

OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Appendix 7: Outline Waste Management Plan

HyNet Carbon Dioxide Pipeline DCO

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 –
Regulations 8(1)(c)

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WASTE REAC COMMITMENTS

1. INTRODUCTION

1.1. PROJECT OVERVIEW

- 1.1.1. This document has been prepared on behalf of Liverpool Bay CCS Limited ('the Applicant') and relates to an application ('the Application') for a Development Consent Order (DCO) that has been submitted to the Secretary of State (SoS) for Energy Security and Net Zero under Section 37 of the Planning Act 2008 ('the PA 2008'). The Application relates to the Carbon Dioxide (CO₂) pipeline which constitutes the DCO Proposed Development.
- 1.1.2. The DCO Proposed Development will form part of HyNet North West ('the Project'), which is a hydrogen supply and Carbon Capture and Storage ('CCS') Project. The goal of the Project is to reduce carbon dioxide (CO₂) emissions from industry, homes and transport and support economic growth in the North West of England and North Wales. The wider Project is based on the production of low carbon hydrogen from natural gas. It includes the development of a new hydrogen production plant, pipelines, and the creation of CCS infrastructure. CCS prevents CO₂ entering the atmosphere by capturing, compressing and transporting it for safe, permanent storage.
- 1.1.3. The DCO Proposed Development is a critical component of the Project which, by facilitating the transportation of carbon dioxide, enables the rest of the Project to be low carbon. The hydrogen production and CO₂ capture and storage elements of the Project do not form part of the DCO Proposed Development and will be delivered under separate consenting processes.
- 1.1.4. A full description of the DCO Proposed Development is detailed in **Chapter 3 – Description of the DCO Proposed Development** of the Environmental Statement (ES), submitted at Deadline 4 [REP4-029].

1.2. PURPOSE OF THE DOCUMENT

- 1.2.1. This Outline Waste Management Plan (OWMP) sets out an indicative structure and overarching methods to avoid, minimise and mitigate likely environmental effects during the construction stage of the DCO Proposed Development, as reported in the ES and **Register of Environmental Actions and Commitments (REAC)** (document reference: **D.6.5.1**) submitted with the DCO Application. A Waste Management Plan (WMP) will be produced by the Construction Contractor(s) in accordance with this OWMP in accordance with Requirement 5(2) of the draft DCO [REP4-008].
- 1.2.2. This OWMP aims to improve efficiency and profitability by driving forward the principles of a circular economy:
- Eliminating waste from every stage of resources' lifecycles, and
 - Stimulating industrial and other business activity that improves material knowledge, transfer and high value application reuse.

- 1.2.3. To ensure a proportionate approach, this OWMP focuses on promoting reuse, recycling and recovery of waste from the construction of the DCO Proposed Development and sets out waste Duty of Care responsibilities.
- 1.2.4. This OWMP is designed to complement and support any activities undertaken to comply with the CL:AIRE Definition of Waste Code of Practice (**Ref 1.1**), and should be read in conjunction with the Outline Materials Management Plan [**REP4-266**], Outline Soil Management Plan [**REP4-240**], and Outline Peat Management Plan [**REP4-242**].

1.3. OBJECTIVES AND TARGETS

1.3.1. The core objectives of this OWMP and the subsequent WMP are to:

- Minimise waste production and disposal;
- Capture and record the benefits of best practice waste minimisation;
- Improve material resource efficiency; and
- Encourage activity in the North West region of England and North Wales that incentivises the move towards a circular economy.

