Connah's Quay Low Carbon Power

Environmental Statement Volume IV
Appendix 23-A: Materials and Waste Baseline Data Report

Planning Inspectorate Reference: EN010166
Document Reference: EN010166/APP/6.4
Planning Act 2008 (as amended)
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(a)
Revision 00

August 2025

Prepared for:
Uniper UK Limited

Prepared by:
AECOM Limited

© 2025 AECOM Limited. All Rights Reserved.

This document has been prepared by AECOM Limited ("AECOM") for sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Table of Contents

Tables

1. Baseline Conditions

1.1 Availability of Key Construction Materials

1.1.1 The key construction materials associated with the Proposed Development are considered to be aggregates, asphalt, concrete and steel.

Existing Baseline

1.1.2 **Table 1** provides a summary of the sales in 2022 for aggregates, asphalt, and concrete within the United Kingdom (UK)/Great Britain (GB) (Ref 1) as well as the UK demand for steel in 2023 (Ref 2) (the most recent years for which data is available). Data related to sales of these key construction materials in Wales and North West England in 2022 is presented in **Table 2**.

1.1.3 It is assumed that most key construction materials (aggregates, asphalt, concrete) would be sourced locally, taking into account the proximity principle and value for money. Other materials may be sourced from the rest of the UK or imported into the UK (e.g. steel). Steel requirement at the UK level is considered since there is no Wales level data.

Table 1: UK/GB requirement and sales for key construction materials

Material	Requirement/sales (million tonnes, year)	Baseline data year	Data description
Steel	15	2023	UK total consumption, UK Steel, Key Statistics Guide (May 2024 Edition) (Ref 2).
Aggregates of which:	279.8	2022	Minerals and mineral products sales in Great Britain, Mineral Products Association (MPA), Profile of the UK Mineral Products Industry (2023 Edition) (Ref 1).
Crushed rock	148.2		
Sand and gravel – land won	47.7		
Sand and gravel – marine	14.3		
Recycled and secondary	69.6		
Asphalt	28.3		
Ready-mix concrete	52.7		
Concrete products	24.8		

Table 2: Construction material sales for Wales, North West England and combined Wales and North West England 2022 (Ref 1)

Construction material	Wales sales (million tonnes, year)	North West England sales (million tonnes, year)	Combined Wales and North West England sales (million tonnes, year)
Crushed rock	12.7	7.2	19.9
Sand and gravel	1.9	1.8	3.7
Ready-mixed concrete	1.2	3.4	4.6
Asphalt	1.1	2.1	3.2

Future Baseline

1.1.4 There is no publicly available information on any potential long-term changes to this national and regional demand of these materials by the time of construction of the Proposed Development. Construction material demand, such as ready-mix concrete, is closely aligned to both the quantity of construction taking place and the general economy; therefore, it is deemed inappropriate to forecast future demand as this is unlikely to be linear. It is, therefore, not practicable to set a future baseline for resources, so future consumption is assumed to be the same as the current baseline, as outlined in **Table 1** and **Table 2**.

Recycled Content

1.1.5 Potential recycled content for the main construction materials to be used during the construction of the Proposed Development is outlined in **Table 3**. These 'good practice' rates are derived from the Waste and Resources Action Programme (WRAP) Designing Out Waste Tool for Civil Engineering (Ref 3).

Table 3: Potential recycled content (Ref 3)

Material type	Potential recycled content (% by weight)
Concrete	16
Asphalt	25
Aggregates	50
Steel reinforcements	100
Structural steel	60

1.2 Mineral Safeguarding Areas, Allocated/Safeguarded Mineral and Waste Sites

1.2.1 The Order limits are located within Flintshire County Council's (FCC) administrative area.

1.2.2 As outlined on the FCC Proposal Map (Ref 4), there is a Mineral Safeguarding Area (MSA) (Policy EN23 Minerals Safeguarding) within the Order limits (Proposed CO_2 Connection Corridor). Potential severance and/or sterilisation of the resource has been assessed as part of **Chapter 14: Geology and Ground Conditions** (**EN010166/APP/6.4.14**).

