Addendum to the Environmental Impact Assessment Report

NISA

North Irish Sea Array

Volume 5 - Wider Schemes Chapters

Chapter 31
Resource and Waste Management

Statkraft

CIP
Copenhagen Infrastructure Partners

GoBe
APEM Group

ARUP

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31. Resource and Waste Management

North Irish Sea Array Windfarm Ltd (NISA, hereafter referred to as 'the Developer') has been considering the Request for Further Information (RFI) issued by An Bord Pleanála (now An Coimisiún Pleanála) as well as the third-party submissions received following public consultation. At An Coimisiún Pleanála's behest, the Developer has also continued to consult with stakeholders in respect of the 2024 planning application throughout 2024-2026. The Developer has refined elements of the design to respond to the third-party submissions, the continued public and stakeholder consultation and the RFI (further details on the design refinements are provided in Appendix A5.1: Design Refinements). Amendments are therefore required to Chapter 31: Resource and Waste Management of the 2024 Environmental Impact Assessment Report (EIAR). Full details of consultation undertaken can be found in Appendix A1.2 in the Addendum to the EIAR.

For the purposes of clarity, this document shall be read in conjunction with the Chapter 31 submitted as part of the 2024 EIAR.

Any cross reference to a chapter, section, table, image, figure or appendix within this document is to another location within the Addendum to the EIAR unless explicitly stated otherwise. Any cross reference to anything included in the 2024 EIAR will be clearly labelled as such.

Text in bold is only used throughout this document to indicate where changes are required, and why they are required. Text in italics illustrates section(s) of the 2024 EIAR which are deleted, or quotations from other documents (as explicitly stated). Replacement text is in normal font.

Tables which have been updated from the 2024 EIAR, or entirely new tables, have been included in the Addendum to the EIAR. These tables can be identified by the "A" prefix in the table caption. Any changes within the updated table, in comparison to tables within the 2024 EIAR, are indicated by grey shading in the relevant cell, column or row, as necessary. The exception here is where a table has been replaced in its entirety.

The sections relevant to Chapter 31 in the RFI are included below.

RFI Section	RFI	Relevance to Chapter
1 (b)	The scientific information provided as part of the planning application documentation should be based on up-to-date survey reports and data. Accordingly, the applicant is requested to confirm/provide justification/verification that the information submitted in support of the planning application remains relevant and appropriate at the point of submitting further information or to update same as required.	The timeframes associated with the RFI have necessitated a review of the datasets previously used in the 2024 EIAR to ensure any necessary updates to the baseline environment are captured. Therefore, a review of the baseline environment has been undertaken to comply with RFI 1 (b). The update to this chapter in relation to this, is provided in Sections 31.2, 31.3 and 31.10.
2 (a)	The Irish Coast Guard (IRCG), through the Department of Transport, has raised concerns in relation to the layout of the proposed development with respect to search-and-rescue (SAR) access. The applicant is requested to consult with the IRCG, in addressing these concerns, and provide further information and clarification on such matters.	Design refinements have been made in response to this RFI (which are detailed in Appendix A5.1 Design Refinements). From a resource and waste perspective, these design refinements have resulted in a change in resource use and construction waste and are described in Section 31.4 and assessed in Section 31.5.
5	The Marine Institute in their observation raises concerns in relation to the methodology applied in the submitted cumulative effects assessment and the manner in which the information is presented, noting the lack of a standard Irish methodology in relation to CEA. The applicant is advised that guidance exists in the UK, namely Nationally Significant Infrastructure Projects: Advice	A revised CEA, which considers the methodology and template provided in the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment – GOV.UK, September 2024 (NSIP, 2024), has been prepared. The revised CEA is provided in Chapter 38 Cumulative and Inter-Related Effects, Appendix 38.1 – Onshore Long List and Appendix A38.2

RFI Section	RFI	Relevance to Chapter
	on Cumulative Effects Assessment - GOV.UK, September 2024 (NSIP, 2024). The applicant is requested to revise the submitted cumulative assessment in line with NSIP (2024) and submit a standalone document to clearly demonstrate the CEA conclusions. In the interests of consistency and transparency, the applicant is requested to complete the assessment in accordance with the templates provided in the NSIP (2024), namely "Appendix 1: Matrix 1 – Identification of 'other development' for CEA" and "Appendix 2: Matrix 1 – Assessment matrix " (see attached Appendix B)…	Offshore Long List. The update to this chapter in relation to this, is provided in Section 31.9.
10 (a)	Having regard to information submitted in the EIAR, the NPWS underwater noise guidelines (NPWS, 2014), the strict protections afforded to marine mammals under the Wildlife Act 1976, as amended, in addition to observations from prescribed bodies and observers, the Board requires a comprehensive suite of noise abatement measures to be proposed and assessed in addition to the existing mitigation measures referenced in the planning application documentation.	Design refinements have been made in response to this RFI (which are detailed in Appendix A5.1 Design Refinements). From a resource and waste perspective, these design refinements have resulted in a change in resource use and construction waste and are described in Section 31.4 and assessed in Section 31.5.
13 (e)	The applicant is requested to review the draft [Flemington] LAP (or adopted LAP, where updated at time of this observation) and update the submitted application documentation accordingly, having regard in particular to potential for visual impacts from the substation on the draft LAP lands, potential traffic implications given the proposed access to the LAP lands directly adjoins the proposed access to the substation, and potential noise implications from the substation on the adjoining residential zoned lands.	The Developer has updated the landscape plan for the grid facility which removes palisade fences for the site perimeter fences and replaces these with concrete post and rail fences. This has resulted in updated resource requirements for the onshore construction and is assessed in Section 31.5.