1.3.2. The OWMP aligns to the Applicant's policy (**Ref 1.2**), which outlines a series of minimum requirements to be applied during project engineering design. These requirements necessitate that the environmental impacts of the DCO Proposed Development be as low as reasonably practicable. With specific reference to waste, this includes:

- The Construction Contractor(s) implementing the circular economy principles in the WMP, including:
 - Designing solutions to prevent the generation of waste, and to send waste for recovery, wherever possible (**D-MW-001** of the **REAC**, document reference: **D.6.5.1**).
 - Considering and reducing materials and waste impacts at all stages of design, construction, operation and decommissioning, as part of a lifecycle management approach (**D-MW-001** of the **REAC**, document reference: **D.6.5.1**).
 - Identifying resource streams that might be considered by-products (i.e., not wastes, as per applicable legislation) and reused or recycled (**D-MW-001** of the **REAC**, document reference: **D.6.5.1**).
- The WMP will adhere to the highest tiers of the Waste Hierarchy, all relevant legislation and the Applicant's waste management procedures as detailed in the Applicant's policy (**Ref 1.2**) (**D-MW-002** of the **REAC**, document reference: **D.6.5.1**).
- Waste storage areas will be incorporated into the Detailed Design. Waste segregation measures will be put in place by the Construction Contractor(s) as per the requirements detailed in the CEMP and WMP (**D-MW-003** of the **REAC**, document reference: **D.6.5.1**).

- 1.3.3. In addition to the Applicant's policy requirements, the following construction methods have the potential to reduce adverse impacts and will be adopted:
- The Construction Contractor(s) will ensure that the backfilling of earthworks generated through trenching activities (subject to suitability of material or exemption from waste legislation) will be undertaken (**D-MW-004** of the **REAC**, document reference: **D.6.5.1**).
 - Use of trenchless installation techniques (such as horizontal directional drilling or auger boring) will prevent additional material resource consumption and waste generation and disposal through the avoidance of infrastructure removal and replacement (**D-MW-005** of the **REAC**, document reference: **D.6.5.1**).
 - The Construction Contractor(s) will implement, and follow guidance within, the Materials Management Plan [**REP4-266**], in accordance with the CL:AIRE Definition of Waste: Code of Practice (**Ref 1.1**) (**D-MW-006** of the **REAC**, document reference: **D.6.5.1**).
- 1.3.4. The Construction Contractor(s) will aim to divert 100% of non-hazardous waste from landfill, and as a minimum, achieve 90% waste recovery (the latter to align with current good practice recovery rates for UK construction and demolition activities (**Ref 1.3**)).
- 1.3.5. The REAC (document reference: **D.6.5.1**) entries above can also be seen in Annex A.

2. ROLES AND RESPONSIBILITIES

2.1. APPLICANT AND CONSTRUCTION CONTRACTOR

- 2.1.1. The Applicant has initiated the production of this OWMP. In conjunction with **Chapter 14: Material Assets and Waste of the ES [REP4-052]**, early development of the OWMP will help positively influence the waste management options to be adopted by the (to be appointed) Construction Contractor(s).
- 2.1.2. The Construction Contractor(s) will be responsible for developing and implementing the WMP (which will build upon, advance and further formalise this OWMP). Roles and responsibilities will be defined within the WMP, including, but not limited to, the personnel responsible for:
- Distributing the most up to date copies of the WMP to the Construction Contractor(s), Applicant, and other relevant personnel within the supply chain;
 - Implementing the WMP and updating and reporting on its content;
 - Overseeing and documenting results of the WMP;
 - Monitoring the effectiveness and accuracy of waste documentation produced during the routine site visits;
 - Agreeing data reporting procedures (including timings) with all management contractors employed to remove waste from site; and
 - Providing training and briefings appropriate to the scale and nature of the works to their own staff and contracted value chain.
- 2.1.3. The WMP will be a live document, and the monitoring procedures, responsibilities and compliance actions will be updated as appropriate.
- 2.1.4. The WMP will be approved and signed off by the Applicant. Waste management targets (as suggested in **Section 1.3**) will be set and agreed between the Construction Contractor and the Applicant (as established through planning); continual progress against these will be measured, monitored and reported by the Construction Contractor at a frequency agreed with the Applicant.
- 2.1.5. Regular WMP planning meetings will be arranged by the Construction Contractor(s).

3. SENSITIVE RECEPTORS AND PRINCIPLES

3.1. SENSITIVE RECEPTORS

- 3.1.1. Remaining landfill void capacity is a sensitive receptor. Section 14.6 of **Chapter 14: Material Assets and Waste of the ES [REP4-052]** describes the remaining landfill capacity in the North West region and North Wales.