1.2.3 As outlined on the FCC Proposal Map, the Order limits included a small area within an allocated/safeguarded mineral site at 'Mostyn Docks'. No works are proposed in the docks, which would compromise the essential infrastructure that supports the supply of minerals.

1.2.4 The Order limits do occupy land within allocated/safeguarded waste sites. As outlined on the FCC Proposal Map, there is a Location for Waste Management Facilities (Policy EN21 Locations for Waste Management Facilities) which is within the Order limits (Construction and Indicative Enhancement Area (C&IEA) and Mostyn Docks). These are sites which are considered to be suitable in principle for waste management uses. However, as stated in the FCC Local Development Plan (LDP) (Ref 5), '*there is no identified need for further recovery or disposal infrastructure within the County'* and *'no strategic allocations for waste management are identified within the LDP.'* The areas are not considered to be allocated/safeguarded waste sites.

1.3 Landfill Capacity

Existing Baseline

1.3.1 Baseline information is based on the estimated landfill void capacity in Wales for 2018 (latest available data) as outlined in Natural Resources Wales' Estimated Landfill Void in Wales data (Ref 6), as summarised in **Table 4.**

Table 4: Landfill capacity for inert and non-hazardous waste in Wales (Ref 6)

EPR Number Type	Type	Name	Area	Estimated remaining void space m^3
BP3330LS	Inert	Griffiths Griffith Wyn, Edward Lloyd and Gwenfrai Rees (Ty Mawr Farm)	North	397,791
FP3590LV		Clive Hurt (Plant Hire) Ltd	North	337,500
RP3337SE		Nant Newydd Quarry	North	262,500

EPR Number Type	Type	Name	Area	Estimated remaining void space m^3
WP3432SC		Treborth Leisure Ltd.	North	16,885
KP3795FU		Tarmac Ltd (Hendy Quarry)	South east	792,126
MP3036SS		Cemex UK Materials Limited	South east	33,750
Total inert capacity:				1,840,552
BU0800IZ	Non-hazardous	FCC Environment (Llandullas)	North	167,922
PP3139GB		Cory Environmental Central Ltd - Hafod Quarry	North	2,218,538
GP3030BE		Corus UK Ltd	North	47,694
BT1908IX		JLA Disposal Ltd (Palleg Landfill)	South east	11,132
DP3732SQ		Cynon Valley Waste Disposal Company Ltd	South east	2,162,048
RP3733PC		Biffa Waste Services Ltd (Trecatti)	South east	441,915
DP3733BK		Newport City Council	South east	572,306
BP3339BH		RWE Npower plc (Aberthaw Quarry)	South east	520,584
BU8819IV		FCC Environment (Pwllfawatkin)	South west	74,492
VP3935AT		Cory Environmental (Gloucestershire) Ltd UK - Tir John	South west	174,587
MP3330WP		Resources Management UK Ltd (Withyhedge)	South west	1,773,391
BV7311IE		Tata Steel UK Limited (Port Talbot)	South west	122,843
Total non-hazardous capacity:				8,287,452

1.3.2 For non-hazardous waste, total landfill capacity in Wales (all types excluding non-hazardous restricted) at the end of 2018 was approximately 8.3 million m^3.

1.3.3 For inert waste, total landfill capacity in Wales at the end of 2018 was approximately 1.8 million m^3.

1.3.4 For hazardous waste, landfill capacity in Wales in 2018 was approximately 14,000 m^3.

1.3.5 For hazardous waste, total merchant landfill capacity in England at the end of 2023 was approximately 9.9 million m^3, as outlined in the Environment Agency's 2023 Waste summary Tables for England – Version 1 (Ref 7). Hazardous restricted sites are not included since that capacity may not be available to the Proposed Development. Restricted landfills only accept waste from a limited number of sources and producers, commonly the site operator (e.g. a manufacturing site).