31.1 Introduction

There are no changes to this section. Refer to Section 31.1 of Chapter 31 of the 2024 EIAR.

31.2 Methodology

31.2.1 Sustainable Resource and Waste Management Principles

There are no changes to this section or Sections 31.2.1.1 and 31.2.1.2. Refer to Section 31.2.1 and Sections 31.2.1.1 and 31.2.2.2 of Chapter 31 of the 2024 EIAR.

31.2.2 Study Area

There are no changes to this section. Refer to Section 31.2.2 of Chapter 31 of the 2024 EIAR.

31.2.3 Policy and Guidelines

To comply with RFI 1 (b), the only change to this section is to update the list of policy and guidelines documents which were considered when preparing the addendum to Chapter 31 of the 2024 EIAR. Since submission, the Environmental Protection Agency (EPA) published a number of updated statistics and there are reflected below and further expanded upon in Section 31.3.

Therefore, the following should be deleted from Section 31.2.3 of the 2024 EIAR:

- *Environmental Protection Agency (EPA) (2023a). Construction and Demolition Waste Statistics for Ireland;*
- *EPA (2023b). Hazardous Waste Statistics for Ireland;*
- *EPA (2023c). Municipal Waste Statistics for Ireland;*

- *EPA (2023d). Biodegradable municipal waste to landfill;*

And replaced with the following:

- Environmental Protection Agency (EPA) (2025a). Construction and Demolition Waste Statistics for Ireland;
- EPA (2025b). Hazardous Waste Statistics for Ireland;
- EPA (2025c). Municipal Waste Statistics for Ireland; and
- EPA (2025d). Biodegradable municipal waste to landfill.

In addition, the following shall also be included in Section 31.2.3:

- Department of Climate, Energy and the Environment (2025). Climate Action Plan 2025;
- EPA (2024). Recovery and Disposal of Municipal Waste; and
- European Commission (EC) (2024). EU Construction and Demolition Waste Management Protocol and Guidelines.

31.2.4 Legislation

To comply with RFI 1 (b), the only change to this section is to update the list of legislation documents which were considered when preparing the addendum to Chapter 31 of the 2024 EIAR. Since submission, the Waste Framework Directive (Directive 2008/98/EC) was amended on 10 September 2025.

Therefore, the following text shall be deleted from Section 31.2.4 of Chapter 31 of the 2024 EIAR:

"Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste (the 'Waste Framework Directive')"

And replaced with the following text:

Directive (EU) 2025/1892 of the European Parliament and of the Council of 10 September 2025 amending Directive 2008/98/EC on waste (the 'Waste Framework Directive').

In addition, Appendix 31.1 has been updated. Therefore, the following text shall be deleted from Section 31.2.4 of Chapter 31 of the 2024 EIAR:

"A summary of key legislation, policy and guidelines is included in Volume 11, Appendix 31.1."

And replaced with the following text:

A summary of key legislation, policy and guidelines is included in Volume 11, Appendix A31.1.

There are no other changes required to this section. Refer to Section 31.2.4 of Chapter 31 in the 2024 EIAR.

31.2.5 Appraisal Method for Assessment of Impacts

There are no changes to this section or Sections 31.2.5.1 to 31.2.5.4. Refer to Section 31.2.5 and Sections 31.2.1.1 and 31.2.2.2 of Chapter 31 of the 2024 EIAR.

31.2.6 Data Collection and Collation

There are no changes to this section. Refer to Section 31.2.6 of Chapter 31 of the 2024 EIAR.

31.2.7 Waste Management Principles

There are no changes to this section or Sections 31.2.7.1 to 31.2.7.3. Refer to Section 31.2.1 and Sections 31.2.7.1 to 31.2.7.3 of Chapter 31 of the 2024 EIAR.

31.3 Baseline Environment

31.3.1 Construction Waste

31.3.1.1 National

This section has been updated to account for updated national waste statistics and list of waste codes to comply with RFI 1 (b). Therefore, the following text shall be deleted from Section 31.3.1.1 of Chapter 31 of the 2024 EIAR:

"List of Waste (LoW) codes for typical C&D wastes are included in Volume 11, Appendix 31.2. The LoW codes provide context as to the main C&D wastes likely to arise from activities within both the offshore development area and the onshore development area (see Section 31.4).

