PUNCH
consulting engineers

Kinsale Road LRD, Kinsale Road, Cork

Outline Construction Environmental Management Plan

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1.0 Introduction

1.1 Background

PUNCH Consulting Engineers have been appointed by Fronville Ltd to prepare this Outline Construction Environmental Management Plan (OCEMP) for a proposed Large-scale Residential Development (LRD) on a site located at Kinsale Road, Cork. The site location is shown in Figure 1-1 below.

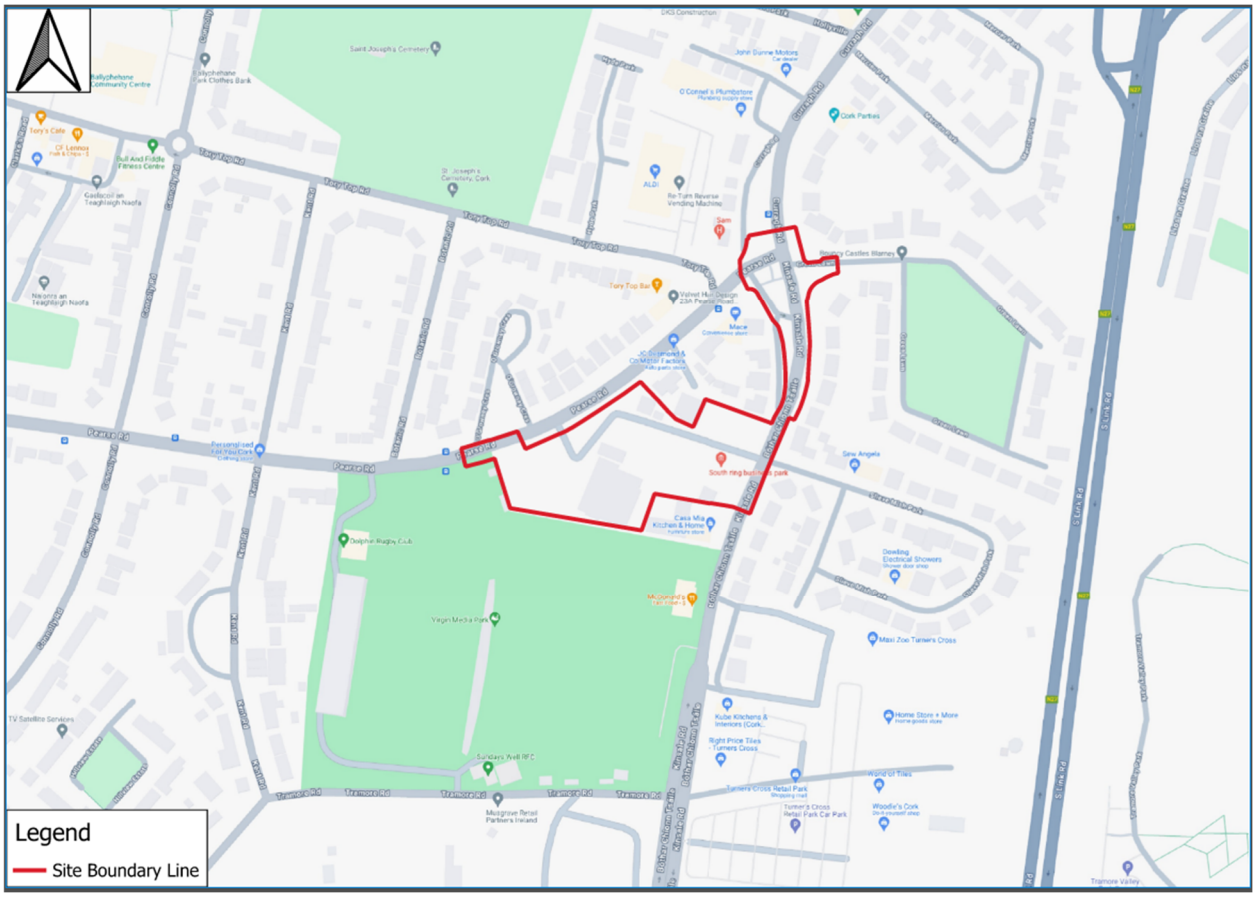

Figure 1-1: Site Location of the Proposed Development

The principal objective of the OCEMP is to avoid, minimise and control adverse environmental impacts associated with the construction of a Large-scale Residential Development (LRD) at Kinsale Road that includes a management office, retail space and a creche.

It is intended that this OCEMP will be used to communicate key environmental obligations that apply to all contractor organisations, their sub-contractors and employees while carrying out any form of construction activity on the site.

The OCEMP will then form part of the main construction works contract. The contractor will be required to take account of the contents, methods and requirements contained within the various sections of this OCEMP as part of their contractual responsibilities and will also be required to update the document with their project specific information. The OCEMP is considered a 'live' document and as such will be reviewed on a regular basis. Updates to the plan may be necessary due to changes in environmental management practices and/or contractors. The procedures outlined in the OCEMP will however be audited regularly throughout the construction phase to ensure compliance with the key objectives of the plan.

This OCEMP will be developed further and/or amended where necessary to take account of site-specific requirements or conditions arising from the planning process.

1.2 Nature of the Existing Development

The site of the proposed development is a brownfield site which was formerly owned by Vita Cortex and is approximately 1.2 hectares in area. The site has been disused since 2012. Planning permission was granted for the demolition of site structures under application reference no. 2140647, and separate planning permission (Ref. 2442868) was obtained for remediation works on the site. Remediation works involved the excavation and off-site disposal of impacted soils, the pumping and treatment of groundwater, and the importation of stone/soil for backfilling.