3.2. SUSTAINABLE PRINCIPLES

- 3.2.1. As part of an approach to delivering sustainable outcomes, the WMP will consider the broad impacts and opportunities of circular economy actions, using waste as a resource, the waste hierarchy and proximity principle.
- 3.2.2. Actions taken throughout the design and construction of the DCO Proposed Development will aim to respond to this context wherever economically, socially and environmentally viable. Measures taken to incorporate sustainable principles will be recorded and monitored within the WMP.

4. WMP REQUIREMENTS

4.1. CONTEXT

- 4.1.1. Originally a part of the legal framework in England (Site Waste Management Plan Regulations 2008) (**Ref 1.4**), WMPs were once a statutory requirement to proactively manage and reduce the volume of waste to landfill from construction and other work sites. Through these regulations, the use of WMPs was mandatory in England for projects of a value of £300,000 or above. The implementation of a WMPs in Wales is voluntary.
- 4.1.2. Whilst the 2008 Regulations were repealed in 2013, WMPs are still considered a good practice approach to reducing site waste. Therefore, WMPs should be deployed on developments from the design stage to describe, forecast and (during on site works) validate the type and amount of waste from a construction, excavation or demolition project, and how it will be managed in accordance with the highest tiers of the Waste Hierarchy and Proximity Principle.
- 4.1.3. The WMP will include:
- Details of who will be responsible for waste management during design and construction/demolition, as appropriate;
 - The types and amounts (volume or weight) of waste to be generated, and how this is measured;
 - How the waste generated will be managed to encourage circular economy activity (i.e., eliminate, reduce, reuse, recycle, upcycle, dispose plus links to sectoral activity that will or could facilitate this);
 - Details of the waste contractors / brokers employed to ensure waste is managed legally and responsibly in accordance with the requirements of this document.

4.2. COMMUNICATION AND TRAINING

- 4.2.1. The WMP will be:
- Produced, updated and adopted by the Construction Contractor(s) and their design team;
 - Adopted, where appropriate, by the Construction Contractor(s)'s waste management supply chain; and
 - Issued to the Applicant (for approval) when updated.
- 4.2.2. In each case, those listed above will be responsible for providing adequate waste awareness and training throughout their organisations and value chain. Site inductions and toolbox talks for contractors and site workers will be a key part of this communication process.

4.3. WMP REQUIREMENT FOR DESIGN

4.3.1. The Construction Contractor(s) will adopt – where appropriate to the scale and nature of the DCO Proposed Development – the principles of designing out waste. These will align to the Waste and Resources Action Programme (WRAP) principles (**Ref 1.5**), which comprise:

- Design for reuse and recovery;
- Design for off-site construction;
- Design for materials optimisation;
- Design for waste efficient procurement; and
- Design for deconstruction and flexibility.

4.4. WMP REQUIREMENTS FOR CONSTRUCTION

4.4.1. All construction related activities shall be carried out in close conjunction with the appointed waste management contractors, to determine the best techniques for managing waste and ensure a high level of recovery.

4.4.2. Where wastes generated from the DCO Proposed Development can be valuably reused on site or on other (off-site) developments / processes, the benefits and commercials / logistics of doing so shall be quantified, recorded and shared with the Applicant.

4.4.3. For all waste management options, consideration will need to be given for identifying whether waste exemptions or permits are required to enable management through storage and treatment.

4.4.4. Management in the highest tiers of the Waste Hierarchy will be supported by the identification of appropriately permitted recovery, waste management and other potential recipient facilities / activities in close proximity to the site.

4.4.5. The Construction Contractor(s) and appointed waste management contractors will be responsible for ensuring waste is appropriately managed. This will include:

- Implementing a site-wide waste minimisation scheme to encourage the reduction of waste, reuse of waste and recycling of waste.
- Reuse of uncontaminated arisings, where possible, on site in accordance with the Outline Material Management Plan **[REP4-266]**, adhering to the CL:AIRE Definition of Waste Code of Practice (CoP) (**Ref 1.1**).
- Storage and stockpiling of any arisings will be undertaken to ensure the quality and reuse value of the arising is retained to maximise reuse. Should arisings be unsuitable for reuse, they will be appropriately segregated and classified prior to disposal.
- Characterisation of waste as inert, non-hazardous or hazardous, with Waste Acceptance Criteria (WAC) testing undertaken as required.