In 2021, the latest year for which there are published statistics available, 9 million tonnes of C&D waste were generated in Ireland, representing an increase of 800,000 tonnes from 2020 (EPA, 2023a). Of this waste, approximately 7.7 million tonnes comprised of soil and stones, making up approximately 85% of the material waste stream.

A breakdown of the composition of C&D waste in Ireland in 2021 is set out in Table 31.2. These figures should be considered as a guide only, as C&D waste can vary significantly from one project to another, depending on the nature of the development and the waste management practices employed on site."

And replaced with:

List of Waste (LoW) codes for typical C&D wastes are included in Volume 11, Appendix A31.2. The LoW codes provide context as to the main C&D wastes likely to arise from activities within both the offshore development area and the onshore development area (see Section 31.4).

In 2023, the latest year for which there are published statistics available, 9 million tonnes of C&D waste were generated in Ireland, representing an increase of 700,000 tonnes from 2022, according to the EPA (EPA, 2025a). Of this waste, approximately 7.3 million tonnes comprised soil and stones, making up approximately 81% of the material waste stream.

A breakdown of the composition of C&D waste in Ireland in 2023 is set out in Table A31.1 These figures should be considered as a guide only, as C&D waste can vary significantly from one project to another, depending on the nature of the development and the waste management practices employed on site.

Table 31.2 of Chapter 31 in the 2024 EIAR shall be deleted and replaced with Table A31.1 as the quantities of waste materials has been updated from 2021 to 2023.

Table A31.1: C&D waste composition in 2023 (EPA, 2025a)

Waste materials from C&D Sources	Quantity (tonnes)	Proportion of material stream (%)
Soils stone and dredging spoil	7,346,781	81%
Concrete, bricks, tile and gypsum	613,054	7%
Mixed C&D waste	679,762	8%
Metal	212,700	2%
Bituminous mixtures	121,412	1%
Segregated wood, glass and plastic	68,694	1%
Total	**9,042,403**	**100%**

The following text shall be deleted from Section 31.3.1.1 of Chapter 31 in the 2024 EIAR:

"Data issued by the EPA demonstrates that final treatment operations (backfilling, recycling, energy recovery, disposal) of C&D waste materials varied greatly between material streams. 85% of C&D waste was used for backfilling (a recovery operation), which mainly reflects the dominance of soil and stones in the overall composition mix.

The EPA reports that Ireland achieved 85% material recovery of C&D waste in 2021 (EPA, 2023a). Under the Waste Framework Directive Member States must achieve 70% of material recovery of non-hazardous, non-soil-and-stone C&D waste by 2020."

And replaced with the following text:

Data issued by the EPA demonstrates that final treatment operations (backfilling, recycling, energy recovery, disposal) of C&D waste materials varied greatly between material streams.

By far the largest quantity (75%) of C&D waste was used for backfilling, which generally reflects the dominance of soil and stones in the overall composition mix.

The EPA reports that Ireland achieved 73% material recovery of construction and demolition waste in 2023 (EPA, 2025a). Under the Waste Framework Directive member states must have achieved 70% of material recovery of non-hazardous, non-soil-and-stone C&D waste by 2020 and Ireland successfully achieved this.

The following text shall also be deleted from Section 31.3.1.1 of Chapter 31 in the 2024 EIAR:

"On receipt of Regulation 27 notifications to the EPA, materials can be determined as a waste or a by-product. In some cases, no determination has been issued by the EPA, meaning the material has not been determined as a waste. In 2021, the EPA received by-product notifications for approximately 12.5 million tonnes of soil and stones material (EPA, 2023a). The EPA determined that 459,836 tonnes of the soil and stone notified were by-product, as notified, and 600 tonnes were waste. Notifications for 152,400 tonnes were withdrawn. The estimated quantity of soil and stone material notified in 2021 for which no determination was made was approximately 11.9 million tonnes.

The EPA reports that a total of 466,941 tonnes of hazardous waste was generated in Ireland in 2021, representing a decrease of over 90,000 tonnes (or 16%) since 2020 (EPA, 2023b). Hazardous waste types include wastes from dredging spoil, contaminated soils, waste treatment, solvents and hazardous elements of waste electrical and electronic equipment. The EPA notes that 2021 is the first year that Ireland treated a higher percentage of hazardous waste (52%) than was exported for treatment."

And replaced with the following text:

On receipt of Regulation 27 notifications to the EPA, materials can be determined as a waste or a by-product. In some cases, no determination has been issued by the EPA, meaning the material has not been determined as a waste. In 2023, 293 by-product notifications were assessed by the EPA. The EPA determined that 2,713,700 tonnes of the soil and stone notified were by-products, as notified, and that 104,238 tonnes were waste. Notifications for 87,300 tonnes were withdrawn (EPA, 2025a).

The EPA reports that a total of 381,764 tonnes of hazardous waste was generated in Ireland in 2023, representing a decrease of over 8,000 tonnes since 2022. Hazardous waste types include wastes from dredging spoil, contaminated soils, waste treatment, solvents and hazardous elements of waste electrical and electronic equipment. In 2023, 50% of hazardous waste was exported for treatment, with 50% treated in Ireland (EPA, 2025b).