Future Baseline

1.3.6 There is no publicly available information regarding any potential changes to landfill capacity that are likely to have occurred by the time of the Proposed Development's construction and operation.

1.3.7 Considering the decline of landfill capacity, forecasting into the future would lead to the inevitable conclusion that there would be no void space remaining. However, this is not a credible scenario as if there is still a need for landfill, then the Waste Planning Authority will need to consent new landfill capacity to replace that which has been used up. Therefore, landfill capacity is assumed to remain the same as the current baseline.

1.4 Waste Management Facilities

Existing Baseline

1.4.1 Capacity data for other types of waste infrastructure is publicly available (e.g. Permitted Waste Sites – Data Map (Ref 8)). However, the permitted capacity is not necessarily representative of the actual operational capacity of the infrastructure. Therefore, inputs data have been collated from the Natural Resources Wales' 2023 Waste Permit Returns Data Interrogator – Waste Received (Excel) – (Ref 9) and presented in **Table 5** for Wales. Inputs are not totaled since the double counting of waste moving between the site types listed in the Waste Permit Returns Data Interrogator cannot be discounted.

Table 5: Summary of waste inputs by facility for Wales (2023) (Ref 6)

Facility Type	Tonnes received
Incineration	1,046,420
Landfill	1,204,176
Mobile Plant	272,585
MRS	794,392
On/In land	227,906
Reprocessing	132,817
Storage	2,298
Transfer	2,721,956
Treatment	5,824,938

1.5 National Hazardous Waste Management Facilities

Existing Baseline

1.5.1 Some of the operational hazardous wastes, likely to be generated by the Proposed Development, would not be suitable for landfill disposal (e.g. liquid waste). However, due to the specialised nature of hazardous waste management, hazardous waste facilities generally receive wastes from a wider area than typical waste management facilities accepting inert and non-hazardous waste (see **Table 6**). Given this, **Chapter 23: Materials and Waste** (**EN010166/APP/6.2.23**) considers the national capacity (Wales and England) for managing hazardous wastes.

1.5.2 Liquid hazardous waste from the Proposed Development operation may be managed by high-temperature incineration or by physico-chemical treatment. Alternatively, in the longer term, some form of waste treatment may be developed near to the Proposed Development to manage waste associated with carbon capture and other carbon capture facilities in the area. However, in the absence of such facilities, this assessment conservatively does not consider the potential for such waste treatment facilities to be developed.

1.5.3 There are two high-temperature hazardous waste incinerators in Wales (excluding facilities which only manage clinical waste), including a cement kiln, which are permitted to accept hazardous waste. These facilities as reported in the Natural Resources Wales' Waste Permit Returns Data Interrogator 2023 (Ref 9) and are identified in **Table 6**.

1.5.4 There are several high-temperature hazardous waste incinerators in England (excluding facilities which only manage clinical waste and received less than 500 tonnes), as well as cement kilns which are permitted to accept hazardous waste. These facilities are reported in the Environment Agency's Waste Data Interrogator for 2023 (Ref 7) and are identified in **Table 6**.

Table 6: Hazardous waste incineration facilities accepting hazardous waste in Wales and England (Ref 9 and Ref 10)

Facility Name	Location	2023 Waste Received (Tonnes of Hazardous Waste)
Wales		
Margam Green Energy Plant	Neath Port Talbot	21,941
Padeswood Cement Works	Flintshire	23,495
England		
Avonmouth Treatment Centre	Bristol City	4,718
Cauldon Cement Plant	Staffordshire	14,418
East Kent Waste Recovery Facility	Kent	2,040
Ellesmere Port Incinerator	Cheshire	61,515
Fawley High Temperature Incinerator	Hampshire	25,924
Fine Environmental Services – Seal Sands	Tees Valley	11,197
Ketton Works	Rutland	19,858
Kirk Sandall Thermal Treatment Plant	South Yorkshire	4,001
Ribblesdale Cement Works	Ribble Valley	24,888
Rugby Cement Plant	Rugby	17,471
Tradebe Heysham Limited	Lancashire	9,825
Tunstead Cement and Lime Works	Derbyshire	18,624
Twinwoods Co-incinerator	Bedford	9,029
Whitwell Quarry Lime Works	Derbyshire	28,576
Total (Wales and England)		297,520