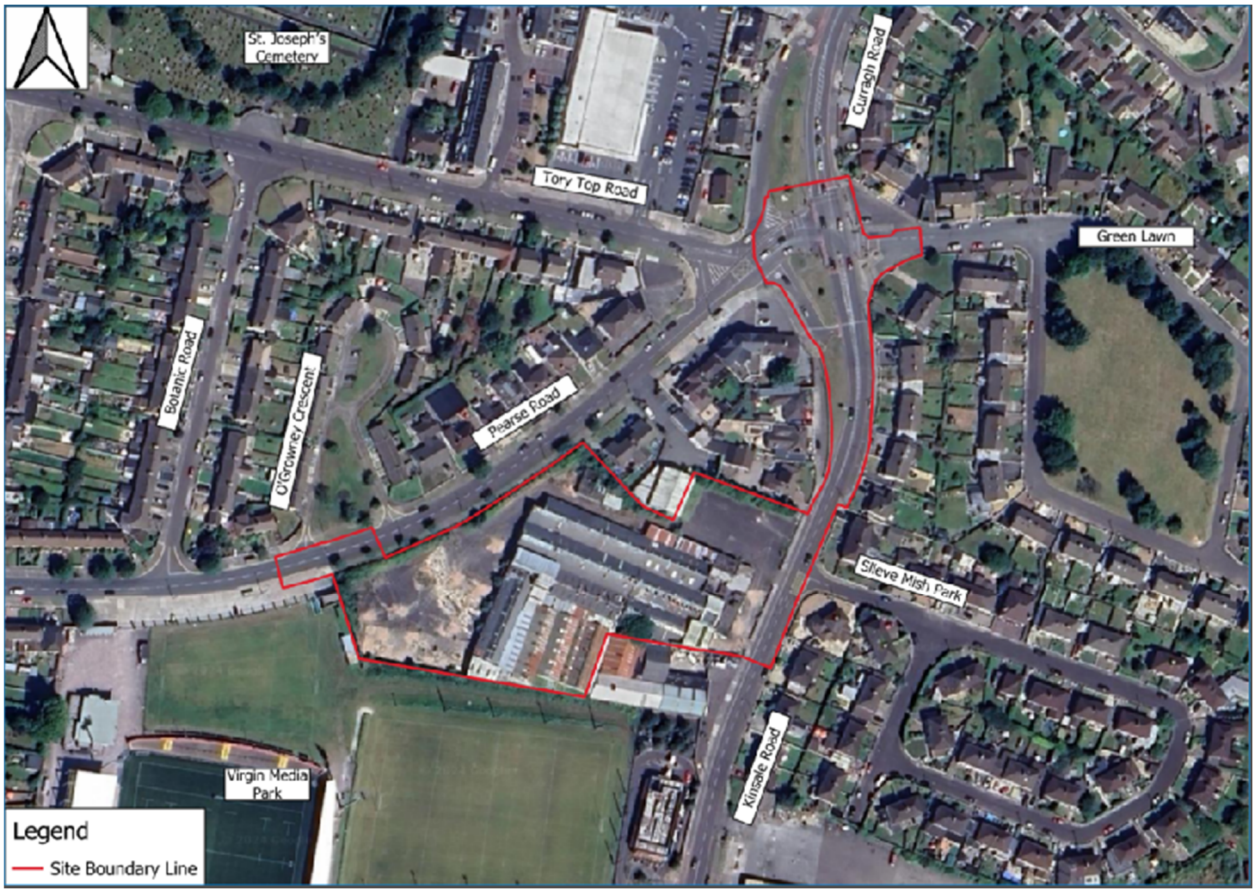

Figure 1-2: Aerial view of the existing site

1.3 Nature of the Proposed Development

The proposed development will consist of a Large-Scale Residential Development (LRD), comprising 170 no. residential units (158 no. apartments and 12 no. townhouse apartments, to include 51 no. 1-bed units, 84 no. 2-bed units, 35 no. 3-bed units) arranged in 4 no. blocks varying in height from four to nine storeys over ground. The proposed development also includes a crèche; café; management office; 4 no. retail units; car parking and cycle parking provided on surface and within an undercroft; the provision of private, communal and public open space and all associated site development, landscaping and drainage works on the site of the Former Vita Cortex Facility, Kinsale Road and Pearse Road, Cork.

Construction of the LRD will specifically involve the following,

Site Preparation: this will include but not be limited to the following,

i. Excavations: Begin earthworks, including grading, excavation for the basement, foundations, and utility trenches.
ii. Temporary Facilities: Set up site offices, storage areas, and welfare facilities for workers.

Infrastructure Development: this will include but not be limited to the following,

i. Utilities Installation: Lay down essential utilities, including water supply, sewage systems, electricity, gas, and telecommunications.
ii. Roadways and Access: Construct internal roads, pavements, and access points to the site.

Foundation Works: this will include but not be limited to the following,

i. Based on current information, it is likely that the foundation of all residential buildings will be made up of Piled Foundations or Pile Raft Foundations. Further investigation is required to ascertain the type of foundation required. Bored piling as opposed to percussive piling will be the preferred option for the construction process in order to minimise vibration levels.

Superstructure Construction: this will include but not be limited to the following,

i. Frame Construction: Erect the building frame using steel, concrete, or timber.
ii. Floor Slabs: Pour concrete slabs for each floor level.
iii. Wall Construction: Build external and internal walls using blockwork, brickwork, or other specified materials.
iv. Roof Construction: Install roof trusses, decking, insulation, and weatherproofing.

Building Services Installation: this will include but not be limited to the following,

i. Mechanical Systems: Install HVAC systems, ventilation, and fire suppression systems.
ii. Electrical Systems: Install wiring, lighting, sockets, and other electrical components.
iii. Plumbing Systems: Install water supply, drainage, and sanitary fixtures.

Exterior and Interior Finishes: this will include but not be limited to the following,

i. **Exterior Finishing:**
    - Cladding and Facades: Apply external cladding, render, or brickwork.
    - Windows and Doors: Install windows, doors, and glazing systems.
    - Roof Finishes: Finalize roof coverings, gutters, and downpipes.

ii. **Interior Finishing:**

- Plastering and Drywall: Apply internal plaster or install drywall.
- Flooring: Lay down flooring materials, such as tiles, carpet, or timber.
- Painting and Decorating: Paint walls, ceilings, and apply decorative finishes.
- Fixtures and Fittings: Install kitchens, bathrooms, wardrobes, and other fixtures.

External Works and Landscaping: this will include but not be limited to the following,

i. Landscaping: Plant trees, shrubs, and grass; create garden areas and communal spaces.
ii. External Lighting and Features: Install outdoor lighting, street furniture, and play areas.
iii. Boundary Treatments: Erect fences, walls, and gates.