31.3.1.2 Regional

The Regional Waste Management Planning Offices (RWMPO) have not published updated data in relation to regional statistics. Therefore, there are no changes required to this section. Refer to Section 31.3.1.2 of Chapter 31 in the 2024 EIAR.

31.3.2 Resource Use

The only change to this section is to provide an update with the latest annual production figures from the Irish Concrete Federation in compliance with RFI 1 (b). This reflects the change that road surfacing materials are not included with the latest update, and that agricultural lime has been included.

Therefore, the following text shall be deleted from Section 31.3.2 of Chapter 31 in the 2024 EIAR:

"The Irish Concrete Federation quantifies the annual production of these materials in Ireland on their website (Irish Concrete Federation, 2024), with the 2022 figures (the most recent available) being as follows:

- *Five million cubic metres of ready-mixed concrete;*
- *135 million concrete blocks;*
- *38 million tonnes of aggregates;*
- *Two million tonnes of bituminous road surfacing materials; and*
- *Two million square metres of paving products."*

And replaced with the following text:

The Irish Concrete Federation (ICF), the national representative organisation for the Irish aggregates and concrete products industry, quantifies the annual production of these materials in Ireland on their website, with the 2024 figures (the most recent available) being as follows (ICF, 2025):

- Four million cubic metres of ready-mixed concrete;
- 120 million concrete blocks;
- 38 million tonnes of aggregates; and
- One million tonnes of agricultural lime.

31.3.3 Municipal Waste

This section requires an update to account for recent statistics published by the EPA in compliance with RFI 1 (b).

Therefore, the following text shall be deleted from Section 31.3.3 of Chapter 31 of the 2024 EIAR:

"Municipal waste will be generated in small quantities during the construction, operational and decommissioning phases of the proposed development. Municipal waste in Ireland is made up of household waste as well as commercial and other waste that, because of its nature of composition, is similar to household waste. According to the EPA, Ireland generated 3.17 million tonnes of municipal waste in 2021 (EPA, 2023c).

Of the 3.17 million tonnes of municipal waste generated in Ireland in 2021, 41% was used in energy recovery, 26% was used in material recycling, 16% was landfilled, 15% was used in composting / anaerobic digestion and 1% was unmanaged. Of the 3.17 million tonnes of municipal waste, 57% is estimated to be from households and 43% is estimated to be from commercial and public service sources. Since 2001, significant changes have occurred in the management of municipal waste in Ireland, notably the dramatic decline in landfilling over this period, accompanied by increased levels of recycling in the early 2000s and subsequently an increase in the share of municipal waste sent for energy recovery since 2011.

Biodegradable municipal waste (BMW) comprises those elements of the municipal waste stream that will degrade biologically, for example food waste, garden and parks waste, wastepaper and cardboard. Under the Landfill Directive, Ireland is committed to meeting targets for the diversion of BMW from disposal to landfill. The quantity of BMW disposed to landfill in 2022 was 129,572 tonnes (EPA, 2023d)."

And replaced with the following text:

Municipal waste in Ireland is made up of household waste, commercial waste and other waste that, because of its nature or composition, is similar to household waste. According to the EPA, Ireland generated 3.13 million tonnes of municipal waste in 2023 (EPA, 2025c).

Of the 3.13 million tonnes of municipal waste generated in Ireland in 2023, 43% was used in energy recovery, 26% was used in material recycling, 14% was landfilled, 15% was used in composting/anaerobic digestion and 2% was unmanaged. Since 2001, significant changes have occurred in the management of municipal waste in Ireland, notably the dramatic decline in landfilling over this period, accompanied by

increased levels of recycling in the early 2000s and subsequently an increase in the share of municipal waste sent for energy recovery since 2011 (EPA, 2025c).

Biodegradable municipal waste (BMW) comprises those elements of the municipal waste stream that will degrade biologically, for example food waste, garden and parks waste, wastepaper and cardboard. Under the Landfill Directive, Ireland is committed to meeting targets for the diversion of BMW from disposal to landfill. The quantity of BMW disposed to landfill in 2023 was 169,864 tonnes (EPA, 2025d).

31.4 Characteristics of the Proposed Development

There is no change to the introductory text of this section. Refer to Section 31.4 of Chapter 31 in the 2024 EIAR.

31.4.1 Construction Phase

31.4.1.1 Offshore

There are no changes to this section. Refer to Section 31.4.1.1 of Chapter 31 in the 2024 EIAR.

31.4.1.2 Onshore

There are no changes to this section. Refer to Section 31.4.1.2 of Chapter 31 in the 2024 EIAR.

31.4.2 Operational Phase

There are no changes to this section. Refer to Section 31.4.2 of Chapter 31 in the 2024 EIAR.

31.4.3 Decommissioning Phase

There are no changes to this section. Refer to Section 31.4.3 of Chapter 31 in the 2024 EIAR.