1.5.5 **Table 7** outlines the quantity of liquid hazardous waste treated by permitted facilities in Wales and England; these figures have been extracted from Natural Resources Wales' 2023 Waste Permit Returns Data Interrogator (Ref 9) and the EA's 2023 Waste Data Interrogator (Ref 10). The figures reported in **Table 7** exclude waste categorised under the EWC Code Chapter 13 'Oil Wastes and Wastes of Liquid Fuels'.

Table 7: Hazardous liquid waste treatment facilities in Wales and England (Ref 7 and Ref 9)

Facility Permit Type	2023 Waste Received (Tonnes)
Wales	
A17: Physico-chemical treatment installation (all hazardous waste, Wales)	73,483
England	
T05: Physico-chemical treatment installation	266,098
T06: Chemical treatment installation	128,499
T10: Haz waste treatment installation	193,015
T11: Haz waste transfer/treatment installation	43,498
Total (Wales and England)	704,594

1.6 Future Baseline for Waste Management Facilities

1.6.1 There is no publicly available information regarding any potential changes to waste management facility capacity that are likely to have occurred by the time of the Proposed Development's construction and operation.

1.7 Historic and Permitted Landfills

1.7.1 Historic landfills are potentially relevant to this assessment since excavations in historic landfills can give rise to waste that would subsequently require management. Natural Resources Wales' Permitted Waste Sites Data Map (Ref 11) identifies three historic landfill sites located within the Order limits, as detailed in **Table 8**.

1.7.2 There are no permitted landfills within the Order limits.

Table 8: Historic Landfills (Ref 11)

Site Name	Site Address	License Holder	Site Reference	License Issued	License Surrendered	Waste type
Connah's Quay Power Station	Connah's Quay, Flintshire	Central Electricity Generating Board	A/L/10/11, B/RD/7/10	1977	1991	Inert, industrial and commercial
Connah's Quay Power Station 3	Ash Lagoon, Clwyd	Central Electricity Generating Board	No information	No information, first input 1962	No information	Inert and industrial
Connah's Quay Power Station No.1	Ash Lagoon, Clwyd	Central Electricity Generating Board	No information	No information, first input 1954	No information	Inert and industrial

1.7.3 Further information regarding historic landfill sites within the Proposed Development Site is presented in **Chapter 14: Geology and Ground Conditions** (**EN010166/APP/6.2.14**).

1.8 Waste Targets

1.8.1 The national target for recovery of construction and demolition (C&D) waste is 70% by weight, as set out in the European Waste Framework Directive and Towards Zero Waste One Wales: One Planet – The Overarching Waste Strategy Document for Wales (Ref 12). The target specifically excludes naturally occurring materials with EWC Code 17 05 04 (17 05 04 soil and stones other than those mentioned in 17 05 03* (soils and stone containing dangerous substances)). Recovery is deemed to include reuse, recycling, and other recovery (e.g. energy recovery).

1.8.2 A good practice landfill diversion target of 90% has been achieved and exceeded by major UK developments as outlined in the Institute of Sustainability and Environmental Professionals (ISEP) (formerly the Institute of Environmental Management Assessment (IEMA) Guidance (Materials and Waste) (Ref 13). In 2020, the UK generated 59.4 million tonnes of non-hazardous C&D waste, of which 55 million tonnes were recovered. This represents a recovery rate of 92.6% (Ref 14).