- Providing areas for waste segregation and collection on the work site compounds with clear signposting as to the location for each waste product.
- Pre-treatment of waste (including hazardous waste) prior to disposal off-site. Hazardous waste cannot be re-used on the DCO Proposed Development and may require additional treatment prior to disposal.
- Monitoring to ensure cross contamination of segregated waste does not occur, and measures to prevent deterioration or escape of waste.
- Dust and pollution prevention measures in place to avoid environmental harm.
- Duty of Care requirements including the completion and receipt of waste transfer notes or consignment notes for hazardous waste.
- Liaison with the Environment Agency (EA) and Natural Resources Wales (NRW) to ensure that all materials and waste on-site management will be conducted appropriately, and any permits or licences required are obtained.
- Ensuring Waste Contractors are registered with the EA and / or NRW, as appropriate as waste carrier and waste management sites hold appropriate licences / permits. A Waste Management Log will be retained by the Construction Contractor(s) to record registrations, licences and permits.
- Registration as a hazardous waste producer where 500kg of hazardous waste will be produced in any 12 month period.

4.5. INITIAL WASTE FORECAST

4.5.1. The preliminary waste quantities used to inform the Waste and Materials assessment in Chapter 14 of the ES [REP4-052] can be found in **Table 4.1**. During the Detailed Design, associated waste forecasts will be transposed into a Site Waste Management Plan spreadsheet which will be of a similar level of detail to the WRAP Site Waste Management Plan template (**Ref 1.6**).

Table 4-1 – Preliminary Waste Management Log

Site activity	Waste type	Waste forecast amount (tonnes)	Management technique to comply with the Waste Hierarchy	Forecast recovery rate by technique (%)
Construction	Aggregate	39,200	Recycled	100
Construction	Concrete	10,920	Recycled	100
Construction	Copper (cabling)	4	Copper elements will be recycled.	100

Site activity	Waste type	Waste forecast amount (tonnes)	Management technique to comply with the Waste Hierarchy	Forecast recovery rate by technique (%)
Construction	Plastic (cabling)	TBC	Plastic will be disposed of to landfill.	0
Construction	Earthworks	7,740	Reused on site where suitable, or taken to a soil recycling facility.	100
Construction	Hazardous Waste	10	Treatment	TBC
Construction	Steel	90	Recycled	100
Construction	Timber	90	Off-site reuse / Recycled	100
Construction	General construction consumables (such as plastic / general waste)	90	Landfill	0
Total		58,144		
Initial forecast recovery quantity and rate		58,054		99.8%

4.6. UPDATING THE WMP AND RECORDING PERFORMANCE

4.6.1. This OWMP will be updated and refined into a WMP at the Detailed Design stage by the Construction Contractor(s) who will be responsible for delivering the Detailed Design. The WMP will then be updated if a change in construction or management technique is required that would affect waste quantities or types, or when new waste types are identified.

- 4.6.2. The Design and the Construction Contractor(s) will, at the appropriate delivery stage, identify any arisings where recovery rates could be improved and record how these improvements could be achieved. For example, using the data in **Table 4-1**, opportunities to recycle cable plastic and construction plastic and general waste could be identified.
- 4.6.3. **Table 4-2** is an example of the format in which all arisings and the optimised (ideal) scenario for the management of those arisings on the Proposed Development, can be recorded.

Table 4-2 – Example Table for Recording Opportunities for Reuse or Recovery

Arising Type	Current Forecast Recovery Rate	Opportunity Identified for Reuse / Recovery	Optimal Recovery Rate

- 4.6.8. At the end of the construction stage the Construction Contractor(s) shall confirm actual waste arisings and management techniques adopted, by comparison with the most up-to-date design forecasts issued.
- 4.6.9. **Table 4-3** (or similar) will be used to record waste minimisation and circular economy achievements on the DCO Proposed Development. It is recommended data collated is transposed to the WMP spreadsheet by the Construction Contractor(s), so that it can be compared with actuals.