31.4.4 Offshore Assessment

As noted in the introduction to this chapter, the design parameters of Project Option 1 and Project Option 2 have been updated to account for the design refinements in relation to the RFI (see Appendix A5.1 for further information). As a result of this, monopile foundations have been removed from the project design. The foundation types have therefore been changed to include only suction bucket jacket (SBJ) foundations for the wind turbine generators (WTGs), and the option for SBJs or jacket foundations with drilled pin piles for the OSP. Therefore, the quantities associated with the construction of Project Option 1 and Project Option 2 have changed.

Following this update, Project Option 1 remains the option that will cause the greatest magnitude of resource use impact during construction phase.

Therefore, the following text shall be deleted from Section 31.4.4 of Chapter 31 in the 2024 EIAR:

"Project Option 2 represents the option that will cause the greatest magnitude of waste generation impact during the construction phase. Project Option 1 will have an equal or lower magnitude of waste generation impact during the construction phase."

And replaced with the following text:

Project Option 1 represents the option that will cause the greatest magnitude of waste generation impact during the construction phase. Project Option 2 will have an equal or lower magnitude of waste generation impact during the construction phase.

Table 31.8 shall also be replaced in its entirety with Table A31.2 due to the change in quantities associated with the construction of Project Option 1 and Project Option 2. This is to account for the foundation design change from the option between monopile foundations or jacket foundations with pin piles, to only SBJ foundations for the WTGs. In addition, the OSP no longer includes monopile foundations. Instead, the OSP will be secured to the seabed using either SBJ foundations, or jacket foundations with pin piles.

For clarity, all changes in Table A31.2 are highlighted in grey, with the blue shaded cells continuing to represent the Project Option which presents the greatest magnitude of potential impact.

Table A31.2: Project Option Assessment. The Project Option that has the greatest magnitude of impact is identified in blue.

Parameter	Project Option 1 (49 WTG)	Project Option 2 (35 WTG)	Rationale for the project option with the greatest magnitude of impact
Resource use			
WTG materials	Steel: 73,500 tonnes Fiberglass, resin or plastic: 11,025 tonnes Iron or cast iron: 7,840 tonnes Copper: 1,470 tonnes	Steel: 70,000 tonnes Fiberglass, resin or plastic: 9,625 tonnes Iron or cast iron: 8,750 tonnes Copper: 1,470 tonnes	Project 1 represents the Project Option with the greatest magnitude of impact associated with resource use for the WTG materials. The greatest likely significant effect for WTG construction results from the greater quantity of material required for Project Option 1.
WTG foundations – jacket foundations with suction bucket caissons (SBJs)	Primary steel – 210,000 tonnes Concrete – 0 Grouting – 173,180m^3 Secondary steel – 160 tonnes Galvanic anode cathodic protection (GACP) anodes (zinc or aluminium) – 20 tonnes Scour protection (rocks) – 584,493m^2	Primary steel – 168,000 tonnes Concrete – 0 Grouting – 123,700m^3 Secondary steel – 160 tonnes Galvanic anode cathodic protection (GACP) anodes (zinc or aluminium) – 20 tonnes Scour protection (rocks) – 420,835m^2	Project Option 1 represents the Project Option with the greatest magnitude of impact associated with resource use for the WTG foundations. The greatest likely significant effect for foundation installation results from the greater quantities of steel and grouting required for the greater number of SBJs foundations for Project Option 1. Whilst there is a greater volume of rocks required for scour protection for Project Option 2, the difference does not negate the greater steel and grout demand due to the natural occurrence and local availability of rocks for scour protection.
Offshore substation platform (OSP) – topside	Steel: 1,000 tonnes Copper: 150 tonnes Transformer oil: 200 tonnes	Steel: 1,000 tonnes Copper: 150 tonnes Transformer oil: 200 tonnes	The design of the OSP topside is consistent across both Project Options. Therefore, there is no difference in impacts between the two. However, of the foundation options considered, SBJ foundations have the greater magnitude of impact due to the increased quantity of materials required for construction.
Offshore substation platform (OSP) – jacket foundations on suction bucket caissons (SBJs)	Steel: 4,000 tonnes Concrete: 0 Grouting: 3,530m^3	Steel: 4,000 tonnes Concrete: 0 Grouting: 3,530m^3	

Parameter	Project Option 1 (49 WTG)	Project Option 2 (35 WTG)	Rationale for the project option with the greatest magnitude of impact
Offshore substation platform (OSP) – jacket foundations on pin piles	Steel: 3,000 tonnes Concrete: 0 Grouting: 230	Steel: 3,000 tonnes Concrete: 0 Grouting: 230	
Subsea electrical cables	Subsea inter-array cables: 111km Export cables: 36km Subsea inter-array cable protection (including cable crossing protection): 138,400m^3 Export cable protection: 43,200m^3 Subsea electrical cables will comprise a variety of materials, such as copper, aluminium, plastic and composite materials.	Subsea inter-array cables: 91km Export cables: 36km Subsea inter-array cable protection: 114,400m^3 Export cable protection: 42,200m^3 Subsea electrical cables will comprise a variety of materials, such as copper, aluminium, plastic and composite materials.	Project Option 1 represents the Project Option with the greatest magnitude of impact associated with resource use for the subsea electrical cables. The greatest likely significant effect for inter-array cabling results from the greater quantities of cables required for Project Option 1. The approximate length of export cabling required is the same across both Project Options.
Waste generated			
Drill cuttings for OSP with jacket foundations and pin piles	Jacket foundations with pin piles (OSP): 10,180m^3	Jacket foundations with pin piles (OSP): 10,180m^3	There is no difference in magnitude of impact between Project Option 1 or Project Option 2 for wastes generated from the construction of the OSP.