Commissioning and Inspections: this will include but not be limited to the following,

i. Systems Commissioning: Test all mechanical, electrical, and plumbing systems to ensure they function correctly.
ii. Quality Inspections: Conduct inspections to ensure that all work meets building codes, safety standards, and quality requirements.
iii. Snagging: Address any defects or issues identified during inspections.

Handover and Occupancy: this will include but not be limited to the following,

i. Final Inspections: Obtain certification of compliance with building regulations from Cork City Council.
ii. Handover: Transfer the completed units to the developer or owners, providing all necessary documentation and warranties.
iii. Occupancy: Residents move in, and the development becomes fully operational.

Post-Construction Phase: this will include but not be limited to the following,

i. Defects Liability Period: The contractor remains responsible for rectifying any defects that arise within a specified period after completion.

Sustainability and Compliance: this will include but not be limited to the following,

i. **Energy Efficiency:** Ensure compliance with Irish energy efficiency standards, including Building Energy Rating (BER) certificates.
ii. **Environmental Considerations:** Implement sustainable practices and adhere to environmental regulations throughout the project lifecycle.

The proposed works are outlined in a series of architectural drawings prepared by BKD Architects, and engineering drawings prepared by PUNCH Consulting Engineers and supplied as part of the planning documentation.

2.0 Responsibilities

2.1 Key Contacts and Roles

The detailed CEMP will need to confirm and add to the following minimum information:

Description	Name	Address	Name and Contact
Developer/Applicant	Fronville Limited	The Halls, Quay Street, Galway H91 RRV0	Mike Duffy Email: mduffy@duffypropertygroup.ie Mobile: 0861732106
Contract Manager	TBC	TBC	TBC
Site Manager	TBC	TBC	TBC
Environmental Compliance Officer	TBC	TBC	TBC
Consulting Engineer	PUNCH Consulting Engineers	Elm Court, Boreenmanna Rd, Ballintemple, Cork, T12 HHW2	Cian Murphy Email: cmurphy@punchconsulting.com Tel: 021 462 4000

The key responsibilities of those persons listed in Table 1 above are as follows:

Description	Responsibility
Developer/Applicant	To provide that all planning condition requirements are implemented in full.
Contract Manager	To be responsible for development of the CEMP in line with planning condition requirements and the contents of this outline plan.
Site Manager	To advise site personnel on all requirements at the site and areas where improvements may be made on-site and off-site.
Environmental Compliance Officer	To be responsible for undertaking environmental audits to check compliance with the environmental mitigation measures set out in the CEMP.
Consulting Engineer	To be responsible for implementation of detailed design including design compliance with all planning conditions.

The contractor appointed to carry out the construction works shall produce detailed method statements and risks assessments based on the outline method of works, procedures and environmental requirements set out in this OCEMP. The CEMP will form part of the site induction for all employees who shall be required to comply with the requirements set out in the plan.

2.2 Relevant Legislation and Reference Documents

It is proposed that all works will be carried out using best practice and in conformance with the requirements of the relevant regulatory authorities and legislation. A non-exhaustive summary of key legislative documents and guidance is provided below.

2.2.1 Legislation

Current legislation as well as published guidance documents must be taken into account in the production of the final CEMP plan. Legislation must cover all relevant areas, including water pollution, fisheries protection, wildlife species protection, waste and noise.

2.2.2 Key Guidance

The Environmental Protection Agency (EPA) has produced Pollution Prevention Guidelines. Some of these are of particular note with regard to the drafting of this OCEMP which include:

- IPC Guidance Note - Guidance Note on Storage and Transfer of Materials for Scheduled Activities
- National Hazardous Waste Management Plan 2008-2012 (EPA 2008)

Key Guidance pertinent to this OCEMP from other bodies include:

- Best Practice Guide BPGCS005 - Oil Storage Guidelines
- Construction and Demolition Waste Management - A handbook for Contractors & Site Managers
- Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects 2021 – Environmental Protection Agency (EPA)
- Guidelines on the Protection of Fisheries During Construction Works in and Adjacent to Waters, Inland Fisheries Ireland
- Use Chemicals Safely, Health and Safety Authority (HSA)
- Risk Assessment of Chemical Hazards (HSA)

3.0 Outline Works Description

The construction works will involve an indicative sequence of works, as described in short below. The Contractor will outline works which impact public spaces within the Construction Management Plan that shall be subject to submission and agreement with CCC.

3.1 Hoarding, Site Set-up and Formation of Site Access/Egress

The site area will be enclosed with hoarding details of which are to be agreed with CCC. Hoarding panels will be maintained and kept clean for the duration of the works. This will involve erecting hoarding around the proposed site perimeter in line with the finished development extents.

The available site footprint will enable the Contractor to set up the site compound within the site boundary.

The Contractor will be responsible for the security of the site. The Contractor will be required to:

- Operate a Site Induction Process for all site staff;
- Ensure all site staff shall have current 'Safe Pass' cards and appropriate PPE;
- Install adequate site hoarding to the site boundary;
- Maintain site security at all times;
- Install access security in the form of turn-styles and gates for staff;
- Separate public pedestrian access from construction vehicular traffic.

3.2 Site Clearance and Demolition

Planning permission was granted for demolition of on-site structures under application reference no. 2140647, and separate planning permission (Ref. 2442868) was obtained for remediation works on the site. All remediation and monitoring works will be closed out prior to construction works commencing on site. Please refer to the report prepared by RSK Group, included with this submission, which details the required on-site remediation and monitoring works, as well as the final handover plan for the site.

3.3 Construction Sequence of Development

The construction sequence for a development of this scale, which includes residential units, residential management offices, a creche, and retail space, follows a logical progression from initial site setup to project completion. Below is a typical construction sequence with indicative timeframes for a project of this size, assuming optimal conditions and no major delays. The timeframes are estimates and can vary depending on weather, resource availability, and specific site conditions.

3.3.1 Site Setup (1-2 months)

- Temporary Works and Site Infrastructure:
  - Establish temporary utilities (power, water, drainage) and site offices, storage, and welfare facilities. Prepare access roads and temporary parking.
- Ground Investigation:
  - Further site testing and surveying for more detailed foundation and piling plans.

