsoil in designated areas in accordance with site plans and environmental controls.
- Stockpiling: Temporary storage of excavated materials in controlled stockpile zones, with segregation based on material type and quality.
- Sampling and Laboratory Testing: Collection of representative samples from excavated and stockpiled materials for analysis against UK generic screening levels.
- Waste Classification: Determination of material status (e.g., inert, non-hazardous, hazardous) based on laboratory results and regulatory thresholds.
- Suitability Assessment: Evaluation of materials for potential reuse in landscaping, general fill, or other site applications, subject to compliance with screening criteria.
- Documentation and Reporting: Maintenance of detailed records including sampling logs, test results, classification outcomes, and reuse/disposal decisions.

6. Objectives

The objectives of this plan are to establish a robust framework for soil testing and assessment to ensure compliance with UK generic screening levels, guiding decisions on reuse, further investigation, or remediation.

- Conduct targeted sampling and laboratory testing of soils to assess compliance with UK generic screening levels for land contamination.
- Evaluate soil quality against established criteria including Suitable for Use Levels (S4ULs), Category 4 Screening Levels (C4SLs), and other relevant standards for human health and controlled waters.
- Identify materials that meet screening thresholds and classify them as suitable for reuse in landscaping, general fill, or other non-sensitive applications.

- Flag materials that exceed screening levels for further investigation, risk assessment, or remediation planning.
- Ensure all testing is documented and traceable, supporting transparent decision-making and regulatory compliance.
- Minimise environmental and health risks through proactive materials management and informed reuse strategies.

7. Imported Materials for Temporary Works – Compliance and Testing

All imported materials intended for use in temporary footpaths, haul roads and piling platforms will be sourced exclusively from reputable, certified production sources. No waste processing, treatment, or aggregate production will occur on site. This approach ensures that all materials meet the required specifications prior to delivery and use.

To maintain quality assurance and compliance with CL:AIRE and WRAP good practice, the following measures will be implemented:

7.1.1 Conformity and Testing Requirements

- A Certificate of Conformity (CoC) shall be provided for every 500 m³ or approximately 800 tonnes of imported material delivered to site. This certificate must confirm that the material meets the required grading and environmental standards for its intended temporary use.
- In addition to CoCs, spot sampling will be undertaken at a minimum frequency of 1 sample per 250 m³ or approximately 400 tonnes to verify grading consistency and material suitability.
- All testing will be conducted by UKAS-accredited laboratories, and results will be retained within the site's Materials Management Plan (MMP) for audit and verification purposes.
- These procedures ensure that all imported materials are fit for purpose, pose no risk to human health or controlled waters, and support sustainable construction practices.

7.1.2 Non-conformities

The protocol outlines the steps to be taken when non-conformities are identified in imported materials intended for temporary works, such as haul roads and footpaths. The process is designed to promote collaboration with suppliers, maintain traceability, and support continuous improvement.

Key Steps

- **Initial Identification**
  Non-compliant results from routine sampling or visual inspection will trigger a review of the affected batch.
- **Material Management**
  The batch in question will be temporarily isolated to prevent use while further assessment is undertaken.
- **Supplier Engagement**
  The supplier will be informed of the findings, and relevant documentation (e.g., certificates of conformity, delivery records) will be reviewed collaboratively.
- **Verification Measures**
  Additional sampling or testing may be carried out to confirm whether the issue is isolated or indicative of a broader concern.
- **Resolution Pathways**
  Depending on the outcome of the investigation:
  - Materials may be cleared for use if found compliant.

- Non-compliant materials may be returned or replaced, with appropriate records maintained.

– **Continuous Improvement**
Outcomes will be documented and used to inform future quality control measures, including potential adjustments to sampling frequency or supplier review processes.

7.1.3 Minimum Testing Requirements – Temporary Fill (SHW Series 600)

Temporary haul roads, footpaths, and piling mats are commonly constructed using aggregates to facilitate access and operations during construction. While Clause 600 of the Specification for Highway Works (SHW) provides detailed requirements for earthworks and material testing, it is primarily intended for permanent infrastructure. Temporary works are often exempt from full SHW compliance.

Nonetheless, it remains essential to uphold environmental best practice to prevent contamination, ensure regulatory compliance, and protect surrounding infrastructure. To that end, Laing O'Rourke applies a risk-based approach to environmental screening of imported aggregates used in temporary works.

This approach is supported by Clause 2.50.4 of TS 3.10.02 – Generic Technical Specification for Civil, Structural and Building Engineering: Materials, which states:
"Acceptable and unacceptable materials for capping layer, general fill including structures and foundations, gabion fill, and geotextiles shall comply with the requirements of Series 600: Earthworks in the Highways Agency's 'Specification for Highway Works'."