31.5 Potential Effects

There are no changes to the introduction of this section. Refer to Section 31.5 of Chapter 31 of the 2024 EIAR.

31.5.1 'Do-Nothing' Scenario

There are no changes to this section. Refer to Section 31.5.1 of Chapter 31 of the 2024 EIAR.

31.5.2 Offshore Construction Phase

31.5.2.1 Offshore Seabed Preparation

There are no changes to this section. Refer to Section 31.5.2.1 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative, and slight for both Project Options, which is not significant in EIA terms.

31.5.2.2 Offshore Installation

The Developer notes that preparatory dredging is no longer required due to the design amendments made in response to the RFI (see Appendix A5.1 for further information). However, it is important to note that the significance of effect remains unchanged from the 2024 EIAR and is negative, and slight for both Project Options, which is not significant in EIA terms.

Therefore, the following text shall be deleted from Section 31.5.2.2 of Chapter 31 of the 2024 EIAR:

"The material generated from the preparatory dredging works and the drill cutting works will be distributed evenly across the array area, which represents an area of 89km^2. As Ireland's seabed territory covers an area of approximately 880,000km^2 (Marine Institute, 2022), this represents a very small area of impact. Historic offshore ground investigation results indicate that no hazardous material will be generated from the preparatory dredging works and the drill cutting works."

There are no changes required to this section. Refer to Section 31.5.2.2 of Chapter 31 of the 2024 EIAR.

31.5.2.3 Offshore Resource Use

As noted in Section 31.4.4, monopile foundations are no longer considered for either project options and have been replaced by SBJ foundations for WTGs, and SBJ foundations or jacket foundations with drilled pin piles for the OSP.

Therefore, the following text shall be deleted from Section 31.5.2.3 of Chapter 31 of the 2024 EIAR:

"The foundation types that are being considered for the WTGs are monopile foundations and jacket foundations (jacket foundations are only considered for Project Option 2). The foundation types considered for the OSP are a single monopile, a double monopile configuration or a jacket foundation with piles. In each foundation type, steel will be required. For jacket foundations, grout is required to secure the jacket substructure to the pile foundation as described in Section 8.3.3 of the Offshore Construction Chapter."

And replaced with the following text:

The foundation types that are being considered for the WTGs are SBJs for both project options. The foundation types considered for the OSP are a jacket foundation with SBJs, or a jacket foundation with drilled pin piles. In each foundation type, steel and grout will be required to secure the jacket substructure to the seabed as described in Section 8.3.3 of the Offshore Construction Chapter [of the 2024 EIAR].

In addition, as SBJ foundations and jackets with drilled pin piles are now the only design options for the OSP, the following text from Section 31.5.2.3 of Chapter 31 of the 2024 EIAR shall be deleted:

"One OSP design will be used for the proposed development.

However, detailed design will determine whether the foundations for the OSP will require a single monopile, two monopiles or jacket foundations. The quantities of materials required for all designs are presented in Table 31.8, with jacket foundations requiring the greatest volume of resources."

And replaced with the following text:

One OSP design will be used for the proposed development. However, detailed design will determine whether the foundations for the OSP will require SBJ foundations, or a jacket foundation with drilled pin piles. The quantities of materials required for all designs are presented in Table A31.2, with SBJ foundations requiring the greatest volume of resources.

There are no further changes required to this section. Whilst the resource quantities have changed with the design refinements noted at the outset of this chapter, the significance of effect remains unchanged. Therefore, the significance of effect with offshore resource use remains negative and slight, which is not significant in EIA terms.

31.5.2.4 Offshore General Construction Waste

There are no changes to this section. Refer to Section 31.5.2.4 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative, and slight for both project options, which is not significant in EIA terms.

31.5.2.5 Offshore Municipal Waste

There are no changes to this section. Refer to Section 31.5.2.4 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative, and not significant for both project options, which is not significant in EIA terms.

31.5.2.6 Summary of Offshore Construction Phase Effects

There are no changes required to this section. Refer to Section 31.5.2.6 of Chapter 31 of the 2024 EIAR.

Therefore, there are no significant offshore construction phase effects associated with the proposed development on resource and waste management.

31.5.3 Onshore Construction Phase

31.5.3.1 Onshore Site Clearance

There are no changes to this section. Refer to Section 31.5.3.1 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative, not significant and short-term, which is not significant in EIA terms.