3.3.2 Groundworks and Foundations (4-6 months)

- Excavation and Earthworks:
  - Begin bulk excavation for foundations, basements, drainage, and service trenches. Site levelling and installation of retaining walls.
- Drainage and Utilities Installation:
  - Install underground drainage, stormwater systems, and utilities (water, electricity, gas, telecom).
- Foundation Construction:
  - Pour foundations for the basement, residential units, creche, retail space, and management offices.

3.3.3 Superstructure Construction (12-18 months)

- Residential Units Construction (170 units):
  - Construct the superstructure of the residential units using brickwork, blockwork, or modular construction methods. Structural framing is followed by walls, floors, and roofing.
- Management Office and Creche Construction:
  - Simultaneously construct the superstructure for the management offices and creche while the residential units are underway.
- Retail Space Construction:
  - Build the dedicated retail space, which may involve steel or reinforced concrete framing, with fit-out starting once the structure is weatherproof.
- Roofing and External Cladding:
  - Install roofing and external facades for all structures. Incorporate energy-efficient materials, insulation, and external finishes to meet local building regulations.
- Windows and Doors:
  - Install windows, doors, and external joinery. Ensure all structures are watertight before proceeding with interior work.

3.3.4 Internal Works (6-9 months, concurrent with superstructure)

- Mechanical and Electrical First Fix:
  - Begin the first fix for electrical wiring, plumbing, HVAC systems, and any other mechanical services.
- Internal Walls, Plastering, and Insulation:
  - Install internal walls and insulation, followed by plastering. Begin internal partitioning for residential units and commercial spaces.
- Mechanical and Electrical Second Fix:
  - Complete the second fix, which includes installing light fixtures, outlets, plumbing fixtures, and HVAC equipment.
- Interior Finishes:
  - Install flooring, tiling, paint, and any internal woodwork (doors, skirting, etc.). This stage covers all internal finishes in the residential units, management offices, creche, and retail spaces.

3.3.5 Landscaping and External Works (3-6 months)

- Pavements, Car Parks, and Access Roads:
  - Construct external pavements, walkways, access roads, and parking areas.
- Landscaping and External Lighting:
  - Carry out hard and soft landscaping, including gardens, public areas, green spaces, and external lighting. Plant trees, install street furniture, and ensure proper drainage for outdoor areas.

3.3.6 7. Testing, Commissioning, and Inspections (2-3 months)

- Building Control and Fire Safety Inspections:
  - Conduct inspections to ensure compliance with building regulations, fire safety standards, and local authority requirements.
- Mechanical and Electrical Testing:
  - Test and commission all mechanical, electrical, and plumbing systems, including HVAC, water systems, fire alarms, and security systems.
- Snagging and Defects Rectification:
  - Identify and rectify any construction defects (snagging) before the final handover.

3.3.7 Final Handover and Occupation (1-2 months)

- **Handover of Residential Units**:
  - Conduct a final inspection of the completed residential units and hand them over to buyers or tenants.
- **Handover of Retail Space, Creche, and Management Offices**:
  - Complete fit-out of retail and office spaces, ensure compliance with tenant requirements, and hand over the keys.

5.0 Environmental Impacts

The following is intended as a framework of anticipated measures in order to mitigate potential construction impacts identified. The framework is intended to form the basis of a future CEMP including detailed action plans and method statements once a contractor is appointed.

The main environmental impacts which have been identified as relevant to this project, and which are covered by this OCEMP are as follows:

- Water pollution arising from silt/sediment from construction works;
- Water pollution arising from cement and concrete;
- Soil/Water pollution arising from solid waste disposal;
- Soil/Water/Air pollution arising from hydrocarbon emissions;
- Air/Noise pollution and vibration impacts arising from construction related traffic and other activities;
- Impacts on the road network local area due to vehicles involved in the construction process;
- Air pollution arising from dust generated by construction activities.

The following sections of this plan describe each of the above environmental impacts identified and the proposed measures to be adopted for eliminating/mitigating the associated impacts.

6.0 Environmental Considerations for Civil/Structural Elements

When constructing an LRD, environmental considerations for civil and structural elements are critical to minimizing the ecological footprint, ensuring sustainability, and complying with environmental regulations. Below are key environmental considerations for the civil and structural aspects of such a project.

6.1 Demolition and Site Clearance

Planning permission was granted for demolition of on-site structures under application reference no. 2140647, and separate planning permission (Ref. 2442868) was obtained for remediation works on the site. All remediation and monitoring works will be closed out prior to construction works commencing on site. Please refer to the report prepared by RSK Group, included with this submission, which details the required on-site remediation and monitoring works, as well as the final handover plan for the site.

6.2 Management of Excavated Material

Managing excavated material during the construction is essential for minimizing environmental impacts, ensuring efficient use of resources, and complying with regulations. Proper handling, reuse, and disposal of excavated material can significantly reduce the project's overall environmental footprint. A site excavation plan will be undertaken by the contractor to manage the removal of excavated material from site in a timely, rolling manner. This will be reviewed in detail as part of the construction traffic management plan to be prepared by the Contractor.

It should be noted that a trial pit excavation report was completed by TMS Environment Ltd and it was found that hydrocarbon contamination was present in all the soil samples collected from the site. With this in mind, it should be noted that the remediation works carried out under the separate planning application (Ref. 2442868) has removed contamination in advance of these works.

Further to this, a Preliminary & Generic Quantitative Risk Assessment carried out by WYG Environment and Planning (Northern Ireland) Limited found that Asbestos was present in one of the soil samples

collected. The contractor shall ensure that the appropriate control measures are used to reduce risk to construction workers and future site users as a result of the presence of asbestos in shallow soils.

6.3 Surface and Wastewater Management

The proposed development will implement sustainable drainage systems (SuDS) such as permeable pavements, rain gardens, green roofs, and an attenuation tank to manage stormwater on-site, reducing runoff, preventing flooding, and enhancing groundwater recharge. Regarding ground water management, the contractor shall ensure that construction activities do not contaminate local water bodies or groundwater. Measures will be implemented to prevent chemical spills and manage wastewater effectively.