1.8.3 Standard, good and best-practice recovery rates by material are provided by WRAP (Ref 15). Recovery rates for key construction materials and other construction wastes relevant to the Proposed Development are provided in **Table 9**.

Table 9: Standard, good and best practice recovery rates by material (Ref 3)

Materials	Standard practice recovery (%)	Good practice recovery (%)	Best practice recovery (%)
Metals	95	100	100
Packaging	60	85	95
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical equipment	Limited information	70	95
Cement	Limited information	75	95
Liquids and oils	100	100	100
Hazardous	50	Limited information, cannot be 100% since some hazardous waste (e.g. asbestos) is advised to be landfilled.	

References

Ref 1. MPA, 2023. Profile of the UK Mineral Products Industry. [Online]. Available at: Profile of the UK Mineral Products Industry (Accessed 07/05/2025).

Ref 2. UK Steel, 2024. Key Statistics Guide, May 2024. [Online]. Available at: https://www.uksteel.org/uk-steel-procurement-1 (Accessed 07/05/2025).

Ref 3. WRAP, Designing Out Waste Tool for Civil Engineering. No longer available online.

Ref 4. FCC, 2023; Flintshire Local Development Plan 2015 – 2030 (Proposal Maps). Adopted Plan 24th January 2023 [online]. Available at Flintshire County Council – Local Plan: Adopted Proposals (opus4.co.uk) (Accessed 07/05/2025).

Ref 5. FCC, 2023; Flintshire Local Development Plan 2015 – 2030. Adopted Plan 24th January 2023. [Online] Available at: https://flintshire.gov.uk/en/PDFFiles/Planning/Examination-Library-Documents/FINAL-LDP-Written-Statement-English.pdf (Accessed 07/05/2025).

Ref 6. Natural Resources Wales, 2018. Estimates Landfill Void Wales. Available at: Natural Resources Wales - Citrix FileShare (sharefile.eu) (Accessed 07/05/2025).

Ref 7. Environment Agency, 2024. 2023 Waste Summary Tables for England – Version 1. Available at: https://www.data.gov.uk/dataset/59ab8448-3905-49c6-9122-ae762f96f66b/2023-waste-data-interrogator (Accessed 07/05/2025).

Ref 8. Natural Resources Wales, 2024. Permitted Waste Sites Data Map. [Online]. Available at: Natural Resources Wales / Find details of permitted waste sites (Accessed 07/05/2025).

Ref 9. Natural Resources Wales, 2024. 2023 Waste Permit Returns Data Interrogator. [Online]. Available at: Waste Permit Returns Data Interrogator | DataMapWales (gov.wales) (Accessed 07/05/2025).

Ref 10. Environment Agency, 2024. 2023 Waste Data Interrogator, Wastes Received – Version 1. Available at: https://www.data.gov.uk/dataset/59ab8448-3905-49c6-9122-ae762f96f66b/2023-waste-data-interrogator (Accessed 07/05/2025).

Ref 11. Welsh Government, 2024. Historic Landfill Sites. Available at: https://datamap.gov.wales/layers/inspire-nrw:NRW_Historic_Landfill_Sites (Accessed 07/05/2025).

Ref 12. Welsh Assembly Government, 2010. Towards Zero Waste One Wales: One Planet – The Overarching Waste Strategy Document for Wales. Available at: https://www.gov.wales/sites/default/files/publications/2019-05/towards-zero-waste-our-waste-strategy.pdf. (Accessed 07/05/2025).

Ref 13. IEMA guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach. Available at: https://www.iema.net/resources/news/2020/03/30/iema-launches-guide-to-materials-and-waste-in-environmental-impact-assessment. (Accessed 07/05/2025).

Ref 14. Department for Environment, Food & Rural Affairs, 2024. UK Statistics on Waste. Available at: https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste. (Accessed 07/05/2025).

Ref 15. WRAP, 2007. Waste Recovery Quick Wins. Improving Recovery Rates without Increasing Costs. No longer available online from WRAP.