This clause reinforces the need for environmental acceptability of imported materials, even in temporary applications.

Test	Purpose	Compliance	Minimum Requirement
Grading	Confirms material consistency and suitability	SHW Table 6/1 and Table 6/2	1 per 500m³ or ~800 tonnes
Asbestos Screening	Detects presence of hazardous fibres and ACMs	UKAS/MCERTS accredited method; WM3 guidance	<0.001%wt fibres; no visible ACMs; 1 per 500m³ or 800 tonnes and minimum 3 per source
Water Soluble Sulphate / Total Sulphur	Prevents chemical attack on concrete	SHW Clause 644	Required if material is placed within 500 mm of concrete
Visual Inspection	Identifies contamination, foreign objects, or inconsistent grading	Site-based	Every delivery or stockpile
Source Approval & Classification	Confirms material origin and suitability	SHW Table 6/1 and Table 6/7	Must conform to BS EN 13242 and be listed in permitted source codes
Leachate	Assesses potential for contaminant release into water	WM3 guidance; EQS for surface/groundwater; DWS if near potable sources	Required for waste-derived materials; lab-tested via EN 12457

Wider contaminant screening will be undertaken where required, in accordance with the principles outlined in Section 3 of this procedure. This includes assessment against UK generic screening levels such as Suitable for Use Levels (S4ULs), Category 4 Screening Levels (C4SLs), Environmental Quality Standards (EQS), and Drinking Water Standards (DWS). Where materials are sourced from waste-derived streams, brownfield sites, or areas with potential industrial legacy, additional testing for contaminants such as heavy metals, hydrocarbons, PAHs, and leachate will be conducted. These measures ensure that materials do not pose a risk to human health or controlled waters and support informed decision-making regarding reuse, disposal, or remediation.

8. Materials Arisings and Reuse Strategy

This table outlines the anticipated volumes and classifications of materials arising from site activities, including construction, excavation, and topsoil handling. It distinguishes between suitable and unsuitable materials for reuse and identifies potential applications such as haul roads, footpaths, and piling platforms.

Item	Description	Anticipated Volume	Notes
A1	Suitable arisings from excavations and topsoil (e.g. clean subsoil, screened topsoil)	tbc	May be reused for landscaping or general fill, subject to compliance with screening criteria.
A2	Unsuitable arisings from excavations and topsoil (e.g. contaminated soils, organic-rich topsoil)	tbc	To be segregated and disposed off-site in accordance with waste classification and regulatory requirements
A3	Imported fill for haulage roads	tbc	Must be sourced from certified suppliers. Certificate of Conformity required per 500m³ or 800t. Spot sampling.
A4	Imported fill for temporary footpaths	tbc	As above – sourced from certified suppliers with supporting documentation and testing.
A5	Imported fill for piling platform	tbc	Must meet structural and grading requirements. Testing and certification to align with Series 600 and site-specific specifications.

9. Materials Storage and Management

Materials will be stored at designated site locations under the supervision of site personnel. All stockpiles will be subject to testing in accordance with the procedures outlined in this plan to ensure compliance with DEFRA Code of Practice for Soil Handling and environmental standards.

9.1 General Management Measures

To minimise environmental impact and maintain material integrity, the following controls will be implemented:

9.1.1 Dust and Erosion Control:

- Regular damping down of stockpiles during dry conditions
- Installation of silt fencing and other sediment control measures, particularly near watercourses
- Strategic placement of stockpiles away from sensitive receptors

9.1.2 Stockpile Stability and Containment:

- Stockpiles will be capped and sealed using tracked plant to reduce erosion and surface runoff
- Access routes will be maintained to prevent cross-contamination and facilitate inspection

9.1.3 Monitoring and Inspection:

- Routine visual inspections will be carried out to assess condition and compliance
- Any signs of degradation, contamination, or runoff will trigger corrective actions

10. Emergency Conditions

It is recommended that the Environmental Emergency Plan be read in conjunction with this chapter, as the plan outlines the emergency response procedures that site operatives must follow in the event

of an environmental incident. Additionally, the plan highlights the key principles of avoidance to prevent such incidents from occurring in the first place.

All Environmental and/or Energy-Related incidents, however small, will be recorded on the Laing O'Rourke sustainability reporting tool.

11. Materials Documentation and tracking

To ensure full traceability and compliance with site procedures and environmental standards, Laing O'Rourke will implement a robust system for managing materials transfer and testing records. This includes the collection of Materials Transfer Notes (MTNs) and the maintenance of a centralised Materials Tracker.