Proper handling and treatment of wastewater can prevent pollution, protect public health, and comply with environmental regulations. Section 7.0 of this document will expand on surface water and wastewater management.

6.4 Waste Management

An Outline Construction & Demolition Resource Waste Management Plan (RWMP) was prepared and will be submitted as part of this application. The purpose of the Construction Waste Management Plan is to provide the information necessary to ensure that the management of construction waste at the site is undertaken in accordance with current legal and industry standards including the Waste Management Act 1996 and associated Regulations, Litter Act 1997 and the Southern Region Waste Management Plan 2015-2021.

6.5 Traffic Management

Traffic management during construction will minimise environmental impacts, ensuring safety, and maintaining good relations with the local community.

6.6 Air Quality Management

Managing air quality during the construction of an LRD is crucial to protecting public health, minimizing environmental impact, and ensuring compliance with regulations. Effective air quality management involves controlling dust, emissions, and other pollutants generated by construction activities. Section 11.0 of this document will expand on air quality management responsibilities.

6.7 Noise and Vibration Management

Effective management strategies can minimize disturbances and prevent damage to nearby structures and wildlife. The management of noise and vibration will protect the well-being of residents, workers, and the surrounding environment. Section 12 of this document will expand on noise and vibration management responsibilities. Please also refer to the Noise and Vibration Impact Assessment report prepared by CLV Consulting, which accompanies this planning submission.

7.0 Demolition and Site Clearance

7.1 Hazardous Material Management

Planning permission was granted for the demolition of site structures under application reference no. 2140647, and separate planning permission (Ref. 2442868) was obtained for remediation works on the site. Remediation works involved the excavation and off-site disposal of impacted soils, the pumping and treatment of groundwater, and the importation of stone/soil for backfilling.

At construction stage, the contractor shall allow for the safe removal of any additional hazardous materials, if encountered, and if specialised subcontractors are required, the contractor shall employ licensed and trained subcontractors for the removal of hazardous materials. Appropriate containment methods shall be used for hazardous materials and the contractor shall ensure that materials are disposed of at licensed facilities in accordance with regulatory requirements.

The contractor shall implement measures to prevent the spread of hazardous materials during any further demolition required, such as using enclosures or wetting down surfaces to minimize dust.

8.0 Management of Excavated Material

8.1 Material Reuse and Recycling

Due to the nature of the development, it is envisaged that all excavated material will be removed off site.

8.2 Contamination Management

The contractor shall implement measures to prevent contamination of excavated material by keeping hazardous substances away from excavation areas and using proper storage practices. In addition, the use of protective covers for excavated material to prevent contamination from rain, dust, or other environmental factors.

The contractor shall identify and segregate contaminated material from clean excavated material and allow for the treatment of contaminated material as required by regulations and dispose of it at licensed facilities.

8.3 Dust and Erosion Control

Regularly spray water on excavated material and access roads to control dust emissions. The use of dust suppressants shall be permitted if needed to reduce airborne particles. If water spraying is not an option, the contractor may install dust barriers or screens around excavation areas to limit the spread of dust.

8.4 Transportation and Logistics

Efficient transport routes shall be planned to ensure excavated material can be transported with minimal effects on fuel consumption and environmental impacts. The contractor shall ensure that trucks and transport vehicles are appropriately loaded to prevent spillage and reduce dust emissions during transit. Transport vehicles shall be regularly maintained to ensure they operate efficiently and with minimal emissions. Low-emission vehicles shall be used if available.

8.5 Documentation and Reporting

The contractor shall maintain accurate records of excavated material, including quantities, locations, and handling methods. The contractor shall document any contamination issues and how they were managed.

The contractor shall provide regular reports on excavated material management to the Consulting Engineer, as required. This includes reporting on reuse, recycling, and disposal activities.

9.0 Surface Water and Wastewater Management

9.1 Site Facilities during Construction

A construction sequencing and outline construction site plan will be developed to establish the areas available for set down, storage and site facilities. A location for the establishment of any required secondary site facilities, including parking, will also be defined. The site facilities which will be provided will include site offices along with a canteen, toilets, and drying room for all staff/workers. Proposals for the disposal of waste produced at staff toilet facilities will be developed by the contractor and submitted to Cork City Council (CCC) and Uisce Eireann (UÉ) for approval prior to construction of the facilities.

9.2 Management of Surface Water on Site

Any surface water or pumped ground water generated during the construction phase of the project will be treated on site using a settlement tank to remove any sediment prior to discharge.

This settlement tank will be sized in accordance with CIRIA C532, 'Control of water pollution from construction sites – Guidance for consultants and contractors. The tank will be fully and securely sealed and will be inspected and de-silted regularly.

Flows treated in the settlement tank will discharge to the nearest surface water drainage connection, liaison with CCC/UÉ will be required in advance of any temporary connection being formed to cater for such discharges. Discharge water from the settlement tank will be inspected on a daily basis and if it is found to be silted, the flow will be stopped immediately, and appropriate remedial works will be carried out.

Environmental Requirements

- Silt traps will be placed as close as possible to the construction works while allowing for sufficient space for maintenance and clearance of silt and debris.
- A surface water settlement tank will be installed to remove suspended solids from flows prior to discharge.
- The contractor will undertake an inspection and maintenance program during construction phase to ensure compliance with discharge limits.
- The short-term storage and removal/disposal of excavated material will be planned and managed such that the risk of pollution from these activities is minimized.
- An emergency-operating plan will be established to deal with incidents or accidents during construction that may give rise to pollution. This will include means of containment in the event of accidental spillage of hydrocarbons or other pollutants.
- Through all stages of the construction phase the contractor will ensure that good housekeeping is maintained at all times and that all site personnel are made aware of the requirement to avoid pollution of all types.
- Road cleaning will take place to ensure that any mud and other wastes which may be tracked onto public roads do not result in a negative impact to road users.

9.3 Dewatering

It is not envisaged that dewatering will be required as the average depth of water table was found to be at 2.15m below natural ground level. Should ground water be encountered during the excavation of the drainage, again not envisaged with its depth, this will be captured and held in a settlement tank prior to discharge to the existing storm drainage system. This settlement tank will be sized in accordance with CIRIA C532, 'Control of water pollution from construction sites – Guidance for consultants and contractors'. The tank will be fully and securely sealed and will be inspected and de-silted regularly.