Table 4-3 – Waste Performance Data (Actuals)

Type of waste	Circular economy or Definition of Waste action identified or applied (qualification)	Waste avoided (m ³ or tonnes)	Total waste estimated (m ³ or tonnes)	Management technique adopted *

* Management techniques: elimination, re-use on site, re-use off site, recycling on site, recycling off site, recovery with energy generation, recovery without energy generation, or disposal to landfill

5. REVIEW AND LESSONS LEARNED

- 5.1.1. Within three months of completion of construction of the DCO Proposed Development, the Applicant and the Construction Contractor are responsible for:
- Confirming that the detail WMP and spreadsheet have been finalised to the satisfaction of the responsible parties;
 - Justifying any deviation from the agreed WMP;
 - Finalising the comparison of design forecasts for each waste type, against the actual quantities generated and recovered;
 - Establishing the success of any approaches taken to achieve a circular thinking or practice;
 - Establishing the volume of waste diverted from landfill, the commercial benefits from the approach, and any carbon and other savings achieved; and
 - Identifying lessons learned and describing how key messages will be communicated to the benefit of future developments to drive continual improvement.
- 5.1.2. Completion of the above stages will be confirmed through **Table 5-1**.
- 5.1.3. It is recommended that the Construction Contractor(s) keep the completed WMP and spreadsheet for a minimum of two years after the DCO Proposed Development is complete, either at the project site, or at the Construction Contractor(s)'s main place of business.

Table 5-1- Post Construction Declaration

This Plan has been fully implemented to meet the requirements set out and has been updated to record details of the actual waste management actions and waste transfers, against the forecasts made in design.			
Signatures	Applicant	Designer	Principal Contractor
Date			

6. SUMMARY

- 6.1.1. This OWMP has been produced as part of the suite of measures designed to minimise the environmental impact of the construction of the DCO Proposed Development. It draws on the assessment of **Material Assets and Waste (Chapter 14)** as described in the ES [REP4-052].
- 6.1.2. The preliminary waste forecast indicates that a recovery rate of 99.8% may be achieved, although this could be improved by identifying recycling options for plastics. It is anticipated that additional waste streams will be identified as the Detailed Design and development of the WMP progresses, however a recovery rate meeting the 90% target is anticipated.

7. REFERENCES

Ref 1.1 – CL:AIRE Definition of Waste Code of Practice. Retrieved from

Ref 1.2 – MSG: HSE opi hse 023 ‘Safety & Environmental Minimum Design Requirements’.