11.1.1 Materials Transfer Notes (MTNs)

Laing O'Rourke shall obtain and retain Materials Transfer Notes for all imported and exported materials. These notes serve as formal documentation of material movement and must include:

- Source and destination details
- Material type and classification
- Volume or weight transferred
- Date and time of transfer
- Vehicle and haulier information

MTNs will be collected from suppliers or hauliers at the point of delivery or dispatch and stored in the site's document control system. Where applicable, digital copies will be linked directly to the Materials Tracker for ease of reference and audit.

11.1.2 Materials Tracker

All materials testing and transfer data will be captured and recorded within the Materials Tracker, maintained by Laing O'Rourke site personnel. The tracker will:

- Log all material movements, including volumes, sources, and destinations
- Link to Certificates of Conformity and laboratory test results
- Record all sampling data and compliance checks
- Include photologs and visual inspection records, referenced in Appendix B

This system ensures transparency, supports regulatory compliance, and enables efficient reporting and review throughout the project lifecycle.

Appendix A; Soil screening levels

UK Generic Soil Screening Levels for Commercial and Residential Land Use

Context and Purpose

This document provides a summary of the current UK generic soil screening levels used in land contamination assessments for both commercial and residential land use.
Specifically, it covers:

Suitable 4 Use Levels (S4ULs)
Category 4 Screening Levels (C4SLs)
These values help determine whether concentrations of specific substances in soil may pose a risk to human health and whether further investigation or remediation is required.
They are derived from guidance issued by:

Land Quality Management (LQM)
Chartered Institute of Environmental Health (CIEH)
Department for Environment, Food & Rural Affairs (DEFRA)
Contaminated Land: Applications in Real Environments (CL:AIRE)
Sources of Screening Levels
LQM/CIEH Suitable 4 Use Levels (S4ULs)
Developed for 89 substances across various land uses, these precautionary values are available from LQM:
LQM/CIEH Suitable 4 Use Levels

DEFRA/CL:AIRE Category 4 Screening Levels (C4SLs)
Designed to support the Part 2A regime under the Environmental Protection Act, these pragmatic values are available for selected substances:
CL:AIRE Category 4 Screening Levels

Environment Agency Soil Screening Values
These values assess ecological risks from land spreading and waste-derived materials.
Soil Screening Values on GOV.UK

Application and Testing
Soil samples should be analysed by accredited laboratories using standardised methods.
Speciation is critical for certain substances (e.g. chromium), which can exist in both toxic (Cr VI) and non-toxic (Cr III) forms.
Screening levels vary by land use (e.g. residential vs commercial) and are typically applied in Tier 1 risk assessments.
Exceeding a screening level does not confirm harm, but indicates the need for further investigation.
Controlled Waters: EQS and DWS
When assessing risks to controlled waters (e.g. groundwater or surface water), particularly in the context of material reuse, the following standards apply:

Environmental Quality Standards (EQS)
Expressed as Annual Average Concentrations (AAC) and sometimes Maximum Allowable Concentrations (MAC).
Values vary by water type (freshwater vs saltwater) and may depend on water hardness.
Example: For Ammonia (NH_3 as N), the EQS for freshwater is 0.015 mg/L.
Drinking Water Standards (DWS)
Based on UK regulations and EU directives (e.g. Council Directive 98/83/EC).
Include both health-based guideline values and aesthetic thresholds (e.g. taste, odour, appearance).
Example: For Arsenic, the UK DWS is 10 µg/L

Testing Suite

Basic soil contamination testing – including metals, hydrocarbons, and organic compounds.

Leachate testing – to check if anything harmful could leach into surface or groundwater (EQS/DWS compliance).

General soil properties – such as pH, moisture content, and particle size, to assess suitability for landscaping

Asbestos in Soils

WM3 is the UK's technical guidance for waste classification, including asbestos-contaminated soils. It outlines how to determine whether a waste is hazardous or non-hazardous based on its composition. For asbestos:

Soil is classified as hazardous waste if it contains ≥ 0.1% w/w asbestos or visible asbestos-containing materials (ACMs).
The guidance emphasizes accurate classification, discouraging dilution or mismanagement of asbestos waste.
It supports risk-based remediation to reduce environmental harm and avoid unnecessary landfill disposal