Discharge water from the settlement tank will be inspected on a daily basis and if it is found to be silted, the flow will be stopped immediately, and appropriate remedial works will be carried out.

10.0 Waste Management

The following legislation and guidance documents are of relevance to the noise and vibration of the site.

Legislation

- Directive 2008/98/EC on waste (Waste Framework Directive).
- The Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006, 2010 amended.
- Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of Annex II to Directive 1999/31/EC.
- European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
- Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).
- Waste Management Act 1996 (S.I. No. 10 of 1996) as amended by the Waste Management (Amendment) Act 2001.
- Litter Pollution Act 1997 and Regulations.

Guidance documents

- EPA, Waste Classification, List of Waste & Determining if Waste is Hazardous or Non-hazardous, June 2015.
- Southern Region Waste Management Plan 2021.
- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects 2021, Environmental Protection Agency (EPA).
- Environmental Good Practice on site, CIRIA C692.
- Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan, National Roads Authority.

The management of construction and demolition waste should reflect the waste management hierarchy, with waste prevention and minimisation being the first priority succeeded by reuse and recycling.

During demolition, site clearance and construction works, there are numerous opportunities for the beneficial reuse and recycling of waste materials.

The subsequent use of recycled materials in reconstruction works also reduces the quantities of waste which ultimately needs to be consigned to landfill sites.

10.1.1 Waste Management Plan

The Contractor shall be responsible for developing the Waste Management Plan related to its construction activities. The Plan shall apply to all works carried out by the Contractor and any subcontractors under its control. In preparing the plan, the Contractor shall consider any measures set out any planning consent document, the relevant legislation, and industry best.
Certain uncontaminated materials (soil) excavated from the site during the works may be reused in the works and therefore would not require disposal/recovery as waste. In developing the WMP, the Contractor shall consider the reuse of materials where practicable, where permitted under the relevant waste legislation, and where the material meets the engineering requirements.

10.1.2 Waste Management Strategy

The Contractor shall comply with the objectives of the Southern Region Waste Management Plan 2021. The Contractor shall establish a system for the management of wastes in accordance with the Waste Management Hierarchy. This hierarchy outlines that waste prevention and minimisation are the priority in managing wastes, followed by waste reuse and recycling. Disposal of waste shall only be considered as a last resort.

- Prevention.
- Minimisation.
- Reuse.
- Recycling.
- Disposal.

In particular, the Contractor will incorporate the reuse and recycling target of 70% for construction waste (excluding soil and stones) contained within the Southern Region Waste Management Plan.

10.1.3 Waste Identification & Classification

The Contractor shall establish a procedure to identify and classify all waste arising at the site in accordance with the European Waste Catalogue (EWC) Code. The Contractor shall ensure that the waste materials generated during the works are clearly identified as either hazardous or non-hazardous wastes, with reference to the guidance from the Environmental Protection Agency (Paper Tool of the Procedure for the Identification of the Hazardous Components of Waste) where required and shall establish waste storage areas for the different types of waste that may arise.

For each waste stream identified by the Contractor, and for each additional waste stream that may arise during the works, the Contractor shall identify the following:

- The appropriate EWC Code
- A suitable Waste Collection Contractor in possession of a valid Waste Collection Permit for the collection of the waste within Limerick city.
- The waste recovery or disposal site, including the transfer station where the waste may be transferred to upon leaving the site in possession of a valid Waste Facility Permit or Waste License, as appropriate.
- The recovery or disposal method for the waste.

Only Contractors in possession of a valid Waste Collection Permit shall collect wastes from the site. The Contractor responsible for the waste shall ensure that the Waste Collection Contractor:

- Is permitted to collect the particular waste.
- Is permitted to collect waste within Cork City.
- Uses a waste collection vehicle identified on the Waste Collection Permit.
- Transfers the waste to a waste facility identified on the Waste Collection Permit.

10.2 Quantities of Waste

Waste which will be generated through the excavation works for the substructure, public plaza and underground civil infrastructure, which will comprise of stone and existing subsoil, will be quantified at detailed design stage and incorporated into the CEMP.

10.3 Prevention of Waste

The primary effort therefore should be to engage in waste prevention and reduce the amount of waste generated in the first place i.e. minimise the resources needed to do the job.

Prevention is financially advantageous as it reduces the purchase of construction materials and obviates the need to remove wastes from site. It is important to emphasise the potential for certain purchasing procedures to contribute to a reduction in excessive material wastage on site. Examples include:

- Ensuring tasks and activities are thoroughly planned well in advance of work being done to help accurately quantify materials required so materials are ordered on an "as needed" basis to prevent over supply to site;
- Purchasing coverings, panelling or other materials in shape, dimensions and form that minimises the creation of excessive scrap waste on site;
- Ensuring correct storage and handling of construction materials to minimise generation of damaged materials/ waste e.g. keeping deliveries packaged until they are ready to be used;
- Preventing fuel and oil spills through good housekeeping practices and making readily available emergency clean up spill kits to deal with any spills that arise thereby eliminating hydrocarbon contamination and generation of additional waste;
- Ensuring correct sequencing of operations; and
- Assigning individual responsibility (through appropriate contractual arrangements) to sub-contractors for the purchase of raw materials and for the management of wastes arising from their activities, thereby ensuring that available resources are not expended in an extravagant manner at the expense of the main contractor.

10.4 Reuse of Waste

Material that is generated should be reused on site or salvaged for subsequent reuse to the greatest extent possible and disposal should only be considered as a last resort. Initiatives should be put in place to maximise the efficient use/ reuse of materials.

10.5 Recycling of Waste

There are a number of established markets available for the beneficial use of construction waste:

- Waste timber can be:
    - recycled as shuttering or hoarding, or
    - sent for reprocessing as medium density fibreboard;
- Waste concrete can be utilised as fill material for roads or in the manufacture of new concrete when arising at source;
- Waste steel and other metals can be processed for other uses at metal recycling centres and
- In addition, the technology for the segregation and recovery of stone, for example, is well established, readily accessible and there is a large reuse market for aggregates as fill for roads and other construction projects.