31.5.3.2 Onshore Excavation

There are no changes to this section. Refer to Section 31.5.3.2 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative, moderate and short-term, which is not significant in EIA terms.

31.5.3.3 Onshore Resource Use

As noted in Sections 7.4.3.1 and 7.4.3.2 in Chapter 7, the landscape plan for the Grid Facility has been updated in response to RFI Section 13 (e). This update includes for the replacement of palisade fencing with concrete post and rail fencing for the perimeter boundary fence at the grid facility. This has resulted in an increase of approximately 55m^3 of concrete. With a conversion factor of 2.4 tonnes per m^3, this equates to 132 tonnes of additional concrete required for the onshore construction phase. For ease of reference, this change has been highlighted in grey Table A31.3. There are no other changes to the quantity of construction materials required for onshore construction.

Table A31.3: Estimated quantity of construction materials required for onshore infrastructure

Material	Estimated quantity
Surface course (asphalt)	1,900 tonnes
Base / binder course (asphalt)	7,700 tonnes
Sub-base (crushed stone)	18,900 tonnes
Capping (crushed stone) incl. compound / access track stone	64,900 tonnes
Cement bound granular mixture	68,400 tonnes
Water (HDD)	37,800 m^3
Bentonite (HDD)	1,900 tonnes
Concrete for HDD anchor block (per HDD compound)	3,100 tonnes
Concrete (for substation foundation / slabs)	4,800 tonnes
Concrete (for grid facility site boundary post and rail fencing)	132 tonnes
Steel reinforcement (for substation foundations / slabs)	150 tonnes
Structural steel (for substation buildings)	300 tonnes
Steel cladding (for substation buildings walls / roofs)	10,500 m^2
HDPE ducting	317,000 m
Power cables (onshore export circuit – comprising various materials, including metals, plastics and composite materials)	15,000 m
Power cables (onshore transmission circuit – comprising various materials, including metals, plastics and composite materials)	214,800 m
Earthing cable (comprising various materials, including metals, plastics and composite materials)	78,600 m
Fibre optic cable (comprising various materials, including metals, plastics and composite materials)	78,600 m
Concrete (for joint bays, link boxes, comms chambers)	21,600 tonnes
Temporary access tracks / contractor compound bases	47,300 m^2

Therefore, there are no other changes required to this section. The significance of effect remains unchanged from the 2024 EIAR and is negative, slight and permanent, which is not significant in EIA terms.

31.5.3.4 Onshore General Construction Waste

There are no changes required to this section. Refer to Section 31.5.3.4 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative, not significant and short-term, which is not significant in EIA terms.

31.5.3.5 Onshore Municipal Waste

There are no changes required to this section. Refer to Section 31.5.3.5 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative, not significant and short-term, which is not significant in EIA terms.

31.5.3.6 Summary of Onshore Construction Phase Effects

There are no changes required to this section. Refer to Section 31.5.3.6 of Chapter 31 of the 2024 EIAR.

Therefore, there are no significant onshore construction phase effects associated with the proposed development on resource and waste management.

31.5.4 Operational Phase

31.5.4.1 Offshore C&D Waste

There are no changes required to this section. Refer to Section 31.5.4.1 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative and slight, which is not significant in EIA terms.

31.5.4.2 Onshore C&D Waste

There are no changes required to this section. Refer to Section 31.5.4.2 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative, not significant and long-term, which is not significant in EIA terms.

31.5.4.3 Offshore and Onshore Municipal Waste

There are no changes required to this section. Refer to Section 31.5.4.3 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative and not significant, which is not significant in EIA terms.

31.5.4.4 Offshore and Onshore Resource Use

There are no changes required to this section. Refer to Section 31.5.4.4 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative and not significant, which is not significant in EIA terms.

31.5.4.5 Summary of Operational Phase Impacts

There are no changes required to this section. Refer to Section 31.5.4.5 of Chapter 31 of the 2024 EIAR.

Therefore, there are no significant operational phase effects associated with the proposed development on resource and waste management.

31.5.5 Decommissioning

There is no change required to the introductory text of this section. Refer to Section 31.5.5 of Chapter 31 in the 2024 EIAR.

31.5.5.1 Offshore C&D Waste

There are no changes required to this section. Refer to Section 31.5.5.1 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative and moderate, which is not significant in EIA terms.

31.5.5.2 Onshore C&D Waste

There are no changes required to this section. Refer to Section 31.5.3.4 of Chapter 31 of the 2024 EIAR.

Therefore, the significance of effect remains unchanged from the 2024 EIAR and is negative, slight and short-term, which is not significant in EIA terms.

31.5.5.3 Summary of Decommissioning Phase Impacts

There are no changes required to this section. Refer to Section 31.5.5.3 of Chapter 31 of the 2024 EIAR.

Therefore, there are no significant decommissioning phase effects associated with the proposed development on resource and waste management.

31.6 Mitigation and Monitoring Measures

There are no changes required to introductory text in this section. Refer to Section 31.6 of Chapter 31 of the 2024 EIAR.