Substance	Commercial		Residential		Public Open Space Park		
					1%	2.50%	6%
	S4UL (mg/kg)	C4SL (mg/kg)	S4UL (mg/kg)	C4SL (mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Asbestos							
Asbestos in Soil							
Asbestos Quantification Total							
Asbestos Analyst ID							
Heavy Metals							
Arsenic	640	640	37	37	170		
Cadmium	410	410	10	10	532		
Chromium (III)	4700	—	910	—	33000		
Chromium (VI)	33	170	6.6	170	250		
Copper	7300	—	3100	—	44000		
Lead	2330	2330	200	200	1300		
Mercury	15	—	40	40	240		
Nickel	1800	1800	130	130	3400		
Selenium	1100	—	250	—	1800		
Zinc	41000	—	3700	—	170000		
PAHs (Polycyclic Aromatic Hydrocarbons)							
Naphthalene	390	390	6	6	1200	1900	300
Acenaphthene	1100	—	170	—	29000	30000	30000
Acenaphthylene	1100	—	210	—	29000	30000	30000
Fluorene	1100	—	170	—	20000	20000	20000
Phenanthrene	1100	—	95	—	6200	6200	6300
Anthracene	7200	—	2400	—	150000	150000	150000
Fluoranthene	1100	—	260	—	6300	6300	6400
Pyrene	1100	—	540	—	15000	15000	15000
Benzo(a)anthracene	7.2	—	7.2	—	49	56	62
Chrysene	15	—	15	—	93	110	120
Benzo(b)fluoranthene	2.2	—	3.9	—	13	15	16
Benzo(k)fluoranthene	62	—	3.1	—	370	410	440
Benzo(a)pyrene	2.2	5.3	2.7	—	11	12	13
Indeno(1,2,3-cd)pyrene	15	—	3.3	—	150	170	180
Dibenz(a,h)anthracene	0.24	—	0.26	—	1.1	1.3	1.4
Benzo(ghi)perylene	110	—	84	—	1400	1500	1600
VOCs (Volatile Organic Compounds)							
Benzene	0.33	3.3	0.87	0.87	90	100	110
Toluene	760	—	560	560	ND	ND	ND
Ethylbenzene	470	—	230	230	ND	ND	ND
o-/m-/p-Xylene	530	—	250	250	ND	ND	ND
MTBE	49	—	100	100	ND	ND	ND
TPH Fractions (Total Petroleum Hydrocarbons)							
C5–C6	42	Aliphatic	3.8	Aliphatic	95000	130000	180000
C6–C8	47	Aliphatic	65	Aliphatic	150000	220000	320000
C8–C10	130	Aliphatic	110	Aliphatic	14000	18000	21000
C10–C12	1100	Aliphatic	150	Aliphatic	21000	23000	24000
C12–C16	1100	Aliphatic	260	Aliphatic	25000	25000	26000
C16–C21	1100	Aliphatic	540	Aliphatic			
C21–C35	1100	Aliphatic	1000	Aliphatic			
C5–C7	0.87	Aromatic	8.5	Aromatic	76000	84000	92000
C7–C8	47	Aromatic	56	Aromatic	87000	95000	100000
C8–C10	130	Aromatic	110	Aromatic	7200	8500	9300
C10–C12	1100	Aromatic	150	Aromatic	9200	9700	10000
C12–C16	1100	Aromatic	260	Aromatic	10000	10000	10000
C16–C21	1100	Aromatic	540	Aromatic	7600	7700	7800
C21–C35	1100	Aromatic	1000	Aromatic	7800	7800	7900
Phenol	1100	—	7.8	—	440	690	1300

Determinand	EQS (Annual Avg)	DWS
Heavy Metals		
Arsenic (dissolved) µg/L	25	10
Cadmium (soft water)µg/L	0.08	5
Chromium VI µg/L	3.4	50
Copper (soft water) µg/L	1	2000
Lead µg/L	7.2	10
Mercury µg/L	0.07	1
Nickel µg/L	4	20
Zinc µg/L	10	5000
Nutrients and General Water Chemistry		
Ammonia (NH_3 as N) mg/l	0.015	0.5
Nitrate mg/L		50
Nitrite mg/L		0.5
pH		6.5–9.5
Conductivity µS/cm		2500
Organic Pollutants		
Benzene µg/L	10	1
Benzo[a]pyrene (PAH) µg/L	0.00017	0.01
Pesticides		
Substance	**EQS (AA) (µg/L)**	**EQS (MAC) (µg/L)**
Chlorpyrifos (OP)	0.001	0.005
Isoproturon (ON)	0.3	—
Diuron (ON)	0.2	—
Atrazine (ON)	0.6	2
Simazine (ON)	1	—
Terbuthylazine (ON)	2	—
Alachlor (ON)	0.3	0.24
Trifluralin (ON)	0.00003	0.03
Dieldrin (OC)	0.00003	0.00007
Lindane (γ-HCH, OC)	0.0005	0.0007
Heptachlor Epoxide (OC)	0.0001	0.00022
DDT (total, OC)	0.000025	0.01
Endosulfan (OC)	0.005	0.01
Pentachlorophenol	0.4 (UKTAG, inland)	2

Appendix B Material Tracker Template

Soil Reuse

SITE RECORD OF IMPORTED MATERIALS

Site:	**Margam Substation**
Project No:	**C4119**

Photographic Dialog

Date of Placement	Sample Ref	Contractor	W3W - Location	Site Stockpile	Total M3	Chemical Analysis