10.6 Overall Management of Construction Waste

Waste minimisation, reuse and recycling can best be managed operationally by nominating a "Construction and Demolition Waste Manager" to take responsibility for all aspects of waste management at the different stages of the Project.

This Construction Waste Manager may well be a number of different individuals over the lifecycle of the Project, but in general is intended to be a reliable person chosen from within the Contracting Team, who is technically competent and appropriately trained, who takes the responsibility to ensure that the objectives and measures within the Project Waste Management Plan are delivered and who is assigned the requisite authority to secure achievement of this purpose.

Specifically, the function of the Construction Waste Manager will be to communicate effectively with colleagues in relation to the aims and objectives for waste management on the Project. The primary responsibility for delivery of the objectives of the Waste Management Plan will fall upon the C&D Waste Manager designated at the demolition/ construction stage. A key objective for the C&D Waste Manager should be to maintain accurate records on the quantities of waste/ surpluses arising and the real cost (including purchase) associated with waste generation and management.

The preparation, application and documentation of a Project Waste Management Plan should enable all parties - including contractors, designers and competent authorities - to learn from the systematic implementation and assessment of best practice, particularly through the recording of summary information on performance outcomes.

In general:

- Regular shaped skips measuring 6m in length by 2.5m in width by 1.8m in height, will be used for the duration of the construction works. All skips will be situated within the designated site compound area with ample space around the skips to facilitate thorough segregation of the different waste materials.

- Skips will be available for each of the following waste types and will be labelled accordingly: wood, metal, brick/ rubble, canteen waste, plasterboard, paper and cardboard, other general waste and special bins for any hazardous wastes as required.

- Throughout the construction zone, covered labelled wheelie bins will be placed at designated waste depots. These bins will be taken and used by the operatives/ sub-contractors and returned to the depots after use.

- The waste segregation area banksman will co-ordinate the movement of skips to and from the construction zone. The banksman will also co-ordinate the scheduling of the approved waste collector to transport waste to the relevant permitted/ licensed waste facility.

10.7 Control of Fuels and Lubricants

10.7.1 General Site Procedures

In order to provide fuel to the relevant items of plant on site, a certified double skinned metal fuel tank with integrated pump, delivery hose, meter, filter and locking mechanism will be situated in a secure area on the construction site. It will be situated within a bund. This tank will be certified for lifting when full.

Emergency clean up spill kits will be readily available in the event of a fuel spill. A hazardous bin will also be available to contain any spent soak pads.

New metal jerry cans with proper pouring nozzles will be used to move fuel around the site for the purposes of refuelling items of small plant on site.

Drip trays will be used under items of small plant at all times. Any waste oils etc. contained in the drip trays or the bunded area will be emptied into a waste oil drum which will be stored within the bund.

Metal jerry cans and any other items of fuel containers will be stored in certified metal bunded cabinets. Any gas bottles will be stored in a caged area at a secure location on the site. All will be properly secured at point of work.

All refuelling activities on site will be subject to a permitting system. It will be the responsibility of the Site Manager to ensure that the permitting system is adhered to. The Environmental Health and Safety (EHS) officer will be responsible for issuing each permit. The permitting procedures will require key information to be gathered and recorded on the Permit to Refuel form prior to permit being issued.

10.8 Asbestos Management

Planning permission was granted for the demolition of site structures under application reference no. 2140647, and separate planning permission (Ref. 2442868) was obtained for remediation works on the site. Remediation works involved the excavation and off-site disposal of impacted soils, the pumping and treatment of groundwater, and the importation of stone/soil for backfilling.

While asbestos was removed under application reference no. 2140647, the complete absence of asbestos cannot be guaranteed. The responsibility for further investigation and removal, if required, remains with the Contractor and the Health and Safety Authority. The Health and Safety Authority will be contacted where needed in relation to the handling of asbestos and material will be dealt with in accordance with the Safety, Health, and Welfare at Work (Exposure to Asbestos) Regulations 2006, as amended and associated approved Codes of Practice.

11.0 Air Quality Management

11.1 Emission Sources

Construction vehicles, generators etc., will give rise to some exhaust emissions.

Considering the existing traffic levels in the area, along with the use of the surrounding buildings, the likely air quality impact associated with construction traffic will not be significant. Measures will nevertheless be taken to minimise dust and maintain acceptable conditions for nearby workers and other members of the public. This will include regular housekeeping procedures.

11.2 Dust Management

The objective of dust control is to ensure that no significant nuisance occurs at nearby sensitive receptors. Effective site management regarding dust emissions will be the responsibility of appointed contractor by preparation of a dust management plan (DMP).

The key features of the DMP are:

1. Identification of the site manager with responsibility for dust.
2. Systems for managing site practices and implementing management controls.
3. Assessment of the performance of the DMP.

11.2.1 Site Management

The aim is to avoiding dust becoming airborne at source. This will be done through good design and effective control strategies.

Good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures.

The following measures should be taken in order to avoid dust nuisance occurring:

1. There will be a designated person monitoring performance to ensure that the proposed construction phase mitigation measures are implemented and that construction impacts are minimised.
2. During working hours, dust control methods will be monitored as appropriate, depending on the prevailing weather conditions.
3. Complaint registers will be kept on site detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out.
4. At all times, the procedures put in place will be monitored and assessed.

11.2.2 Dust Control Measures

Soil and Rock Excavation

Soil and rock excavation and rock breaking during periods of high winds and dry weather conditions can be a significant source of dust. During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and rock and thus suppress dust. During periods of very high winds, construction activities can generate significant dust emissions and should be postponed until the winds have subsided.

Site Traffic on Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads should be reduced to a minimum by employing the following measures.

1. Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust.
2. At the main construction traffic exit, equipment for wheel washing should be made available. Site constraints may not allow for a full-size wheel was facility. In addition, public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.
3. Vehicles onsite shall turn off engines when not in use to prevent idling emissions.

12.0 Noise and Vibration Management

12.1 Noise

There is no published Irish guidance relating to the maximum permissible noise levels that may be generated during the construction phase of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and consider at their discretion noise limits.