31.6.1 Construction Phase

There are no changes required to this section, or Sections 31.6.1.1 to 31.6.1.3. Refer to Section 31.6.1 and Sections 31.6.1 to 31.6.3 of Chapter 31 of the 2024 EIAR.

31.6.2 Operational Phase

There are no changes required to this section. Refer to Section 31.6.2 of Chapter 31 of the 2024 EIAR.

31.6.3 Decommissioning

There are no changes required to this section. Refer to Section 31.6.3 of Chapter 31 of the 2024 EIAR.

31.7 Residual Effects

31.7.1 Construction Phase

There are no changes required to this section. Refer to Section 31.7.1 of Chapter 31 of the 2024 EIAR.

Therefore, there are no residual significant onshore or offshore construction phase effects associated with the proposed development on resource and waste management.

31.7.2 Operational Phase

There are no changes required to this section. Refer to Section 31.7.2 of Chapter 31 of the 2024 EIAR.

Therefore, there are no residual significant operational phase effects associated with the proposed development on resource and waste management.

31.7.3 Decommissioning

There are no changes required to this section. Refer to Section 31.7.3 of Chapter 31 of the 2024 EIAR.

Therefore, there are no residual significant decommissioning phase effects associated with the proposed development on resource and waste management.

31.8 Transboundary Effects

There are no changes required to this section. Refer to Section 31.8 of Chapter 31 of the 2024 EIAR.

Therefore, the previous conclusion that there will be no significant transboundary effects on resource and waste management arising from the proposed development remains unchanged.

31.9 Cumulative Effects

The Cumulative Effects Assessment (CEA) is presented in Volume 6, Chapter 38: Cumulative and Inter-Related Effects (hereafter referred to as 'Chapter 38'). In response to RFI Section 5, the CEA has been updated to align with the UK Guidance document *Nationally Strategic Infrastructure Projects (NSIP) Advice on Cumulative Effects Assessment*. Therefore, the entirety of Section 31.9 of Chapter 31 of the 2024 EIAR shall be deleted and replaced with the text herein:

A long list of "other projects" which were deemed to be potentially relevant to be included in the cumulative impact assessment was compiled (refer to Volume 6, Chapter 38: Cumulative and Inter-related Effects (hereafter referred to as 'Chapter 38')). A screening exercise of the "long list" was carried out in order to determine whether each of those other projects have the potential to give rise to likely significant cumulative effects with the proposed development from a resource and waste perspective. Many of the other projects were screened out for a number of reasons including their location, scale and nature of the project. Those projects which were "screened in" were carried forward for assessment. The results of the assessment are presented in Section 38.2.3.22 of Chapter 38.

The assessment concluded an outcome of a direct, negative, significant, short-term cumulative effect on the capacity of waste management facilities and waste industry trends in Ireland during the construction phase due to an increased demand on waste recovery and / or disposal sites. This is as a result of the potential cumulative effect of a number of Onshore Projects that were "screened in" to the assessment should the construction of the proposed development proceed in parallel or overlap with the construction of these projects.

As noted in Section 31.7.1, waste management effects from the proposed development alone on the capacity of waste management facilities and waste industry trends in Ireland during the construction phase due to an increased demand on waste recovery and / or disposal sites will range from direct, negative, not significant to direct, negative, moderate. The assessment concluded that there are no likely significant direct or indirect cumulative effects on resource use during the construction phase, resource use and waste management during the operational phase, or resource use and waste management during the decommissioning phase of the proposed development.

31.10 References

In response to RFI Section 1 (b), updates were made to provide up to date information in this chapter.

Therefore, the following references shall be deleted from Section 31.10 of Chapter 31 of the 2024 EIAR:

Environmental Protection Agency (EPA) (2023a). *Construction and Demolition Waste Statistics for Ireland*;

EPA (2023b). *Hazardous Waste Statistics for Ireland;*

EPA (2023c). *Municipal Waste Statistics for Ireland;*

EPA (2023d). *Biodegradable municipal waste to landfill;*

And the following references shall be added to Section 31.10 of Chapter 31 of the 2024 EIAR:

Department of Climate, Energy and the Environment (DCEE) (2025). *Climate Action Plan 2025*.

European Commission (EC) (2024). *EU Construction and Demolition Waste Management Protocol and Guidelines.*

Environmental Protection Agency (EPA) (2025a). *Construction and Demolition Waste Statistics for Ireland.*

EPA (2025b). *Hazardous Waste Statistics for Ireland.*

EPA (2025c). *Municipal Waste Statistics for Ireland.*

EPA (2025d). *Biodegradable municipal waste to landfill.*

European Union (2025) Directive (EU) 2025/1892

Irish Concrete Federation (ICF) (2025). *Industry at a Glance* [Online]. Available from: https://irishconcrete.ie/industry-at-a-glance/ [Accessed: December 2025]

There are no further changes required to this section. Refer to Section 31.10 of Chapter 31 in the 2024 EIAR.