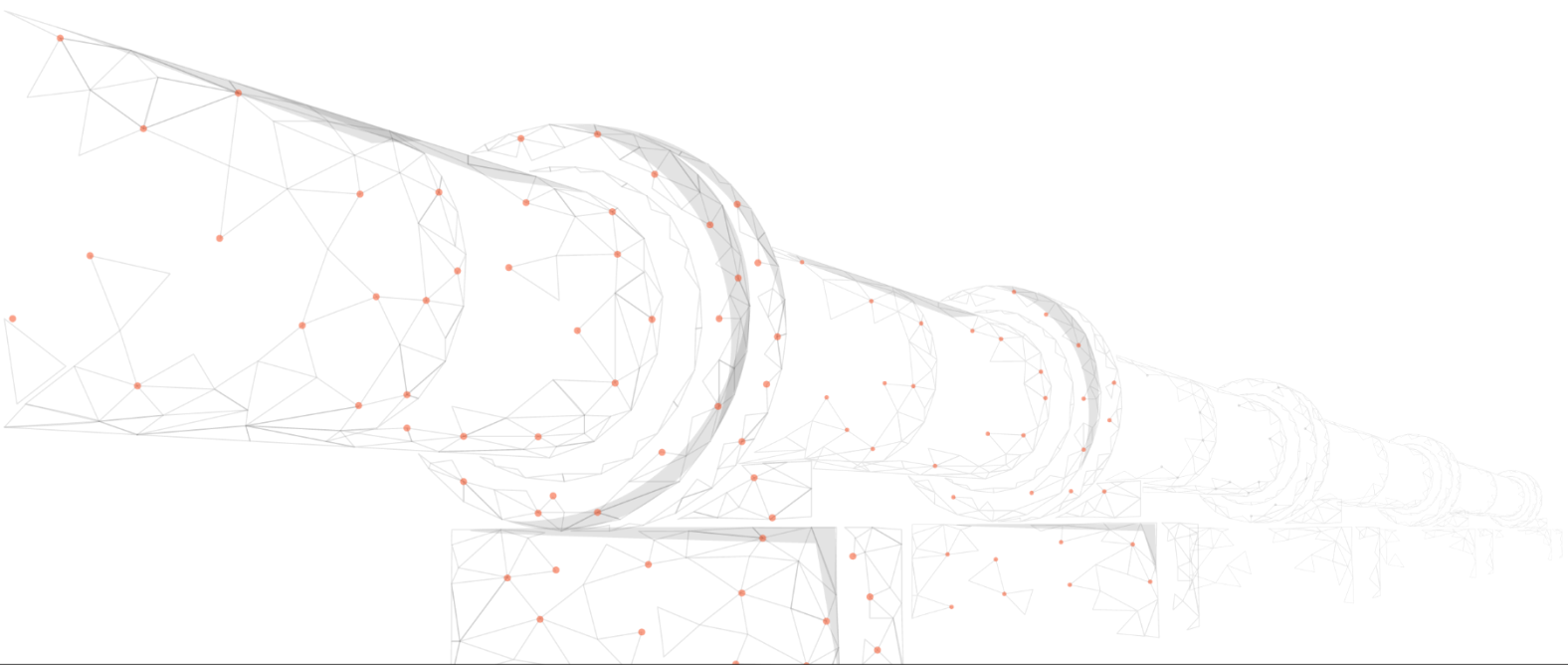
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Ref 1.5 – WRAP (n.d.) Designing Out Waste: A design team guide for Civil Engineering.
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Ref 1.6 - WRAP (n.d.) Site Waste Management Plan. Retrieved from

Annexures



Annex A

WASTE REAC COMMITMENTS

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-MW-001	<p>The Construction Contractor(s) will ensure that the application of circular economy principles will be followed, as implemented in the detailed CEMP, including:</p> <ul style="list-style-type: none"> • Designing solutions to prevent the generation of waste where feasible, and to send waste for recovery, wherever possible. • Considering all stages of construction, operation and decommissioning in a lifecycle approach. • Identification of resource streams that might be considered by-products (i.e., not wastes, as per applicable legislation) and reused or recycled. 	Effective design for the future.	Construction Contractor(s)
D-MW-002	The Waste Management Plan will adhere to the highest tiers of the Waste Hierarchy, all relevant legislation and the Applicant's waste management procedures.	To identify opportunities to further reduce any waste. To reduce associated impacts such as potential harm to the environment. To monitor waste generation and disposal methods.	Construction Contractor(s)
D-MW-003	Waste storage areas will be incorporated into the Detailed Design. Waste segregation measures will be put in place by the Construction Contractor(s) as implemented in the detailed CEMP and WMP.	To maximise the potential for highest value reuse and recycling.	Construction Contractor(s)
D-MW-004	The Construction Contractor(s) will ensure that the backfilling of earthworks generated through trenching activities (subject to suitability of material) will be undertaken.	Construction methods with the potential to reduce adverse material asset and waste impacts	Construction Contractor(s)

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
D-MW-005	The use of trenchless installation techniques (such as horizontal directional drilling or auger boring) will prevent additional material resource consumption and waste generation and disposal through the avoidance of infrastructure removal and replacement.	Construction methods with the potential to reduce adverse material asset and waste impacts	Construction Contractor(s)
D-MW-006	The Construction Contractor(s) will implement, and follow guidance within, the Materials Management Plan (MMP) in accordance with the CL:AIRE Definition of Waste: Code of Practice.	To monitor the maximum reuse of both natural soils and Made Ground (contaminated or otherwise).	Construction Contractor(s)