In the absence of specific noise limits, appropriate criteria relating to permissible construction noise levels for a development of this scale may be found in the National Roads Authority (NRA) publication Guidelines for the Treatment of Noise and Vibration in National Road Schemes, which indicate the following criteria and hours of operation. The majority of the construction activity is expected to occur during normal working hours.

Table 1: Maximum Permissible Noise Levels at Adjoining Properties during Construction

Schedule		**Total Noise Levels at Control Stations**		
Period	**Hours**	**Ambient Noise Level, Leq, measured on Site [dB(A)]**	**Period of Hours over which Leq, is applicable.**	**Maximum allowable Sound Level (see note (iv) below) on site [dB(A)]**
Mondays to Fridays	08.00hrs to 19.00hrs	75	1 hour	85
Mondays to Fridays	19.00hrs to 22.00hrs	60	1 hour	65
Saturdays	08.00hrs to 16.30hrs	70	1 hour	80
Sundays and Public Holidays*	09.30hrs to 16.00hrs	60	1 hour	65
All unattended plant outside normal working hours		50	18 hours	55

*Construction activity at these times, other than that required for emergency works, will normally require the explicit permission of the relevant local authority.

Notes:

(i) Noise levels relate to free field conditions. Where noise control stations are located 1 metre from facades of buildings, the permitted noise levels can be increased by 3dB(A).

(ii) The ambient noise level, L_{eq} is the total L_{eq} from all the noise sources in the vicinity over the specified period.

(iii) The existing ambient noise level L_{eq} at a control station is the total L_{eq} from all the noise sources in the vicinity over the specified period prior to the Commencement of the Works.

(iv) Maximum sound level is the highest value indicated on a sound level meter which meets the requirements of BS EN 61672 Type 1 or 2 set to SLOW response, and frequency weighting A.

(v) Throughout the contract, the supervision of the Works will include ensuring compliance with the limits set out in the above table using the methods set out in BS 5228. At all other times the sound level of 48dB(A) L_{eq} (12hr) and a maximum noise level of 53dB(A) at any adjoining property may only be exceeded if the existing ambient noise levels are themselves higher. In such cases the ambient noise level can be exceeded by a maximum of 5 dB(A).

12.2 Vibration

There are two varieties of criteria for vibration: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. In all instances, it is appropriate to consider the magnitude of vibration in terms of Peak Particle Velocity (PPV).

It is acknowledged that humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. Given the site location the base vibration levels from the port operations would be the main factor. In the case of road traffic, vibration is perceptible at 0.5 mm/s and may become disturbing or annoying at higher magnitudes. However, higher levels of vibration are typically tolerated for single events or events of short duration. For example, piling, one of the primary sources of vibration during construction, is typically tolerated at vibration levels up to 5mm/s. This guidance is applicable to the daytime only; it is unreasonable to expect people to be tolerant of such activities during the night. Bored piling as opposed to percussive piling shall be the preferred option for the construction process in order to minimise vibration levels.

Guidance relevant to acceptable vibration within buildings is contained in the following documents:

- British Standard BS 7385 -2:1993: Evaluation and measurement for vibration in buildings. Guide to damage levels from ground borne vibration;
- British Standard BS 5228-2:2009: Code of practice for noise and vibration control on construction and open sites; and
- BS 7385 -2:1993 states that there should typically be no cosmetic damage if transient vibration does not exceed 15 mm/s at low frequencies rising to 20 mm/s at 15 Hz and 50 mm/s at 40 Hz and above. These guidelines relate to relatively modern buildings and should be reduced to 50% or less for more critical buildings.

12.3 Noise and Vibration Mitigating Measures

With regard to construction activities, reference will be made to “BS 5228-1:2009: Code of practice for noise and vibration control on construction and open sites”, which offers detailed guidance on the control of noise and vibration from demolition and construction activities. In particular, it is proposed that various practices be adopted during construction, including:

- Limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;
- Establishing channels of communication between the contractor/developer, Local Authority and residents;
- Appointing a site representative responsible for matters relating to noise and vibration;
- Monitoring typical levels of noise and vibration during critical periods and at sensitive locations;
- All site access roads will be kept even, to mitigate the potential for vibration from lorries;
- Construction of 2.4m high hoarding.

Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These may include:

- Selection of plant with low inherent potential for generation of noise and/ or vibration;
- Erection of barriers as necessary around noisy processes and items such as generators heavy mechanical plant or high duty compressors;

- Placing of noisy/vibratory plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated support structures where necessary;
- Avoiding unnecessary revving of engines and switch off idling engines / equipment when not in use;
- Restricting construction activities to daytime periods only.

It is recommended that vibration from construction activities be limited to a peak value of 5mm/sec. "BS 5228-1:2009: Code of practice for noise and vibration control on construction and open sites" outlines that the most onerous of limits for cosmetic damage to buildings is 15mm/sec for residential or light commercial buildings. Therefore, the proposed 5mm/sec limit is considered to be a very conservative upper limit and well below the levels that would be likely to cause cosmetic/structural damage to any neighbouring buildings or to cause disturbance for neighbours.

Please refer to the Noise and Vibration Impact Assessment report prepared by CLV Consulting, which accompanies this planning submission, for further details on the construction and operational phase impact as well as mitigating measures.

13.0 Working Hours

Working hours during site clearance and construction shall be restricted to 08:00-18:00 hours on Monday to Fridays and to 08:00-16:00 hours on Saturdays. Activities outside these hours shall require the prior approval of the Planning Authority.

14.0 Lighting

There are no proposals to alter the existing lighting arrangements in the area. It is not envisaged that any existing public lighting will need to be disconnected as a result of the proposed works. Appropriate lighting will be provided as necessary at construction compounds. All lighting will be installed so as to minimise light spillage from the site. Any temporary lighting deemed necessary by the contractor for construction works on the site shall adhere to the same lighting limits.

15.0 Conclusions

This report was prepared in accordance with the best practice guidelines and principles for the avoidance, minimisation and control of adverse environmental impacts associated with the proposed development.

This OCEMP will be developed further and/or amended where necessary to take account of site-specific requirements and any information which may be available arising from the planning process.

This OCEMP will form part of the main construction works contract. The contractor will be required to take account of the contents, methods and requirements contained within the various sections of this OCEMP as part of their contractual responsibilities and update in further detail.